



Waste Management Annual Report 2021







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Introduction

The Regional Municipality of Durham 2021 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 (Waste Plan). 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.

Since 1999, Durham Region has heavily invested in waste management systems and strategies. The Region has successfully met the committed diversion goals from the Long-term Waste Management Strategy Plan: 2000 to 2020. The Region continues

to demonstrate leadership by implementing innovative waste management strategies.

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

Durham Region, like municipalities across the world, has been impacted by the COVID-19 pandemic, starting in 2020. In 2021, waste generation in the Region continued to be elevated as workplaces and schools were closed for portions of the year and various restrictions remained in place.

Labour shortages have been ongoing throughout the COVID-19 pandemic. They have impacted all aspects of waste collection, transfer and haulage, and processing operations. However,

Durham has successfully worked with its contractors and other partners to ensure that Durham residents continue to receive the waste management services upon which they rely.

Most in-person community events were cancelled due to COVID-19. Consultation planned on the Long-term Waste Management Plan pivoted to virtual community engagement.

Throughout 2021, Durham Region remained involved in consultations and provided advocacy for various legislative changes, including Blue Box transition, Food and Organic Waste Policy Statement and Hazardous and Special Products regulations.

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

As an upper-tier municipal government, Durham Region delivers waste management programs and services to over 675,000 residents within eight municipalities: Ajax, Brock, Clarington, Oshawa, Pickering, Scugog, Uxbridge and Whitby.



237,081
households



211,935
single-family households



25,146
multi-residential households



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

Bulky, metal goods, 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 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, recyclables, organics, yard waste and garbage is managed by Durham Region. This is accomplished through processing contracts for blue box processing, the treatment of organics and yard waste and the recovery of energy-from-waste.

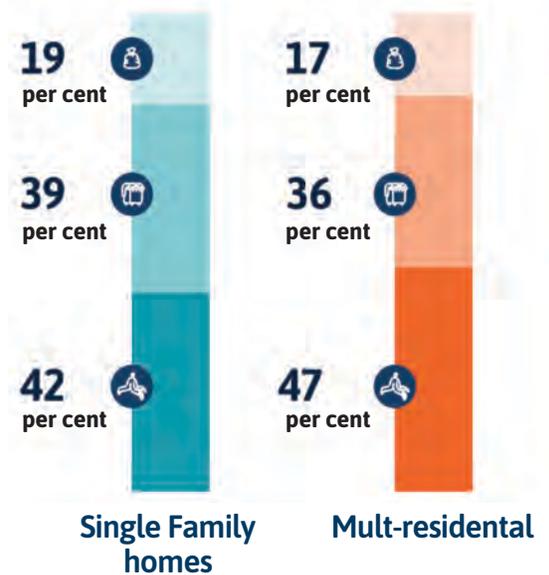
Disposal

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.

What's in your garbage?



Single family homes

- 19 per cent** Sanitary/pet waste and textiles that could be diverted with future programs.
- 39 per cent** Materials that cannot be diverted in current programs (e.g. Non-Blue Box materials such as construction/demolition materials, bulky items etc.).
- 42 per cent** Materials in the garbage stream that could be diverted through existing program/service offered by the Region (e.g. food waste, Blue Box program, hazardous waste, electronics).

Multi-residential

- 17 per cent** Sanitary/pet waste and textiles that could be diverted with future programs.
- 36 per cent** Materials that cannot be diverted in current programs (e.g. Non-Blue Box materials construction/demolition materials, bulky items).
- 47 per cent** Materials in the garbage stream that could be diverted through existing program/service offered by the Region (e.g. food waste, Blue Box program, hazardous waste, electronics).

