



Estimating quantities of food waste and the rescue potential in Jersey City

About our research and the calculator

A critical first step in addressing food waste is to estimate a baseline of amounts currently being wasted. Without understanding some basic information about how much food is being wasted and where that occurs, it is impossible to assess progress. Though actual measurement of wasted food is optimal, waste audits can be costly, time-consuming, or sometimes impractical. Similarly, few cities have tried to estimate how much surplus food – beyond what is currently being donated – could potentially be rescued and directed to people in need. Having data on this untapped potential clarifies the scale and sources of rescuable food and can inform strategies for increasing participation in food donation efforts and bolstering food rescue infrastructure. It also highlights what portion of the city’s “meal gap” could potentially be addressed through increased food donation.

The first phase of NRDC’s Food Matters project was focused on original research with two aims: developing methodologies by which to estimate how much food is going to waste in a city and how much food that is currently being discarded could potentially be rescued to assist food insecure people in the community. To make our methodologies more accessible and the research applicable to other locations, NRDC developed a calculator to help cities estimate sources and quantities of food waste generated in both the city’s residential and commercial sectors, as well as to estimate the quantity of potentially rescuable food from the commercial sector. This tool can help estimate the initial scope of food wasted in a city, but as it is a high-level, sector-based estimate, this tool is not applicable for evaluating progress in reducing food waste generation and increasing food donation over time, nor is it capable of deriving facility-level estimates. Further, the calculator is a snapshot based on national estimates and cannot factor in past or future efforts to reduce the amount of food going to waste – any work that Jersey City has already done at the local level will not be captured in the estimates, nor can the calculator be used to assess progress at a future date. This memo includes the results from running this calculator.

Our calculations are based on a range of national data sources and NRDC’s research related to wasted food and rescue potential in cities. Our research findings are presented in full under the report titles *Estimating Quantities and Types of Food Waste at the City Level (Report and Technical Appendices)* and *Modeling the Potential to Increase Food Rescue: Denver, New York City and Nashville* which can be found at: <https://www.nrdc.org/resources/food-matters-what-we-waste-and-how-we-can-expand-amount-food-we-rescue>. Please reference the methods sections of both reports for more detailed information about the source models.

Though the assessment is an estimate, we are hopeful that this analysis presents a more detailed picture than existing evaluations to date.

