

2020 DPW Annual Residential Recycling Report



File 210501
Submitted July 09, 2021

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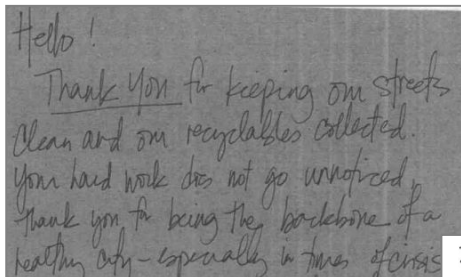
1 Introduction and Commentary

In the midst of Covid-19, the men and women of the City of Milwaukee Department of Public Works Sanitation Section continued to provide essential services for residents, including garbage and recycling collection for over 181,000 households. These vital roles became even more important as the effects of illness and child care needs provided unique challenges to maintaining services for the community. With these challenges came creative solutions.

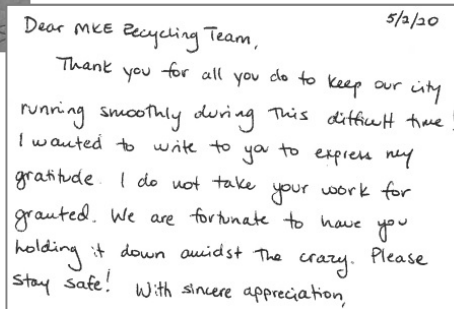
Infrastructure and Forestry team members joined in on daily routes, placing carts for Sanitation team members following in a collection vehicle. Working together, these Department team members ensured that households were served and that safe, social distancing could be implemented. The kind notes and signs placed near collection spots for team members to see are greatly appreciated and have lifted spirits during a difficult time.

Annual events such as the compost bin and rain barrel sale required reimagining as County Parks closed and restrictions on gatherings were in place. A new curbside sign-up system allowed residents to stay in their vehicles while staff members assisted with loading purchases on pick up day. With the elimination of in-person classes for students and adults, DPW Sanitation partnered with Keep Greater Milwaukee Beautiful to provide *Webinar Wednesdays*, a series that covered favorite topics such as “Meet the MRF” and “Basic Backyard Composting,” but introduced brand new content such as “Sustainable Summers” and “Electronic and Hazardous Waste Disposal.”

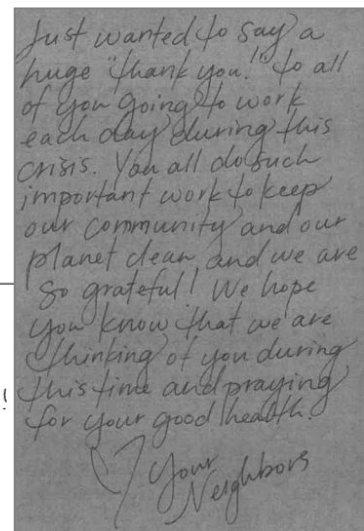
In 2021, DPW looks forward to implementing a universal every other week recycling collection schedule in carts and continuing its commitments to waste diversion, utilizing new ideas, skills, and strategies developed during the pandemic.



Hello!
Thank you for keeping our streets clean and our recyclables collected. Your hard work does not go unnoticed. Thank you for being the backbone of a healthy city - especially in times of crisis.



Dear MKE Recycling Team, 5/2/20
Thank you for all you do to keep our city running smoothly during this difficult time! I wanted to write to you to express my gratitude. I do not take your work for granted. We are fortunate to have you holding it down amidst the crazy. Please stay safe! With sincere appreciation,



Just wanted to say a huge "thank you!" to all of you going to work each day during this crisis. You all do such important work to keep our community and our planet clean and we are so grateful! We hope you know that we are thinking of you during this time and praying for your good health!
Your Neighbors

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

2 Resource Recovery Program Results

2.1 Recycling Results and Achievements

Citywide in 2020, the Department of Public Works (DPW) collected just over 26,502 tons of residential recyclables, an increase of 2,159 tons compared to 2019. Milwaukee residents have sustained an 11% increase in recycling tons and 2% increase on a pounds per household basis compared to the program's lowest tonnage year of 2009.

The increase in recycling tonnage collection in 2020 is chiefly due to stay at home orders and more remote work as a result of COVID-19. Compared to 2019, curbside recycling tonnages increased 7% in the 2nd quarter, 9.9% in the 3rd quarter, and 10.3% in the 4th quarter.

Five-year average comparisons, 2015-2019 to 2020:

- Recycling tons ▲ 5.4%
- Recycling pounds per household ▲ 4.8%

Residents' participation in the household recycling program avoided over \$1,189,447 in landfill disposal costs in 2020 and earned over \$1 million in revenue from the sale of recyclables. Commodity revenues began to increase in 2020 as COVID-19 created increased demand for raw materials with which to create packaging for food and online orders allowing for increased revenues from recyclable materials. Without including the cost of collection services, the City realized a savings of \$31.57 per ton of materials recycled instead of sent to a landfill.



