

2022 DPW Annual Residential Recycling Report



File 230677

Submitted August 31, 2023

Table of Contents

	Page
1	Introduction and Commentary.....1
2	Resource Recovery Program Results2
2.1	Recycling Results and Achievements.....2
2.2	Drop Off Center Recovery Programs3
2.3	Electronics Recycling3
2.4	Compliance Enforcement.....4
3	Education and Events5
3.1	DPW Recycling Poster Contest5
3.2	Presentations and Tours6
3.2.1	Mujeres Spanish-Language Neighborhood Events.....6
3.2.2	Student Education6
3.3	2022 Compost Bin Sale7
3.4	Mailers and Guides7
3.4.1	Recycle for Good Fall Mailer7
3.5	Additional Outreach Strategies8
3.5.1	E-notify and Press Releases8
3.5.2	Milwaukee Recycles Website, Social Media, and Online Publications9
4	Additional References10
4.1	Recycling Pounds Per Household.....10
4.2	Table 1: Residential Tons Collected.....11
4.3	Table 2: Residential Program Metrics12
4.4	Table 3: Recyclables Processing Financials13
4.5	Table 4: Electronics Recycling – Tons & Cost Per Year.....14
4.6	Table 5: Electronics Recycling – Pounds Per Month15

1 Introduction and Commentary

2022 marked the first year that genuinely felt like a return to life pre-COVID. Residents moved back to the office or established long-term hybrid schedules. The transition to in-person work shifted total tons of solid waste and recyclables collected curbside and at Drop Off Centers to pre-COVID levels. While the overall tonnage of recyclables collected curbside decreased in 2022 due to less waste generated in the home, the every-other-week recycling schedule successfully got recyclables out of the garbage carts and into the recycling. In 2021, The City of Milwaukee Department of Public Works received over \$1.1 million in grant funding from The Recycling Partnership to implement recycling collection spring through fall every other week to better serve our residents. This City-wide standard service level optimizes the recovery of recyclables and the efficiency of collection. The new service schedule increased recycling capacity curbside in 2022 to divert more recyclables from garbage carts. In addition to the success of the every-other-week recycling schedule, the recycling program sustained educational outreach through Recycle for Good messaging, partnerships with Keep Greater Milwaukee Beautiful and Mujeres Con Poder of Core El Centro, and the annual compost bin sale.

The year also brought a transition to the Resource Recovery Program Manager role. I joined the DPW – Sanitation team in December 2022. I have over ten years of experience in sustainability programming and operations in Milwaukee, with five years in the waste and recycling industry. My qualifications are vendor relations, contract management, process improvement, and waste management, with most of my roles establishing operations and programming to optimize waste reduction and recovery. I'm passionate about the industry and love this city. I look forward to growing in my role and continuing to evolve the program to make Milwaukee Clean and Green for all residents.

In 2023, DPW will continue exploring ways to promote waste diversion in our city. This includes submitting two grants requesting over \$2.4 million to support the Recycle for Good outreach campaign and increasing residential composting access. Funding announcements are expected by fall. The MRF fire on May 31st, 2023, caused substantial damage and put the analysis and planning of its future at the forefront for 2023. Finally, sustaining long-standing events like the annual compost bin sale and outreach with community organizations remains a priority for the department in the new year.

-Laura Stevens, Resource Recovery Program Manager, DPW Operations Division



LET'S MAKE MILWAUKEE CLEAN & GREEN.

2 Resource Recovery Program Results

2.1 Recycling Results and Achievements

Citywide in 2022, DPW collected 25,968 tons of residential recyclables, a decrease of 511 tons compared to 2021. Milwaukee residents have increased recycling tons by 17% and recycling pounds per household by 19% compared to the program's lowest tonnage year of 2009.