5Rs in the waste hierarchy



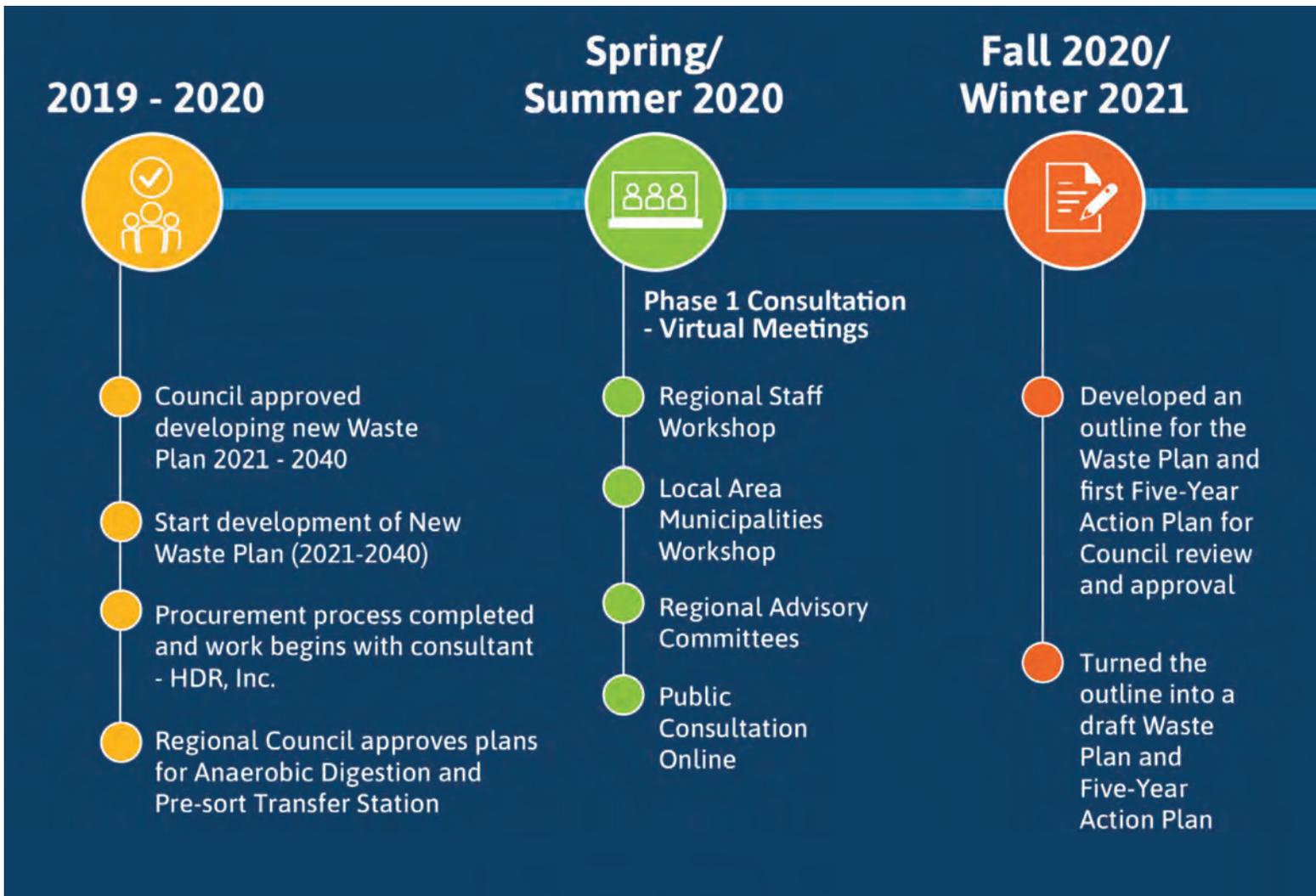
Long-term Waste Management Plan 2022-2040

Waste management staff began consulting on a new Long-term Waste Management Plan (Waste Plan) in 2020 to guide decisions for the next 20 years. Regional Council approved the plan on January 26, 2022.

The Waste Plan guides the Region in developing innovative ways to use waste as a resource in a circular economy, while demonstrating leadership in sustainability and mitigating environmental impacts. It emphasizes using the 5Rs (Rethink, Reduce, Reuse, Recycle and Recover) as the first steps in reducing waste generation. The plan also outlines working with producers and importers of products and packaging to implement Extended Producer Responsibility and adjust the Region’s waste programs, as required. As Durham Region’s diverse population continues to grow, the Waste Plan also highlights the importance of delivering cost effective and accessible waste management services.

The approved guiding principles, vision and objectives will be achieved through Action Plans with measurable targets and accompanying actions for the following timelines—short-term (2022 to 2026), mid-term (2027-2033) and long-term (2034 to 2040) which will be reviewed and updated (if required) to align with corporate direction, associated legislation and industry changes.

The next 20 years will see significant changes to how waste is managed in the Region, which will contribute to the collective goals of a circular economy and recognizing waste as a resource.





Spring/Summer/ Fall 2021



Phase 2 Consultation - Virtual Meetings

- Regional Staff
- Local Area Municipalities
- Regional Advisory Committees
- Public Consultation Online

Fall 2021



Finalize drafts of Waste Plan and Five-Year Action Plan

2022



Present the Waste Plan and Five-Year Action Plan to Council for approval

- Start Implementing Waste Plan and Public Education
- Regional Council postpones plans for Anaerobic Digestion and Pre-sort Transfer Station





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.

The table below provides the details of the first Action Plan 2022 – 2026. Progress on these actions will be reported in future annual reports.

Objective 1:



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

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

- 1A1** Work with schools to provide educational content and increase rethink and reduce activities.
- 1A2** Transition to a central access point for residents to obtain waste management information.
- 1A3** Increase Waste app subscribers.
- 1A4** Add a dedicated section to the Region's webpage on Reduction and Reuse.
- 1A5** Investigate the feasibility of including locations of donation centres on the Waste app.
- 1A6** Develop digital and/or in-person educational opportunities.
- 1A7** Identify additional languages for publications, Promotion and Education (P&E) materials and outreach events.

Objective 2:



Reduce the quantity of waste we create.

Target 2A: Support residents in making behavioural changes to reduce food waste.

- 2A1** Continue with the Region's "Buy it, Eat it" food waste reduction campaign.

Target 2B: Support residents in making behavioural changes to reduce the amount of waste generated.

- 2B1** Reduce quantities of materials generated such as durable goods, textiles and single-use plastics.
- 2B2** Develop a monitoring program to audit waste setouts and composition on a regular basis.

Objective 3:



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

Target 3A: Increase diversion of organics from disposal.

- 3A1** Develop the Mixed Waste Pre-sort and Anaerobic Digestion Facility (AD).
- 3A2** Launch an enhanced Green Bin program for single-family residences.
- 3A3** Encourage backyard composting.
- 3A4** Expand collection services to Regional facilities and consider service for local area municipal facilities and other institutional users (e.g. school boards).

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

- 3B1** Revise By-law to reflect new Extended Producer Responsibility (EPR) programs.
- 3B2** Revise By-law to include a new section for the Mixed Waste Pre-sort and AD Facility.
- 3B3** Review options to collect waste in mid-to-high density developments.

