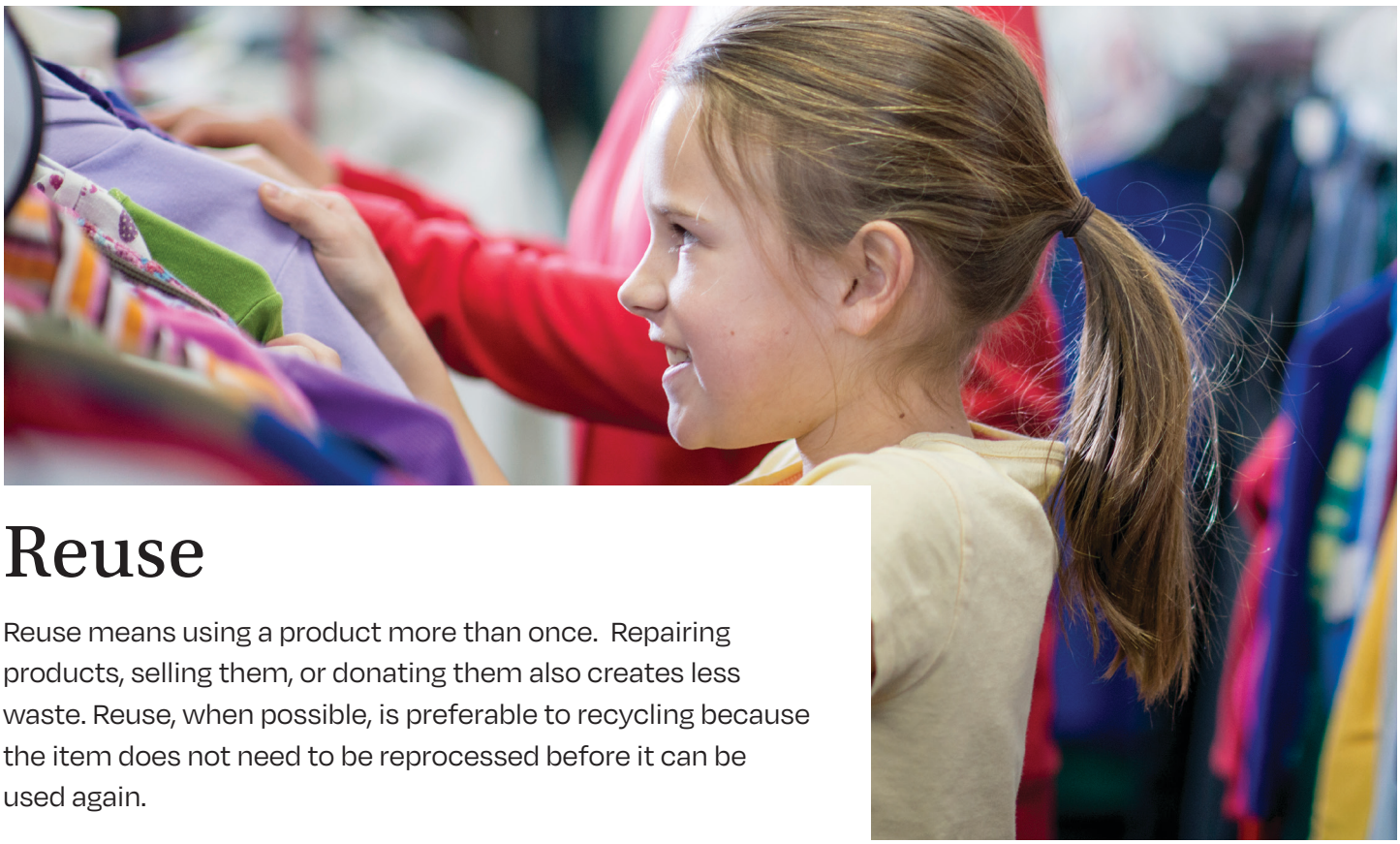
Waste Management
Annual Report **2019**

Contents

Reduce

Waste reduction or waste prevention is about minimizing waste at the source, so it is not created in the first place. Reducing waste is often the most difficult of the 4 R's. It requires more planning and making informed choices about products and packaging. Examples of reducing waste are drinking municipal tap water, buying in bulk or meal planning to reduce food waste. Reducing waste is always the best waste management option.



Reuse

Reuse means using a product more than once. Repairing products, selling them, or donating them also creates less waste. Reuse, when possible, is preferable to recycling because the item does not need to be reprocessed before it can be used again.

Recycle

Recycling is an effective way to manage products and packaging. It prevents these materials from being sent for disposal and allows for them to be remanufactured into new goods or products.

Recover

After we have reduced, reused and recycled (including composting) as much as possible, the remaining waste can be used to generate energy. This is known as 'recovery'. By recovering the energy from the waste, we are significantly decreasing methane produced by landfills and offsetting the consumption of other fuels to produce energy.

Introduction

The Regional Municipality of Durham 2019 Annual Waste Management Report summarizes Durham Region's integrated waste management system. This report is submitted annually to the Ministry of the Environment, Conservation and Parks to satisfy the Durham York Energy Centre Environmental Assessment condition for diversion reporting.