2022 comparison vs. five-year average, 2017-2021:

- Recycling tons ▲ 1.3%
- Recycling pounds per household ▼ 1%

The City's residential landfill diversion rate was 25.1% in 2022, an increase of 1.5% compared to 2021. Yard waste tons increased by 7.5%, with the seasonal leaf collection tons being the most significant contributing factor. Recycling tons dipped by 1.9%, and solid waste tons were reduced by 6.2%. Overall, in 2022, total residential solid waste decreased by 4.2%. (See Table 1: Residential Tons Collected on page 11)

In June of 2021, DPW Sanitation began collecting curbside recycling once every two weeks from spring through fall. The reduction in recycling tonnage from 2021 to 2022 can likely be connected to more residents returning to commercial offices full-time or with hybrid schedules. This change impacts the year-to-year comparison of the new service schedule. Compared to a pre-COVID year, the program increased recycling tons and pounds per household, demonstrating the effectiveness of the new service schedule.

2022 comparison vs. pre-pandemic year, 2019

- Recycling tons ▲ 6.3%
- Recycling pounds per household ▲ 4.1%

Resident participation in the household recycling program avoided \$1,224,898 in landfill disposal costs in 2022 and earned over \$1.7 million in revenue from the sale of recyclables. Commodity revenues remained strong for most of 2022 but sharply declined by the end of the year. Cardboard and mixed paper values were primarily impacted as manufacturers and retailers worked on predicting consumer spending post-COVID while paper mills had a surplus of material. Even with the year-end market dip, without including the cost of collection services, the City realized a savings of \$57.30 per ton of recycled materials instead of being sent to a landfill.



Recycling Cart Set Out for Collection

2.2 Drop Off Center Recovery Programs

The two Drop Off Centers, located on Lincoln Ave. and Industrial Rd., allow residents to recycle, compost, or safely dispose of over 20 material categories, and the MMSD hazardous materials program continues to be available at the Lincoln Ave. site to all Milwaukee County residents. Annual visits to the Drop Off Centers held steady in 2022, with 251,720 visitors or over 900 per day between the two locations. 23% of the material managed through Drop Off Centers was diverted from landfills in 2022.



New Recycling Roll-Offs Replaced Carts at Drop Off Centers

<p>Recycled</p> <ul style="list-style-type: none"> • Antifreeze • Car batteries • Motor oil and filters • Tires (5 passenger tires per trip) • Appliances • Scrap Metal • Asphalt Shingles • Concrete • Electronics (3 TVs per trip) • Cooking oil • Shoes • Curbside recyclables • Large corrugated cardboard 	<p>Composted</p> <ul style="list-style-type: none"> • Brush and branches • Grass clippings • Garden debris • Leaves • Logs <hr/> <p>Landfilled</p> <ul style="list-style-type: none"> • Construction and remodeling debris • Old furniture and mattresses • Garbage
--	---

2.3 Electronics Recycling

1.1 million pounds of electronics were collected at Drop Off Centers in 2022, the 12th full calendar year of the E-Cycle Wisconsin producer responsibility program created through state legislation in 2009 (see electronics recycling graphs on pages 14 and 15 of this report). 2022 collections translate to 2 pounds of electronics recycled per capita in the City of Milwaukee, a 17.5% reduction compared to 2021 and the 6th year of declines after experiencing a prior decade of annual increases. This multi-year period of declining weight of electronics recycled is consistent with the statewide decline as reported by the Wisconsin Department of Natural Resources. Additionally, in the DNR's *Trends in Wisconsin Households' Ownership and Disposal of Electronics Results from the DNR's 2021 Statewide Household Survey*, respondents replied that of the unwanted electronics in the home, 17% are TVs, 26% computers, and 44% cell phones. The DNR found that the

decline from 2018-2021 suggests fewer households storing unwanted electronics. Furthermore, households reported storing lighter electronics like cell phones over TVs, which impact the overall tonnage.

2.4 Compliance Enforcement

The DPW recycling office conducts and administers enforcement of the local recycling ordinances. Wisconsin state law requires these ordinances and the maintenance of a compliance enforcement plan. Throughout the enforcement process, property owners receive education and guidance to assist in implementing and operating recycling programs. Below is a summary of recycling enforcement activity by DPW in 2022.

Property Type	Written warnings	Citations	Fines and Late Fees
1-4 units residential	2018	1057	\$27,570
5+ units residential	31	18	\$869
Non-residential (business)	2	0	\$0

3 Education and Events

3.1 DPW Recycling Poster Contest

DPW Sanitation partnered with Keep Greater Milwaukee Beautiful and Milwaukee Public Schools to hold its first-ever poster contest in 2022. All Milwaukee Public Schools K-12 students were invited to showcase their artistic talent and commitment to reduce, reuse, and recycle by submitting design artwork. Students were asked to use a variety of media, such as, but not limited to, watercolor, pen and ink, crayons, markers, or computer graphics. Students may also incorporate recycled or recyclable materials in their creations.