Objective 3:



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

- 3C1** Work with producers to understand how programs will be rolled out and the impact on the Region.
- 3C2** Develop educational campaigns to inform residents of changes to programs.
- 3C3** Transition the program(s) to producers.
- 3C4** Explore opportunities to reuse or recycle Household Hazardous Waste not covered under the regulations.
- 3C5** Assess options for the Region's recycling facility and equipment.
- 3C6** Evaluate if changes are required at Waste Management Facilities to adapt to EPR regulations.
- 3C7** Pursue options for the Region to continue to provide recycling collection service to ineligible sources.

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

- 3D1** Continue to participate in the solid waste management committees of municipal advocacy organizations and related industry associations.
- 3D2** Continue to participate in consultation opportunities for proposed Federal and Provincial waste management changes.

Objective 4:



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

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

- 4A1** Explore opportunities to convert collection vehicles to use alternative fuels.
- 4A2** Identify opportunities to convert biogas to renewable natural gas at Region-owned facilities.
- 4A3** Identify additional methodologies to determine GHG emission reductions and avoidance.
- 4A4** Undertake additional analyses to review how to better recover energy resources from waste operations.

Objective 5:



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

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

- 5A1** Explore options to optimize the Oshawa WMF (e.g., traffic flow, new indoor/outdoor facility).
- 5A2** Investigate options to improve waste diversion performance at WMFs.

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

- 5B1** Investigate extending the hours of operation to make access to the WMFs more convenient for users.
- 5B2** Assess accessibility of WMFs to ensure they are physically accessible.

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

- 5C1** Evaluate outcome of pilot project at Oshawa Landfill for an alternative landfill cover system.

Blue Box EPR

- Durham's program transitions to full producer responsibility in 2024.
- Durham will no longer be involved with collection, processing, or marketing Blue Box material.
- Producers of Blue Box paper and packaging take over collection, processing, and recycling activities.
- Producers are getting organized so it is unknown what the new Blue Box program will look like at this time.

The objective of the EPR regulation is to shift the responsibility of designated recyclable materials (this includes financial, operational, and regulatory responsibilities) from municipalities to producers of the materials and encourage producers to invest towards improving their products and packaging through product design.

Extended Producer Responsibility

In 2016, the Province of Ontario passed the Resource Recovery and Circular Economy Act (RRCEA) as the enabling legislation for enacting Extended Producer Responsibility (EPR) in Ontario. The Resource Productivity and Recovery Authority (RPRA) was also established to act as Registrar and oversee reporting and compliance of programs developed under the RRCEA.

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

On June 8, 2021 Ontario Regulation 449/21 Hazardous and Special Products was published. Hazardous and Special Products (HSP), formally referred to as Municipal Hazardous and Special Waste or MHSW transitioned to EPR on October 1, 2021.

Durham Region continues to provide collection services for used tires, batteries, WEEE 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.

The Blue Box program is the last municipal diversion program to transition to EPR starting in 2023. The EPR regulation for the Blue Box program was finalized in June 2021. The focus of the regulation is on maintaining a convenient and accessible collection system for residents. One requirement is to identify a standardized list of materials to be collected in every community in Ontario.

The Blue Box regulation identifies Durham Region's transition date as July 1, 2024. On this date, the producers will take over curbside Blue Box collection services and take responsibility for sorting the collected material and recycling it. The details of how producers will run the program are not yet known. But producers must operate the program similarly to the way Durham Region operates it until all Ontario municipalities have transitioned to full EPR. The regulation includes all single-family residences and multi-residential buildings, schools, not-for-profit long-term care and retirement homes and municipal public spaces/parks currently receiving municipal garbage collection as part of the initial transition. In 2026 and beyond, non-serviced multi-residential buildings, schools, long-term care homes can request to be added to the service.

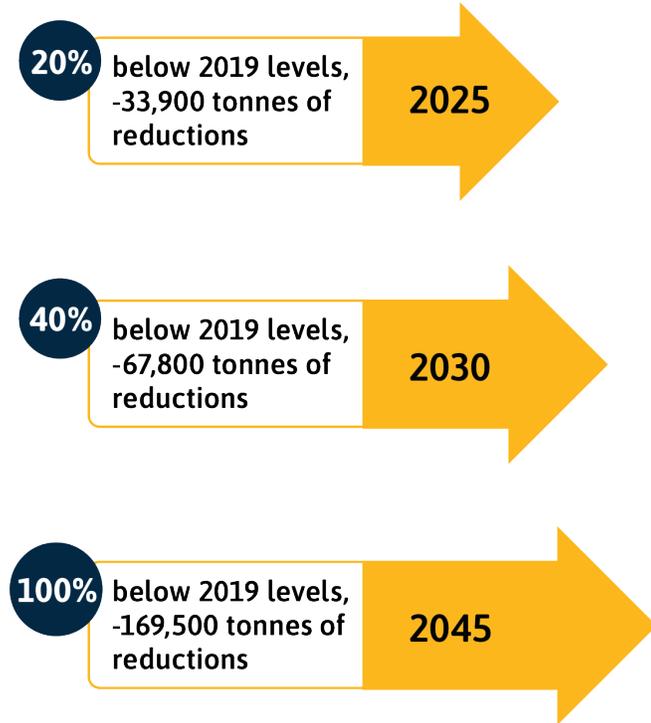
Business Improvement Areas (BIAs) and hundreds of additional small businesses that the Region currently services will not be eligible to receive free collection under the producer-run system. The Region is investigating options to determine if this is a service the Region will deliver in the future.

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

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 action as a critical priority. 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 following Corporate GHG emission reduction targets were approved in March 2021.

