Quarterly Recycling Report

2020 – Quarters 2 & 3

Onondaga County
Resource Recovery Agency
November 2020

Contents

1.0 INTRODUCTION 2
2.0 MONTHLY RECYLABLES TONNAGE AND VALUE BY CATEGORY 3
3.0 ECONOMIC DATA 4
4.0 FACILITIES USED 7
5.0 QUARTERLY RECYCLING CHALLENGES 8
6.0 CONCLUSION 10

Figures

Figures 1 through 8 - Economic Data ..... 5 and 6

Tables

Table 1 and 2 – Monthly Recyclables by Category ..... 3 and 4
Table 2 – MRF Markets 7

Appendices

Appendix A - Economic Analyses

1.0 INTRODUCTION

This Quarterly Recycling Report has been prepared consistent with the requirements of Permit ID 7-3142-00028/00011 (Onondaga County Resource Recovery Facility [OCRRF], Solid Waste Management Permit) Section 6, Item C and Permit ID 7-3148-00048/00003 (Ley Creek Transfer Station, Solid Waste Management Permit) Section 22, Item C.

It should be noted that quarterly reporting related to recycling, as described in the above cited permits, was discontinued in 2001 per verbal direction from the New York State Department of Environmental Conversation (DEC). Quarterly reporting related to recycling has been re-established by Onondaga Resource Recovery Agency (OCRRA) beginning the first quarter of 2020. This reporting has been re-established to document significant changing trends in recycling.

This report presents data on OCRRA's residential blue bin curbside recycling program only. In 2019, this program collected 36,974 tons of materials from the blue bins of 180,000 households in OCRRA's service area having a population of approximately 457,000. Additional mandatory and voluntary recycling is generated by private commercial entities, as well as public and private institutions. These additional recycling sources are tracked and tabulated by OCRRA and reported to the DEC on an annual basis and can be found here.

In addition to residential blue bin curbside recycling, OCRRA's comprehensive recycling program operates two composting sites; provides household hazardous waste (HHW) collection; provides battery collection; organizes various public recycling events (e.g., Earth Day Litter Cleanup, "Shred-o-Rama", mercury collection); and collaborates with partners to divert textiles and thin film plastics for recycling "outside the bin." The comprehensive recycling program is further reported on an annual basis as described above. The OCRRA residential blue bin curbside recycling system is comprised of:

- contracted arrangements with a private MRF operator to process and market recyclables;
- contracted agreements with public and private haulers to deliver recyclable materials for a $0 tip fee through the end of 2020;
- distribution of blue bins for residential use; and
- sophisticated and widespread public education and outreach.

Of OCRRA's total recycling tonnage, the residential blue bin curbside recycling accounts for approximately 8% of 2019's total mandatory and voluntary recycling, or 25% of 2019's total mandatory/processible recycling tonnage, as reported in the *2019 Annual Report of Recyclables Recovered* (OCRRA, March 1, 2020).

OCRRA first documented recycling challenges within *Recycling 2020: Report and Recommendations* (OCRRA, January 2020). Consistent with the findings of that report, Sections 3 and 4 of this report, below, include data for curbside recyclable materials that substantiates the absence of a robust economic market. In light of the economics associated with OCRRA's residential blue bin curbside recycling program, it may not be reasonable and technically feasible to continue recycling as we currently do.

2.0 MONTHLY RECYLABLES TONNAGE AND VALUE BY CATEGORY

Table 1 and 2, below, provides a monthly breakdown of the recyclables recovered in residential blue bin curbside recycling by material category, including relevant economic data for each category.