K- 2 grade winner & Grand Champion, Henrik, Marcus, Isabelle from Ms. Clough's class at Milwaukee German Immersion School



3 – 5 Grade Winner, Aliana P. from Mr. Tyjeski's class at Hamlin Garland School

The inaugural theme for the contest was “Know Before You Throw.” Students were encouraged to incorporate this theme into their artwork by designing around the items accepted for recycling at their school, like paper, cardboard, bottles, cans, and/or examples of materials that should not be placed into the recycling, such as plastic bags, electronics, batteries, or food waste. The goal was to be creative and have fun while learning and sharing!

Posters were judged by a panel based on four criteria - conveys a clear message through text and artwork; exhibits creativity, originality, and artistic quality; displays visual clarity and correct spelling – easy to read and understand; and addresses the theme.

The posters were grouped into the following four grade categories:

- Kindergarten through 2nd grade
- 3rd through 5th grade
- 6th through 8th grade
- 9th through 12th grade

Each participating student received a Certificate of Recognition provided with the call for entries. The 1st place prize winner in the four (4) grade categories received a \$100 gift card, and one grand prize winner's school received a \$200 gift card for room supplies.



6 – 8 Grade Winner Alexis S. from Ms. Bruno's class at Jeremiah Curtin Leadership Academy

Coordinating with Milwaukee Public Schools, the poster contest was scheduled to align with Earth Day, giving students a fun project as their school year ended and ensuring it wouldn't compete with other contests held by MPS in the first half of the school year.

Sanitation received 25 submissions, with entries in all four grade categories. Winning artwork was used to promote recycling in the City of Milwaukee, including display on the [poster contest website](#) and Milwaukee Recycles social media.



9 -12 Grade Winner, Daniela H. from Carmen High School of Science and Technology

3.2 Presentations and Tours

3.2.1 Mujeres Spanish-Language Neighborhood Events

Mujeres Con Poder of CORE El Centro and DPW Sanitation have partnered on many initiatives in past years, including providing Spanish-language tours of the materials recovery facility. In 2022, DPW and Mujeres partnered on recycling education through neighborhood events to engage residents. The program promoted recycling by educating the City of Milwaukee residents about what is and isn't recyclable, recycling best practices, waste reduction, collection guidance, and the provision of incentive materials provided by Sanitation, including branded thermoses, t-shirts, and backyard compost bins.



Mujeres Con Poder Provide Recycling and Food Waste Reduction Education at National Night Out

Mujeres provided recycling education and outreach at seven events in the City of Milwaukee in 2022. Mujeres could create the events or coordinate to attend external neighborhood events as long as those events were located within the City of Milwaukee. Education events could include at least two formal in-person or webinar recycling presentations by Mujeres staff and staffing an informational table or booth to interact with event-goers.

Some events included presentations at Casa Romero and Prince of Peace School and information booths at a health fair, parent conference, and National Night Out, reaching 287 adults and five children in 2022. DPW Sanitation looks forward to continuing this valued partnership.

3.2.2 Student Education

In 2022, in-person recycling education for schoolchildren continued. This is a vital component of the recycling outreach program maintained by an ongoing partnership between DPW and Keep Greater Milwaukee Beautiful (KGMB). 13 schools in the City of Milwaukee and ten additional community or school groups participated in KGMB's educational programs and tours of Milwaukee's recycling facility, including 360 adults and 872 students.

3.3 2022 Compost Bin Sale

In 2022, DPW held its 11th annual compost bin sale to promote composting at private residences. For the 2nd year, DPW partnered with Recycling Connections, a Wisconsin-based non-profit focusing on waste reduction, recycling, and resource conservation, for the event to provide the public with a highly-rated compost bin, the Home Composter, for purchase.

