

# WASTE STATISTICS



Source: Queens SWAB Organizing Committee member

## Background

DSNY provides free, regularly scheduled curbside and containerized trash collection to every residence, public school, public building, and many large institutions in New York City.<sup>1</sup> DSNY is also responsible for cleaning the City’s streets, sidewalks, vacant lots, and, in the winter, clearing snow and ice from approximately 6,000 miles of roadways.<sup>2</sup> DSNY does not provide services to commercial and industrial businesses, which by law must hire private haulers to manage their waste and recyclable materials.<sup>3</sup>

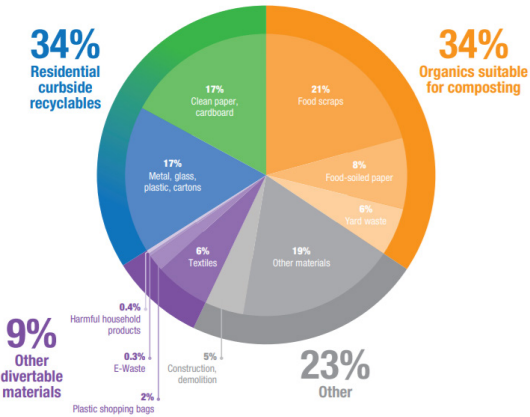
DSNY categorizes waste in four ways:<sup>4</sup>

- **Refuse** or trash that cannot be recycled
- Recyclable **Paper (Mixed Paper and Cardboard)**
- Recyclable **Metal, Glass, Plastic, and Cartons (MGPC)**
- Recyclable **Organics** (e.g., Food Scraps, Yard and Leaf Waste)

The responsibility to properly separate materials by category falls to DSNY customers. Among the benefits of proper material separation, are reducing the cost to taxpayers of long-distance export, an estimated \$420M for Fiscal Year (FY) 2021,<sup>5</sup> and reducing the environmental damage caused by placing recoverable resources, particularly organic material such as food and yard waste, in landfills. When organic materials are sent to landfills, they release methane into the atmosphere which is 30 times more damaging to the environment than carbon dioxide, a leading contributor to climate change.<sup>6</sup> Shrinking New York City’s waste footprint by diverting organic materials is critical to achieving the goal outlined in [OneNYC 2050](#) to achieve carbon neutrality in New York City within 30 years.<sup>7</sup> According to DSNY’s most recent [2017 Waste Characterization Study](#), 68% of the materials New Yorkers currently put out for DSNY collection could be recycled.<sup>8</sup> An additional 9% of our waste stream, such as e-waste, textiles, and plastic bags, also have the potential to be responsibly recovered.<sup>9</sup>

NYC Residential Waste Profile in 2017

2017 Composition of Residential Curbside Aggregate Discards



Source: 2017 NYC Residential, School, and NYCHA Waste Characterization Study

In addition to [OneNYC](#), [Local Law 40 of 2010](#) mandates DSNY set annual recycling diversion goals. The agency’s 2020 goal is to divert “33% of DSNY-managed solid waste and 25% of curbside and containerized waste from landfills by July 1, 2020.”<sup>10</sup>

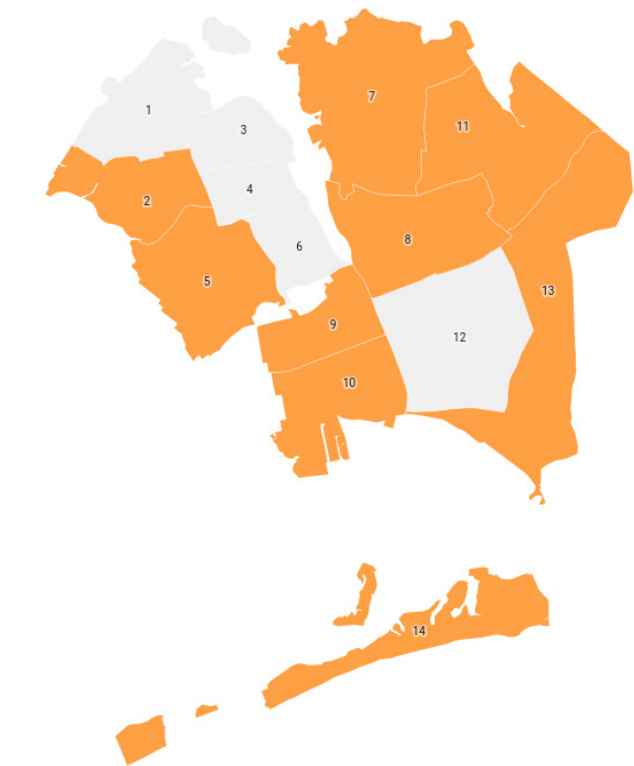
Because DSNY needs customers to first separate materials correctly to achieve these goals, the agency evaluates collection compliance using three metrics: diversion rate, capture rate, and contamination rate:

- **Diversion Rate (DR)** compares the amount of curbside collection materials separated for recycling (i.e., Paper, MGPC, Organics, E-Waste, Textiles) to the total amount of material set out (including Refuse). Diversion rate does not measure **Contamination**.<sup>11</sup>
- **Contamination Rate** measures the amount of curbside collection materials *incorrectly* placed in recycling bins that should instead be discarded as Refuse. Contamination reduces recyclable materials’ commercial value and harms recycling equipment at great cost to the City and recyclers.<sup>12</sup>
- **Capture Rate (CR)** is the “percentage of all Paper and MGPC properly separated for recycling as opposed to discarded as Refuse. Capture rates identify the latent potential to recycle more.”<sup>13</sup>

# Queens' FY 2020 Residential Collections Waste Statistics

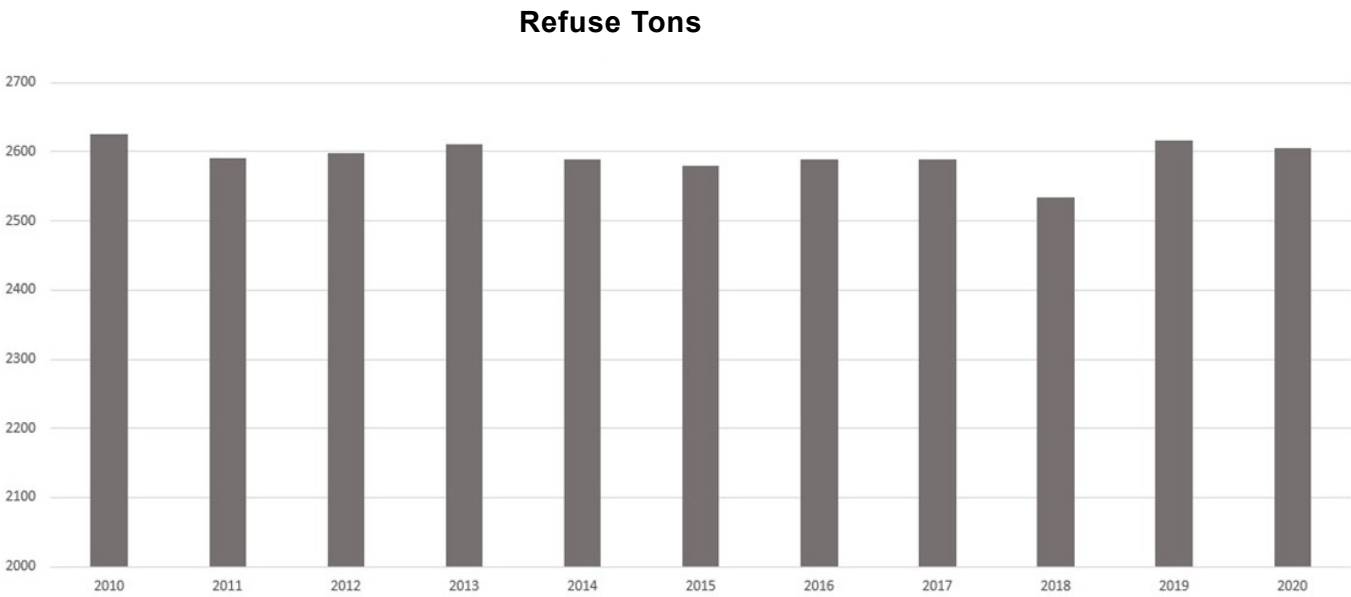
Queens' population of nearly 2.4 million<sup>14</sup> represents 27% of New York City's 8.6 million residents.<sup>15</sup> The population resides across 14 Community Districts<sup>16</sup> and 14 parallel Sanitation Districts.<sup>17</sup> Based on DSNY's FY20 (July 1, 2019-June 30, 2020) Annual Report, Queens generated a nearly equal proportion (27%) of the City's residential Refuse (2,605 tons per day); approximately 27% of its Paper (273.6 tons per day); 30% of its MGPC (314.9 tons per day); and 39% of its Organics (48 tons per day).<sup>18</sup>