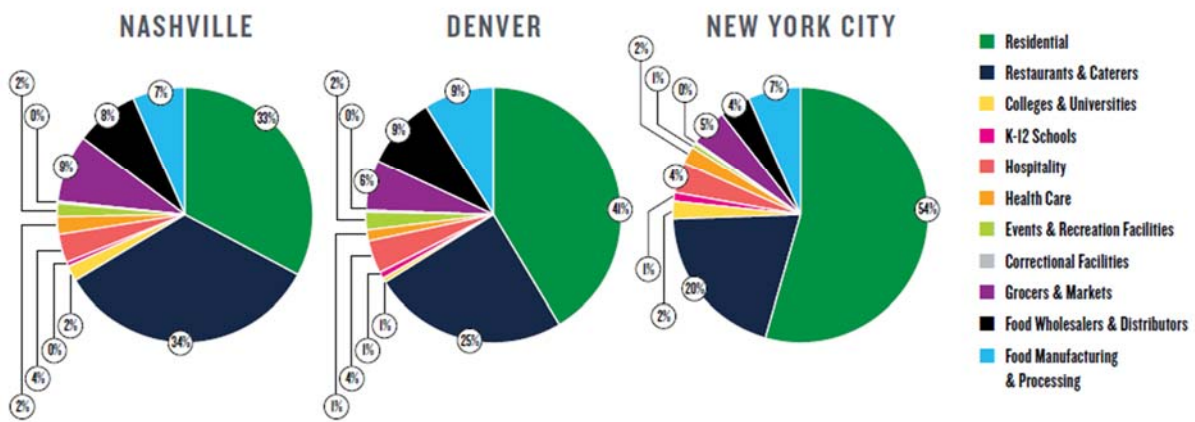


The Results for Jersey City

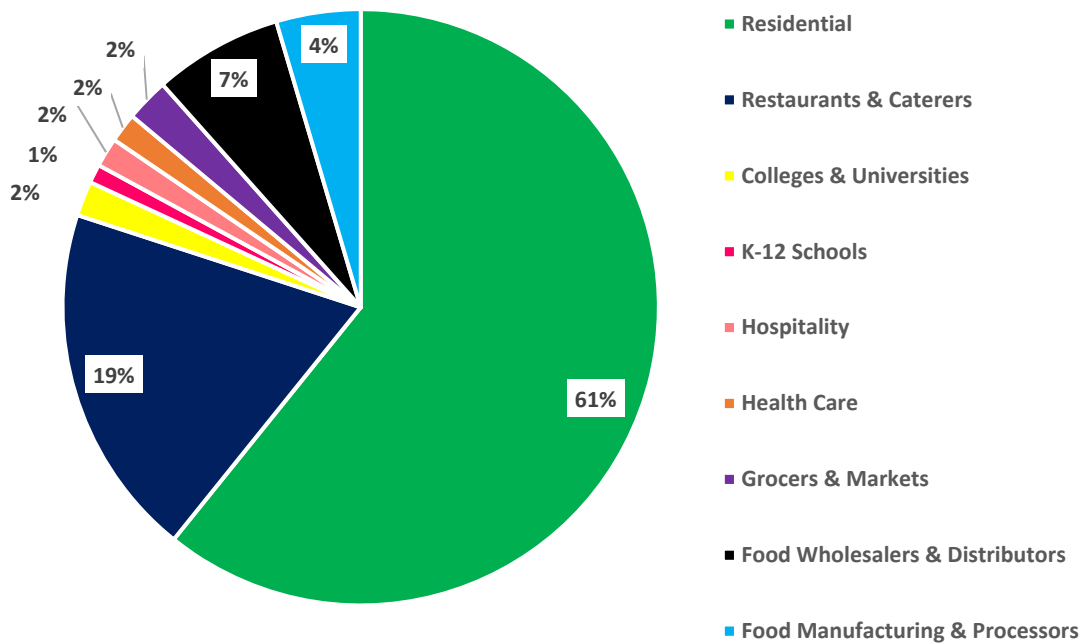
Estimating Food Waste Generation by Sector

The estimates for food waste generated in Jersey City show some variance from the three cities we studied in our first phase of research and the other cities in the Mid-Atlantic Regional cohort, but the overarching trends are consistent with other cities analyzed.

ESTIMATED FOOD WASTE GENERATED BY SECTOR



Estimated Food Waste Generated By Sector in Jersey City





In all, we estimate approximately 41,000 tons of food waste are generated in Jersey City each year. When the residential sector was included in our estimates, it is the highest food waste producing sector at nearly 25,000 tons of food waste per year. The largest industrial, commercial, and institutional (ICI) sector generating food waste is restaurants, totaling more than 7,000 tons, nearly as much as the remaining sectors combined. Other substantial contributors include food wholesalers and distributors generating 3,000 tons and food manufacturing and processing just shy of 2,000 tons annually. Four sectors bring up the next tier of food waste generation of less than 1,000 tons annually each from grocery retail, healthcare, education, and hospitality.

Given the sheer size of the residential sector, preventing and recycling household food waste will be essential to achieving any waste reduction goals. It will be critical to engage residents in food waste reduction and recycling for improved waste management and the associated environmental benefits.

NRDC’s original research into household food waste found that 69% of residential food waste was potentially edible and therefore could have been prevented from becoming waste. The remaining 31% of household food waste consisted of inedible food scraps – including bones, pits, peels, and rinds. There will always be some organic refuse which should be recycled to return nutrients back to the soil rather than create climate polluting greenhouse gases when disposed in landfill. We estimate the inedible portion of residential food scraps in Jersey City is likely 7,700 tons per year.

