



Impacts of China Sword and Pandemic on Municipal Recycling & Waste Contracts

Update – Fall 2020

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Recycling & Waste Industry Milestones

2000

2015

2018

2019

2020



Changes in the Stream

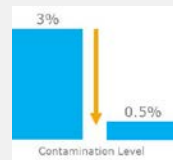
18M tons in 2000 → ~2M in 2015

Material Light-weighting

Water bottles → Almost 2x transactions

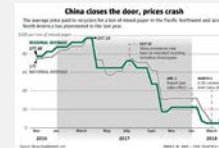
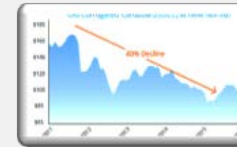
Chinese Green Fence

First Chinese policy to impact market value



China Sword (2018)

Contamination <0.5% → Mixed paper/plastic banned



Commodity Markets Crash

OCC down 70% → Mixed paper down 95%



COVID-19

Commercial volume down;
Residential volume up;
Significant changes in material composition

The last three years have seen two global events that transformed our industry:

- 2018 – China Sword resulted in China’s exit from global recycling commodity markets. Economic disruption of markets and values continues today.
- 2020 – COVID-19 year-long quarantine and long-term outcomes change the landscape of residential and commercial/industrial volumes in most every municipality across America.

Material Composition Changes in the Pandemic



Residential

- Increase in small cardboard (e-commerce)
- Record amounts of aluminum, PET and glass
- Overall, we have not seen dramatic increases in contamination



Commercial

- Large drops in material, particularly OCC and office paper
- More from groceries and big box; less from retail and offices



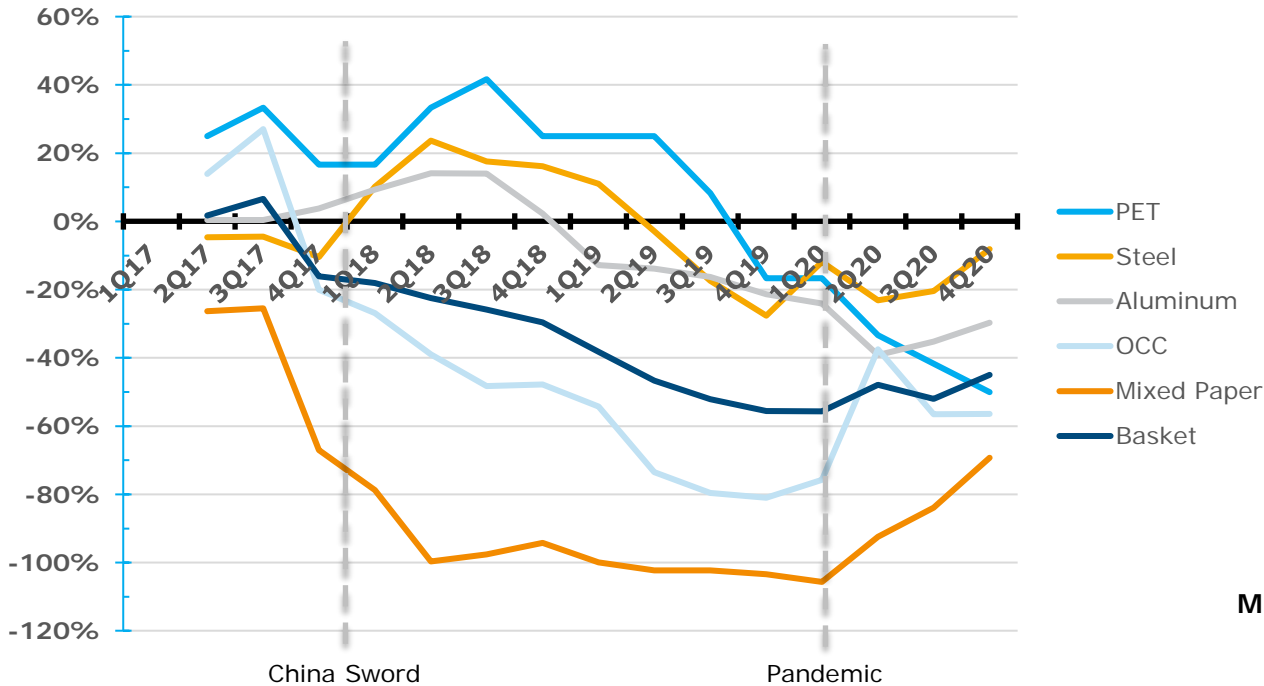
Industrial

- Limited suspension of permanent business
- Less impact on recycling volumes

The pandemic has shifted both the volumes between customer segments as well as the composition of the material collected

