



WASTE MANAGEMENT

Annual Report

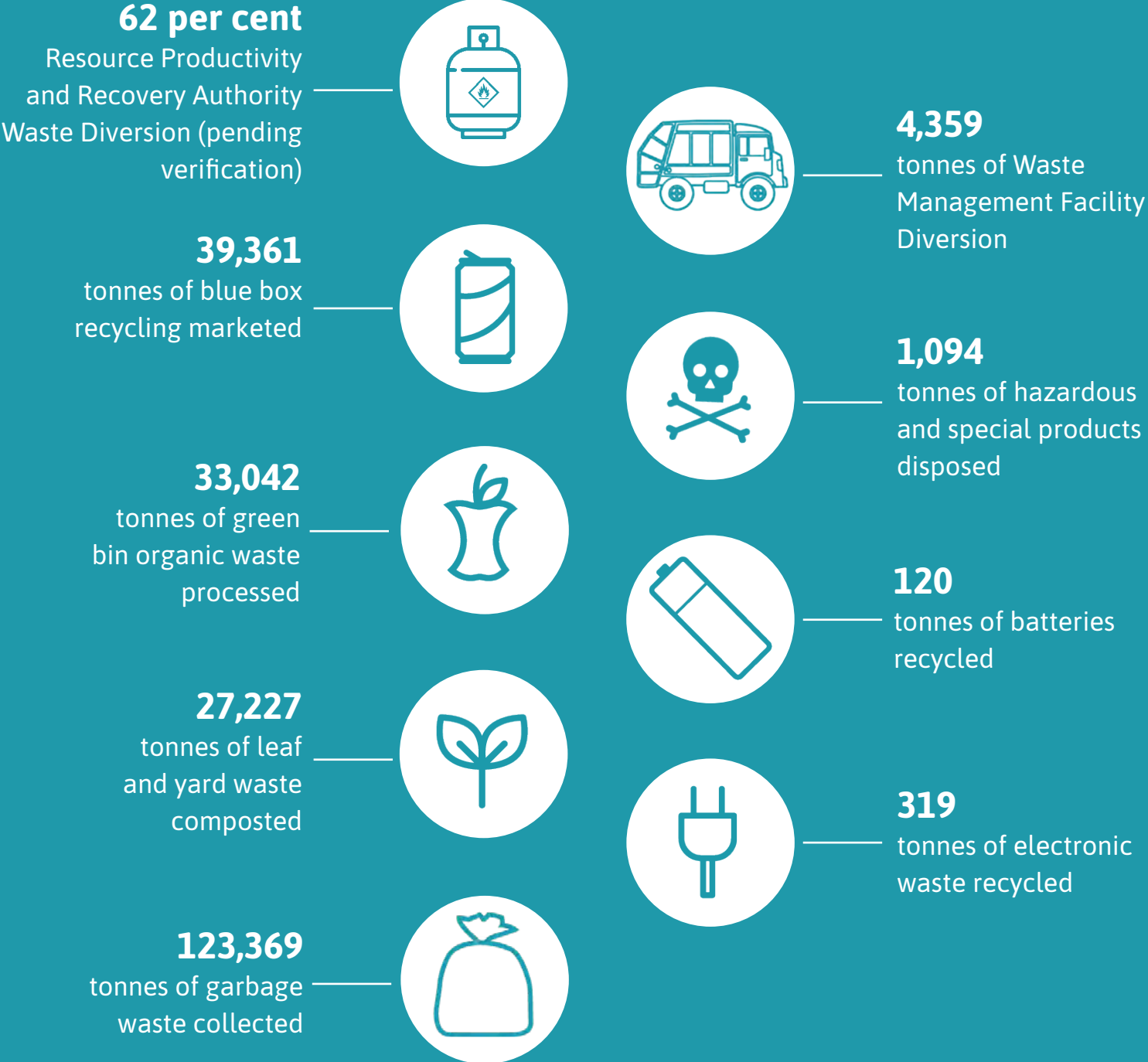
2022



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2022 At-A-Glance



Residents of the Regional Municipality of Durham are part of an extensive integrated waste management system. The Region has heavily invested in waste management systems and policies and continues to exhibit leadership by implementing innovative waste management strategies.

As an upper-tier municipal government, Durham Region delivers waste management programs and services to over 740,000 residents within eight municipalities: Ajax, Brock, Clarington, Oshawa, Pickering, Scugog, Uxbridge and Whitby.



248,846

households



222,674

single-family households



26,172

multi-residential households

Introduction

The Regional Municipality of Durham's 2022 Waste Management Annual Report summarizes Durham Region's integrated waste management system and reports on progress of the Region's recently approved Long-term Waste Management Plan 2022-2040. 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 annual waste diversion monitoring and reporting.

The Region delivers programs and services to more than 740,000 residents within eight municipalities: Ajax, Brock, Clarington, Oshawa, Pickering, Scugog, Uxbridge and Whitby.

Durham Region, like many municipalities, has been impacted by the COVID-19 pandemic that started locally in March 2020. In 2022, waste generation in the region began to decrease as we returned to a steadier state, post covid restrictions.

Durham progressed towards a new normal as many community events were reinstated while observing safety protocols. In-school presentations continued virtually while in-person presentations resumed for special interest, professional affiliations, and community groups.

In 2022, Regional Council approved a new Long-term Waste Management Plan 2022-2040 (Waste Plan). The Waste Plan will help divert as much as possible from the garbage to minimize the need for disposal while recovering resources and energy from the waste that is left.

Durham Regional Council made the decision to delay the implementation of a Regional Anaerobic Digestion facility, by cancelling the Mixed Waste Pre-sort and Anaerobic Digestion Facility procurement process. This decision was guided by a recommendation from staff due to significant and widespread cost increases across the marketplace. In the interim, contracted anaerobic digestion for organic materials is being put in place.



Durham Region is one of the fastest growing regions in Canada. By 2051, Durham Region's population is expected to almost double, increasing to 1.3 million people.

Durham Region was presented with the Ontario Public Works Association 2022 Project of the Year Award in Transportation, less than \$2 million category for the Newtonville Road (Regional Road 18) Rehabilitation with Recycled Materials Project.

The Region remained involved in consultations and provided advocacy for various legislative changes, including the Blue Box Transition and Food and Organic Waste Policy Statement.

The Region will remain engaged as the waste management landscape in Ontario progresses.

Durham Region consolidates all Regional Call Centres into myDurham 311. As of December 1, 2022, residents simply call 311 (within the Region's geographical limits) for answers to questions about services including waste and recycling.

It should be noted that diversion rates are impacted by factors such as weather (for leaf and yard waste), consumer behaviour (e.g. reading newspapers online instead of printed version), light weighting (thinner, lighter packaging) and changes in packaging (e.g. stand-up pouches instead of metal or glass).

In 2022, Durham Region undertook a curbside participation study to determine the approximate rate at which households place garbage, Blue Box and Green Bin material curbside for collection. The study identified that on average:

- 80 per cent of households in Durham Region place three bags of garbage or less for biweekly curbside collection.
- 84 per cent of households place two or more blue boxes out for weekly collection.
- 61 per cent of households place a green bin out for curbside collection.

Diversion Achievements

Durham Region submits an annual Datacall to the province through the Resource Productivity and Recovery Authority (RPPRA). The information is used to determine blue box costs and to allocate funding from producers to assist with the cost of operating the Blue Box program. Each year RPPRA releases a ranking of municipal diversion rates for Ontario-based on the Datacall results.

Durham Region is classified as Urban Regional by the RPPRA, along with Essex-Windsor Solid Waste Authority, Waterloo Region, Simcoe County, Niagara Region, and City of Ottawa.