Recommended by expert composters, the Home Composter is easy to assemble, long-lasting, made from 100% recycled materials, and unavailable in stores. Each purchase of a compost bin included a Backyard Composting book. Home Composter compost bins and Kitchen Katcher stainless steel compost pails were available for \$65 and \$25, respectively (including tax) during the pre-sale event. DPW Sanitation continued to utilize SignUp.com to allow residents to schedule a timeslot to pick up their orders. Residents remained in their vehicles while DPW Sanitation, Keep Greater Milwaukee Beautiful, and Recycling Connections staff assisted with loading their orders into their cars.



DPW Infrastructure Services brings many hands to make light work, helping Sanitation unload hundreds of compost bins for the sale at KGMB

Interest continued to grow, with the sale resulting in over 275 individual orders compared to 234 in 2021. 282 compost bins and 114 kitchen pails, a 29% and 9% increase over 2021, respectively, were sold. Since 2012, DPW Sanitation has sold 2,836 compost bins to the public.

3.4 Mailers and Guides

3.4.1 Recycle for Good Fall Mailer



DPW’s annual Recycling and Waste Reduction fall mailer educates residents on recycling, confirms schedules for upcoming seasonal services, and provides resources for proper materials disposal. The featured article, “Thank You For Recycling, Milwaukee,” detailed the almost 53 million pounds of recyclables collected in 2021 and over 25.8 million pounds of recyclables collected in the first half of 2022. The Institute of Scrap Recycling Industries (ISRI) “2021 Economic Impact Study for the U.S.-Based Recycling Industry” also shared the economic and environmental impacts of recycling in Wisconsin.

The article also gave residents tips on “know before you throw” and recycling only accepted materials. An image of accepted materials in the City of Milwaukee’s residential curbside recycling program was provided.

Accompanying articles included “Let’s Mulch, Milwaukee!” which described best practices for mowing, collecting, distributing, and composting leaves on your lawn. The environmental benefits and unique weather patterns around leaf collection time were detailed. “Know Before You Throw (and Buy) – A Note from Milwaukee Recycles” discussed a staff member’s experience realizing that they weren’t sure how they would dispose of a small electronic device once it reached its useful life and the importance of considering how you will dispose of something before you decide to buy. Additional content included a list of City holidays, disposal options for household hazardous waste, plastic bags and film, and electronics, information on the City’s leaf and brush collection services, and an advertisement reminding residents not to bag their recyclables before placing them in the recycling cart. DPW’s annual fall mailer is available online at www.Milwaukee.gov/RecycleReports.

3.5 Additional Outreach Strategies

3.5.1 E-notify and Press Releases

Press releases and e-notifies are distributed to inform residents of service and program updates and highlight various waste reduction, reuse, and recycling topics. Included below are some of the e-notifies sent to the Milwaukee Recycles distribution list:



Image for “Married at the MRF” on April Fools’ Day

- What You Buy Goes Around and Comes Around
- Celebrate National Battery Day on Feb. 18 – shared by the Wisconsin Dept. of Natural Resources
- Department of Public Works Updates for Summer Service Season
- Married at the MRF – an April Fools’ Day Edition
- When It Comes to Electronics and Batteries – Only You Can Prevent Fires!
- Reducing Food Waste at Home
- Recycling Makes Sense
- Back to School Sustainably
- Recycling – How it Works and How it Doesn’t
- DPW Winter Updates
- Holiday Recycling Tips

3.5.2 Milwaukee Recycles Website, Social Media, and Online Publications

The second half of 2022 saw a dip in website and social media page views due to the Resource Recovery Program Manager vacancy. Social media outreach was reduced during this time, impacting traffic to all media platforms.

The MilwaukeeRecycles.com main page received 40,348 unique page views, a decrease of 31% compared to 2021. The top pages of interest remained the recycling directory page, which guides how to safely dispose of unique items and the curbside recycling guide page.

