



ANNUAL REPORT

Essex-Windsor Residential Waste Diversion 2023

Report Date: March 31, 2024

Table of Contents

- 1 INTRODUCTION** **1**
- 1.1 Residential Waste Diversion Rate 2023 1
- 2 PROGRAMS** **2**
- 2.1 Residential Recycling Blue Box Program 2
 - Table 1: Residential recycling blue box collection tonnes by month comparison 3
- 2.2 Recycling Residual Disposal 3
- 3 TONNES MARKETED** **4**
- Figure 1: Percent of tonnes for 2023 marketed recyclables 4
- 3.1 Fibres 5
 - Old Newspaper (SRPN #56) 5
 - Old Corrugated Cardboard (OCC) 5
 - Hardpack (OBB) 5
 - Fine Paper 5
 - Mixed Fibre (SRPN #54) 5
- 3.2 Containers 6
 - Steel Cans 6
 - Aluminum Cans and Foil 6
 - Glass 6
 - Polyethylene Terephthalate (PET) 6
 - High-Density Polyethylene (HDPE) 6
 - Polycoat and Gable Top 6
 - Mixed Plastics 7
 - Mixed Containers 7
 - Table 2: Marketed fibre summary comparison: 2022 versus 2023 7
 - Table 3: Marketed containers summary comparison: 2022 versus 2023 7
 - Table 4: Residential recyclables marketed comparison 8
 - Table 5: Revenue comparison: 2022 versus 2023 8
 - Table 6: Annual revenue comparison 9

| | |
|---|-----------|
| Figure 2: Percent of revenue marketed in 2023 _____ | 10 |
| 3.3 Markets _____ | 11 |
| 4 OTHER RESIDENTIAL RECYCLING PROGRAMS _____ | 11 |
| 4.1 White Goods _____ | 11 |
| Table 7: Summary of white goods diversion for 2023 _____ | 11 |
| Table 8: 2023 White goods collected through the ESWA White Goods Program by month in municipalities across Essex County _____ | 12 |
| 4.2 Tires _____ | 13 |
| 4.3 Scrap Metal _____ | 13 |
| 4.4 Electronics Recycling _____ | 13 |
| 4.5 Deposit/Return Program _____ | 13 |
| 4.6 WE ReCYCLE Bike Program _____ | 14 |
| Table 9: Bikes recycled through the WE ReCYCLE program in 2023 _____ | 14 |
| 4.7 Election Signs _____ | 14 |
| 4.8 Wood Pallet Pilot Program _____ | 14 |
| 4.9 Shingles/Road Base Diversion _____ | 15 |
| 4.10 Textile Recycling with Diabetes Canada _____ | 15 |
| Table 10: Other recyclables comparison: 2022 versus 2023 _____ | 15 |
| 5 RESIDENTIAL ORGANICS _____ | 16 |
| 5.1 Yard Waste _____ | 16 |
| Table 11: 2023 Yard waste summary for all of the ESWA sites _____ | 16 |
| Table 12: Yard waste tonnes comparison: 2022 versus 2023 _____ | 17 |
| 5.2 Screened Compost Sales _____ | 17 |
| Table 13: Compost sales 2023 summary _____ | 17 |
| 5.3 Backyard Composting _____ | 18 |

Residential Waste Diversion 2023 Report

| | |
|---|-----------|
| 5.4 FoodCycler™ Pilot Program | 18 |
| Table 14: Residential organic waste reduction comparison: 2021 — 2023 | 19 |
| 5.5 Plastic Flower Pots Recycling | 19 |
| 5.6 EWSWA Merchandise Recycling | 20 |
| 6 PROMOTION AND EDUCATION (P&E) | 20 |
| 6.1 Community Outreach | 20 |
| 6.2 Special Community Events | 21 |
| 6.3 Waste Reduction Hotline | 21 |
| 6.4 Print Newsletter | 22 |
| 6.5 E-Newsletter | 22 |
| 6.6 EWSWA Website | 22 |
| 6.7 Recycle Coach App | 23 |
| Table 15: Recycle Coach App Metrics Comparison for 2022-2023 | 23 |
| 6.8 Agorapulse | 24 |
| 6.9 Facebook | 24 |
| 6.10 X (Formerly Twitter) | 24 |
| 6.11 Instagram | 25 |
| 6.12 Google – Public Drop Off Depot Statistics | 25 |
| 6.13 Radio and Social Media Campaigns | 26 |
| 6.14 Gold Star Program | 27 |
| 7 MUNICIPAL HAZARDOUS OR SPECIAL WASTES (MHSW) PROGRAM | 27 |
| 7.1 MHSW Depots | 27 |

Residential Waste Diversion 2023 Report

7.2 Reuse Centre _____ 28
Table 16: Municipal Hazardous or Special Waste for 2023 in litres _____ 28
Table 17: Municipal Hazardous or Special Waste for 2023 in kilograms _ 29
Table 18: MHSW Diversion Comparison _____ 29

7.3 Waste Motor Oil _____ 29
Table 19: Litres Waste Oil collected _____ 30

7.4 Waste Cooking Oil _____ 30

7.5 Refillable Propane Tanks _____ 30

7.6 Call2Recycle Battery Recycling Program _____ 31

8 OVERALL SUMMARY OF RESIDENTIAL DIVERSION QUANTITIES 31

8.1 Residential Waste Diversion _____ 31
Table 20: Residential Waste Diversion Summary _____ 31

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Essex-Windsor Residential Waste Diversion

Annual Report for January – December 2023

1 Introduction

The Annual Waste Diversion Report provides information on the waste diversion activities carried out by the Essex-Windsor Solid Waste Authority (EWSWA) during 2023 in compliance with Condition 5.2 of the Environmental Assessment Approval for the Essex-Windsor Regional Landfill.

1.1 Residential Waste Diversion Rate 2023

This report also provides the EWSWA the ability to track any changes in the amount of waste diverted through waste diversion initiatives from year to year.

In 2023, the seven County of Essex municipalities and the City of Windsor delivered 109,926 tonnes of residential waste to the Essex-Windsor Regional Landfill (Landfill). During the same time period, 54,110 tonnes of residential waste were diverted from the Landfill via the blue and red box recycling program, municipal hazardous or special waste program, composting, and other waste diversion programs. These waste diversion initiatives resulted in a 2023 residential diversion rate of 32.4%. The 2022 diversion rate was 32.0%.

2023 Residential Diversion Rate is calculated as follows:

$$\frac{54,110 \text{ Tonnes Diverted (see Table 20)}}{109,926 \text{ Tonnes of Residential Refuse Collected Curbside} + 2,992 \text{ Residuals} + 54,110 \text{ Diverted Tonnes}} = \frac{54,110}{167,028} \times 100 = 32.4\%$$

2022 Residential Diversion Rate is calculated as follows:

$$\frac{51,435 \text{ Tonnes Diverted (see Table 20)}}{108,059 \text{ Tonnes of Residential Refuse Collected Curbside} + 1,342 \text{ Residuals} + 51,435 \text{ Diverted Tonnes}} = \frac{51,435}{160,836} \times 100 = 32.0\%$$

2 Programs

2.1 Residential Recycling Blue Box Program

The tonnes of residential recyclable materials collected curbside during 2023 totaled 21,623 tonnes. The overall tonnes of recyclables collected in 2023 were slightly lower compared to the 21,978 tonnes collected in 2022.

A monthly summary and comparison of the tonnes collected curbside from the City and the County in 2022 and 2023 is shown in Table 1. The collection of recyclables in the County was carried out under contract in 2023 by the City of Windsor. The collection of recyclables in the City of Windsor in 2023 was carried out by Green For Life Environmental Inc.