Prior to COVID-19 budget cuts that led to Curbside Organics Collection (COC) being suspended in May 2020, nine of Queens' Community Districts (CDs 2, 5, 7, 8, 9, 10, 11, 13, and 14) had access to the COC pilot with expansion to CDs 1, 3, 4, 6, and 12 being planned.<sup>19,20</sup> **Based on U.S. Census data, COC was accessible to approximately 46% of Queens' households.**<sup>21</sup>



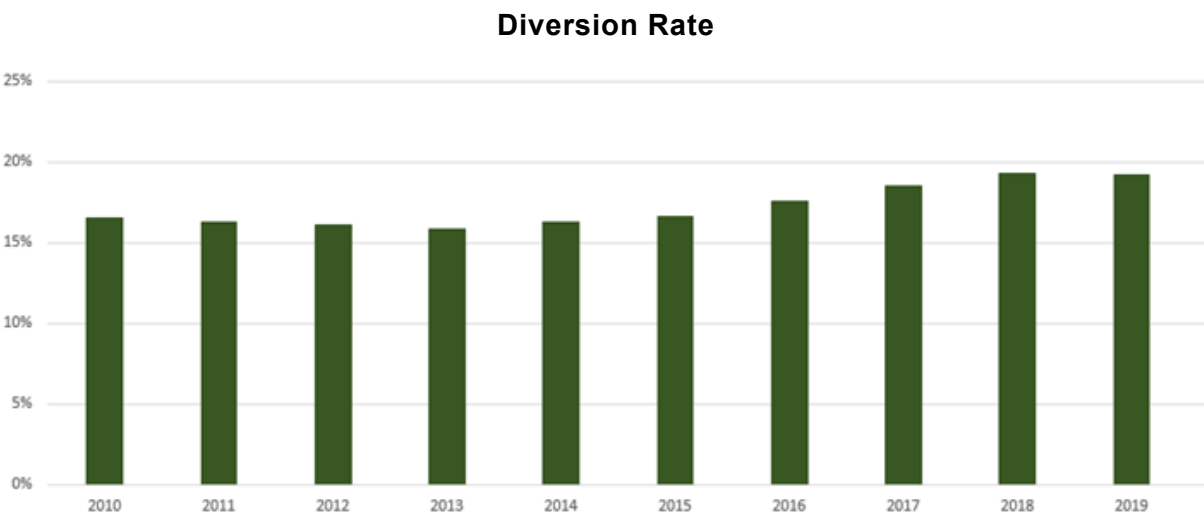
Map of Queens Community Districts Participating in Curbside Organics Collection: FY19  
Source: DSNY 2018 NYC Organics Expansion Maps

To understand whether Queens' diversion and capture rates have remained stable or improved over time, we reviewed DSNY data from 2010-2020. **We found the amount of Refuse Queens residents sent to landfills remained fairly stable over this period — roughly 2,600 tons per day.<sup>22</sup> However, given that the population increased by roughly 170,000 in a decade,<sup>23</sup> this is a positive indicator that Queens' waste generation did not rise in tandem.**



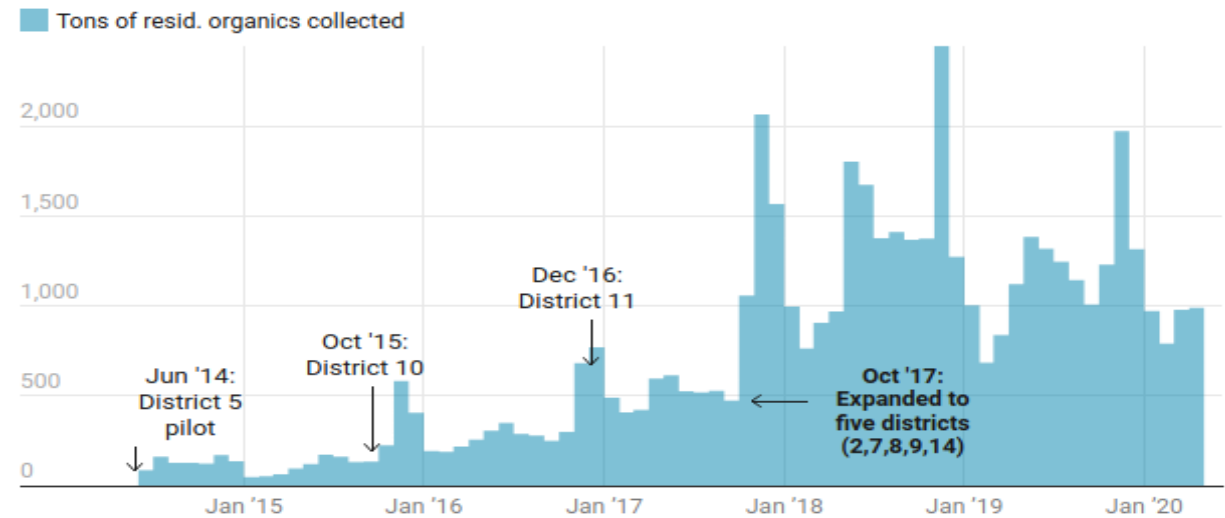
Queens' Annual Residential Refuse Rate: 2010 to 2020  
Source: Annual Reports for DSNY Curbside Collections

Queens' annual diversion of recyclable materials remained similarly consistent at close to 16% between 2010-15.<sup>24</sup> Between 2016-18 the diversion rate increased approximately 1% annually,<sup>25</sup> a possible result of Curbside Organics Collection expanding from three neighborhoods in 2014 to nine in 2019.<sup>26</sup> **This minor diversion increase, despite a tripling in reach, suggests room for significant improvement, particularly given DSNY's FY20 recycling goal of 25% diversion.**



Queens' Total MGPC, Paper, and Organics Diversion Rate: 2010 to 2020  
Source: Annual Reports for DSNY Curbside Collections

## Curbside Organics in Queens



Queens' Monthly / Annual Tons of Curbside Organics Collection: 2015 to 2020  
Source: DSNY via NYC Open Data



Broken down by category, the chart below shows the average number of tons per day of MGPC diverted in Queens over the decade increased slightly from 218 to 286 tons.<sup>27</sup> This could be due to DSNY’s 2013 expansion of its recycling program from plastic bottles and jugs to all rigid plastics. Conversely, Paper Diversion decreased modestly during this period from 298 to 278 tons per day.<sup>28</sup> The most notable increase was in Organics. Coinciding with Curbside Organics Collection expansion, the volume of organics materials Queens residents diverted rose from 1.8 to 58.1 tons per day.<sup>29</sup> Through DSNY’s Leaf Collection Program, not included in this chart, Queens residents additionally diverted just over 810 tons of leaves in 2019.