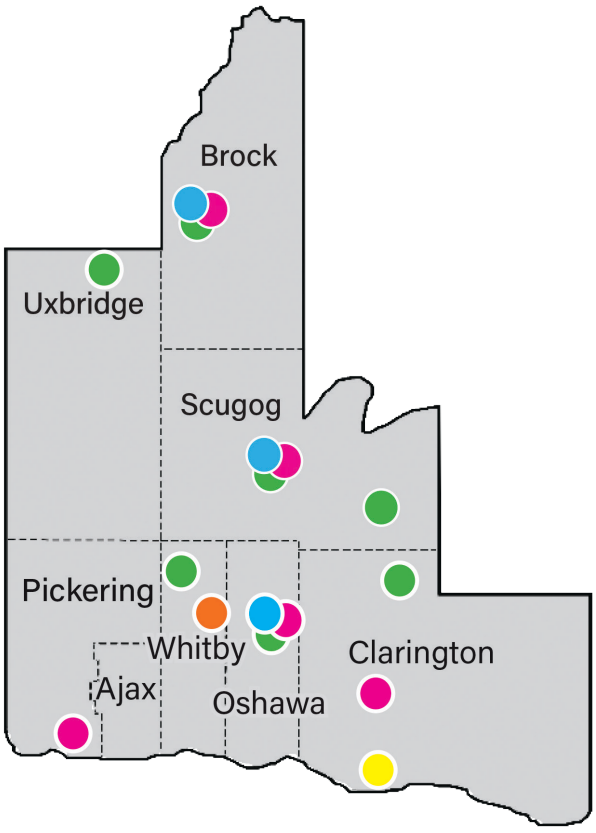
Durham Region borders the City of Toronto to the east within the Greater Toronto Area and encompasses an area of approximately 2,590 square kilometres (1,000 square miles). The area is characterized by a variety of landscapes and communities. A series of major lakeshore urban communities' contrast with a variety of small towns, villages, hamlets and farmland.

As an upper-tier municipal government, Durham Region provides programs and services to almost 223,000 households within eight municipalities: Ajax, Brock, Clarington, Oshawa, Pickering, Scugog, Uxbridge and Whitby. The Region continues to deliver innovative waste reduction, diversion and disposal programs to meet the needs of our growing population.

Durham Region is one of the fastest growing municipalities in North America with its population expected to grow to 1.2 million by 2041 from an estimated 691,585 people at year-end 2018. Rapid, diverse population growth and urban intensification will impact the Region's future service delivery models and the amount of waste the Region will manage.

Waste Management Facility Locations in Durham Region

- Waste Management Facility
- Household Hazardous Waste Depot
- Inactive Landfill Site
- Material Recovery Facility
- Durham York Energy Centre



Roles and Responsibilities

Collection

Durham Region manages curbside collection of residential recycling, organics, leaf and yard waste and garbage in Ajax, Brock, Clarington, Pickering, Scugog and Uxbridge.

The Region only collects recycling in Whitby and Oshawa, but partners with both municipalities to ensure uniform collection programs Region-wide.

Bulky, metal goods, waste electrical and electronic equipment, battery and porcelain collection is also provided to single family homes in Ajax, Brock, Clarington, Pickering, Scugog and Uxbridge by the Region.

In addition to curbside collection services, the Region, in partnership with local municipalities, offered local waste reduction initiatives in 2019 such as:

Spring compost events; one in each municipality (total of eight).

Special Waste Electrical and Electronic Equipment drop-off events and household hazardous waste drop-off events (total of four).

Reuse drop-off events held from March to October, in partnership with local charities (total of eight).

Almost 400 multi-residential buildings and townhouses are also serviced by the Region of Durham's weekly waste collection programs.

Onsite collection services offered in the buildings include recyclables, battery and e-waste collection.

Processing

Following collection, the processing of recyclables, organics, yard waste and garbage is handled by Durham Region. This is accomplished through a combination of Regional blue box processing, external contracts for the treatment of organics and leaf and yard waste and energy-from-waste recovery.

Disposal

Durham Region manages disposal of waste from all eight of its lower tier municipalities. Within the Region's 4R hierarchy (reduce, reuse, recycle, recover), the preferred final disposal destination is energy-from-waste to maximize the benefit of capturing energy from residual waste.

Diversion Achievements

Durham Region submits an annual datacall to the province through the Resource Productivity and Recovery Authority (RPRA), to receive funding from producers to assist with costs of operating the Blue Box program. The datacall is the source of data used to confirm municipal diversion rates across the province.

RPRA Annual Waste Diversion

2015 – 54% 1st for Urban Regional Municipalities

2016 – 55% 1st for Urban Regional Municipalities

2017 – 65%* 1st for Urban Regional Municipalities, 3rd Overall in the Province

2018 – 64% 1st for Urban Regional Municipalities, 3rd (tied) Overall in the Province

2019 – 63%** pending verification

All values are rounded.

RPRA diversion numbers from landfill after curbside collection does not include Durham Region's approved energy-from-waste initiatives.

*Updated from 55 per cent to reflect finalized 2017 RPRA diversion rate. First year RPRA recognized recycled materials recovered through energy-from-waste.

**2019 diversion data presented is unverified by RPRA at time of printing.

Tonnes Collected

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

Extended Producer Responsibility

Extended Producer Responsibility (EPR) is intended to move the financial, operational and regulatory responsibility of the Municipal Hazardous and Special Waste (MHSW), Waste Electrical and Electronic Equipment (WEEE), Used Tires, and Blue Box programs from municipalities to producers.

Durham Region will continue to provide collection services for Used Tires, Batteries, WEEE and MHSW under the new EPR programs because there are limited alternate collection options for these materials available to residents.

Used batteries are being separated from the MHSW program and will be designated as their own Program to transition to full EPR in July 2020.