All materials were processed at the EWSWA owned Essex-Windsor Material Recovery Facility (MRF), located at E.C. Row and Central Avenue in Windsor where HGC Management Inc. via contract segregate delivered materials into marketed goods.

In addition to the residential recyclables collected curbside, 538 tonnes of recyclables were delivered to the EWSWA's Public Drop Off Depots in 2023, as compared to 611 tonnes in 2022.

Table 1: Residential recycling blue box collection tonnes by month comparison

| Month | 2023 County of Essex* Tonnes | 2023 City of Windsor Tonnes | 2023 Combined Tonnes | 2022 Comparable Tonnes |
|---------------|-------------------------------------|------------------------------------|-----------------------------|-------------------------------|
| January | 1,013 | 994 | 2,007 | 1,804 |
| February | 762 | 788 | 1,550 | 1,770 |
| March | 883 | 963 | 1,846 | 1,900 |
| April | 803 | 800 | 1,603 | 1,813 |
| May | 927 | 929 | 1,856 | 1,964 |
| June | 920 | 958 | 1,878 | 1,953 |
| July | 870 | 845 | 1,715 | 1,821 |
| August | 964 | 1,011 | 1,975 | 1,875 |
| September | 876 | 892 | 1,767 | 1,807 |
| October | 871 | 871 | 1,742 | 1,595 |
| November | 883 | 902 | 1,785 | 1,793 |
| December | 949 | 950 | 1,899 | 1,884 |
| Total: | 10,721.00 | 10,903.00 | 21,623 | 21,978 |

* The County of Essex includes the Town of Amherstburg, the Town of Essex, the Town of Kingsville, the Municipality of Lakeshore, the Town of LaSalle, the Municipality of Leamington, and the Town of Tecumseh. Due to rounding, sum of combined tonnes for 2023 will not equal total value.

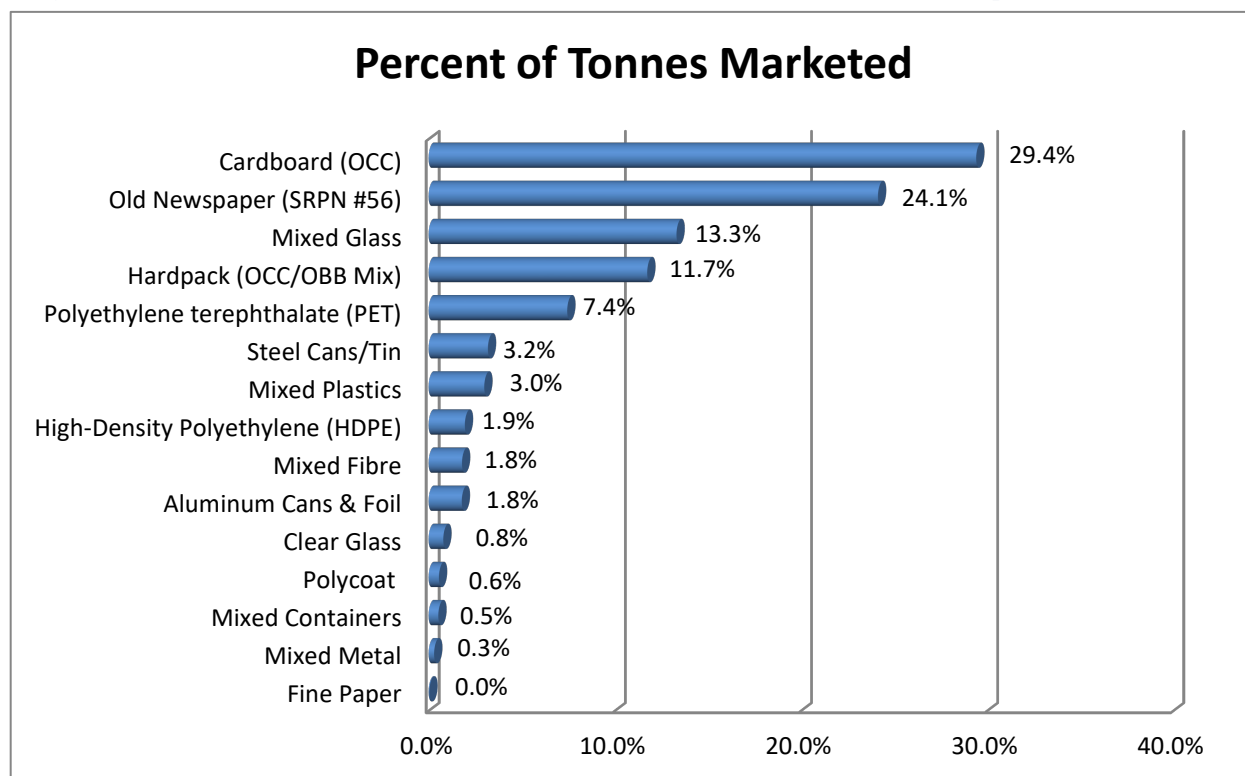
2.2 Recycling Residual Disposal

Recycling Residual is the material that is left over after the processing of the recyclable materials are collected and delivered to the MRF. The residuals typically consist of contaminated materials, non-recyclable materials, and packaging materials used to secure recyclables placed in the recycle box. A total of 2,992 tonnes of recycling residuals was disposed of in 2023. This increase in residuals from 2022 (1,342 tonnes) was a result of the unavailability of end-markets for low grade materials as seen in the previous year.

3 Tonnes Marketed

For the purposes of waste diversion calculations, tonnes marketed are used instead of the tonnes collected curbside. The tonnes marketed by material type are shown in Tables 2, 3, and 4. The EWSWA markets all materials processed through the MRF and retains 100% of the revenue from the sale of materials. Revenue from the sale of material in 2023 was approximately \$2,643,176 (see Table 5), representing a basket-of-goods revenue of approximately \$140/tonne compared to a basket-of-goods revenue of \$225/tonne in 2022. This is as a result of exceptionally strong market conditions for the majority of recyclable materials marketed in 2022. A brief discussion on market conditions and prices for each of the materials follows.

Figure 1: Percent of tonnes for 2023 marketed recyclables



3.1 Fibres

Old Newspaper (SRPN #56)

Ontario market price trends are published annually by the Continuous Improvement Fund's (CIFs) Price Sheet (December 2023). For 2023, SRPN #56 prices ranged from a low of \$82 per tonne to a high of \$117 per tonne. The EWSWA average price for 2023 was \$93 per tonne which is higher than this provincially published CIF average of \$52 per tonne. The EWSWA 2022 average price for SRPN #56 was \$175 per tonne.

Old Corrugated Cardboard (OCC)

The EWSWA price for old corrugated cardboard ranged from a low of \$71 per tonne to a high of \$156 per tonne in 2023. In 2023, the EWSWA average price per tonne was \$107 compared to \$189 in 2022. The EWSWA's average price of \$107 per tonne was higher than the provincial average of \$100 per tonne per the CIF Price Sheet - December 2023.

Hardpack (OBB)

(Example: cereal boxes, cardboard)

The EWSWA's prices for this cardboard/boxboard mix ranged from \$18 per tonne to \$94 per tonne in 2023. In 2023, the EWSWA average price was \$48 compared to \$112 per tonne in 2022, again as a result of global market conditions. The EWSWA's average 2023 price of \$48 per tonne was higher than the provincial average of \$18 per tonne per the CIF Price Sheet - December 2023.

Fine Paper

One load of fine paper was sold in 2023 with an average price of \$148 per tonne. This is a decrease compared to 2022's price of \$419.

Mixed Fibre (SRPN #54)

The pricing for mixed fibre ranged from a low of \$0 per tonne to a high of \$29 per tonne in 2023. This is a decrease from 2022 as market demands for this low-grade fibre decreased and therefore the average price for 2023 was \$20 per tonne compared to \$92 per tonne in 2022.