**Queens’ Average Tons Per Day of Diverted Materials by Source: 2010 to 2020**  
Source: Annual Reports for DSNY Curbside Collections

## Queens Waste Statistics by Community District

We next looked at DSNY data from 2016-19 to capture variations in diversion and capture rates based on the Community District in which people lived. Below are the top takeaways. **For a complete list of diversion and capture rates by Community District, see Appendix I.**

**CD11** (Auburndale, Bayside, Douglaston, Hollis Hills, Littleneck, Oakland Gardens) had the highest combined (i.e., average of MGPC and Paper) diversion rate at 24.9%. CD11 also had the highest combined capture rate at 63.9% and the highest Paper capture rate at 54.5%.

**CD14** (Arverne, Bayswater, Belle Harbor, Breezy Point, Broad Channel, Edgemere, Far Rockaway, Hammels, Neponsit, Rockaway Park, The Rockaways, Roxbury, Seaside, Somerville) had the lowest combined diversion rate at 12.7% and the lowest combined capture rate at

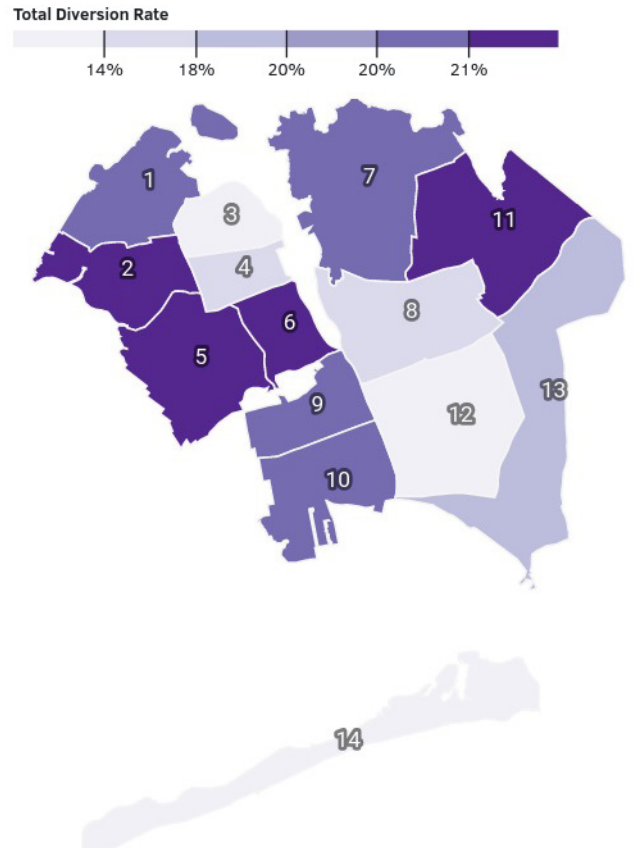
35.2%. (CD14 also had the lowest MGPC capture rate at 42.3%.)

**CD5** (Glendale, Maspeth, Middle Village, Ridgewood) had the highest MGPC capture rate at 86.9%.

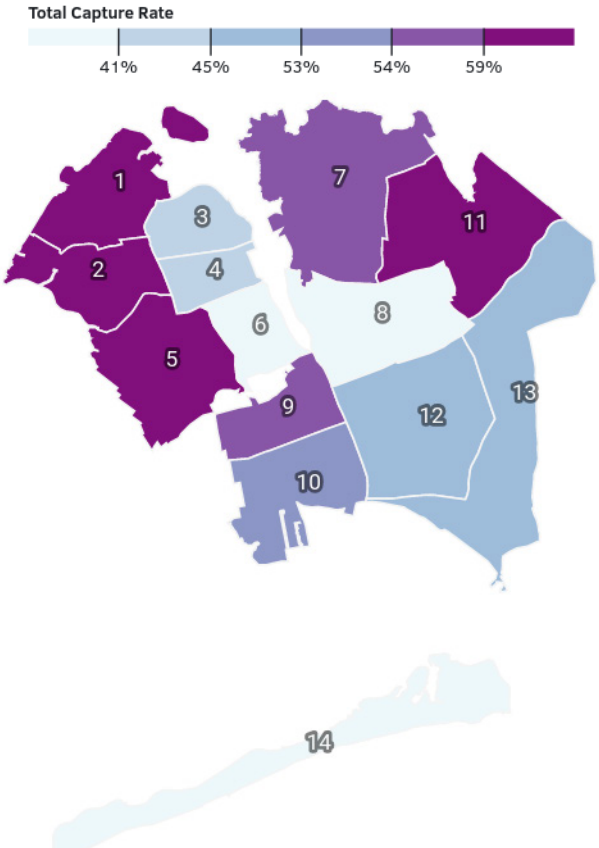
**CD8** (Briarwood, Fresh Meadows, Hillcrest, Holliswood, Jamaica, Jamaica Estates, Jamaica Hills, Kew Gardens Hills, Pomonok, Utopia) had the lowest Paper capture rate at 28.9%.<sup>30</sup>

*\* The data does not account for materials returned at redemption centers, such as MGPC beverage containers, as defined by the New York State Returnable Container Act, also known as the Bottle Bill.<sup>31</sup>*

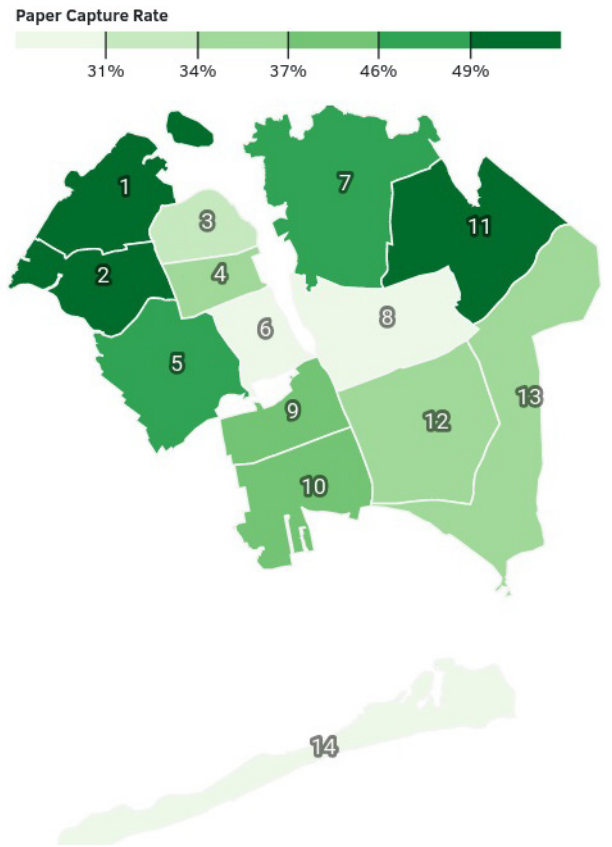
### Comparing Queens Community Districts by Diversion and Capture Rates: 2016-2019