Sanitation Team Members Receive a Resident's Thank You Sign

The City's residential landfill diversion rate was 24.98% in 2020, a decrease of 9.82% over 2019. Yard waste diversion tons dropped 17.7% in 2019 due to fewer services performed during the pandemic paired with a higher than average tonnage gathered during the fall leaf collection in 2019. Curbside garbage and recycling collection tonnages saw similar increases of 11% and 9% respectively compared to 2019. 24 of 25 recycling areas across the City increased their average recycling pounds per household (see 2020 Recycling Pounds Per Household map on page 15).

2.1.1 Holiday Collections Analysis Report

In 2020, DPW Sanitation began working with The Recycling Partnership to design educational mailers to be included in new cart packets and mailed to residents in 2021 as part of the every other week recycling collection program change. These educational pieces provided information on the new program, FAQs on the use of rolling carts, best practices for cart placement, and what should and should not be placed in recycling carts.

Supplementary to this effort, The Recycling Partnership provided the City of Milwaukee with an additional grant to analyze the City’s holiday collection schedule to determine the costs and benefits associated with service levels that may provide residents with a simpler collection schedule around holidays. The current holiday collection system shifts most route schedules whenever a collection date falls on a holiday. This current approach avoids the need for running make-up routes and overtime (OT) staff costs. However, the current system also results in most residents not having a consistent day of the week for collection. As a result, collection day can change as many as nine times throughout the year, and City residents must rely on the City-produced calendar and other online public education tools to know when recycling and garbage collections will occur. 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.

The third-party consulting firm selected to perform the analysis compared the investment implications of achieving this schedule change through three scenarios:

- Option 1: Four-Day Workweek – Four 10-hour days with one off day in the week to be used as a make-up day
- Option 2: One Light Day Per Week – Four 9-hour days and one 4-hour day to be used as a light collection make-up day
- Option 3: Holiday Make-Ups on Saturdays – Collections shifted by one day during the week and collection on Saturdays

As all options reflect the same number of make-up holidays per year (8), they each require 64 hours of overtime and have the same operations costs. Annual operating costs for Options 1, 2, and 3 are approximately \$12,918,000 per year which includes overtime operating wages of \$418,000 per year and overtime equipment costs of \$103,000 per year. It is estimated that the base (current state) has an annual cost of \$12,462,000 with \$65,000 in overtime operating costs.

Option Number	Option Name	Direct Wages per Year		Equipment Costs per Year		TOTAL	Difference from Base
		Regular	Overtime	Regular	Overtime		
Base	Current state	\$9,053,000	\$52,000	\$3,344,000	\$13,000	\$12,462,000	NA
Option 1	Four-Day Workweek	\$9,053,000	\$418,000	\$3,344,000	\$103,000	\$12,918,000	\$456,000
Option 2	One Light Day per Week	\$9,053,000	\$418,000	\$3,344,000	\$103,000	\$12,918,000	\$456,000
Option 3	Holiday Make-Ups on Saturdays	\$9,053,000	\$418,000	\$3,344,000	\$103,000	\$12,918,000	\$456,000

Prepared by: DFK
Checked by: EWV

This yields the result that options 1, 2, and 3 are \$456,000 higher in cost at approximately 3.7% more than the base (current state). The 2021 solid waste fee is \$241.56 per year per housing unit. The \$456,000 increase in costs in the system to implement one of the three alternative holiday schedules roughly equates to a 1% increase in the solid waste fee currently charged by the City of Milwaukee in 2021. This translates to an increase of approximately \$2.50 per household per year.

2.2 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. Annual visits to the Drop Off Centers increased by 12% in 2020 to 278,172 visits, translating to almost 1000 visitors per day between each of the two locations. 30 percent of the material managed through Drop Off Centers was diverted from landfills in 2020.

<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 <p><small>*This material stream is routinely sent to a private construction & demolition debris processing facility for recovery of a large portion and landfill disposal of rest.</small></p>
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2.2.1 COVID-19 Response

As our community began feeling the impacts of COVID-19 and lives, businesses, and services were disrupted, the City of Milwaukee Drop Off Centers kept the doors open. Fees were suspended in March of 2020 to minimize person-to-person contact and assist community members financially-impacted by COVID-19. Solid waste disposed of through the Drop Off Centers increased by 93% in 2020, with the majority of increases occurring during the months of fee suspension.

	2019	2020	% Change
Q1	4,276	8,291	94%
Q2	6,715	17,519	161%
Q3	7,845	17,703	126%
Q4	9,801	11,706	19%



Drop Off Attendant Helps Direct Residents

Drop Off Center attendants and supervisors remained in action throughout the developing health crisis, keeping the Centers operating and ensuring access for the City’s residents and property owners. Employees quickly adapted to new information and procedures established to protect their health and the health of those around them. Team members continued to verify residency and property ownership, inspect loads for safe disposal, and provide direction to visitors all while implementing social distancing. Visitors remained able to properly dispose of landfill items, a wide variety of recyclables, and yard waste for composting. Fees resumed on September 8th, 2020, though the fee for tires continued to be waived with a limit of five tires being accepted from one party.

