



Waste Management Annual Report 2020







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Rethink

Rethink how you view and act differently about our natural resources. By raising community awareness regarding the understanding that natural resources are limited, we can greatly influence the choices and products people buy to lessen the burden of waste on the environment. This will include learning what products support a circular economy that does not generate waste to begin with.



Reduce

Waste reduction is about minimizing waste that remains from products at the source (i.e. at home). Reducing waste is often the most difficult of the 5Rs. 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 the process of collecting and processing materials that would otherwise be disposed of as waste and turning them into new products. Recycling also includes composting, as it involves converting organic material into something new.

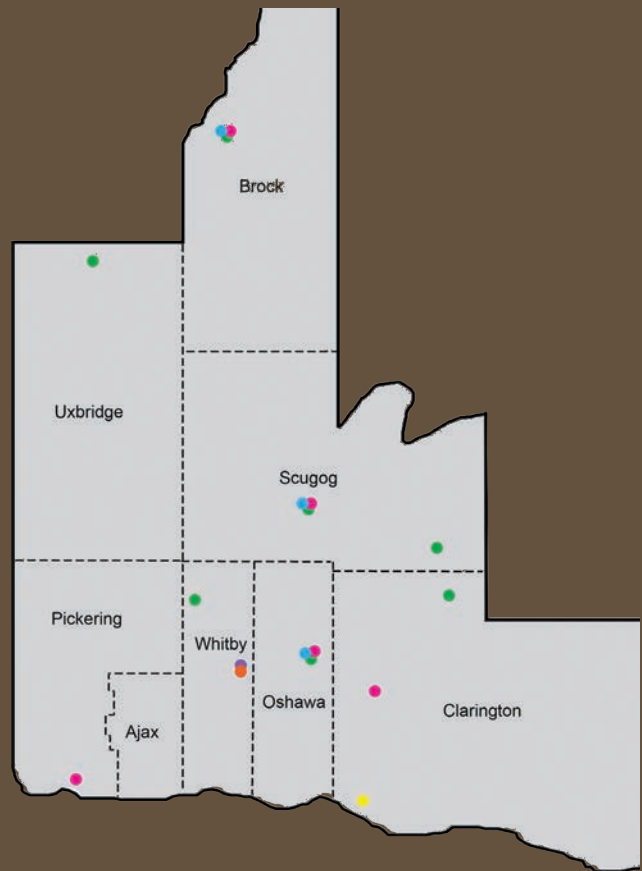


Recover

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 and reduce greenhouse gas emissions.

Waste Management Facility Locations in Durham Region

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



Introduction

The Regional Municipality of Durham 2020 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.

Our region is a great place to work, live and play. A unique mix of urban and rural environments gives us many natural parks and trails to explore. Durham Region is east of Toronto, in the Golden Horseshoe area of Ontario. North Durham is mostly rural, with a thriving agriculture sector, and is home to Oak Ridges Moraine. To the south, lakeshore communities offer urban development and a diverse employment base.

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 amount of waste the Region will manage.

As an upper-tier municipal government, Durham Region provides programs and services to over 215,000 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.



Roles and Responsibilities

Collection

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

The Region 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, over 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 yard waste and recovery of energy-from-waste.

Disposal

Durham Region manages disposal of residual waste from all eight of its local area municipalities.

Within the Region's 5R hierarchy (Rethink, Reduce, Reuse, Recycle, Recover), the preferred final disposal destination is energy-from-waste at the Durham York Energy Centre (DYEC) in Clarington to maximize the benefit of capturing energy from residual waste.

The energy-from-waste process reduces the volume of residential waste by approximately 85 to 90 per cent. The largest portion of the waste remaining after processing is, non-hazardous bottom ash. The smaller portion is fly ash with lime and carbon residue from onsite treatment which is captured in the air pollution control equipment. Ash at the DYEC is tested to ensure that it is non-hazardous before being shipped offsite. Bottom ash and treated fly ash are transported to landfill and used as daily cover material, reducing the need for soil or other cover materials.



How does Durham Region currently manage waste?

Blue Box



Recyclables are sent to our Material Recovery Facility (MRF) in Whitby for sorting and marketing. Where there is market demand, recyclable materials are then turned into new items.

Green Bin



Organics are sent for composting at a private facility in Pickering and marketed to farmers, landscapers and soil remediation firms. Residents can also pick up compost for free at special community waste events.

Garbage



Garbage is sent to the Durham York Energy Centre (DYEC) in Courtice for incineration to generate electricity and recover metal for recycling.

Leaf and Yard Waste



Leaf and yard waste is sent for composting at a private facility in Clarington and marketed to farmers, landscapers and soil remediation firms. Residents can also pick up compost for free at special community waste events.

Electronics



Electronics are sent to a Waste Management Facility for bulking and recycling. Scrap and precious metals are then reused for new items.

Batteries



Batteries are collected and sent to a third party to be recycled. Metals are recycled and nutrients are used to create fertilizer.

Household Hazardous Waste



Household hazardous waste products are dropped off at Waste Management Facilities or collected during annual waste events and disposed of properly.

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.

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 (complete)
Waste Electronics and Electrical Equipment	December 31, 2020	January 1, 2021 (complete)
Municipal Hazardous and Special Waste	June 30, 2021 (Stewardship Ontario program only)	October 1, 2021
Blue Box	December 31, 2022 with three-year transition period	January 1, 2023 - December 31, 2025, depending on municipal transition status. Durham Region will transition July 1, 2024.

“On August 15, 2019, Minister of Environment, Conservation and Parks announced that the Blue Box program will transition to full Extended Producer Responsibility (EPR).”

On August 15, 2019, Minister of Environment, Conservation and Parks announced that the Blue Box program will transition to full Extended Producer Responsibility (EPR). On November 22, 2019, the Minister announced consultation on developing a Regulation under the RRCEA was to be completed by the end of 2020. The aim is to transition the Blue Box program as early as January 1, 2023, with one third of Ontario municipalities transitioning annually until all municipalities are transitioned by December 31, 2025.

The consultation focuses on developing EPR regulations for the Blue Box program to maintain a convenient and accessible collection system, identify a standardized list of materials to be collected and set performance targets.

A series of extensive stakeholder meetings were held throughout 2019 and 2020 with municipalities and producers. The stakeholder consultations were facilitated by the Province and a draft regulation was released in October 2020 for public comment.

