

Waste Management
**Annual
Report**
2017





Reduce



Waste reduction or waste prevention is all about minimizing waste at the source so it is not created in the first place. Waste is often created/generated due to the inefficient use of resources or poor planning. An example would be, using disposable or single-use products or buying food we don't need on impulse or because there's a special offer, and then wasting it. Reducing is always the best waste management option.



Reuse



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





Recycle



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





Recover



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





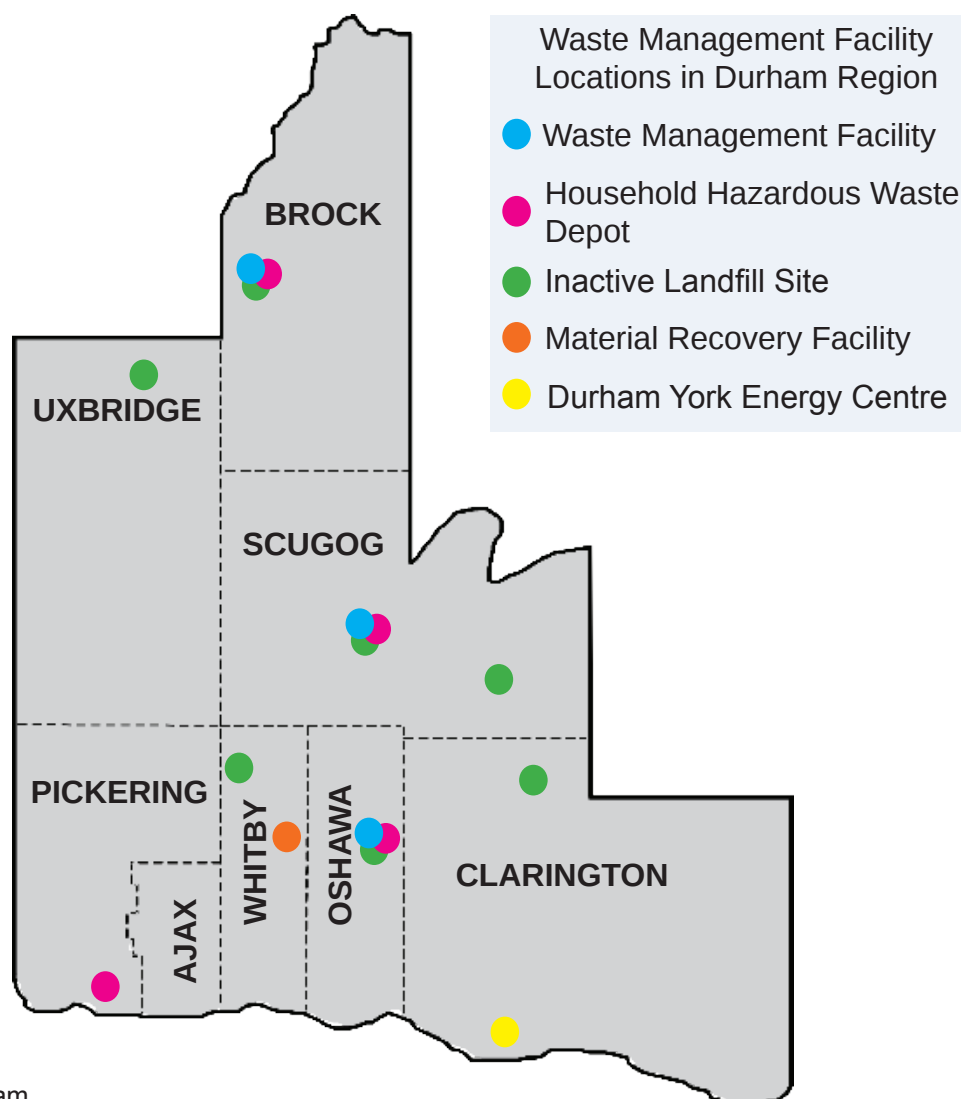
Overview

The Regional Municipality of Durham 2017 Annual Waste Management Report summarizes Durham Region's integrated waste management system. This report is submitted annually to the Ministry of the Environment, Conservation and Parks to satisfy the Durham York Energy Centre Environmental Assessment condition for diversion reporting.

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

Durham Region is an upper-tier municipality; home to almost 220,000 households.

Within Durham Region are eight local municipalities: Ajax, Brock, Clarington, Oshawa, Pickering, Scugog, Uxbridge and Whitby.