2.3 Electronics Recycling

1.9 million pounds of electronics were collected at Drop Off Centers in 2020, the 10th 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 19 and 20 of this report). This total represents a 2.2% decrease from 2019, the 4th year of decreases after experiencing a decade of annual increases. This small decrease could indicate a leveling off of tons collected after several years of expected decline of cathode ray tube (CRT) television sets brought to Drop Off Centers. 2020 collections translate to 3.4 pounds of electronics recycled per capita in the City of Milwaukee, consistent with 2019.



Drop Off Center Staff Assists a Resident with Electronics

2.4 Organics Collection

2.4.1 RFP for a Source Separated Organics Collection and Processing Service

In February 2020, DPW released an RFP for a Source Separated Organics Collection and Processing Service with the purpose of expanding organics collection City-wide and providing equitable access to all 1-4 unit households by 2025. This service would provide an opportunity to participate in another form of organics diversion from landfill, complementing the tools of waste prevention, food donation, backyard composting, and in-sink disposer units. Four scenario groups were defined in the RFP which allowed for combining various service characteristics. The scenarios were as follows:

- Scenario 1 –Yard Waste Only, Haul to City Transfer Station
- Scenario 2 –Yard Waste Only, Haul to Third Party:
- Scenario 3 –Yard Waste with Food Waste, Haul to Third Party:
- Scenario 4 –Food Waste Only, Haul to Third Party:

Third party processors could include composting sites or anaerobic digesters. Scenario 1 allowed for a yard-waste only option utilizing the City’s existing transfer stations operated under contract by Waste Management. That contract provides in part for hauling and composting of yard waste, and the City would factor those contracted processing costs for any Scenario 1 proposals received. Respondents were encouraged to propose on multiple scenarios.

In the RFP, the current, pre-existing pilot zone would be the first with access to the city-wide program, with current subscribers given the opportunity to opt into a program if one was implemented as a result of the RFP process. The wait list remained open during the RFP process. At the time of RFP writing in Q4 2019, approximately 230 residents were on the interest list from a variety of pilot and non-pilot neighborhoods. The list would serve to gauge interest for growth as well as inform new marketing efforts to ensure City-wide expansion by year five.

Areas of the City to be onboarded in each year of the program would be developed as part of a contract negotiation. As part of their proposal, RFP respondents were to provide detail on which areas of the City beyond the pilot zone would be targeted for expansion through each year building to City-wide access by year five. Nine proposals were received from three companies. All proposals were considered complete and responsive and were reviewed over a two-phase evaluation process. This process included a one-month postponement to provide respondents with additional time to respond to evaluation questions during the initial months of the COVID 19 pandemic. Final scores were compiled and the evaluation committee recommended contract negotiations be pursued with the responsive, responsible vendor that scored the highest total on the evaluation criteria in May of 2020.

The City of Milwaukee Department of Public Works released a notice of intent to award and held three contract negotiation sessions. Ultimately, contract negotiations were unsuccessful and the RFP process concluded with no contract awarded. Proposals received were deemed unable to provide all of the desired criteria laid out in the scope of work in order to create an equitable, far-reaching program as illustrated through two primary concerns: cost-prohibitive subscription fees and limited regional capacity for food waste processing.

2.4.2 Organics Pilot Program Conclusion

In July 2020, as DPW continued RFP contract negotiation discussions, the pilot program's vendor notified the City of their intent to discontinue service in 30 days. With the RFP process nearing a conclusion of no contract awarded and the City unable to offer an immediate internal collection program, DPW negotiated with the program hauler to extend service and conclude the pilot program on September 30th, 2020. This date provided ample time for DPW to establish and communicate a transition plan for subscribers that would continue to support organics diversion as well as the local companies providing organics curbside collection services.

Communication to pilot subscribers released in early August 2020 addressed the RFP conclusion and sunset date for the pilot, as well as transition options residents could review over the last two months of the pilot program. These included options for several local curbside organics collection services, information about community composting, and resources for home composting.

For subscribers who wished to continue participating in a curbside organics collection service after the pilot conclusion, information was gathered from three local companies providing service in the pilot zone as well as to other Milwaukee neighborhoods. The provider list included Compost Crusader, Curby's Compost, and Waste Not. Compost Crusader provided collection in rolling carts while Curby's Compost and Waste Not provided collection in buckets.

For subscribers who wished to continue composting on their own, a variety of resources were outlined. These included information about where to purchase compost bins (including detail on DPW's annual compost bin sale) and Kompost Kids, a local organization that hosted two community compost drop off sites which are currently in transition. In addition, links were provided for two Keep Greater Milwaukee Beautiful backyard and small space composting webinars.

As the pilot program had gathered interest from other City of Milwaukee neighborhoods who were able to sign the waiting list, a similar communication as described above was also distributed via email to all residents who had signed the pilot program waiting list at the time of the announcement in early August. 490 subscribers remained at the time of program close on Sept. 30 2020 and all three service providers advertised reported an increase in subscription requests during the transition period. At the time of program close, over 60% of subscribers reported that they had subscribed to a curbside organics collection service.

