

# 2019 DPW Annual Residential Recycling Report



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# Table of Contents

	Page
1	Introduction and Commentary.....1
2	Resource Recovery Program Results .....2
2.1	Recycling Results and Achievements.....2
2.1.1	Every-Other-Week Recycling Analysis.....2
2.2	Electronics Recycling .....3
2.3	Drop Off Center Recovery Programs .....3
2.3.1	Fee Schedule Implementation.....4
2.4	Organics Composting.....4
2.5	Compliance Enforcement.....5
3	Outreach: Education and Events .....6
3.1	Doors Open Milwaukee .....6
3.2	Recycling Education Classes .....6
3.3	New Composting Classes .....6
3.4	2019 Compost Bin & Rain Barrel Sale.....6
3.5	MRF Press Event .....7
3.6	Milwaukee Recycles Website.....7
3.7	Social Media .....8
3.8	Recycle for Good Fall Mailer .....8
4	Additional References .....10
4.1	Recycling Pounds Per Household.....11
4.2	Table 1: Residential Tons Collected.....12
4.3	Table 2: Residential Program Metrics .....13
4.4	Table 3: Recyclables Processing Financials .....14
4.5	Table 4: Electronics Recycling – Tons & Cost Per Year.....15
4.6	Table 5: Electronics Recycling – Pounds Per Month .....16

# 1 Introduction and Commentary

Turbulence in recycling markets chiefly due to international import restrictions and increased quality standards regarding contamination saw a continuing effect in 2019. Commodity prices fell lower as the market continues to adjust to these changes and domestic mills work to come online. The need to produce quality materials and lower contamination has led to increased processing costs at Materials Recovery Facilities around the nation. In 2019, the agreement between the City of Milwaukee and Republic Services was amended to reflect this new business model. While processing costs have increased, the amended contract ensures funding for educational efforts in the City.

The City of Milwaukee reaffirmed its commitment to producing high-quality recyclables and reducing landfill waste, employing a variety of learning opportunities for residents. Digital content was shared through an updated Milwaukee Recycles website as well as an increased social media presence through Facebook, Twitter, and NextDoor. A press event and media stories brought waste reduction education and reporting to residents online and over the air, while tours and in-person classes throughout the City met residents “on the ground”. In 2020, DPW looks forward to continuing creative educational opportunities and beginning preparations for an every other week recycling collection schedule for implementation City-wide in 2021.

*-Samantha Longshore, Resource Recovery Program Manager, DPW Operations Division*



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[MilwaukeeRecycles.com](http://MilwaukeeRecycles.com)

## 2 Resource Recovery Program Results

### 2.1 Recycling Results and Achievements



Materials Recovery Facility

Citywide in 2019, the Department of Public Works (DPW) collected just over 24,344 tons of residential recyclables, a decrease of 1,108 tons compared to 2018. With a flattening of the tons collected, Milwaukee residents have sustained a 10% increase in recycling tons and 12% increase on a pounds per household basis compared to the program's lowest tonnage year of 2009. The decrease in recycling tonnage collection in 2019 is chiefly due to inclement weather experienced early in the year, resulting in multiple snow operations in a short window and a tonnage reduction in January and February of 24% and 6% respectively.

Five-year average comparisons, 2014-2018 to 2019:

- Recycling tons ▼ 3.9%
- Recycling pounds per household ▼ 4.9%

Residents' participation in the household recycling program avoided over \$1,082,877 in landfill disposal costs in 2019 and earned over \$1 million in revenue from the sale of recyclables. Without including the cost of collection services, the City realized a savings of \$32.86 per ton of materials recycled instead of sent to a landfill. The net benefit per ton decreased primarily due to lower market rates and revenue. The MRF also saw an increase in residue entering the MRF through unaccepted materials being placed in residential recycling carts.

The City's residential landfill diversion rate was 27.56% in 2019, an increase of 1.8% over 2018. A major contributor to this landfill diversion rate was an increase in the tonnage gathered during fall leaf collection.

