

OVERALL RESIDENTIAL WASTE (REFUSE + RECYCLING)

Although the definition of the term “waste” varies, in the NYC WCS it means the totality of what New York City residents set out at the curb for DSNY collection, consisting of refuse (trash) and recycling (both paper and metal/glass/plastics or “MGP”). Combined, waste gives us an idea of what, as a whole, is being consumed, and then discarded.

HOW MUCH WASTE?

New Yorkers generate a curbside waste stream that averages over 64,000 tons a week. This comes out to around 16 pounds a week per person and 40 pounds a week per household. On a daily basis, this translates to 2.3 pounds a day per person and 5.7 pounds a day per household.

This estimate is considerably less than the frequently quoted 4.5 pounds a day per person that the EPA talks about.¹ Why? Because the EPA is counting both residential (home) trash and commercial trash in this figure. Moreover, New Yorkers generate less waste per household than U.S. households in general due to the extreme density of our City. The Results Highlights section on NYC vs. U.S. waste discusses this in more detail.

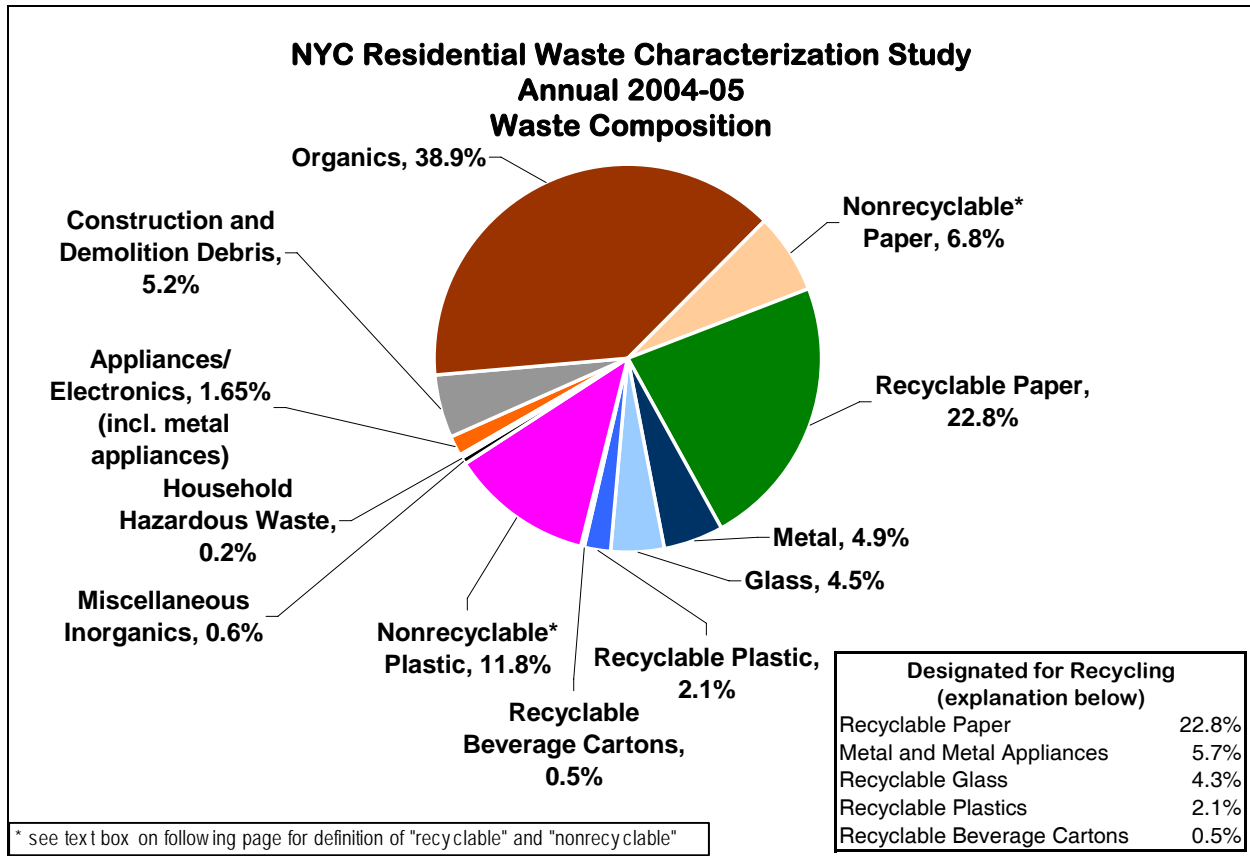


COMPOSITION OF NYC WASTE

The composition of the city-wide waste stream, averaged over four seasons, shows that most of what is discarded is organic material (food waste, yard trimmings, and other **putrescible** materials). Very little is electronics or household hazardous waste. Other types of waste fall in between. The pie chart on the next page shows the annualized composition of New York City's waste stream.

