Quarterly Recycling Report

2020 – 1st Quarter

Onondaga County
Resource Recovery Agency

May 2020

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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 at *https://ocrra.org/about-us/information/reports-and-policies/*.

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;
- 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 an economic market. In light of the economics associated with OCRRA's residential blue bin curbside recycling program, it is not reasonable and technically feasible to continue recycling as we currently do.

2.0 MONTHLY RECYLABLES TONNAGE AND VALUE BY CATEGORY

Table 1, 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

Material Category	January 2020			February 2020			March 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)	409.6	$30	--	320.5	$35	--	416.9	$50	--
Mixed Paper	1,581.3	$0	<-$30	1,237.4	-$5	<-$44	1,609.1	-$5	<-$51
Aluminum Cans	1.1	$1,040	--	0.9	$1,040	--	1.2	$1,040	--
Steel Cans	72.2	$15	--	56.5	$15	--	73.5	$15	--
HDPE Natural (#2)	23.8	$1,270	--	18.6	$1,220	--	24.2	$800	--
HDPE Color (#2)	45.6	$320	--	35.7	$180	--	46.4	$180	--
PET (#1)	47.9	$220	--	37.5	$230	--	48.4	$230	--
Plastics 3-7	35.7	N/A	<-$3	27.9	N/A	<-$3	36.2	N/A	<-$3
Glass	530.6	N/A	<-$18	415.2	N/A	<-$25	539.9	N/A	<-$24
Non-Recyclables[4]	85.0	N/A	<-$173	66.5	N/A	<-$173	86.5	N/A	<-$173
Average Blended Value per Ton[5]	--	$1.82	--	--	-$4.08	--	--	-$5.29	--
Actual Cost per Ton[6]		--	-$64.18		--	-$70.08		--	-$71.29
Approximate Total Agency Costs	2,833	$181,820		2,217	$155,370		2,882	$205,460	

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.

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 a $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 prices per *www.secondarymaterialspricing.com* for the domestic New York (NE USA/MARITIMES, SMP) for Aluminum Cans, sorted, baled, 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).
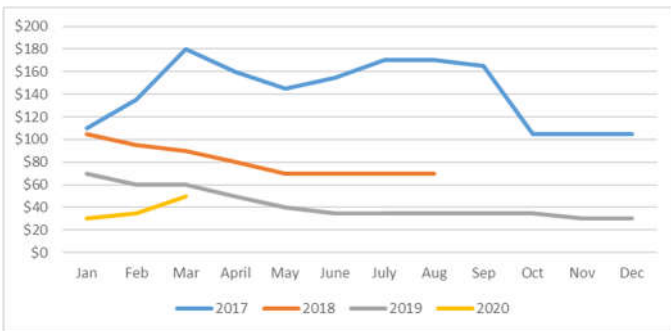
Figure 1 - OCC Economic Data
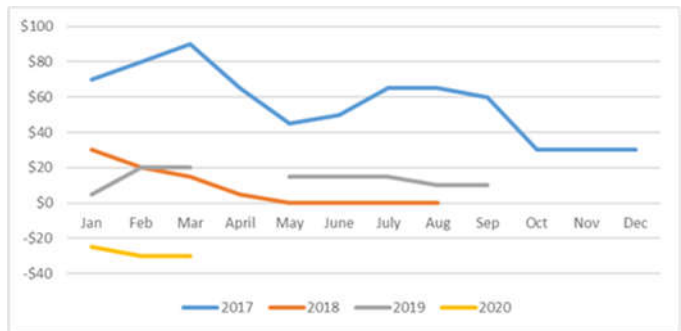