The Council-approved Corporate Greenhouse Gas (GHG) emissions reductions targets are:



In Durham's Climate Change Action Plan, key objectives have been identified related to corporate Greenhouse Gas GHG reductions in waste management operations over the next 20 years.

- Increase diversion of organic waste from single-family homes, apartments, and condos.
- Construct and operate a Mixed Waste Pre-sort and Anaerobic Digestion facility to manage organic waste. In 2022, Council decided to postpone the construction of the facility.
- Continue to manage GHG emissions from legacy closed landfills through innovative approaches.
- Explore ways to mitigate corporate GHG increases associated with the planned increase in the Durham York Energy Centre (DYEC) capacity and population growth over the coming decade.
- Explore opportunities to reduce emissions through procurement and contract management, which could include zero emissions vehicles and/or hybrid vehicles where operationally feasible.

Aspects of waste management can generate significant GHGs. The Waste Plan, going forward, will strive to continually reduce GHG impacts from waste management activities.



AD remains the preferred solution for Durham Region due to its many benefits including:

- A reduction in greenhouse gas emissions.
- Being a source of renewable natural gas.
- Ensuring compliance with anticipated regulations banning organics materials from landfill.
- Increasing diversion rates.
- Deferring the need to expand the Durham York Energy Centre.

Mixed Waste Pre-sort and Anaerobic Digestion

Durham Region Council has made the decision to cancel the Mixed Waste Pre-sort and Anaerobic Digestion (AD) Facility procurement process. The approved project was a key component of the Region's long-term waste management plan. Unfortunately, due to the rapid rise in material, shipping and labour costs being experienced in the marketplace, Regional Council agreed with staff recommendation to revisit the short and long-term organics strategy and report back to Council in early 2023.

The key drivers that led to the AD Project remain valid and Durham remains committed to a sustainable long-term waste management strategy, finding cost effective and environmentally sustainable methods for the Region's projected waste management needs. Although the Region may proceed with the project in the future, it has been paused considering current unsettled market conditions and recognizing that waiting for market stabilization may result in a significant benefit financially to the project, should it proceed in the future.

While the project is reviewed, the Region will continue to rely on existing processing contracts and will review its short-term needs and long-term requirements to ensure waste and organics are processed in a cost-effective and environmentally responsible manner.



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.

Resource Productivity and Recovery Authority annual waste diversion

- 2017 – (65 per cent*)** First for urban regional municipalities, third overall in the province.
- 2018 – (64 per cent)** First for urban regional municipalities, third (tied) overall in the province.
- 2019 – (64 per cent)** First for urban regional municipalities, third overall in the province.
- 2020 – (63 per cent)** First for urban regional municipalities, third overall in the province.
- 2021 – (62 per cent**)** 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.

**2021 diversion data presented is unverified by RPR at time of printing.

Total tonnes managed year over year

Material Type	2017	2018	2019	2020	2021
Garbage	115,271	119,716	120,637	129,925	128,960
Organics	28,318	28,446	28,522	33,031	35,014
Blue Box	47,839	43,139	41,738	41,944	41,886
Leaf and Yard Waste	25,082	27,330	26,646	30,140	28,892
Other Diversion – Waste Management Facilities	6,887	6,712	6,553	6,585	6,193
Total	223,397	225,343	224,096	241,625	240,945



2021 Tonnes Managed by Area and Source

	Curbside Garbage	Apartment Garbage	Bulky/ Other Goods	Curbside Recycling	Apartment Recycling Composting	Food	Leaf and/ or Yard Waste	Other Diversion	Total Waste
Curbside and multi-residential waste									
Pickering	11,611	873	367	5,339	303	5,377	3,728	102	27,700
Ajax	14,484	1,494	208	6,545	245	7,379	4,152	150	34,657
Whitby	14,576	2,543	395	7,728	249	7,784	5,769	68	39,112
Oshawa	20,566	8,604	313	9,478	851	7,643	6,875	32	54,362
Clarington	13,972	206	498	6,596	65	4,404	4,430	67	30,238
Scugog	3,117	206	74	1,346	0	979	1,190	19	6,931
Uxbridge	2,672	153	106	1,364	0	916	1,088	21	6,320
Brock	2,254	0	88	1,113	0	532	509	20	4,516
Sub-totals	83,252	14,079	2,049	39,509	1,713	35,014	27,741	479	203,836
	99,380			41,222		62,755		479	
Waste Management Facilities									
Oshawa	0	0	18,413	402	0	0	442	3,500	22,757
Scugog	0	0	4,750	202	0	0	503	1,368	6,823
Pickering	0	0	0	0	0	0	0	252	252
Clarington	0	0	13	0	0	0	0	113	126
Brock	0	0	2,135	60	0	0	206	464	2,865
MRF	0	0	4,269	0	0	0	0	0	4,269
Sub-totals	0	0	29,580	664	0	0	1,151	5,697	37,092
Special Events									
Hazardous Waste	0	0	0	0	0	0	0	7	7
E-Waste	0	0	0	0	0	0	0	6	6
Reuse	0	0	0	0	0	0	0	4	4
Sub-totals	0	0	0	0	0	0	0	17	17
Total tonnes managed	128,960			41,886		63,906		6,193	240,945

*Amounts have been rounded to the nearest whole number.

The COVID-19 pandemic continued to show tremendous impacts on the waste sector in 2021. Waste generation in the Region continues to be elevated as workplaces and schools were closed for portions of the year and capacity limits remained in place.