RPPRA Waste Diversion rates for Durham Region:

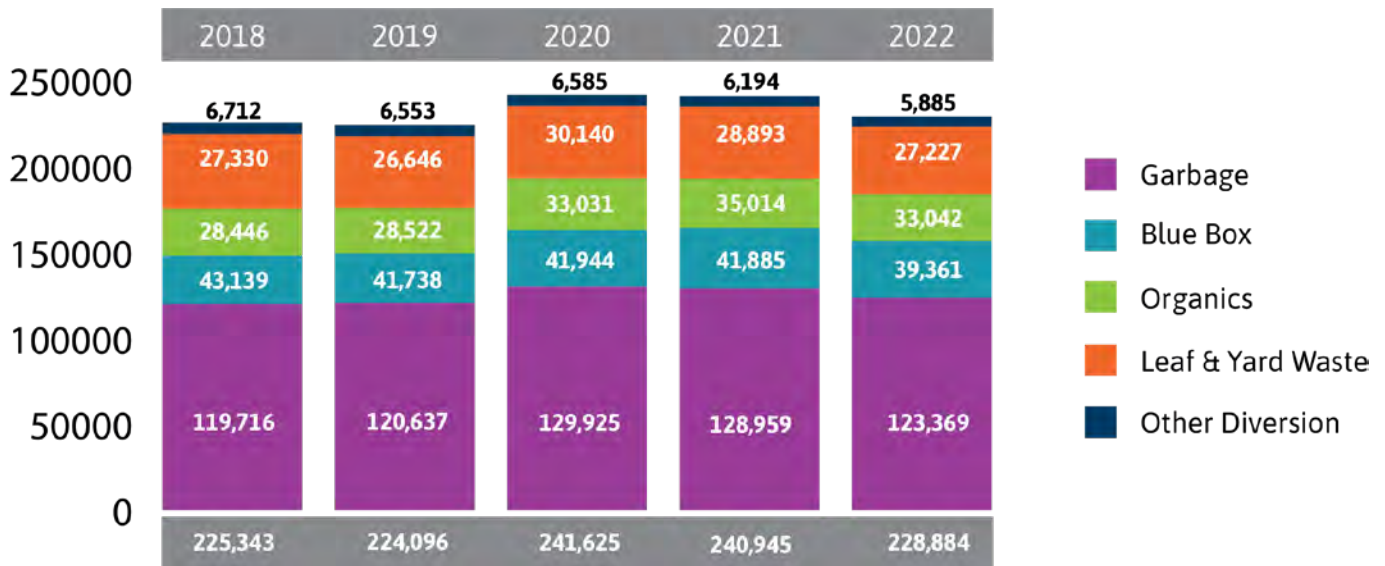
- 2018 – (64 per cent)** First for Urban Regional Municipalities, third (tied) overall in Province.
- 2019 – (64 per cent)** First for Urban Regional Municipalities, third overall in Province.
- 2020 – (63 per cent)** First for Urban Regional Municipalities, third overall in Province.
- 2021 – (62 per cent)** Second for Urban Regional Municipalities, third overall in Province.
- 2022 – (62 per cent)** pending verification.

All values are rounded.

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

*2022 diversion data presented is unverified by RPPRA at time of printing.

Total Tonnes Managed Year over Year



2022 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	10,985	984	504	4,835	268	5,059	3,503	70	26,208
Ajax	13,599	1,528	242	6,067	234	6,856	3,637	125	32,288
Whitby	13,717	2,407	388	7,165	228	7,385	5,710	66	37,066
Oshawa	19,659	8,406	311	9,221	783	7,096	6,363	30	51,869
Clarington	13,242	134	407	6,417	58	4,328	4,076	68	28,730
Scugog	2,981	198	53	1,138		918	1,069	13	6,370
Uxbridge	2,498	135	157	1,119		897	1,005	23	5,834
Brock	2,203		65	1,233		503	438	14	4,456
Sub-totals	78,884	13,792	2,127	37,195	1,571	33,042	25,801	409	192,821
	94,803			38,766		58,843			
Waste Management Facilities									
Oshawa			17,595	368			539	3,290	21,792
Scugog			4,515	178			682	1,336	6,711
Pickering								199	199
Clarington								95	95
Brock			2,086	49			205	533	2,873
Material Recovery Facility			4,370						4,370
Sub-totals			28,566	595			1,426	5,453	36,040
Special Events									
Hazardous Waste								14	14
E-Waste								4	4
Reuse								5	5
Sub-totals								23	23
Total tonnes managed	123,369			39,361		60,269		5,885	228,884

*Amounts have been rounded to the nearest whole number.



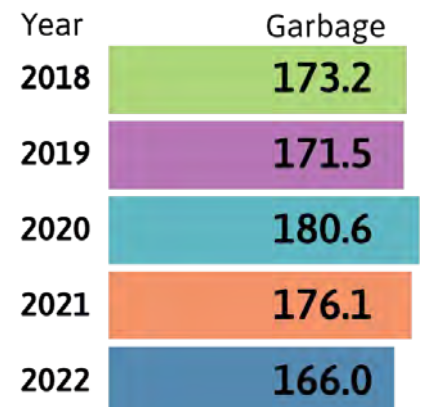
Waste Generation

Waste generation rate is a tonnage per person measurement (kg/capita) used to track progress towards the Long-term Waste Management Plan waste reduction efforts.

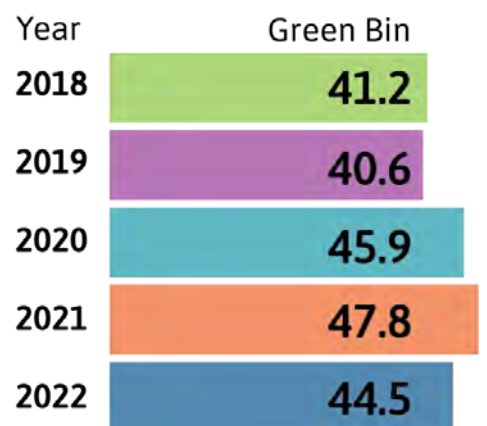
With the move to Extended Producer Responsibility for the Blue Box program, Durham Region will focus on two key streams of collected waste — green bin organics and garbage. Yard Waste generation is not included as this waste is mostly unpredictable, with yard waste tonnage greatly influenced by weather, not Durham’s program efforts.

Waste includes residential garbage collected from single family dwellings, multi-residential units and business improvement areas serviced by the Region and garbage managed through the Region’s three waste management facilities.

Durham Region Garbage Generation Rate (kg/capita)



Durham Region Green Bin Generation Rate (kg/capita)



Long-term Waste Management Plan 2022-2040

Durham Region developed its initial Long-term Waste Management Strategy Plan (LTWMSP) in 1999. With the input of the community and stakeholders, we developed the newest Long-term Waste Management Plan (Waste Plan) in 2022. The new Waste Plan is a roadmap that describes Durham Region’s vision, guiding principles, and objectives for waste management over the next approximately 20 years (2022 to 2040). Our overall goal is to divert as much material as possible from garbage to minimize the need for disposal and recover resources including energy, from the waste that is left.

Every five years we will develop an Action Plan to support the Waste Plan by determining targets, actions, and budgets to achieve the short-term goals while working towards long-term objectives. This will ensure we are on track in meeting our objectives and will provide opportunities to adjust our targets and actions, if needed. Many of our targets will carry forward into the next plan, with revisions and adjustments as needed.

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.





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.

Objectives



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.