3.2 Containers

Steel Cans

The 2023 average price was \$360 per tonne compared to \$367 per tonne in 2022. This market price per tonne in 2023 ranged from a low of \$308 to a high of \$429.

Aluminum Cans and Foil

The 2023 average price was \$2,084 per tonne compared to \$2,560 in 2022. Again, due to market fluctuations the price per tonne ranged from \$1,873 to \$2,508 per tonne. Aluminum foil was sold at an average price of \$772 during 2023, whereas in 2022, it sold at \$886 per tonne.

Glass

The 2023 average clear glass price of \$30 per tonne was higher than the 2022 average price of \$11 per tonne, due to markets. Clear glass is the only product that is not marketed FOB (Freight on Board) at the Essex-Windsor MRF. Mixed coloured glass was delivered to the Regional Landfill for use as road base.

Polyethylene Terephthalate (PET)

(Example: plastic water bottles)

The average price was \$291 per tonne in 2023 which is much lower than the 2022 average price of \$595 per tonne.

High-Density Polyethylene (HDPE)

(Example: laundry soap bottles)

The average price was \$423 per tonne in 2023, compared to the 2022 average price of \$1,276 per tonne.

Polycoat and Gable Top

(Example: milk cartons)

Polycoat was sold in 2023 at an average price of \$0.42 per tonne compared to the average price of \$55 per tonne in 2022.

Mixed Plastics

(Example: tubs & lids, clamshells, trays, cups, plastic bottles, excludes polystyrene and plastic film bags)

The average price was \$41 per tonne in 2023 compared to the average price of \$160 per tonne in 2022.

Mixed Containers

In 2023, due to market availability at the beginning of the year (January and March), the EWSWA was able to successfully market a low-grade mixed container grade which typically is residue that results from the sorting process in the Container MRF. The average price in 2023 was \$11 per tonne compared to \$14 per tonne in 2022.

Table 2: Marketed fibre summary comparison: 2022 versus 2023

| Fibre Material | 2022 Tonnes | 2023 Tonnes | % Change |
|--------------------------|--------------------|--------------------|-----------------|
| Old newspaper (SRPN #56) | 4,976 | 4,571 | -8.1 |
| Cardboard (OCC) | 5,614 | 5,570 | -0.8 |
| Hardpack (OBB) | 2,199 | 2,224 | 1.1 |
| Fine paper | 17 | 8 | -53.0 |
| Mixed fibre (SRPN #54) | 596 | 340 | -43.0 |
| Totals: | 13,402 | 12,713 | -5.1% |

Table 3: Marketed containers summary comparison: 2022 versus 2023

| Container Material | 2022 Tonnes | 2023 Tonnes | % Change |
|----------------------------------|--------------------|--------------------|-----------------|
| Clear glass | 79 | 150 | 90.0 |
| Mixed glass | 2,628 | 2,522 | -4.0 |
| Steel cans | 669 | 604 | -9.7 |
| Aluminum cans and foil | 342 | 338 | -1.2 |
| Polyethylene terephthalate (PET) | 1,648 | 1,410 | -14.4 |
| High-density polyethylene (HDPE) | 406 | 369 | -9.1 |
| Polycoat/gable top | 138 | 105 | -23.9 |
| Mixed plastics | 544 | 566 | 4.0 |

| Container Material | 2022 Tonnes | 2023 Tonnes | % Change |
|---------------------------|--------------------|--------------------|-----------------|
| Mixed containers | 956 | 99 | -89.6 |
| Totals: | 7,410 | 6,163 | -16.8% |

Table 4: Residential recyclables marketed comparison

| Tonnes Marketed | 2022 Tonnes | 2023 Tonnes |
|--------------------------------------|--------------------|--------------------|
| a) Total tonnes marketed | 20,812 | 18,876 |
| b) ICI Tonnes | (689) | (625) |
| Net marketed residential recyclables | 20,123 | 18,251 |

Notes: a) Total tonnes marketed less b) ICI delivered tonnes = Net marketed residential recyclables.

Table 5: Revenue comparison: 2022 versus 2023

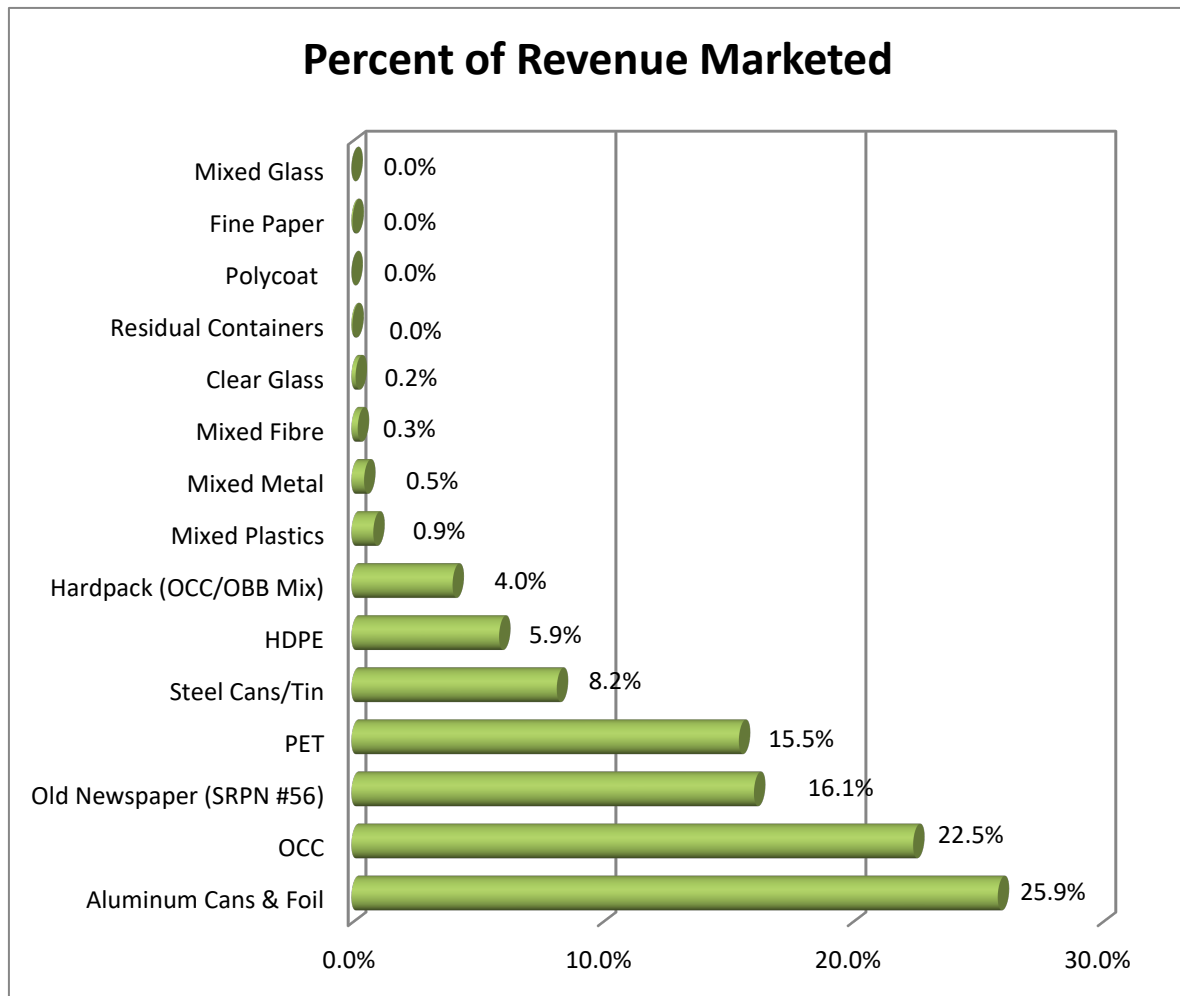
| Recyclable Material | 2022 Revenue | 2023 Revenue |
|----------------------------------|---------------------|---------------------|
| Old newspaper (SRPN #56) | \$872,762 | \$425,695 |
| Cardboard (OCC) | \$1,061,269 | \$594,017 |
| Hardpack (OBB) | \$245,421 | \$106,964 |
| Clear glass | \$849 | \$4,436 |
| Mixed fibre (SRPN #54) | \$54,733 | \$6,687 |
| Steel cans | \$245,252 | \$217,166 |
| Fine paper | \$7,141 | \$1,177 |
| Aluminum cans and foil | \$840,396 | \$683,497 |
| Polyethylene terephthalate (PET) | \$980,506 | \$409,718 |
| High-density polyethylene (HDPE) | \$244,321 | \$156,163 |
| Mixed glass | \$0 | \$0 |
| Polycoat/gable top | \$7,631 | \$45 |
| Mixed metal | \$20,215 | \$13,391 |
| Mixed plastics | \$86,865 | \$23,146 |
| Residual Containers | \$13,655 | \$1,075 |