Table 1 – Monthly Recyclables by Category: 2nd Quarter

Material Category	April 2020			May 2020			June 2020		
	Tonnage [1]	Market Value per ton[2]	Actual Value per ton[3]	Tonnage[1]	Market Value per ton[2]	Actual Value per ton[3]	Tonnage[1]	Market Value per ton[2]	Actual Value per ton[3]
OCC (cardboard)	431.24	$85	--	431.65	$120	--	435.97	$85	--
Mixed Paper	1,664.70	$0	--	1,666.31	$15	--	1,683.00	$15	--
Aluminum Cans	1.19	$840	--	1.19	$800	--	1.21	$800	--
Steel Cans	76.05	$15	--	76.12	$15	--	76.88	$15	--
HDPE Natural (#2)	25.05	$800	--	25.08	$800	--	25.33	$800	--
HDPE Color (#2)	48.01	$100	--	48.06	$80	--	48.54	$80	--
PET (#1)	50.40	$240	--	50.45	$200	--	50.95	$170	--
Plastics 3-7	37.58	N/A	<-$3	37.61	N/A	<-$3	37.99	N/A	<-$3
Glass	558.58	N/A	<-$25	559.12	N/A	<-$28	564.72	N/A	<-$30
Non-Recyclables[4]	89.47	N/A	<-$173	89.55	N/A	<-$173	90.45	N/A	<-$173
Average Blended Value per Ton[5]	--	**$1.29**	**--**	--	**$13.10**	**--**	--	**$7.14**	**--**
Actual Cost per Ton[6]		**--**	**-$64.71**		**--**	**-$52.90**		**--**	**-$58.86**
Approximate Total Tonnage & Agency Costs	**2,982**	**$192,970**		**2,985**	**$157,910**		**3,015**	**$177,460**	

Notes:

1. Tonnage based on monthly incoming scale data and current composition percentage of each material category as agreed upon and calculated by OCRRA and the MRF Contractor as follows: OCC Cardboard 14.46%; Mixed Paper 55.82%; Aluminum Cans 0.04%; Steel Cans 2.55%; HDPE Natural #2 0.84%; HDPE Color #2 1.61%; PET #1 1.69%; Plastics 3-7 1.26%; Glass 18.73%; and Non-Recyclables 3.0%.
2. Market value based on various sources for the 1st issue/1st full week of the month one month prior to the date shown as follows:
   a. OCC Cardboard: Fastmarkets RISI Pulp & Paper Week (PPW) for the Buffalo Region, Domestic Price OCC #11
   b. Mixed Paper: PPW for the Buffalo Region, Domestic Price # 54 Mixed Paper.
   c. Aluminum Cans: www.secondarymaterialspricing.com for the domestic New York (NE USA/MARITIMES, SMP) for Aluminum Cans, sorted, baled, delivered
   d. Steel Cans: SMP for Steel Cans, sorted, densified, delivered
   e. HDPE Natural #2: SMP for Natural HDPE, baled, picked up
   f. HDPE Color #2: SMP for Colored HDPE, baled, picked up
   g. PET #1: SMP for PET, baled, picked up
3. Actual value based on the average price paid or charged to the processing facility during the months of delivery, less any freight or other charges paid to third parties. These values were reported by the MRF Contractor. In most cases, the actual value per ton could not be provided by the MRF contractor. In OCRRA's Quarterly Recycling Report 2020 - 1st Quarter, the MRF Contractor did provide actual value per ton for mixed paper due to the large discrepancy between market and actual values.
4. Non-recyclables include those materials that require disposal and cannot be recycled. Actual value includes cost of transportation and disposal costs.
5. Average blended value is based on average blended value as determined on current composition percentage of each material category as described in Note 1. The composition percentages are applied to market values minus any factors assumed to account for significant costs associated with moving materials to market (i.e., a factor of -$25/ton for mixed paper and -$500/ton for aluminum cans).
6. Actual cost per ton includes the average blended value plus additional costs associated with marketing and processing materials (i.e., sorting, baling, marketing and transporting) of -$66/ton for 2020.