Objective 2

Reduce the quantity of waste we create.



Objective 3

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



Objective 4

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



Objective 5

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

Extended Producer Responsibility

The Province of Ontario continued to implement the Resource Recovery and Circular Economy Act (RRCEA) in 2022. The RRCEA establishes Extended Producer Responsibility (EPR) in Ontario with the Resource Productivity and Recovery Authority (RPRA) as Registrar that oversees reporting and compliance of programs developed under the RRCEA.

Regulations already established under the RRCEA include EPR programs for tires, batteries, electrical equipment, and household hazardous or special waste (HSP). The Region has successfully transitioned its collection programs to the new regulatory framework for each of these materials.

Durham Region continues to provide collection services for used tires, batteries, electronics and HSP under the new EPR programs because there are limited alternate collection options for these materials available to residents. The

Region's curbside collection program for used batteries is also continuing under EPR.

Durham Region's Blue Box program transition date for blue box recycling is July 1, 2024. On this date, the producers of the paper and packaging that go in the Blue Box become responsible for residential collection of the blue box from single family residences and in multi-residential buildings currently serviced by the Region. Producers also become responsible for sorting the collected material and recycling it.

Producers are required to keep the Blue Box program the same until all municipalities have transitioned.

Producers can start to make changes to the Blue Box program on January 1, 2026. This includes implementing a standardized list of material to be collected in every community in Ontario. The year 2026 is also when eligible sources of Blue Box material that Durham Region doesn't currently service can request Blue Box service free of charge from the producers. These sources include

schools, municipal parks, not-for-profit long-term care, and all multi-residential developments not already serviced by the Region.

Ineligible sources (such as businesses located in Business Improvement Areas and many other small businesses that currently receive municipal recycling services) after the Region transitions in 2024 may be provided services by the EPR

contractor during the transition period provided an agreement can be reached. Beyond the transition period, a separate contract will need to be established for the collection and processing of recyclable material from non-eligible sources. The costs of providing continued services to these sources is currently unknown given the lack of comparable programs in the marketplace. Once information is available, staff intend to report on logistical and financial implications of providing service to committee and Council on the programs.

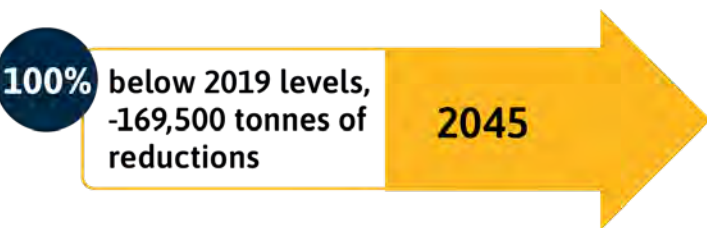
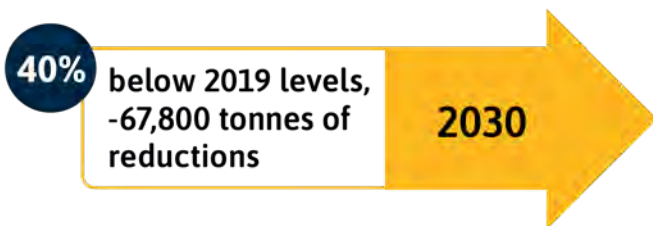
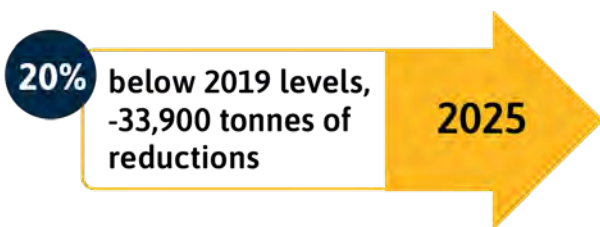
“Producers can start to make changes to the Blue Box program on January 1, 2026. This includes implementing a standardized list of material to be collected in every community in Ontario”.



Climate Change

In 2020, Durham Regional Council declared a climate emergency. Over the last 10 years, the Region has been making decisions supporting the need to focus on climate change and adaptation as its critical priorities. Recently, the Region developed the Corporate Climate Action Plan (CCAP) which outlines actions to reduce Greenhouse Gas (GHG) emissions from the Region’s corporate operations. The CCAP and the Corporate GHG emission reduction targets were approved in March 2021.

Waste Management Services continues to focus on reducing greenhouse gas emissions from waste management operations. Actions in 2022 include:



- Requiring compressed natural gas (CNG) vehicles for the Ajax and Pickering garbage collection contract.
- Developing organics management options that include diversion for more items such as diapers and pet waste.
- Issuing a 10-year organics processing contract based on anaerobic digestion which captures and uses the resulting renewable natural gas.
- Developing a pilot project using a biocover system at the Oshawa Landfill to reduce fugitive methane emissions.
- Developing a plan to optimize the layout and traffic flow at the Oshawa Waste Management Facility to reduce vehicle wait and idling times and provide opportunities to increase diversion.

Blue Box

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.

Last year, 39,361 tonnes of Blue Box recycling collected through the Blue Box program was sold to markets to be made into something new. Most of the materials from the Blue Box program goes to markets in Canada and the United States. Only a small portion of the Region’s recycling goes overseas and, when it does, it is done through reputable brokers to ensure it is being recycled.

The Region of Durham’s Blue Box program remains strong. Despite changes in global recycling markets that have resulted in an oversupply of recycling materials, with fewer markets where some materials can be sold. The Region’s two-stream program has resulted in higher capture rates, better quality materials, better market access and higher prices compared to single-stream programs.

Blue Box Collected and Marketed

Year	Collected (Tonnes)	Marketed (Tonnes)
2018	46,906	43,277
2019	45,423	41,273
2020	46,107	41,944
2021	46,155	41,886
2022	43,712	39,361

Transition Towards a New Blue Box Program

Blue Box regulation (Ontario Regulation 391/21) came into effect on June 3, 2021. This regulation lays out terms by which Ontario’s entire Blue Box recycling program will be overhauled over the next few years and transitioned to full Extended Producer Responsibility (EPR). This transition will be phased in between July 1, 2023, and December 31, 2025.

Durham Region’s Blue Box Program will transition to full EPR on July 1, 2024.



“Over the next decade, this ban on single-use plastics will result in the estimated elimination of over 1.3 million tonnes of hard to recycle plastic waste and more than 22,000 tonnes of plastic pollution, which is equivalent to over one million full garbage bags”.

The Federal government’s ban on single-use plastics

The prohibition on several categories of single-use plastics began December 20, 2022, affecting a range of products from plastic straws, checkout bags, cutlery, stir sticks and takeout containers. A ban on the manufacture and import of ring carriers or six-pack rings, used to carry aluminum cans and plastic bottles, began in June 2023.

To provide businesses in Canada with enough time to transition and deplete their existing stock, the Regulation will enter into force through a phased approach:

December 20, 2022, new rules prohibit the manufacture and import of single-use plastic straws, checkout bags, cutlery, stir sticks and takeout containers made from problematic plastics, including black plastic and polystyrene. The ban on the sale of these items will come into force in December 2023.

A ban on the manufacturing of plastic ring carriers began in June 2023 and they will be banned for sale by June 2024.

Retailers are permitted to sell beverage containers packaged with flexible straws until June 2024.

By the end of 2025, the government will ban the manufacture and import for the purposes of export of all six categories of single-use plastics.

Over the next decade, this ban on single-use plastics will result in the estimated elimination of over 1.3 million tonnes of hard to recycle plastic waste and more than 22,000 tonnes of plastic pollution, which is equivalent to over one million full garbage bags.

