2016 DPW Annual Residential Recycling Report

Submitted July 19, 2017

Introduction and Commentary

For the 7th consecutive year, Milwaukee residents increased recycling pounds per household with the rate having climbed 21.0% since the curbside collection program's low year of 2009. Recyclables collected at the drop off centers increased as well in 2016. The overall landfill diversion rate was brought down a percent over the year prior. This was due in large part to a significant reduction in leaf tonnage. The mild, relatively dry fall of 2016 yielded 3,600 fewer tons of leaves collected by DPW.

The City's share of revenue from household recyclables was $1.7 million in 2016. This revenue figure was two percent above the 5-year average while representing a year over year increase of 27% versus 2015. It was a steady recovery in pricing for the paper fiber grades that led the increase in value of the overall basket mix of curbside recyclables. Revenue share from sale of recyclables, State of Wisconsin local cost-share aid, and avoided disposal savings help offset the cost of providing household recycling collection service to around 180,000 households.

In the spring of 2016, the City of Milwaukee and Waukesha County marked the one year anniversary of operations of the joint Materials Recovery Facility (MRF). The MRF has been operated by ReCommunity Recycling since the facility's retrofit to single stream processing was completed in March of 2015. The City and County continue their intergovernmental collaboration providing joint governance of the MRF and oversight of the private operator.

-Rick Meyers, Sanitation Services Manager, DPW Operations Division

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Resource Recovery Program Report—2016

Recycling Results and Achievements

- Citywide in 2016, DPW collected 25,326 tons of residential recyclables. The number is about the same as the two previous years. With a flattening of the tons collected, **Milwaukee residents have sustained a 14% increase in recycling tons and 21% increase on a pounds per household basis** compared to the program's lowest tonnage year of 2009.

- Five-year results and comparisons from 2011-2016:
  - Recycling tons ↑11%
  - Recycling pounds per household ↑13%

- Residents' participation in the household recycling program **avoided over $1,091,000 in landfill disposal costs** in 2016 and **earned $1.71 million in revenue** from the sale of recyclables. Without including the cost of collection services, the City realized a savings of over $74 per ton of materials recycled instead of sent to a landfill.

40 BY 2020

40% DIVERSION OF SOLID WASTE BY 2020

- The City's residential landfill diversion rate was 24.6% in 2016, equal to the 5-year average. Despite a 2.7% increase in recyclables collected through the combination of curbside and drop off programs, there was a decrease in the diversion rate of 1 percentage point over 2015. The decrease was attributed to yard waste and was most significantly led by a 22% decrease in leaf tonnage.

Aggressive Resource Recovery Programs at Drop Off Centers

- **Nearly 40% of the material managed through the Drop Off Centers was diverted from landfills in 2016.** The drop-off facilities allow residents to recycle, compost, or safely dispose of over a dozen material categories.

Recycled	Composted
• Antifreeze • Car batteries • Motor oil and filters • Tires (up to 5 passenger tires per trip) • Appliances • Scrap Metal • Asphalt Shingles • Concrete • Electronics • Cooking oil • Shoes • Curbside recyclables	• Brush and branches • Grass clippings • Garden debris • Leaves • Logs **Landfilled** • Construction and remodeling debris* • Old furniture • Garbage *This material stream is routinely sent to a private Construction & Demolition debris processing facility for recovery of a large portion of it and landfill disposal of rest.

- **Over 2.9 million pounds of electronics** were collected at Self-Help Drop Off Centers in 2016, the sixth full calendar year of the *E-Cycle Wisconsin* producer responsibility program that was created through state legislation in 2009. (See graph of e-scrap recycled 2008 – 2016, page 9.) Continuing an annual rise in recent years, 2016 collections translate to 5.0 pounds of electronics recycled per capita in the City of Milwaukee.

- Once considered merely "City dumps," over the years DPW has diversified the Drop Off Centers to expand recycling services and to make these sites into functioning resource recovery parks.