Quick Facts

In 2017, Durham Region and our local municipalities diverted 65 per cent of collected materials from landfill disposal.

78%

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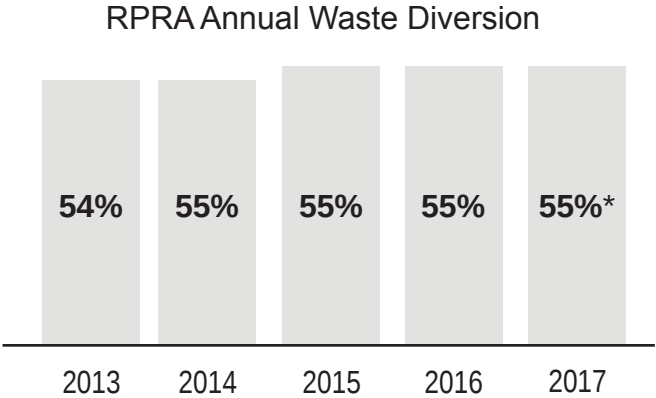
2017 diversion from landfill including energy-from-waste.

Material Type	Total Tonnes Collected				
	2013	2014	2015	2016	2017
Garbage	109,641	110,417	110,498	107,887	115,271
Organics	27,487	27,007	26,796	27,612	28,318
Blue Box	50,466	49,531	48,254	47,923	47,839
Yard Waste*	25,268	32,123*	27,554	24,730	25,082
Other Diversion - WMF	5,988	5,923	6,828	10,395	6,887
Special Events	96	61	71	65	72
Reuse	301	310	332	376	402
Total	219,245	225,374	220,333	218,989	223,397

* The increased yard waste tonnages in 2014 were due to the ice storm clean-up.

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Resource Productivity and Recovery Authority (RPRA) diversion numbers from landfill after curbside collection and does not include Durham Region’s approved energy-from-waste initiatives.



*2017 diversion data presented is unverified by RPRA at time of printing.



Roles and Responsibilities

Demonstrate leadership in waste reduction and reuse strategies, while managing residual waste effectively.

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

In addition to curbside collection services, the Region, in partnership with local municipalities, offers local waste

reduction initiatives such as: spring compost events; one in each municipality.

special Waste Electrical and Electronic Equipment drop-off events and municipal hazardous and special waste drop-off events.

reuse drop-off events held from March to October, in partnership with local charities.

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

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

Processing

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

Disposal

Durham Region manages disposal of residual garbage from all eight of its lower tier municipalities.

Within the Region's 4R hierarchy (reduce, reuse, recycle, recover), the preferred final disposal destination is energy-from-waste to maximize the benefit of capturing energy from residual waste.



Curbside Collection Stops

Municipality	2013	2014	2015	2016	2017
Ajax	33,640	34,229	34,774	35,370	35,503
Brock	4,710	4,722	4,739	4,747	4,747
Clarington	29,678	30,218	30,751	31,443	31,909
Oshawa	46,645	47,230	47,878	48,616	48,895
Pickering	26,194	26,406	26,885	27,272	27,315
Scugog	8,194	8,206	8,245	8,265	8,270
Uxbridge	7,095	7,125	7,221	7,282	7,305
Whitby	37,987	38,262	38,455	38,944	39,550
Total	194,143	196,398	198,948	201,939	203,494

Stops: Number of households that receive Durham Region waste collection services.



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.