#### 2.1.1 Every-Other-Week Recycling Analysis

The Recycling Partnership, a non-profit focused on improving recycling infrastructure across the U.S., provided the City of Milwaukee with a grant for the purpose of analyzing capital and ongoing operational costs associated with implementing a City-wide every other week recycling schedule. The third-party consulting firm selected to perform the analysis compared the investment implications of achieving this schedule change through three scenarios: one-person crews, two-person crews, and an optimized hybrid of one-person and two or more person collection crews. City staff supported the consultant by providing ready access to information and data about the current system, including operational and maintenance costs, equipment,

routes, and allocated collection personnel. Interviews with collection drivers, supervisors, and managers provided direct feedback to assist the analysis. Finalized in the fall, the report provided recommendations for the most cost-efficient deployment of capital and operating investment to achieve this service improvement for consideration and approval in 2020. It established a goal of implementation in 2021.

## 2.2 Electronics Recycling

Over 2 million pounds of electronics were collected at Self-Help Drop Off Centers in 2019, the ninth full calendar year of the E-Cycle Wisconsin producer responsibility program that was created through state legislation in 2009 (see electronics recycling graphs on pages 15 and 16 of this report). This total represents a 19.4% decrease from 2018, the 3rd year of decreases after experiencing a decade of annual increases. This decrease remains contributed in large part to the expected, eventual decline of cathode ray tube (CRT) television sets brought to Drop Off Centers. 2019 collections translate to 3.4 pounds of electronics recycled per capita in the City of Milwaukee.



**Drop Off Center Staff Assists a Resident with Electronics**

## 2.3 Drop Off Center Recovery Programs

The two Drop Off Centers, located on Lincoln Ave. and Industrial Ave., 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 County residents only. Visits to the Drop Off Centers increased in 2019 to 248,871, translating to almost 900 visitors per day between each of the two locations. A third of the material managed through Drop Off Centers was diverted from landfills in 2019.

<p><b>Recycled</b></p> <ul style="list-style-type: none"> <li>• Antifreeze</li> <li>• Car batteries</li> <li>• Motor oil and filters</li> <li>• Tires (5 passenger tires per trip)</li> <li>• Appliances</li> <li>• Scrap Metal</li> <li>• Asphalt Shingles</li> <li>• Concrete</li> <li>• Electronics (3 TVs per trip)</li> <li>• Cooking oil</li> <li>• Shoes</li> <li>• Curbside recyclables</li> <li>• Large corrugated cardboard</li> </ul>	<p><b>Composted</b></p> <ul style="list-style-type: none"> <li>• Brush and branches</li> <li>• Grass clippings</li> <li>• Garden debris</li> <li>• Leaves</li> <li>• Logs</li> </ul> <hr/> <p><b>Landfilled</b></p> <ul style="list-style-type: none"> <li>• Construction and remodeling debris*</li> <li>• Old furniture and mattresses</li> <li>• Garbage</li> </ul> <p><small>*This material stream is routinely sent to a private construction &amp; demolition debris processing facility for recovery of a large portion and landfill disposal of rest.</small></p>
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### 2.3.1 Fee Schedule Implementation

Prior to September 3, 2019, the only charge for service was for construction debris, and small businesses and contractors were not allowed to use the centers. However, observations revealed that small contractors in non-labeled vehicles accounted for approximately 60%-70% of all visits to the Drop Off Centers. DPW researched alternative self-haul options available to small contractors such as those who routinely perform handy work and property cleanups. Regional landfills can involve long haul distances for those working in the city. The City’s Drop Off Centers provided an opportunity to increase service to the community in a fiscally responsible manner through a reinvented fee for service model.

The Common Council and Mayor passed an ordinance change in the spring of this year to allow access to the Drop Off sites by City residents and property owners, individuals and contractors, under a fee schedule. A new fee schedule was created and became effective September 3rd. It is based on load size, to provide access to both residents and small businesses such as contractors, handyman services, landscaping services, landlord maintenance services, etc. with an ability to recover associated operating costs while continuing to provide a safe, low-cost, disposal and recycling option in the community.

Residents still enjoy many of the same free services as they always have as passenger car loads or approximately 1 cubic yard of debris remains free. Less than 6 cubic yards of brush and curbside recyclable materials of any quantity also remain free. Two changes more likely to have an effect on non-business residents was the introduction of a recycling fee for tires (\$3 each) and televisions (\$5 each), but these prices remain below typical recycling fees at retail locations that accept these items and other regional municipal drop off centers.