Although the residential sector and the restaurant sector are the largest estimated contributors to food waste, these are also the sectors with the most members, meaning a large number of entities are each producing on average a relatively small amount of waste. Whereas, there are significantly fewer food wholesalers producing a considerable amount of food waste. Depending on the resources and connections available, it may be beneficial to do outreach to second tier generators with few entities so that resources can be concentrated on these few facilities rather than spread thin across many entities.

Summary of Estimated Tons of Food Waste Generated in Jersey City

Sector	Estimated Tons of Food Waste Generated	% of Total (ICI only)
Restaurants	7,361	47%
Food Wholesalers and Distributors	2,872	18%
Food Manufacturing and Processing	1,867	12%
Grocers and Markets	963	6%
Colleges and Universities	773	5%
Health Care	652	4%
Hospitality	651	4%
K-12 Schools	418	3%
Residential	24,955	
Total	40,487	



Modeling the Potential for Food Rescue

Our second scope of analysis looks at the amount of surplus food that could potentially be rescued and redirected to address food insecurity. Our analysis provides a guidepost for “what’s possible,” to better inform further development of the food rescue system. Below, we will look at the two scenarios explored in this component of our research. The scenarios differ by the rate of donation explored and the percentage of area businesses included as potential food donors. Our methodology addresses grocery retail, convenience stores, restaurants, caterers and various types of institutional foodservice; these are the commercial sectors where reliable sources of national data on current, actual donations were available to drive our calculations.

Maximum Scenario: Our maximum scenario characterizes the maximum amount of surplus food in the retail, restaurant and institutional sectors within the city that we believe could, hypothetically, be donated. This scenario estimates potentially rescuable surpluses at 100% of area businesses and institutions at our most optimistic assumptions about the amounts of surplus food that could potentially be suitable for donation under optimal conditions. As such, the maximum scenario describes the uppermost limit of what we believe to be theoretically possible.

Ambitious Scenario: The ambitious scenario describes the amount of rescuable food that could potentially be available using more realistic assumptions and existing donation patterns (based on national data for the business sectors evaluated) to describe an ambitious yet attainable set of possibilities. As such, the ambitious scenario is more rooted in current rescue realities in these sectors nationally and embodies a more “middle of the road” set of assumptions. It acknowledges, for instance, that donation activity in sectors such as restaurants is currently more limited and will take time to grow given the challenges of rescuing prepared food from many disparate locations.

The chart below highlights the potential envisioned under NRDC's methodology. Note that these figures reflect the potential from businesses located only within Jersey City and don't reflect donated foods that would be sourced from other places. Some portion of the calculated amounts below are likely already being donated, particularly in the grocery sector.



RESCUE POTENTIAL BY SECTOR FOR JERSEY CITY		
Sector	Potential under Ambitious Scenario (Tons/Year)	Potential under Maximum Scenario (Tons/Year)
Retail Grocery	266	333
Convenience Stores	78	622
Healthcare	23	69
Hospitality	15	46
Colleges and Universities	14	41
Full-Service Restaurants	10	103
K-12 Schools	9	73
Limited-Service Restaurants	4	54
Coffee Shops	3	29
Caterers	2	6
Total	425	1,377

The estimates for additional food rescue potential in Jersey City show some variance from the cities we studied in our first phase of research but are not dissimilar from some other cities participating in this cohort and the overarching trends are consistent with other cities analyzed. Additionally, the original research deducted existing donations from the analysis; we have not yet endeavored to remove the “tapped” sources from this analysis but that could be a future level of review.

Looking first at the maximum scenario, approximately 1,400 tons of food could potentially be rescued. The majority (69%) of this food comes from retail stores – 622 tons from small retail / convenience stores and 333 tons annually from large grocery stores. Another 157 tons of food or 12% could come from restaurants with most of that coming from full-service restaurants. The education sectors are not insignificant at another 8% of the total maximum potential of rescuable food; 73 tons of rescuable food potential in the K-12 schools, while universities and colleges are estimated to generate about 41 tons annually. Healthcare and hospitality sectors are likely an untapped potential source of rescuable food with estimated potential of 69 and 46 tons respectively.