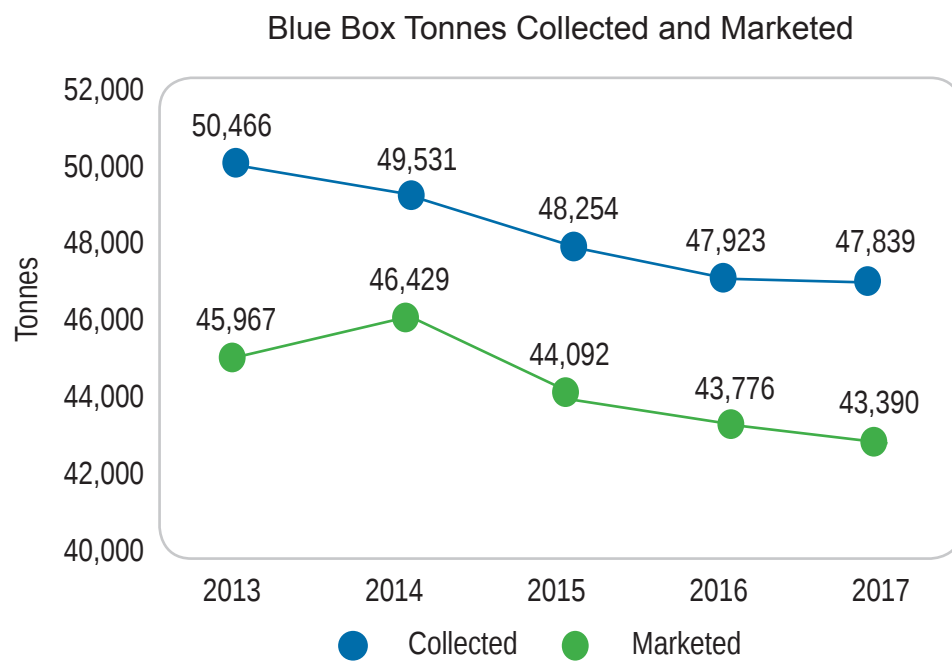
Approximately 98 per cent of the material collected for recycling in Durham Region is marketed. The Region's materials are sold to brokers, mills and manufacturers locally and across North America. Materials are manufactured into a wide variety of products, preserving valuable natural resources. Also, revenues from the sale of recyclables offset the net cost of Durham's waste management programs.

Despite population growth, total recycling tonnes have decreased over the years. This is mainly due to changing composition of blue box materials. There has been a significant increase in lightweight and high volume materials such as plastic and polycoat containers and a decrease in heavier, dense materials like newspaper.

With the 2016 Resource Recovery and Circular Economy Act, the Province started moving toward full extended producer responsibility for the printed paper and packaging materials that are collected in municipal blue box programs. This means that in the near future, companies that make or import products or packaging into Ontario that are managed by the Blue Box program will replace municipalities as the responsible party for managing the Blue Box program.

Although the transition to full producer responsibility has started, it will be a multi-year process to move full responsibility for blue box collection to the producers of the paper and container packaging materials. A key requirement of the transition is that the service provided to residents at the curb, not be negatively impacted.

During the transition, the Region will continue to provide blue box collection services to residents with no changes.



Tonnage drops due to light-weighting of Blue Box materials and material shift away from paper, metal and glass.



Green Bin

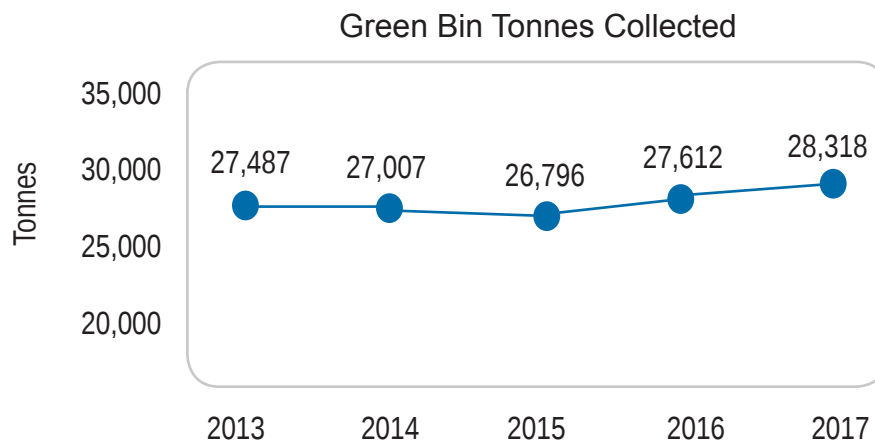
Durham residents separate Green Bin organics from regular garbage and set them out at the curb each week in 47 litre Green Bins. Residents are required to use certified, 100 per cent compostable bags, paper liner bags, or wrap contents in newsprint before putting their organic material in the Green Bin for collection.

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

The Region is continuing to explore integrated waste management options for a long-term organics management plan which include the presorting of organics and recyclables from the garbage and the anaerobic digestion of organic materials to produce a renewable natural gas and soil amendments.

At the end of 2017, then Ministry of Environment and Climate Change released a draft Food and Organic Waste Framework that aims to reduce the amount of food and organic waste disposed of by Ontarians. Part of the proposed framework includes municipalities increasing the amount of food, leaf and yard waste collected for recycling and an eventual ban on organics from disposal.

The work the Region is already conducting on a long-term organics management plan will support meeting the new diversion requirements of the Food and Organic Waste Framework.