| Recyclable Material | 2022 Revenue | 2023 Revenue |
|----------------------------|---------------------|---------------------|
| Total Revenue | \$4,681,016 | \$2,643,177 |

Table 6: Annual revenue comparison

| Year | Revenue |
|-------------|----------------|
| 2015 | \$3,101,234 |
| 2016 | \$3,414,055 |
| 2017 | \$4,241,411 |
| 2018 | \$3,204,744 |
| 2019 | \$2,076,450 |
| 2020 | \$2,180,781 |
| 2021 | \$4,967,436 |
| 2022 | \$4,681,016 |
| 2023 | \$2,643,177 |

Figure 2: Percent of revenue marketed in 2023



3.3 Markets

Delivered tonnages for 2023 were slightly lower than 2022, as well as total marketed tonnes as a result of markets normalizing as 2023 was noted as an exceptional year for marketing blue box materials. With this shift from an exceptional, available market, it meant that there was little to no availability to market low grade materials in 2023, such as residue that was marketed for the first time in history in 2022. Further, producer shifts in materials (e.g., cardboard) released out into the Ontario market had direct impacts on collected and marketed blue box tonnage numbers for 2023. For example, the delivery of items to customers in cardboard containers has now been replaced by plastic bags where feasible as it is a cheaper more efficient method to ship.

4 Other Residential Recycling Programs

4.1 White Goods

Since 1991, white goods, such as fridges, stoves, air conditioners, washers, dryers, freezers, dishwashers, etc. have been restricted from the Landfill. In 2023, the EWSWA's curbside collection program for white goods across all municipalities in Essex County except Lakeshore (as they run their own program) captured 1,391 white good units (approximately 125 tonnes). The Municipality of Lakeshore reported that they diverted 8 tonnes of white goods through their 2023 program.

While the City of Windsor did not operate a white goods collection program during 2023, there were also 143 tonnes of white goods delivered to the Public Drop Off Depots for a combined total of approximately 276 tonnes. Table 8 details the white goods collection program for each of the municipalities in the County of Essex by month during 2023.

Table 7: Summary of white goods diversion for 2023

| White Goods Summary | 2023 Tonnes |
|---|--------------------|
| EWSWA Curbside Essex County Collection | 125 |
| Municipality of Lakeshore Program | 8 |
| Drop Off Depots | 143 |
| Total Tonnes Recycled and Diverted | 276 |

Table 8: 2023 White goods collected through the EWSWA White Goods Program by month in municipalities across Essex County

| Month | Amherstburg | Essex | Kingsville | LaSalle | Leamington | Tecumseh | Total for Month |
|--------------------|--------------------|--------------|-------------------|----------------|-------------------|-----------------|------------------------|
| January | 20 | 12 | 6 | 23 | 9 | 8 | 78 |
| February | 16 | 9 | 17 | 17 | 13 | 11 | 83 |
| March | 25 | 19 | 12 | 14 | 11 | 9 | 90 |
| April | 24 | 22 | 17 | 18 | 21 | 11 | 113 |
| May | 25 | 20 | 18 | 20 | 16 | 20 | 119 |
| June | 31 | 17 | 25 | 32 | 28 | 14 | 147 |
| July | 27 | 21 | 25 | 27 | 21 | 16 | 137 |
| August | 27 | 19 | 24 | 25 | 16 | 17 | 128 |
| September | 31 | 34 | 30 | 31 | 14 | 12 | 152 |
| October | 29 | 23 | 26 | 32 | 11 | 8 | 129 |
| November | 24 | 22 | 24 | 25 | 14 | 14 | 123 |
| December | 13 | 20 | 20 | 19 | 7 | 13 | 92 |
| Total Units | 292 | 238 | 244 | 283 | 181 | 153 | 1,391 |

Notes: 1,391 units with the average weight of 90 kilograms per unit results in diversion of approximately 125.19 tonnes.

4.2 Tires

As this program has moved to the full Extended Producer Responsibility (EPR) model, the historical RPRA Datacall calculations are used where approximately 3,001 tonnes of used tires were diverted across the Essex-Windsor area. While automotive tire recycling is now offered at many locations across Essex-Windsor, the EWSWA still collects and recycles used tires through the RPRA program. During 2023, approximately 127 tonnes of used tires were dropped off at the EWSWA sites, which are included in the 3,001 tonnes diverted in Essex-Windsor.

4.3 Scrap Metal

There are 40-yard roll off bins located at the Windsor Public Drop-off Depot for the collection of ferrous and non-ferrous scrap metal material. Metal materials are dropped off here from PDO visitors and other programs across the site where it may have been improperly disposed of to ensure it is diverted from the landfill. The metals are sold through a competitive bid process to local scrap dealers. In 2023, approximately 396 tonnes of metals were collected and recycled.

4.4 Electronics Recycling

Under contract with the EWSWA, Quantum Lifecycle Partners Inc. supplies sea containers for the collection of electronics at the EWSWA's Public Drop-off Depots. The EWSWA staff place electronic items that are received from the public in these containers. In 2023, approximately 251 tonnes of computers, televisions, audio visual equipment, and various electronic items were collected through the Waste Electrical and Electronics Equipment (WEEE) stewardship program.

4.5 Deposit/Return Program

The EWSWA has a capture program at the Material Recovery Facility (MRF) for deposit/return containers (i.e. aluminum beer cans; glass, wine, and spirit bottles) that have been collected through the blue box collection program. During 2023, approximately 30 tonnes of deposit/return containers were received at the MRF alone. As this program has moved to the full Extended Producer Responsibility (EPR) model, the historical RPRA Datacall calculations are used where approximately 2,329 diversion tonnes were diverted in the region for this program, where this calculation is based upon

the Essex-Windsor population as determined by Statistics Canada census data that is available.

4.6 WE ReCYCLE Bike Program

The EWSWA recognizes the importance of providing waste diversion programs that are convenient and safe for the public to access. In 2021, the EWSWA Board approved a bike reuse program, that supports bikes that are collected at the EWSWA sites to be refurbished and recycled back into the Essex-Windsor area through a community partnership program. In 2023, a total of 944 bikes were dropped off at the EWSWA sites, where 666 of those bikes were repaired/reused and the remaining 277 bikes were placed in the scrap metal bin for recycling.

