



**RPRA**

Resource Productivity  
& Recovery Authority

# Datacall Trends

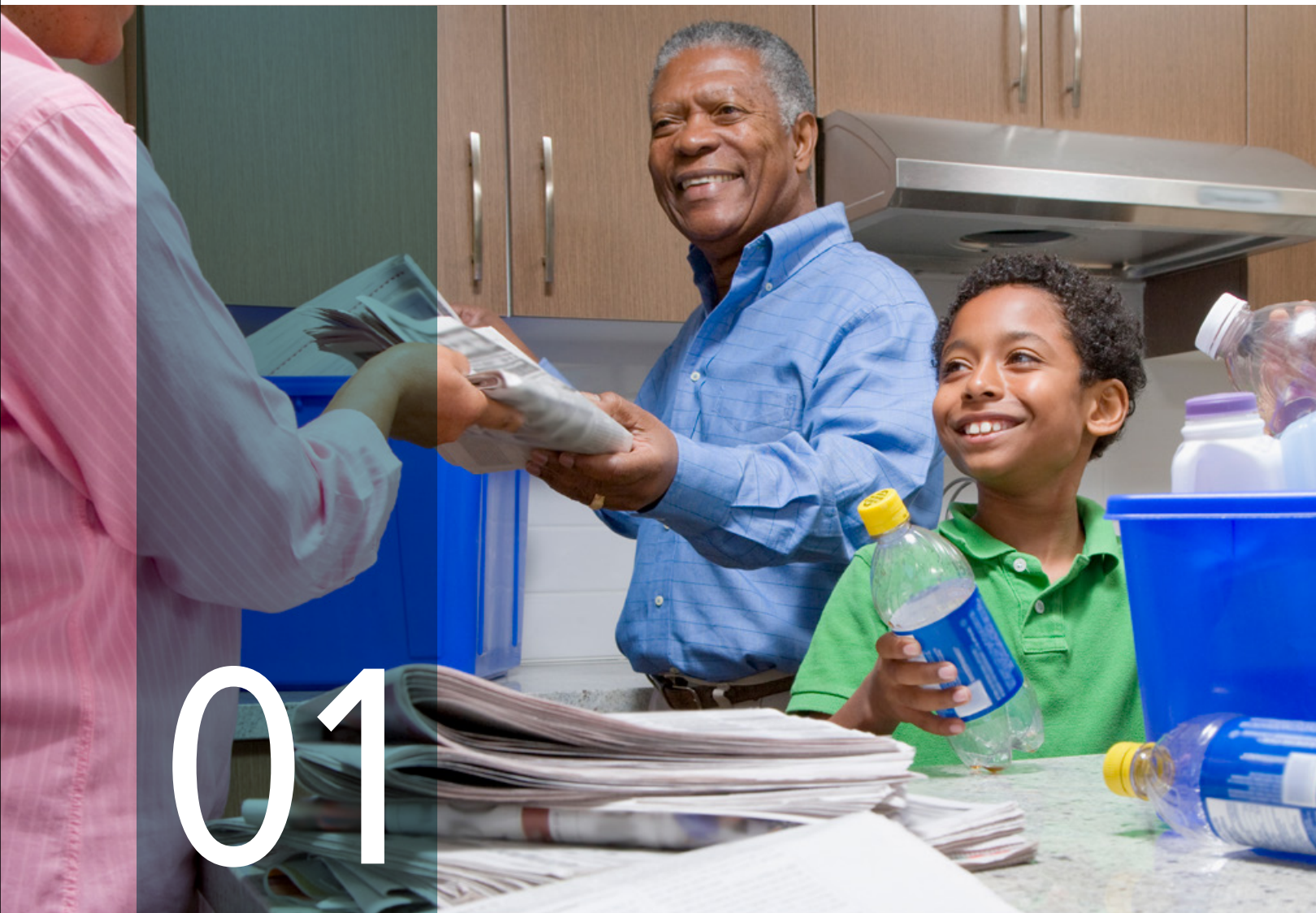
Analysis of Ontario's Residential Recycling  
Programs from 2002 to 2021





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## Datacall at a Glance

Since 2002, the annual Datacall operated by the Resource Productivity and Recovery Authority (RPRA) has collected tonnage and financial data associated with operating the Blue Box Program and other residential waste diversion activities from municipalities, recycling associations and First Nation communities in Ontario.

With the transition of the legacy Blue Box Program operated under the *Waste Diversion Act, 2002* (WDA) and subsequently the *Waste Diversion Transition Act, 2016* (WDTA) to the new individual producer responsibility Blue Box Program under the *Resource*

*Recovery and Circular Economy Act, 2016* (RRCEA) between July 1, 2023 and December 31, 2025, the final Datacall report for 2021 was issued in March 2023.

The transition of the Blue Box Program and the end of the Datacall after almost 20 years provides an opportunity to review Ontario's residential waste management trends as reported into the Datacall between 2002 and 2021.

Over the Datacall's operational years, there have been several external factors that have impacted Blue Box services and the management of these materials,

including technological progress, two recessions, stricter recycling market policies, and a global pandemic.

The costs to operate the Blue Box Program have increased while the recovered Blue Box tonnage and the resulting Blue Box Recovery Rate has declined over time. Revenue generated from the sale of processed recycled Blue Box materials has fluctuated throughout the years, especially in uncertain economic times. Specifically:

- Overall Blue Box tonnage declined, with the composition of the residential Blue Box shifting from printed paper and mixed fibres to plastics and packaging materials.
- Blue Box operating costs increased 5.5% annually since 2002.
- Blue Box Recovery Rate declined 17.0% over the last 10 years.
- Ontario's Residential Waste Diversion Rate increased 29.9% overall between 2006 and 2021, but plateaued over the past 6 years.

The Datacall also provided valuable insights into waste management and diversion activities for other materials including organics, other recyclables, Waste Electronic and Electrical Equipment (WEEE) and Municipal Hazardous or Special Waste (MHSW). Organics and other recyclables collection has gradually increased. WEEE and MHSW collection remains variable.



## Definitions

**Blue Box Recovery Rate:** Ontario Blue Box Recovery Rate is the proportion of blue box materials supplied to the Ontario market that is diverted from landfill.

**Collected Blue Box tonnes:** Blue Box materials that are collected curbside and/or at a depot.

**Communities ('Programs'):** Includes municipalities, amalgamated municipalities, recycling associations and First Nation communities that submit a Datacall form.

**Curbside collection:** Households receiving curbside Blue Box service. Includes single-family homes serviced individually and multi-family homes serviced collectively. These homes may also have access to depot service for Blue Box materials in addition to curbside service.

**Depot collection:** Bringing residential Blue Box material to a specified location within a community.

**Disposed Tonnes:** Includes garbage and processing residuals from recycling and composting operations disposed at a landfill or Energy-from-Waste incineration facilities.

**Diverted Tonnes:** Includes recycling activities, municipal organic collection and processing activities, provincial deposit systems for beer, wine and spirits containers, residential on-property management and municipally operated reuse activities.

**Energy-from-Waste (EFW):** The process of generating energy in the form of electricity and/or heat from the incineration of waste.

**Generated Tonnes:** Includes recycling, reuse and garbage material produced by Ontario residents. Generated Tonnes is the combination of disposed tonnes and diverted tonnes.

**Grasscycling:** The process of mulching and leaving grass clippings to decompose on the lawn when mowing.

**Hazardous waste disposal:** Tonnes of hazardous household products that are sent to landfill.

**Households served:** The number of households in the jurisdiction that receive Blue Box service (either by curbside or depot). Households serviced by private collection are not included.

**Landfilled residential material:** Includes garbage tonnes, EFW ash, and MRF and organic processing residues. These tonnes are included in the Disposed Tonnes calculation.

**Long-Form Datacall:** Standard Datacall, available to all communities, includes sections related to waste management information beyond the Blue Box program. Information submitted through this form is used to calculate the Residential Waste Diversion Rate.

**Marketed Blue Box tonnes:** Blue Box materials sorted and processed by a MRF that is then sold and used in place of virgin materials. This does not include Blue Box materials that are sent for secondary processing.

**Municipal Hazardous or Special Waste (MHSW):** Hazardous household products, such as single-use batteries, paints, solvents and propane tanks. On July 1, 2020, single-use batteries became subject to the Batteries Regulation under the *Resource Recovery and Circular Economy Act, 2016* (RRCEA), along with reusable batteries. On October 1, 2021, paints, solvents and propane tanks became subject to the Hazardous and Special Products (HSP) Regulation under the RRCEA.

**Other recyclables:** Includes textiles, bulky goods, scrap metal, drywall, wood concrete, construction and demolition and other materials recovered from residences.

**Organics:** Includes yard waste, leaves, holiday trees, oversized yard waste and kitchen organics, grasscycling and backyard composting.

**On-property management:** Includes backyard composting, grasscycling, open burning, burning in a fireplace and evapotranspiration through the use of aerated carts for organics collection.

**Recycling association:** Corporation governed by elected representatives from each of its member municipalities and/or communities.

**Residential residue ('residue'):** Materials that were collected but not marketed (calculated as Collected Tonnes minus Marketed Tonnes).

**Residential Energy-from-Waste mass reduction:** Any material processed at EFW incineration sites that is not recycled.

**Residential Waste Diversion Rate:** The provincial residential waste diversion rate is a calculation of the proportion of waste material diverted from landfill in the residential sector.

**Short-Form Datacall (SFD):** A shorter and streamlined version of the Standard Datacall introduced in 2016 and available to all programs with a population under 30,000. Programs that reported under the SFD were only required to submit Blue Box data and are therefore not included in all sections of this report. All tables and graphs from previous years have been updated to only include Long-Form submissions standardized to 2016.

**Waste Electronic and Electrical Equipment (WEEE):** End-of-life electronic materials subject to the Electrical and Electronic Equipment (EEE) Regulation under the RRCEA. The WEEE program under the *Waste Diversion Transition Act, 2016* (WDTA), started in April 2009 and covered products such as TVs, laptops, printers, mobile phones, etc. The WEEE program ceased operation on December 31, 2020. The new EEE regulation under the RRCEA came into full effect on January 1, 2021.



## Ontario's Waste Diversion

### Blue Box Program

Through Ontario's Blue Box Program, designated printed paper and packaging is collected in communities (i.e., municipalities, First Nation communities and recycling associations). Communities with a population above 5,000 must provide Blue Box services to its residents and report into the Datacall to be eligible for Blue Box funding.

The financing of the Blue Box Program is split approximately 50/50 between stewards (i.e., the brand owners, first importers or franchisors of printed paper and packaging) and Ontario communities. Stewardship Ontario is the industry funding organization that administers the Blue Box Program on behalf of stewards, and RPRA is the regulator responsible for overseeing the Blue Box Program, including administrating the Datacall and determining funding.