In 2021, 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

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 2021, 41,886 tonnes of blue box recyclables were marketed, accounting for 17 per cent of the total material 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 works 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.

Blue Box Collected and Marketed

	Collected (Tonnes)	Marketed (Tonnes)
2017	47,839	43,390
2018	46,906	43,277
2019	45,423	41,273
2020	46,107	41,435
2021	46,155	41,886





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 2021, Durham Region residents generated 28,892 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 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 on-site.

Organic Waste

Removing organics from the garbage bag is a key waste diversion strategy in Durham Region and helped to achieve over 50 per cent diversion. Organic waste represents 14 per cent of the total waste collected in Durham Region. In 2021, Durham residents generated 35,014 tonnes of source separated organics from the Green Bin program.

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

The Province of Ontario is beginning to shift its legislation and economics towards a circular economy through the Strategy for a Waste Free Ontario: Building a Circular Economy and Ontario's Food and Organic Waste Framework. The Framework consists of two complementary components: the Action Plan which outlines the strategic commitments to be taken by the Province to address food and organic waste and the Policy Statement which provides direction to the MECP, municipalities, the Industrial, Commercial and Institutional (IC&I) sector (which includes Multi-residential Buildings), owners and operators of processing facilities and others regarding targets for waste reduction and recovery. These two components will help prevent and reduce food/organic waste, reintegrate excess food into the markets, and collect and recover food waste as a new resource. To achieve this goal, the Framework has four objectives:

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

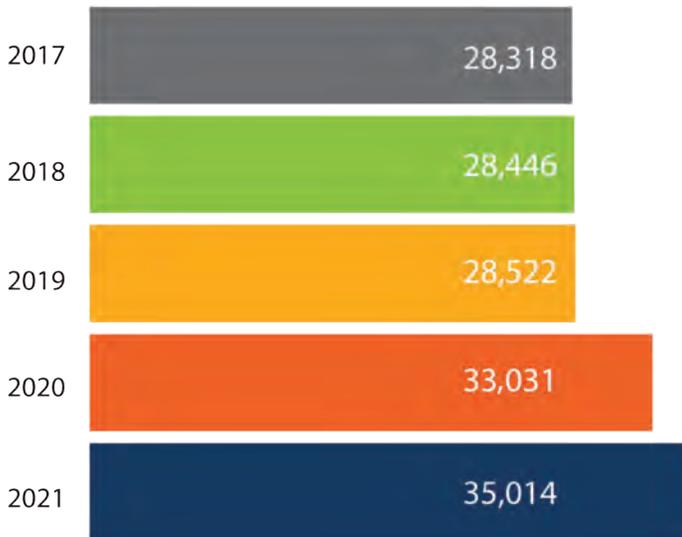


- Reduce food and organic waste.
- Recover resources from food and organic waste.
- Support resource recovery infrastructure.
- Promote beneficial uses of recovered organic resources.

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

The Region will be required to meet a performance target of 70 per cent waste reduction and resource recovery of food and organic waste generated by its single-family dwellings by 2023 and 50 per cent waste reduction and resource recovery for any multi-residential buildings to which it provides collection service by 2025.

Green Bin Tonnes Collected





Durham’s battery collection program continues 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.

Battery Collection

The Batteries Regulation under the Resource and Recovery and Circular Economy Act, 2016 designates batteries as the second material after tires under Ontario’s Extended Producer Responsibility (EPR) regulatory framework.

As of July 1, 2020 following the wind up of Stewardship Ontario’s battery recycling program on June 30, 2020, battery producers are individually accountable and financially responsible for collecting and reusing, refurbishing, or recycling their batteries when consumers discard them. Transition to EPR occurred seamlessly and our collector of batteries, Raw Materials Company Inc. continued to provide service through the Producer Responsibility Organization (PRO), Call2Recycle.

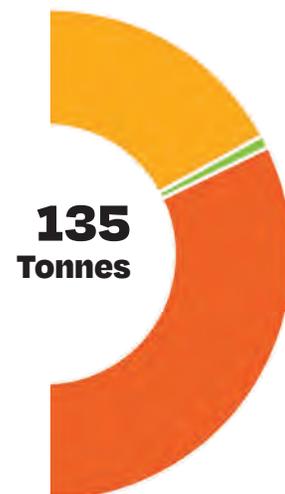
Durham Region diverted 135 metric tonnes (135,000 kilograms) of household batteries from the waste stream in 2021.

Collected batteries are processed where steel, carbon, zinc, potassium, and manganese are recovered.

Durham’s battery collection program continues 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 resources.

2021 Batteries Collected By Source

	Tonnes
■ Curbside Collection	46
■ Multi-Residential Buildings	2
■ Waste Management Facilities	87
Total	135



As of January 1, 2021, following the wind up of the Waste Electrical and Electronic Equipment (WEEE) Program operated by the industry funding organization Ontario Electronic Stewardship, producers became individually accountable and financially responsible for collecting and reusing, refurbishing, or recycling their products when consumers discard them.

Electronic Waste

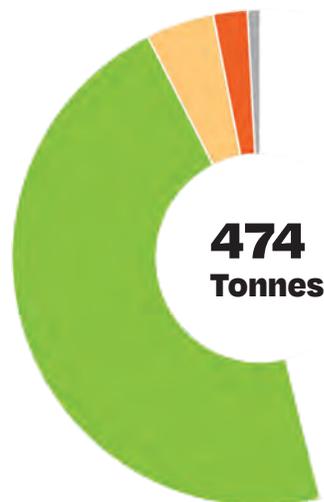
The new Electrical and Electronic Equipment (EEE) Regulation under the *Resource Recovery and Circular Economy Act, 2016*, designates information technology, telecommunications, audio-visual and lighting equipment as the third and fourth materials after tires and batteries under Ontario’s Extended Producer Responsibility (EPR) regulatory framework.