Table 2 – Monthly Recyclables by Category: 3rd Quarter

Material Category	July 2020			August 2020			September 2020		
	Tonnage [1]	Market Value per ton[2]	Actual Value per ton[3]	Tonnage [1]	Market Value per ton[2]	Actual Value per ton[3]	Tonnage [1]	Market Value per ton[2]	Actual Value per ton[3]
OCC (cardboard)	439.47	$60	--	481.95	$60	--	505.72	$60	--
Mixed Paper	1,696.48	$15	--	1,378.37	$15	--	1,446.34	$20	--
Aluminum Cans	1.22	$800	--	1.38	$800	--	1.44	$980	--
Steel Cans	77.50	$15	--	55.63	$15	--	58.37	$15	--
HDPE Natural (#2)	25.53	$800	--	7.71	$950	--	8.09	$1,140	--
HDPE Color (#2)	48.93	$80	--	90.33	$80	--	94.79	$150	--
PET (#1)	51.36	$190	--	87.30	$180	--	91.61	$180	--
Plastics 3-7	38.29	N/A	<-$3	58.66	N/A	$25	61.55	N/A	$25
Glass	569.24	N/A	<-$29	440.09	N/A	<-$27	461.79	N/A	<-$33
Non-Recyclables[4]	91.18	N/A	<-$173	152.57	N/A	<-$173	160.09	N/A	<-$173
Average Blended Value per Ton[5]	--	**$4.01**	--	--	**$5.76**	--	--	**$10.24**	--
Actual Cost per Ton[6]		--	**-$61.99**		--	**-$60.24**		--	**-$55.76**
Approximate Total Tonnage &Agency Costs	**3,039.2**	**$188,144**		**2,753.99**	**$165,849**		**2,889.80**	**$161,317**	

Notes:

1. Tonnage based on monthly incoming scale data and current composition percentage of each material category as agreed upon and calculated by OCRRA and the MRF Contractor as follows: OCC Cardboard 14.46%; Mixed Paper 55.82%; Aluminum Cans 0.04%; Steel Cans 2.55%; HDPE Natural #2 0.84%; HDPE Color #2 1.61%; PET #1 1.69%; Plastics 3-7 1.26%; Glass 18.73%; and Non-Recyclables 3.0%.
2. Market value based on various sources for the 1st issue/1st full week of the month one month prior to the date shown as follows:
   a. OCC Cardboard: Fastmarkets RISI Pulp & Paper Week (PPW) for the Buffalo Region, Domestic Price OCC #11
   b. Mixed Paper: PPW for the Buffalo Region, Domestic Price # 54 Mixed Paper.
   c. Aluminum Cans: www.secondarymaterialspricing.com for the domestic New York (NE USA/MARITIMES, SMP) for Aluminum Cans, sorted, baled, delivered
   d. Steel Cans: SMP for Steel Cans, sorted, densified, delivered
   e. HDPE Natural #2: SMP for Natural HDPE, baled, picked up
   f. HDPE Color #2: SMP for Colored HDPE, baled, picked up
   g. PET #1: SMP for PET, baled, picked up
3. Actual value based on the average price paid or charged to the processing facility during the months of delivery, less any freight or other charges paid to third parties. These values were reported by the MRF Contractor. In most cases, the actual value per ton could not be provided by the MRF contractor. In OCRRA's Quarterly Recycling Report 2020 - 1st Quarter, the MRF Contractor did provide actual value per ton for mixed paper due to the large discrepancy between market and actual values.
4. Non-recyclables include those materials that require disposal and cannot be recycled. Actual value includes cost of transportation and disposal costs.
5. Average blended value is based on average blended value as determined on current composition percentage of each material category as described in Note 1. The composition percentages are applied to market values minus any factors assumed to account for significant costs associated with moving materials to market (i.e., a factor of -$25/ton for mixed paper and -$500/ton for aluminum cans).
6. Actual cost per ton includes the average blended value plus additional costs associated with marketing and processing materials (i.e., sorting, baling, marketing and transporting) of -$66/ton for 2020.

3.0 ECONOMIC DATA

Figures 1 through 8, below, provide the historical data for the market value for material categories. It should be noted that gaps in data are shown and that market values are based on industry standard information as cited in table 1, Note 2 with the following exceptions:

- Beginning in 2020, the market value for mixed paper is based on $25 per ton reduction to market prices per PPW for the Buffalo Region, Domestic Price #54 Mixed Paper.

- Beginning in 2020, the market value for aluminum cans is based on a $0.25 per pound ($500 per ton) reduction to market process per *www.secondarymaterialspricing.com* for the domestic New York (NE USA/MARITIMES, SMP) for Aluminum Cans, sorted, baled and delivered.

- Economic data for glass has not been prepared because glass always incurs a cost for disposal at local landfills to be used as Alternative Operating Cover (AOC).