Organics Composting

- A pilot program began **collecting food and yard waste from 500 participating residents in November of 2016**. Items are collected in a 65-gallon brown cart by a private hauler that was selected through a competitive RFP process.
- 100 residents were needed to begin the pilot, and this threshold was met in less than 24 hours. The maximum number of 500 residents was enrolled in 8 days.
- Residents pay a $12.75 fee 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.

- With only 8 weeks of service in 2016, **31,480 pounds** of material was collected.

Compliance Enforcement

Enforcement of local recycling ordinances is conducted by DPW and its Sanitation Inspectors and administered by the recycling office. These ordinances are required by Wisconsin state law as is maintaining and carrying out a plan to ensure compliance. Throughout the compliance enforcement process, education and guidance is offered to property owners to assist them in the implementation of recycling programs. Below is a summary of recycling enforcement activity by DPW in 2016.

Property Type	Written warnings	Citations	Fine amount
1-4 units residential	12500	893	$25,035.00
5+ units residential	6	0	$0
Non-residential (business)	4	1	$92.20

104 of the citations issued to 1-4 unit residential properties for contaminated carts were for second or subsequent offenses.

Education, Outreach and *Recycle For Good* - 2016 Campaign Update

2016 Neighborhood Campaigns – Recycling Outreach

Since the beginning of the *Recycle For Good* campaign, **DPW has visited over 20,000 households in Milwaukee neighborhoods** to provide recycling education directly to residents. In 2016, grassroots outreach continued and **targeted 2,200 households**. The department worked with youth interns participating in the City of Milwaukee's summer "Earn and Learn" program. Interns participating in this program were educated on the City's recycling program and trained on outreach techniques. Interns conducted door-to-door canvassing in targeted areas of the city. Each year, outreach efforts are designed to reach residents using personal contact. Rather than simply dropping off literature, interns knocked on doors and spoke with residents if they were at home. During the summer of 2016, interns had direct contact with residents at 560 households and spoke with them about recycling, asked for commitments to increase participation, and left behind information on the City's curbside recycling program. Residents were also reminded not to place plastic bags and film in curbside recycling carts, but to take them back to participating retailers and grocers to be recycled.

Community Education Initiatives

- Recycling education to schoolchildren remains a strong component of the recycling outreach program. An ongoing partnership between DPW and Keep Greater Milwaukee Beautiful continues to provide educational programming, tours, and activities each year.
  - **1,584 students** from 30 different schools and **768 adults** participated in educational programs and tours of Milwaukee's recycling facilities.
  - As a part of the upgrading done to the Materials Recovery Facility in 2014 and 2015, educational spaces were remodeled this year to provide a better learning environment for guests. The observation room includes diagrams of different equipment found in the MRF and the educational spaces at Keep Greater Milwaukee Beautiful include information on the recycling process, waste reduction, and composting.

- For the second year the Materials Recovery Facility was a participating location in Doors Open Milwaukee. Over 500 visitors learned about the City's recycling program and toured the facility.

  - DPW utilized its annual Waste Reduction and Recycling fall mailer to educate residents on the City's Single-Sort recycling program and encourage everyone to make sure they are recycling the correct items.
    - The feature recycling article highlighted ways to reduce and compost food waste and briefly highlighted the Organics Collection Pilot.
    - The mailer included detailed recycling guidelines, information on the "Dirty Dozen", and a "How Do I" section providing information on how to properly prepare recyclables for collection.
    - Information was included on the following non-curbside collected materials: plastic film and bags for recycling at retail collection sites, hazardous waste, and Drop Off Center information

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Recycling and Waste Reduction

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FOOD WASTE

40 BY 2020

40% DIVERSION OF SOLID WASTE BY 2020

Many Milwaukee residents are familiar with the traditional three R's – Reduce, Reuse, and Recycle. Even once paper, bottles, and cans are sorted into the recycling cart, there is still garbage going to the landfill. Food waste is the largest waste category and makes up 21% of our garbage.