On August 15, 2019, the Minister of the Environment, Conservation and Parks directed Stewardship Ontario and RPRA to transition Ontario's Blue Box Program under the WDTA to the new extended producer responsibility

framework under the RRCEA. The Government of Ontario finalized the Blue Box Regulation under the RRCEA on June 3, 2021.

The Blue Box Regulation designates Blue Box materials, including packaging-like and paper products, under Ontario's [new regulatory framework](#) for resource recovery. The regulation makes producers fully accountable and financially responsible for their products and packaging once they reach their end of life and are disposed; sets mandatory and enforceable requirements for Blue Box collection systems; and gives producers choices for resource recovery services in a competitive market.

The Datacall, and this report, cover the Blue Box services as obligated under the WDA and subsequently the WDTA. The Blue Box Program will transition to the new regulatory framework starting on July 1, 2023, through to its wind up on December 31, 2025.

<sup>1</sup> O. Reg. 101/94 Recycling and Composting of Municipal Waste states "A local municipality that has a population of at least 5,000 shall establish, operate and maintain a blue box waste management system if the municipality is served by a waste management system owned by or operated by or for the municipality that collects municipal waste or accepts such waste from the public at a waste disposal site."

### The Datacall

Each year, municipalities, recycling associations and First Nation communities operating Blue Box programs complete the Datacall through which they report to RPRA the amounts of residential materials diverted under each of their waste diversion programs. Information submitted includes tonnage and financial information for Blue Box material and tonnage managed through all waste diversion activities, including MHSW, WEEE, organics, garbage, and other materials.

The [Datacall](#) is the source of data for determining the net Blue Box system cost and allocation of funding under the Blue Box Program Plan. Each Ontario program providing recycling services must complete the Datacall to be eligible for Blue Box funding. The Datacall is also used to determine the Residential Waste Diversion Rate of individual programs and of the province overall.

Communities choose whether or not they want to participate in the Datacall. Communities who choose to submit the Datacall participate in the Blue Box program and get partial funding for their costs incurred for Blue Box services. Participating communities can choose to submit either the Short-Form or the Long-Form Datacall.

#### Short-Form vs. Long-Form Datacall Submissions

The Short-Form Datacall is a shorter, streamlined version of the Datacall that collects Blue Box tonnage and financial information. The Short-Form was introduced in 2016 and is available to all communities with a population under 30,000. Eligible programs using the Short-Form

do not have to report any non-Blue Box information (e.g., organics, other recyclables, WEEE, and MHSW). While the Short-Form Datacall collects the necessary data for calculating the municipal Blue Box funding, programs that wish to have their diversion rate calculated need to complete the standard Long-Form Datacall.

Communities with a population of over 30,000, or communities that would like to have their diversion rate calculated, fill out the Long-Form. The Long-Form Datacall includes sections related to waste management information beyond the Blue Box Program. Information submitted through this form is used to calculate the Residential Waste Diversion Rate.

#### Data Verification Process

RPRA conducts a data verification process after the Datacall reporting period ends for the purpose of assessing the consistency and accuracy of the reporting. The verification process can include the confirmation of any data variances from the previous year and an assessment of costs and tonnages reported. In collaboration with the Municipal Industry Program Committee (MIPC), RPRA also selects approximately twenty programs for audit by a third party for the Blue Box sections of their Datacall submission. RPRA does not guarantee the accuracy or completeness of data submitted even after RPRA conducts its data verification process and audits. Analysis provided in this report is drawn from the reported data and municipal commentary provided in Datacall submissions and through the data verification process.

## What Information is Collected in the Datacall?



#### The following information gets collected into both the Short-Form and Long-Form Datacall:

- Population and household information.
- Set out limits and information on user pay programs
- Promotion and education costs
- Blue Box Services received and provided by a program including
  - material collected and marketed tonnage
  - service costs and revenue

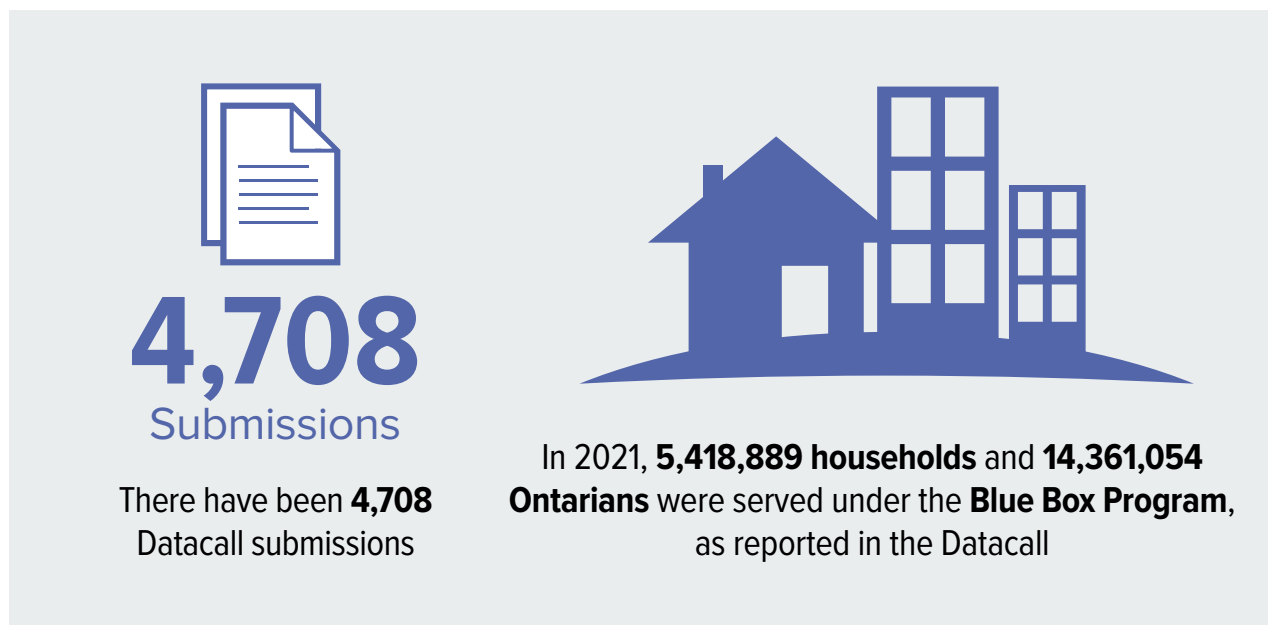


#### The following information is only collected in the Long-Form Datacall:

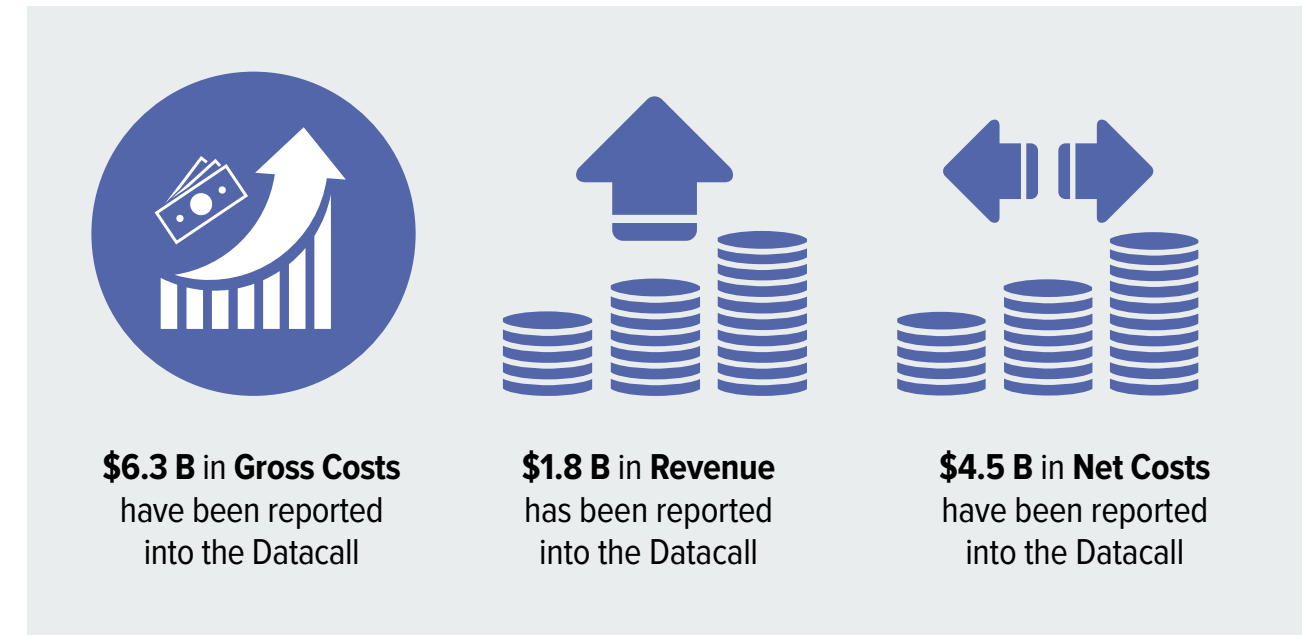
- Other recyclables
- Organics (including composting information)
- WEEE
- MHSW
- Garbage
- Information on other waste diversion activities (including garburators, incineration, landfills, disposal of residual waste etc.)