The timelines required that transitioning municipalities pass supporting Council resolutions no later than six months prior the start of transition. Staff will provide an update to Council and recommend a subsequent transition plan for Durham's Blue Box program to full EPR. Durham's Blue Box program and its associated logistics and contracts are aligned for the Region to transition in 2024. Until that time the Region will continue to receive funding from industry stewards totalling approximately 50 per cent of net Blue Box costs.

The goal of EPR is to encourage producers to reduce packaging and waste by making them responsible for disposal and therefore motivated to reduce waste.

What is Extended Producer Responsibility (EPR)?



“The goal of EPR is to encourage producers to reduce packaging and waste by making them responsible for disposal and therefore motivated to reduce waste.”

Long-term Waste Management Plan 2021-2040

For the past 20 years, the Region's waste management priorities have been guided by its 2000 to 2020 Long-term Waste Management Strategy Plan and the goal to divert 70 per cent of waste from disposal.

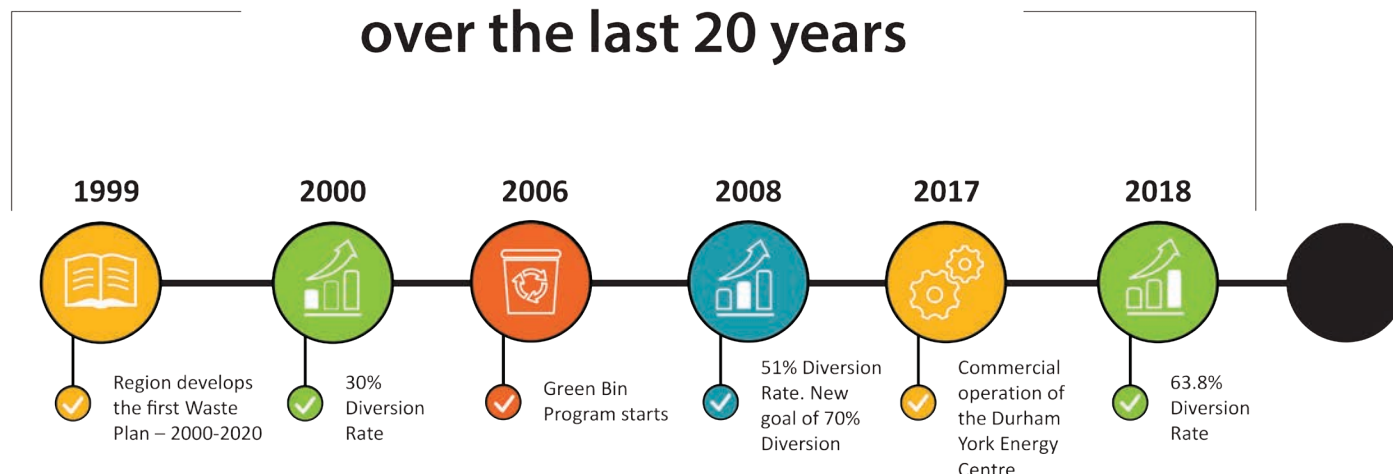
Regional Council directed waste management staff in 2019 to begin developing a new Long-term Waste Management Plan for 2021 – 2040. Council also endorsed a vision for the new plan that enhances the rethink, reduce, reuse, recycle and recover principles and incorporates the vision of waste as a resource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

In 2020, staff consulted Regional staff, local area municipalities, Regional Advisory Committees, and the public on the guiding principles for the Waste Plan and developed a vision statement and objectives. While we initially planned these consultations to be done in-person, we shifted to hosting virtual sessions due to COVID-19.

The new Waste Plan will be guided by the following 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.

What we have accomplished over the last 20 years



The Waste Management Vision for the next 20 years is:

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.

The five objectives for the Waste Plan describe what we want to accomplish during the life of the Waste Plan:



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.



Reduce the quantity of waste we create.



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

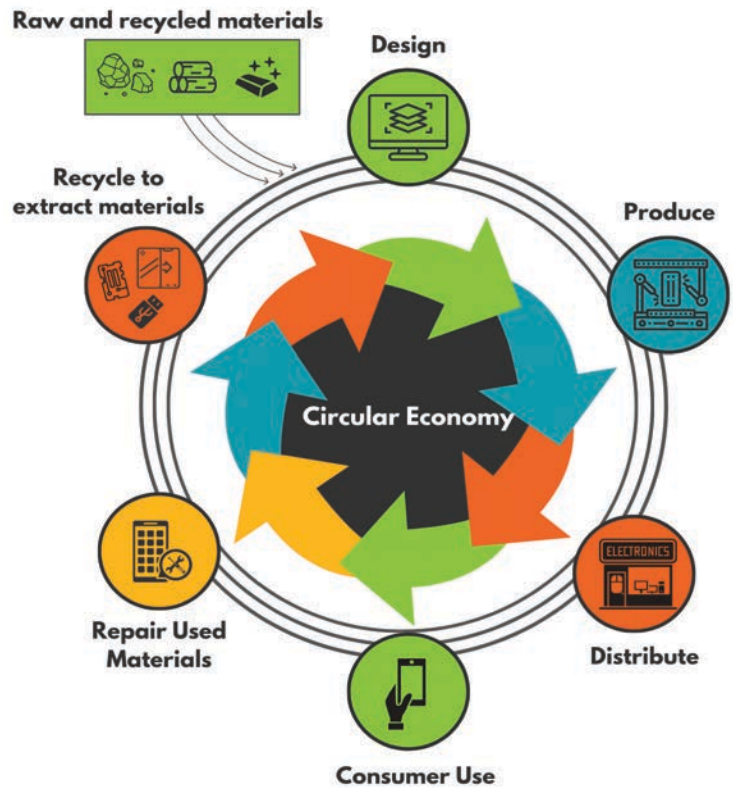


Support the Region's greenhouse gas reduction and climate change mitigation efforts.