Figure 1 - OCC Economic Data

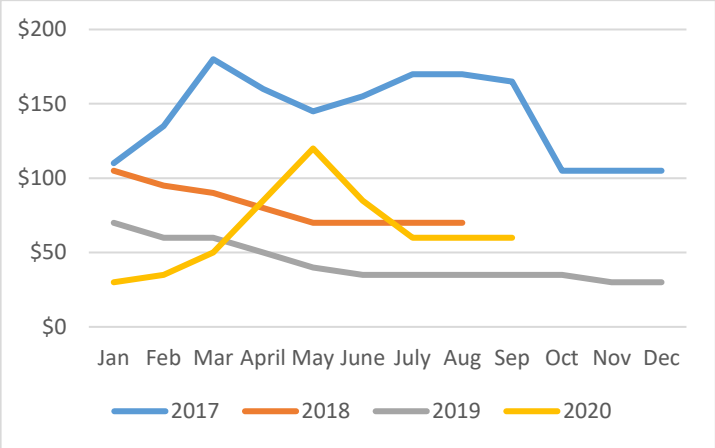


Figure 2 – Mixed Paper Economic Data

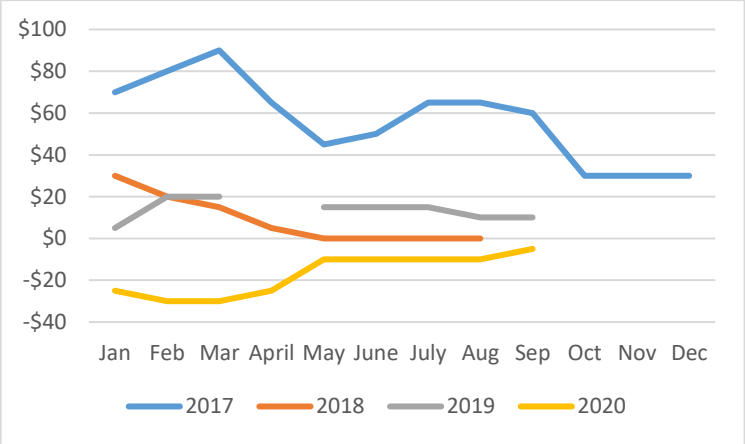


Figure 3 – Aluminum Cans Economic Data

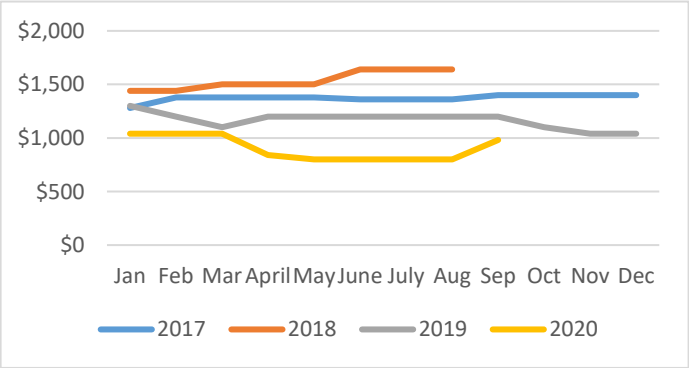


Figure 4 – Steel Cans Economic Data

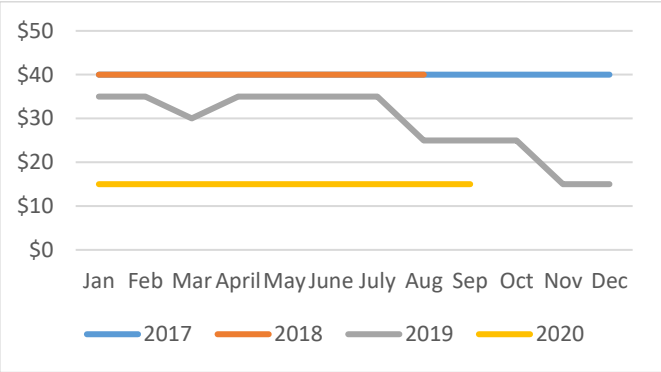


Figure 5 – HDPE Natural (#2) Economic Data

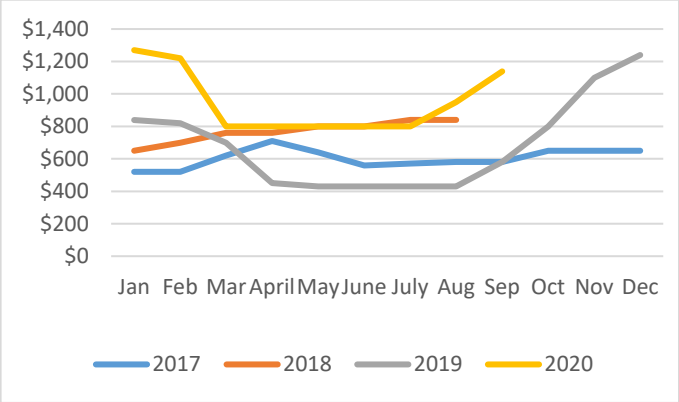


Figure 6 – HDPE Color (#2) Economic Data

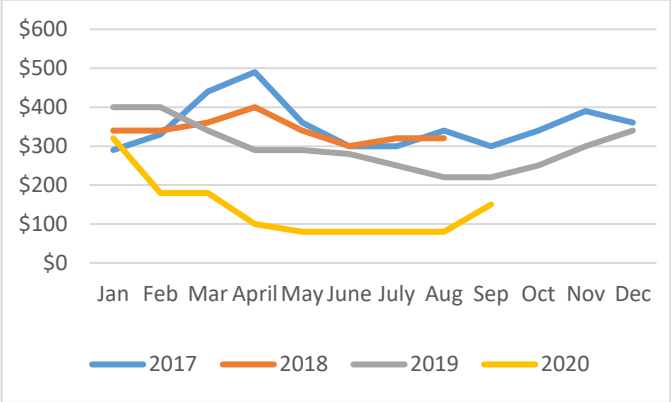


Figure 7 – PET (#1) Economic Data

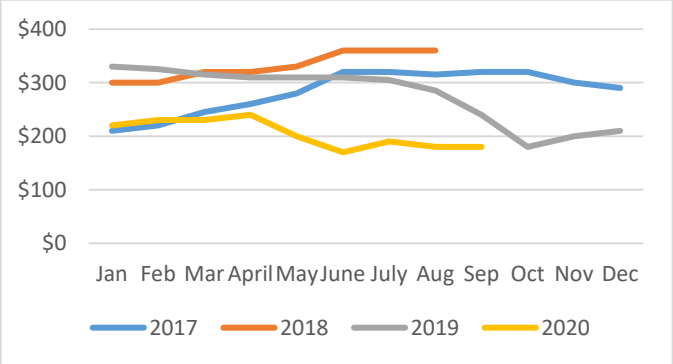