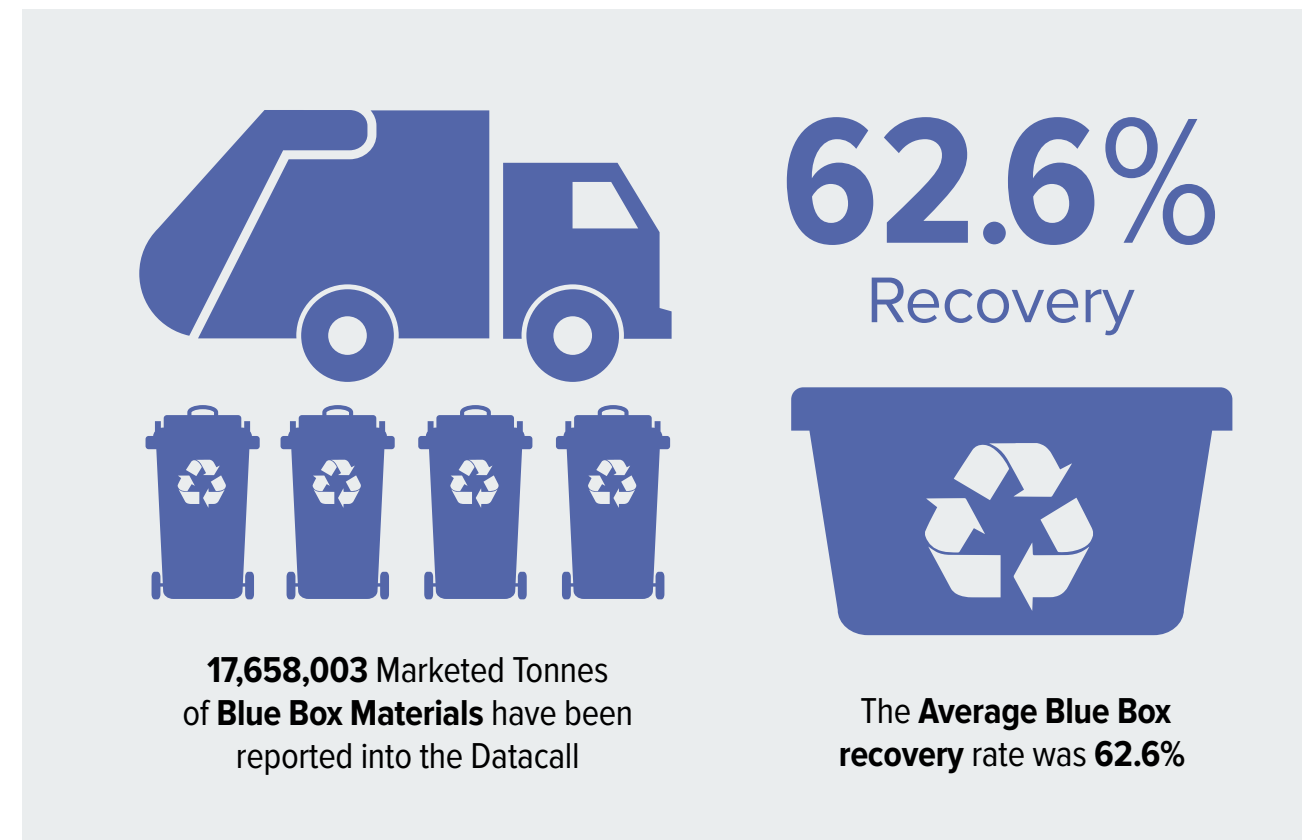
### Over the Past Two Decades



### Blue Box Costs and Revenue



### Reported Tonnes and Recovery Rate





external factors have impacted the Blue Box Program operationally and financially. These include technological progress in collection and processing equipment; global economic recessions and stock market crashes; stricter recycling market policies; and the COVID-19 pandemic.

The following sections provide a detailed overview of the Blue Box Program trends as they emerged between 2002 and 2021. The subsequent section offers insights into how global economic trends between 2002 and 2021 have impacted the Blue Box Program in Ontario.

## 19 Years of Trends

The following are the major trends from Ontario's Blue Box Program between 2002 and 2021:

- Residential Waste Diversion had a steady increase.
- Blue Box Recovery Rate steadily declined.
- The total recovered and marketed Blue Box tonnage decreased overtime.
  - Printed Paper saw a rapid decline
  - Plastics observed a steep increase
- Costs to operate Blue Box recycling services rapidly increased.
- Revenue received for recycling Blue Box materials fluctuated throughout, especially in uncertain economic times.

Global economic trends have shaped and coincide with the major trends within Ontario's Blue Box Program. During 2002 and 2021, a number of

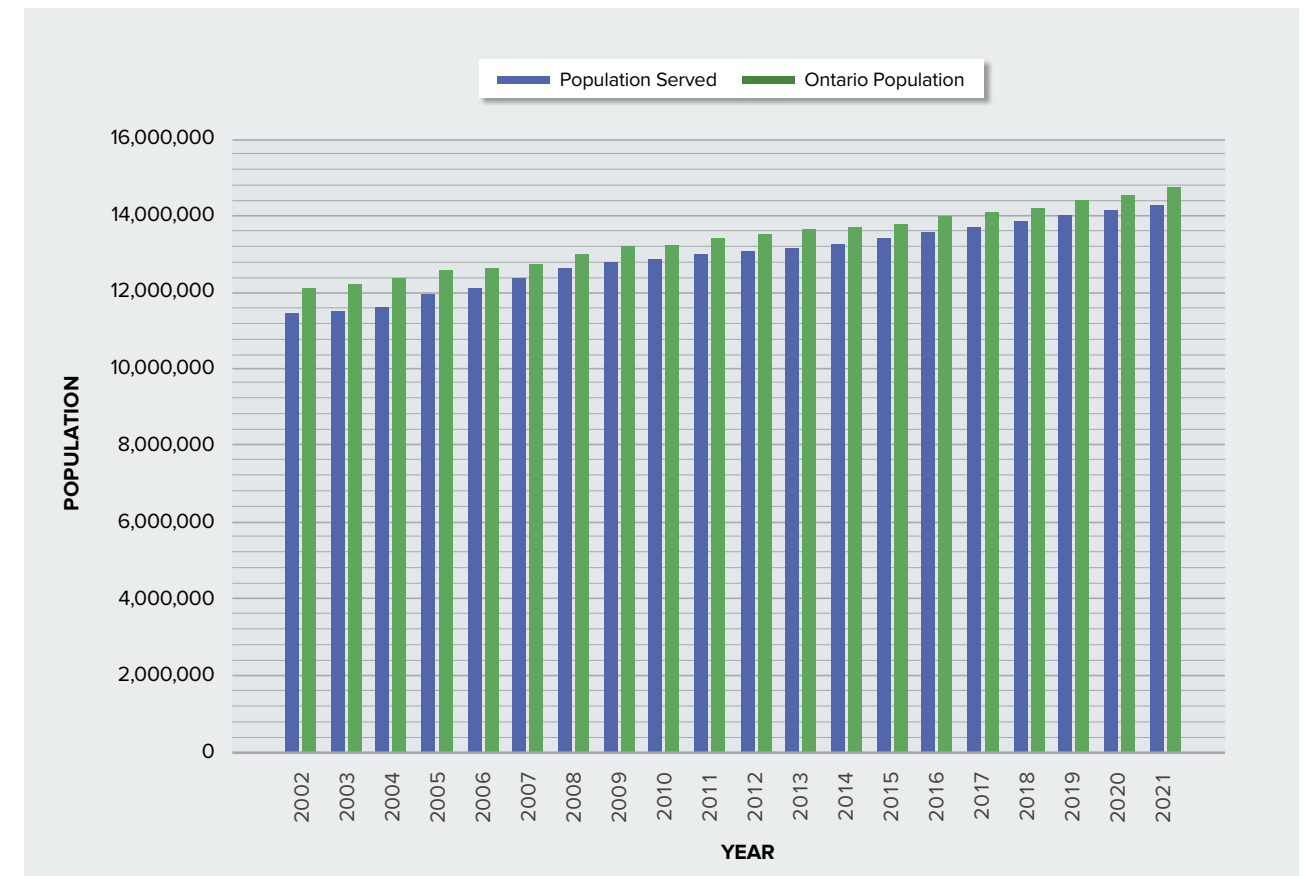


## Datacall Reporting

On average, 224 municipalities, recycling associations and First Nation communities providing recycling services completed the Datacall each year since it began. This is representative of 96.4% of Ontario's

population and its residential Blue Box service, as of 2021. The graph below shows that the majority of Ontario's population was served through the Blue Box Program from 2002 to 2021.

Figure 1 – Population served through Blue Box services in Ontario



The data analysed in the following sections is representative of on average 96.7% of Ontario's population that was served through the Blue Box Program from 2002 to 2021.

Ontario's population has steadily increased between 2002 to 2021 due to natural population growth, immigration and internal migration. This population growth means more people have been served under the Blue Box Program in Ontario each year.





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## Material Diversion and Recovery Rates

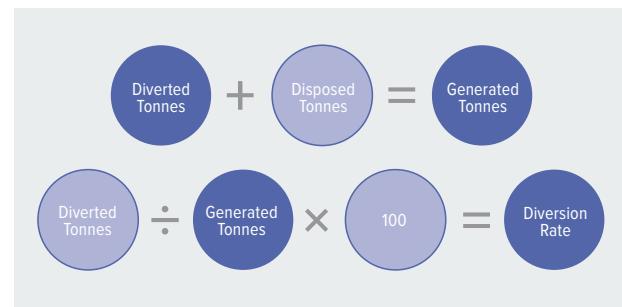
Historically, there have been two reported metrics in the Datacall Report: (1) the Ontario Residential Waste Diversion Rate, and (2) the Ontario Blue Box Recovery Rate.

### 1. Ontario Residential Waste Diversion Rate

Beginning with the 2006 Datacall, based on the *Residential GAP – Manual on Generally Accepted Principles (GAP) for Calculating Municipal Solid Waste System Flow* created in 2003 by Corporations Supporting Recycling (CSR), the Datacall began to generate a yearly Residential Diversion Rate for all submitting programs used to calculate the Ontario Residential Waste Diversion Rate.

The provincial Residential Waste Diversion Rate is a calculation of the proportion of waste material diverted from landfill in the residential sector. The scope is limited to residential based curbside and depot activities operated by the reporting programs.

The Residential Waste Diversion Rate is calculated using the following formulas:



The inputs for the Diverted Tonnes are the following categories:

- **Residential Recyclables** – including obligated Blue Box materials and non-obligated other recyclables (e.g., textiles, bulky goods, scrap metal, drywall, wood concrete, construction and demolition and other materials recovered from residences).
- **Organics** – Leaf and yard waste, household organics.
- **MHSW** – Hazardous household products, such as single-use batteries, paints, solvents, and propane tanks.
- **On-Property Management** – this includes backyard composting, grasscycling, open burning, burning in a fireplace and