Table 9: Bikes recycled through the WE ReCYCLE program in 2023

| Total # of Bikes Dropped Off | Total # of Bikes Repaired/Reused | Total # of Bikes Recycled as Metal |
|-------------------------------------|---|---|
| 0 | 0 | 0 |

As the average bike weighs 10 kg, it is estimated that a total of 9,440 kgs or 9.44 tonnes of bikes were dropped off at the EWSWA Depots, 6,660 kgs or 6.66 tonnes of those bikes were repaired/reused, and 2,770 kgs or 2.77 tonnes of unrepairable bikes were recycled as metal through the WE ReCYCLE Program in 2023.

4.7 Election Signs

As the EWSWA attempts to divert materials where feasible, it has been successful to offer a drop off program at the sites for election signs after an election. 2023 was not an election year in the region, therefore, no election signs were collected.

4.8 Wood Pallet Pilot Program

The Wood Pallet Pilot Program began in the fall of 2023, where the EWSWA was successful in arranging a local company to pick up pallets for recycling from the Windsor site. In only two months, this program helped to divert 7 tonnes of pallets from filling the Landfill as unnecessary waste.

4.9 Shingles/Road Base Diversion

In fall 2023, the EWSWA began diverting loads of road base materials that were delivered to the Windsor Public Drop Off, as these are valuable resources (e.g., stone, concrete, dirt, shingles). Because of this initiative, approximately 65 tonnes of these materials were diverted from the Landfill and rather used for road base purposes on site.

4.10 Textile Recycling with Diabetes Canada

In 2023, the EWSWA collaborated with Diabetes Canada to successfully divert approximately 3,130 kgs (approximately 3 tonnes) of textiles from the Landfill by having a textiles recycling collection bin on site at the Windsor Public Drop Off Depot. Every 6,500 pounds of textiles collected helps to send one diabetic child to a Diabetes Canada D-Camp, a summer camp designed to provide children living with type 1 diabetes the opportunity to enjoy an authentic camp experience in a medically accommodating environment, with a dedicated team of professionals.

Table 10: Other recyclables comparison: 2022 versus 2023

| Other Recyclable Programs | 2022 Tonnes | 2023 Tonnes | % Change |
|----------------------------------|--------------------|--------------------|-----------------|
| White goods (all sites) | 274 | 276 | 0.7% |
| Used tires | 3,001 | 3,001 | 0% |
| Scrap & mixed metal | 445 | 396 | -11.0% |
| Electronics | 257 | 251 | -2.3% |
| Deposit/return & stewardship | 2,329 | 2,329 | 0% |
| Bicycles | 7 | 7 | 0% |
| Election Signs | 1 | 0 | -100.0% |
| Pallets | N/A | 7 | N/A |
| Shingles/Road Base | N/A | 65 | N/A |
| Textiles | N/A | 3 | N/A |
| Total Other Recyclables | 6,314 | 6,335 | 0.3% |

Notes: RPRA Datacall calculation is based on population for used tires and Deposit/return & stewardship programs in the Essex-Windsor area as reported by the Statistics Canada census.

5 Residential Organics

5.1 Yard Waste

Grass, leaves, tree trimmings, and brush are restricted from disposal at the Essex-Windsor Regional Landfill site. As a result, all local municipalities have established separate collection systems for yard waste, including special collections in January for Christmas trees. Furthermore, individual residents and grounds maintenance contractors also brought yard waste to each of the three Depots operated by the EWSWA in 2023.

The Essex-Windsor residents can set-out their yard waste in: paper bags, wheeled carts, garbage bins, and cardboard boxes to receive curbside collection. Yard waste will not be collected if it is placed in a plastic bag. Approximately 25,845 tonnes of yard waste was received in 2023, which represents an increase of 24% compared to the 20,768 tonnes delivered in 2022, which may be a result of inclement weather storms in the region.

Table 11: 2023 Yard waste summary for all of the EWSWA sites

| Material Type | Windsor Public Drop Off | Kingsville Transfer Station 2 | Regional Landfill | Total |
|-----------------------------|--------------------------------|--------------------------------------|--------------------------|---------------|
| Municipal Delivered | 11,001 | 2,033 | 5,293 | 18,327 |
| Residential Delivered | 3,198 | 1,563 | 352 | 5,113 |
| Total Res. Organics | 14,199 | 3,596 | 5,645 | 23,440 |
| *ICI Organics and Pallets | 1,400 | 771 | 234 | 2,405 |
| Grand Total (Tonnes) | 15,599 | 4,368 | 5,879 | 25,845 |

Notes: *ICI is Industrial, Commercial, and Institutional delivered material type. Due to rounding, sum of tonnes for 2023 will not equal total value.

Table 12: Yard waste tonnes comparison: 2022 versus 2023

| Material Type | 2022 Tonnes | 2023 Tonnes |
|-----------------------------|--------------------|--------------------|
| Municipal Delivered | 15,875 | 18,326 |
| Residential Delivered | 3,134 | 5,114 |
| Total Res. Organics | 19,009 | 23,440 |
| *ICI Organics and Pallets | 1,759 | 2,405 |
| Grand Total (Tonnes) | 20,768 | 25,845 |

*ICI is Industrial, Commercial, and Institutional delivered material type.

5.2 Screened Compost Sales

The EWSWA undertakes an in-depth process to the organics and yard waste it receives to turn it into saleable, quality compost. The composting process involves grinding up yard waste and placing it in long rows called 'windrows'. The material is turned frequently and the temperature is maintained above 55 degrees Celsius in order to kill any pathogens or weed seeds. Once the compost has matured, it is tested, screened, and then sold for use in landscaping, as well as flower and vegetable gardens.

In 2023, compost was sold as bulk (delivered or pick-up), bag-your-own, and prepackaged items as listed below.

Table 13: Compost sales 2023 summary

| Compost Material | Quantity Sold | Tonnes |
|-------------------------|----------------------|------------------------|
| Delivered | 879 cubic yards | 440 |
| Bulk sales | 25,286 cubic yards | 12,643 |
| Bag-Your-Own | 1,216 bags | 67-69 |
| Prepackaged Garden Gold | 11,464 bags | 206-252 |
| Total Tonnes | | 13,356 – 13,404 |

Table 13 Notes: Pre-packaged bag weights are based on approximately 18 to 22 kg/bag; Bag-Your-Own is approximately 55-57 kg/bag; Bulk compost is approximately 500 kg/cubic yard. Compost weight is expressed in 'ranges' due to the differing moisture content & density. One cubic yard = one bucket from the EWSWA small loader in Windsor. Weights are approximate.

Under contract with the EWSWA, Frank Dupuis Landscaping and Trucking provided delivery services for the sale of 440 tonnes of bulk compost locally. In total, 12,643 tonnes of compost was sold through the bulk sale program to residents and businesses at the EWSWA Depots. Additionally, approximately 11,464 prepackaged bags of compost (“Garden Gold”) were sold at the Depots. Many residents also bagged their own compost at one of the Depots. The combined total weight of compost sold in 2023 was approximately 13,356 – 13,404 tonnes. In 2023, compost sales totalled \$267,477.

5.3 Backyard Composting

Backyard composters (BYC) with the brand name “The Earth Machine” and “The Green Cone” were sold to Essex-Windsor residents in 2023. Both units were sold through local Home Hardware stores year-round. In the spring of 2023, the EWSWA ran a coupon in Enviro Tips for the BYC. Residents were directed to 4 participating Home Hardware locations to purchase a BYC at a discounted price. A total of 189 units were sold during this sale. An additional 36 Earth Machine units were sold through the Home Hardware stores throughout the year, for a total of 225 units sold in 2023. There were 11 Green Cones sold in 2023 through Home Hardware stores. This brings the cumulative total to 846 Green Cones distributed since 2010, which is when they were first introduced to the area. The combined BYC distributed in 2023 was 236 units, bringing the total number of units sold since 1988 to 40,483 units.