The sign is a blue and white graphic with the City of Milwaukee logo at the top left. The title 'DROP OFF CENTER' is in large white letters on a blue background, with 'Fee Guide' below it in white on a dark blue background. The table lists various load types with icons and prices. At the bottom left is a yellow circular logo with 'STOP ILLEGAL DUMPING 286-CITY' and 'REPORT IT TO CITY RECYCLING'. At the bottom right is a disclaimer in small text.

Approximately 1 cubic yard (yd <sup>3</sup> )	Icon	Price
Passenger Car		Free
Approximately 1-3 yd <sup>3</sup>		\$20
Truck • Minivan • SUV		
Approximately 3-6 yd <sup>3</sup>		\$30
Small Trailer • Tall Truck		
Approximately 6-10 yd <sup>3</sup>		\$50
Large Trailer • Small Box Truck		
Approximately 10-18 yd <sup>3</sup>		\$90
Large Box Truck • Enclosed Trailer		
Brush (6 yd <sup>3</sup> +)		\$20
Less than 6 yd <sup>3</sup> free!		
Televisions		\$5 each
Maximum of 3		
Tires		\$3 each
Maximum of 5		

*All loads are priced separately. Load size is determined by staff and is non-negotiable. Staff reserves the right to deny access depending on load, vehicle type, or conduct.*

Drop Off Center Fee Guide Sign

### 2.4 Organics Composting

The organics collection pilot program collects food and yard waste in a 65-gallon brown cart by a private hauler that was selected through a competitive RFP process. The pilot program price has remained the same with residents paying \$12.75 per month to cover the cost of service. DPW provides a \$1 per-month participant credit to, in-part, recognize the cost savings from landfill diversion. DPW also covered the cost of the carts, education, and program recruitment.

In 2019, the third full calendar year of the program, 399,460 pounds of material were collected, an increase of 25,920 pounds from the previous year. The average pounds per household also increased from 780 to 785. The average set out rate was 75% (percentage of people placing their cart out for collection). In January 2019 there were 465 participating residents. In June through September, a total of 145 new participants were added to the program. The waiting list was

exhausted of those who resided in the pilot zones in early June and again in early August, showing that demand regenerated through word of mouth as additional residents were onboarded. In September, the program had a high of 577 participants.

**Yes! These items belong in the bin.**  
Food waste must be bagged in a paper bag.  
Remove all stickers, wrappings, twist ties, and other non-biodegradable items.

**Fruit and Vegetable Scraps**

- Cooked and raw
- Scraps or whole fruit
- Seeds and stems are OK

**Bread and Grains**

- Bread, including spoiled
- Rolls
- Cakes and sweet breads
- Pasta, cooked or raw
- Rice
- Grains

**Eggs, Protein, and Dairy**

- Eggs—cooked and raw
- Egg shells
- Cooked meat—NOT RAW
- Cooked seafood—NOT RAW
- Bones
- Cheese
- Nuts and Seeds

**Other Food Materials**

- Leftovers
- Spoiled Food
- Sauces are OK

**Beverages**

- Coffee grounds and filters
- Tea leaves and bags

**Yard Waste**

- Grass clippings
- Garden trimmings
- Weeds
- Diseased plants

**No! These items do NOT belong in the bin.**  
Compostable bags and compostable products are no longer accepted.

**Dangerous Waste**

- Diapers
- Animal carcasses
- Animal waste
- Cat litter, dog poop
- Medical Waste
- Hazardous Waste

**Packaging and Bags**

- Plastic bags & containers
- Twist ties
- Fruit stickers
- Aluminum foil
- Plastic wrap
- Compostable bags
- Compostable containers

**Other Items**

- Recyclables
- Ceramics
- Clothing
- Rocks

**Other Food Waste**

- Raw Meat
- Fats, Oil, and Grease
- Liquids

Accepted Materials List Updated Sept. 2019

In September, the pilot experienced some accepted material changes as the local compost processor began reaching capacity and finding it difficult to move final compost product that contained manufactured compostable items, like compostable bags and to-go packaging. Classified as solid waste, food scraps now needed to be bagged in paper bags with the removal of compostable bags from the accepted materials list. Education was distributed via email and posted on the website and a social media group for members on why the change was occurring and tips for paper bag use. October saw an increase in program cancellations, but this steadied through the end of 2019, closing the year with 543 participants.