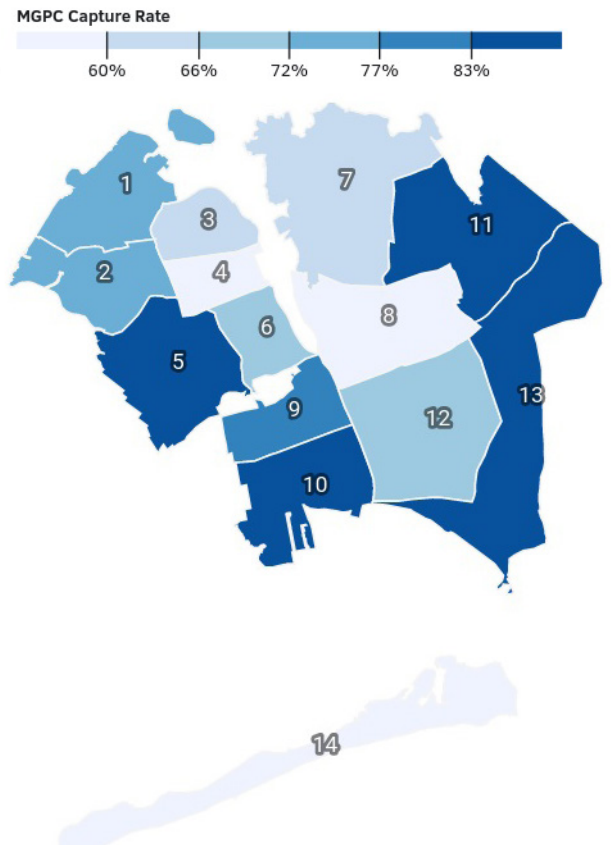
**Total Diversion Rate in Queens**  
Source: DSNY Recycling Diversion and Capture Rates, NYC Open Data



**Total Capture Rate in Queens**  
Source: DSNY Recycling Diversion and Capture Rates, NYC Open Data



**Paper Capture Rate in Queens**  
Source: DSNY Recycling Diversion and Capture Rates, NYC Open Data

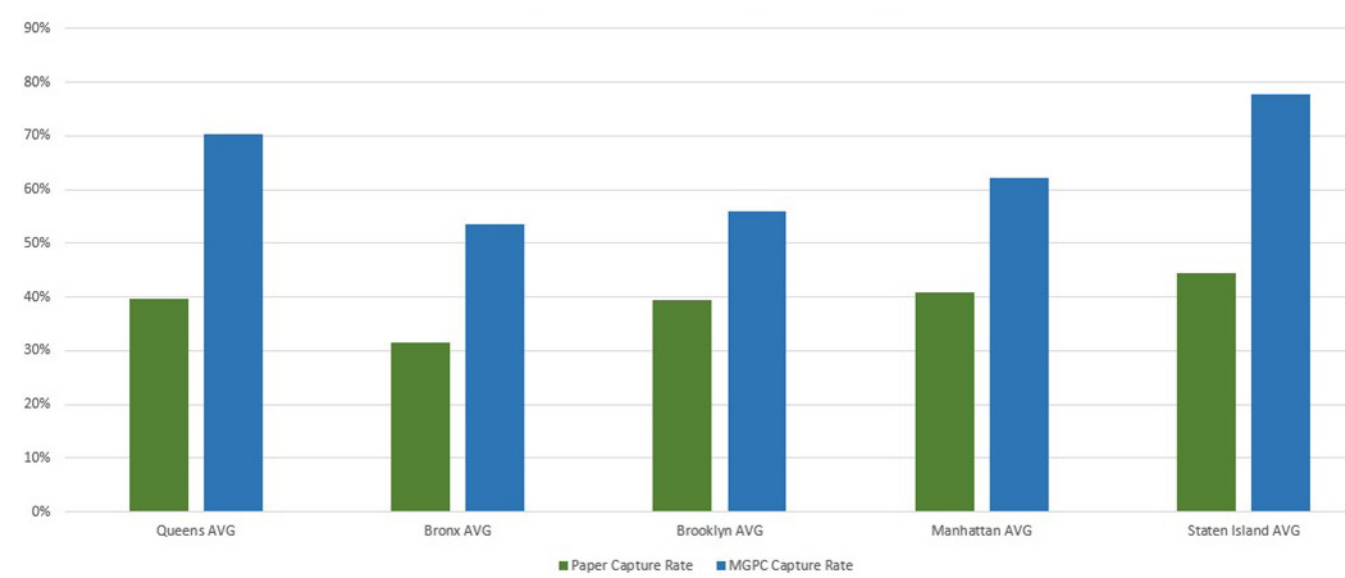


**MPG Capture Rate in Queens**  
Source: DSNY Recycling Diversion and Capture Rates, NYC Open Data

## Queens Waste Statistics: Borough Comparison

To understand how Queens ranked relative to other boroughs in resource recovery, we stepped back to perform a cross-borough analysis. We found that, **among the boroughs, Queens ranked third in removing recyclables from Refuse with an average diversion rate of 18.89% between 2016 and 2019.** Diversion increased by 4.65% from 2016 to 2019.<sup>32</sup> Queens had the second-highest capture rate, averaging 50.14% from 2016 to 2019. The capture rate increased 4.32% from 2016 to 2019.<sup>33</sup> Queens’ MGPC capture rate of 70.29% placed the borough second-highest while our Paper capture rate was third-highest at 39.53%; the borough with the fourth-highest Paper CR — Brooklyn — was nearly identical at 39.48%.<sup>34</sup>