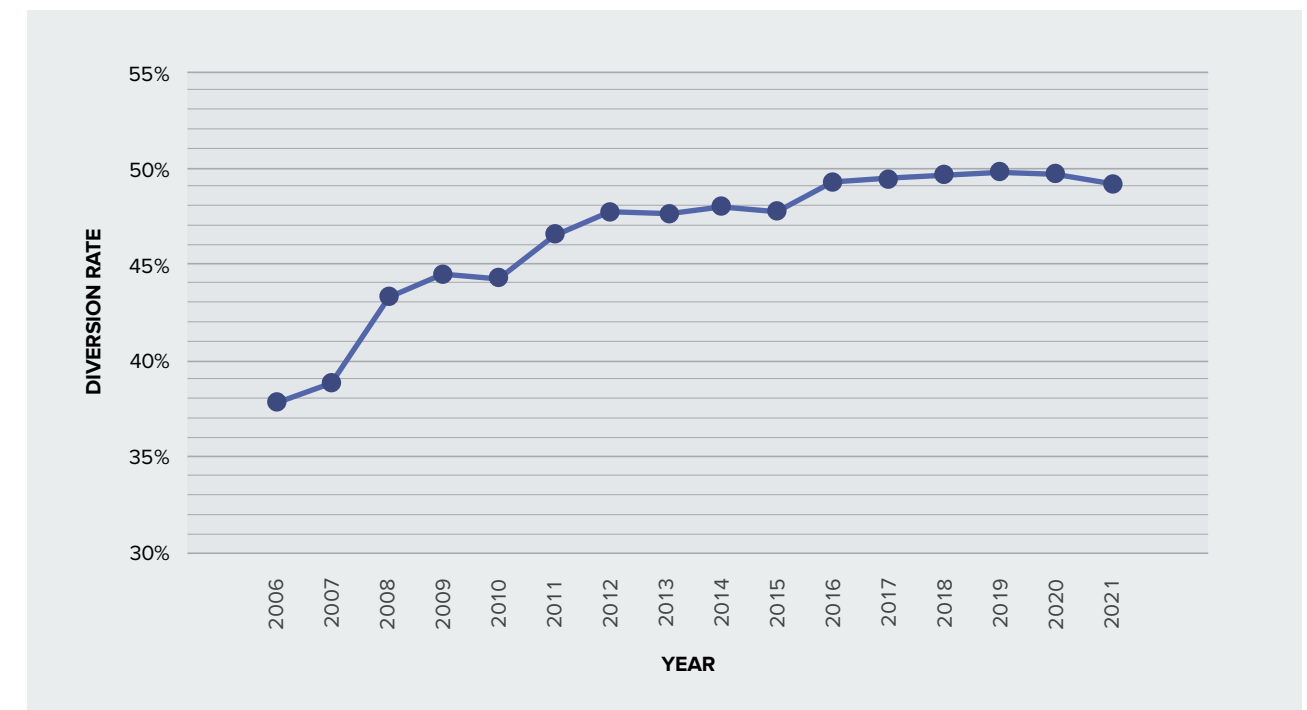
evapotranspiration through the use of aerated carts for organics collection.

- **Residential Reuse** – includes tonnes distributed for reuse through facilities operated directly by municipalities.

And Disposed Tonnes are comprised of:

- **Landfilled Residential Garbage** – Curbside garbage, depot garbage, residue.
- **Residential Energy-From-Waste (EFW) Mass Reduction** – tonnes disposed at EFW facilities or at other facilities as fuel.
- **Municipal Hazardous Waste Disposal** – hazardous or special materials disposal (e.g., single-use batteries, propane tanks, oil filters, etc.).

Figure 2 – Ontario’s Residential Waste Diversion Rate, 2006–2021



The provincial diversion rates saw large yearly increases in the early stages as more programs introduced expansions to begin collecting a more diverse set of materials. Beginning in 2011, however, the program began to stabilize, and the diversion rate began to plateau. In 2016, with the introduction

of the Short-Form Datacall, a small rise of 0.7% can be noted in Figure 2. This increase is due to the removal of many smaller programs, which collectively were below the provincial average. This shift is stable and has a consistent impact year-to-year when comparing the two methods.

## Material Recovery

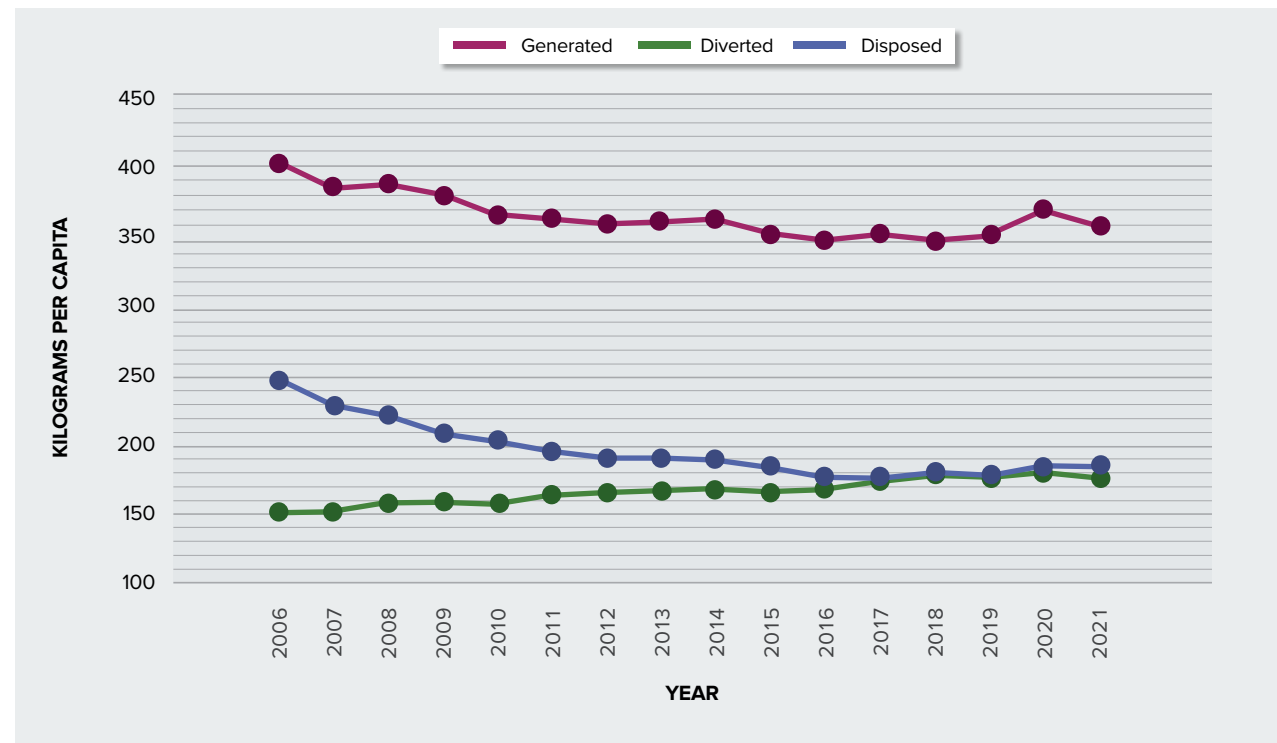
This calculation is depicted in Figure 3, with direct inputs of Diverted and Disposed, measured in kg per capita, to show the changes seen in total waste generation.

Material diversion has steadily increased by 18.0%, growing from 150kg per capita in 2006 to 177kg per capita in 2021, an overall increase in diversion of 27kg per Ontario resident. Material disposed by Ontario residents has decreased by 25.6%

between 2006 and 2021, falling from 247kg per capita in 2006 to 184kg per capita in 2021, for a total difference of 63kg per resident.

Cumulatively, this shows not only a shift from Disposal to Diversion for materials, but that less waste is being produced overall. In 2021, Ontario residents produced 361kg per capita of waste, down 9.1% from the 2006 total of 397kg.

**Figure 3 – Ontario Residential Waste Diversion, Per Capita, 2006-2021**



## Material Recovery

### 2. Ontario Blue Box Recovery Rate

The Ontario Blue Box Recovery Rate is the proportion of Blue Box materials supplied to the Ontario market that is diverted from landfill. The formula to calculate this diversion figure is the same as the one described above:

$$\frac{\text{Diverted Tonnes}}{\text{Generated Tonnes}} \times 100 = \text{Recovery Rate}$$

The inputs for this calculation are:

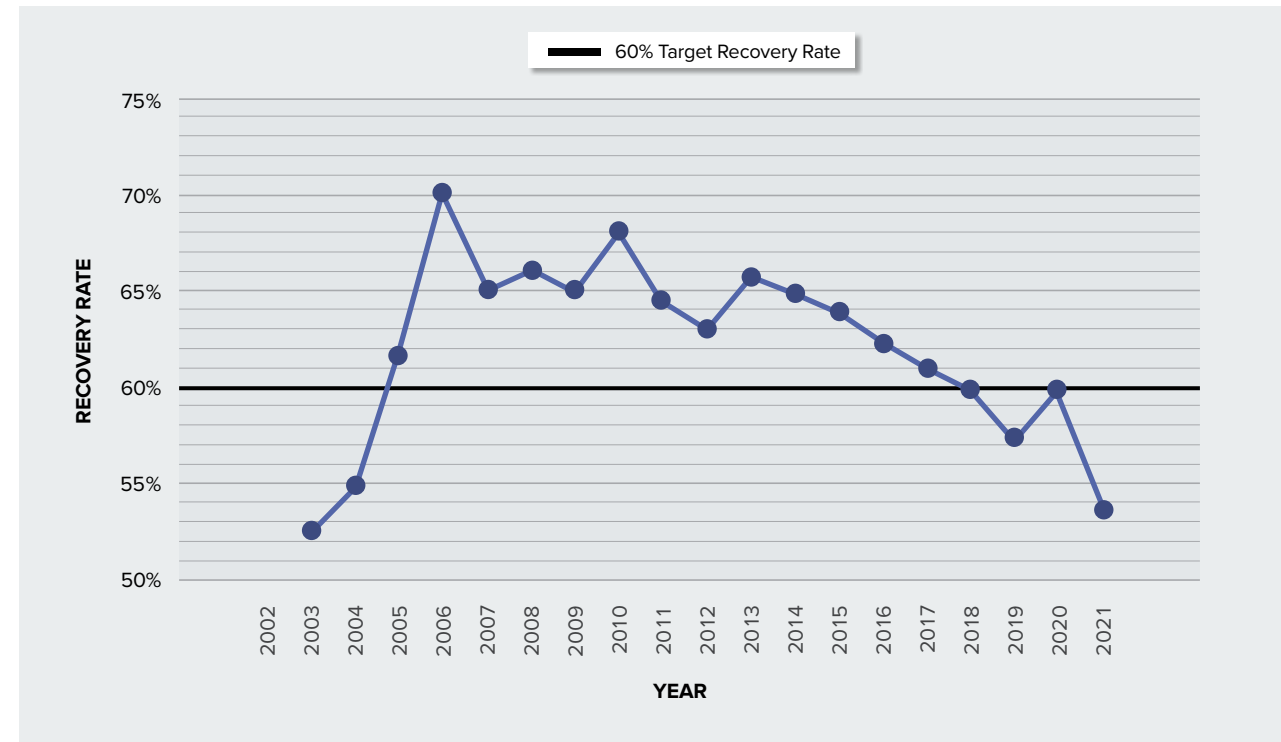
- **Total Diverted Blue Box tonnage** – calculated to the total Marketed Tonnes by RPRA using tonnage data reported in the Datacall by participating programs.
- **Total Generated Blue Box tonnage** – calculated by Stewardship Ontario using a combination of curbside waste audits and steward reported supply data to project the total amount of Blue Box material.

The target for this Blue Box Recovery Rate was set in 2008 by the then Ministry of Environment at 60.0%. The Blue Box Program Plan outlines a calculation using recycling rate, which is defined as the percentage of total quantity diverted as a portion of the total generated. The program outlines targets based on this recycling rate.