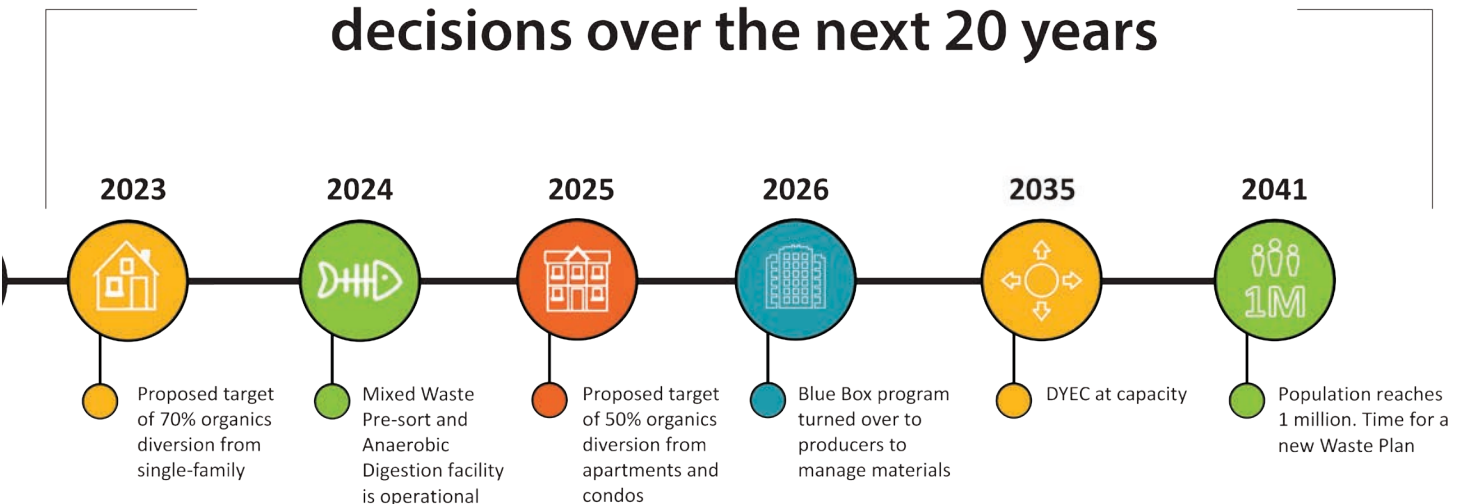
Protect or improve water, land, and air quality in Durham Region.

What is a circular economy?



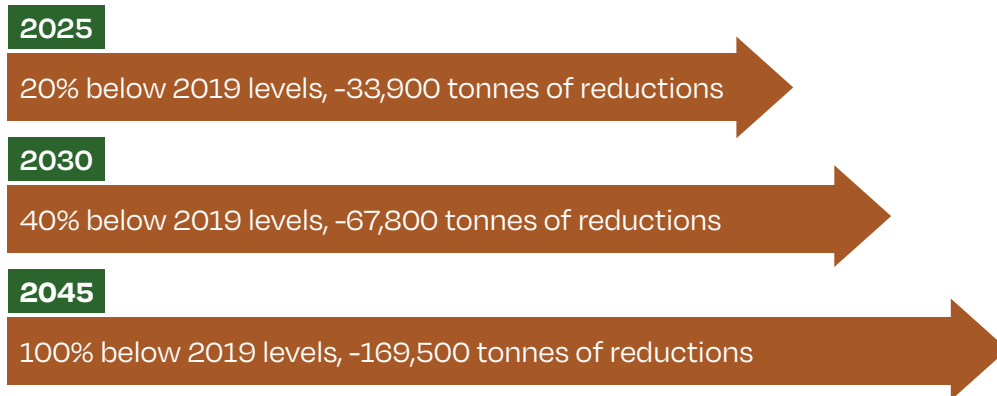
Going forward, we will once again consult with local area municipalities, Regional advisory committees and residents on the draft Waste Plan and the targets and actions staff should work on to meet the Waste Plan objectives. Targets and actions that can be completed within five years will form the first Five Year Action Plan. A new Five-Year Action Plan will be developed every five years to continue to guide our efforts to meet the objectives of the Waste Plan.

What will impact our waste management decisions over the next 20 years



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 Plan (CCAP) which outlines actions to reduce GHG emissions from the Region's corporate operations. The CCAP and the following Corporate Greenhouse Gas (GHG) emission reduction targets were approved in March 2021. The approved emissions reductions targets are as follows:



Draft waste management actions outlined in the 2021 - 2040 Waste Plan relating to GHG reductions include:

- Increase diversion of organic waste from single-family homes and multi-residential buildings (apartment and condos). Diversion targets set by the Province as part of the Ontario Food and Waste Policy Statement, are 70 per cent diversion of organic waste from single-family homes by 2023, and 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 future increases in Durham York Energy Centre (DYEC) capacity and population growth over the coming decade.
- Continue to investigate the potential to utilize Renewable Natural Gas (RNG) as part of the Region's natural gas purchases.
- 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.

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.





Mixed Waste Pre-sort and Anaerobic Digestion

Durham Region is planning a new Mixed Waste Pre-sort (MWP) and Anaerobic Digestion (AD) Facility that will convert organic waste into a renewable natural gas (RNG).

While Durham's population continues to grow—with an expectancy to reach more than 1 million people in the next decade—more residents will mean more organic waste, recyclables and garbage to manage. The MWP component of the facility will remove organics, non-combustible and recyclables (i.e. metals) from garbage bags to further increase diversion from disposal, and free-up capacity at the DYEC for the remaining garbage that can be incinerated to create electricity.

The AD component of the facility will convert the diverted organics from apartments and the organics from Durham's Green Bin program, like food scraps, into renewable natural gas—used to heat homes and power natural gas barbeques and vehicles.

AD is a natural process that uses microbes found in the environment to produce methane, which can be collected and used as a renewable natural gas. AD is a safe, proven technology used worldwide.

The new facility will be in Clarington, next to the DYEC in the Clarington Energy Business Park. This location will incorporate sustainable development principles and complement the architectural design and landscaping of the Energy Park.