Capture Rates by Borough



Source: DSNY Annual Reports

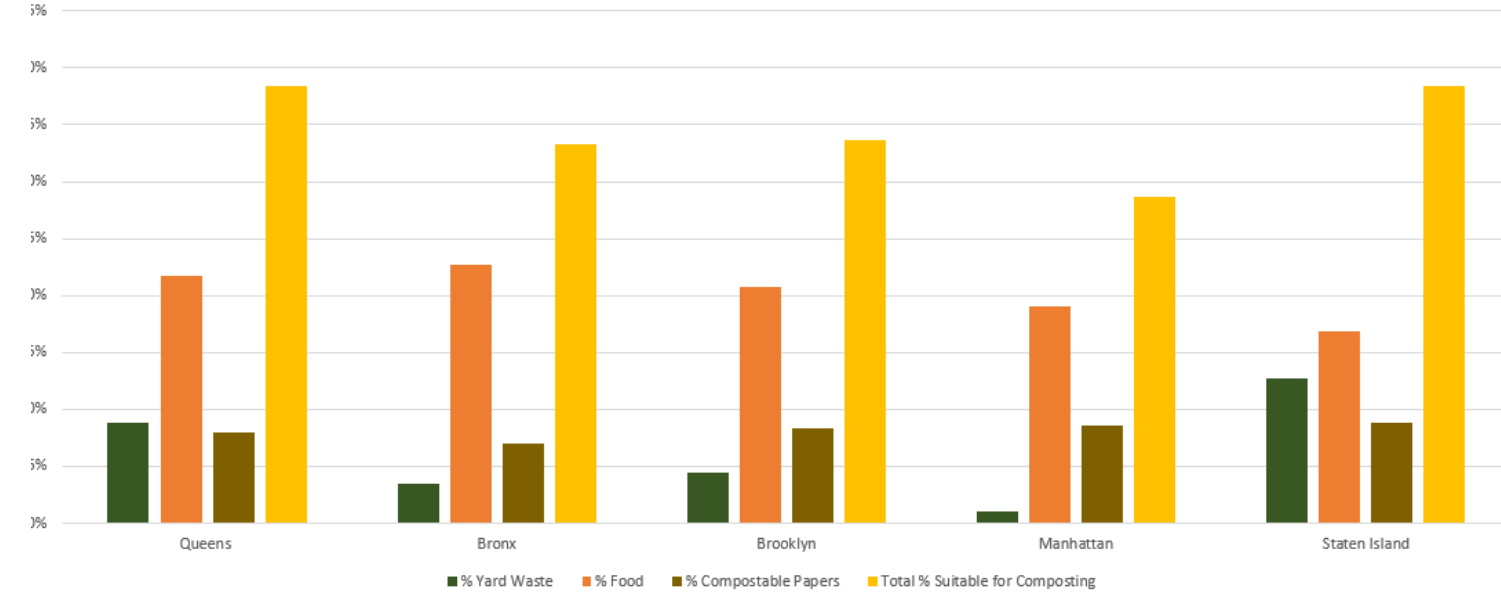
Borough	Avg. Diversion Rate (DR)	Avg. Capture Rate (CR)	Paper Capture	MGPC Capture
Queens	18.89%	50.14%	39.53%	70.29%
Bronx	13.61%	40.20%	31.55%	53.44%
Brooklyn	16.48%	45.36%	39.48%	56.03%
Manhattan	20.49%	46.33%	40.95%	62.11%
Staten Island	20.41%	55.53%	44.49%	77.65%

Recycling, Diversion, and Capture Rates by Borough Comparison: 2016 to 2019

Source: DSNY Recycling, Diversion, and Capture Rates, NYC Open Data

Because five of Queens’ Community Districts never had access to Organics Curbside Collections, comparing Queens’ Organics diversion rate to other boroughs is difficult. Instead, we used publicly available data from DSNY’s 2017 *Waste Characterization Study*, which includes the volume of recoverable organics materials in each borough’s waste stream, as an indicator of composting potential. Based on this report, Queens and Staten Island, due to the volume of yard waste, have the highest composting potential. **When Curbside Organics Collection restarts — or the NYCC passes Mandatory Organics Legislation — Queens could be the borough most contributing to diverting Organics from landfills.**

Potentially Compostable Materials in the Waste Stream 2017



Source: DSNY Annual Reports

Borough	% Yard Waste	% Food	% Compostable Papers	Total % Suitable for Composting
Queens	8.80%	21.70%	8.00%	38.40%
Bronx	3.50%	22.70%	7.00%	33.30%
Brooklyn	4.50%	20.70%	8.40%	33.60%
Manhattan	1.00%	19.00%	8.60%	28.70%
Staten Island	12.70%	16.90%	8.80%	38.40%

Queens’ Potentially Compostable Materials Compared to Other Borough: 2017 <sup>35</sup>

Source: DSNY 2017 Waste Characterization Study



# DSNY Non-Residential Waste: New York City Department of Education and New York City Housing Authority

DSNY also manages waste generated in New York City public schools (DOE) and New York City Housing Authority (NYCHA) properties. In the *2017 Waste Characterization Study*, DSNY separated DOE and NYCHA data from residential waste to determine if these locations required different outreach or education strategies to improve diversion and capture rates and reduce contamination.<sup>36</sup>

## New York City Department of Education (DOE)

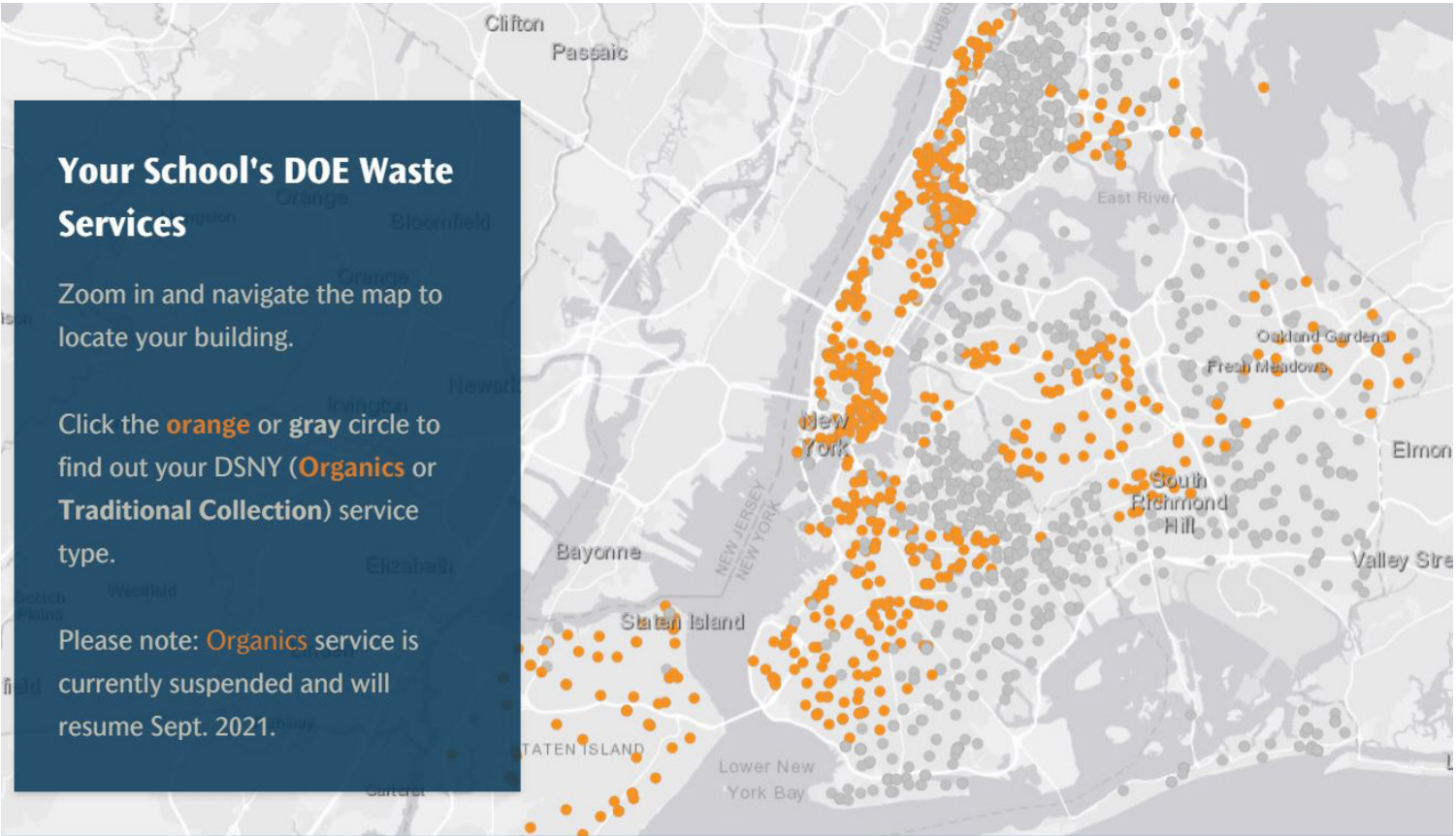
New York City’s public schools generate more than 40,000 tons of waste per year or about 1% of all residential waste annually. Nearly 20% (377) of New York City’s 1,866 public schools are in Queens, but DSNY/DOE does not make publicly available a breakdown of waste tonnage by borough or school because the agency generally mixes their material with residential curbside collections.