EPR Transition Timing

Existing Program End Date	New Program Start Date	EPR Program
Used Tires	December 31, 2018	January 1, 2019 (complete)
Used Batteries	June 30, 2020	July 1, 2020
Waste Electronics and Electrical Equipment	December 31, 2020	January 1, 2021
Municipal Hazardous and Special Waste	June 30, 2021 (Stewardship Ontario program only)	July 1, 2021
Blue Box	December 31, 2022 with three-year transition period	January 1, 2023 – December 31, 2025

Waste Reduction Week – Single Use Plastic Display

In recognition of Waste Reduction Week, the Durham Region corporate headquarters building in Whitby was buried under 2.5 tonnes of single-use plastics as part of a display in recognition of Waste Reduction Week (October 21 to 27).

More than eight million plastic bottles are collected each year in the Region' Blue Box program. This equals 22,000 single-use plastic bottles per day. The plastic displayed outside the headquarters building represented just one third of the single-use plastic collected for recycling in Durham Region's Blue Box program every day.

A video was created to share this messaging that was viewed by 25,000 social media users, showcased in the Toronto Star, Global TV Durham, Metroland Durham and Durham Post with over 1.5 million media impressions.

Waste Management Survey

Between November 1 and December 15, 2019, Waste Management staff conducted an online survey to gather information on residents' knowledge and opinions of waste management programs.

Over 3,000 residents participated in the on-line survey with representation from all eight local municipalities and a wide age range. The survey consisted of 16 questions in two broad categories: "Durham York Energy Centre (DYEC)" and "Managing Waste as a Resource."

Below are responses to several of the Waste Management Programs survey questions:

99 per cent of respondent's reported using the curbside Blue Box program, 85 per cent reported using the Green Bin program and 87 per cent reported using the leaf and yard waste program. The Region has a high level of self-reported participation in its curbside collection programs.

74 per cent of respondents think that energy should be generated from Durham's waste.

77 per cent of respondents agree that the DYEC should be expanded in the future, if necessary, to manage additional waste generated by residents.

92 per cent of the survey respondents think that Durham Region should manage waste as a resource.

Long-term Waste Management Plan 2021-2040

Durham Region adopted its first Long-term Waste Management Strategy Plan in 1999. The goals of the 20-year strategy plan included diverting 50 per cent of Durham's waste from disposal by implementing the integrated waste management system that Durham residents enjoy today and to consider an energy-from-waste facility for waste disposal. These goals have been met and the Region needs a new plan for managing waste for the next 20 years.

In 2019, Regional Council directed waste management staff to begin developing a new Long-term Waste Management Plan for 2021 – 2040. Council also endorsed a vision for the new plan that enhances the reduce, reuse and recycle principles and incorporates the vision of waste as a resource in a Circular Economy as a foundation of the plan.

The new plan will be guided by the following principles:

1. Deliver cost effective waste management services to a **rapidly growing and diverse population**.
2. Integrate the changes that **extended producer responsibility** for waste and recycling will bring to the Region's programs.
3. Apply **innovative approaches** to Region waste streams to manage them as resources in a circular economy.
4. Demonstrate **leadership in sustainability to address the climate crisis** by reducing greenhouse gas emissions from waste management activities.

In 2020 and 2021, Region staff will be consulting with local municipalities, Region advisory committees and the public on the new Long-term Waste Management Plan 2021 – 2040.

Blue Box Recycling

Durham Region has a two-stream recycling program which requires that containers and paper materials be collected in separate Blue Boxes. Materials set out at the curb and collected from multi-residential buildings are delivered to the Region's Material Recovery Facility (MRF) in Whitby for sorting and marketing.

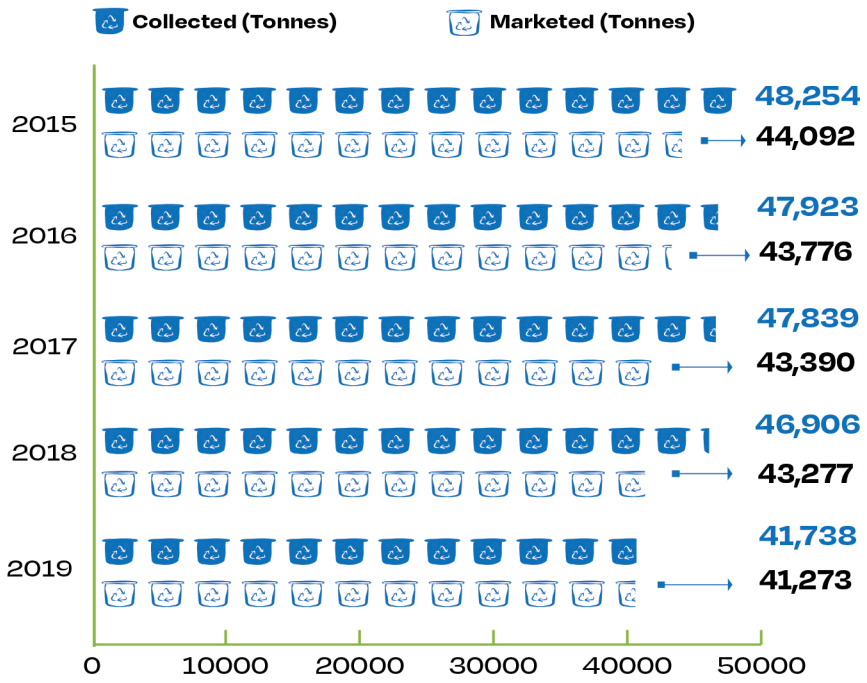
In 2019, 41,738 tonnes of blue box recyclables was collected, accounting for 18 per cent of the total material collected in Durham Region. The three main challenges affecting the blue box are; a rapidly changing composition of products and packaging, contamination, and end-market restrictions.