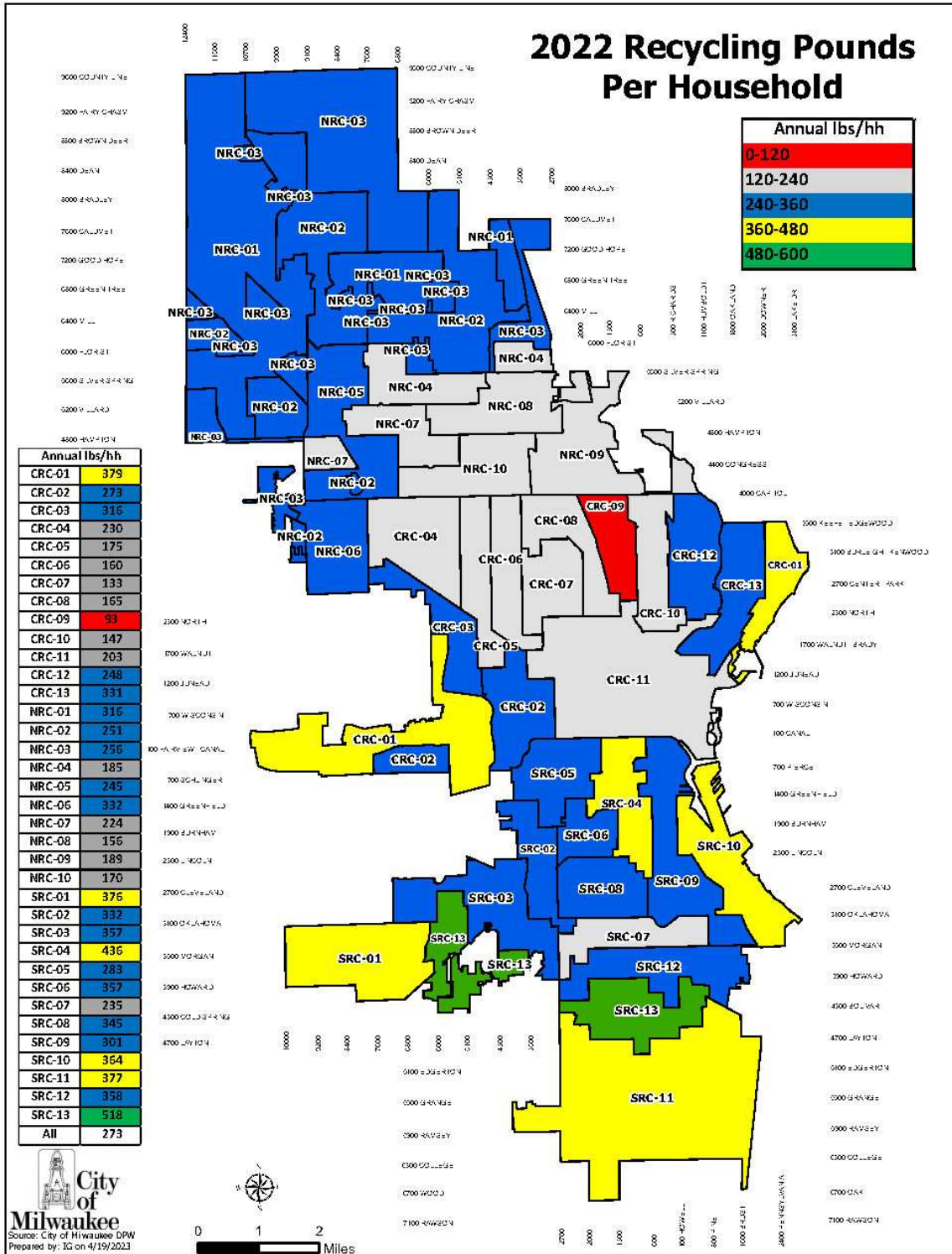
Followers of the @MKERecycles Twitter page increased by 17% in 2022, with annual post impressions decreasing by 62% to 60k. The @MilwaukeeRecycles Facebook page had 2,523 followers at the end of 2022, an increase of 8% compared to 2021.

Posts include education and tips on reducing, reusing, recycling, and composting, helpful resources, service reminders, and special event advertising. The highest reaching post on @MKERecycles' Twitter page in 2022 highlighted an OnMilwaukee article titled "Wait, don't hockey puck that beer can! ...and other recycling tips," in which OnMilwaukee senior editor and writer Bobby Tanzilo spoke with DPW Sanitation about how to recycle right.