2.4.2.1 Program Statistics and Recommendations

During the final nine months of the program in 2020, 340,294 pounds of material were collected with an average monthly pounds per household of 75.7. The average set out rate was 77% (percentage of people placing their cart out for collection). Over the course of the program which

began in November 2016, over 1.4 million pounds of food and yard waste was diverted from landfill.

Dependent on budget considerations, hauling options, and processing capacity developments, future phases of City organics services may once again combine food and yard waste or consist of new, stand-alone yard waste only and/or food waste only collection services. These distinct program options allow for the possible development of both traditional composting sites and anaerobic digestion facilities. With any collection and processing service that may develop, the City will also continue its education and promotion of food waste reduction strategies, in-sink garbage disposal use, and backyard composting.

2.5 Compliance Enforcement

The DPW recycling office conducts and 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 2020.

Property Type	Written warnings	Citations	Fines and Late Fees
1-4 units residential	825	539	\$14,280
5+ units residential	15	0	\$0
Non-residential (business)	0	0	\$0

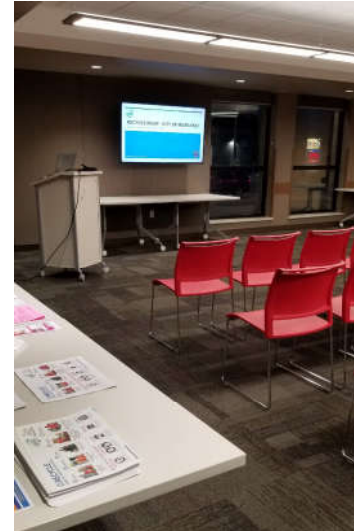
3 Outreach: Education and Events

3.1 In-person 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). Seven schools in the City of Milwaukee participated in KGMB’s educational programs and tours of Milwaukee’s recycling facility in the first quarter of 2020, prior to COVID-19 stay at home orders, including 34 adults and 404 students.

3.1.1 Green Home Series: Recycle for Good

On February 19, 2020, DPW Sanitation provided a Recycle for Good presentation at the Milwaukee Public Library Tippecanoe Branch as part of their ongoing Green Home Series. The presentation has the goal of helping residents up their recycling game by answering such questions as “why is wishcycling worse than recycling right?” and “why are recyclables easier to sort when they’re in their original shape and size?”



Green Homes Series: Recycle For Good Presentation

3.2 Virtual Presentations

3.2.1 Composting Classes and Webinar Wednesdays

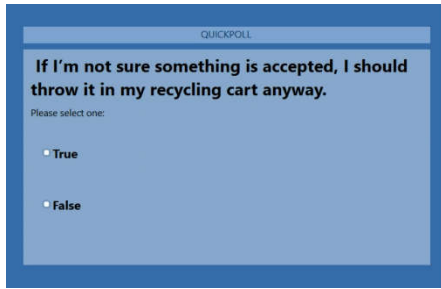
In 2019, DPW partnered with Keep Greater Milwaukee Beautiful and the Milwaukee Public Library (MPL) to host six free Introduction to Basic Backyard Composting classes. Classes were taught by KGMB staff and held at KGMB and five MPL. Due to popular demand, a second round of Introduction to Basic Backyard Composting classes were scheduled for March-April at six new library locations. In addition, a new Small Space Composting class was planned for introduction in the summer.

With the elimination of in-person classes for students and adults during COVID-19, DPW Sanitation partnered with Keep Greater Milwaukee Beautiful to provide [Webinar Wednesdays](#), a multi-part series hosted by KGMB that covered favorite topics such as “Know What to Throw: Recycling Do’s and Don’ts” and “Basic Backyard Composting,” and introduced brand new content such as “Sustainable Summers” and “Electronic and Hazardous Waste Disposal.” Webinars were held approximately every two weeks from April through October. Webinars were recorded and links to each class are available at www.KGMB.org/webinars for viewing on YouTube.



“Small Space Composting: A City-Dwellers Guide to Food Waste”

3.2.2 Milwaukee Public Library Earth Day Webinar

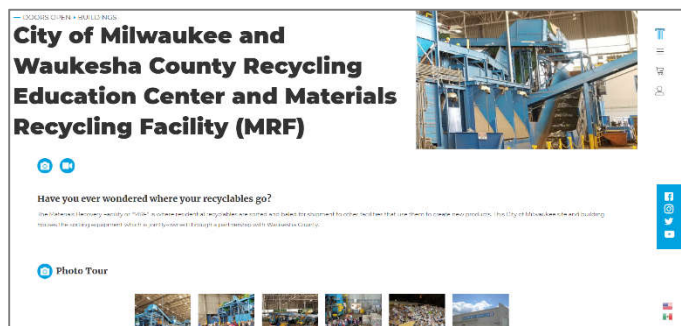


Polling During the MPL and DPW Recycle for Good Earth Day Webinar

DPW Sanitation collaborated with the Milwaukee Public Library as MPL worked to continue library programming in a virtual environment and add new virtual programming on various topics. On Earth Day 2020, Sanitation provided a Recycle for Good webinar for 55 attendees. Information about recycling markets, the detriments of wish-cycling, accepted and non-accepted materials, and recycling best practices were covered. Attendees were presented with polling questions throughout the presentation and a Q&A session followed at the conclusion.