EPR makes producers accountable for their products and packaging once consumers are finished with them; sets mandatory and enforceable requirements for resource recovery; and gives producers choices for resource recovery services in a competitive market.

As of January 1, 2021, following the wind up of the Waste Electrical and Electronic Equipment (WEEE) Program operated by the industry funding organization Ontario Electronic Stewardship on December 31, 2020, producers became individually accountable and financially responsible for collecting and reusing, refurbishing, or recycling their products when consumers discard them. Durham Region continued to offer programs seamlessly during this transition for residents to properly dispose of their material and a Producer Responsibility Organization (PRO), Electronic Product Recycling Association (EPR) was contracted to continue service.

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, collection curbside of bulky items includes waste electronic material, managed by their waste operations staff and transferred to a PRO. The City of Oshawa treats waste electronics as regular waste and encourages residents to take their items to the Region’s Waste Management Facilities. Many multi-residential buildings also receive electronics collection by the Region’s collection contractor through onsite specially marked EEE bins located inside their buildings.

2021 WEEE Source	Tonnes
Waste Management Facilities	410
Curbside Collection	39
Multi-Residential Buildings	19
Events	6
Total	474



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 WMFs.

This program diverted 444 tonnes of material from disposal in 2021, 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

Multi-residential front end waste management service is provided to 414 approved condominium, and rental townhouse and apartment style sites that equals almost 26,000 households. Each year the Region adds sites through its approvals process, and in 2021, three buildings were added.

Under the current contracts, front-end waste, and cardboard bins, along with recycling rolling totes are supplied to approved sites. Over the past two years during COVID, waste management services in this housing sector were impacted, especially with respect to increased cardboard tonnage as a result of online shopping and increased garbage tonnage as people worked from home. An increase in all types of bins supplied to multi-residential sites occurred to meet residents' demands. Region Waste Management staff in partnership with onsite staff and building owners worked to educate residents through ongoing promotional tools including online presentations, and installation of metal signs to promote sorting, and stickers on totes to reflect dual stream recycling, and distribution of recycling bags, fridge magnets and brochures to promote waste diversion.

Success in onsite diversion programs continue to occur in the multi-residential buildings serviced by the Region. These programs are offered conveniently for regular collection. Specialized bins for textiles, e-waste, and batteries are located inside buildings which has increased diversion of recyclable and reusable material. These bins are supplied at approved sites, and weights of disposed material in these bins are tracked and monitored.

In 2022, the onsite multi-residential programs will continue and will continue to be offered to sites throughout Durham Region. Expansion to new sites will continue as property managers are encouraged to divert and better manage material.



Waste Management Facilities

A total of 329,960 vehicles utilized the Waste Management Facilities in 2021. An increase of 40,615 vehicles or 13 per cent over 2020.

Facility Visitors

244,174

Oshawa WMF

67,255

Scugog WMF

18,531

Brock WMF

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

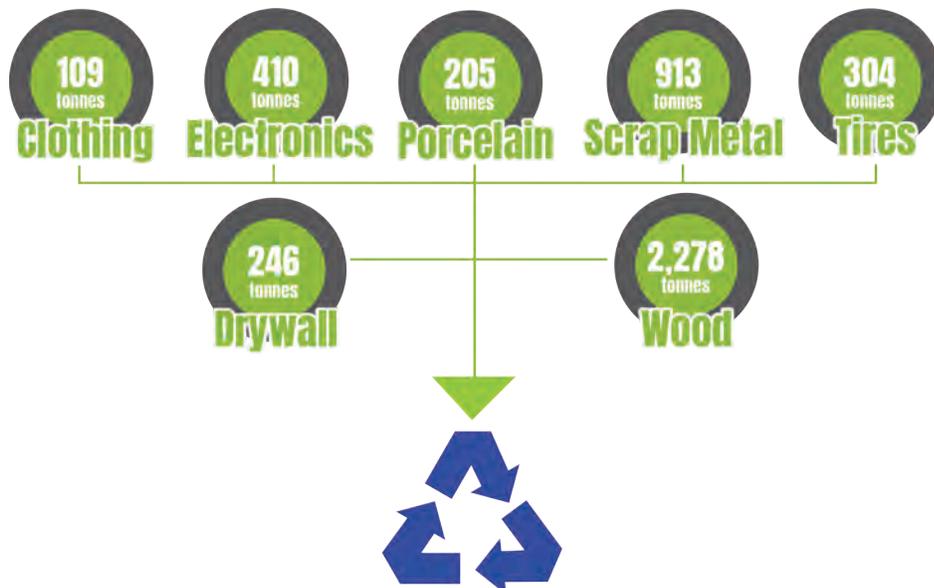
The Oshawa Waste Management Facility remains the busiest of the Region’s three WMFs with over 1,800 visits daily during peak times. This number is anticipated to increase because of continued development, particularly in Oshawa and Whitby. The facility was not designed to handle this high usage which often results in substantial challenges to traffic queuing and onsite traffic management during peak periods.

In 2021, Regional staff began work on an optimization study to better utilize the existing site footprint at the Oshawa WMF. The three conceptual designs were finalized (optimize existing, new outdoor facility, new indoor facility). The Design Basis Memorandum is being finalized and the construction cost estimates are being developed. Capital improvements will include construction phasing to help keep the site open during renovations.