Leaf and Yard Waste

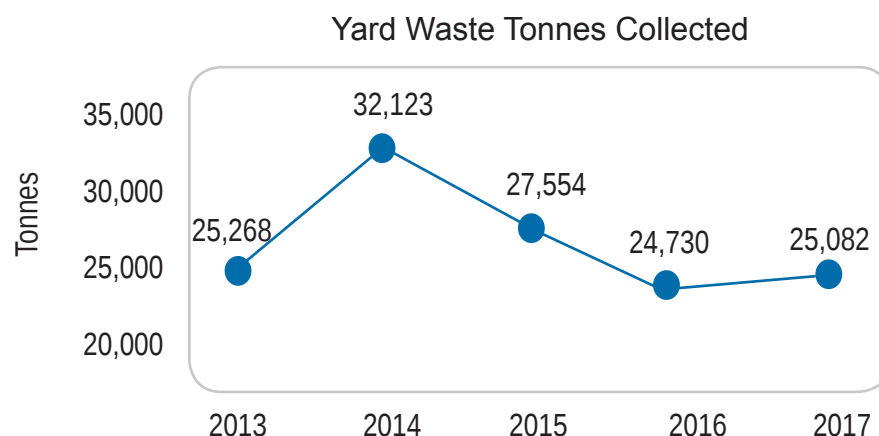
Yard waste is collected 24 times per year. Six collections in the spring (April and May), 10 collections in the summer (June, July, August and September) and eight collections in the fall (October, November and December) with two additional Christmas tree collection weeks in January.

Brush, leaf and yard waste are collected in kraft paper yard waste bags, rigid reusable containers or tied bundles for outdoor windrow composting and as a supplement in the Green Bin organics composting process. Christmas trees are collected separately in each municipality during specified weeks in January and are chipped for various gardening and landscaping uses.

Additionally, residents may drop off yard waste materials at any of the Region's waste management facilities—disposal rates apply.

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

The Region also receives finished compost for distribution back to residents at annual compost giveaway events throughout the Region in the spring each year.



* The increased yard waste tonnages in 2014 were due to the ice storm clean-up.

Multi-Residential Waste Programs

Almost 400 multi-residential buildings and townhouses, representing over 25,000 households, receive municipal waste and recycling service in the Region. To be eligible for this service, buildings and townhouse complexes must meet the Region's "Technical and Risk Management Guidelines for Waste Collection Services on Private Property" which allows the Region's contracted vehicles to access the properties. A communal waste area with front-end waste bins and rolling dual-stream recycling totes are located on these approved sites, and collected by our contractors. In 2017 a total of 2,123 tonnes of blue box recyclables were managed by the Region from the multi-residential sites.

The Region encourages the diversion of additional recyclable material through specially designed multi-residential programs. These programs provide convenience and accessibility for waste diversion in multi-residential sites.

The Waste Electronic and Electric Equipment (WEEE) recycling program, in partnership with Ontario Electronic Stewardship, is available to 72 sites. In 2017, 8.96 tonnes of e-waste was collected from the sites for recycling.

The multi-residential battery program continues to grow and is now offered in 97 sites. Drums or pails are available inside the buildings so residents can conveniently drop off used batteries year round. In 2017, 2.2 tonnes of batteries were collected and shipped for recycling.

Beginning in November 2016, a textile pilot program in partnership with Diabetes Canada was launched using specially designed indoor collection bins. The program started with ten buildings participating and by October 2017, 7.21 tonnes of textiles had been collected. The program continues to grow and by the end of December 2017, 11.63 tonnes of textile material had been collected from 19 sites and diverted to local reuse retail outlets.

Diversion rates in multi-residential buildings remain less than 25 per cent. Ongoing expansion of the WEEE, battery and textile diversion programs will continue in 2018 to qualifying properties.

An organics management strategy is under review by the Region and this strategy will play a key role to capture and divert organic waste from multi-residential properties.





Curbside Battery Collection

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

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

Since the first battery collection in November 2012, Durham Region has diverted more than 178 tonnes (178,000 kilograms) of household batteries from the waste stream. It has also served as a catalyst for curbside battery recycling throughout Ontario with over 60 municipalities starting or considering their own programs.