3.3 Doors Open Milwaukee

For the sixth year, the Materials Recovery Facility (MRF) was a participating location in Doors Open Milwaukee. Due to COVID-19, Historic Milwaukee, Inc. created a virtual format for their 2020 event. Virtual visitors could learn more about the MRF, view photos of the MRF exterior, sorting equipment, past tours, and the tip floor. Visitors could also watch an embedded video called “What Happens to My Recyclables: The Recycling Journey” which walks viewers through the recycling process from collection, to sorting at the MRF, recycling at mills, and the eventual restocking of shelves with products created from recycled content.



Doors Open Virtual Tour of Materials Recovery Facility

3.4 2020 Compost Bin & Rain Barrel Sale

In 2020, DPW held its ninth compost bin and rain barrel sale to promote composting and rainwater harvesting at private residences. Due to County Parks closures and restrictions on gatherings, the 2020 Compost Bin Sale was postponed from May until June and hosted at Keep Greater Milwaukee Beautiful. DPW Sanitation utilized SignUp.com to allow residents to schedule a timeslot to pick up their orders. Previous events allowed residents to show up at any time during set hours. Residents remained in their vehicles while Sanitation and Keep Greater Milwaukee Beautiful staff assisted with loading their orders in to their vehicles. While this arrangement required two days of collection pick-ups, it ensured that residents could safely receive their pre-orders without gathering in large numbers.



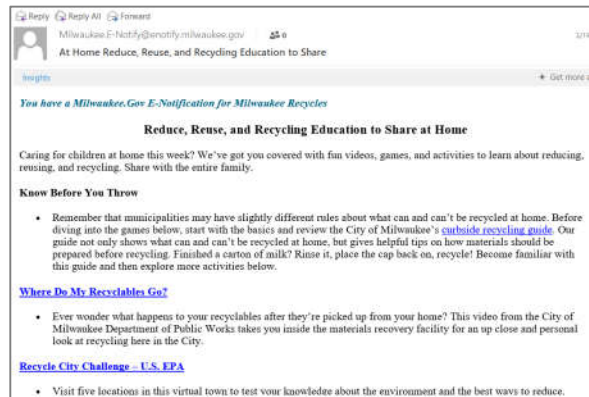
Compost Bin and Rain Barrel Pre-Orders

Compost bins and rain barrels were offered at significant savings from regular retail prices through this bulk purchase and sale. The 2020 sale allowed for the purchase of compost bin kits that included combinations of composting accessories such as kitchen pail collectors, rodent screens, compost aerators, and educational guides. The sale resulted in 238 compost bins and 168 rain barrels purchased, an increase from 76 compost bins and 68 rain barrels sold in 2019. In the follow up survey, 45% of respondents said they were planning to start composting for the first time.

3.5 E-notify and Press Releases

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

- Reduce, Reuse, and Recycle this Super Bowl Sunday!
- Show the Planet a Little Love this Valentine’s Day
- At Home Reduce, Reuse, and Recycle Education to Share
- Recycling While Social Distancing – How to Commit to Sustainability at Home
- City of Milwaukee Department of Public Works Invites Residents to Upcoming Recycling and Composting Webinars
- Celebrate 50th Anniversary of Earth Day with Fun Resources
- Memorial Day Spring Cleaning: Donating, Recycling, Composting, and Trash – What’s the Difference?
- Wishing You a Happy 4th of July & Tips for Tanglers
- Five Ways to Reduce Your Waste
- Celebrating America Recycles Day
- Holiday Packaging and Wrapping: Which Bin Do They Belong In?



E-Notify on Educational Activities For Children During Safer at Home

3.6 Milwaukee Recycles Website and Social Media

In 2020, MilwaukeeRecycles.com continued to see increased traffic with the homepage alone receiving 40,903 page views, an increase of 49% compared to 2019. Other top pages of interest included the schedule and set out information page, the recycling directory page which provides guidance on how to safely dispose of unique items, and the curbside recycling guide page.

Followers of the @MKERecycles Twitter page increased by 67% in 2020, with annual post impressions and visits increasing 33% and 2,951% respectively. The @MilwaukeeRecycles Facebook page had 1,687 followers as of December 31, 2020, an increase of 25% in 2020.

Posts include education and tips on how to reduce, reuse, recycle, and compost, helpful resources, service reminders, and special event advertising. Some of the highest reaching posts of 2020 included a boosted post advertising the compost bin sale (16,400 lifetime reach to date), a post about where loose caps go to die at the MRF (9,100 reach), a look at how flattened containers can sneak into paper bales and become contaminants (5,000 reach), information on how to compost your holiday trees (3,700 reach), and a version of the Left Exit 12 Off Ramp meme from the ongoing #FridayFun Friends Don't Let Friends Bag Their Recyclables campaign (3,400 reach).