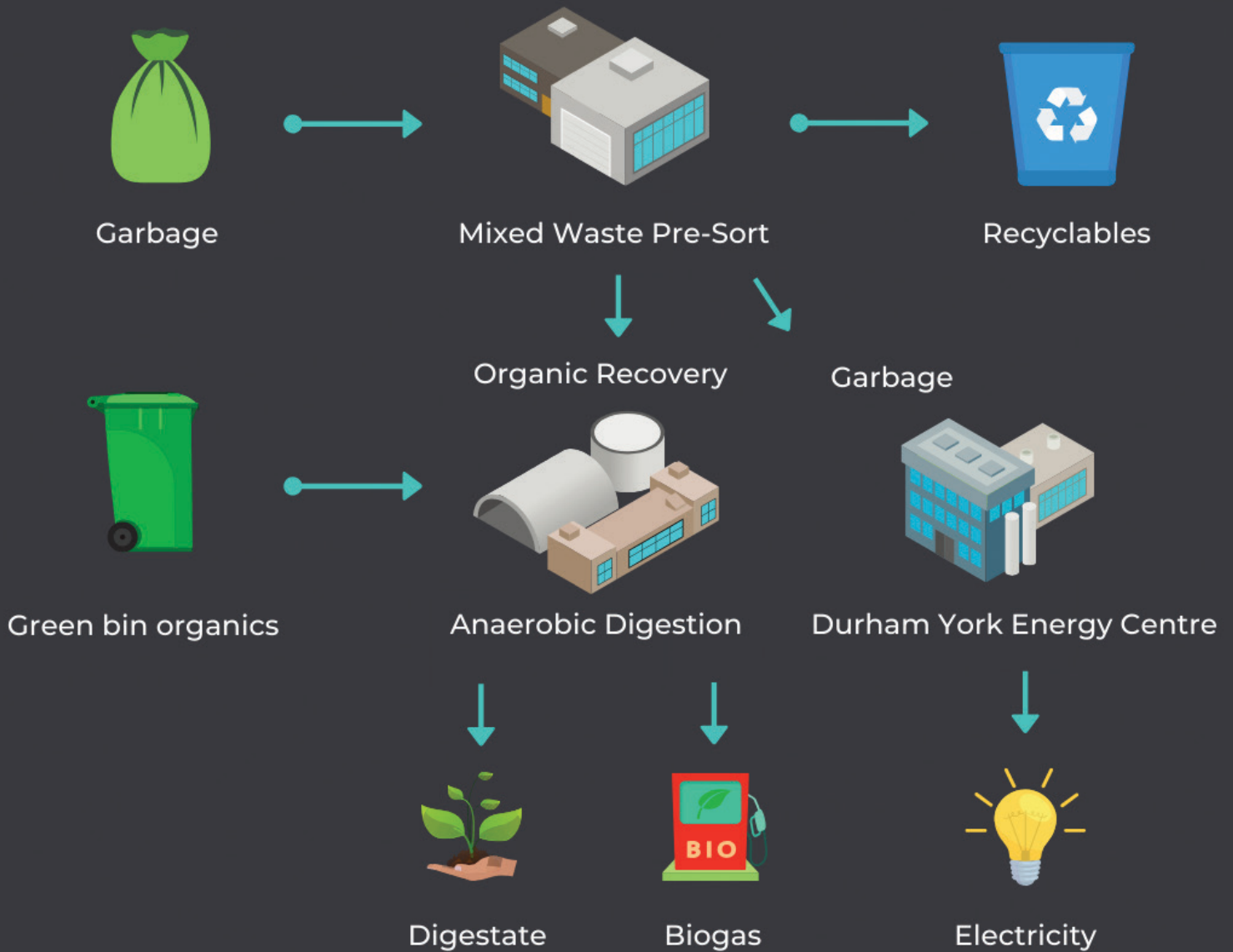
The new MWP and AD facility will create a local opportunity within the Energy Park and Clarington to attract future clean-energy and low-carbon industries.

Waste will only be accepted from Durham Region, including waste collected from the Region's curbside waste collection program and from multi-residential buildings. Instead of delivering Durham's waste directly to the DYEC, Durham Region waste will be delivered to the new MWP and AD Facility first for sorting and processing.

The facility will sort organics and recyclables from garbage bags (i.e. items that were not properly separated into the green bin or the blue box). This process will not replace or eliminate the current Green Bin or Blue Box program but will complement them to help the Region to maximize diversion efforts.

The Region began public engagement in early 2020 on the new facility with a public information centre. Comments and questions about the new MWP and AD facility can be sent to ADproject@durham.ca. Visit durham.ca/ADproject for updated information, including Council reports and answers to frequently asked questions.

Mixed Waste Pre-Sort and Anaerobic Digestion: Waste as a resource



Diversion Achievements

Durham Region submits an annual datacall to the province through the Resource Productivity and Recovery Authority (RPR) 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. Durham's overall diversion rates are as follows:

RPR Annual Waste Diversion

- 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 – (64%)** 1st for Urban Regional Municipalities, 3rd Overall in the Province
- 2020 – 63%**** pending verification






All values are rounded.

RPR 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 RPR diversion rate. First year RPR recognized recycled materials recovered through energy-from-waste.

**2020 diversion data presented is unverified by RPR at time of printing.

Total Tonnes Managed Year over Year

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

2020 Tonnes Managed by Area and Source

	Curbside Garbage	Apartment Garbage	Bulky/ Other Goods	Curbside Recycling	Apartment Recycling	Food Composting	Leaf & Yard Waste	Other Diversion	Total Waste
Curbside & multi-residential waste									
Pickering	11,908	1,038	317	5,409	335	5,191	3,983	124	28,305
Ajax	14,623	1,522	177	6,681	241	7,142	4,257	136	34,779
Whitby	14,729	2,512	352	7,787	291	7,409	6,041	65	39,186
Oshawa	20,890	8,590	278	9,412	896	7,027	7,200	28	54,321
Clarington	14,165	236	524	6,408	65	4,037	4,535	54	30,024
Scugog	3,111	205	63	1,416	0	894	1,299	18	7,006
Uxbridge	2,677	118	101	1,354	0	843	1,202	26	6,321
Brock	2,214	0	93	1,039	0	488	616	18	4,468
Sub-totals	84,317	14,221	1,905	39,506	1,828	33,031	29,133	469	204,410
			100,443		41,334		62,164	469	204,410
Waste Management Facilities									
Oshawa	0	0	18,379	384	0	0	372	3,746	22,881
Scugog	0	0	5,060	178	0	0	462	1,496	7,196
Pickering	0	0	0	0	0	0	0	270	270
Clarington	0	0	0	0	0	0	0	109	109
Brock	0	0	1,880	48	0	0	173	489	2,590
MRF	0	0	4,164	0	0	0	0	6	4,170
Sub-totals	0	0	29,483	610	0	0	1,007	6,116	37,216
			29,483		610		1,007	6,116	37,216
Total tonnes managed			129,926		41,944		63,171	6,585	241,626

*Amounts have been rounded to the nearest whole number.