The Mayor has a goal of 40 x 2020 – to achieve an annual 40% landfill diversion rate by 2020. Tackling food waste will help us achieve this goal! It is important to increase our landfill diversion because it saves natural resources, money, and landfill space.

There are now 6 R's as we think about waste issues in this new way – Rethink, Refuse, Reduce, Reuse, Recycle, and Rot. Looking at food through these 6 R's gives us lots of ideas of how to waste less and save more!

Rethink. The average meal travels 1,500 miles from farm to plate. A huge amount of natural resources, energy, money, and human effort go into this journey. Even after all of this effort, some food goes to waste. An important step to tackling this issue is to think about food as a resource and commit to reducing what is wasted! For example, scarred

Because what you have isn't waste

rganics Recycling

- Seasonal information included year-round garbage cart set out and winter recycling collection, Project Clean & Green, and information on fall leaf collection.
- To access DPW's annual fall mailers, please visit www.MilwaukeeRecycles.com and go to the "Media Room" under "Learn More".

Recycle For Good – 2016 Campaign Update

The citywide *Recycle For Good* (RFG) promotional campaign was essentially paused again in 2016 due to a lack of dedicated funding. Nevertheless, its website and social media presence, limited print materials, and display booth at public events continued to raise awareness of DPW's recycling program and promote the benefits of recycling. Since the launch of the campaign in 2008, it has focused resources both on targeted underperforming recycling areas as well as the city at large. Over the years, the RFG campaign has followed a multi-media strategy that has utilized, among other things: print, online, radio and outdoor graphics installed onto the sides of recycling trucks**.**

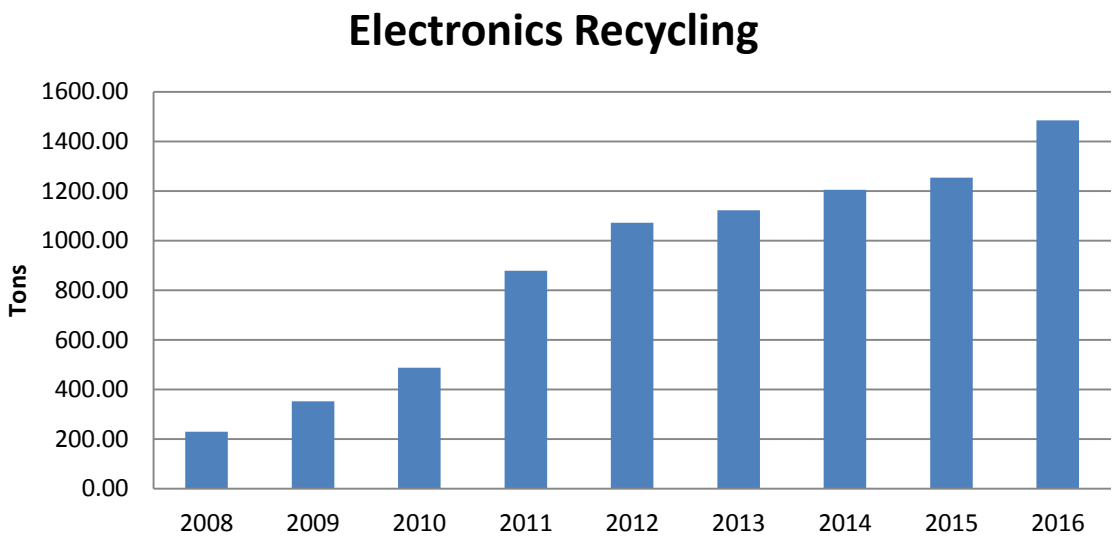
Campaign activities this past year included:

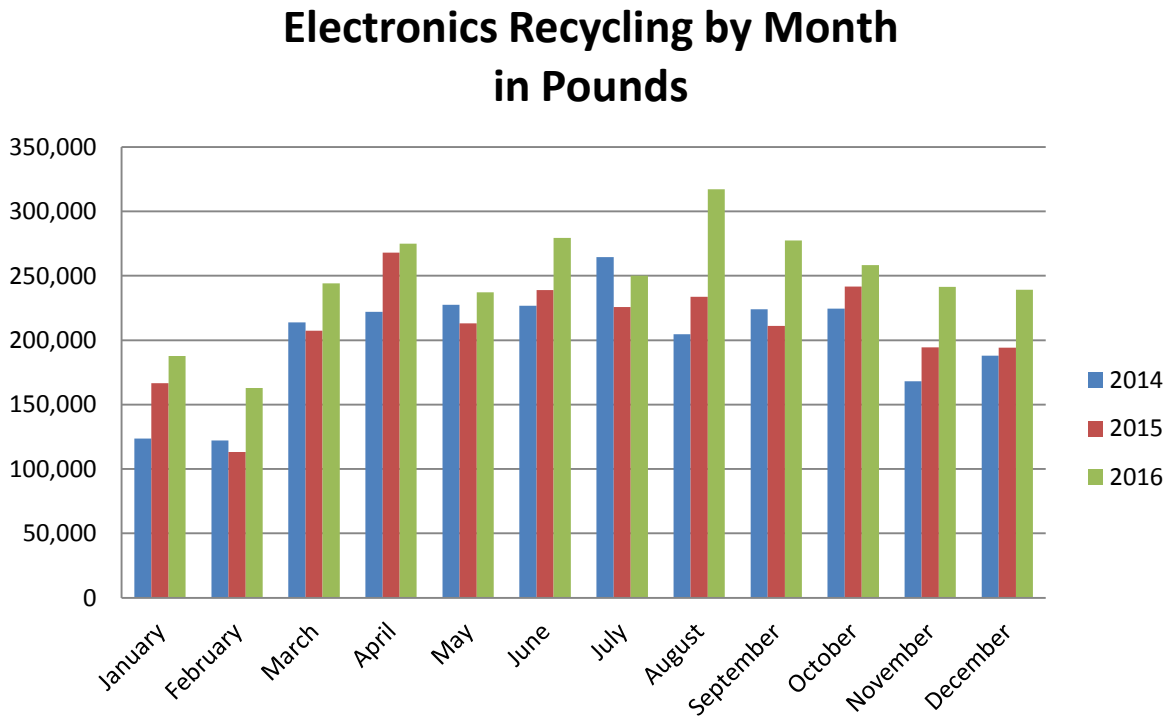
- A complete website redesign that increases usability, especially on mobile devices
- Past installed signage promoting the campaign continued to be displayed on recycling trucks
- Social media updates, including seasonal campaigns
  - February's Heart Your Hauler reminding residents how to properly prepare and set out materials
  - November's America Recycles Day campaign in coordination with the state-wide group Associated Recyclers of Wisconsin. This 15 day campaign shared information about how to "Recycle Right". An associated press release resulted in a news story about Wish-cycling on Channel 6.
- Press releases and e-blasts highlighted various waste reduction, reuse and recycling topics:
  - Holiday waste reduction and recycling tips
  - Electronics recycling
  - Food waste reduction
  - Composting Christmas trees through the City's Drop-Off Centers