The six categories of single-use plastic items in the Regulation were specifically selected because they are commonly found in the environment, are harmful to wildlife and their habitat, are difficult to recycle and have readily available alternatives.

Recycled waste used in Regional Road 18 Pilot Reconstruction Project in Clarington

Durham Region was presented with the Ontario Public Works Association 2022 Project of the Year Award in Transportation, less than \$2 million category for the Newtonville Road (Regional Road 18) Rehabilitation with Recycled Materials Project.

Newtonville Road, in the Municipality of Clarington, was the location for an innovative project that used recycled materials in road construction. The first phase of the project was completed using conventional road rehabilitation methods and materials. The second phase of the project used recycled materials on an adjacent section of the same road.

Phase two incorporated blue box materials in the road reconstruction process; reusing about 400 tonnes of recycled glass from blue box collections in the granular base, and approximately six tonnes of recycled plastics from blue box collections, and 4.5 tonnes of polyethylene terephthalate (PET) fibres made from recycled plastics in the asphalt.

This pilot project provided an opportunity to explore the reuse of glass processed from blue box collections in the Regional Road program. Using recycled materials from blue box collections could help reduce the volume of aggregate materials mined and trucked in for road construction, while possibly increasing the strength, durability, and overall pavement life cycle of the road network resulting in reduced long term maintenance costs.



Organic Waste

Removing and preventing organics from the garbage bag is a key waste diversion strategy in Durham Region and helped to achieve over 60 per cent diversion. Last year, Durham residents generated 33,042 tonnes of source separate organics from the Green Bin program.

Collected organics are shipped to a contracted anaerobic digestion facility in Ontario and processed into fertilizers, nutrient-rich compost and biogas which is used to generate electricity.

Green Bin Tonnes Collected

Year	Tonnes
2018	28,446
2019	28,522
2020	33,031
2021	35,014
2022	33,042



Mixed Waste Pre-sort and Anaerobic Digestion

In June 2022, Durham Regional Council made the decision to delay the implementation of a Regional Anaerobic Digestion (AD) Facility, by cancelling the Mixed Waste Pre-sort and Anaerobic Digestion (AD) Facility procurement process. This decision was guided by a recommendation from staff due to significant and widespread cost increases across the rapid rise in material, shipping, and labour costs in the marketplace. The cancellation does not change the Region's need for a sustainable organics (green bin) management plan. Ontario's Food and Organic Waste Policy Statement requires municipalities to achieve:

- 70 per cent waste reduction and resource recovery of food and organic waste generated by single-family homes by 2023; and
- 50 per cent waste reduction and resource recovery of food and organic waste generated at multi-residential properties by 2025.

In the short-term, we will work with an existing AD facility to ensure the Region has organics processing capacity. The long-term objective is focused on the future development of the Region's AD project.

The Region's AD project remains the preferred long-term solution for Durham due to its many benefits, including renewable natural gas (RNG) production and greenhouse gas (GHG) reductions; complying with anticipated regulations banning organics from landfill; increased diversion rates; and deferring the need to expand the Durham York Energy Centre (DYEC) which processes Durham's residual waste.

On May 21, 2022, Ontario was subjected to an intense derecho windstorm that brought rain, hail and lightning and pulled some trees from their roots. Three tornados were reported in Ontario, with the fiercest one landing within Durham Region in the Township of Uxbridge, reaching speeds of 195 km/h.

To support the storm recovery, Durham Region Waste Management Facilities (WMFs) extended their hours from 8 a.m. to 8 p.m. from Tuesday, May 24 until Saturday, June 4. Additionally, the WMFs temporarily accepted leaf and yard waste free of charge. In addition, the Region waived the garbage bag limit for curbside pickup and provided bins at the Uxbridge Arena and Recreation Centre and Uxbridge Seniors Centre for disposal of debris.

Leaf and Yard Waste

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.

Leaf and yard waste is collected in paper yard waste bags, open-top reusable containers or tied bundles for outdoor windrow composting.

Yard Waste Tonnes Collected

Year	Tonnes
2018	27,330
2019	26,646
2020	30,140
2021	28,892
2022	27,227





Multi-Residential Program

Municipal waste and recycling services are provided to 415 approved condominium, rental townhouse and apartment style properties that equals 26,172 households. Each year the Region adds sites through its approvals process.

Special collection services at multi-residential properties include onsite battery, electronic waste, and textile collections.

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

A total of 332,040 vehicles utilized the Waste Management Facilities in 2022.

Facility Visitors

Oshawa Waste Management Facility – 236,865

Scugog Waste Management Facility – 66,410

Brock Waste Management Facility – 17,771

Clarington Special Waste Depot (Household Hazardous Waste only) – 6,688

Pickering (private Household Hazardous Waste site only) – 4,306

Waste Management Facilities

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

In 2022, Regional staff finalized three conceptual designs, traffic study analysis, and developed construction cost estimates to ensure the Oshawa Waste Management Facility is utilized to its optimal and full extent to achieve goals outlined in the Long-term Waste Management Plan, 2022-2040. Capital improvements for the Oshawa facility will include optimization of the existing infrastructure to enhance user experience, improve traffic flow and capacity, improve health and safety, and improve/expand the Region’s diversion programs.

2022

Waste	Tonnes of Recycling	Tonnes of Leaf and Yard Waste	Tonnes of Other Diversion	Tonnes of Garbage
Oshawa	368	539	2,725	17,595
Scugog	178	682	1,159	4,515
Brock	49	205	475	2,086
Total	595	1,426	4,359	24,196

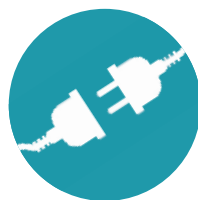
Other Diversion



Textiles
70 tonnes



Drywall
186 tonnes



Electronics
264 tonnes



Porcelain
199 tonnes



Scrap Metal
799 tonnes



Tires
358 tonnes



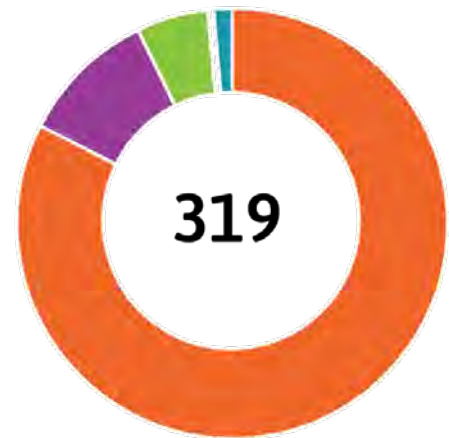
Wood
2483 tonnes

Electronic Waste

Durham Region provides residents with a network of drop-off facilities for waste electronics, including Oshawa, Scugog and Brock Waste Management Facilities (WMFs). 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 electronic material. The City of Oshawa treats waste electronics as regular waste and encourages residents to take their items to the Region’s WMFs. Many multi-residential buildings also receive electronics collection by the Region’s collection contractor through onsite specially marked bins located inside each building.

2022 Electronic Waste Collected by Source

Source	Tonnes
Waste Management Facilities	264
Curbside Collection	32
Multi-Residential Buildings	19
Events	4
Total	319



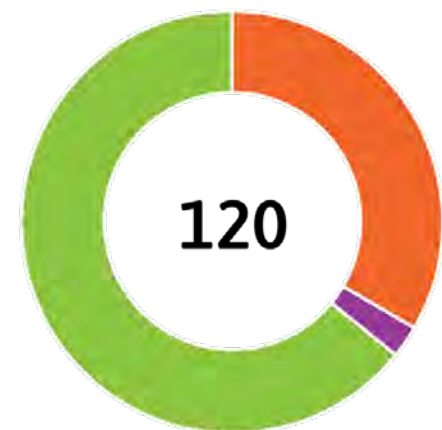
Battery Collection

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. Household batteries are actively managed in Ontario and recycled responsibly through proper processing and conservation of valuable recoverable resources.