A Fun, Friday Reminder to Keep Recyclables Loose in the Cart

3.7 Recycle for Good Fall Mailer

Recycle for Good!
KEEPING MILWAUKEE CLEAN & GREEN

City of Milwaukee Receives Grant to Implement Every Other Week Recycling Schedule in 2021

On March 24th, 2020, the City of Milwaukee Common Council approved a resolution for the Department of Public Works to accept over \$1.1 million in grant funding from The Recycling Partnership to implement a service improvement of every other week recycling collection across the City beginning in 2021. The resolution was signed by Mayor Tom Barrett on April 2nd, 2020.

recovery of resources and sustainable materials management, furthering the City's goal of increased landfill diversion. The improved service schedule will also help address rising demand for increased curbside recycling, reducing the need for a 2nd recycling cart or bringing overflow curbside recyclables to a City Drop Off Center.

Grant Funding and Partners
The grant was supplemented with a special plastic resin and monetary donation from Dow, along with support from PepsiCo. The Partnership is proud to partner with Milwaukee on curbside recycling in order to expand access to recycling for residents, collect more quality recyclables, and help residents know what to throw into their recycling. Jill Martin, Director of Community Programs for The Recycling Partnership.

18,600 carts to be delivered to residents in current "small tie" areas

How You Can Help
The City of Milwaukee is pleased to

items in the recycling bin with hope it will be recycled, also known as "wishcycling," can be harmful to not only staff and recycling equipment in our facility, but to the industry as a whole. Some items that cannot be recycled in curbside carts include plastic-bagged recyclables, loose plastic bags and film, food waste, Styrofoam, propane tanks, batteries, and clothing.

items that can be recycled curbside are glass bottles and jars, aluminum and steel cans, food and beverage cartons, paper products (including newspapers and flattened cardboard), and empty #1, #2, and #5 plastic bottles and containers. To help limit contamination, food and drink containers should be rinsed before placing them into the recycling cart. Recyclables should always be emptied loose into the

2020 Fall Mailer Front Page

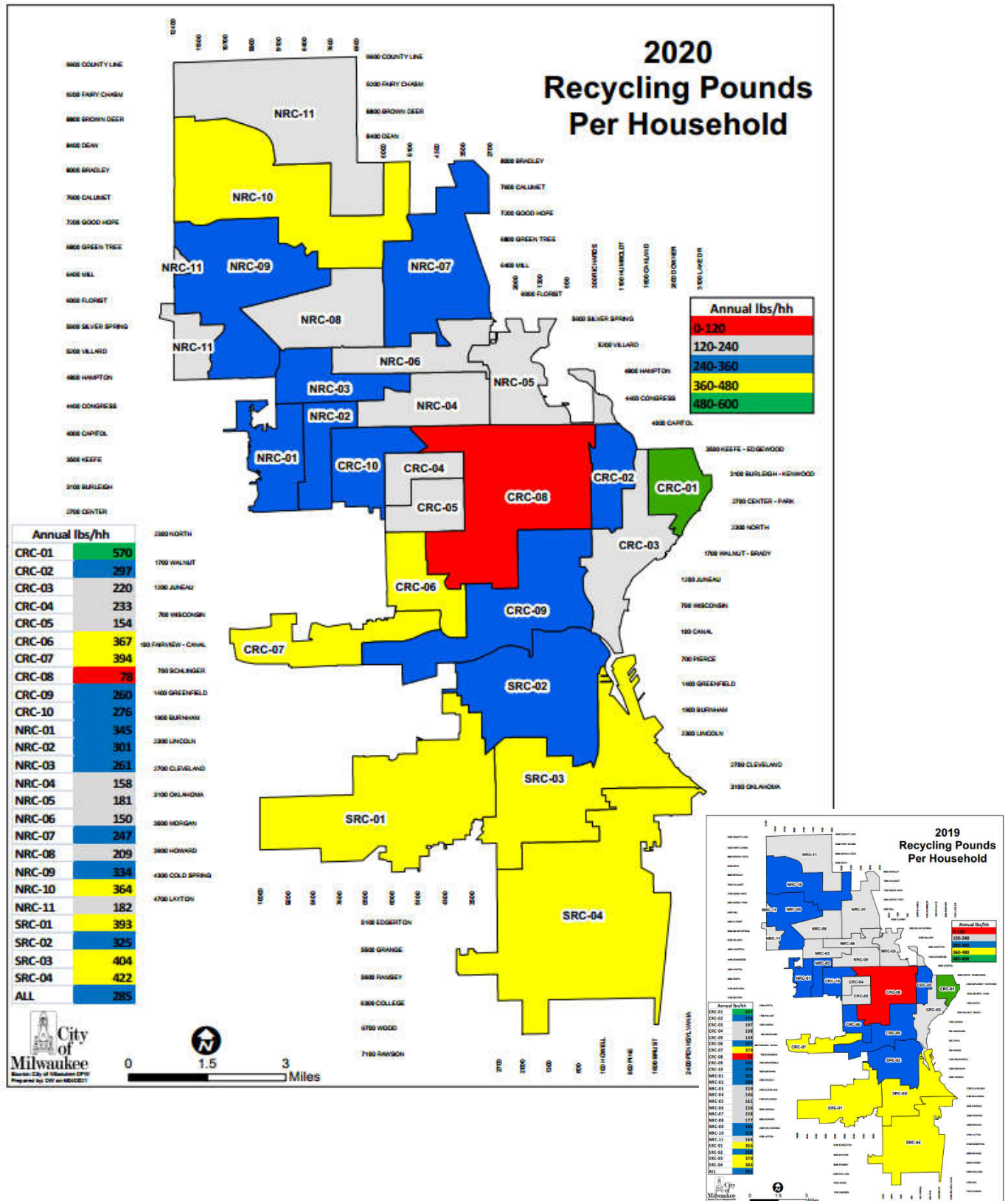
DPW's annual Recycling and Waste Reduction fall mailer educates residents on recycling, confirms schedules for upcoming seasonal services, and provides resources for proper disposal of materials. The featured article detailed the City of Milwaukee plans to implement a city-wide every other week recycling collection schedule in 2021. The article detailed the \$1.1 million dollars in grant funding the City received from national non-profit The Recycling Partnership which would assist with education and outreach and the procurement of over 18,600 new recycling carts for distribution in the recycling route that was currently receiving weekly collection in 18-gallon bins.