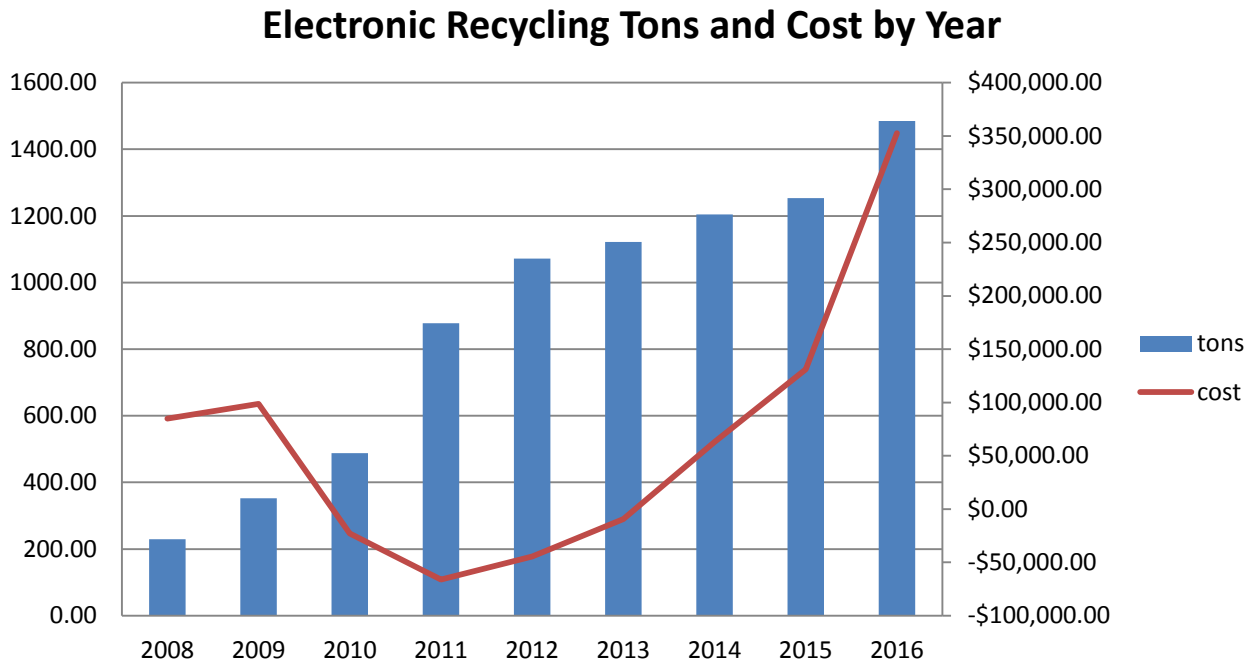
2016 Compost Bin & Rain Barrel truckload sale

In 2016, DPW held its fifth compost bin and rain barrel truckload sale to once again promote composting and rainwater harvesting. This year the sale was located at Wilson Park in the parking lot of the Senior Center. Compost bins and rain barrels were offered at significant savings from regular retail prices. Over 230 participants attended, mostly City of Milwaukee residents, purchasing over 500 compost bins and rain barrels.