The COVID-19 pandemic impacted waste generation in 2020. Tonnages collected for curbside garbage, green bin, leaf and yard waste all show a higher than typical increase while the blue box remained fairly static; however, the composition of blue box materials collected changed significantly. Tonnage collected at Waste Management Facilities also saw a surge in materials. Increase in disposable goods, growth in online shopping, home renovations and stay-at-home orders contributed to the increase. COVID-19 is expected to also impact waste generation rates for 2021.

In 2020, Durham Region was able to reduce the volume of waste going to landfill by up to 90 per cent which includes all tonnes collected through curbside, multi-residential and waste management facility programs and tonnes managed through energy-from-waste.

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 2020, 41,944 tonnes of blue box recyclables was marketed, accounting for 17 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 which included COVID related closures.

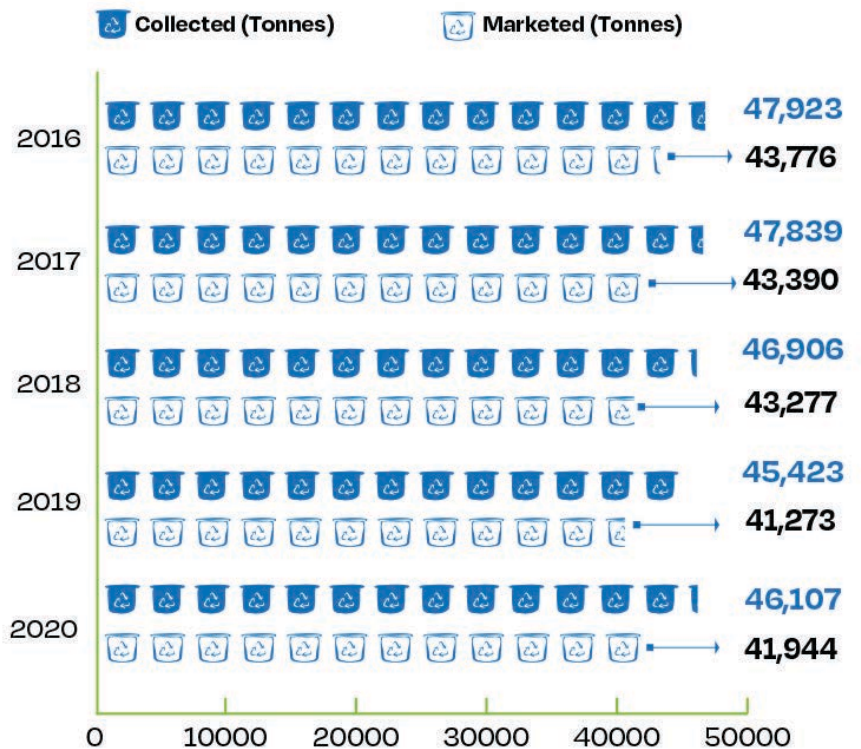
Municipalities, including the Region, continue to experience revenue impacts. In the case of mixed paper and mixed glass materials, this means increasing net costs to continue to ensure the diversion and recycling of these materials. Staff work closely with municipalities, contractors, and other stakeholders to identify alternative markets and/or alternative uses for recycling materials and to minimize the negative impacts from the global economy.

In October 2020, the Ministry of Environment, Conservation and Parks released the draft Blue Box regulation that will make the companies that make the paper, products and packaging collected in the Blue Box responsible for the cost and operation of the Blue Box system in Ontario. After the final regulation is published, producers develop their own system for collecting and managing Blue Box materials. Ontario's Blue Box program will transfer to Extended Producer Responsibility during a three-year period beginning in 2023. Durham Region is scheduled to transition its Blue Box program in 2024.





Blue Box Tonnes Collected and Marketed



Organics

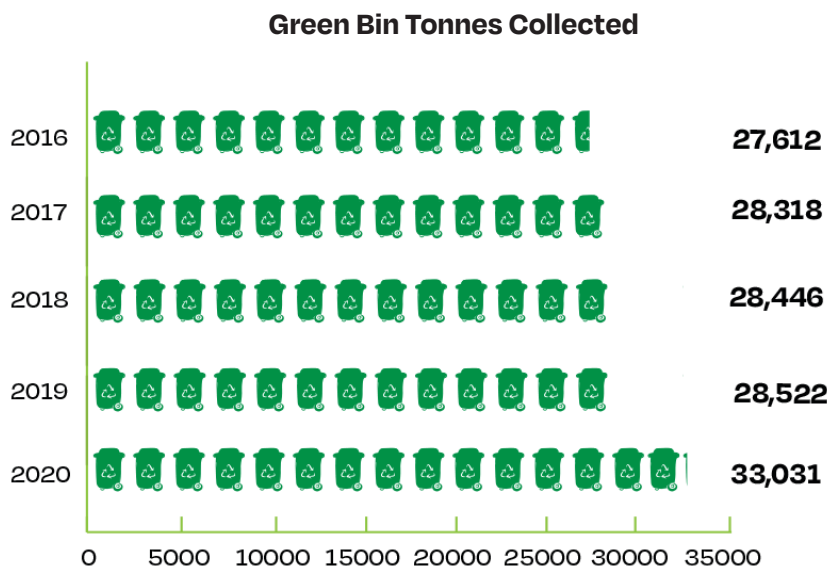
Ontario's Food and Organic Waste Policy Statement was issued on April 30, 2018. It provides direction to provincial ministries, municipalities, industrial, commercial and institutional establishments and the waste management sector to reduce food waste and increase resource recovery from food and organic 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.

Multi-unit residential building owners, to which section 10 of O. Reg. 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 its Regional Waste Bylaw, the 50 per cent waste reduction and resource recovery of food and organic waste requirement is also a Regional requirement.

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 70 per cent 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 incorrectly sorted organics from the garbage bag. The Food and Organic Waste Policy Statement supports mixed waste processing as a supplement to a source separated organics diversion program like the Green Bin program.



Currently, the Region is in the procurement process of evaluating proposals to design, build, operate and maintain the Mixed Waste Pre-sort and Anaerobic Digestion Facility.

Processing organic waste into compost currently represents 13 per cent of the Region's overall diversion achievement. In 2020, Durham Region residents generated 33,031 tonnes of source separated organics from the Green Bin program.

Durham Region composts its organic waste at third party-owned and operated facility in Pickering and Courtice. The majority of collected organic waste was processed and marketed to farmers, landscapers, and soil remediation firms.

What is Anaerobic Digestion?

AD is a method of processing organic waste to create energy.