¹ www.epa.gov/epaoswer/non-hw/muncpl/facts.htm

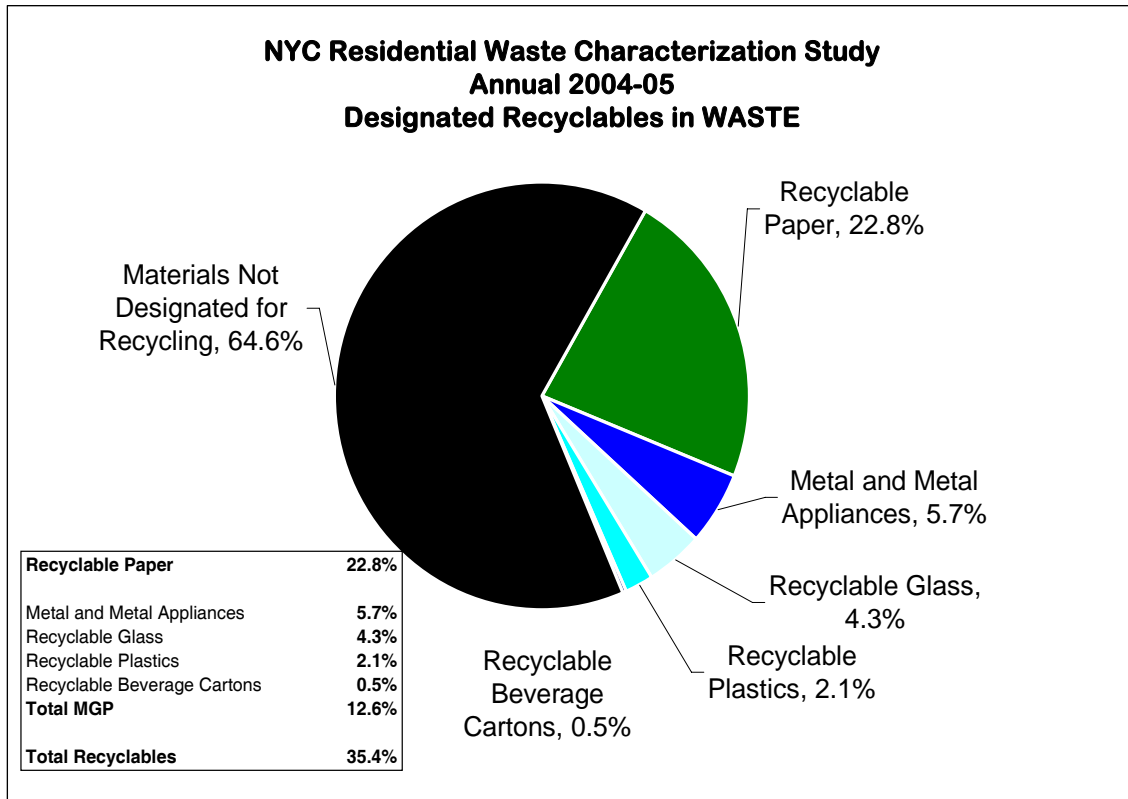
The information herein has been compiled, analyzed, and reported by the DSNY Bureau of Waste Prevention, Reuse and Recycling, using data collected by its consultant R.W. Beck. These highlights do not substitute for a thorough review of R.W. Beck's Final Report, which contains more detailed data. Some percentages may not total exactly due to rounding.



HOW MUCH WASTE IS DESIGNATED FOR RECYCLING?

About 36% of the combined waste stream consists of materials that are designated for recycling under the current curbside recycling program. Because we're looking at waste, this means that if you combine the city's refuse, paper recycling, and MGP recycling into one "bucket", 36% of that bucket consists of materials we currently ask people to recycle, including newspaper, cardboard, clean mixed paper, #1 and #2 plastic bottles, glass jars and bottles, beverage cartons, metal cans, and other metal items. This 36% is the maximum diversion rate that could ever be achieved under the current program if 100% of New Yorkers participated 100% of the time. The pie chart on the following page shows the fraction of the waste stream that is designated for recycling in New York City.

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It cannot be stressed enough that only certain paper, metal, glass and plastic items are designated for recycling under the current recycling program. Other materials, including tissues, paper plates, and many different types of plastic containers, along with many other refuse items, are not designated for recycling (see list below).

Stating that a material is designated for recycling is simply stating the parameters of NYC's current program; it is not a comment on whether a certain item can, or should, be recycled under a different program.