In September, DPW began preparing a Request for Proposals (RFP) for distribution in 2020 with a goal of providing access to an organics collection service to all residents City-wide within five years. A third party consultant provided guidance on the RFP and draft contract language.

## 2.5 Compliance Enforcement

DPW sanitation inspectors conduct and the recycling office administers enforcement of the local recycling ordinances. These ordinances are required by Wisconsin state law requires these ordinances as well as the maintenance of a compliance enforcement plan. Throughout the enforcement process, education and guidance is offered to property owners to assist in the implementation and operation of recycling programs. Below is a summary of recycling enforcement activity by DPW in 2019.

Property Type	Written warnings	Citations	Fines and Late Fees
1-4 units residential	1274	740	\$25,000
5+ units residential	54	2	\$0
Non-residential (business)	12	1	\$0

### **3 Outreach: Education and Events**

#### **3.1 Doors Open Milwaukee**

For the fifth year, the Materials Recovery Facility (MRF) was a participating location in Doors Open Milwaukee. Over 570 visitors attended to learn about the City’s recycling program and tour the facility, including over 400 attendees that did not have a pre-booked tour. Five advance-ticketed tours of 34 guests allowed for a deeper tour of the MRF. All attendees viewed an introductory video inside the Keep Greater Milwaukee Beautiful space and those without a tour ticket learned more about the MRF from an elevated viewpoint in the education space inside the MRF.



**Doors Open Guided Tour**

#### **3.2 Recycling Education Classes**

Recycling education to schoolchildren remains a strong component of the recycling outreach program and is maintained by an ongoing partnership between DPW and Keep Greater Milwaukee Beautiful (KGMB). 41 schools in the City of Milwaukee participated in KGMB’s educational programs and tours of Milwaukee’s recycling facility (a 24% increase over 2018). 236 adults and 2,311 students attended classes and tours in 2019, more than double the amount of students in 2018.

#### **3.3 New Composting Classes**



**Composting Class at MPL Tippecanoe Branch**

DPW partnered with Keep Greater Milwaukee Beautiful and the Milwaukee Public Library (MPL) to host six free Introduction to Basic Backyard Composting classes. Classes were taught by KGMB staff and held at KGMB and five MPL branches over six weeks in July and August. The presentation explained what composting is, why it’s beneficial to compost, and how to get started,

with time for Q&A with a composting expert. Three of six class registrations hit maximum capacity prior to event start and a total of 116 residents attended. Classes were well received and plans for a second round of Basic Backyard Composting Classes as well as new, specialized composting presentations were planned for 2020.

#### **3.4 2019 Compost Bin & Rain Barrel Sale**

In 2019, DPW held its eighth compost bin and rain barrel sale to promote composting and rainwater harvesting at private residences. The sale was held at Estabrook Park on Saturday, June 1st. Compost bins and rain barrels were offered at significant savings from regular retail prices through this bulk purchase and sale.



**A Volunteer Creatively Braves the Rain**



In addition to compost bins and rain barrels, accessories like kitchen pail collectors, rodent screens, compost aerators, and an educational guide were available for purchase during the online preorder. The sale resulted in 214 compost bins and 116 rain barrels purchased, an increase from 108 compost bins and 74 rain barrels sold the previous year.

### 3.5 MRF Press Event



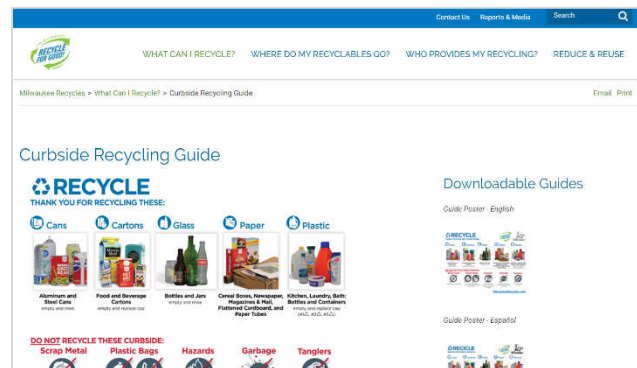
**Mayor Barrett Reiterates the City’s Commitment to Recycling**

In July 2019, the City of Milwaukee and Waukesha County hosted a press event at the recycling facility to urge residents to increase recycling rates and improve the quality of materials entering the facility by educating on how to “Recycle Right” in curbside carts and bins. City of Milwaukee Mayor Tom Barrett, Waukesha County Executive Paul Farrow, and Republic Services, Inc. Vice President of Recycling and Sustainability Pete Keller provided comment during the news conference. Mayor Tom Barrett spoke of the effects of international policy like China’s National Sword, how the City of Milwaukee was “doubling-down” on recycling efforts, how residents could help the industry and our MRF by following the accepted materials list, publicly-unveiled during the news conference.