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

Year	Tonnes	Total tonnes collected to date
2013	23.90	46.36
2014	32.08	78.44
2015	33.74	112.18
2016	33.37	145.55
2017	32.63	178.18



Electronic Waste

Unwanted electronic and electrical equipment is classified as waste electronic and electrical equipment (WEEE). While electronic materials can contain harmful substances such as mercury, lead and cadmium, which require special handling, there are also valuable and scarce resources in electronics, such as gold, copper, aluminum and other precious metals; recycling these materials helps reduce the need for new raw materials. One tonne of cell phones can yield up to 30 times more gold than one tonne of ore (UrbanMining.org, “Striking Gold in Cell Phones”, article, June 3, 2010)

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

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

In 2017, 447 tonnes of WEEE materials were collected at Durham Region waste management facilities and 34 tonnes through the call-in curbside program. Additionally, the Region organized eight WEEE recycling special events in 2017. These special events combined with Durham Region’s drop-off depots provide for the safe recycling of WEEE materials.

2017

WEEE Source	Tonnes
WMF	446.59
Curbside Collection	34.35
Events	31.18
Total	512.12

Other Diversion Programs

Drywall

The Region's drywall recycling program diverts all clean drywall including off-cut material. In 2017, this program diverted almost 285 tonnes of material from disposal.

Drywall, also known as gypsum wallboard, is recycled in a closed-loop process where gypsum material is returned to the drywall manufacturer to re-enter the manufacturing process.

The paper removed from the gypsum wallboard is processed and recycled in a variety of applications including shipment to farms for use as animal bedding.

Acceptable material may be dropped off at any of Durham Region's waste management facilities.

Porcelain

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

This program diverted 419 tonnes of material from disposal in 2017, comprised of 196 tonnes collected through the curbside collection and an additional 222 tonnes collected at the WMFs.

Used Cooking Oil

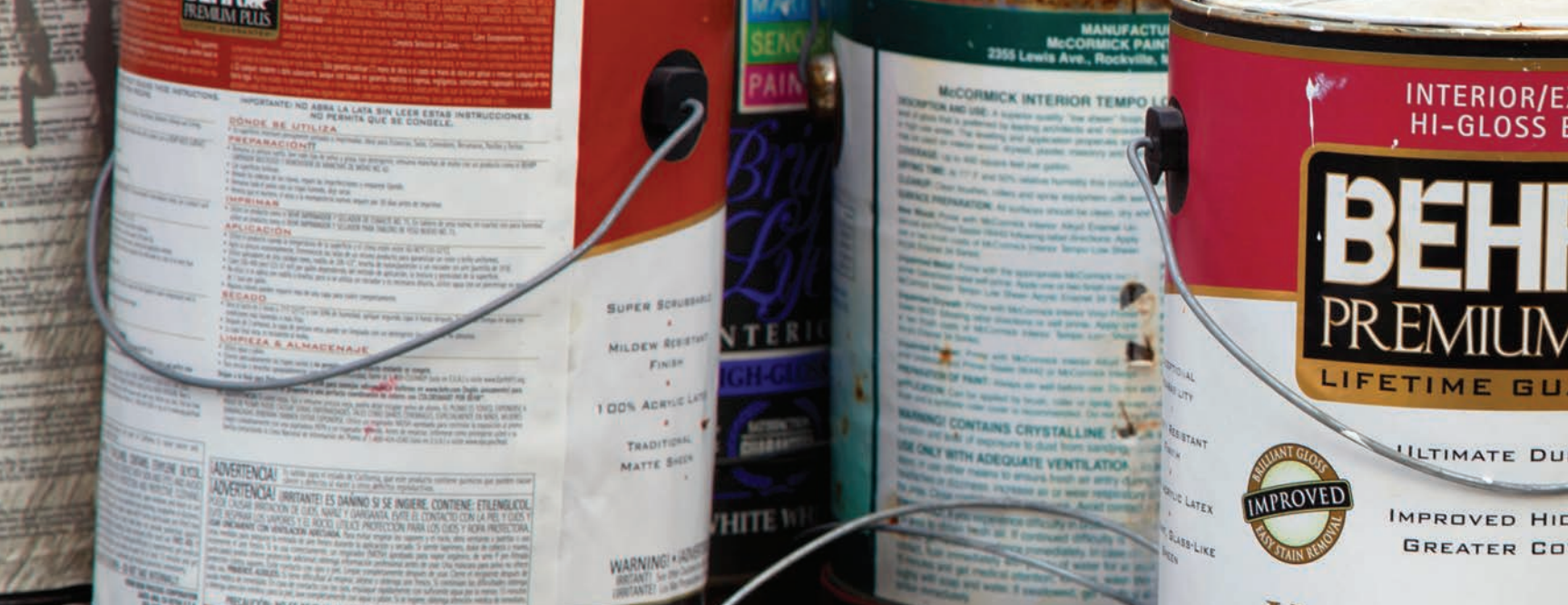
Durham Region's Sewer Use By-law Enforcement Program educates residents on how to safely dispose of fats, oils and grease (FOG).