The Region continues to experience revenue impacts and, in the case of mixed paper and mixed glass materials, increasing net costs to continue to ensure the diversion and recycling of these materials. Waste management staff work closely with municipalities, contractors and markets to identify alternative buyers and/or alternative uses for recycling materials and to minimize the negative impacts of global economic pressures on the Region's recycling costs. Recycling revenues fell from $4.3 million in 2018 to an estimated $3 million in 2019.

In 2019, the Minister of Environment, Conservation and Parks directed producers that make materials recycled in the Blue Box, represented by Stewardship Ontario, to develop a plan to wind-up the existing provincial Blue Box plan. Under the current Stewardship Ontario plan, producers reimburse municipalities for up to 50 per cent of the net municipal costs for managing blue box materials. The Province's plan is to transition the Blue Box program to full Extended Producer Responsibility where producers will be completely responsible for operating the Blue Box program and for paying all of its costs. Municipalities will no longer operate the Blue Box program.

In 2020 the Ministry of Environment, Conservation and Parks plans to release a draft regulation describing what responsibilities producers will have for residential blue box material. After a consultation period, this regulation will be finalized, and producers and municipalities will have approximately two years to prepare for producers to take over the Blue Box program.

Blue Box Collected and Marketed



In 2019, waste staff investigated ways to help prevent litter caused by the Blue Box program on windy days. Neighbourhoods were chosen to test and evaluate options to prevent blue box litter which included;

- Providing residents additional blue boxes to prevent recycling from overflowing;
- An enhanced promotion and education program that encouraged better management of boxes during windy days; and,
- supplying a new prototype blue box lid.

Options 1 and 2 had limited success, but the new lid proved to be quite effective at preventing blue box litter. It also kept recyclables dry. The pilot project results were reported to Regional Council in spring of 2019 with a recommendation to further develop the new blue box lid based on the pilot project findings.

Organics

Ontario's Food and Organic Waste Policy Statement was issued on April 30, 2018.

It provides direction to provincial ministries, municipalities, industrial, commercial and institutional establishments and the waste management sector to reduce food waste and increase resource recovery of food and organic waste.

The Food and Organic Waste Policy Statement requires Durham 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.

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Multi-unit residential building owners, to which Section 10 of Regulation 103/94 under the *Environmental Protection Act* applies (i.e. owners of buildings with six or more dwelling units), must also achieve 50 per cent waste reduction and resource recovery of food and organic waste generated within their buildings by 2025. Where the Region accepts collection responsibility at these multi-residential buildings under Durham Region By-Law 46-2011, the 50 per cent waste reduction and resource recovery of food and organic waste requirement will become a Regional resposibility.

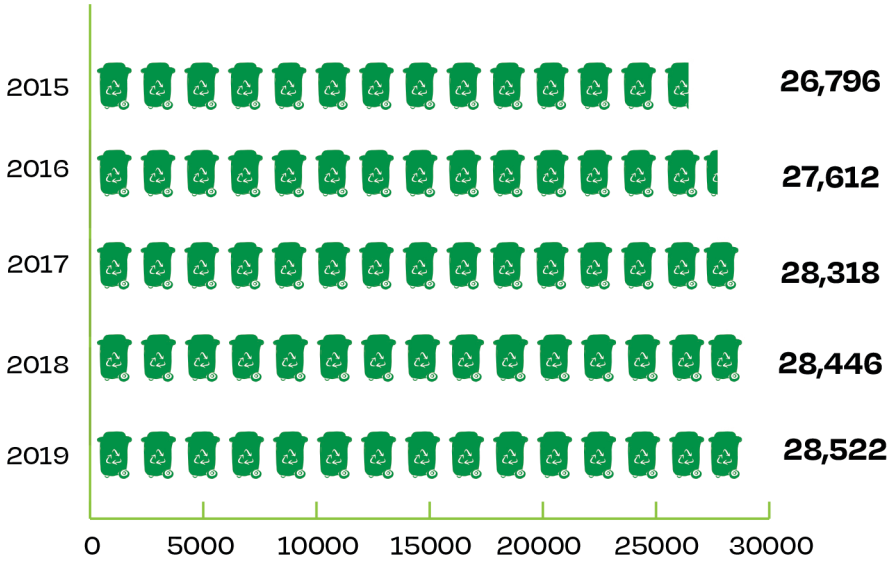
Removing organics from the garbage bag is a key waste diversion strategy in Durham Region and has helped to achieve over 50 per cent diversion. Currently organics are managed through yard waste collection, Christmas tree pick-ups and the Green Bin program.

To continue to work towards the Region's goal of 70 per cent waste diversion, Durham Region will be constructing a Mixed Waste Pre-sort and Anaerobic Digestion facility to manage the organics from the Green Bin program, multi-residential buildings and from the garbage bag. The mixed waste pre-sort will capture organics, metals and recyclables from the garbage bag and multi-residential waste, before anaerobic digestion processes the organics from the garbage, along with green bin organics, into renewable natural gas and fertilizer materials.

Processing organic waste into compost currently represents 12 per cent of the Region's overall diversion achievement. In 2019, Durham Region residents generated 28,522 tonnes of source separated organics from the Green Bin program.

Durham Region composts its organic waste at facilities in Pickering and Courtice. The majority of collected organic waste was processed and marketed to farmers, landscapers, and soil remediation firms.