In the initial stages of the Blue Box Program, the recovery rate sharply increased, hitting a peak of 70.0% in 2006. Thereafter, while certain fluctuations in the recovery rate can be attributed to external factors, overall a steady downward trend began with the Blue Box Program falling below 60.0% in 2019.

A primary contribution to this shift is the overall decline in diverted tonnes, with a shifting material composition towards materials that are both lighter in weight and more difficult to recycle. More detail on the breakdown of this shift can be found in the Blue Box Tonnage section below.

Figure 4 – Blue Box Recovery Rate, 2002–2021

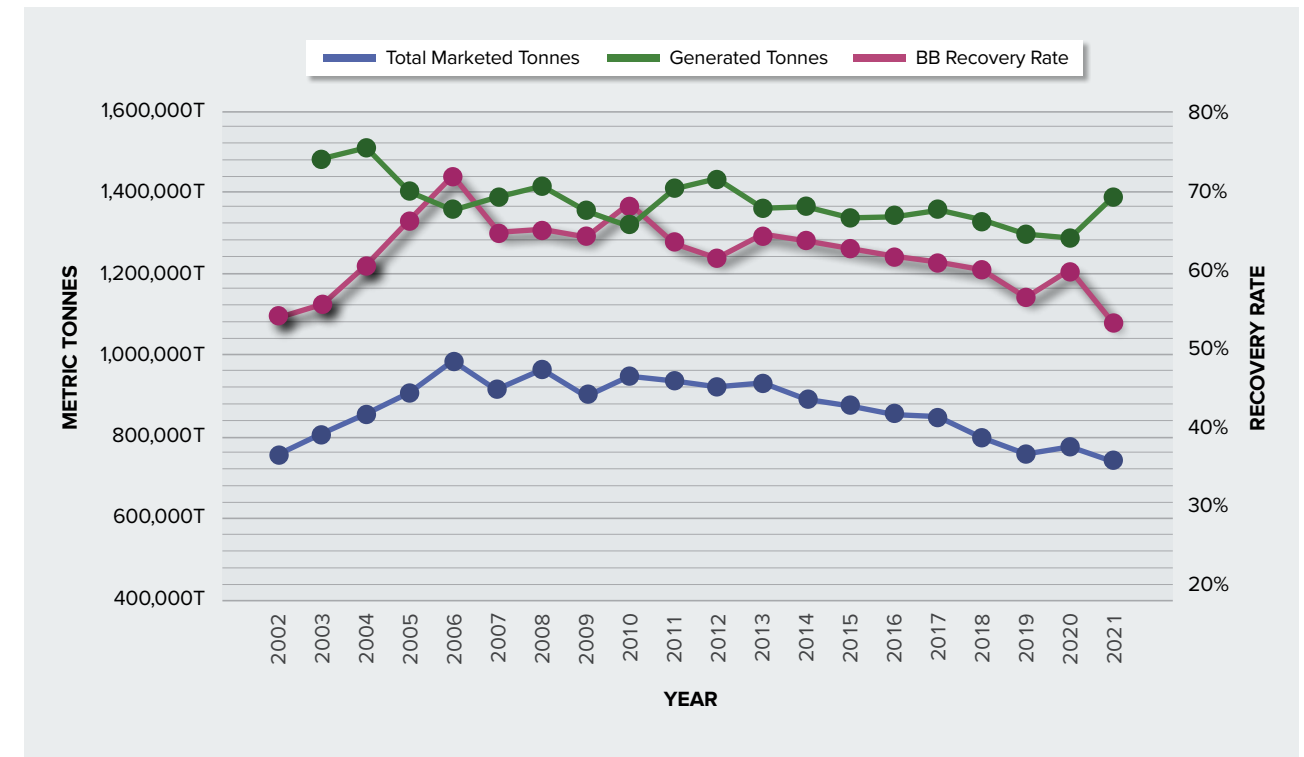


In 2021, as part of the ongoing wind-up of the Blue Box Program, Stewardship Ontario proposed an update to the reporting requirements for stewards beginning with 2021 reporting. The changes resulted in most stewards no longer being required to report sales data to Stewardship Ontario and the development of a new methodology to calculate generated tonnes for the purpose of calculating the recovery rate through to the final wind-up of the program on December 31, 2025. This methodology was based on curbside audit data collected in 2021 and only impacts the Blue Box Program Recovery Rate and not the provincial Residential Waste Diversion Rate.

With this new methodology, the Blue Box Recovery Rate was calculated to be 53.3% in 2021. This meant that the gap between marketed tonnes and generated tonnes widened in 2021, as shown in Figure 5. Due to the change, a direct comparison should not be made with recovery rates of prior years, as generated tonnes have not been calibrated to the new methodology.

The Blue Box Recovery Rate has observed a similar trendline as that of the marketed blue box material tonnage. Figure 5 shows the links between increasing generated and marketed tonnage as it translates into the calculated recovery rate.

Figure 5 – Blue Box Marketed and Generated Tonnage alongside the calculated Blue Box Recovery Rate, 2002–2021





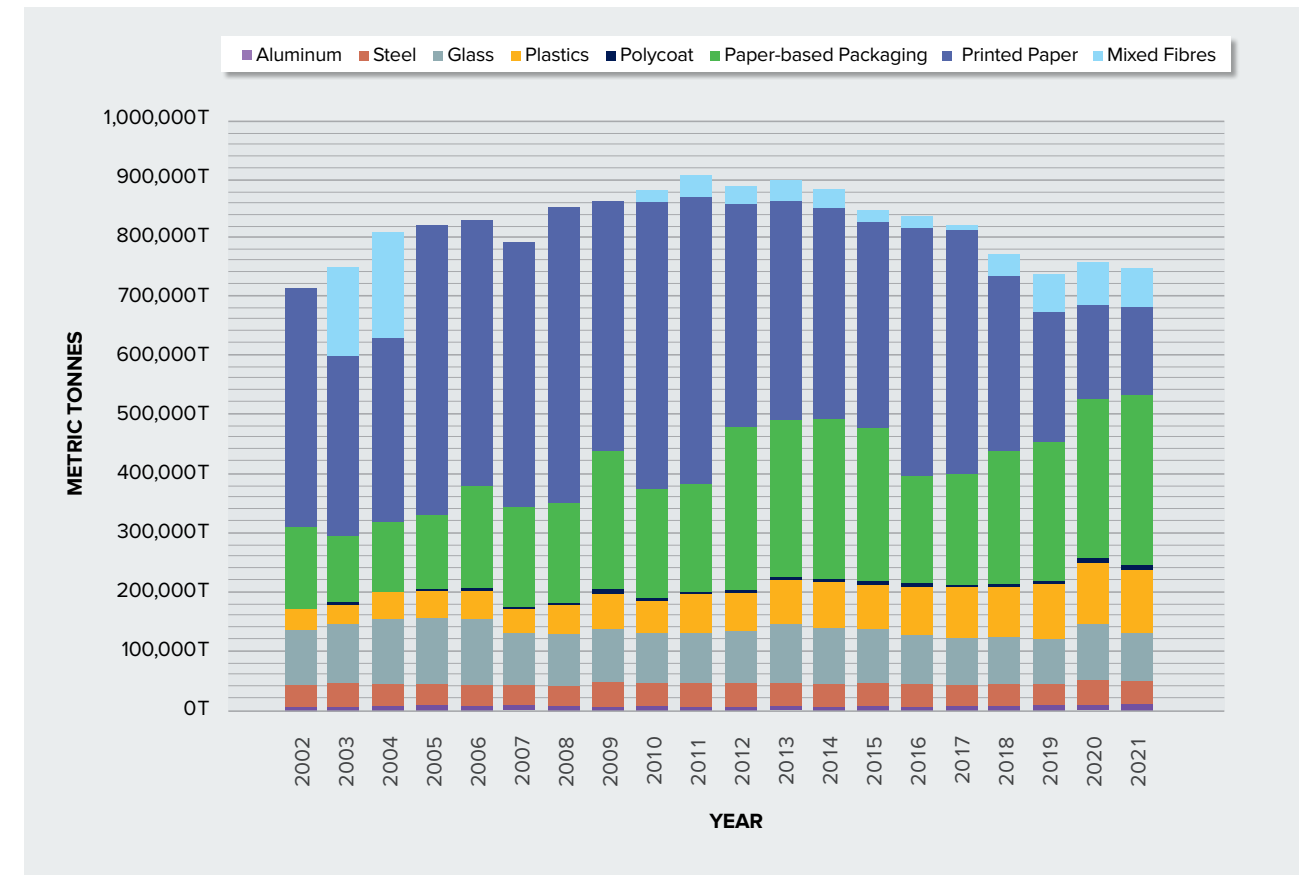
## Blue Box Tonnage

As seen in Figure 5, the amount of Blue Box tonnage supplied into the Ontario market (represented by the "generated tonnes" trend line) has steadily declined, most dramatically between

2008 to 2010 and 2017 to 2019, which impacted the total marketed tonnes similarly.

Blue Box recovered tonnage initially increased but saw a steady decline from 2014 to 2021.

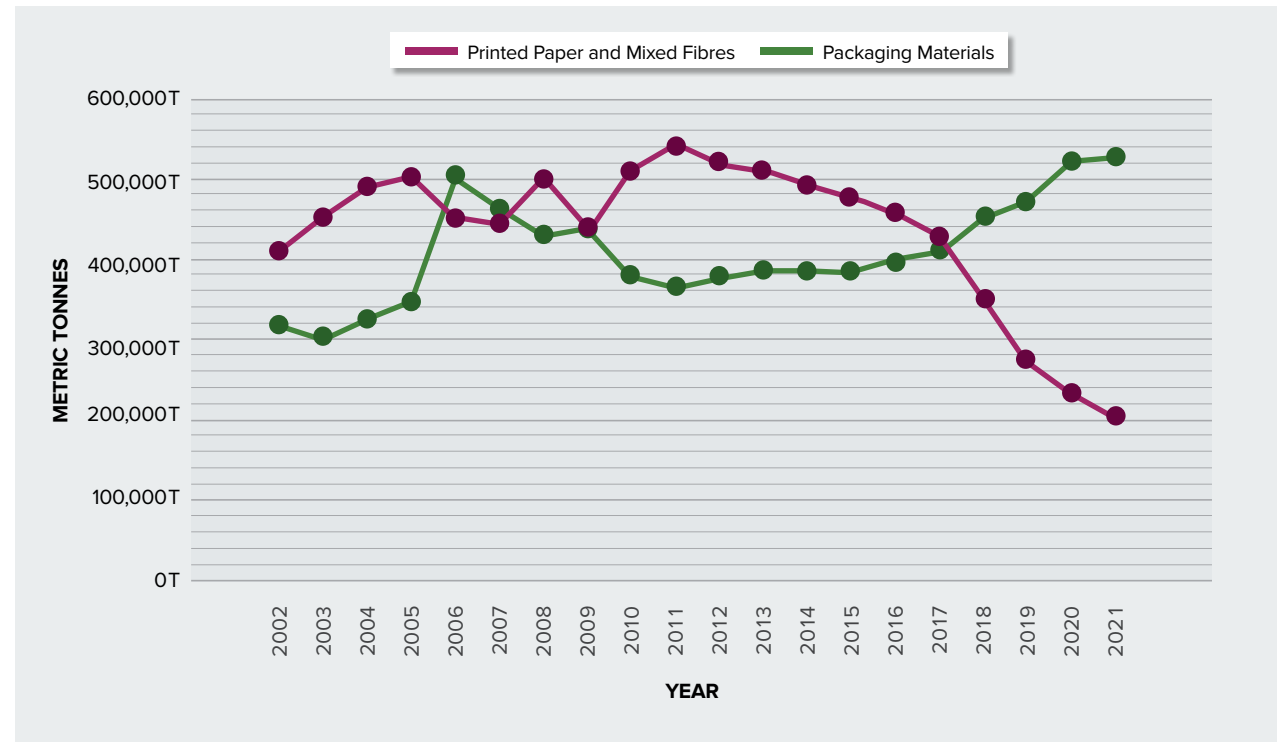
Figure 6 – Blue Box Marketed Tonnage by Material Categories, 2002–2021