The City of Milwaukee and Waukesha County partnered with The Recycling Partnership to create the updated accepted materials list, creating a consistent guide to share with all residents across the municipalities. After the news conference, media were invited to interview recycling experts and gather footage of the MRF in action.

### 3.6 Milwaukee Recycles Website

On the week of the MRF Press Conference, DPW also released its updated Milwaukee Recycles website. This site focuses on curbside recycling for City residents, but includes content around reduce and reuse strategies as well as resources for apartments and businesses.



**MilwaukeeRecycles.com Curbside Recycling Guide page**

All content was rebuilt on the newest webpage version, with a clean sweep of information and the addition of new content. New pages included Recycling Reminders which detail the how and why of recycling, a Refuse Challenge to help identify and eliminate single-use items from our routines, and Diversion Ideas for ways to continue a product’s useful life.

In 2019, MilwaukeeRecycles.com saw increased traffic with the homepage alone receiving 40,903 pageviews, an increase of 26.9% compared to 2018. Other top pages of interest included the Tour #TheMRF, schedule look-up, and paper recycling pages.

### 3.7 Social Media

The @MilwaukeeRecycles Facebook page had 1,351 followers as of December 31, 2019, an increase of 58% in 2019. Posts include education and tips on how to reduce, reuse, recycle, and compost, helpful resources, and special event advertising. Some of the highest reaching posts of 2019 included the following content:

1. Photo from MRF and post about the detriments of placing plastic bags in your curbside recycling cart – 63,432 lifetime reach to date
2. Photo from MRF and post about why it’s important to rinse your recyclables – 9,519 lifetime reach
3. Photo from MRF of what happens when shredded paper is placed in curbside carts (and not sealed in a brown paper bag) – 6,022 lifetime reach

Reach is most often increased when followers share Milwaukee Recycles content. A NextDoor account was created and managed by DPW Milwaukee to assist with targeted online messaging of guidance, events, and services for City of Milwaukee neighborhoods.



Highest Reaching Post of 2019

### 3.8 Recycle for Good Fall Mailer



2019 Fall Mailer Front Page

DPW’s annual Recycling and Waste Reduction fall mailer educates residents on recycling, confirms schedules for upcoming seasonal services, and provides resources for proper disposal of materials. The featured article reaffirmed the City’s commitment to recycling and described why it’s important to recycle and how residents can help the City’s MRF and the recycling industry as a whole by recycling accepted materials. It detailed why plastic bags and films are harmful to the MRF as well as encouragement for residents to follow two important steps before recycling: 1) Know Before You Throw; 2) When in Doubt, Throw it Out.