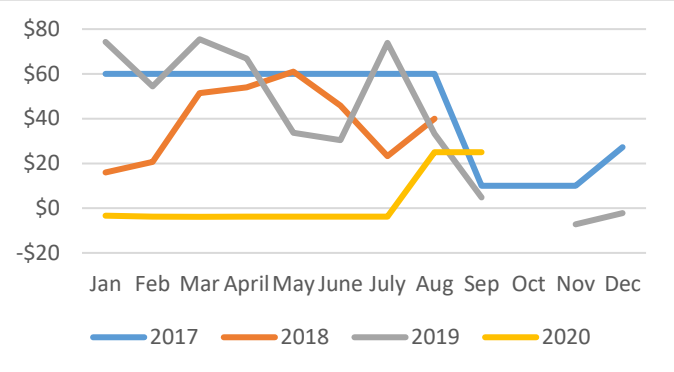


Figure 8 – Mixed Plastics (#3-7) Economic Data



Appendix A to this report demonstrates that there is no economic market for certain material categories of recyclables as defined in Municipal Law 120-aa. This Law states ”For purposes of this section, the term “economic markets” refers to instances in which the full avoided costs of proper collection, transportation and disposal of source separated materials are equal to or greater than the cost of collection, transportation and sale of said material less the amount received from the sale of said material.”