The decline in tonnage can largely be attributed to online and non-print formats replacing the printed paper materials. The printed papers and mixed fibres material category made up on average close to 60.0% of the total Blue Box tonnage in the early

years and has shrunk to around 30.0% between 2019 to 2021 (see Figure 6). Some of the difference from the decreasing printed paper material tonnage was absorbed by the paper-based and other material packaging categories.

Figure 7 – Marketed Printed Paper and Mixed Fibres and Packaging Materials trends, 2002–2021



From 2011 to 2021, consumer purchasing behaviour began shifting to e-commerce and online retail. This has translated into packaging making up an increasing share of the Blue Box material composition. This trend can be observed by the rapid decline in printed paper tonnage and the simultaneous increase in packaging materials (see Figure 7). Whereas the printed paper and mixed fibres per capita tonnage has decreased by 59.5%, the packaging material per capita tonnage has increase by 33.8% from 2002 to 2021.

Beyond the transition to paper-less substitutes of familiar printed paper products (print media and advertising, promotional flyers etc.), the COVID-19 years also see an increase in online shopping. This contributed to the increase in packaging material tonnage, specifically paper-based packaging materials. As seen in Figure 7, although already on the incline, packaging material tonnage saw a significant boost in the COVID-19 years and beyond.

Plastics tonnage has observed a gradual increase, with the marketed plastic tonnage per capita increasing by 174.4% from 2002 to 2021. Although the generation of plastic and paper-based packaging material has been fairly steady over the past two decades, the capture of these material types by the residential Blue Box has increased significantly over time. Plastic and paper-based packaging tonnage marketed through the Blue Box system has tripled and doubled, respectively.

Marketed tonnage for metal, including steel and aluminum packaging, has remained fairly stable over the past two decades, observing a 4.0% increase in tonnage between 2002 and 2021. On the other hand, glass tonnage has been more variable and has seen a decrease of 18.0% from 2002 to 2021.

Blue Box Program Costs & Revenue

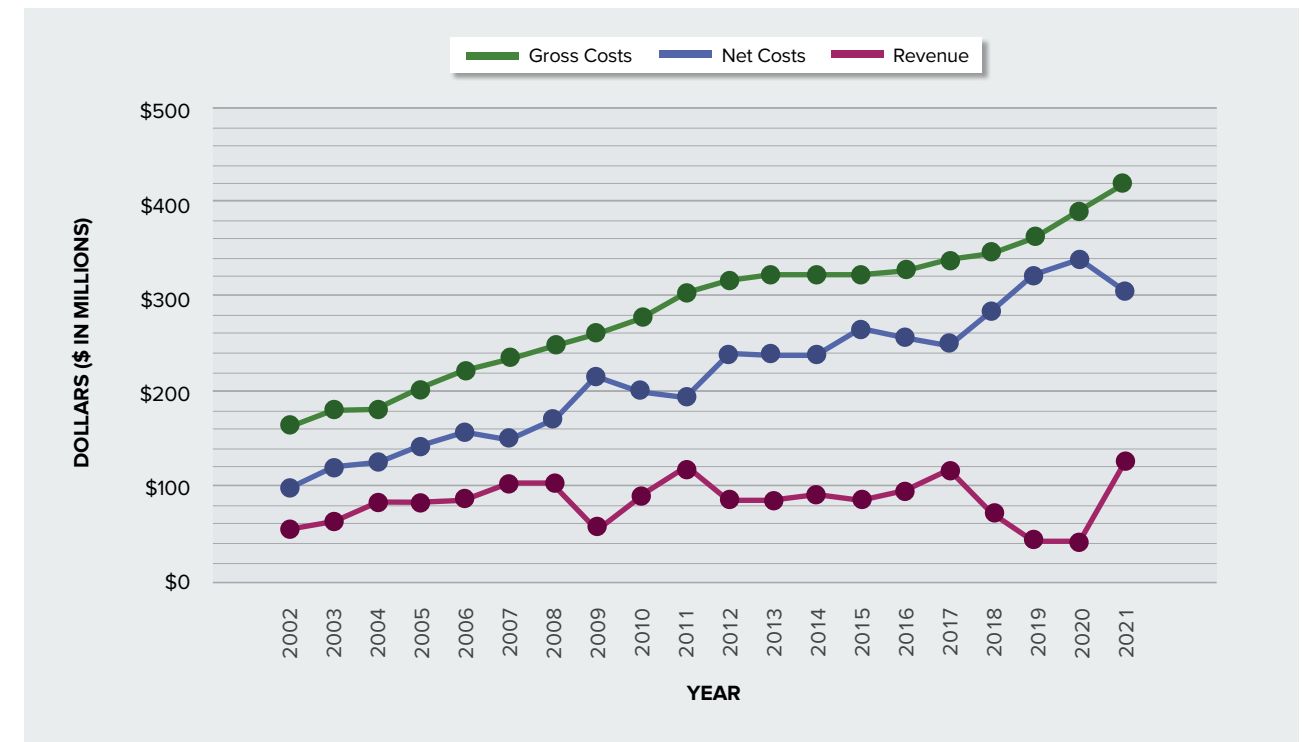
Gross costs for Blue Box services provided in Ontario has seen a steady increase. On average, there has been a 5.0% yearly increase in Blue Box costs, gross costs and gross costs per tonne have nearly tripled over the past 20 years. Costs to provide blue box services were \$8 per capita in 2002 and \$22 per capita in 2021, whereas the revenue only increased \$3 per capita from \$5 in 2002 to \$8 in 2021.

Revenue has varied over this time. Blue Box recovered material revenues have experienced sharp

highs and lows, as well as some plateau years. This has been especially true in recent years, with a steady decline seen from 2017 to 2020, followed by a 152.0% increase in 2021. As seen in Figure 8, the first shift in revenue was observed after the 2008 recession, and recently 2018 and after with effects of the China's National Sword<sup>2</sup> policies and COVID-19.

Blue Box net costs have, as a result, seen an overall upward trend with fluctuations year-to-year closely following the shift in the commodity market.

Figure 8 – Blue Box Costs and Revenue, 2002–2021



Overall, decreases in prices can be observed in the years of 2008 (due to the 2008 recession) and 2018 to 2020 (due to China's National Sword Policy, COVID-19 pandemic and COVID-19 recession). Similar trends were observed by the recycled material market<sup>3</sup> showing the

downward trends in the mentioned years and prices increasing following the years of low return. The latest example can be seen in 2021 reported costs and revenue where market conditions rapidly recovered from the strife of the year before.

<sup>2</sup> China's National Sword policy was enacted in 2018 to ban certain plastic and other recyclable products coming into their nation, to prevent soiled materials from overwhelming their processing facilities.

<sup>3</sup> See CIF Price Sheet – January 2023. <https://thecif.ca/wp-content/uploads/2023/02/2023-January-CIF-Price-Sheet.pdf>



## Residential Organics

Diverted Organics tonnage has increased by 241.1% since the inception of the Datacall, going from 359,572 tonnes in 2002, to 1,226,380 tonnes in 2021.

Collection of Non-Household Organics (Yard Waste, Leaves, Christmas Trees, and Bulky Yard Waste), has grown steadily over time, increasing by 64.5% over the past 20 years. Fluctuations within these categories were observed throughout the Datacall's operational years, with programs often changing how they record and report information on these categories. Initially, these categories were the major components of the Organic material stream, accounting for 94.8% of

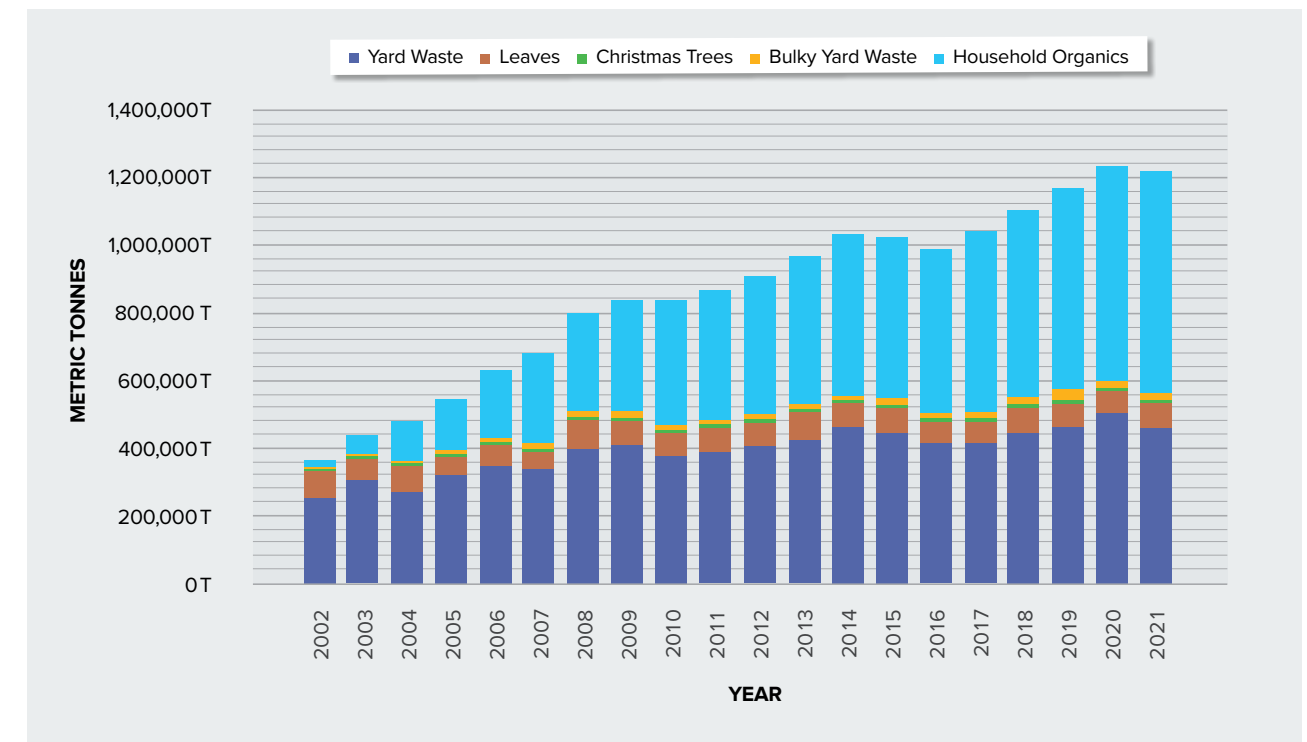
all material collected and were the primary driver of diversion activities in this sector. However, this soon began to change with the notable rise of household organics reported in Ontario.