Figure 2 – Mixed Paper Economic Data

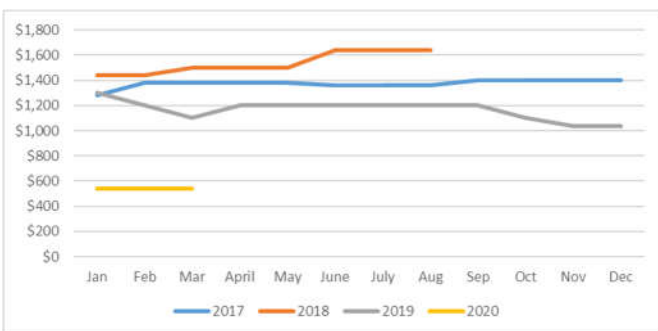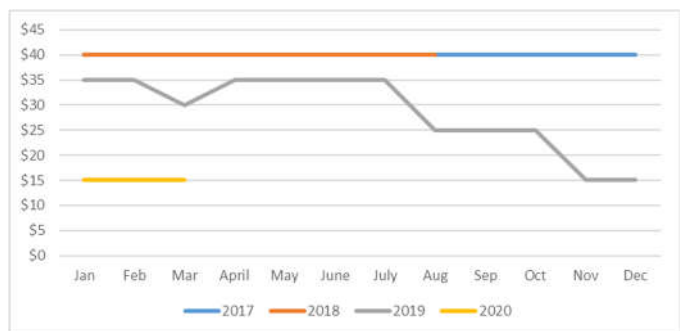Figure 3 – Aluminum Cans Economic Data

Figure 4 – Steel Cans Economic Data

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* Added May 26, 2020
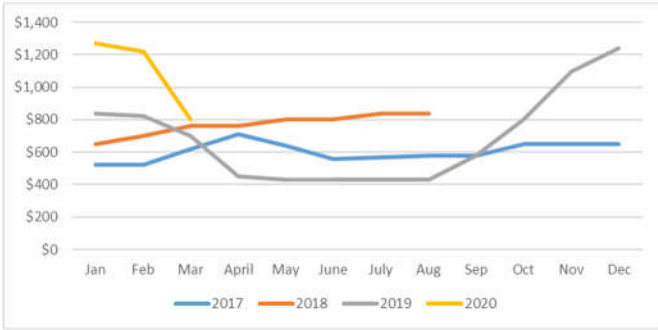
Figure 5 – HDPE Natural (#2) Economic Data[*]

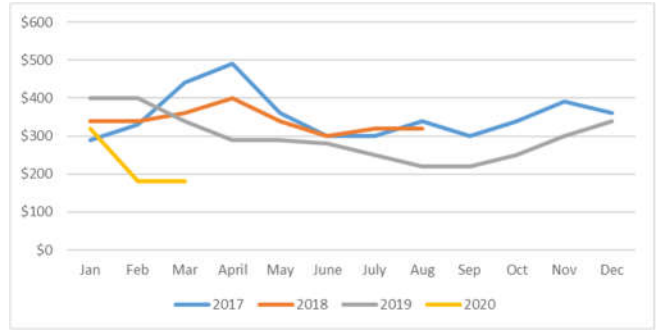Figure 6 – HDPE Color (#2) Economic Data[*]

Figure 7 – PET (#1) Economic Data
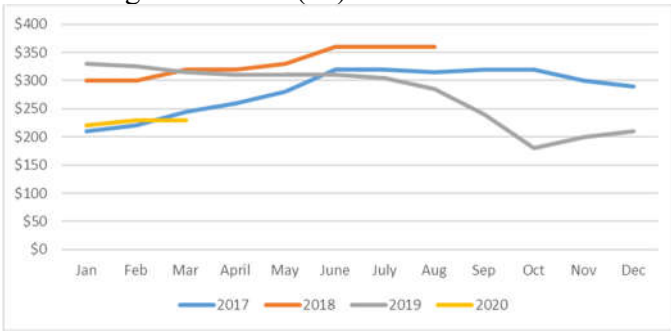
Figure 8 – Mixed Plastics (#3-7) Economic Data
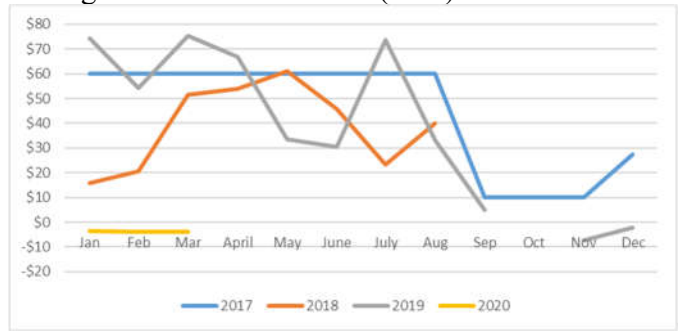
Appendix A to this report demonstrates that there is no economic market for certain material categories of recyclables as defined in Municipal Law 120-aa. This Law states "For purposes of this section, the term "economic markets" refers to instances in which the full avoided costs of proper collection, 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."