The article also provided residents with tips on how to support a strong recycling program by Knowing Before You Throw and When in Doubt, Throw it Out to help ensure that non-recyclable materials don't end up in recycling carts through the process of "wish-cycling." A list of top contaminants, the approved materials for recycling, and a reminder to keep recyclables loose in the cart were included.

Accompanying articles included "City of Milwaukee DPW Keeps Services Running During COVID-19," "Organics Program Update," and "Friends Don't Let Friends Bag Their Recyclables." The latter article described the need for recyclables to be loose in the cart, for plastic bags and films to stay out of recycling carts and be taken to retail drop off locations, and how COVID-19 may be affecting current drop off locations. Additional content included a list of City holidays, disposal options for household hazardous waste, plastic bags and film, and electronics, and a section titled Recycling Reminders detailing some of the how's and why's of recycling. DPW's annual fall mailer is available online at www.Milwaukee.gov/RecycleReports.

4 Additional References

4.1 Recycling Pounds Per Household



4.2 Table 1: Residential Tons Collected

	<u>2019</u>	<u>2020</u>	<u>Change</u>	
			<u>Tons</u>	<u>Percent</u>
Recycling Materials - household				
Combined Paper	10,553	11,530	977	9.3%
Corrugated Cardboard	3,199	5,353	2,153	67.3%
Aluminum Cans	238	442	204	85.8%
Steel Cans	462	604	142	30.7%
Scrap Metal	240	263	23	9.4%
Glass Containers	6,641	4,891	-1,749	-26.3%
Plastic Containers	3,011	3,024	13	0.4%
Subtotal	24,344	26,107	1,763	7.2%
Recycling Materials - other residential*				
Appliances with Refrigerants	167	181	14	8.3%
Lead Acid Batteries	12	29	17	135.3%
Waste Tires	809	701	-108	-13.3%
Waste Oil	128	152	24	18.9%
Electronics	1018	996	-22	-2.2%
Scrap Metal	1305	1235	-70	-5.3%
Miscellaneous	40	35	-5	-11.9%
Subtotal	3,478	3,329	-149	-4.3%
Yard Waste & Organics				
Subtotal	40,158	33,033	-7,126	-17.7%
Total Diverted	67,980	62,468	-5,512	-8.1%
Household Solid Waste				
Cart collection (1-4 unit HHs)	157,175	174,825	17,650	11.2%
Dumpster service (>4 unit HH)	12,271	6,178	-6,093	-49.7%
Skid loader	5,136	5,418	281	5.5%
Clean & Green program	1,622	0	-1,622	-100.0%
Miscellaneous	2,326	2,139	-188	-8.1%
Subtotal	178,530	188,559	10,029	5.6%
Total Residential Solid Waste	246,510	251,027	4,517	1.8%

*Does not include 2,478 tons of concrete and 892 tons of asphalt shingles recycled in 2020 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>2019</u>	<u>2020</u>	<u>Change</u>
Effectiveness Measures			
Household Material Recycling Rate*	10.2%	10.4%	0.2%
Yard Waste Recycling Rate	13.5%	13.2%	-0.4%
Other Materials Recycling Rate**	1.5%	1.3%	-0.2%
Total Recycling Rate	25.2%	24.9%	-0.3%
Household Materials Recycling lbs. Per Household	266.86	287.03	20.17
	<i>Percent change 2019 to 2020:</i>		7.6%

Efficiency Measures - Household Recycling Only

Residential Recycling Program Costs (State rpt. method)	\$ 10,783,199	\$ 10,546,217	\$ (236,983)
State Cost Sharing/Grant Revenue	\$ 2,314,142	\$ 2,311,455	\$ (2,686)
Recyclable Commodity Sales Revenue	\$ 1,010,013	\$ 1,024,906	\$ 14,893
Avoided Landfill Disposal Costs	\$ 1,082,877	\$ 1,189,447	\$ 106,571
Subtotal of offsets	\$ 4,407,032	\$ 4,525,809	\$ 118,777
Net Costs - Residential Recycling Program	\$ 6,376,167	\$ 6,020,408	\$ (355,760)
Net Cost Per Ton - Res. Recycling Program	\$ 261.92	\$ 230.61	\$ (31.31)

*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 2,478 tons of concrete and 892 tons of asphalt shingles recycled in 2020 through the Drop Off Centers. The State of Wisconsin does not include these categories as residential in annual reporting.