Commodity Value and Percent Sold

% Change from Q1 2017



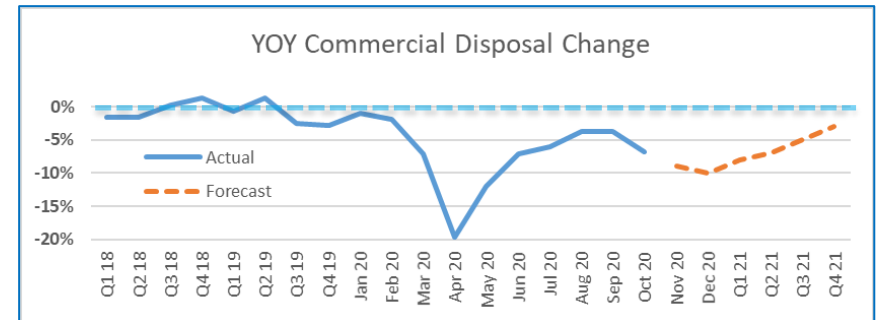
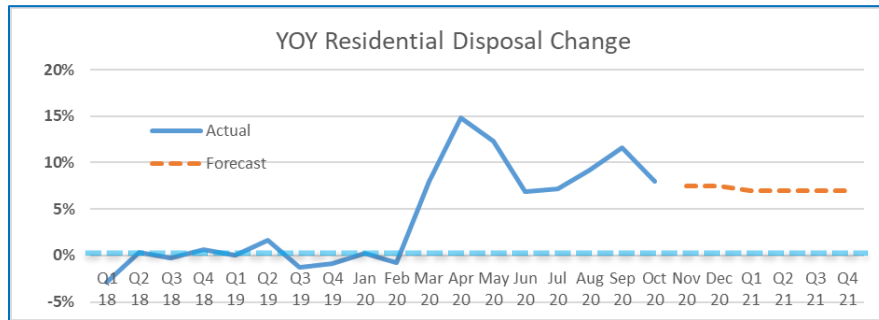
% of Republic Services Material Sold

	<u>2019</u>	<u>2020</u>	<u>YoY</u>
PET	8.4%	8.7%	+4%
Steel	2.3%	2.4%	+4%
Alum	1.3%	1.6%	+23%
OCC	45%	50%	+11%
Mix Paper	31%	25%	-17%

Source: RecyclingMarkets.com and STIFEL, Nov 2020

The Pandemic has driven increases in aluminum and cardboard, and a decrease in mixed paper (less junk mail). However, commodity values remain well below 2017 levels

Volume Trends as the Country Reopens



Residential volumes expected to remain elevated over trailing 2-year averages by 7-10%

- Less than 50% of public are willing to go out other than work, grocery store or barber ²
- More employees will be afforded work from home opportunities ³
- More e-commerce and at-home delivery ⁵
- Some college students electing to remain home for online learning

Small and Large Container volumes will slowly increase, as specific segments struggle to recover, and likely not return fully

- Restaurants seat half their tables ¹
- Less than 50% of public are willing to go out other than work, grocery store or barber ²
- Businesses will embrace work from home for a good portion of their workers ³
- Hospitality / Travel and Leisure unlikely to recover until late 2021 or 2022 ⁴

1 – <https://www.qsr.com/magazine/fast-food/trying-picture-life-restaurants-after-covid-19>

2 – https://www.ipsos.com/sites/default/files/inline-images/abc_covid-19_051420_1.jpg

3 – <https://www.zdnet.com/article/cfos-looking-to-make-remote-work-telecommuting-more-permanent-following-covid-19-says-gartner-survey/>

4 – <https://www.latimes.com/travel/story/2020-04-10/when-will-we-travel-again>

5 – <https://www.theatlantic.com/ideas/archive/2020/04/how-pandemic-will-change-face-retail/610738/>

The “new normal” yields a long-term shift in volumes across our contracts

Recent Municipal Program Modifications

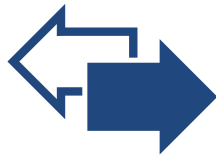


53%

Raising Rates

Notable Examples

Couer d'Alene ID
Hillsborough County FL
Loudon County VA
Tacoma WA



22%

Changing Service

Notable Examples

Fairfax County VA
Hernando County FL
El Paso TX
Fort Smith AR



10%

Changing Material List

Notable Examples

Buffalo NY
Springfield MA
Southern Oregon
Kent County MI



10%

Canceling Program

Notable Examples

Omaha NE
Mesa AZ
Franklin TN
Nags Head NC



4%

Burning/Dumping
Recyclables

Notable Examples

Cleveland OH
Philadelphia PA

Source: NWRA Recycling Program Changes, 8/2020

85% of cities reported have changed price, service or material list to reset their programs

Continue to Modernize Programs



Update contracts to reflect current events as the net effects of China Sword and the 2020 pandemic are significant



Ensure collection assumptions reflect current reality across residential and commercial lines of business



Evaluate program recyclables that offer the best benefit to the planet



Consider better metrics to track recycling success



Increase public education, leading to lower contamination and better commodity values

Municipal contracts are based on long-term assumptions that are likely outdated, and must be **re-evaluated to ensure they align with the new normal**



03/2020

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