Current research has indicated that approximately 100 kg/year/BYC is diverted as a result of the backyard composting program. This translates into 4,048 tonnes of organic waste diverted from the Landfill through this program. This does not consider homemade composters or composting done independent of the EWSWA’s backyard composting program.

5.4 FoodCycler™ Pilot Program

In July 2023, the EWSWA partnered with Food Cycle Science (FCS), to launch a pilot program featuring the FoodCycler™. The FoodCycler™ is a countertop unit which converts food waste into a sanitary soil amendment.

- 250 FoodCycler™ units were made available for the pilot program
- 1,826 residents registered to participate in the pilot program
- Usage of each unit was tracked over a 12-week period

- A total of 46.4 metric tonnes of food waste was diverted from the Landfill through the FoodCycler™ Pilot Program (based upon results submitted by participants of the program)

Based on the results of the pilot program, FCS was encouraged to offer additional discounted FoodCycler™ units for Essex-Windsor residents during the fall (and Waste Reduction Week), as well as the holiday season (Christmas). Through this initiative, an additional 277 units were sold between the months of September to December 2023, for a total of 527 FoodCycler™ units distributed in the Essex-Windsor community in 2023. Per FCS, approximately 259 kg per year/per household of food waste is diverted when using the FoodCycler™ unit. Therefore, approximately 51,780 kgs or 52 tonnes of food waste was diverted in Essex-Windsor from the landfill in 2023 due to the sale of the two FoodCycler™ products to residents through the EWSWA’s partnership.

Table 14: Residential organic waste reduction comparison: 2021 – 2023

| Residential Organic Programs | 2021 Tonnes | 2022 Tonnes | 2023 Tonnes |
|-------------------------------------|--------------------|--------------------|--------------------|
| BYC Program | 4,015 | 4,025 | 4,048 |
| Mulching Blades | 1,343 | 1,343 | 1,343 |
| Yard Waste (Residential) | 23,519 | 19,009 | 23,440 |
| FoodCycler™ Program | N/A | N/A | 52 |
| Total Residential Organics | 28,877 | 24,377 | 28,883 |

Notes: The mulching blade program was no longer directly offered through the EWSWA after 2001. Even though mulching blades and mowers are used by residents in the area, it can’t be measured for the purposes of this report; therefore, no increase in diversion is indicated.

5.5 Plastic Flower Pots Recycling

On site at the Windsor Public Drop Off Depot, residents are able to drop off plastic flower pots which are then recycled and baled on site with the mixed plastics material. This initiative prevents these materials from ending up in the landfill. These diversion numbers are accounted for in the Marketed Recyclable Goods section.

5.6 EWSWA Merchandise Recycling

On site at the Windsor Public Drop Off Depot, residents can drop off for free old merchandise of the EWSWA for the EWSWA to recycle such as carts, boxes, green cones, etc. that are worn/used/broken beyond repair. These are typically sent to a local recycler when enough stock is received and markets are available. In 2023, while this program was available, there is no tonnage to report as many items were included in the blue box program.

6 Promotion and Education (P&E)

6.1 Community Outreach

The EWSWA staff traditionally organize promotions and events to engage residents in waste diversion activities. Initiatives like the online Scavenger Hunt for Earth Day, actual in-person Earth Day Event at Malden Park, FoodCycler™ Pilot Program, a digital campaign for Waste Reduction Week, as well as print information on various programs of the EWSWA are some of the many strategies used in 2023.

After Covid-19, in person presentations were limited again in 2023 as they were in the previous two years in schools. As a result, the EWSWA is supporting all businesses, residents, and school boards with waste diversion inquiries, resources, and questions as needed. As well, the EWSWA supported special requests by school boards like MRF tours to school ambassador programs to liaise and better educate the new waste diversion school leaders.

There were twenty-five special events serviced with blue box program recycling carts in 2023 to better support waste diversion at local community events.

The EWSWA was honoured to receive two awards at the Municipal Waste Association (MWA)'s 2023 Promotion and Education Awards. In the category, "Surprise Us", the EWSWA received Bronze for making unique linkages to holidays like Easter and Thanksgiving to promote waste reduction, reuse, and recycling. In the category, "Social Media & Online Strategy", the EWSWA received Gold for the Goose Chase App initiative. To complement Earth Day, the EWSWA had 132 households register to use a free, third-party App that used a virtual scavenger hunt to educate and engage residents. Some of the scavenger hunt activities included: watching a video and answering

questions, taking photos of hazardous waste items in need of drop-off, and taking a photo of your Blue Box set-out.

6.2 Special Community Events

One notable event that the EWSWA serviced in 2023 was the annual Earth Day event, held on April 23, 2023 at Malden Park in Windsor. Approximately 1,500 people attended the event.

Some highlights of this event included environmental exhibits, food vendors, guest speakers, sciensational snakes, interactive games, and an on-site hydration station.

The EWSWA set up a tent at the Earth Day event, educating and highlighting residents on various programs/upcoming initiatives in the Essex-Windsor area, including interactive displays on: compost, food waste and organics, FoodCycler™ units, red/blue box recycling, and BYC/Green Cone Digestors.

Another event, initiated by YQG Green, was launched in the fall of 2023 leading up to Waste Reduction Week. This new event was called the YQG Green Expo, taking place on October 14, 2023, and featured: A Fireside Chat, Environmental Exhibitors, an Expert Panel Discussion, and Community Recycle Drive Thru & Drop-Off. The EWSWA was one of the partners of this event and various administrative staff from the organization participated in the event. Residents were encouraged to drop off items such as electronics, textiles, household items, and eyeglasses, using the Community Recycle Drive Thru & Drop Off, as well as prescription medications which were collected for safe disposal, by various local not-for-profit organizations. Habitat for Humanity Restore, Unifor 444, Diabetes Canada, and Soles4Souls, etc. were some of the organizations that supported this event. The EWSWA had a booth set up at this event where several members of the staff were on-site to answer questions and provide program information to participants.

6.3 Waste Reduction Hotline

The EWSWA maintains a Waste Reduction Hotline (1-800-563-3377), where staff of the EWSWA answer residential questions, or redirect the call to the appropriate staff or department.

6.4 Print Newsletter

The EWSWA issues an annual newsletter called Enviro Tips which is delivered to each household and is available online. In spring 2023, the newsletter “Enviro Tips” was delivered to every household, apartment, farm, and business in Windsor/Essex County. Over 173,500 newsletters were delivered. The newsletter featured the FoodCycler™ Pilot Program, Garden Gold Compost, the Backyard Composter coupon, Drop Off Depot, Recycle Coach, MHSW information, and a few program reminders.

6.5 E-Newsletter

E-newsletters are also part of the program as they are low cost and another way to reach residents using Constant Contact, Inc., an online marketing company which allows the user to create effective e-mail marketing campaigns. In the past, the EWSWA has utilized Constant Contact to inform subscribers of events, sales, and various promotions of the EWSWA.

The EWSWA has a total of 4,945 subscribers. A total of 24 e-newsletters were published in 2023, which represents a substantial increase from 2022, as the EWSWA utilized Constant Contact to send out information regarding the FoodCycler™ Pilot Program (invites, registrations, pilot information, etc.). The e-newsletter proved very useful in communicating with participants of the pilot program.

Open rates for e-newsletters in 2023 are as follows: Earth Day 2023, 58%, Gold Star 2023, 64%, Feedback for Upcoming website of the EWSWA, 63%.