Green Bin Collected Tonnes



In 2017, the National Zero Waste Council conducted research on household food waste in Canada, and the results were shocking. It found that;

63 per cent of the food Canadians throw away could have been eaten.

For the average Canadian Household, that amounts to 140 kilograms of wasted food per year–at a cost of more than $1,100 per year!

For Canada as a whole, that amounts to almost 2.2 million tonnes of edible food wasted each year, costing Canadians more than $17 billion!

Leaf and Yard Waste

Durham Region offers residents seasonal curbside leaf and yard waste collection with 24 collections per year throughout April to December with two additional Christmas tree collection weeks in January. Up to 70 per cent of leaf and yard waste is collected in the fall each year.

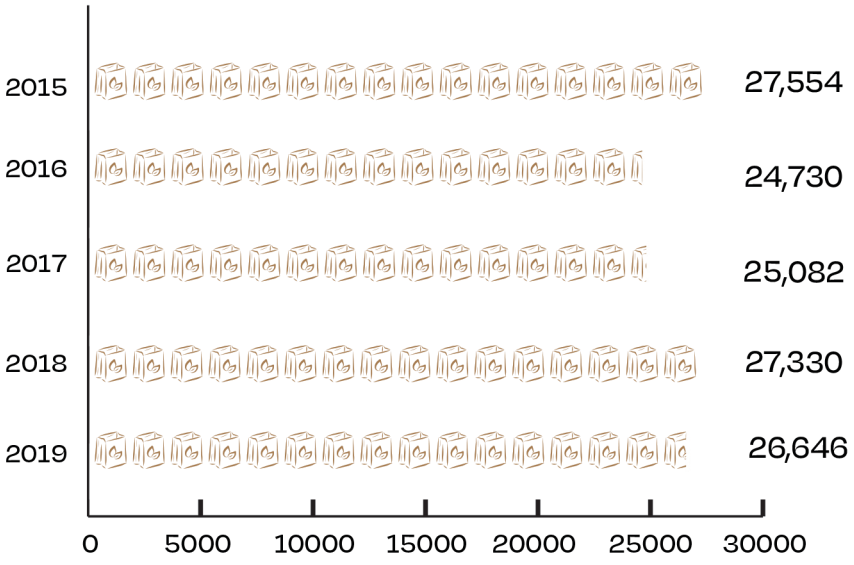
All yard waste collected in the Region is processed at facilities in Pickering and Courtice.

Brush, leaf and yard waste are collected in paper yard waste bags, rigid reusable containers, or tied bundles for outdoor windrow composting and as a supplement in the Green Bin organics composting process.

The Region also receives high quality AA compost for distribution back to residents at its annual compost giveaway events held in each municipality every spring.

In 2019, Durham Region residents generated 26,646 tonnes of leaf and yard waste, representing 11 per cent of the total waste stream.

Yard Waste Collected Tonnes



Climate change is affecting our weather patterns with more unpredictable extreme weather events. Weather directly affects the amount of leaf and yard waste collected during the growing season. During storms or wet conditions, the region experiences more leaf and yard waste than during dry or drought conditions. Extreme weather events like ice storms, windstorms, or early/late seasonal changes can also affect the amount of leaf and yard waste generated making it difficult to predict collection scheduling.

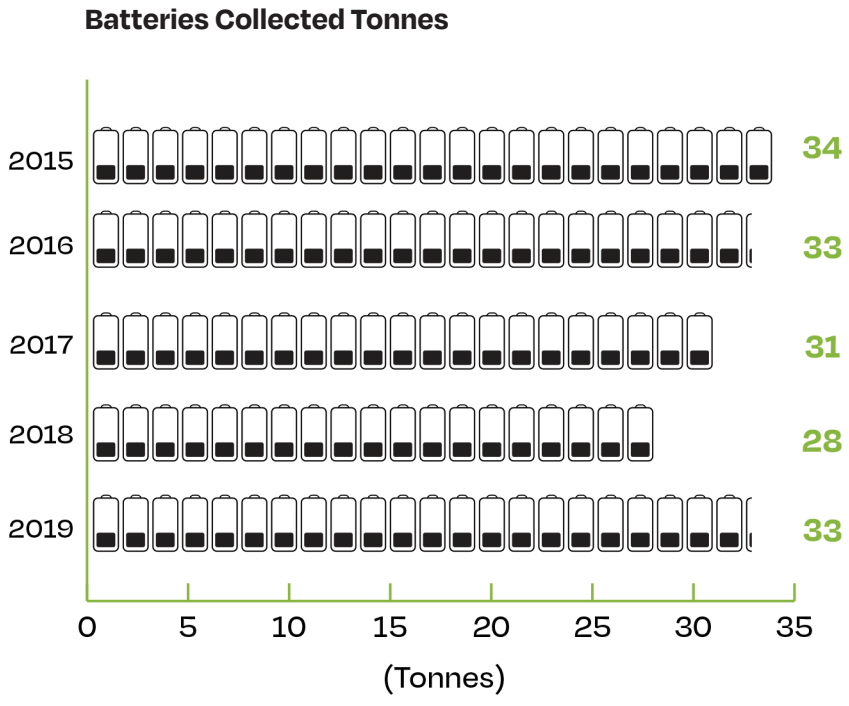
Curbside Battery Collection

Durham's curbside battery collection program continues to maximize the capture of batteries, while keeping mercury, cadmium, and other heavy metals out of the waste stream. Household batteries are actively managed in Ontario and recycled responsibly through proper processing and conservation of valuable recoverable resources.