DINNER WITH THE FAM

Enjoying a meal, but don't have room for that last spoonful?



FOOD SCRAPS

Dispose of food scraps or other compostable items in the green bin.



WASTE PROCESSING

Green bin materials are processed in closed, air-tight containers where bacteria breaks down organics and creates methane gas.



RENEWABLE ENERGY

Methane gas is refined and used as a renewable natural gas, which can be used anywhere natural gas is used.

With the completion of the Anaerobic Digestion facility, the Region's Green Bin organics will no longer be aerobically composted. Instead, the organics will be digested anaerobically (without oxygen) to generate a biogas and digestate. The digestate can be turned into a compost or fertilizer material. The biogas that is produced will offset traditional fossil fuel natural gas to produce a cleaner carbon neutral fuel source.



Leaf and Yard Waste

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.

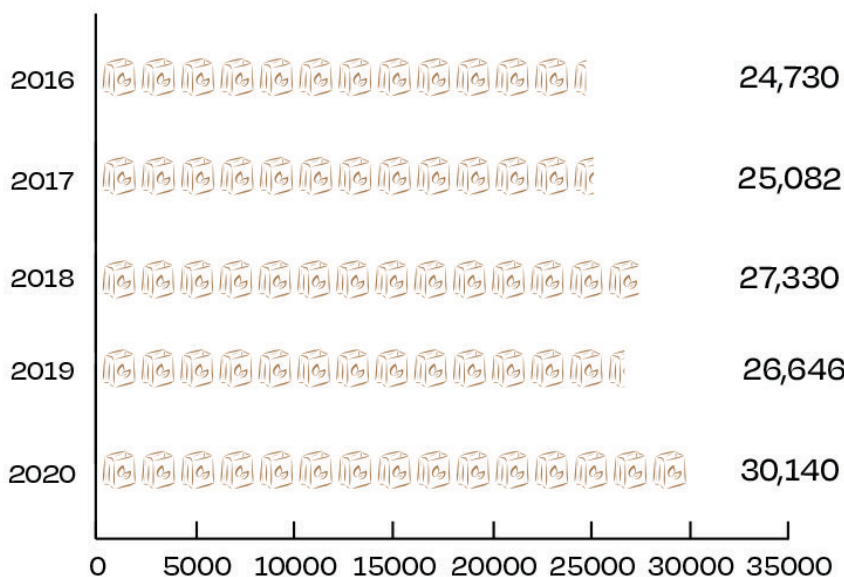
Residents receive seasonal curbside leaf and yard waste collection throughout April to early December with Christmas tree collection in January. Up to 70 per cent of leaf and yard waste is collected in the fall each year.

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

In 2020, Durham Region residents generated 30,140 tonnes of leaf and yard waste, representing 12 per cent of the total waste stream. Leaf and yard waste tonnes are influenced by changing weather patterns.

To ensure the safety of residents and staff during COVID-19, the Region's Waste Management Facilities have suspended accepting of leaf and yard waste. Residents are encouraged to take advantage of the free curbside leaf and yard waste collection. This change is to help limit the number of people attending the WMFs, to maintain physical distancing and to better manage record high vehicular traffic at the facility.

Leaf and Yard Waste Tonnes Collected





Battery Collection

Durham’s battery collection programs continue to maximize the capture of batteries, while keeping mercury, cadmium, and other heavy metals out of the waste stream and out of our natural environment. Batteries are actively managed in Ontario and recycled responsibly through proper processing and conservation of valuable resources.

Durham provides residents with various options for the drop-off of batteries. Drop-off locations include the waste management facilities in Oshawa, Scugog and Brock, Household and Special Waste Depot in Clarington and the Region partners with a private site in Pickering for the safe disposal of batteries. Curbside collection of batteries is offered twice a year, in the spring and fall and many multi-residential buildings also receive battery collection by the Region.

Battery Tonnes Collected

EEE Source	Tonnes
Waste Management Facilities	94
Curbside Collection	48
Multi-Residential Buildings	2
Total	144

“Durham’s battery collection programs continue to maximize the capture of batteries, while keeping mercury, cadmium, and other heavy metals out of the waste stream and out of our natural environment.”

Electronic Waste

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 curbside collection programs for waste electronics in Ajax, Brock, Clarington, Pickering, Scugog and Uxbridge. In the Town of Whitby, curbside collection of bulky items includes waste electronic material and is managed by their waste operations staff. The City of Oshawa treats waste electronics as regular waste and encourages residents to take their items to the Region's Waste Management Facilities for recycling. Many multi-residential buildings also receive electronics collection by the Region.

The program includes collection, processing, recycling, and disposal of electronic waste materials. Collected electronic waste is sent for recycling to recover valuable and scarce resources such as gold, copper, aluminum, and other precious metals. Recycling these materials helps reduce the need for new raw materials.

End-of-life electronics such as computers, televisions, cell phones, and stereos was managed and funded by the brand owners and first importers of these products until December 31, 2020 through an organization called Ontario Electronic Stewardship under the Waste Electrical and Electronic Equipment (WEEE) program.

The new Electrical and Electronic Equipment (EEE) Regulation under the Resource Recovery and Circular Economy Act, 2016, (RRCEA) was posted on the Environmental Registry of Ontario, September 22, 2020. As of January 1, 2021, EEE producers transitioned the Waste Electrical and Electronic Equipment (WEEE) program to Ontario Regulation 522/20 and are now taking full responsibility for managing their products.

In 2020, 455 tonnes of WEEE materials were collected at Durham Region waste management facilities, 33 tonnes through the curbside program and 23 tonnes through the Region's Multi-residential collection program.

Electrical and Electronic Equipment Tonnes Collected

EEE Source	Tonnes
Waste Management Facilities	455
Curbside Collection	33
Multi-Residential Buildings	23
Total	511

“As of January 1, 2021, EEE producers transitioned the Waste Electrical and Electronic Equipment (WEEE) program to *Ontario Regulation 522/20* and are now taking full responsibility for managing their products.”

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

Porcelain

Curbside collection of porcelain bathroom fixtures is offered in Ajax, Brock, Clarington, Pickering, Scugog, Uxbridge and Whitby as well as the Region's Waste Management Facilities (WMF) in Oshawa, Scugog and Brock. The City of Oshawa treats porcelain as regular waste and encourages residents to take their items to the Region's Waste Management Facilities.