6.6 EWSWA Website

The EWSWA website (www.ewswa.org) is updated on a regular basis to provide detailed information and public education to residents. Topics covered range from waste management and reduction, to details regarding waste diversion activities. Through the website, residents have access to instructions, tenders, reports, calendars, acceptable recycle box materials, incentives, etc. In 2023, the EWSWA utilized Google Analytics to measure the metrics for the website. In July 2023, Google transitioned to a new platform for measuring analytics (G4). This new platform is not compatible with the much older technology on the EWSWA’s current website, therefore, it is not tracking metrics properly. However, the EWSWA will be launching a new website in 2024 and the new Google Analytics Software will be built in and function properly to track metrics across the website. Using the very

limited free software, the EWSWA has the metrics for one month, as shown below:

- Total Users (one month): 5,507
- Estimated Total Users for 2023: 66,084
- Average Session Duration: 1 minute 32 seconds
- 59% of users accessed the website via mobile device, 38% of users accessed the website via desktop, and 2% of users accessed the website via tablet

6.7 Recycle Coach App

Recycle Coach is an App which makes recycling and collection schedule information easy to find. The App is continuously developing new programs to combat complacency and get people re-engaged in recycling. It promotes best practice ideas on better waste management to improve outcomes such as increasing recycling, proper disposal and diversion of solid waste, etc. In 2023, the EWSWA made it a priority to promote this App and get local residents onboard with accessing information around solid waste through this App. As a result, metrics continue to increase each year, as shown in Table 15 below for 2023:

Table 15: Recycle Coach App Metrics Comparison for 2022-2023

| Metrics | 2022 | 2023 |
|--------------------|-------------|-------------|
| Total Users * | 26,416 | 28,308 |
| Total Interactions | 2,922,775 | 3,405,260 |
| Reminders | 2,728,826 | 3,248,924 |
| Notifications | 80,992 | 37,566 |
| Material Searches | 17,931 | 19,507 |
| Page Views | 27,322 | 25,759 |
| Calendar Views | 67,704 | 73,684 |

* Note: In 2021, there was a tracking metric for the EWSWA website users accessing Recycle Coach’s “What Goes Where” via the EWSWA website – which was included in the metrics as ‘subscribers’. This metric is no longer included in

the subscriber number, as it tracks material searches, and therefore is tracked as a stand-alone metric “Material Searches”.

6.8 Agorapulse

In 2022, the EWSWA began using Agorapulse to better manage and enhance capability to schedule social media posts. Agorapulse is a full-featured social media management platform. Some of its features include a variety of methods to publish content, schedule posts, and report about social account usage. It allows Waste Diversion staff to stay organized, save time, generate reports, and easily manage social media accounts – all from one convenient platform.

6.9 Facebook

- Fans: 433
- Engagement: 1,400
- Impressions: 192,000

Definitions

- Fans are the number of people who are following the EWSWA’s Facebook page.
- Engagement is the number of fan interactions (reactions, comments, shares, clicks, and private messages) with the EWSWA Facebook page.
- Impressions are the number of times the EWSWA page has been viewed during the selected period (2023). This includes paid, organic, and viral impressions.

Facebook Publishing:

- Posts Published: 352
- Posts Reach: 98,333
- Engaged Users: 3,242

6.10 X (Formerly Twitter)

The social platform formerly known as Twitter was purchased, rebranded, and relaunched as “X” in mid-July 2023. The X platform analytics are no longer included in Agorapulse. To receive metrics for X, the EWSWA would have to pay an additional fee. The EWSWA has not yet subscribed to this additional service. X is working on improvements to their own analytics, but much of the data is currently missing.

- Followers: 1,015
- December 2023 Metrics Available: the EWSWA posts earned 2.0 impressions over the 31-day period and earned 63 impressions per day

Definitions

- *Followers are the number of people who are following the EWSWA on X.*

6.11 Instagram

The EWSWA added Instagram to their social media accounts in 2021. The 2023 metrics are as follows:

- Followers: 220
- Engagement: 179
- Impressions: 13K
- Brand Awareness: 24
- Posts Published: 287
- Posts Reached: 7,119
- Posts Engagement: 207

Definitions

- Followers is the number of people following the EWSWA on Instagram.
- Number of followers' interactions (likes, saves, comments, and direct messages) to the EWSWA Instagram profile.
- Impressions is the number of times the EWSWA profile's content has been viewed during the selected period.
- Brand Awareness is the number of mentions of the EWSWA profile and listening searches containing your brand name.

6.12 Google – Public Drop Off Depot Statistics

The EWSWA strives to always ensure Google information is up-to-date as many people visit Google for topics including:

- Holiday Closures
- Hours of Operation
- Traffic Flow (heavy traffic / light traffic)
- Photos
- Reviews

- Accepted Materials

During a search, Google logs 'behavior' metrics, as well as the resulting 'action' from the search (a visit to the organization's website, request directions, call, etc.).

Some key Google statistics for the EWSWA's Public Drop Off Depot searches (statistical average is over 3 months):

- 4.3/5-star rating - based on public reviews
- 4,683 EWSWA business profile interactions
- 30,094 people viewed the EWSWA profile (via mobile 75%, via desktop 15%, via Google maps 9% mobile, via Google maps desktop 1%)
- 11,973 searches (website, calls, photo views, direction requests)

Through Google Business Profile Manager, the EWSWA staff have the ability to post updates (holiday closures, change in hours, photos), as well as post messages and respond to reviews.

6.13 Radio and Social Media Campaigns

The EWSWA ran several notable campaigns through a combination of social media and radio advertisements in 2023, all of which reached a significant number of individuals through the following campaigns:

- What Goes Where:
 - Spring Clean Drop-Off Depots – reminders about light bulbs, flower pots, propane tanks, and used cooking oil; reach of 63,337
 - Summer Blue Box – festivals, marinas, sports fields, and parks; reach of 479,380
 - Fall and Halloween – reach of 407,000
 - Christmas – reminders about steel gravy/cranberry cans, aluminum trays, food waste, and electronics; reach of 760,000
- Other Campaigns:
 - Earth Day 30 Day Challenge – reached 19,682 on social media
 - 12 Days of Christmas – radio advertisement regarding MHSW disposal; reach of 57,000

- May Madness (Compost Sale) – reach of 14,651
- Waste Reduction Week – radio advertisement; reach of 522,000

6.14 Gold Star Program

In 2016, the EWSWA launched a new recycling incentive program aimed at increasing public awareness regarding the red and blue box recycling program. Residents were encouraged to apply for a new “Gold Recycling Box” through a program that evaluated their curbside recycling, provided feedback and rewarded successful recyclers with a gold box. The program’s ultimate objective is to decrease the amount of contamination being set out by residents and thereby decrease the amount of residual waste being landfilled. The program was renewed in 2017 and 2,050 residents registered for the “Gold Star” program and by 2018, 1,217 more homes were awarded a gold box. Due to the community engagement in this program, it continues to be offered each year to residents. In 2023, 100 more applicants registered for the program and 100 were awarded gold star boxes. To date, 2,869 homes have registered to have their recycling inspected and were rewarded for excellent recycling habits with a Gold Box. Additionally, during Waste Reduction Week, the EWSWA provided one Gold Star box to 108 elementary schools in the Essex-Windsor area, encouraging each school to distribute the box as a trophy or however the school deemed fit, with the following criteria in mind:

- The recipient of the gold box (whether that be the class, grade, student, or teacher) showed excellent efforts in Waste Reduction or the 3R’s (Reduce, Reuse, Recycle)
- The school must take a picture explaining why they chose them and tag the EWSWA on social media platforms

The participating elementary schools uploaded their successful results of this initiative on various social media platforms, such as Instagram, Facebook, and Twitter, accumulating a total reach across all platforms of 2,006.