Last year, Durham Region residents diverted 120 metric tonnes of batteries from the waste stream.

2022 Batteries Collected by Source

Source	Tonnes
Waste Management Facilities	77
Curbside Collection	40
Multi-Residential Buildings	3
Total	120








Hazardous and Special Products

The Region provides residents with a network of facilities and special events where they can drop off Hazardous and Special Products (HSP). Drop-off locations include the waste management facilities in Oshawa, Scugog and Brock. The Region also has an HSP depot in Clarington and partners with a private site in Pickering to offer free disposal of HSP. HSP 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 HSP 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.

2022 Hazardous and Special Products Collected

Source	Tonnes
 Brock	58
 Scugog	176
 Oshawa	565
 Pickering	199
 Clarington	96
Total	1,094

2022 Hazardous and Special Products Collected





Waste

In 2022, the Durham York Energy Centre (DYEC) processed 140,000 tonnes of garbage, while recovering approximately 3,952 tonnes of metal for recycling and generated approximately 99,980-megawatt hour (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 alternative of landfill waste disposal. In addition to continuous emissions monitoring, independent stack tests to monitor all emissions from the stack were conducted in May and December 2022. Results from both testing periods demonstrated the facility is operating well within the DYEC environmental compliance approval requirements. Monitoring activities in place for groundwater, odour, and ambient air conditions, did not indicate any impacts from DYEC activities in 2022.

In July 2018, the Ministry of Environment, Conservation and Parks (MECP) prepared a technical memorandum summarizing the analysis of air quality data for the years 2013 to 2016. In 2022, the MECP updated the original technical memorandum to include data from 2013 to 2020. A review of trends, sources and patterns was conducted on the most recent monitoring data. The monitoring data was compared against Canada and Ontario’s Ambient Air Quality regulatory criteria. A broad range of activities contribute to local air quality in Durham Region including industrial, construction, residential, commercial, agricultural, transportation, and transboundary sources from outside the region and province.

“The analysis shows that air quality in Durham Region, are comparable to similar communities across southern Ontario”.

The equipment at DYEC has limitations due to its size, and, for various reasons, it cannot always process all the waste available to it in each day. While the facility has storage capacity, waste that cannot be processed in a timely manner must be bypassed to another facility. Reasons for bypass waste include planned or unplanned outages, as well as capacity constraints during periods of high waste generation. Despite planned and unplanned outages, Durham residents are currently producing approximately 14,000 tonnes more than Durham's 110,000 tonne per year allocation.

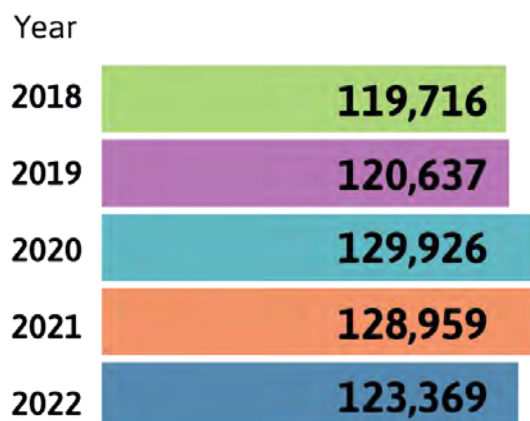
The report included a summary of data from air monitoring stations operating throughout Durham Region by various stakeholders, including: the Ministry of the Environment, Conservation and Parks, Environment and Climate Change Canada, the Durham York Energy Centre, St. Marys Cement, 407 East Construction, and Gerdau Ameristeel.

In addition, the MECP analyzed available air quality data for the Clarington area to observe possible trends, sources, or patterns and to provide a picture of the general ambient air quality throughout the Municipality of Clarington, Ontario. Monitoring in Clarington was obtained over a five-day period using a mobile air monitoring vehicle. Measured concentrations obtained during the 2021 mobile air monitoring survey did not exceed regulatory criteria converted assessment values.

Overall, the analysis shows that air quality in Durham Region is comparable to similar communities across southern Ontario. Air quality in Ontario has improved significantly over the last 10 years, including significant decreases in nitrogen dioxide, fine particulate matter, and sulphur dioxide largely due to the phase out of coal fired electricity generation from the province's power grid.

The Region of Durham and the Region of York completed an Environmental Screening Report in March 2022 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 emissions limits set by the MECP. The additional waste processing capacity will allow the facility to operate more efficiently and keep up with the increasing waste generation that comes with population growth. The Regions continue to await a response from the MECP on the next steps to move this waste management initiative forward.

Garbage Waste Tonnes Collected



DYEC Facts

Operates in accordance with a strict environmental monitoring program to ensure that emissions are below limits to be fully protective of human health and the environment.

- Processes up to 110,000 tonnes of Durham’s garbage and 30,000 tonnes of York’s garbage per year.
- Only Durham Region and York Region residential household waste is accepted at this facility.
- Residual waste is the material remaining after maximizing waste diversion programs — rethink, reduce, reuse, recycle and compost.
- The facility recovers any remaining metals for recycling and generates electricity from recovered energy within the waste.
- Reduces the number of trucks hauling to landfill.
- Recovers and recycles the equivalent of approximately 36 million aluminum cans and 3,000 cars worth of steel per year.
- Generates enough electricity to power the facility and approximately 10,000 homes for one year.
- The volume of waste is reduced by up to 90 per cent through combustion.
- All ash from the combustion process is beneficially used as daily landfill cover.

Prior to the operation of the Durham York Energy Centre, Durham Region depended on landfills as its primary waste disposal option.

Garbage disposal at:

- Brock West until 2000
- Keele Valley until 2003
- Pine Tree Acres, Michigan until 2010
- Modern, New York State until 2015
- Durham York Energy Centre, 2016 – ongoing





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 Durham's maintenance activities and capital projects each year.

Approximately half of the landfill boundaries are surrounded by Oshawa Creek and its tributaries. Over time, natural stream flow and storm events cause erosion within the Oshawa Creek's banks. In some areas this erosion can be severe, so the Region performed a detailed stream evaluation in 2015 to identify potential long-term impacts to the landfill slopes caused by the creek and surface water flow. The study prioritized the areas of concern and provided the appropriate solutions.

Since 2015, six 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
- introduce sand and/or stone filter layers within the slopes
- incorporate the use of 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 and trout habitat within the creek

The design work for an additional slope stabilization project area was started in 2022 and the construction of the project is planned for 2023.

Bio cover Pilot

A consultant has been retained by the Region to conduct a bio cover pilot project at the Region's Oshawa Landfill site which closed in 1980. A bio cover is an enhanced landfill cover that contains layers of gravel and a compost/sand mixture. As landfill gas migrates through the compost/sand layer, the methane component of the gas is metabolized by bacteria residing in the compost converting it into carbon dioxide, a much less potent greenhouse gas. The pilot will consist of two bio cover configurations: a 3 metres x 10 metres biofilter (an above-grade walled structure containing the bio cover media) where the landfill gas will be conveyed to the biofilter through two gas wells and in-ground piping, and a bio cover configuration usually described as a "bio window" where a 3 metres x 4.5 metres section of the existing clay and topsoil landfill cover will be excavated and replaced with the biocover media.