Durham's battery processing vendor recovers the steel, zinc and manganese from each battery, giving these materials another chance to be recycled. They provide feedstock to the local steel industry and micro-nutrients to the local agricultural industry for biofuel crop production. Other materials (mercury, cadmium, lithium) are recycled into process materials for various industries. This battery technology is capable of recycling and recovering up to 92 per cent of components found in spent household batteries.

Since the first battery collection in November 2012, Durham Region has diverted more than 205 tonnes (205,000 kilograms) of household batteries from the waste stream. It has also served as a catalyst for curbside battery recycling throughout Ontario with over 60 municipalities starting their own programs.

Durham Region is proud to have pioneered this successful diversion initiative. Waste management staff continue to engage, educate and promote the curbside battery program with Durham residents, including its enhanced partnership and messaging timed with the local Fire Departments check smoke detector/change battery campaign to keep the program momentum trending upwards.



Electronic Waste

Unwanted electronic equipment such as computers and televisions are classified as waste electronic and electrical equipment (WEEE). While electronic materials can contain harmful substances such as mercury, lead and cadmium, which require special handling, there are also valuable and scarce resources in electronics, such as gold, copper, aluminum and other precious metals. Recycling these materials helps reduce the need for new raw materials.

Durham Region provides residents with a network of drop-off facilities for waste electronics, including Oshawa, Scugog and Brock Waste Management Facilities (WMF).

The Region also provides a call-in curbside collection program for waste electronics in Pickering, Ajax, Scugog, Uxbridge, Brock and Clarington.

In 2019, 391 tonnes of WEEE materials were collected at Durham Region waste management facilities and 47 tonnes through the call-in curbside program. Additionally, the Region organized four WEEE recycling special events in 2019. These special events combined with Durham Region's drop-off depots provide for the safe recycling of WEEE materials.

2019

WEEE Source	Tonnes
WMF	391
Curbside Collection	47
Community Events	9
Total	**447**

Porcelain

In February 2012, the Region tested the residential curbside collection of porcelain bathroom fixtures as part of an expanded curbside recycling pilot. The porcelain program is now permanent and is offered in Pickering, Ajax, Clarington, Brock, Scugog and Uxbridge, as well as the Region's Waste Management Facilities (WMF) in Oshawa, Scugog and Brock. The Town of Whitby also collects porcelain.

This program diverted 426 tonnes of material from disposal in 2019, comprised of 189 tonnes collected through curbside collection and an additional 237 tonnes collected at the WMFs.

Reuse Collection

This was the seventh year for the Reuse Days in 2019. Eight drop-off events were hosted by Durham Region in partnership with three local charities: Habitat for Humanity Durham, Salvation Army and Diabetes Canada. Residents are encouraged to drop-off all reusable items, including renovation material, household goods and textile material at the monthly events. In 2019 the charities collected 18 tonnes of material from these events – one of the best years on record.

The increase in multi-residential and high-density developments in Durham Region has resulted in the need for staff to consider specialized services to address municipal waste collection. The recently approved mixed waste pre-sort and anaerobic digestion facility will allow for the diversion of organic materials generated by the Region's multi-residential sector, which is not currently captured by the Green Bin program.

Multi-residential Program

Municipal waste and recycling services are provided to just over 75 per cent of all multi-residential apartment/condominium properties in Durham Region. In 2019 the Region serviced 402 properties equaling 25,366 units. At multi-residential properties, a central waste collection point is used for collection and diversion remains low.

Special collection services at multi-residential properties include onsite battery, electronic waste and textile collections. In 2019, these programs continue to capture and divert material including 2 tonnes of batteries, 28 tonnes of textiles and 27 tonnes of e-waste.

Durham Region works actively with property management companies and building owners to encourage and promote diversion.

Household Hazardous Waste

The Region provides residents with a network of facilities and special events where residents can drop off household hazardous waste (HHW). Drop-off locations include the waste management facilities in Oshawa, Scugog and Brock. The Region also has a contracted HHW depot at 1220 Squires Beach Rd. in Pickering and a newly opened facility at 1998 Bowmanville Avenue, in Bowmanville. HHW is recycled or treated and disposed of in an environmentally responsible manner through specialized contract services.

Durham Region collected 1,256 tonnes of HHW materials at Regional depots and events in 2019.

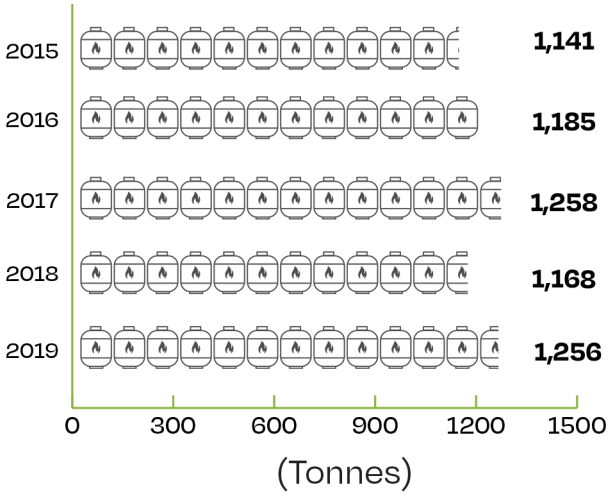
Both regional facilities and retail take-back locations ensure HHW materials are safely managed at end-of-life and keep harmful substances from entering the environment. Many of these items contain materials that can be recovered, refined and reused in the manufacturing of new products, reducing the need for virgin resources.