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[*] Revised May 26, 2020

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 2, WM-RA utilizes various markets for material categories.

Table 2 – MRF Markets[1]

Material Category	Market
OCC (cardboard)	Domestic (northeast)
Mixed Paper	Domestic (varies); Export to India, Indonesia & Vietnam
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 3/30/2020

5.0 QUARTERLY RECYCLING CHALLENGES

Challenge #1 – International Transportation

During the first few weeks of January 2020, international transportation issues rendered approximately 150 tons of mixed paper bales useless. These bales of paper were generated by the WM-RA MRF and had no apparent outlet at the time. OCRRA coordinated with DEC to find an outlet for this material. It was determined that the paper's next best highest use was processing for energy at the OCRRF. However, less than 10% of this material has been processed at the OCRRF. The remainder of this material was able to be moved to a domestic market. It is anticipated that international markets and reliable global transportation may be unstable for a period given the impact to markets by the Chinese National Sword and COVID-19 global pandemic.

Challenge #2 – Market Discrepancies

There are significant differences between market values (as documented by industry standards) and actual sale prices. This is most significant for mixed paper where the difference between these values is over 90%. This one market category represents over 55% of the blue bins' composition (as measured by weight) and significantly impacts OCRRA's ability to financially support the residential blue bin curbside program.

Challenge #3 – COVID-19 Pandemic Impacts

As the first quarter ended, waste management facilities through the United States began to feel the impacts of less economic activity, and therefore less waste generation. Recycling programs for non-blue bin materials, such as composting, batteries, textiles, and household hazardous waste were limited or paused in response to New York State and Onondaga County Executive Orders during the month of March. The OCRRF Permit establishes a goal of recycling 40% of processible waste. Due to the impacts of COVID-19 compounding the already stressed recycling market, it is likely that OCRRA will not meet the OCRRF Permit's goal.   Additionally, new contamination was identified in the recycling bin at the MRF including rubber gloves, facemasks and yard waste.

Challenge #4 – Declining Commodity Values

As seen in Figures 1 through 8, commodity values are generally declining without significant recovery for the foreseeable future. The costs to sort, bale, market and transport recyclables ($66/ton at the WM-RA MRF) is not economically sustainable given low market values of materials. Glass processed through the MRF has no sustainable re-use (other than use as AOC at local landfills) without further, more capital intensive, processing. As the costs of crude oil decrease, or runs negative, the value of plastics continues to erode. Mixed paper and cardboard markets continue to struggle without steady domestic outlets. April's actual value for mixed paper has been documented to be less than -$40/ton. Declining commodity values are not sustainable long term. The majority of the material accepted in the curbside recycling blue bin has a negative value and is causing a significant financial strain to maintain the curbside collection system as we know it to be today.

Challenge # 5 – Focus on Quality

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 reduced 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 easily contaminates reliable and abundant recoverable fiber supplies.

Challenge #6 – Better than the Bin

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 have enacted resolutions calling on New York State to expand the bottle bill to include wine and liquor bottles.

6.0   CONCLUSION

The key take-aways from OCRRA's *Quarterly Recycling Report: 2020 - 1ˢᵗ Quarter* include:

- 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 and the closure of textile recycling outlets like Rescue Mission and the Salvation Army in the wake of COVID-19.

- 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.

APPENDIX A-1: ECONOMIC ANALYSIS OF CURBSIDE GLASS

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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.

1st 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	January	February	March
C^t	-$81.40	-$81.33	-$81.18
C^c	-$66.00	-$66.00	-$66.00
D^c	-$18.36	-$25.45	-$24.63
Difference	-$2.96	-$10.12	-$9.45
Economic Market?	**No**	**No**	**No**

APPENDIX A-2: ECONOMIC ANALYSIS OF MIXED PAPER

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APPENDIX A-2: ECONOMIC ANALYSIS OF CURBSIDE MIXED PAPER

Purpose: Provide an analysis of the economic market of curbside collection of mixed paper, 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.

1st Quarter Economic Markets for Mixed Paper:

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	January	February	March
C^t	-$56.57	-$56.20	-$55.29
C^c	-$66.00	-$66.00	-$66.00
D^c	-$30.84	-$44.69	-$51.80
Difference	-$40.27	-$54.49	-$62.51
Economic Market?	**No**	**No**	**No**