This program diverted 444 tonnes of material from disposal in 2020, comprised of 211 tonnes collected through curbside collection and an additional 233 tonnes collected at the WMFs. Once collected, porcelain is sent for recycling. Material is crushed and used for fill/gravel materials.

Multi-Residential Program

Front-end waste, blue tote recycling services, and special onsite diversion programs are provided to over 400 buildings and properties in Durham Region. Growth in multi-residential buildings in Durham continue to impact the Region and currently over 25,000 residential households are provided onsite service. Residents at these sites receive a communal waste service which requires them to sort and manage their waste at a central point in their building. Specialized onsite diversion programs including batteries, textiles and e-waste are also made available by the Region and are managed by the property managers of the sites. In 2020, through these special onsite collection bins, 18 tonnes of textiles, 23 tonnes of electronic waste and 2 tonnes of batteries were recycled.

Hazardous Waste

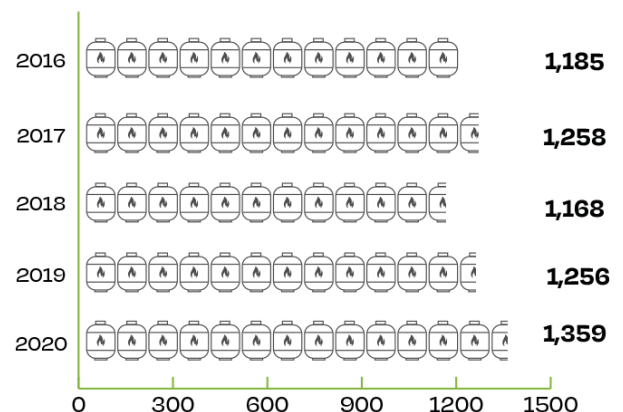
The Municipal Hazardous or Special Waste (MHSW) program is operated by Stewardship Ontario and allows residents to safely dispose household products that require special handling. Collection, processing, and disposal of these materials is funded by first importers of these products and will continue to operate under the Waste Diversion Transition Act until the MHSW program is transitioned to full producer responsibility June 30, 2021.

The Region provides residents with a network of facilities and special events where residents can drop off MHSW. Drop-off locations include the waste management facilities in Oshawa, Scugog and Brock. The Region also has an MHSW depot in Clarington and partners with a private site in Pickering to offer free disposal of hazardous waste. MHSW is recycled or treated and disposed of in an environmentally responsible manner through specialized contract services.

Both regional facilities and retail take-back locations ensure MHSW 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.

Hazardous Waste Tonnes Collected

Hazardous Waste Source	Tonnes
Brock	53
Scugog	206
Oshawa	721
Pickering	270
Bowmanville	109
Total	1,359



“Growth continues to drive the number of residents using the Region’s Waste Management Facilities”



Waste Management Facilities

Growth continues to drive the number of residents using the Region’s Waste Management Facilities (WMFs). Legislative changes related to Extended Producer Responsibility (EPR) will need to be considered. Good planning will 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 remains the busiest of the Region’s three WMFs with over 1,700 visits daily during peak times. This number is anticipated to increase because of continued development, particularly in Oshawa and Whitby. The facility was not designed to handle this high usage which often results in substantial challenges to traffic queuing and onsite traffic management during peak periods. Regional staff are evaluating how to better utilize the existing site footprint to provide the level of service needed to meet user requirements.

A total of 289,345 vehicles utilized the Waste Management Facilities in 2020. An increase of 21,803 vehicles or 8 per cent over 2019, despite the Region no longer accepting leaf and yard waste at these facilities.

Waste

After all diversion efforts like green bin and blue box have been utilized, Durham Region manages its remaining residual waste primarily through energy recovery at an energy-from-waste facility in Clarington. The facility began commercial operations in January 2016 and is owned by the Regions of Durham and York.

The Durham York Energy Centre (DYEC) is a waste management facility that produces energy from the combustion of waste. It 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.

In 2020, an Emergency Environmental Compliance Approval Amendment was issued in response to the COVID-19 pandemic. As a result of the pandemic, residential waste generation in the Regions increased and the Regions submitted a request for an emergency ECA amendment on March 20, 2020 to raise the maximum annual waste processing rate from 140,000 tonnes to 160,000 tonnes for the 2020 calendar year. In addition, the Regions requested permission to enact other contingency measures such as increased material storage limits and shipping and receiving hours should they be required.

In 2020, the DYEC processed 144,798 tonnes of garbage, while recovering approximately 4,168 tonnes of metal and generating approximately 107,243 MWh of electricity for sale to the provincial grid.

By using pollution control systems and proven, reliable energy-from-waste technology, the DYEC meets 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 November 2020. Results from both testing periods demonstrated the facility is currently operating well within the DYEC environmental compliance approval requirements.

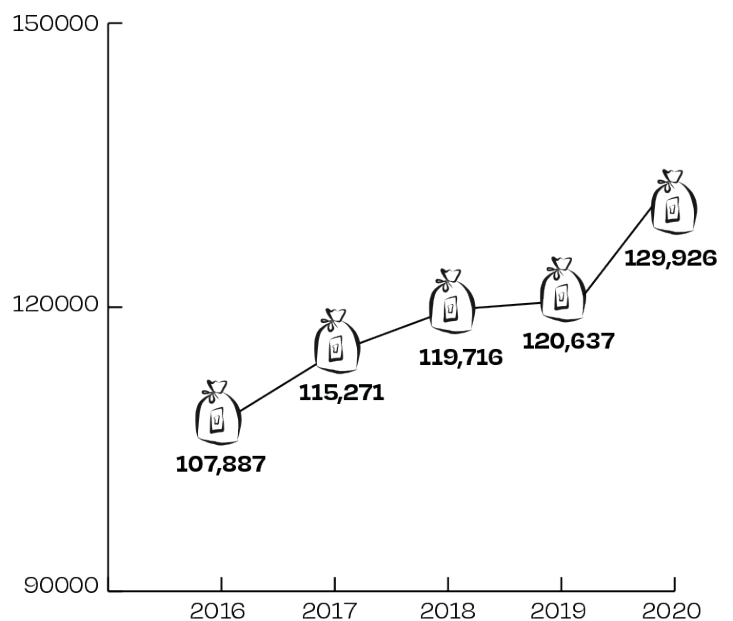
Monitoring activities in place for groundwater, soil, odour and ambient air conditions, did not indicate any impacts from DYEC activities in 2020. Ambient air testing measures concentrations of pollutants in the local airshed and the measurements in 2020 improved significantly. The COVID-19 pandemic has resulted in many changes to our lifestyle and has made significant air quality improvements that have been detected in the ambient air conditions surrounding the DYEC.