2019

HHW Source	Tonnes
Brock	51
Scugog	188
Oshawa	722
Pickering	263
Bowmanville	15
Events	17
Total	**1256**

The Bowmanville Household Special Waste Depot located at 1998 Bowmanville Avenue officially opened during Waste Reduction Week on October 23, 2019. Residents are encouraged to drop-off their household hazardous waste free of charge. The facility has already received drop-offs from over 1,000 residents in the short time it has been operation.

Household Hazardous Waste Collected



Waste Management Facilities

Growth continues to drive the number of residents using the Region's waste management facilities. Legislative changes related to Extended Producer Responsibility (EPR) will need to be considered. Good planning continues to ensure existing and proposed facilities remain adequate and efficient at managing the projected demand, as well as ensuring the available programs match users' needs.

The Oshawa Waste Management Facility (WMF) remains the Region's busiest of the Region's three WMFs with up to 1,600 visits daily during peak times. This number is anticipated to increase because of continued development, particularly in Oshawa and Whitby.

2019

Waste Management Facility	Tonnes of Blue Box Recycling	Tonnes of Leaf and Yard	Tonnes of Reuse Materials	Tonnes of Garbage
Oshawa	384	1,624	3,202	16,023
Scugog	180	473	1,214	4,289
Brock	42	173	434	1,670
Total	**606**	**2,270**	**4,850**	**21,982**

The Ministry of Environment, Conservation and Parks has issued a new regulation governing the collection and recycling of used tires. Most of the changes required by the new regulation are behind the scenes and the tire recycling experience for the consumer remains mostly unchanged. To find a retail drop-off location, residents can search by postal code for other tire collection sites: rpra.ca/programs/tires/CollectionSites.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The DYEC has daily limits and, for various reasons, it cannot always process all the waste available to it in each day. Waste that cannot be processed must be bypassed to another facility. Reasons for bypass waste include planned or unplanned outages, as well as daily capacity constraints. Despite planned and unplanned outages, Durham Region residents are currently producing approximately 10,000 tonnes more than Durham's 110,000 tonne per year limit.

Waste

After all diversion efforts have been utilized, Durham Region manages its remaining residual waste primarily through energy recovery at a facility in the Municipality of Clarington. The facility began commercial operations in January 2016 and is owned by the regional municipalities of Durham and York.

The Durham York Energy Centre (DYEC) is a waste management facility that produces energy from the combustion of waste. The DYEC generates enough electricity to power approximately 10,000 homes a year, captures residual metals and reduces the volume of waste going to landfill by up to 90 per cent.

The Environmental Compliance Approval for the DYEC currently allows the facility to process up to a maximum of 140,000 tonnes per year of non-hazardous residential waste that remains after maximizing diversion programs, reducing, reusing, recycling and composting in Durham and York Regions. Of the 140,000 tonnes of processing capacity at the DYEC, 110,000 tonnes is assigned for Durham's use.

In 2019, the facility processed 140,000 tonnes of garbage, while recovering approximately 4,208 tonnes of metal and generating approximately 96,734 MWh of electricity for sale to the provincial grid.

By using pollution control systems and proven, reliable energy from waste technology, the DYEC meets the most stringent environmental standards and significantly reduces greenhouse gas emissions compared to the existing landfill options.

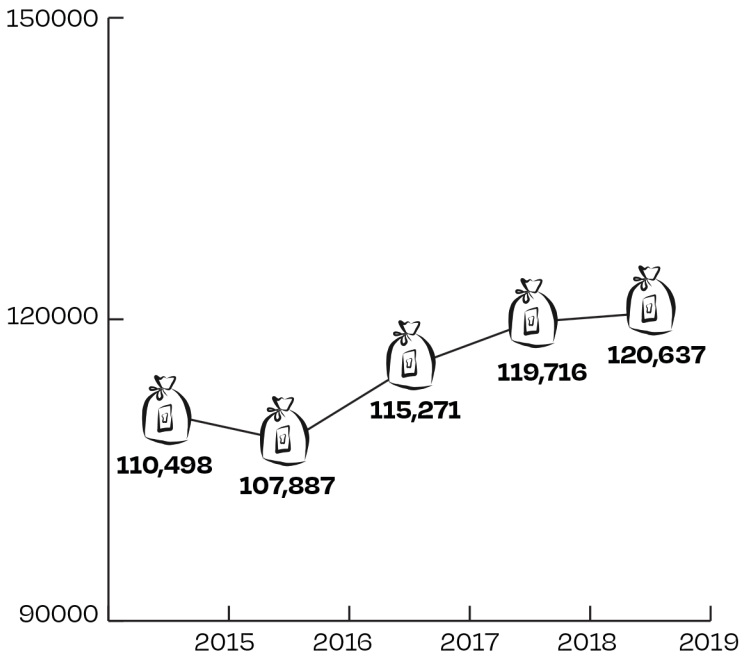
In addition to continuous emissions monitoring, independent stack tests to monitor all emissions from the stack were conducted in June and September 2019. Results from both testing periods demonstrated the facility is currently operating well within the DYEC environmental compliance approval requirements.

In 2019, Durham and York commenced an Environmental Screening Process in accordance with the Waste Management Projects Regulation (Ontario Regulation 101/07) of the Environmental Assessment Act to amend the Environmental Compliance Approval.

The Environmental Compliance Approval for the DYEC currently allows the facility to process a maximum of 140,000 tonnes per year of waste. Durham and York Regions are proposing to increase this amount by 20,000 tonnes to maximize the efficiency of the facility which is capable of processing 160,000 tonnes per year using its existing equipment. If approved, the expanded tonnage will allow for greater usage of the existing facility, reducing the reliance on alternate waste disposal facilities outside the Regions' borders.