4 Additional References

4.1 Recycling Pounds Per Household



4.2 Table 1: Residential Tons Collected

	<u>2021</u>	<u>2022</u>	<u>Change</u>	
			<u>Tons</u>	<u>Percent</u>
Recycling Materials - household				
Combined Paper	9,689	10,914	1,225	12.6%
Corrugated Cardboard	5,958	4,615	-1,342	-22.5%
Aluminum Cans	440	317	-123	-27.9%
Steel Cans	490	577	87	17.7%
Scrap Metal	342	282	-59	-17.4%
Glass Containers	6,958	6,550	-408	-5.9%
Plastic Containers	2,602	2,712	110	4.2%
Subtotal	26,478	25,968	-511	-1.9%
Recycling Materials - other residential*				
Appliances with Refrigerants	168	127	-40	-24.1%
Lead Acid Batteries	17	6	-11	-63.8%
Waste Tires	602	519	-83	-13.8%
Waste Oil	190	167	-23	-12.2%
Electronics	694	573	-121	-17.5%
Scrap Metal	1,050	849	-200	-19.1%
Miscellaneous	37	33	-4	-11.1%
Subtotal	2,758	2,275	-484	-17.5%
Yard Waste & Organics				
Subtotal	28,918	31,084	2,167	7.5%
<hr/>				
Total Diverted	58,154	59,327	1,172	2.0%
<hr/>				
Household Solid Waste				
Cart collection (1-4 unit HHs)	174,822	163,913	-10,909	-6.2%
Dumpster service (>4 unit HH)	6,050	6,033	-18	-0.3%
Skid loader	4,747	3,971	-776	-16.3%
Clean & Green program	1,453	1,475	22	1.5%
Miscellaneous	1,873	1,882	10	0.5%
Subtotal	188,945	177,274	-11,671	-6.2%
Total Residential Solid Waste	247,100	236,601	-10,499	-4.2%

*Does not include 950 tons of concrete and 830 tons of asphalt shingles recycled in 2022 through the Drop Off Centers. The State of Wisconsin does not have these categories as residential in annual reporting.

4.3 Table 2: Residential Program Metrics

	<u>2021</u>	<u>2022</u>	<u>Change</u>
Effectiveness Measures			
Household Material Recycling Rate*	10.7%	11.0%	0.3%
Yard Waste Recycling Rate	11.7%	13.1%	1.4%
Other Materials Recycling Rate**	1.1%	1.0%	-0.2%
Total Recycling Rate	23.5%	25.1%	1.5%
Household Materials Recycling lbs. Per Household	283.16	277.70	-5.46
	<i>Percent change 2021 to 2022:</i>		-1.9%

Efficiency Measures - Household Recycling Only

Residential Recycling Program Costs (State rpt. method)	\$ 11,274,127	\$ 11,442,988	\$ 168,861
State Cost Sharing/Grant Revenue	\$ 2,321,264	\$ 2,313,413	\$ (7,852)
Recyclable Commodity Sales Revenue	\$ 2,087,442	\$ 1,773,946	\$ (313,495)
Avoided Landfill Disposal Costs	\$ 1,178,259	\$ 1,224,898	\$ 46,639
Subtotal of offsets	\$ 5,586,965	\$ 5,312,257	\$ (274,708)
Net Costs - Residential Recycling Program	\$ 5,687,162	\$ 6,130,731	\$ 443,569
Net Cost Per Ton - Res. Recycling Program	\$ 214.79	\$ 236.09	\$ 21.30

*The Comptroller's Office method of computing Household Solid Waste Tons includes garbage tons from the City's >4-unit multi-family dwelling customers, a sector not serviced by the City with recycling collection. Since the City does not have recycling tonnage figures for these customers serviced with recycling by the private sector, the resulting recycling rate is artificially low.

**Does not include 950 tons of concrete and 830 tons of asphalt shingles recycled in 2022 through the Drop Off Centers. The State of Wisconsin does not have these categories as residential in annual reporting.