Although it may be in liquid form when you dispose of it, once it enters the cold sewer system, it solidifies and accumulates inside sewer pipes. When FOG meets other items in the sewer system that should not be flushed (such as rags and wipes), it can form large clumps or balls, causing major sewer clogs.

Used cooking oil can be dropped off for recycling at any one of the Region's waste management facilities free of charge.

In 2017, Durham Region collected 13.7 tonnes of used cooking oil.





Household Hazardous Waste (HHW)

The Region provides residents with a network of facilities and special events where residents can drop off household hazardous waste (HHW). Through specialized contract services at these locations, HHW is recycled, or treated and disposed of in an environmentally responsible manner.

Current HHW drop-off locations include the waste management facilities in Oshawa, Scugog and Brock. The Region also has an HHW depot at 1220 Squires Beach Rd. in Pickering.

In 2017, 1,258 tonnes of HHW materials was collected at Regional depots and events.

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

Stewardship Ontario and Product Care Association continue to maintain the HHW plan. All information on designated HHW materials can be found at:

[Stewardship Ontario MakeTheDrop.ca](http://StewardshipOntario.MakeTheDrop.ca)

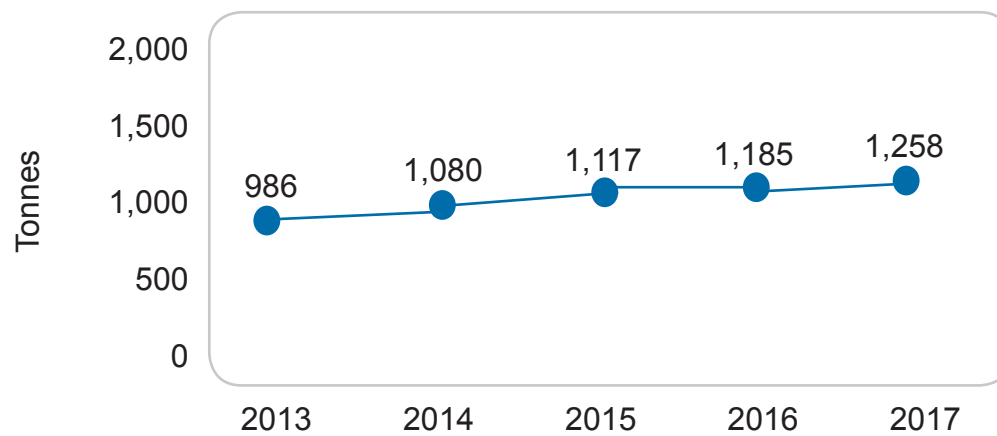
[Product Care Association Regeneration.ca](http://ProductCareAssociation.Regeneration.ca)



2017

HHW Source	Tonnes
Brock	44.83
Scugog	180.82
Oshawa	750.31
Pickering	258.18
Events	23.79
Total	1257.93

HHW Tonnes Collected





Garbage

After all waste diversion efforts have been utilized, Durham Region manages its remaining residual garbage primarily through energy recovery at a facility in Clarington it owns with York Region.

The Durham York Energy Centre (DYEC) is a waste management facility that produces energy from the combustion of garbage. The DYEC recovers energy to generate electricity, captures residual metals and reduces the volume of waste going to landfill. The DYEC started Commercial Operations on January 29, 2016.

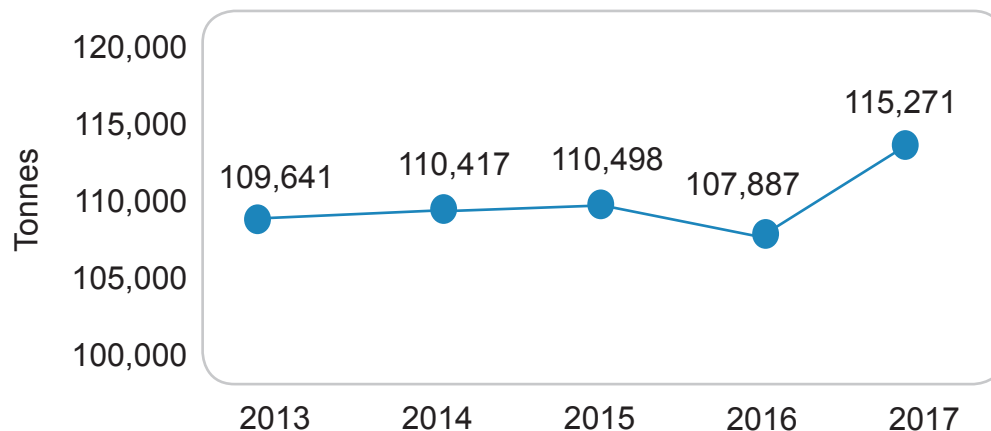
The DYEC is permitted to safely process 140,000 tonnes per year of non-hazardous residential garbage that remains after maximizing waste diversion programs; reducing, reusing, recycling and composting in Durham and York Regions. Of the 140,000 tonnes of processing capacity at the DYEC, 110,000 tonnes is assigned for Durham's use.