Citywide, **DOE reports low capture rates of 48% for Paper and 11.5% for MGPC, while contamination rates are high: 17% for Paper and 40.6% for MGPC.** Until the November 2020 suspension of Organics Collection due to COVID-19, **148 of Queens’ 377 DOE schools (39%) serving over 274,000 students received DSNY Organics Collection**, a service that engages students and staff in separating cafeteria food waste and diverting organic matter from landfills. Organics Collection will resume in DOE schools in September 2021. Forty-seven buildings (48 schools) benefited from Organics Collection before 2019 and 100 schools (72 buildings) were added as part of new routes in Fall 2019.<sup>37</sup> For a complete list of Queens DOE schools serviced by Organics Collection, visit the [NYC Department of Education’s Waste Management Story Map](#), which shows the schools receiving DSNY Organics Collection service and other opt-in programs including Zero Waste Pledge, Sustainability, Efficiency, and Environmental Dedication (S.E.E.D.) Certification, and Race Against Waste.

Eighteen Queens DOE schools have taken the “Zero Waste Pledge,” which requires that they create a recycling culture across all school stakeholders with DOE Sustainability providing material support (recycling bins) and one-on-one outreach to educators to fulfill on the pledge. Thirteen Queens schools are S.E.E.D-Affiliated. S.E.E.D. aims to holistically integrate sustainability into a school’s entire culture and operations. Twelve Queens schools participate in Race Against Waste (RAW), in which students complete a service-learning project focused on waste reduction. RAW educators receive professional training and dedicated DOE Sustainability support to guide students toward becoming waste advocacy leaders.<sup>38</sup>

## New York City Housing Authority (NYCHA)

As of January 2020, Queens was home to 21 NYCHA developments representing 15,300 units<sup>39</sup> or just over 8.6% of NYCHA’s entire portfolio. DSNY collected approximately 142,000 tons of Refuse from dedicated NYCHA waste containers in Queens between June 2016 and July 2017, according to the *2017 Waste Characterization Study*, not including non-dedicated routes in which NYCHA waste was mixed with Residential. **NYCHA’s Refuse collections reportedly included 19% recyclable MGPC, 14% Paper, and 32% Organics.**<sup>40</sup>



Source: NYC Department of Education: Waste Management Story Map



Source: Queens SWAB Organizing Committee Member



# DSNY Partners: GrowNYC and NYC Compost Project Host Sites

For all Queens households, but particularly those who lacked access to Curbside Organics Collection before COVID-19, bringing food scraps to a [GrowNYC Food Scrap Drop-Off \(FSDO\)](#) offers an alternative way to divert food waste from landfills. FSDOs began in 2011 as a precursor to Curbside Organics Collection and are typically located near transit hubs, Greenmarkets, and community gardens.<sup>41</sup> **Pre-pandemic, GrowNYC managed 13 Queens FSDOs that in FY19 collected over 220,000 lbs. of Organics and engaged over 30,000 residents.** The chart at the right shows participation and collection by site. FSDOs in bold indicate Community Districts not enrolled in Curbside Organics Collection.

FSDO Locations	Community District	Participants	Food Scraps (lbs.) Collected
<b>Astoria-Broadway</b>	<b>1</b>	<b>182</b>	<b>1,128</b>
<b>Astoria Library</b>	<b>1</b>	<b>177</b>	<b>1,236</b>
<b>Ditmars</b>	<b>1</b>	<b>275</b>	<b>1,364</b>
<b>Queens Library-Broadway</b>	<b>1</b>	<b>215</b>	<b>1,509</b>
<b>Socrates Sculpture Park</b>	<b>1</b>	<b>370</b>	<b>2,592</b>
Sunnyside	2	5,234	33,333
<b>Jackson Heights</b>	<b>3</b>	<b>10,889</b>	<b>88,799</b>
<b>Corona</b>	<b>4</b>	<b>590</b>	<b>8,245</b>
<b>Elmhurst</b>	<b>4</b>	<b>253</b>	<b>888</b>
<b>Forest Hills</b>	<b>6</b>	<b>10,989</b>	<b>71,142</b>
<b>Rego Park</b>	<b>6</b>	<b>455</b>	<b>2,304</b>
Briarwood	8	899	4,488
Kew Gardens	9	650	3,596
<b>Total</b>		<b>31,178</b>	<b>220,624</b>

Queens GrowNYC FSDO Sites: 2019

Source: GrowNYC

## New York City Compost Project (NYCCP) Host Sites

After Organics are donated at FSDOs, they are taken to one of DSNY’s seven New York City Compost Project (NYCCP) host sites for processing. Queens is fortunate to have two NYCCP sites: Big Reuse and Queens Botanical Garden.

[Big Reuse](#) (Long Island City) is one of the borough’s — and City’s — largest organics processors. For 10 years, it has conducted its work at an NYC Parks’ site under the Queensboro Bridge. In 2019, Big Reuse processed almost 34% of the food waste collected across NYCCP sites Citywide, more than half of that at their Queensboro site.<sup>42</sup> That same year, they diverted over 1.7M lbs. of organic material from landfills; distributed 356 cubic yards and over 2,500 bags of locally-made compost to 74 community groups, gardens, schools, and nonprofits; and worked with over 1,038 volunteers on composting and street tree care.<sup>43</sup> **In FY20 in Queens alone, Big Reuse collected over 405,000 lbs. of Organics; processed over 1,760,000 lbs. of material (including partner drop-off and wood chips); and served over 26,000 households.**<sup>44</sup>

[Queens Botanical Garden](#) (QBG) in Flushing is the borough’s other NYCCP site. In 2019, QBG diverted over 353,159 lbs. of organic waste from landfills while conducting outreach, hosting volunteers, providing composting technical assistance to community members, and distributing finished compost locally.<sup>45</sup> **In the months preceding COVID-19, QBG worked with 578 volunteers, performed 156 outreach activities, and supported 30 Queens compost sites.** On average, they annually process over 4,500 lbs. of food waste generated in the borough.<sup>46</sup>



FSDO at Socrates Sculpture Park, July 2019

Source: Ryan Van Manen

The table below compares Queens FSDOs’ 2019 performance to that of other boroughs. It shows that **while Queens had 17% of all sites, it collected only 7% of all food scraps.** In comparison, Manhattan and Brooklyn donated, respectively, 51% and 39% of all materials collected. Although we do not know the reason for Queens’ lower collection rate, greater access to backyards could be a contributing factor.