2021

Waste Management Facilities	Tonnes of Blue Blue Recycling	Tonnes of Leaf and Yard Waste	Tonnes of Reuse Materials	Tonnes of Garbage
Oshawa	402	442	2,877	18,413
Scugog	202	503	1,174	4,750
Brock	60	206	414	2,135
Total	664	1,151	4,465	25,298

Reuse programs



Hazardous Waste

The Hazardous and Special Products (HSP) Regulation under the Resource Recovery and Circular Economy Act, 2016 (RRCEA) designates automotive materials (oil filters, oil containers and antifreeze), solvents, paints and coatings, pesticides, fertilizers, mercury-containing devices (barometers, thermometers and thermostats) and pressurized containers (non-refillable pressurized containers, refillable pressurized containers, refillable propane containers), under Ontario's Extended Producer Responsibility (EPR) regulatory framework.

As of October 1, 2021, following the wind up of the Municipal Hazardous or Special Waste (MHSW) Program operated by Stewardship Ontario on September 30, 2021, HSP producers are individually accountable and financially responsible for requirements set out under the HSP Regulation.

Materials included in the regulation:

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

Mercury-containing devices were not designated under the MHSW program and are new materials designated under the HSP Regulation.

The Region's Hazardous Waste diversion programs capture and divert potentially dangerous hazardous materials and help avoid contamination of other waste streams.

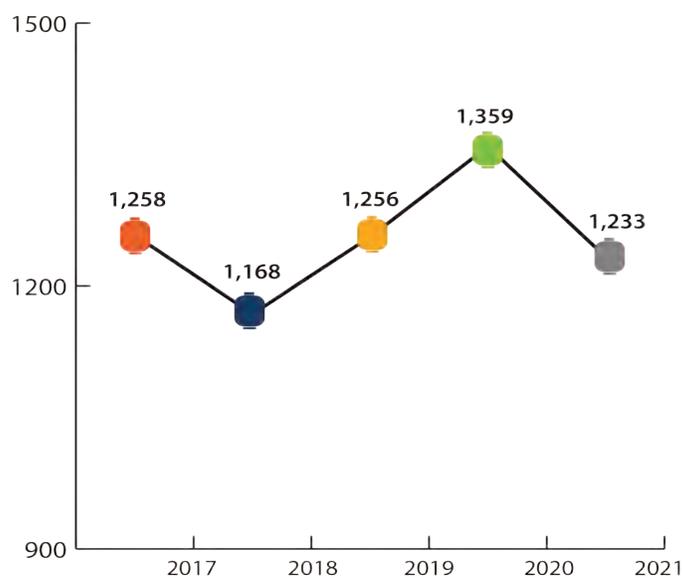
The Region provides residents with a network of facilities and special events where residents can drop off hazardous waste. Drop-off locations include the waste management facilities in Oshawa, Scugog and Brock. The Region also has a hazardous waste depot in Clarington and partners with a private site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

2021 Hazardous Waste Collected

Hazardous Waste Source	Tonnes
Brock	51
Scugog	193
Oshawa	623
Pickering	252
Clarington	114
Total	1,233

Hazardous Waste Collected



The Durham York Energy Centre is 100 per cent publicly owned by Durham and York Regions.

Only residential garbage from Durham and York is accepted.

Processes up to 110,000 tonnes of Durham garbage and 30,000 tonnes of York garbage per year.

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 Region of Durham and Region of York (Regions). 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 2021, the DYEC processed 140,435 tonnes of garbage, while recovering approximately 3,670 tonnes of metal for recycling and generated approximately 104,520 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 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 2021. 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 2021.

The Region of Durham and the Region of York submitted an Environmental Screening Report in December 2021 to the Ministry of Environment, Conservation and Parks (MECP), 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 MECP. The Regions anticipate completion of the Environmental Screening Process and subsequent ECA amendment in early 2022. 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.





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.

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

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

- Re-align the creek.
- Re-grade the underlying soils to reduce the severity of the slope.
- Re-vegetate the slopes to prevent erosion.
- 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 and trout habitat within the creek.

Additional slope stabilization projects are planned for 2022/2023.



Blackstock Landfill

A landfill mining project was completed at the Blackstock landfill site in July of 2019. 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 gas emissions from 2020 onward are now assumed to be zero.

The Region's plan was to naturalize the site following the mining activities to 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
- 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, and provide habitat and a food source for wildlife

This rehabilitation plan also included choosing plant species capable of remediating contaminants that may persist in screened soils remaining 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.

As this 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. Inspections in 2021 were very promising and showed excellent growth and blooming plants that were being utilized by many pollinators such as bees.

With the removal of waste, the landfill gas emissions from 2020 onward are now assumed to be zero.

Other landfill perpetual care activities

The Region maintains seven closed landfill sites. All sites are monitored regularly, 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 includes 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.

Biocover pilot

A consultant has been retained by the Region to conduct a biocover pilot at the Region's Oshawa landfill site. The pilot-scale biocover system will consist of an on-grade walled structure containing layers of geotextile, gravel, sand, and compost. A fraction of the landfill gas that passively vents through the existing clay cover into the atmosphere will be diverted to the biocover through inground piping. The reduction in methane emissions is achieved as the landfill gas filters through the layers of materials in the biocover. Naturally occurring microbes contained in the compost metabolize methane in the landfill gas into carbon dioxide, a much less potent greenhouse gas.