Overall, the facility processed approximately 140,000 tonnes of garbage, while recovering approximately 3,400 tonnes of metal and generating approximately 99,000 MWh of electricity for sale to the provincial grid. Annually, the DYEC produces enough energy in the form of electricity to power approximately 10,000 homes and helps conserve fossil fuels.

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

In 2017, independent stack tests to monitor all emissions from the stack occurred in the months of May and October. Results from both testing periods demonstrate the facility is currently operating well within the DYEC environmental compliance approval requirements.

Garbage Waste Collected



Landfill Perpetual Care Programs

Oshawa Landfill

A post-closure care and monitoring plan was completed for the Oshawa Landfill site in 2013. The report's findings and recommendations were used to plan maintenance activities and capital projects in 2017.

Erosion and slope stability issues have historically occurred in the northern end of the landfill. The Region performed a detailed stream evaluation in 2015 to identify impacts from surrounding creeks and surface water flow causing erosion around the landfill and prioritize the areas of concern and the appropriate solutions.

In 2015, a slope stabilization project was undertaken, involving re-alignment of the adjacent creek, re-grading of the underlying soils and placement of a sand filter layer to reduce the severity of the slope. The area was then covered with "Filtersoxx" media – long tubes of fine mesh filled with compost and native seed mixture – to act as a final cover and introduce vegetation to reduce erosion. The "Filtersoxx" was used in this area to test the effectiveness of this product before being used in other areas of the site.

In 2016, regular monitoring of the area showed rapid revegetation and the integrity of the slope has maintained. Based on the results of this stream evaluation other areas around the landfill were identified for improvement. The Region plans to rehabilitate these other areas in a similar manner in 2018.

Blackstock Landfill Mining Pilot Project

Landfill mining is typically undertaken to increase capacity for disposal. However, the proposed mining project at Blackstock is a restorative project with the objective of returning the land to public use or green space. This involves the removal of waste from the site for processing at the DYEC and removal of recyclables for diversion. The excavated soil would be used as backfill and the site will be re-graded and replanted to establish a natural vegetated cover.

Site preparation and waste excavation is scheduled to commence in September of 2018. The project is anticipated to take up to 18 weeks to complete.

Other Landfill Perpetual Care Activities

The Region maintains six other closed landfill sites. All sites are monitored regularly and inspected at least twice a year and maintained as needed. Maintenance activities includes groundwater monitoring well repairs, soil erosion control, and site grading and landscaping.

All of these sites have individual monitoring programs for 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.





Community Outreach

The Region actively promotes its waste diversion programs through an extensive communication and education program. Key objectives include:

Promoting participation in waste diversion programs.

Encouraging an understanding of correct participation in programs.

Promoting compliance with Regional waste management policies and by-laws.

Durham Region participated in the following community outreach initiatives in 2017:

Eight spring compost events, one in each municipality.

Eight special waste electrical and electronic equipment drop-off events and five household hazardous waste drop-off events.

Eight reuse drop-off events were held from March to October, partnering with local charities.

Promotion of waste diversion programs during National Public Works Week.

In September 2017, the Region held a community Waste Fair in the City of Oshawa. This free, family-friendly event focused on educating residents about responsible waste management.

“Durham Works”, the Works Department’s external newsletter is distributed twice annually to approximately 220,000 households in the Region. In 2017 it featured information on the Durham Region waste app, Green Bin and Blue Box Programs and curbside battery collection.

In 2017, education programs were delivered to approximately 1,905 Durham Region students through visits to 23 schools. In addition, Durham Region’s Waste Management staff delivered an interactive activity centre to approximately 1,200 students at the 2017 Durham Children’s Watershed Festival, held at Camp Samac in Oshawa from September 25-29, 2017.