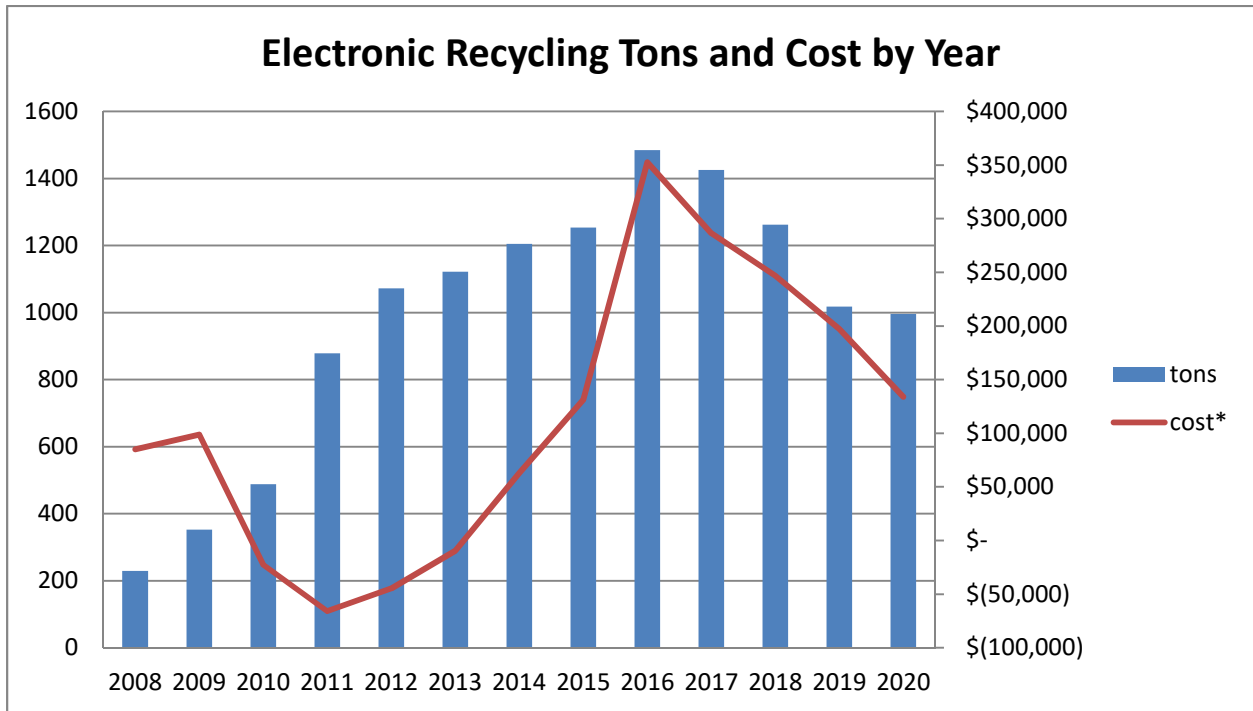
4.4 Table 3: Recyclables Processing Financials

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

	<u>2019</u>	<u>2020</u>	<u>Change</u>	<u>% Change</u>
Commodity Sales Revenue				
Revenue/Ton (Market Value)	\$ 63.77	\$ 66.62	\$ 2.85	4.5%
City's Share (Rev/T Received from Contractor)	41.44	\$ 43.22	\$ 1.78	4.3%
Total revenue to City	\$ 1,010,013	\$ 1,024,906	\$ 14,893	1.5%
Processing Costs				
Processing per ton rate	\$ 50.00	\$ 50.18	\$ 0.17	0.3%
Processing tons	24,343.87	26,106.64	1762.77	7.2%
Processing costs	\$ 1,398,970	\$ 1,498,523	\$ 99,554	7.1%
Net Revenue				
Net revenue (received after processing)	\$ (388,957)	\$ (473,617)	\$ (84,660)	21.8%
Net revenue per ton	\$ (15.98)	\$ (18.14)	\$ (2.16)	13.5%
Avoided Disposal Costs				
Landfill costs per ton	\$ 44.48	\$ 45.56	\$ 1.08	2.4%
Landfill costs avoided	\$ 1,082,877	\$ 1,189,447	\$ 106,571	9.8%
Total Benefit				
Total Net benefit	\$ 693,920	\$ 715,830	\$ 21,910	3.2%
Total Net benefit per ton	\$ 28.50	\$ 27.42	\$ (1.09)	-3.8%

The net benefit figure compares total processing costs with recyclables revenue and avoided landfill disposal costs. In 2020, net benefits were lower due to increasing processing and landfill fees.

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



*Negative numbers indicate revenues generated

4.6 Table 5: Electronics Recycling – Pounds Per Month