Approval for the pilot has been granted by the Ministry and the preliminary lab studies have been completed. Construction is estimated to take three to four weeks during the 2023 spring or summer period, followed by an 18-month monitoring period.

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, converts 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 was to naturalize the decommissioned landfill site to help improve surface and groundwater quality, enhance the site to compliment 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



- creating 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

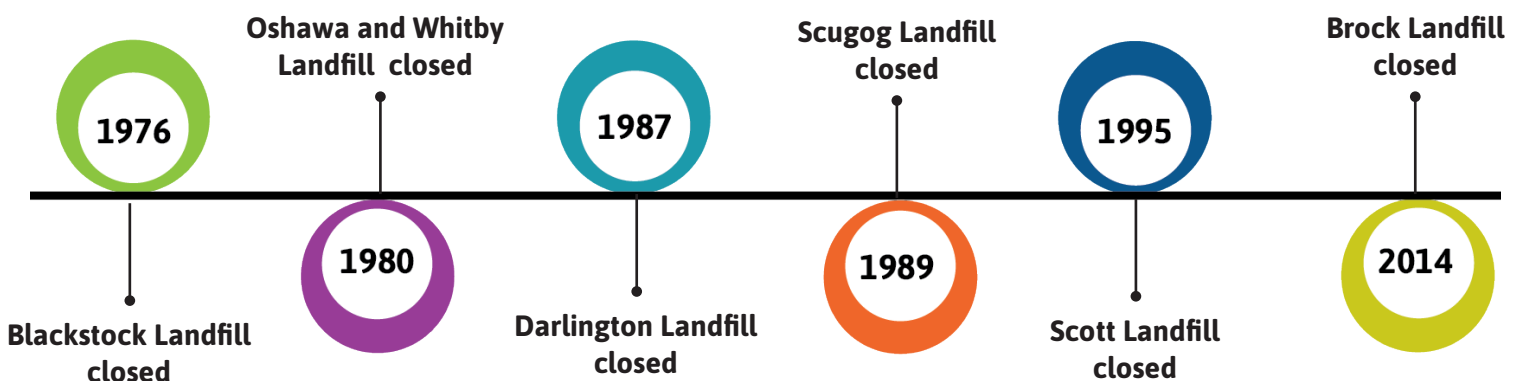
This rehabilitation plan also included choosing plant species that are capable of remediating contaminants that may persist in screened soils that remain after landfill mining. This process is known as phytoremediation. It is accomplished by choosing certain types of plants which are known to have the ability to absorb and store contaminants, such as willow shrubs and poplar trees.

The site is inspected regularly to ensure as the new ecosystem establishes it will naturally remediate any remaining impurities, reducing the need for ongoing surface and groundwater monitoring of the landfill and will naturalize and become a part of the surrounding habitat.

Other Landfill Perpetual Care Activities

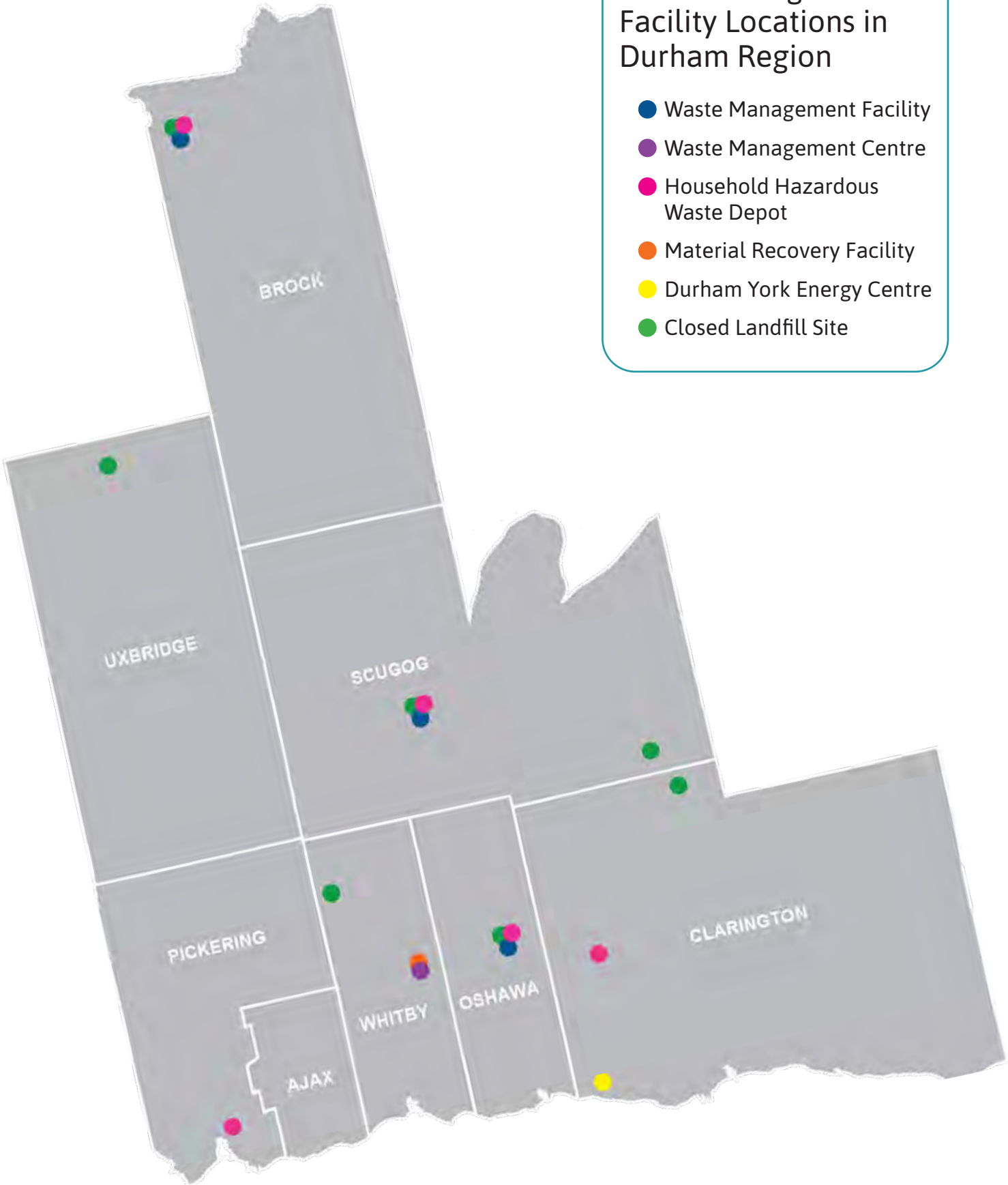
The Region maintains perpetual care of seven closed landfill sites. All sites are monitored regularly and inspected at least twice a year and maintained as needed to ensure that there are no environmental impacts on the surrounding lands and in some cases, creeks. Maintenance activities include groundwater monitoring, well repairs, soil erosion control, and site grading and landscaping. All sites have individual monitoring programs which monitor groundwater, surface water and landfill gas that are tailored for each site. In addition to regular monitoring, Durham Region is taking steps to mitigate the potential effects of the historic landfill sites managed by the Region. Annual reports are prepared and submitted to the Ministry of Environment, Conservation and Parks for review.

These landfills were owned and operated by the local municipalities when the Region of Durham was established 1974.



Waste Management Facility Locations in Durham Region

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





“To increase accessibility, both the high school and elementary school virtual education programs were made available on a newly revamped School Programs webpage on the Region’s website.”

Community Engagement

Durham Region actively promotes waste reduction, reuse, and diversion through community outreach and public education.