2017 Participation in Durham Region Waste Education Programs

Organization	Number of Schools	Total Number of Participants
Durham District School Board (DDSB)	9	772
Durham Catholic District School Board (DCDSB)	6	674
Kawartha Pine Ridge District School Board (KPRDSB)	2	186
Peterborough, Victoria, Northumberland and Clarington Catholic (PVNCCDSB)	3	142
Private Elementary Schools	3	131
Durham Children's Watershed Festival	n/a	1,200
Total	23	3,105

The majority of requests (97%) for Durham Region's waste education programs have come from elementary teachers (Kindergarten to grade 8) and this is anticipated to continue in the future as schools work towards improving their environmental practices and encouraging students to become active and engaged citizens from a young age.

REGION OF DURHAM TONNES OF RESIDENTIAL WASTE MANAGED (2017)												
Descriptions	Curbside Garbage	Apartment Garbage	Bulky/Other Goods	Curbside Recycling	Apartment Recycling	Food Composting	Leaf & Yard Composting	Composter Credits	Grasscycling Credits	Other Diversion Programs	Total Waste	Waste Diversion
1 Curbside & multi-residential wastes												
Pickering	11,029	892	263	6,273	273	4,460	3,328	835	499	99	27,949	56%
Ajax	13,696	1,391	204	7,613	278	6,173	3,431	714	515	107	34,122	55%
Whitby	13,399	2,565	521	9,131	508	6,442	4,480	1,204	672	58	38,979	58%
Oshawa	19,642	8,168	279	10,637	1,008	5,890	5,885	1,713	883	20	54,124	48%
Clarington	13,101	131	418	7,203	56	3,375	3,482	650	522	61	28,998	53%
Scugog	2,936	184	57	1,580	0	810	1,040	331	156	20	7,115	55%
Uxbridge	2,902	187	73	1,550	0	795	968	271	145	24	6,915	54%
Brock	1,978	0	80	1,116	0	374	341	151	51	14	4,107	50%
sub-totals	78,683	13,518	1,895	45,103	2,123	28,318	22,955	5,869	3,443	402	202,308	53%
		94,096		47,226		51,273		9,312				
2 Regional waste disposal sites												
Oshawa	0	0	15,215	377	0	0	1,456	0	218	4,248	21,514	29%
Scugog	0	0	4,520	189	0	0	494	0	74	1,363	6,640	32%
Pickering	0	0	0	0	0	0	0	0	0	258	258	100%
Brock	0	0	1,440	48	0	0	177	0	27	523	2,213	35%
MRF (1)	0	0	0	0	0	0	0	0	0	23	23	100%
sub-total	0	0	21,175	614	0	0	2,127	0	319	6,414	30,648	31%
3 Special Events												
HHW	0	0	0	0	0	0	0	0	0	24	24	100%
E-Waste	0	0	0	0	0	0	0	0	0	31	31	100%
Re-use	0	0	0	0	0	0	0	0	0	17	17	100%
sub-total	0	0	0	0	0	0	0	0	0	72	72	100%
4 Summary												
municipal residents	78,683	13,518	1,895	45,103	2,123	28,318	22,955	5,869	3,443	402	202,308	53%
Regional waste sites	0	0	21,175	614	0	0	2,127	0	319	6,414	30,329	31%
Special Events	0	0	0	0	0	0	0	0	0	72	72	100%
sub-total	78,683	13,518	23,070	45,716	2,123	28,318	25,082	5,869	3,762	6,887	232,709	
Total Tonnes, with credits		115,271		47,839		53,400		9,631		6,887	233,028	
Total Tonnes, managed		115,271		47,839		53,400				6,887	223,397	
Percentages of Total	34%	6%	10%	20%	1%	12%	11%	3%	2%	3%	100%	
Waste diversion rate	51%										April 10, 2018	

*It must be noted that, while the waste reported in this Table derives a 51 percent diversion rate, the Resource Productivity and Recovery Authority, the agency which officially tracks and reports on municipal waste diversion rates in Ontario, adjusts municipally reported waste tonnages to account for deposit return, home composting, grass cycling and other re-use activities across Ontario. In 2017, these adjustments increased Durham's overall waste diversion rate to 55 percent.



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

Tel: 905-579-5264 or 1-800-667-5671

Email: waste@durham.ca

Website: durham.ca/waste

If you require this information in an accessible format, please contact 1-800-667-5671.