7 Municipal Hazardous or Special Wastes (MHSW) Program

7.1 MHSW Depots

The EWSWA opened the Windsor MHSW Depot in October 1995. In addition to the Windsor facility, the EWSWA opened a second MHSW Depot at

Transfer Station No. 2 in the Town of Kingsville in 1997. A third depot was opened at the Essex-Windsor Regional Landfill in October 2013. These Depots replaced the annual Household Chemical Waste Days held in Essex-Windsor. A total of 555,269 litres and 102,386 kg of MHSW materials were delivered to the sites in 2023. See Table 16 and 17 for details.

7.2 Reuse Centre

A Reuse Centre has been operational at the Windsor MHSW facility since 1995.

Paint is distributed in both 1-gallon and 5-gallon pails for reuse. According to records, 2,023 residents accessed the Reuse Centre as compared to 2022 which had 1,403 residents as a result of more promotions on this program. These residents, were successful is using the program as 35,260 products or approximately 52,539 kg of paint and miscellaneous materials were taken in 2023 compared to 37,829 products or 54,530 kg of reusable materials in 2022.

Table 16: Municipal Hazardous or Special Waste for 2023 in litres

| Material | MHSW from Facilities | Reuse Centre Quantities | Total |
|--|-----------------------------|--------------------------------|----------------|
| Adhesives/flammable liquids | 78,800 | 10,971 | 89,771 |
| Aerosols | 8,001 | 1,022 | 9,023 |
| Antifreeze (Glycol) | 12,618 | 0 | 12,618 |
| Corrosive liquid | 4,984 | 1,121 | 6,105 |
| Inorganic acids | 1,293 | 0 | 1,293 |
| Paints & Coatings | 174,459 | 36,618 | 211,077 |
| Pesticides | 5,532 | 850 | 6,382 |
| Waste oils (used motor oil, hydraulic oil, etc.) | 208,860 | 0 | 208,860 |
| Cooking oil | 10,140 | 0 | 10,140 |
| Total MHSW Litres | 504,687 | 50,582 | 555,269 |

Table 17: Municipal Hazardous or Special Waste for 2023 in kilograms

| Material | MHSW from Facilities | Reuse Centre Quantities | Total |
|-----------------------------------|-----------------------------|--------------------------------|----------------|
| Car batteries | 23,783 | 0 | 23,783 |
| Dry cell batteries | 17,924 | 0 | 17,924 |
| Fire extinguishers | 3,065 | 0 | 3,065 |
| Fluorescents/misc. lamps/ballasts | 18,384 | 0 | 18,384 |
| Inorganic oxidizers | 5,149 | 1,957 | 7,106 |
| Mercury (HG items)/lead | 9 | 0 | 9 |
| Pharmaceuticals | 1,520 | 0 | 1,520 |
| Plastic used oil containers | 9,210 | 0 | 9,210 |
| Propane cylinders | 3,441 | 0 | 3,441 |
| Propane tanks/misc. tanks | 15,284 | 0 | 15,284 |
| Corrosive solids (e.g. cement) | 1,879 | 0 | 1,879 |
| Waste oil filters | 781 | 0 | 781 |
| Total MHSW Kilograms | 100,429 | 1,957 | 102,386 |

Table 18: MHSW Diversion Comparison

| | 2022 Tonnes | 2023 Tonnes |
|----------------------------|--------------------|--------------------|
| MHSW recycled or reused | 637 | 658 |
| MHSW not recycled | (16) | (18) |
| Total MHSW Diverted | 621 | 640 |

Note: Examples of MHSW materials not recycled include: inorganic acids, inorganic oxidizers, pharmaceuticals, corrosive liquids, and pesticides.

7.3 Waste Motor Oil

Waste motor oil is collected curbside alongside the residential recycling program. As well, residents are able to deliver waste oil to the EWSWA's MHSW facilities. The quantity of waste oil collected during 2023 was 208,860

litres, compared to the 183,488 litres collected in 2022. The quantity of oil collected by month is shown in Table 19 with historical data over four years.

Table 19: Litres Waste Oil collected

| Month | 2020 Litres | 2021 Litres | 2022 Litres | 2023 Litres |
|---------------|--------------------|--------------------|--------------------|--------------------|
| January | 13,825 | 7,950 | 9,150 | 13,875 |
| February | 5,925 | 4,300 | 4,175 | 6,700 |
| March | 11,425 | 23,625 | 14,875 | 11,375 |
| April | 19,125 | 20,700 | 12,675 | 20,294 |
| May | 6,750 | 14,625 | 18,500 | 19,197 |
| June | 21,625 | 21,950 | 24,973 | 26,750 |
| July | 23,825 | 17,000 | 18,665 | 20,025 |
| August | 20,475 | 19,250 | 17,750 | 17,309 |
| September | 26,700 | 18,775 | 19,083 | 17,485 |
| October | 20,900 | 14,850 | 17,838 | 21,350 |
| November | 18,900 | 15,925 | 17,072 | 17,250 |
| December | 15,175 | 14,425 | 8,732 | 17,250 |
| Total: | 204,650 | 193,375 | 183,488 | 208,860 |

Note: Due to contractor change in 2021, the data for 2021-2023 accounts for all types of oil collected, both hydraulic and motor.

7.4 Waste Cooking Oil

Used cooking oil is free for residents to drop off at the EWSWA MHSW facilities at the City of Windsor Public Drop Off and the Kingsville Transfer Station #2. Sanimax collects the cooking oil which is then filtered and cleaned, and later marketed to be mixed with diesel fuel to create biodiesel. In 2023, the total amount of cooking oil collected at both sites totalled 10,140 litres or 10.14 tonnes.

7.5 Refillable Propane Tanks

In 2023, the EWSWA began working with Tank Traders, a national propane tank exchange program which offers a free service for core collection of refillable propane tanks ranging from 5 lbs to 100 lbs. Tanks that are in good condition are collected and refurbished into their exchange program for reuse, following Ontario’s goal of a circular economy, and any tanks that do not pass the safety requirements are sent to a metal recycler, preventing

them from landfill. In 2023, a total of 1,406 propane tanks were collected from the EWSWA’s three sites by Tank Traders, allowing them to either be reused in their exchange program or recycled.

7.6 Call2Recycle Battery Recycling Program

Call2Recycle Inc. is a not-for-profit organization that provides a battery recycling program at no-cost to consumers across Canada. Call2Recycle receives batteries from the EWSWA’s three sites and recycles them, keeping them out of the Landfill and recovering the valuable materials that can be used to create new batteries and other products. As captured in Table 17, a total of 17,924 kgs or approximately 18 tonnes of batteries were collected from the EWSWA’s three sites in 2023 and recycled/reused through Call2Recycle Inc.

8 Overall Summary of Residential Diversion Quantities

8.1 Residential Waste Diversion

This table below summarizes the residential waste diversion activities detailed in this report.

Table 20: Residential Waste Diversion Summary

| Residential Waste Diversion Summary | 2022 Tonnes | 2023 Tonnes |
|--|--------------------|--------------------|
| Net Marketed Recyclables (Table 4) | 20,123 | 18,251 |
| Other Recyclable Programs (Table 10) | 6,314 | 6,335 |
| Yard Waste, BYC, Mulching Blades, & FoodCycler™ Pilot Program (Table 14) | 24,377 | 28,883 |
| MHSW Waste including Waste Oil (Table 18) | 621 | 640 |
| Total Residential Tonnes Diverted | 51,435 | 54,110 |

Due to rounding, the Total Residential Tonnes Diverted does not equate to the sum of tables 4, 10, 14, and 18.

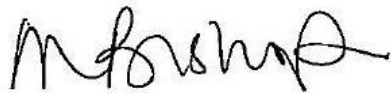
For further information, please contact the undersigned.



Catharine Copot-Nepszy

Manager, Waste Diversion

CCNepszy@ewswa.org



Michelle Bishop

General Manager

MBishop@ewswa.org

Report prepared by:

Carlie Trepanier, Administrative Assistant