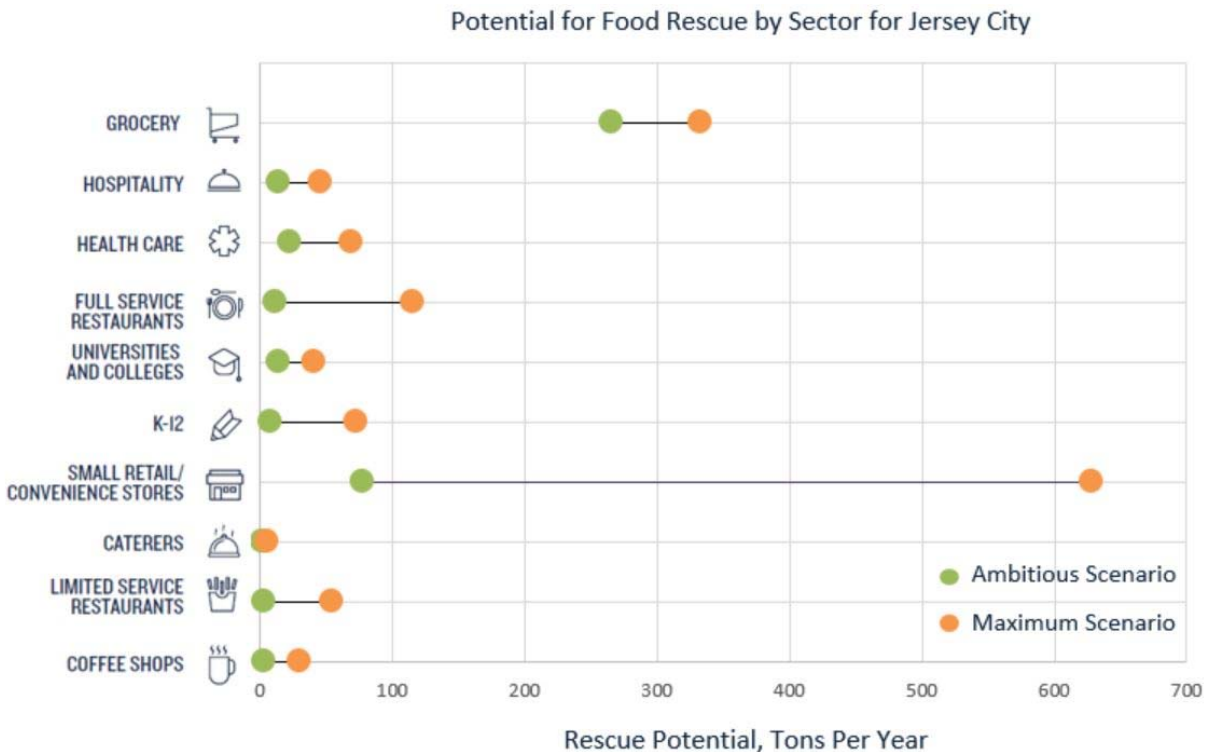
Alternatively, the ambitious scenario suggests that more feasibly, just over 400 tons of surplus food could be rescued from these sectors in Jersey City. Under this scenario, which takes into account both smaller amounts of rescuable food as well as much lower participation rates for convenience stores, the small retail sector drops down to 78 tons of surplus food per year or 18% of the ambitious scenario. In this scenario, large retailers remain a major source of rescuable food; grocery stores offer 266 tons and represent 60% of rescuable food that is more attainable. Healthcare and hospitality collectively represent 9% of the total ambitious potential. In this scenario the rescue potential for restaurants drops substantially to under 15 tons, reflecting the significant logistical barriers to food rescue in that sector.



While restaurants represent a larger portion of overall wasted food, much of that waste occurs after the food is served and is unsuitable for rescue. Also, NRDC estimates that fewer than 5% of all restaurants in the country donate. Our ambitious scenario assumes that 15% of restaurants would donate surplus food, still a reach goal.