Outreach and education 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 generation and handling behaviour requires regular messaging, innovative delivery methods and incentives. The Region provides promotional and educational information through its website, social media channels, waste app, public space advertising, newspaper, radio, and television advertising and through mail-outs of waste collection calendars.

In 2022, outreach focused its targeted messaging to reduce residential food waste through behavioural change, safe with waste practices, community events and promotion of the Durham Region Waste App as the Region transitions to paperless waste calendars in 2023.

Durham’s Waste Management school outreach program continued offering in-class programming through online virtual presentations and resources. This program reached over 4,800 Kindergarten to Grade 12 students across Durham’s six school boards.

In addition, a new virtual education program for elementary students was introduced in September to align with the 2021-2022 school year. This program provides elementary teachers access to Durham-specific waste management course materials, lesson plans, and resources that can be used within the classroom.

To increase accessibility, both the high school and elementary school virtual education programs were made available on a newly revamped School Programs webpage on the Region's website. Combined, these programs include 59 lesson plans with direct ties to the Ontario Curriculum. Staff are currently working to promote and grow this program.

In addition to the school program, staff continued to provide virtual presentations, and resumed in-person presentations for post-secondary, special interest, professional affiliations, and community groups. This program reached over 300 participants in 2022.

Durham's Waste Management Division also participated in the Clarington Public Library WonderLearn 'Take and Make' event, providing waste education activities and promotional materials to 250 participants.

In 2022, Durham Region's waste promotion and education initiatives included:

EXCHANGED



5,111
Blue Boxes

510
Kitchen food
waste containers

3,569
Curbside Green Bins

for new boxes, containers, or bins due to damage.



3,351
Blue Boxes



397
Kitchen food
waste containers



1,450
Curbside
Green Bins



75
Backyard
Composters



Responded to more than **53,000** telephone calls and almost **47,150** emails regarding waste programs.



Over **112,750** Durham Region Waste app downloads with **126,650** weekly waste set-out reminders.

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



Over **35** newspaper ads placed in local papers

Delivered **6,365** new resident diversion kits.

POSTS

142

141



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

Summary

Durham Region residents are part of an extensive integrated waste management system. Together, new and innovative programming is being implemented through our newest Long-term Waste Management Plan showcasing Durham Region's leadership in sustainable waste management and inspiring change through the 5Rs – Rethink, Reduce, Reuse, Recycle and Recover.

As seen in the 2022 Waste Management Annual Report, the Region of Durham demonstrates leadership in waste reduction and reuse strategies, while managing waste effectively.

Then

1974

- The Regional Municipality of Durham formed

1976

- Blackstock Landfill closed

1980

- Oshawa and Whitby Landfill closed

1987

- Darlington Landfill closed
- Blue Box recycling program launched in Durham
- Material Recovery Facility constructed in Whitby to process recyclables

1989

- Scugog Landfill closed

1995

- Scott Landfill closed

1999

- Long-term Waste Management Plan: 2000 to 2020 approved by Council
- Recommendation includes considering Energy from Waste as an alternative to landfill

2003

- Blue Box expanded to include additional containers
- Green Bin organics starts in Brock, Clarington, Scugog and Uxbridge
- Garbage bag tags mandatory over the four-bag limit in Brock, Clarington, Scugog and Uxbridge
- Plastic yard waste bag ban

2005

- Durham and York Regions establish partnership on Energy from Waste project

2006

- Green Bin program goes Region-wide
- Partnership established to construct and operate a composting facility to process organics
- Council approves thermal treatment with energy recovery as the preferred method for treatment of residual waste

2007

- Durham opens new Material Recovery Facility in Whitby to process recyclables
- Free drop-off for Household Hazardous Waste at Waste Management Facilities
- Partnership with local retailers to promote plastic bag recycling at grocery retail outlets

2009

- Standardized services across the Region: weekly Blue Box and Green Bin, bi-weekly garbage with a four-bag limit, garbage bag tags required over the limit

2010

- Additional large Blue Boxes distributed to residents to capture more container recycling and help prevent litter
- Energy From Waste host community agreement signed with Clarington
- Environmental Assessment for Durham York Energy Centre approved

2011

- Regional Council passes Waste Management By-law No. 46-2011

2012

- Electronics, metal goods and porcelain curbside collection program begins
- Multi-residential electronic recycling program begins
- Community Reuse Days program in partnership with charities
- Curbside Battery Recycling Collection begins
- Durham earns Guinness World Record for most batteries collected in a 24-hour period

2013

- New materials (rigid plastics) added to Blue Box program
- Multi-residential battery recycling program begins

2014

- Brock Landfill, last municipal landfill closed

2015

- Mobile waste app launched

2016

- Durham York Energy Centre begins commercial operations

2017

- Durham launches online booking tool for bulky and metal goods, porcelain, and electronics

2018

- Textile diversion program introduced to multi-residential buildings
- Blackstock Landfill mining

2019

- Household Special Waste Depot opens in Bowmanville
- Ontario announces Blue Box program transition to full producer responsibility. Durham Region transitions July 1, 2024.
- Durham and York Region commence an Environmental Screening Process to increase annual processing capacity at Durham York Energy Centre

2019 – 2021

- Long-term Waste Management Plan 2022-2040 initiated
- Durham Region maintains depot collection services after transition of tires, batteries and electronic waste to producer responsibility.

2021

- Staff begin work on an optimization study to better utilize Oshawa Waste Management Facility

2022

- Long-term Waste Management Plan 2022-2040 approved by Council

■ Now



Progress Report

2022–2026

Summary Snapshot



Objective/Target
1A — Education
2A — Reduce Food Waste
2B — Reduce Waste
3A — Increase Organics Diversion
3B — By-Law Update
3C — Extended Producer Responsibility Transition
3D — Extended Producer Responsibility Advocacy
4A — Reduce Green House Gas Emissions
5A — Optimize Waste Management Facilities
5B — Increase Accessibility
5C — Closed Landfill Options



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.

Legend



Projected to meet or surpass target



Projected to be near target



Projected to not meet target (external factors may contribute)



Complete



Future reporting period

Targets	Action to Achieve Target	Baseline Measurement	Status	Summary of Progress
Target A Increase public engagement on the 5Rs through partnerships, increased accessibility, and different media.	Work with schools to provide educational content for youth.	Progress since 2018 2018 school engagement: 41 schools		<ul style="list-style-type: none"> New virtual education program for elementary students introduced. Revamped school programs web page. 2022 school engagement: 4,819 students, 24 schools plus 9 virtual classrooms.
	Increase Waste app subscribers and explore the possibility of including donation locations on the app.	Progress since 2018 2018 app subscribers: 50,000		<ul style="list-style-type: none"> 2022 new app subscribers: 19,209. All time app subscribers: 112,798.
	Launch a dedicated web page on Reduction and Reuse.	New initiative (no baseline)		<ul style="list-style-type: none"> New web page launched with linked resources. Includes Textile Recycling Donation Site locator.
	Digital and/or in-person educational opportunities for all residents.	Progress since 2018		<ul style="list-style-type: none"> Staff continued to provide virtual presentations and resumed in-person presentations for post-secondary, special interest groups, professional affiliations, and community groups. Over 300 participants in 2022.
	Evaluate more languages for publications, and promotional and educational materials.	New initiative		<ul style="list-style-type: none"> Waste app available in different languages. Multi language website using Google translate.
	Transition to myDurham 311 for residents to obtain waste information.	New initiative		<ul style="list-style-type: none"> Waste management call centre transitioned to myDurham 311 December 2022.



Objective 2

Reduce the quantity of waste we create.