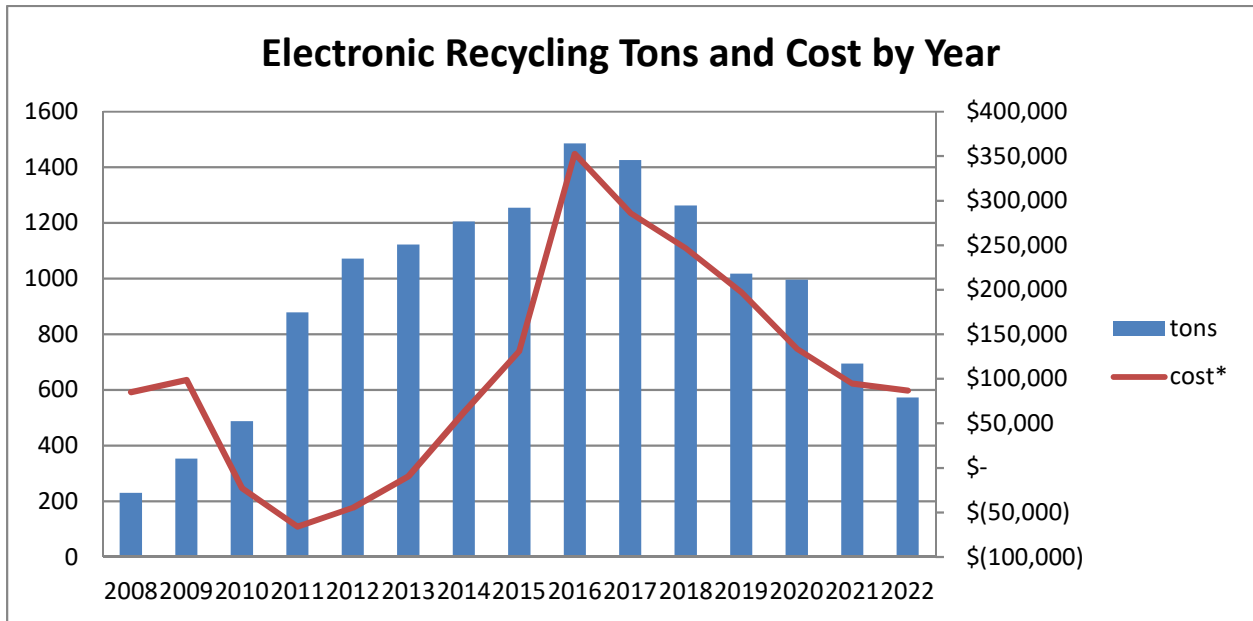
4.4 Table 3: Recyclables Processing Financials

This table relates to processing of residential recyclables after collection.
It does not include collection costs or recycling grant revenues.

	<u>2021</u>	<u>2022</u>	Change	% Change
Commodity Sales Revenue				
Revenue/Ton (Market Value)	\$ 125.59	\$ 130.57	\$ 4.98	4.0%
City's Share (Rev/T Received from Contractor)	\$ 78.86	\$ 72.88	\$ (5.98)	-7.6%
Total revenue to City	\$ 2,087,442	\$ 1,773,946	\$ (313,495)	-15.0%
Processing Costs				
Processing per ton rate	\$ 49.26	\$ 51.91	\$ 2.65	5.4%
Processing tons	26,015.88	25,967.73	-48.15	-0.2%
Processing costs	\$ 1,567,042	\$ 1,510,988	\$ (56,054)	-3.6%
Net Revenue				
Net revenue (received after processing)	\$ 520,400	\$ 262,959	\$ (257,441)	-49.5%
Net revenue per ton	\$ 20.00	\$ 10.13	\$ (9.88)	-49.4%
Avoided Disposal Costs				
Landfill costs per ton	\$ 45.29	\$ 47.17	\$ 1.88	4.2%
Landfill costs avoided	\$ 1,178,259	\$ 1,224,898	\$ 46,639	4.0%
Total Benefit				
Total Net benefit	\$ 1,698,659	\$ 1,487,857	\$ (210,803)	-12.4%
Total Net benefit per ton	\$ 65.29	\$ 57.30	\$ (8.00)	-12.2%

The net benefit figure compares total processing costs with recyclables revenue and avoided landfill disposal costs. In 2022, net benefits decreased due to lower market values for recycled materials.

4.5 Table 4: Electronics Recycling – Tons & Cost Per Year



*Negative numbers indicate revenues generated

4.6 Table 5: Electronics Recycling – Pounds Per Month