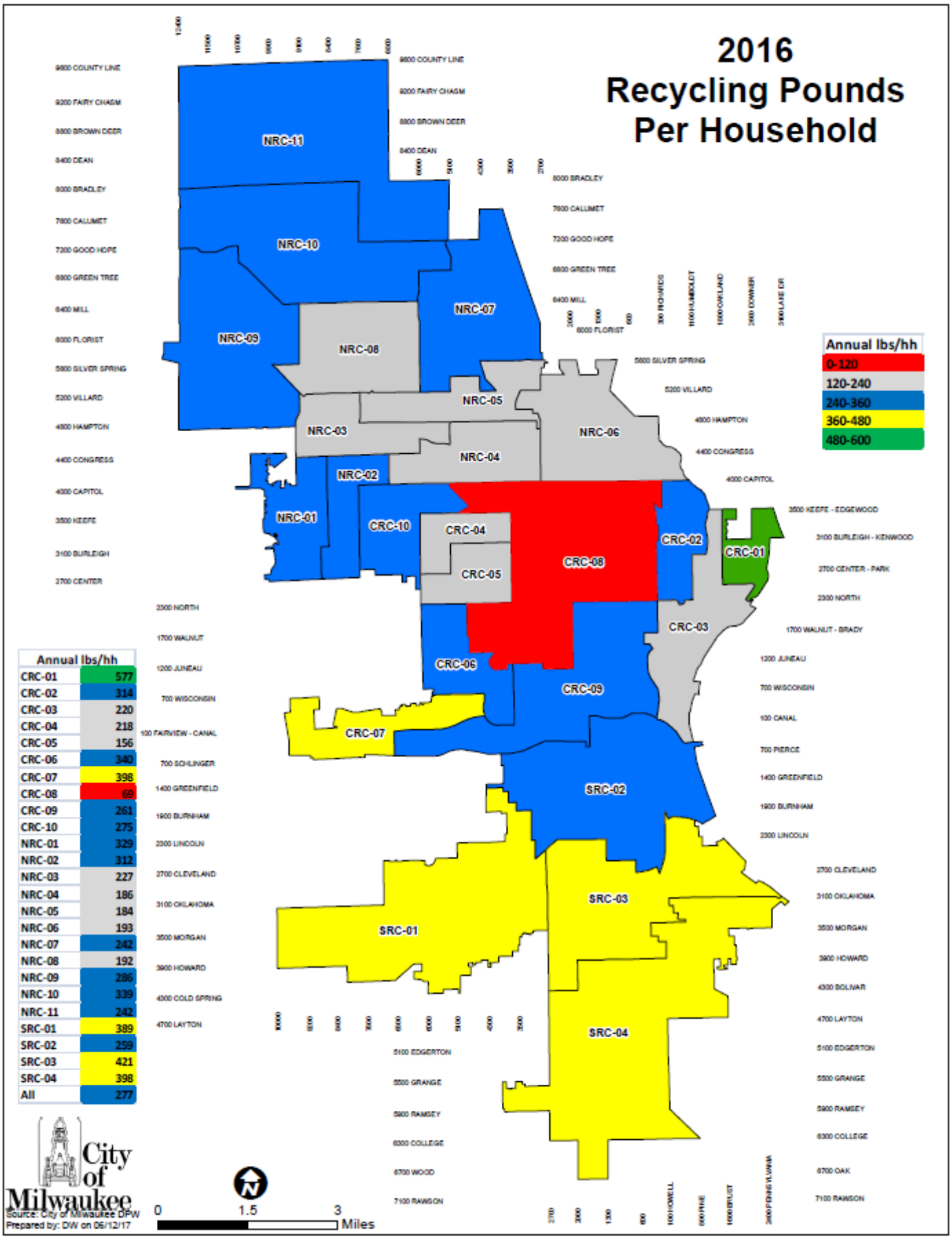
Popular Electronics Recycling Program Continued Growth







*Negative numbers indicate revenues generated



Annual lbs/hh	
CRC-01	577
CRC-02	314
CRC-03	220
CRC-04	218
CRC-05	156
CRC-06	340
CRC-07	398
CRC-08	69
CRC-09	261
CRC-10	275
NRC-01	329
NRC-02	312
NRC-03	227
NRC-04	186
NRC-05	184
NRC-06	193
NRC-07	242
NRC-08	192
NRC-09	286
NRC-10	339
NRC-11	242
SRC-01	389
SRC-02	259
SRC-03	421
SRC-04	398
All	277

Table 1
Residential Tons Collected
2015-2016

	2015	2016	Change Tons	Change Percent
Recycling Materials - household				
Combined Paper	11,868	11,342	-526	-4.4%
Corrugated Cardboard	3,448	3,983	535	15.5%
Aluminum Cans	239	261	22	9.1%
Steel Cans	815	838	23	2.8%
Glass Containers	6,068	5,943	-125	-2.1%
Plastic Containers	2,753	2,959	206	7.5%
Subtotal	25,191	25,326	135	**0.5%**
Recycling Materials - other residential*				
Appliances with Refrigerants	136	184	48	35.6%
Lead Acid Batteries	5.0	16	11	221.9%
Waste Tires	691	740	49	7.1%
Waste Oil	122	135	13	10.5%
Electronics	1,254	1,485	231	18.4%
Scrap Metal	850	1,115	265	31.1%
Miscellaneous	38	55	17	44.1%
Subtotal	3,096	3,728	632	**20.4%**
Yard Waste & Organics				
Subtotal	34,045	29,416	-4,629	**-13.6%**
Total Diverted	62,332	58,470	-3,862	**-6.2%**
Household Solid Waste				
Cart collection (1-4 unit HHs)	158,235	157,787	-448	-0.3%
Dumpster service (>4 unit HH)	15,741	13,649	-2,092	-13.3%
Skid loader	3,453	4,113	660	19.1%
Clean & Green program	1,329	1,383	54	4.1%
Miscellaneous	2,303	2,474	171	7.4%
Subtotal	181,062	179,406	-1,656	**-0.9%**
Total Residential Solid Waste	243,394	237,876	-5,518	**-2.3%**