Starting in 2002, the household organic program has seen a significant increase of 3454.0% in tonnage collected, going from only 18,727 tonnes collected over 13 programs in 2002, to 665,565 tonnes collected by 32 programs in 2022. As shown in Figure 9, in 2010 household organics became the largest portion of material collected, and in 2016 became the majority of all organic material collected. In 2021, it accounted for 54.3% of all organics collected.

Moving forward, a large untapped potential for growth still exists in programs that have yet to adopt a household organics program. Currently

only 80.4% of the total Datacall population reports household organic information, with the remaining 19.6% not having a household organic program.

Figure 9 – Organics Waste Collected by material category, 2002–2021



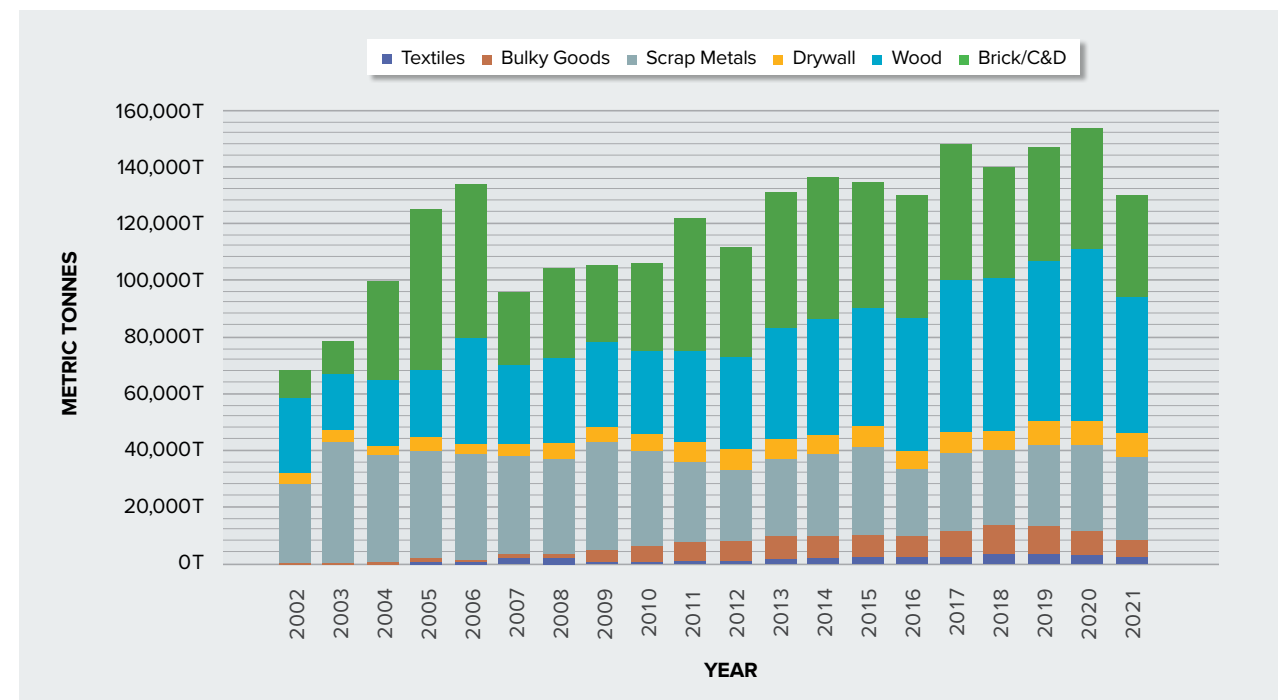
## Residential Other Recyclables

Other Recyclables diverted from landfill include:<sup>4</sup>

- Textiles
- Bulky goods
- Scrap metal
- Drywall
- Wood
- Brick and concrete
- Other construction and demolition (C&D) material

Overall, Other Recyclable tonnage has increased 46.0% over the past two decades. However, as seen in Figure 10, this material category has been quite variable over time and has seen fluctuating highs and lows.

Figure 10 – Other Recyclables collected by material category, 2002–2021



## Residential Waste Electrical and Electronic Equipment (WEEE)

In 2009, the WEEE Program Plan, operated by Ontario Electronic Stewardship (OES), was created to collect and divert computers, monitors, computer peripherals, printers, fax machines and televisions from landfills.

The WEEE category in the Datacall is not limited to the materials specified in the WEEE Program Plan or in the EEE Regulation under the RRCEA. The WEEE material category in the Datacall includes:

- **White Goods:** Large electrical goods used domestically (e.g., refrigerators and washing machines, typically white in colour).
- **Small appliances (or small domestic appliance):** Portable or semi-portable machines, generally used on table-tops, counter-tops, or other platforms, to accomplish a household task (e.g., toasters, blenders, space heaters, electric razors, hair styling equipment, food grinders, hair clippers, food processors, microwave ovens, humidifiers, and coffee makers).

<sup>4</sup> Other Recyclables does not include tonnages for used tired or reusable materials.

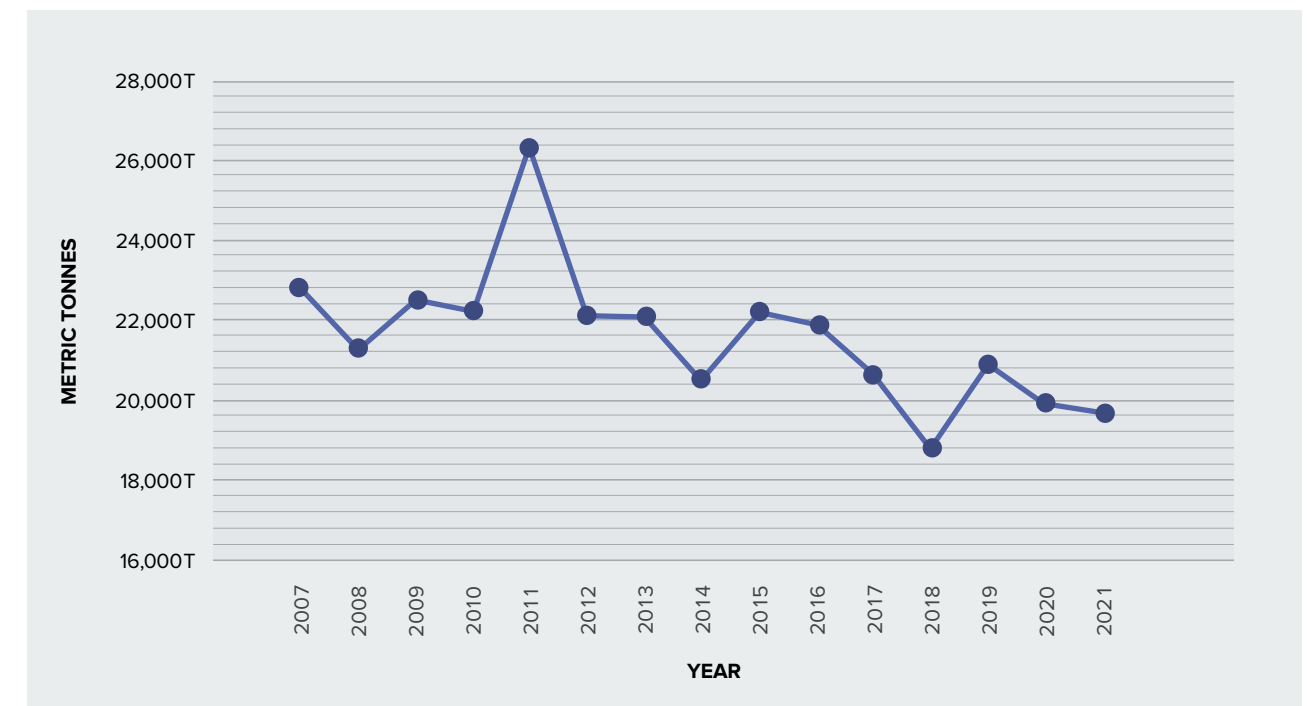
It is important to note that municipalities and First Nation communities are not the primary sources of WEEE collection in Ontario and submitting this data through the Datacall is not mandatory.

WEEE tonnage has been variable over the years. The 2010 expansion may explain the increase in tonnes collected between 2010 and 2011.

Overall, WEEE tonnes have declined 14.0% from 2007. On average, 21,500 tonnes of WEEE materials have been reported into the Datacall each year.

The WEEE Program wound up on December 31, 2020, [as directed](#) by the Minister of the Environment, Conservation and Parks, and on January 1, 2021, producers of information technology, telecommunications, and audio-visual (ITT/AV) equipment became individually responsible for the recovery and recycling of products designated under the Electrical and Electronic Equipment (EEE) Regulation under the RRCEA. For more details on electronics recycling in Ontario, read the [resource recovery reports](#) on the RPRA website.

Figure 11 – Total WEEE collected, 2007–2021



## Municipal Hazardous or Special Waste (MHSW)

In 2006, the MHSW Program was created for Ontario residents to safely dispose of household products that require special handling, such as single-use batteries, propane tanks and oil filters. Stewardship Ontario is the industry funding organization that operated the MHSW Program. Industry stewardship organizations (Automotive Materials Stewardship, Product Care Association and Soda Stream) were also responsible for recovering obligated MHSW material, including automotive materials; paints and coatings; pesticides, solvents and fertilizers; and proprietary carbon dioxide cylinders until the wind-up of the MHSW Program on September 30, 2021.

This material was collected at either a community event day or at a community depot. As shown in Figure 12, MHSW tonnages reported in the Datacall significantly vary year-to-year but has trended upwards overall. MHSW has seen a 19.0% increase since 2007.