The Region of Durham and the Region of York (Regions) are working to complete an Environmental Screening Process and an ECA amendment to increase the annual processing capacity at the DYEC from 140,000 to 160,000 tonnes per year. The facility as it exists, can process the additional materials while meeting the strict emissions limits set by the Ministry of the Environment, Conservations and Parks. The Regions anticipate completion of the Environmental Screening Process and subsequent ECA amendment during 2021.



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 resulting in an overall GHG emissions reduction. The methodology for calculating its GHG generation does not account for these reduced or avoided emissions. In future, the Region will work to retain future carbon credits as an offset against corporate electricity-related GHG emissions inventory where financially feasible. The Region will explore the possibility of using waste heat generated at the DYEC within our other Regional or surrounding facilities and continue to monitor opportunities to reduce or offset emissions through developing technologies including carbon capture and ash utilization.

Garbage Waste Tonnes Collected



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 our maintenance activities and capital projects each year.

As landfills age, erosion and stability issues can occur around their slopes. Since approximately half of the Oshawa landfill boundaries are surrounded by the Oshawa Creek and its tributaries; it is important to ensure continuous improvements can be made to protect the landfill and the creek. 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, this erosion can be severe. 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-grading of the underlying soils to reduce the severity of the slope
- re-vegetate the slopes to prevent erosion
- introduce sand and/or stone filter layers within the slopes
- incorporate the use of our successful pilot product FilterSoxx™ 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

“Mining at the Blackstock landfill was completed in January 2019 and a total of 4,796 tonnes of waste was removed from the site.”



Blackstock Landfill

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

Mining at the Blackstock landfill was completed in January 2019 and a total of 4,796 tonnes of waste was removed from the site. Normally landfills produce and release methane as the waste breaks down. With the removal of waste, the landfill greenhouse gas emissions from 2020 onward is now estimated to be zero from the Blackstock Landfill site.

The Region's plan included naturalizing the decommissioned landfill site to help improve surface and groundwater quality, enhance the site to complement the surrounding ecosystem, and avoid the need for long-term maintenance. The site is surrounded by several natural heritage features including woodlands, wetlands and creeks so, replicating habitat features observed on the adjacent lands enhances and connects the overall natural habitat. This was accomplished by:

- incorporating turtle nesting habitat adjacent to the shallow marsh wetland
- creation of a snake hibernaculum using large boulders extracted from the landfill as well as recycled concrete pieces
- reusing large woody debris that was extracted from the landfill to create piles throughout the site which will provide habitat for amphibians, reptiles and small mammals
- establishing biologically diverse vegetation communities that will attract pollinator species, provide habitat and a food source for wildlife

As this new ecosystem establishes and follows natural succession it will remediate any remaining impurities, reducing the need for ongoing monitoring of the landfill and will become a part of the surrounding habitat.

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 to ensure that there are no environmental impacts on the surrounding lands and in some cases creeks. Maintenance activities include groundwater monitoring well repairs, soil erosion control, and site grading and landscaping. All sites have individual monitoring programs which may include groundwater, surface water and landfill gas that are tailored for each site. Annual reports are prepared and submitted to the Ministry of Environment, Conservation and Parks for review.

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. If expanded to the remaining closed landfills, it is estimated the total GHG emissions reduction may be up to 37,000 tCO₂e annually.

Community Engagement

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 rethink, reduce, reuse, recycle and resource recovery. It is recognized that changing waste generating and handling behaviour requires regular messaging, innovative delivery methods and incentives. The expectations for results must be measured over several years.

The Region is facing the challenge of providing services to a 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 reuse efforts and diversion from disposal. Modernizing the way promotion and education is delivered will ensure messaging is effective, accessible, and multi-lingual.

School education programming will use modern technologies to deliver waste management messaging. Recent engagement with school boards strongly supports utilizing technology platforms for 'live' interactive sessions (i.e. Skype or Zoom) and online video lessons. Staff are currently working on a new online education platform to be launched fall 2021.

In 2020, the P&E program focused its targeted messaging in communicating safe waste practices and program changes as an essential service due to COVID-19, Mixed Waste Pre-sort and Anaerobic Digestion, Long-term Waste Plan along with regular waste diversion program messaging.

While most waste events were cancelled in 2020, the Region did host one compost event and three truckload sales and exchange events for blue boxes and green bins.



EXCHANGED



2,008
Blue Boxes



521
Kitchen food
waste containers



3752
Curbside
Green Bins



60
Backyard
Composters

5,188
Blue Boxes

521
Kitchen food
waste containers

3,752
Curbside Green Bins



Responded to more than **46,000** telephone calls and almost **31,000** emails regarding waste programs.



Over **78,000** Durham Region Waste app downloads with **106,000** weekly waste set-out reminders.

Over **1,500** radio ads across 4 local radio stations

Over **25** newspaper ads placed in local papers



POSTS

346

277

2



Promoting **waste programs** and **services**



Online Waste Plan consultation survey with over **2,000** responses from across the Region.



Hosted a virtual Waste Plan open house, over **13,600** users



Hosted a virtual Town Hall, over **300** residents participated



The Durham York Energy Centre website
(durhamyorkwaste.ca)

Summary

As seen in the 2020 Waste Management Annual Report, the Region of Durham demonstrates leadership in waste reduction and reuse strategies, while managing waste effectively. The Region's programs have demonstrated the following:



63 per cent Resource Productivity and Recovery Authority diversion rate (verification pending)



Marketed **41,944 tonnes** of Blue Box recyclables



Processed **33,031 tonnes** of Organic waste



Composted **30,140 tonnes** of Leaf and Yard waste



Ensured the safe and responsible recycling of **1,359 tonnes** of household hazardous waste, **511 tonnes** of electronics and **144 tonnes** of batteries



72 tonnes of textiles diverted through depot collection and onsite multi-residential bins



DYEC processed **144,798 tonnes** of waste through energy-from-waste recovery generating approximately **107,243 MWh** of electricity for sale to the provincial grid



Convenient access to curbside and waste management facility diversion programs



Actively promoted our waste diversion programs through an extensive communication and education program

Success of Durham Region's waste reduction and diversion programs is due to residents and their continued commitment to reducing waste.







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

Tel: 905-697-5300 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.