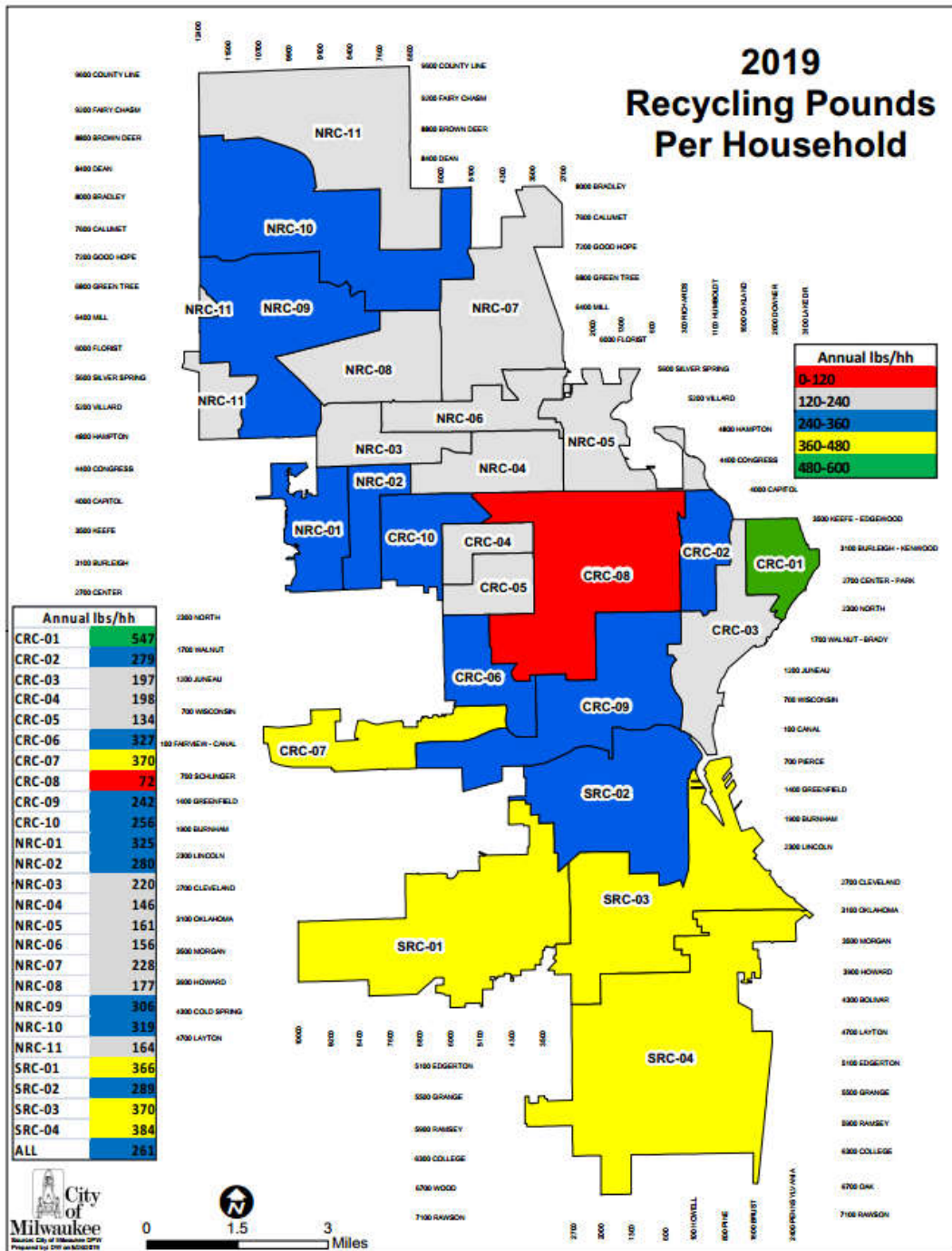
The main article reminded residents that a copy of the recycling guide was included on the last page of the mailer. As the updated recycling guide was publicly-released in July, the fall mailer,

which is sent to all 1-4 unit households, included a full size copy of the guide as a means to distribute it to all residents receiving City-provided curbside recycling service.

Accompanying articles described the Drop Off Center fee schedule implementation, the upcoming fall leaf collection, and ways to divert food waste at home. Additional content included a list of City holidays, disposal options for household hazardous waste, plastic bags and film, and electronics, and a new section titled Recycling Reminders detailing how's and why's of recycling. DPW's annual fall mailer is available online at [www.MilwaukeeRecycles.com](http://www.MilwaukeeRecycles.com) under the "Reports and Media" page.