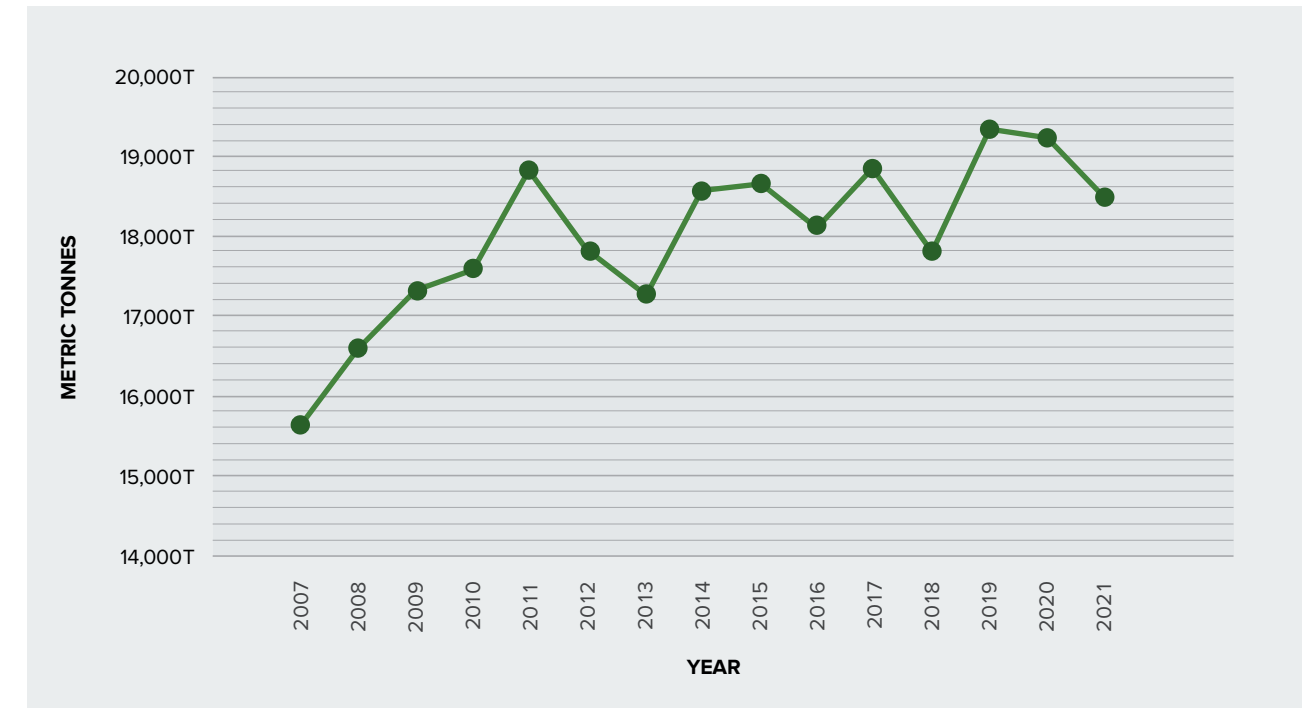
Similar to WEEE, there is no requirement to report on collected MHSW materials through the Datacall, and municipalities and First Nation communities are not the primary collectors of this material. For a more detailed picture of MHSW materials diverted in Ontario, see the

annual reports from Stewardship Ontario, Automotive Materials Stewardship, Product Care Association and Soda Stream, all of which are found in the appendices of RPRA's 2021 [Annual Report](#).

On June 30, 2020, Stewardship Ontario ended its program for managing single-use batteries and both single-use and rechargeable batteries became obligated under the Batteries Regulation under the RRCEA.

As of October 1, 2021, following the wind up of the MHSW Program, [directed](#) by the Minister of the Environment, Conservation and Parks, producers of automotive materials (oil filters, oil containers and antifreeze), paints and coatings, pesticides, solvents, fertilizers, mercury-containing devices (barometers, thermometers and thermostats) and pressurized containers (non-refillable pressurized containers, refillable pressurized containers, refillable propane containers) became individually accountable and financially responsible for requirements set out under the Hazardous and Special Products (HSP) Regulation under the RRCEA. For more details on HSP resource recovery in Ontario, read the resource recovery reports on the RPRA website.

Figure 12 – Total MHSW collected, 2007–2021





# 10

2002  
Blue Box  
Program  
Launches



2003 – 2007  
Technological  
Advancements



2008 – 2009  
The Great  
Recession



2010 – 2017  
Markets  
Recover from  
the Great  
Recession



The finalization of the *Waste Diversion Act, 2002* and subsequent establishment of the Blue Box Program and the Datacall coincided with substantial technological progress and broad adoption of the internet. Among other things, the internet facilitated the consumption of web-based media content and the ability to purchase items online (e-commerce). These technological advancements drove a directional change from paper to digital formats of media available to the public. It also promoted the rise and popularity of e-commerce, causing an increase in the generation and collection of packaging materials in the residential Blue Box stream.

Newspapers and printed paper industries saw a large decline in supplied and marketed tonnage between 2002 and 2021, largely due to the shift to digital media formats. Printed papers and mixed fibres represented more than half of all supplied and recovered materials in the residential Blue Box stream when the program began, this portion has significantly decreased overtime.

Technological progress also impacted the processing of Blue Box materials. New technology to process materials from the municipal single or multi-stream collection systems can help with better sorting practices. Moreover, material composition changed variably over the same time. Better sorting of materials typically results in cleaner bales of materials to be marketed or sold to end markets. Cleaner materials that are mostly free of

contamination are generally sold for higher revenue. However, better technology did not translate directly into higher profits, as technological investments are costly to implement. As seen in Figure 8, operational costs steadily increased throughout the life of the program.

Furthermore, revenue for recycled materials depends greatly on the market prices for the materials. One of the effects of the 2008 economic recession on the Ontario Blue Box Program was a drop in the market prices for recycled materials.<sup>5</sup> Plummeting prices of recycled materials, and thus lower generated revenue, caused net system costs to significantly increase during this period.

With the global economy recovering following the recession, generation of supplied material tonnage into the market increased correspondingly between 2010-2012.

This was followed by a stabilizing economic period for the Blue Box Program when supplied and recovered tonnage were on a steady decline, and costs and revenue were plateauing, up until 2017.

The global recycling market was significantly impacted by the decline in demand for recycled materials from China, becoming prominent in 2017 and after, as evident in the municipal commentary in Datacall submissions. China was a major importer of recycled materials.<sup>6</sup>

China's National Sword policy was enacted in 2018 to ban the importation of certain types of solid waste,

## Overall Trends & Analysis

2018 – 2019  
China's  
National  
Sword Policy  
Enacted



2020  
The  
COVID-19  
Pandemic



2021  
Economic  
Recovery  
from the  
COVID-19  
Pandemic



as well as set strict contamination limits on recycled materials. This policy primarily impacted printed paper, paper-based packaging and plastic packaging recycling markets. Recycled aluminum and glass were not impacted by the ban to the same extent as the other materials.<sup>7</sup>

As China was one of the primary end markets for recycled materials generated worldwide, Ontario communities needed to make investments to try and reduce the levels of contamination to meet the stricter contamination standards for recycled materials. This caused overall system costs to increase (see Figure 8). At the same time, prices for these materials dropped compared to prior years.<sup>8</sup> The same bales of recycled materials adhering to previous standards of accepted contamination were yielding far less in revenue following the enactment of China's policy.

The combination of lower market prices, higher sorting and processing costs, and low demand significantly influenced the recycling markets, most notably resulting in negative commodity pricing pressures. The increase in costs and the accompanying decrease in revenue can be seen in Figure 8 from 2017 onwards.

Just as alternative end markets were being established as a result of China's National Sword policy, the COVID-19 pandemic began. A global

lockdown was in place for most of 2020 and 2021. COVID-19 mitigation measures were implemented to limit the viral spread through trade and transportation, leading to an increase in operating costs. As seen in Datacall submissions, in response to COVID-19, municipalities and recycling businesses also needed to implement stringent health and safety measures, such as supplying additional personal protective equipment and operating at reduced capacity, to ensure the safety of their workers, causing further increases to operational costs.

The COVID-19 pandemic also altered the recycling market, as it resulted in a shift in consumption behaviour. Recycling waste increased largely due to the increase in e-commerce and online retail, and the resulting packaging waste.

As the health and safety restrictions eased, the Blue Box Program saw a rise in revenue and a simultaneous decrease in costs. With the establishment of new end markets post China's National Sword policy and overcoming the COVID-19 pandemic, the recycled material market is on its way to recovery and stabilization.

<sup>5</sup> See CIF Price Sheet – January 2023. <https://thecif.ca/wp-content/uploads/2023/02/2023-January-CIF-Price-Sheet.pdf>

<sup>6</sup> Amy L. Brookset al., The Chinese import ban and its impact on global plastic waste trade. *Sci. Adv.*4, eaat0131(2018).DOI:10.1126/sciadv.aat0131

<sup>7</sup> BCCIC and Greenpeace Canada translation of The National Development and Reform Commission and the Ministry of Ecology and Environment of the People's Republic of China's statement, Direction on Further Strengthening the Control of Plastic Waste. Annex 2

<sup>8</sup> See CIF Price Sheet – January 2023. <https://thecif.ca/wp-content/uploads/2023/02/2023-January-CIF-Price-Sheet.pdf>



## Providing Insights

Since 2017, RPRA has published an annual [Datacall Report](#) to provide insights into the reported data for the given year. This included reporting on provincial residential recycling trends for Blue Box and wider waste diversion categories including organics, other recyclables, WEEE and MHSW. The annual Datacall Report also published the two diversion rates described in detail in previous sections, the Ontario Residential Waste Diversion Rate and the Ontario Blue Box Recovery Rate.

The following historical information is also available to the public on [RPRA's website](#):

- Residential Waste Diversion Rates by Municipality
- Blue Box
  - Accepted Materials
  - Tonnage
  - Program Costs and Revenue
- Organics
- Other Recyclables

The publicly available Datacall information was used for many purposes including calculating material specific diversion rates, assessing provincial or regional trends in recycling economics and informing municipal contracts and revenue sharing arrangements.

As the Blue Box Program transitions to the new producer responsibility framework under the RRCEA beginning on July 1, 2023, and continuing through to December 31, 2025, RPRA will no longer receive much of the Blue Box system data historically reported by Ontario municipalities and First Nation communities. This includes Residential Waste Diversion Rates of municipalities, accepted materials, costs and revenues, organics, and other recyclables.

However, RPRA continues to be responsible for providing information to the public about Ontario's progress in advancing a circular economy, including reporting publicly on the amount of materials producers sell into the Ontario market and how they meet the resource recovery requirements set out in the regulations. For more details on Blue Box resource recovery in Ontario, resource recovery reports are available on the RPRA website.



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