4.0 FACILITIES USED

OCRRA contracts with the only material recycling facility (MRF) in Onondaga County that is owned and operated by Waste Management-Recycle America (WM-RA). WM-RA is responsible for processing and marketing recyclable materials delivered by public and private haulers from the residential blue bin curbside recycling program. OCRRA financially supports sorting, baling, marketing and transporting materials collected by residential blue bin curbside recycling.

In 2018, China's National Sword Policy significantly impacted recycling markets. As shown in Table 3, WM-RA utilizes various markets for material categories.

Table 3 – MRF Markets[1]

Material Category	Market
OCC (cardboard)	Domestic (northeast)
Mixed Paper	Domestic (varies)
Aluminum Cans	Domestic (Georgia, Alabama & Kentucky)
Steel Cans	Domestic (varies)
HDPE Natural (#2)	Domestic (southeast)
HDPE Color (#2)	
PET (#1)	
Plastics 3-7	
Glass	Disposal as AOC at local landfills
Non-Recyclables	Disposal as fuel at OCRRF

Notes:
1. MRF markets per *New York Recycling List*, S. Stephens (MRF Manager) e-mail 8/11/2020

5.0 QUARTERLY RECYCLING CHALLENGES

Challenge #1 – COVID-19 Pandemic Impacts, continued

The COVID-19 economic shutdowns started to take their toll during the second quarter, which impacted material supply and demand, market prices, and revenue for businesses and haulers. During the second and third quarters, several outlets for recycled goods were closed or limited to the public, which affected their recycling operations, such as textile collectors like the Rescue Mission and Salvation Army, as well as HHW and electronic-waste collectors. These particular businesses, in combination with the cancellation of community collection events such as planned textile and paper shredding recycling events that were cancelled due to public safety concerns, resulted in less overall material entering the recycling stream. With many offices and schools not operating in the second quarter, the demand for printing and writing paper was drastically reduced, which negatively impacted paper mills. As offices, restaurants and schools stay closed in the third quarter, and companies make long term plans for employees to work at home, the amount of commercial material entering the waste stream will likely continue to decrease.

However, while there was a reduction in commercial recycling, a shift to focus on residential material during the second quarter led to some good news in the OCC market, with OCC prices on the rise, due to a dramatic increase in demand for coated recycled paperboard, combined with the e-commerce-driven demand for containerboard. Coated recycled paperboard is used in consumer packaging, food, beverage and other applications, all of which saw a substantial demand spike, as panic-buying took place across the U.S. during the second quarter.

A further consequence to recycling in both the second and the third quarters, as a result of COVID-19, was an increase in contamination, particularly large quantities of PPE, such as facemasks and gloves, ending up in the residential material.

Challenge # 2 – Focus on Quality

As reported in the prior Quarterly Recycling Report, the world of recycling abruptly changed in 2018 with the exit of China from the secondary materials export market. Enhanced quality is the only way to ensure reliable marketability in an oversupplied domestic system. The DEC recognized this reality with an enforcement discretion allowing increased residue to be disposed by MRF operators as an effort to enhance quality. The severe contraction of the economy in response to the necessary measures to control and contain the Covid-19 pandemic have further changed the demand for recycled commodities. Focusing on delivering targeted desirable high quality recovered material (such as cardboard and fiber to the local cardboard box manufacturer) is the most sustainable recycling solution. Commingled curbside recyclables has the potential to contaminate reliable and abundant recoverable fiber supplies.

Challenge # 3 – Better than the Bin

As reported in the prior Quarterly Recycling Report, capturing material upstream, at source separated locations, leads to successful high quality and reliable recycling in good and bad economic times. New York State's Returnable Container Act is incredibly successful in reducing litter and ensuring recycling

of the glass, plastic and metal containers with a deposit. Glass is a known contaminant in a commingled recycling bin and is best captured for higher re-use through an expanded Returnable Container Act. OCRRA strongly supports the State's leadership in extending a deposit for wine and liquor bottles, which comprise over half of the glass material in a residential blue bin as reported in the *2019 Waste Characterization Study* (MSW Consultants, April 30, 2020). The Onondaga County Legislature as well as the Common Council of the City of Syracuse, the Towns of Van Buren and Camillus, have all enacted resolutions calling on New York State to expand the bottle bill to include wine and liquor bottles.