## **4 Additional References**

# 4.1 Recycling Pounds Per Household



## 4.2 Table 1: Residential Tons Collected

	<u>2018</u>	<u>2019</u>	<u>Change</u>	
			<u>Tons</u>	<u>Percent</u>
<b>Recycling Materials - household</b>				
Combined Paper	10,853	10,553	-301	-2.8%
Corrugated Cardboard	4,405	3,199	-1,206	-27.4%
Aluminum Cans	254	238	-16	-6.5%
Steel Cans	622	462	-159	-25.6%
Scrap Metal	287	240	-47	-16.4%
Glass Containers	6,388	6,641	252	4.0%
Plastic Containers	2,641	3,011	370	14.0%
<b>Subtotal</b>	<b>25,452</b>	<b>24,344</b>	<b>-1,108</b>	<b>-4.4%</b>
<b>Recycling Materials - other residential*</b>				
Appliances with Refrigerants	165	167.18	2	1.3%
Lead Acid Batteries	13	12.35	-1	-5.0%
Waste Tires	920	808.96	-111	-12.1%
Waste Oil	142	127.7	-14	-10.1%
Electronics	1,262	1,018	-244	-19.4%
Scrap Metal	960	1,305	345	35.9%
Miscellaneous	48	40	-8	-17.4%
<b>Subtotal</b>	<b>3,510</b>	<b>3,478</b>	<b>-32</b>	<b>-0.9%</b>
<b>Yard Waste &amp; Organics</b>				
<b>Subtotal</b>	<b>33,272</b>	<b>40,158</b>	<b>6,886</b>	<b>20.7%</b>
<b>Total Diverted</b>	<b>62,234</b>	<b>67,980</b>	<b>5,747</b>	<b>9.2%</b>
<b>Household Solid Waste</b>				
Cart collection (1-4 unit HHs)	157,817	157,175	-642	-0.4%
Dumpster service (>4 unit HH)	12,438	12,271	-167	-1.3%
Skid loader	5,259	5,136	-123	-2.3%
Clean & Green program	1,630	1,622	-8	-0.5%
Miscellaneous	2,366	2,326	-40	-1.7%
<b>Subtotal</b>	<b>179,510</b>	<b>178,530</b>	<b>-980</b>	<b>-0.5%</b>
<b>Total Residential Solid Waste</b>	<b>241,743</b>	<b>246,510</b>	<b>4,767</b>	<b>2.0%</b>

\*Does not include 1,709 tons of concrete and 872 tons of asphalt shingles recycled in 2019 through the Drop Off Centers. The State of Wisconsin does not include these categories as residential in annual reporting.

### 4.3 Table 2: Residential Program Metrics

	<u>2018</u>	<u>2019</u>	<u>Change</u>
<b>Effectiveness Measures</b>			
Household Material Recycling Rate*	10.6%	9.9%	-0.7%
Yard Waste Recycling Rate	13.4%	16.3%	2.9%
Other Materials Recycling Rate**	1.5%	1.4%	-0.1%
Total Recycling Rate	25.4%	27.6%	2.1%
Household Materials Recycling lbs. Per Household	281.03	266.86	-14.17
	<i>Percent change 2018 to 2019:</i>		<b>-5.0%</b>

#### **Efficiency Measures - Household Recycling Only**

Residential Recycling Program Costs (State rpt. method)	<b>\$ 10,042,178</b>	<b>\$ 10,783,199</b>	<b>\$ 741,021</b>
State Cost Sharing/Grant Revenue	\$ 2,311,905	\$ 2,314,142	\$ 2,237
Recyclable Commodity Sales Revenue	\$ 1,336,225	\$ 1,010,013	\$ (326,212)
Avoided Landfill Disposal Costs	\$ 1,112,475	\$ 1,082,877	\$ (29,599)
<b>Subtotal of offsets</b>	<b>\$ 4,760,605</b>	<b>\$ 4,407,032</b>	<b>\$ (353,574)</b>
<b>Net Costs - Residential Recycling Program</b>	<b>\$ 5,281,573</b>	<b>\$ 6,376,167</b>	<b>\$ 1,094,595</b>
<b>Net Cost Per Ton - Res. Recycling Program</b>	<b>\$ 207.51</b>	<b>\$ 261.92</b>	<b>\$ 54.41</b>

\*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 1,385 tons of concrete and 556 tons of asphalt shingles recycled in 2018 through the Drop Off Centers. The State of Wisconsin does not include these categories as residential in annual reporting.