DESIGNATED FOR RECYCLING UNDER RESIDENTIAL CURBSIDE PROGRAM	
DESIGNATED METAL, GLASS, PLASTIC AND BEVERAGE CARTONS ("MGP")	NON-DESIGNATED GLASS AND PLASTIC*
metal cans; aluminum foil and wraps; bulk metal; glass bottles and jars; #1 and #2 plastic bottles and jugs; beverage cartons and drink boxes.	any glass items other than glass bottles & jars (such as mirrors, light bulbs, ceramics, and glassware); any plastic items other than plastic bottles & jugs (such as deli and yogurt containers; plastic toys, cups, bags, and wraps); styrofoam (cups, egg cartons, trays, etc.); batteries.
	* note: ALL metals are designated for recycling
DESIGNATED PAPER RECYCLING	NON-DESIGNATED PAPER
white, colored, and glossy paper; wrapping paper; paper bags; newspapers, magazines, and catalogs; phone books; soft cover books; smooth cardboard; paper or cardboard egg cartons and trays.	paper heavily soiled with food or liquid; plastic or wax coated paper; napkins, paper towels, tissues; paper cups and plates; hardcover books.

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CITYWIDE DIVERSION RATES AND CAPTURE RATES

The curbside residential recycling diversion rate during the WCS was about 18%. This means that 18% of waste was getting diverted from landfills to recycling. The **diversion rate** is calculated as:

$$\frac{\text{tons of residential recycling collected in recycling setouts}}{\text{tons of recycling collected in recycling setouts, plus tons of refuse collected in refuse setouts}}$$

We know collection tonnages because DSNY keeps daily records on each truck after it dumps the contents of its refuse or recycling route. Combining this information with the results of the WCS, we can also calculate the **capture rate**, as:

$$\frac{\text{tons of recycling collected in recycling setouts}}{\text{tons of recycling in waste (recycling plus refuse)}}$$

Annual Citywide Capture Rate	
MGP	56.6%
Paper	47.5%
Both	50.8%

The capture rate tells us how much of what should be recycled is actually recycled. In other words, out of all of the recyclables “out there,” how many are making their way into the recycling bin?

The answer is, about half. Almost 57% of all MGP, and 47.5% of all recyclable paper, is properly recycled by residents. This is a considerable achievement, because it reflects the behaviors of 8 million people – those who recycle very well, and those who recycle not at all, as well as those who recycle at an “average” rate (see the “Case Study” on page VI for an illustration of the sensitivity of capture rates to small variations in individual behavior).

Note that the capture rate is not the same as the participation rate, which measures how many people engage in recycling at all. According to DSNY telephone surveys, the participation rate among NYC residents is 90%, although this figure is based on self-reported information and should be interpreted with caution.

How does NYC’s capture rate compare to that of other cities? There is no way to tell, because no other U.S. city reports its capture rate. DSNY has done its own estimations of capture rates for the City of Seattle, as well as the U.S. as a whole, using published data on refuse and recycling composition, and tonnages.¹ We find that Seattle has a 65% residential capture rate citywide, but only a 45% rate among its **multi-unit** housing. Nationally, municipal recycling reflects a 51% capture rate. Although a 70% capture rate goal for NYC is a good idea, expectations must be tempered by realism; and current levels should not be unduly criticized. Only a small amount of noncompliance by some makes high capture rates very hard to meet and sustain. A 50% capture rate is cause for acknowledgement that New Yorkers *do* recycle quite well.

¹ To calculate a capture rate requires data on tonnages of refuse and recycling collected, plus data on the fraction of refuse that consists of materials designated for recycling. Among residential municipal waste characterization studies, only Seattle publishes such data. The EPA publishes similar data annually, but for combined commercial and residential wastes.

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IMPLICATIONS FOR THE DIVERSION RATE

The diversion rate and the capture rate are fundamentally related by the baseline fraction of recyclables in the waste stream to begin with. We know that around 36% of all waste is designated materials (that's the baseline fraction); and that New Yorkers are recycling 18% of their waste (that's the diversion rate). 18% is half, or 50%, of 36%; this half is the capture rate. This example shows that

<u>diversion rate during WCS</u> % of waste that is designated	<u>18.0%</u>	=	50.8%	capture rate achieved
	35.4%			
<u>for a diversion rate of</u> given a % of waste that is designated	<u>25.0%</u>	=	71%	capture rate needed
	35.4%			

the diversion rate divided by the percentage of waste that is recyclable equals the capture rate. Knowing this, it is clear that a 70% capture rate would yield a 25% diversion rate under the current program. This is the limit to what can realistically be achieved.

As you read on:

Throughout the WCS Final Report and these Results Highlights, readers should keep in mind that WASTE is the weighted average of refuse and recycling. In other jurisdictions, "waste" refers to refuse only. In the context of the WCS, waste represents the totality of materials NYC residents discard, whether as refuse or recycling. This totality can be considered a pool of resources from which to divert materials. For now, however, we use the term "waste" as a convenience.

All directly measured statistics on refuse, MGP recycling, and paper recycling composition and generation are weighted and averaged to generate statistics for waste. Much more information on these and other materials in waste can be found in WCS Final Report.

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