Legend



Projected to meet or surpass target



Projected to be near target



Projected to not meet target (external factors may contribute)



Complete



Future reporting period

Targets	Action to Achieve Target	Baseline Measurement	Status	Summary of Progress
Target A Support residents in making behavioural changes to reduce food waste.	Continue the Buy it, Eat it food waste reduction campaign.	Less avoidable food waste in the Green Bin program. Baseline reduction targets to be determined with implementation of regular waste audits.		<ul style="list-style-type: none"> Initial waste audits completed in 2022. Baseline for avoidable food waste will be determined in second audit round.
Target B Support residents in making behavioural changes to reduce the amount of waste generated.	Reduce quantities of waste materials generated, such as textiles and single-use plastics.	Progress since 2018 2018 garbage generation rate: 173.1 kilograms garbage disposed per capita.		<ul style="list-style-type: none"> 2022 garbage generation rate: 166 kilograms garbage disposed per capita.
	Develop waste audit program to measure progress.	New initiative		<ul style="list-style-type: none"> Initial waste audit is completed; audit program being refined in 2023.



Objective 3

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

Legend



Projected to meet or surpass target



Projected to be near target



Projected to not meet target (external factors may contribute)



Complete



Future reporting period

Targets	Action to Achieve Target	Baseline Measurement	Status	Summary of Progress
Target A Increase diversion of organics from disposal.	Build the Mixed Waste Pre-sort and Anaerobic Digestion Facility.	Increase Green Bin organics diversion from disposal up to 10% by 2026. 2018 baseline: <ul style="list-style-type: none"> 41 kilograms Green Bin organics collected per capita. 50 kilograms of food waste in garbage per capita. 		<ul style="list-style-type: none"> Project delayed due to significant and continuing inflation in 2021/2022. Action will be re-evaluated for next five year action plan.
	Enhance the Green Bin program for single-family residences.			<ul style="list-style-type: none"> Enhanced curbside Green Bin program to be launched July 1, 2024.
	Encourage backyard composting.			<ul style="list-style-type: none"> Video produced, available on durham.ca/waste and the Region's YouTube channel. Backyard composters continue to be sold at bin exchange events and at the Waste Management Centre.
	Expand collection services to Regional facilities and consider service for municipal and institutional facilities (e.g. school boards).			<ul style="list-style-type: none"> Efforts on this action are on hold pending launch of Enhanced curbside Green Bin and transition of the Blue Box system.
Target B Revise by-law 46-2011 to reflect changes to collection and processing programs.	Revise by-law to reflect new Extended Producer Responsibility programs and include a section on mixed waste pre-sorting.	Existing by-law 46-2011		<ul style="list-style-type: none"> Revisions to the by-law are planned for 2024.
	Explore options for collecting waste in mid-to high-density developments.			

Objective 3 (Continued)

Legend



Projected to meet or surpass target



Projected to be near target



Projected to not meet target (external factors may contribute)



Complete



Future reporting period

Targets	Action to Achieve Target	Baseline Measurement	Status	Summary of Progress
Target C Develop a plan that supports Extended Producer Responsibility (EPR) programs.	Work with producers to understand how programs will be rolled out and the impact on the Region.	Successful transition to EPR in 2024		<ul style="list-style-type: none"> Ongoing discussions in 2022 regarding transition.
	Education campaigns to inform residents of changes to programs.	New initiative (no baseline)		<ul style="list-style-type: none"> Program planning in 2022/2023 as program details are finalized.
	Transition the programs to producers.	New initiative (no baseline)		<ul style="list-style-type: none"> Blue Box program is last municipal diversion program to transition to EPR starting in 2023. Durham Region's transition date is July 1, 2024.
	Investigate ways to reuse or recycle Household Hazardous Waste not covered under regulations.	New initiative (no baseline)		
	Determine best options for Material Recovery Facility and equipment when no longer needed by the Region.	New initiative (no baseline)		<ul style="list-style-type: none"> Contract to lease of Material Recovery Facility to third party executed in 2022. Lease starts July 1, 2024.
	Evaluate possible changes at waste management facilities to adapt to Extended Producer Responsibility regulations.	New initiative (no baseline)		<ul style="list-style-type: none"> Discussions with Circular Materials started in 2022.
	Consider options to continue to provide recycling collection service to ineligible sources.	New initiative (no baseline)		<ul style="list-style-type: none"> Options are being investigated.

Objective 3 (Continued)

Legend



Projected to meet or surpass target



Projected to be near target



Projected to not meet target (external factors may contribute)



Complete



Future reporting period

Targets	Action to Achieve Target	Baseline Measurement	Status	Summary of Progress
Target D Advocate for the expansion of Extended Producer Responsibility programs and increased materials management.	Continue participation in waste management committees, advocacy organizations and industry associations.	Existing participation		<ul style="list-style-type: none"> Participation continued in 2022.
	Continue to participate in consultations for Federal and Provincial waste management changes.	Existing advocacy efforts		<ul style="list-style-type: none"> Participation continued in 2022.



Objective 4

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

Legend



Projected to meet or surpass target



Projected to be near target



Projected to not meet target (external factors may contribute)



Complete



Future reporting period

Targets	Action to Achieve Target	Baseline Measurement	Status	Summary of Progress
Target A Develop initiatives to offset or reduce corporate greenhouse gas emissions from solid waste.	Explore opportunities to convert contracted collection vehicles to alternative fuels.	Aligned with the Region’s Corporate Climate Change Action Plan Actions taken to reduce the Corporate GHG emissions to 40 per cent below 2019 levels by 2030 (and 100 per cent below 2019 levels by 2045).		<ul style="list-style-type: none"> Renewable Natural Gas vehicles required in the new Ajax/Pickering collection contract.
	Explore opportunities to convert biogas to renewable natural gas at facilities owned by the Region.			Mixed Waste Pre-sort and Anaerobic Digestion project delayed. Action will be re-evaluated for next five year action plan.
	Identify methodologies to capture greenhouse gas emissions avoidance resulting from waste diversion.			
	Analyze how to better recover energy resources from waste operations.			



Objective 5

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

Legend



Projected to meet or surpass target



Projected to be near target



Projected to not meet target (external factors may contribute)



Complete



Future reporting period

Targets	Action to Achieve Target	Baseline Measurement	Status	Summary of Progress
Target A Optimize waste management facilities.	Develop options to improve traffic flow and renovate the Oshawa Waste Management Facility (WMF).	Existing waste management facility operations and annual actions to optimize operations at Oshawa WMF.		<ul style="list-style-type: none"> Staff finalized three conceptual designs, traffic study analysis and developed construction costs estimates.
	Develop actions to improve waste sorting levels at waste management facilities in general.	Existing waste management facility operations and annual actions to optimize operations.		
Target B Increase accessibility to waste management programs and services.	Investigate improving convenience for users of the waste management facilities.	Existing waste management facility hours and signage, and changes to operating hours and physical accessibility of WMFs.		
	Assess physical accessibility of all waste management facilities.			
Target C Explore options to reduce environmental impacts of closed landfills and their potential for future community use.	Evaluate outcome of pilot project at Oshawa Landfill for an alternative landfill cover system.	Existing closed landfill perpetual care program and annual progress toward implementing alternative landfill cover.		<ul style="list-style-type: none"> Consultant retained by the Region to conduct a biocover pilot. Approval for pilot granted by the ministry, preliminary lab studies completed. Construction to begin in 2023 followed by monitoring period.



Waste Management
durham.ca/waste

If you require this information in an accessible format, contact 311 (within Regional limits) or 1-800-372-1102.