#### 4.4 Table 3: Recyclables Processing Financials

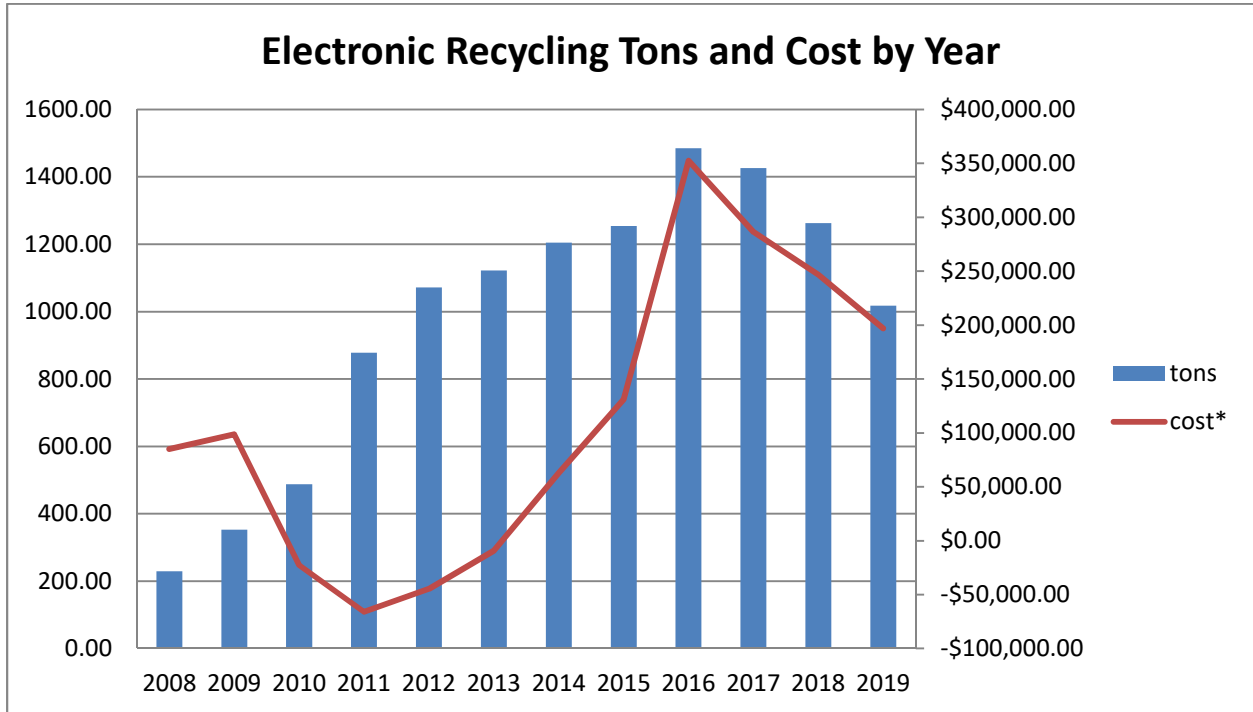
This table relates to processing of residential recyclables after collection.  
It does not include collection costs or recycling grant revenues.

	<u>2018</u>	<u>2019</u>	Change	% Change
<b>Commodity Sales Revenue</b>				
Revenue/Ton (Market Value)	\$ 78.49	\$ 63.77	\$ (14.72)	-18.8%
City's Share (Rev/T Received from Contractor)	52.49	41.44	(11.05)	-21.1%
<b>Total revenue to City</b>	<b>\$ 1,336,225</b>	<b>\$ 1,010,013</b>	<b>\$ (326,212)</b>	<b>-24.4%</b>
<b>Processing Costs</b>				
Processing per ton rate	\$ 38.20	\$ 50.00	\$ 11.80	30.9%
Processing tons	25,451.66	24,343.87	-1107.79	-4.4%
Processing costs	\$ 972,316	\$ 1,398,970	\$ 426,654	43.9%
<b>Net Revenue</b>				
Net revenue (received after processing)	\$ 363,909	\$ (388,957)	\$ (752,866)	-206.9%
<b>Net revenue per ton</b>	<b>\$ 14.30</b>	<b>\$ (15.98)</b>	<b>\$ (30.28)</b>	<b>-211.7%</b>
<b>Avoided Disposal Costs</b>				
Landfill costs per ton	\$ 43.71	\$ 44.48	\$ 0.77	1.8%
Landfill costs avoided	\$ 1,112,473	\$ 1,082,877	\$ (29,596)	-2.7%
<b>Total Benefit</b>				
Total Net benefit	\$ 1,476,382	\$ 693,920	\$ (782,462)	-53.0%
<b>Total Net benefit per ton</b>	<b>\$ 58.01</b>	<b>\$ 28.50</b>	<b>\$ (29.50)</b>	<b>-50.9%</b>

The net benefit figure compares total processing costs with recyclables revenue and avoided landfill disposal costs.  
In 2019, net benefits were lower due to depressed commodity prices.



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



\*Negative numbers indicate revenues generated

**4.6 Table 5: Electronics Recycling – Pounds Per Month**