For more information on the DYEC, visit durhamyorkwaste.ca.

Garbage Waste Collected Tonnes



Landfill Perpetual Care

Oshawa Landfill

A post-closure care and monitoring plan was completed for the Oshawa Landfill site in 2013. The report's findings and recommendations are used to plan the maintenance activities and capital projects each year.

Erosion and stability issues can occur around the slopes of the landfill, as approximately half of the landfill boundaries are surrounded by Oshawa creek and its tributaries. The Region performed a detailed stream evaluation in 2015, to identify impacts to the landfill slopes caused by the creek and surface water flow. The water causes erosion around the landfill and in some areas can be severe, so this study prioritized the areas of concern and provided the appropriate solutions.

Since 2015, five slope stabilization projects have been undertaken to:

- Re-align the creek
- Re-grade the underlying soils to reduce the severity of the slope
- Re-vegetate the slopes to prevent erosion
- Add sand and/or stone filter layers within the slopes
- Incorporate the use of our successful pilot product FilterSoxxTM media (long tubes of fine mesh filled with Durham Region's compost and a native seed mixture – to act as a final cover and introduce vegetation to reduce erosion)
- Create salmon habitat within the creek

The groundwater network was also expanded with the installation of a new series of property boundary wells to assist with ensuring that there are no environmental impacts to the creek.

Blackstock Landfill

Landfill mining presents an opportunity to reduce or eliminate landfills. It also reduces greenhouse gas emissions, improves groundwater quality, recovers recyclable material from landfilled waste, converts waste into a resource for energy recovery, and eliminates the need for long-term groundwater monitoring.

Mining at the Blackstock landfill was completed in January 2019, with final grading and hydroseeding completed in July. A total of 4,796 tonnes of waste was removed from the site. With the removal of waste from the site, the landfill greenhouse gas emissions from 2020 onward is now estimated to be zero.

Lessons learned from the Blackstock landfill mining project will inform the work plan for the Scott landfill site. Preliminary investigations are underway to develop a landfill mining work plan for the Scott landfill site located in the Township of Uxbridge. Ground penetrating radar and electromagnetic surveys were conducted to evaluate the extent of the waste in the landfill.

Other Landfill Perpetual Care Activities

The 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 sites 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.

Waste Promotion and Education

"Changing waste handling behaviour requires regular messaging, innovative delivery methods and incentives."

Promotion and Education (P&E) have proven to be an effective way of enhancing waste program participation and fostering a culture that embraces the principles of reduce, reuse, recycle and resource recovery. It is recognized that changing waste handling behaviour requires regular messaging, innovative delivery methods and incentives. The expectations for results must be measured over several years.

P&E is also critical for addressing contamination in both the Green Bin and Blue Box programs. As demonstrated in a past program with the green bin, within one year the Region was able to reduce plastic contamination from 20 per cent to five per cent. In 2019, P&E was critical in communicating to residents that recyclables cannot be set out in plastic bags.

For many years, P&E programs focused on the curbside Blue Box recycling, the Region has achieved a 90 per cent participation rate and a 91 per cent capture rate. It is accepted that changing attitudes and behaviour requires long-term strategies and efforts to foster greater waste reduction and improve recovery.

The Region is facing the challenge of providing services to a rapidly growing and diversifying population. This creates a situation where the disposal capacity cannot keep up with the Region's waste management needs. Therefore, efforts must be redirected to reduce the amount of waste generated and increase our diversion from disposal.

In 2019 the P&E program focused its targeted messaging to reduce residential food waste through behavioral change. 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; and
- 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 the diversion of organic waste that cannot be reduced through increased 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 more than 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 2019:

- Eight spring compost events, one in each 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.
- "Durham Works", the Works Department's external newsletter is 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 7,240 Blue Boxes, 836 kitchen food waste containers and 6,136 curbside Green Bins for new boxes, containers or bins due to damage.
- 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. We received overwhelmingly positive feedback on our programs.

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 2019, Durham's school curriculum program reached over 2,650 students across Durham's communities."


DURHAM REGION

Summary

The Region of Durham is proud to demonstrate leadership in waste reduction and reuse strategies, while managing waste effectively. As seen in the 2019 Waste Management Annual Report, the Region's programs have demonstrated the following:

- 63 per cent Resource Productivity and Recovery Authority diversion rate (verification pending)
- Marketed 41,273 tonnes of blue box recyclables
- Processed 28,522 tonnes of organic waste
- Composted 26,646 tonnes of leaf and yard waste
- Ensured the safe and responsible recycling of 1,256 tonnes of household hazardous waste and 447 tonnes of electronics
- 83 tonnes of textiles diverted through collection events, depot collection and onsite multi-residential bins
- DYEC processed 140,000 tonnes of garbage through energy-from-waste recovery generating approximately 96,734 MWh of electricity for sale to the provincial grid
- Convenient access to curbside and waste management facility diversion programs
- Actively promoted our waste reduction and diversion programs through an extensive promotion and education program

Durham Region's successes in reducing and diverting waste is due to the ongoing commitment of its residents to make the Region a better place to live, work and play.

Thank you!

If you need more information about any of the Region of Durham's waste management programs or services, contact us:

Tel: 905-579-5264 or 1-800-667-5671
Email: waste@durham.ca
Website: durham.ca/waste
If you require this information in an accessible format, please call 1-800-667-5671.