In both scenarios, the retail grocery sector has the largest potential for food rescue. Under both scenarios, retail grocery stores and corner markets offer 70-80% of the total potential. However, large retailers are often well-connected to food rescue organizations and this sector is likely well-tapped. Often, small retail stores are less familiar with donation incentives, and fewer of them currently donate. Food quality concerns may be significant, and the combination of small amounts and many disparate locations can make rescue logistics challenging. Grocery stores that donate at the highest rates are often able to do so by ramping up donation of perishable items. Perishable food categories including produce, dairy, meat and deli represent a substantial 53% of all U.S. grocery sales. This large share of perishables among U.S. grocery sales and input from industry leaders suggest that donation rates could expand substantially if rescue infrastructure for perishables was fully scaled up.

The chart below highlights Jersey City's data in a schematic format:





Meals gap

In addition to estimating how much additional surplus food could potentially be rescued in Denver, Nashville and New York, we compared those amounts of food to each community's estimated meal gap, working from Feeding America data¹. To translate food tonnage into meal equivalents we assume that "meals" weigh 1.2 pounds on average. In doing so, we also acknowledge that some food may go to waste after the point of donation (whether within the hunger relief system or after it is provided to food insecure individuals). We did not attempt to deduct these amounts due to the limited availability of data.

Feeding America estimates the food insecurity rate in Jersey City to be 10.9% (somewhat lower than the US rate of 13%) or 4,800,000 meals per year for a total annual food budget shortfall of \$15 million. Under the ambitious rescue potential model, we estimate that approximately 710,000 meals could be rescued from the sectors under review located within Jersey City, representing 15% of the meal gap. The value of that rescuable food is estimated to be \$2.25 million. The maximum recoverable potential model identified more than 2.3 million meals that could be rescued or enough to fill about 48% of Jersey City's meals gap. Note that some portion of the estimated potential is likely already being rescued although we expect that the untapped potential remains sizeable, particularly for perishables in the grocery sector as well as prepared foods in the hospitality and healthcare sectors.

Differences between Rescue Potential and Waste Generation Models

At this point it may be helpful for us to provide a note on the sectors analyzed in this research relative to the previously mentioned waste characterization assessment. Because of the availability of data and the unique data sources utilized for this research, the results presented in this assessment are not wholly parallel with the results from the waste generation assessment. For example, there is a dearth of data available to assess the surplus food rescue potential from food wholesalers and distributors, food manufacturing and processing, etc. Though the data is not available, it does not mean that there is no potential to rescue surplus food from these facilities, but rather that a meaningful estimate is not possible. The residential sector was not assessed for its food rescue potential because the food wasted at the household level is not appropriate for donation.

Additionally, for the waste generation assessment, sufficient data was not available to assess how much food is wasted from the convenience store and small retail sector; therefore, it is not featured in the previously mentioned research. Furthermore, more granular data is available for the rescue potential from different kinds of restaurants – full service, limited service, coffee shops, caterers – enabling us to disaggregate those sectors for the rescue analysis.

¹ Feeding America reports County level data. We assume an even distribution of food access across the county in order to estimate the city level meal gap. This may be a false assumption.



Recommendations for further action

1. Food scraps collection from residences and consumer-facing businesses is a critical component of meeting waste reduction goals. Engaging residents in food waste reduction and recycling will be critical to improved waste management.
2. High visibility technical assistance could motivate restaurants in Jersey City to reduce food waste. Technical assistance in food waste prevention in this sector may prove to significantly curtail the amount of food going to waste in Jersey City.
3. Small retail stores and corner markets are often less familiar with donation incentives, and fewer of them currently donate. When corner stores are located near one another or near last-mile food organizations logistical challenges may be surmountable. Food donation and prevention education could pair well with existing outreach efforts to these businesses.
4. Food wholesalers and distributors have business operations somewhat similar to grocery stores and though we were unable to quantify how much surplus food may be safe for redistribution, the sector may be an area of opportunity for food rescue as well as waste prevention assistance.
5. Health inspectors can be invaluable assets in educating licensed food facilities on how to safely donate surplus food. Improved communication and education for foodservice businesses will be necessary to fulfill the ambitious scenario predictions.
6. Coordination with local rescue organizations can help identify current donation levels and the untapped portion of the rescue estimates.