Challenge # 4 - Compost Scarcity

OCRRA's compost is made from locally provided food and yard waste. In particular, the NYS Fair provides a significant amount of high-quality material, like animal bedding and other agricultural by-products. Additionally, OCRRA previously (before Covid-19 related closures) received food waste from local university dining halls and school cafeterias. Covid-19 shutdowns have put a temporary stop to almost all of this incoming material and as a result, OCRRA predicts a shorter supply of available compost in 2021.

6.0 CONCLUSION

The key take-aways from the second and third quarters remain consistent with the first quarter:

- Covid-19 has stressed an already stressed curbside recycling system which is financially unsustainable for the foreseeable future and requires changes.
- OCRRA will likely not meet the 40% recycling goal for 2020 primarily due to the significant loss of commercial cardboard in the system, the temporary closure of textile recycling outlets like Rescue Mission and the Salvation Army in the wake of Covid-19, and a significant loss of food and agricultural yard wastes that result from the closures of several restaurants and school cafeterias in OCRRA's service area, as well as the cancellation of the NYS Fair.
- There is an excellent opportunity to reimagine the residential recycling system to ensure recovery of materials that can be reliably delivered to local markets.
- Extended Producer Responsibility is urgently needed to ensure materials are properly managed from production design to end of life, as municipalities cannot afford to cover the externalized costs of product manufactures any longer.
- Cancelling some of the community recycling events that would normally have occurred during the second and third quarters in 2020, such as our community-wide textile collection and confidential document shredding events, was a difficult decision, but we are hopeful that we will be able to safely resume these activities in 2021. A positive step in that direction occurred during the third quarter when we held a mercury-device collection and recycling event in September 2020. The total amount of mercury that was collected from devices at this one event along equated to 134 grams, which is the equivalent of 33,500 CFL bulbs.

APPENDIX A-1: ECONOMIC ANALYSIS OF CURBSIDE GLASS

(remainder of page left blank)

APPENDIX A-1: ECONOMIC ANALYSIS OF CURBSIDE GLASS

Purpose: Provide an analysis of the economic market of curbside collection of glass, in accordance with General Municipal Law Sec. 120-AA(2), which states in part "For purposes of this section, the term "economic markets" refers to instances in which the full avoided costs of proper collection, transportation and disposal of source separated materials are equal to or greater than the cost of collection, transportation and sale of said material less the amount received from the sale of said material."

Variable definitions: Where A^t = proper collection with municipal solid waste, B^t = transportation with municipal solid waste, and C^t = disposal with municipal solid waste, A^c = cost of collection with residential recyclables curbside, B^c = transportation with residential recyclables curbside, C^c = cost to sell material (includes MRF processing), D^c = amount received from sale of materials (market price of recovered material, as reported by the MRF). The variables do not include any potential revenue generated from tipping fees.

Equation: The economic markets equation is expressed as: $A^t + B^t + C^t > A^c+B^c+C^c-D^c$; when this equation is true for a given material, then an economic market does not exist for said material.

2nd and 3rd Quarter Economic Markets for Glass:

A^t & A^c = For the purposes of this analysis, collection at curbside with municipal solid waste is assumed equal to collection with curbside recyclables. Therefore, A^t and A^c are assumed to be equal.

B^t & B^c = For the purposes of this analysis, transport with municipal solid waste to OCRRF is assumed equal to transport with curbside recyclables and transport to local MRF. Therefore, B^t and B^c are assumed to be equal.

C^t = OCRRA's cost of disposal at the OCRRF

C^c = MRF Contractor Processing Cost

D^c = Amount received from sale, or additional cost to sell, as reported by the MRF

Variable	April	May	June	July	August	September
C^t	-$80.68	-$80.37	-$80.29	-$80.53	-$80.18	-$81.38
C^c	-$66.00	-$66.00	-$66.00	-$66.00	-$66.00	-$66.00
D^c	-$25.02	-$28.28	-$30.36	-$29.60	-$27.99	-$33.91
Difference	-$10.34	-$13.91	-$16.07	-$15.07	-$13.81	-$18.53
Economic Market?	**No**	**No**	**No**	**No**	**No**	**No**