*Does not include 2,840 T of concrete and 2,333 T of asphalt shingles recycled in 2016 through the Drop Off Centers. The State of Wisconsin does not include these categories as residential in annual reporting.

Table 2
Residential Program Metrics
2015-2016

Effectiveness Measures	2015	2016	Change
Household Material Recycling Rate*	10.4%	10.6%	0.3%
Yard Waste Recycling Rate	14.0%	12.4%	-1.6%
Other Materials Recycling Rate**	1.3%	1.6%	0.3%
Total Recycling Rate	25.6%	24.6%	-1.0%
Household Materials Recycling lbs. Per Household	279.92	281.21	1.28
	Percent change 2015 to 2016:		**0.5%**

Efficiency Measures - Household Recycling Only			
Residential Recycling Program Costs (State rpt. method)	**$10,793,866**	**$10,717,851**	**$ (76,015)**
State Cost Sharing/Grant Revenue	$ 2,322,494	$ 2,206,512	$ (115,982)
Recyclable Commodity Sales Revenue	$ 1,348,980	$ 1,714,702	$ 365,722
Avoided Landfill Disposal Costs	$ 1,084,253	$ 1,091,251	$ 6,998
Subtotal of offsets	**$ 4,755,727**	**$ 5,012,465**	$ 256,738
Net Costs - Residential Recycling Program	**$ 6,038,139**	**$ 5,705,386**	**$ (332,753)**
Net Cost Per Ton - Res. Recycling Program	$ 239.69	$ 225.28	**$ (14.41)**

*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 public sector, the resulting recycling rate is artificially low.

** Does not include 2,840 T of concrete and 2,333 T of asphalt shingles recycled in 2016 through the Drop Off Centers. The State of Wisconsin does not include these categories as residential in annual reporting.

Table 3
Recyclables Processing Financials Comparison
2015-2016

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

	2015	2016	Change	% Change
Commodity Sales Revenue				
Revenue/Ton (Market Value)	$ 70.59	$ 73.35	$ 2.76	3.9%
City's Share (Rev/T Received from Contractor)	$ 56.47	$ 67.65	$ 11.18	19.8%
Total revenue to City	**$ 1,348,980**	**$ 1,714,702**	$ 365,722	**27.1%**
Processing Costs				
Processing per ton rate	$ 42.04	$ 36.01	$ (6.03)	-14.3%
Processing tons	25,215.19	25,348.37	133.18	0.5%
Processing costs	**$ 1,060,032**	**$ 912,739**	$ (147,293)	-13.9%
Net Revenue				
Net revenue (received)	$ 288,948	$ 801,963	$ 513,015	177.5%
Net revenue per ton	**$ 11.46**	**$ 31.64**	**$ 20.18**	**176.1%**
Avoided Disposal Costs				
Landfill costs per ton	$ 43.00	$ 43.05	$ 0.05	0.1%
Landfill costs avoided	**$ 1,084,253**	**$ 1,091,251**	**$ 6,998**	0.6%
Total Benefit				
Total Net benefit	**$ 1,373,201**	**$ 1,893,214**	**$ 520,012**	37.9%
Total Net benefit per ton	**$ 54.46**	**$ 74.69**	**$ 20.23**	**37.1%**

The net benefit figure compares total processing costs with recyclables revenue and avoided landfill disposal costs. In 2016, net benefits were higher due to a combination of it being the first full year under new contract structure and to a rebound of commodity prices.