Borough	Sites	Food Scrap Intake (lbs.)	Total Weight Per Site (lbs.)	Population	% of FSDO Sites	% of All Collected Weight	% of NYC Population
<b>Queens</b>	<b>13</b>	<b>220,624</b>	<b>16,971</b>	<b>2,339,280</b>	<b>17%</b>	<b>7%</b>	<b>27%</b>
Bronx	13	59,596	4,584	1,455,846	17%	2%	17%
Brooklyn	17	1,247,748	73,397	2,635,121	22%	39%	31%
Manhattan	31	1,634,268	52,718	1,653,877	41%	51%	19%
Staten Island	2	50,220	25,110	475,948	3%	2%	6%
<b>Total</b>	<b>76</b>	<b>3,212,456</b>	<b>42,269</b>	<b>8,560,072</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>

Queens GrowNYC FSDO Sites Compared to Other Boroughs: 2019

Source: GrowNYC



Textile Recycling

In addition to FSDOs, GrowNYC also helps divert textiles. In the calendar year 2019, across three Queens Greenmarkets (Jackson Heights and Forest Hills: Year-round; Sunnyside: Seasonally from May through December), GrowNYC collected over 111,000 lbs. of textiles from 11,352 donors (an average of 9.8 lbs/donor). **Before suspending operations due to COVID-19, they collected over 16,600 lbs. of textiles from 1,704 donors at Jackson Heights and Forest Hills Greenmarkets**, averaging 9.8 lbs. per donor (January 1 to March 22, 2020).<sup>47</sup>

DSNY and the nonprofit Housing Works jointly lead [refashionNYC](#), which fights the dual crises of homelessness and AIDS by providing free and convenient clothing donation and recycling pick-up to apartment buildings with 10 or more units, office buildings, commercial businesses, schools, and institutions.<sup>48</sup> Six hundred and thirty-eight properties in Queens participate in the program representing .15% of Queens’ 422,970 buildings with 10 or more units according to PLUTO.<sup>49</sup> **Over the last three fiscal years, refashionNYC has more than doubled collections in Queens from 238.41 to 591.46 tons.** DSNY suspended refashionNYC from April to June 2020 due to COVID-19 but have since restarted.

Queens Community District	Buildings Enrolled in refashionNYC
1	22
2	44
3	41
4	11
5	0
6	62
7	53
8	197
9	8
10	2
11	25
12	9
13	140
14	24
Total	638

Queens 2021 refashionNYC Enrollment  
Source: DSNY leadership

ecycleNYC

Buildings with 10 units or more can also easily divert e-waste by signing up for DSNY’s free program ecycleNYC.<sup>50</sup> [ecycleNYC](#) is a partnership between DSNY and Electronics Recycling International, which recycles electronics following the strictest industry and environmental standards. ecycleNYC accepts:

- TVs
- VCRs, DVRs, and DVD players
- Cable and satellite boxes
- Video game consoles
- Computers: including small servers; monitors; laptops and their peripherals (such as keyboards, hard drives, mice, etc.)
- Printers/scanners
- Fax machines
- Small electronics: including tablets; mobile phones; MP3 players

DSNY supports buildings by providing training and evaluation to determine how to best implement the program based on the building’s size and number of units. **Currently, 3,497 of Queens’ 422,970 buildings with 10 or more units (.82%) participate in the program.**

Queens Community District	10+ Unit Buildings Enrolled in ecycleNYC
1	185
2	249
3	235
4	145
5	53
6	353
7	493
8	656
9	117
10	119
11	279
12	177
13	317
14	119
Total	3,497

Queens 2021 ecycleNYC Enrollment  
Source: DSNY leadership

Conclusion

This analysis of waste statistics from DSNY and its partners offers several notable findings for Queens electeds, agencies, and community leaders to consider:

- Between 2010 and 2019, the per capita volume of household waste by Queens residents plateaued or decreased, even while the population increased.
- Queens’ residential diversion rate increased slightly starting in 2016, with improvement in the weight and percentage of properly sorted MGPC and Curbside Organics Collection likely contributing factors.
- Capture and diversion rates vary widely across Queens Community Districts, with some neighborhoods performing notably better than others. Only one or two CDs, however, come close to meeting DSNY’s 25% Curbside Collection Diversion Goal.
- As compared to other boroughs, Queens capture and diversion rate for Paper and MGPC is about average. Diverting Queens residents’ higher percentage of potentially compostable material from the waste stream will be critical to the City reaching zero waste to landfills by 2030.
- Queens residents’ use of free and, in some cases highly accessible, diversion resources (e.g., GrowNYC FSDOs, refashionNYC, ecycleNYC) is less robust than it could be given the borough’s density and number of viable properties.



Compost Site at Queens Botanical Garden, March 2021  
Source: Queens SWAB Organizing Committee Member



ENDNOTES

1

A Summary of Sanitation Rules and Regulations, NYC Department of Sanitation, 1 Jan. 2015, [www1.nyc.gov/assets/dsny/downloads/pdf/about/laws/DSNY\\_rules\\_regs\\_2015.pdf](http://www1.nyc.gov/assets/dsny/downloads/pdf/about/laws/DSNY_rules_regs_2015.pdf).

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Ibid.

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Ibid.

4

“2017 NYC Residential, School, and NYCHA Waste Characterization Study.” New York City Department of Sanitation, 2017, <https://dsny.cityofnewyork.us/wp-content/uploads/2018/04/2017-Waste-Characterization-Study.pdf>. Accessed 28 Jan 2021.

5

Seltzer, Jonathan, and Francisco, Crihlien. “Report of the Finance Division on the Fiscal 2021 Preliminary Plan and the Fiscal 2020 Preliminary Mayor’s Management Report for the Department of Sanitation.” Department of Sanitation, March 4, 2020, <https://council.nyc.gov/budget/wp-content/uploads/sites/54/2020/02/827-DSNY.pdf>, Accessed 5 April 2021.

6

Ibid.

7

“The Plan for a Strong and Just City.” OneNYC 2050 Building a Strong and Fair City, City of New York, Apr. 2019, [onenyc.cityofnewyork.us/](http://onenyc.cityofnewyork.us/).

8

“2017 NYC Residential, School, and NYCHA Waste Characterization Study.” New York City Department of Sanitation, 2017, <https://dsny.cityofnewyork.us/wp-content/uploads/2018/04/2017-Waste-Characterization-Study.pdf>. Accessed 28 Jan 2021.

9

“2017 NYC Residential, School, and NYCHA Waste Characterization Study.” New York City Department of Sanitation, 2017, <https://dsny.cityofnewyork.us/wp-content/uploads/2018/04/2017-Waste-Characterization-Study.pdf>. Accessed 28 Jan 2021.

10

DSNY Recycling Diversion Goals. <https://www1.nyc.gov/assets/dsny/site/recycling-diversion-goals>. Accessed 6 April 2021.