It is anticipated the pilot will take up to three years to complete, with one year for preliminary design and studies, approvals, and construction followed by an eighteen-month monitoring period. The pilot is currently in the preliminary design and studies phase.



Community engagement

The Region provides promotional and educational (P&E) information through its website, social media, Waste app, newspaper, radio and television advertising and through mail-outs of waste collection calendars.

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

Over the last two years, the Region has been working on the development of a Long-term Waste Management Plan (Waste Plan). Development of the Waste Plan included a significant consultation component to ensure feedback from various stakeholders, including the public, was considered. Consultation was planned to be in-person community engagement however quickly pivoted to virtual community engagement due to the COVID-19 pandemic.

Starting in the late spring through fall 2020, consultation was undertaken with Regional staff, Local Area Municipalities, Regional Advisory Committees and the public to get feedback on current and future waste management challenges as well as the proposed vision, guiding principles and objectives of the Waste Plan.

Phase Two of the consultation program commenced in January 2021 through November 2021. Feedback was solicited on the draft Waste Plan, targets, and actions.

Waste Plan consultation included:

- In Spring 2021, an online survey was posted seeking feedback on potential targets for the Waste Plan. Responses to this survey informed the development of targets and actions. The survey was open between April 19 and May 19, 2021.
- An online consultation meeting was held with Regional staff and local area municipality staff representatives on May 19, 2021. This meeting consisted of a presentation on the draft targets and actions that included interactive survey questions to seek participant feedback. Staff participants were also able to provide verbal input and ask questions during the interactive presentation.
- Staff attended Regional Advisory Committees between May and September 2021 to provide a presentation on the draft targets and actions and respond to questions from committee members. Committee members were invited to provide additional comments as a committee. Durham Environmental Advisory Committee, Durham Agricultural Advisory Committee, Durham Region Roundtable on Climate Change and Energy from Waste – Waste Management Advisory Committee were all attended. Formal comments were received from the Energy from Waste – Waste Management Advisory Committee.
- On September 20, 2021, an online open house was launched on DurhamWasteOpenHouse.ca. This open house provided a review of the Regional Council guiding principles, vision, and objectives. Numerous targets and action to support the objectives were also detailed. Residents were invited to provide input on the proposed targets and action via a survey.
- Coinciding with the launch of the open house, a magazine-style Waste Plan Executive Summary was posted on the Waste Plan webpage along with the full text of the draft Waste Plan.
- A virtual town hall was held on October 19, 2021. A brief presentation on the proposed targets and actions was followed by questions and answers where participants were invited to submit questions via chat for a live response.
- Additional questions and comments were submitted to the Waste Plan email throughout the 2021 consultation.

Each of the eight local area municipalities were represented in the Open House survey in September 2021:

- Over 30 per cent of respondents think the Region should target a 20 per cent per capita waste reduction over the 20 years of the Waste Plan.
- Respondents are willing to drive three to five kilometres to donate household goods and textiles.
- 28 per cent of respondents felt that there is currently an inadequate number of privately operated, charitable locations.
- Over 45 per cent of survey respondents think a Reduce and Reuse page on the Region's website would help them better understand the 5Rs.
- Respondents indicated they would like to see Extended Producer Responsibility programs expanded to mattresses and appliances.
- Approximately 51 per cent of respondents reported being very aware or somewhat aware of the Region's plans for a Mixed Waste Pre-sort and Anaerobic Digestion Facility. Of note, the highest awareness was reported within the Municipality of Clarington. Those residents reporting the highest awareness of the Mixed Waste Pre-sort and Anaerobic Digestion Facility were also the most supportive of the project.

In 2021, Durham's Waste Management school outreach program continued offering in-class programming through online virtual presentations and resources. This program reached over 4,000 Kindergarten to Grade 8 students across Durham's school boards.

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

Staff are currently working on extending the online education program to include elementary school teachers with a planned launch in the fall of 2022. Presentations for post-secondary, special interest, professional affiliations, and community groups also pivoted to virtual options with over 200 participants in 2021.



In 2021, Durham Region's waste promotion and education initiatives included:

EXCHANGED



5,118
Blue Boxes

686
Kitchen food
waste containers

4,107
Curbside Green Bins



1791
Blue Boxes



281
Kitchen food
waste containers



643
Curbside
Green Bins



122
Backyard
Composters



Responded to more than **55,000** telephone calls and almost **42,000** emails regarding waste programs.



Over **93,000** Durham Region Waste app downloads with **106,000** weekly waste set-out reminders.

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



Over **30** newspaper ads placed in local papers

POSTS

236

226

10



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



Online Waste Plan consultation survey with over **3,900** responses from across the Region.



Hosted a virtual Waste Plan open house, over **9,300** users



Hosted a virtual Town Hall, over **30** residents participated

Summary

Durham Region is poised to implement several actions that will contribute to reducing and diverting waste. These actions will be enhanced by the collective efforts of Durham Region residents making changes to how they think about and manage waste.

As seen in the 2021 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:



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



Marketed **41,886 tonnes** of Blue Box recyclables



Processed **35,014 tonnes** of Organic waste



Composted **28,892 tonnes** of Leaf and Yard waste



Ensured the safe and responsible recycling of **1,233 tonnes** of household hazardous waste, **474 tonnes** of electronics and **135 tonnes** of batteries



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



DYEC processed **140,435 tonnes** of waste through energy-from-waste recovery generating approximately **104,520 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



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

waste@durham.ca
durham.ca/waste

If you require this information in an accessible format, contact waste@durham.ca