11

“2017 NYC Residential, School, and NYCHA Waste Characterization Study.” New York City Department of Sanitation, 2017, <https://dsny.cityofnewyork.us/wp-content/uploads/2018/04/2017-Waste-Characterization-Study.pdf>. Accessed 28 Jan 2021.

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Ibid.

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Ibid.

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“Queens: The World’s Borough.” NYCEDC, [https://edc.nyc/queens#:~:text=The%zero wa20World’s%20Borough,people%2C%20including%201.1%20million%20immigrants](https://edc.nyc/queens#:~:text=The%zero%20World's%20Borough,people%2C%20including%201.1%20million%20immigrants). Accessed 6 March 2021.

15

“QuickFacts, Queens County (Queens Borough), New York.” United States Census Bureau, 2019, <https://www.census.gov/quickfacts/fact/table/queenscountyqueensboroughnewyork,newyorkcitynewyork/PST045219>Accesses on 27 Oct, 2020.

16

Ibid.

17

“DSNY Districts.” NYC OpenData, 31 Aug 2020, <https://www.arcgis.com/home/item.html?id=01582b48646f415e993fbb39882bc0f3>. Accesses 7 Feb 2021.

18

“Annual Report: New York City Curbside and Containerized Municipal Refuse and Recycling Statistics.” New York City Department of Sanitation, 2020. [https://dsny.cityofnewyork.us/wp-content/uploads/2020/08/about\\_dsny-collections-annual-2020.pdf](https://dsny.cityofnewyork.us/wp-content/uploads/2020/08/about_dsny-collections-annual-2020.pdf). Accessed 21 Oct 2020.

19

2017 NYC Organics Expansion Map. <https://www1.nyc.gov/assets/dsny/docs/nyc-organics-collection-areas.pdf>. Accessed 10 April 2021.

20

Gannon, Michael. “Organics Recycling Comes to CB13.” Queens Chronicle, 1 March. 2018. Accessed 10 April 2021.

21

Planning-Population-Census 2010-DCP, New York City Department of Planning, [www1.nyc.gov/site/planning/planning-level/nyc-population/census-2010.page](http://www1.nyc.gov/site/planning/planning-level/nyc-population/census-2010.page). Accessed 10 April 2021.

22

“Annual Reports for DSNY Curbside Collections.” New York City Department of Sanitation, <https://www1.nyc.gov/assets/dsny/site/resources/statistics/annual-reports-for-dsny-curb-side-collections>. Accessed 21 Oct 2020.

23

“QuickFacts Queens County (Queens Borough), New York; New York city, New York.” United States Census Bureau, <https://www.census.gov/quickfacts/fact/table/queenscountyqueensboroughnewyork,newyorkcitynewyork/PST045219>. Accessed October 19 2020.

24

“Annual Reports for DSNY Curbside Collections.” New York City Department of Sanitation, <https://www1.nyc.gov/assets/dsny/site/resources/statistics/annual-reports-for-dsny-curb-side-collections>. Accessed 21 Oct 2020.

25

“Annual Reports for DSNY Curbside Collections.” New York City Department of Sanitation, <https://www1.nyc.gov/assets/dsny/site/resources/statistics/annual-reports-for-dsny-curb-side-collections>. Accessed 21 Oct 2020.

26

“NYC Organics.” New York City Department of Sanitation, 4 Sept 2018, <http://dsny.cityofnewyork.us/wp-content/uploads/2018/09/2018-09-04-Organics-Expansion-Maps-1.pdf>.

27

“Annual Reports for DSNY Curbside Collections.” New York City Department of Sanitation, <https://www1.nyc.gov/assets/dsny/site/resources/statistics/annual-reports-for-dsny-curb-side-collections>. Accessed 21 Oct 2020.

28

Ibid.

29

bid.

30

“Recycling Diversion and Capture Rates.” NYC OpenData, 7 Feb 2020, <https://data.cityofnewyork.us/Environment/Recycling-Diversion-and-Capture-Rates/gaq9-z3hz>.

31

“New York’s Bottle Bill.” New York State Department of Environmental Conservation, <https://www.dec.ny.gov/chemical/8500.html>.

32

Using linear regression with an R value of 0.2336.

33

Using linear regression with an R value of 0.0805.

34

“Recycling Diversion and Capture Rates.” NYC OpenData, 7 Feb 2020, <https://data.cityofnewyork.us/Environment/Recycling-Diversion-and-Capture-Rates/gaq9-z3hz>.

35

“Main Sort: City and Boroughs.” New York City Department of Sanitation, 2017, <https://www1.nyc.gov/assets/dsny/site/resources/reports/waste-characterization>. Accessed 19 Nov 2020.

36

“2017 NYC Residential, School, and NYCHA Waste Characterization Study.” New York City Department of Sanitation, 2017, <https://dsny.cityofnewyork.us/wp-content/uploads/2018/04/2017-Waste-Characterization-Study.pdf>.

37

Wimsatt, Kate. Received by Wylie Goodman, ZWS Clarification, 15 Mar. 2021.

38

Ibid.

39

“New York City Housing Authority Official Map 2020.” New York City Housing Authority Performance Tracking & Analytics Department, Feb 2020, <https://www1.nyc.gov/assets/nycha/downloads/pdf/officialmap-2020.pdf>. Accessed 28 Oct 2020.

40

Ibid.

41

“Community Composting.” New York City Department of Sanitation, <https://www1.nyc.gov/assets/dsny/site/our-work/composting/community-composting> Accessed 1 Feb 2021.

42

Levy, Julie. “One of New York City’s Biggest Processors of Food Waste Is in Danger of Losing Its Home.” Bedford + Bowery, 16 Feb. 2021, [bedfordandbowery.com/2020/12/one-of-new-york-citys-biggest-processors-of-food-waste-is-in-danger-of-losing-its-home/](http://bedfordandbowery.com/2020/12/one-of-new-york-citys-biggest-processors-of-food-waste-is-in-danger-of-losing-its-home/).

43

“2019 Year-in-Review: Compost Metrics.” Big Reuse, 31 Dec. 2019, [www.bigreuse.org/service/compost-metrics/](http://www.bigreuse.org/service/compost-metrics/).

44

“Compost Metrics: 2019 Year-in-Review.” Big Reuse, <https://www.bigreuse.org/service/compost-metrics/>. Accessed 10 December 2020.

45

<https://queensbotanical.org/farmandcompost/>.

46

Encababian, Chelsea. Received by Wylie Goodman, RE: Big Reuse and QBG Sections, 12 Mar. 2021.

47

Hurd, David. Received by Wylie Goodman, “RE: pounds versus tons for borough comparison 2019” 8 March 2021.

48

Overview for RefashionNYC, New York City Department of Sanitation, [www1.nyc.gov/assets/dsny/site/services/donate-goods/refashionnyc-overview](http://www1.nyc.gov/assets/dsny/site/services/donate-goods/refashionnyc-overview). Accessed 10 April 2021.

49

Kitchener, Katherine. Received by Wylie Goodman, “RE: ecycleNYC and refashion?” 5 April 2021.

50

“Overview for EcycleNYC.” Overview for EcycleNYC, New York City Department of Sanitation, [www1.nyc.gov/assets/dsny/site/services/electronics/overview-electronics-ecycle](http://www1.nyc.gov/assets/dsny/site/services/electronics/overview-electronics-ecycle).