

2015 NYC Organics Collection Report



Commissioner's Note

Friends –

In the two years since City Council passed Local Law 77 of 2013, the landscape of solid waste in New York City has rapidly changed. Today, we have convenient, robust and growing programs to manage materials previously discarded without thought.

We have fostered the incredible work of the reuse community, piloting curbside collection of textile donations and expanding re-fashionNYC to more than 100,000 households. We have developed the nation's largest in-home electronics recycling program, e-cycleNYC, serving more than one million apartment building residents. We have initiated an aggressive plan to bring all New York City Housing Authority developments into the curbside recycling program for the first time since mandatory recycling began.

And we have built a pilot organics collection program, the first new regular curbside Sanitation service since the early 1990s. Today, that program serves more than 500,000 residents, with another 200,000 residents joining this fall.

This report lays out how we have built this program, including the challenges we have overcome and the many successes along the way. While we acknowledge that we still have work to do to make NYC Organics Collection a robust, sustainable, citywide program, I am very proud of the work that the Department, our partners, and all of our participating residents have done to get us this far.

Together, we must work to ensure this program's growth and success and continue to work toward our goal of achieving zero waste to landfills by 2030.

Sincerely,



Kathryn Garcia



DSNY Commissioner Kathryn Garcia with summer 2015 organic interns.

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Executive Summary

Organic waste – food scraps, yard waste and food-soiled paper – make up nearly one-third of everything New Yorkers throw out at the curb. When these products go to landfills, they contribute harmful greenhouse gas emissions. However, these materials can be put to higher and better use, either by composting them into a stable, nutrient-rich soil additive or by processing them through anaerobic digestion, generating renewable natural gas to heat homes and generate electricity.

Local Law 77 of 2013 required the Department of Sanitation to create and evaluate a curbside organics collection pilot program serving a minimum of 100,000 New York City households and 400 schools. As of June 2015, the pilot NYC Organics Collection program served more than 137,000 households and 700 schools. Through the pilot, DSNY collected 15,850 tons of organic material: 7,640 tons from schools and another 8,210 tons from the residential buildings.

To implement the program, DSNY has employed a range of strategies, some borrowed from other successful organics programs and others tested for the first time in New York City. DSNY gave all participants locking, hard-sided brown bins to store and set out organic material while controlling odors and vermin.

The pilot has focused on small, one to nine-unit residential buildings, which are most likely to have the space and buy-in for successful participation. However, as part of the pilot, DSNY has enrolled more than 15,000 households in 10 or more unit buildings, to test how such a program might work in the high-rise buildings where half of New Yorkers live.

The results of the pilot have been very positive: New Yorkers are participating. In a survey of pilot area residents, nearly 70 percent of residents reported participating in the program. While diversion rates have increased in most districts, those districts in the organics collection pilot have had some of the highest increases. And these districts have also seen increases in the amount of paper and metal, glass and plastic set out for collection.

Overall, those who participate, do so very well. Less than five percent of the material collected from residents is non-organic contamination. However, the materials that do contaminate the organics stream, including plastic bags and expanded polystyrene foam, are especially problematic for processors. DSNY has taken a number of steps to reduce the prevalence of these contaminants and increase the availability of compostable bags and other products.

Given the success of the NYC Organics Collection pilot to date, DSNY plans to continue its ongoing expansion. We are procuring additional processing capacity to handle the amount and type of material that we expect to collect. We will add additional pilot neighborhoods, starting with the first two full districts this fall. And we will continue to focus on sustainability in schools, working with the Department of Education to launch the first 100 Zero Waste Schools in January 2016.

These actions will put us on a path to serve all New Yorkers with NYC Organics through curbside collection or convenient neighborhood drop-off sites by the end of 2018. A successful organics program is a critical component of our goal of achieving zero waste to landfills by 2030.



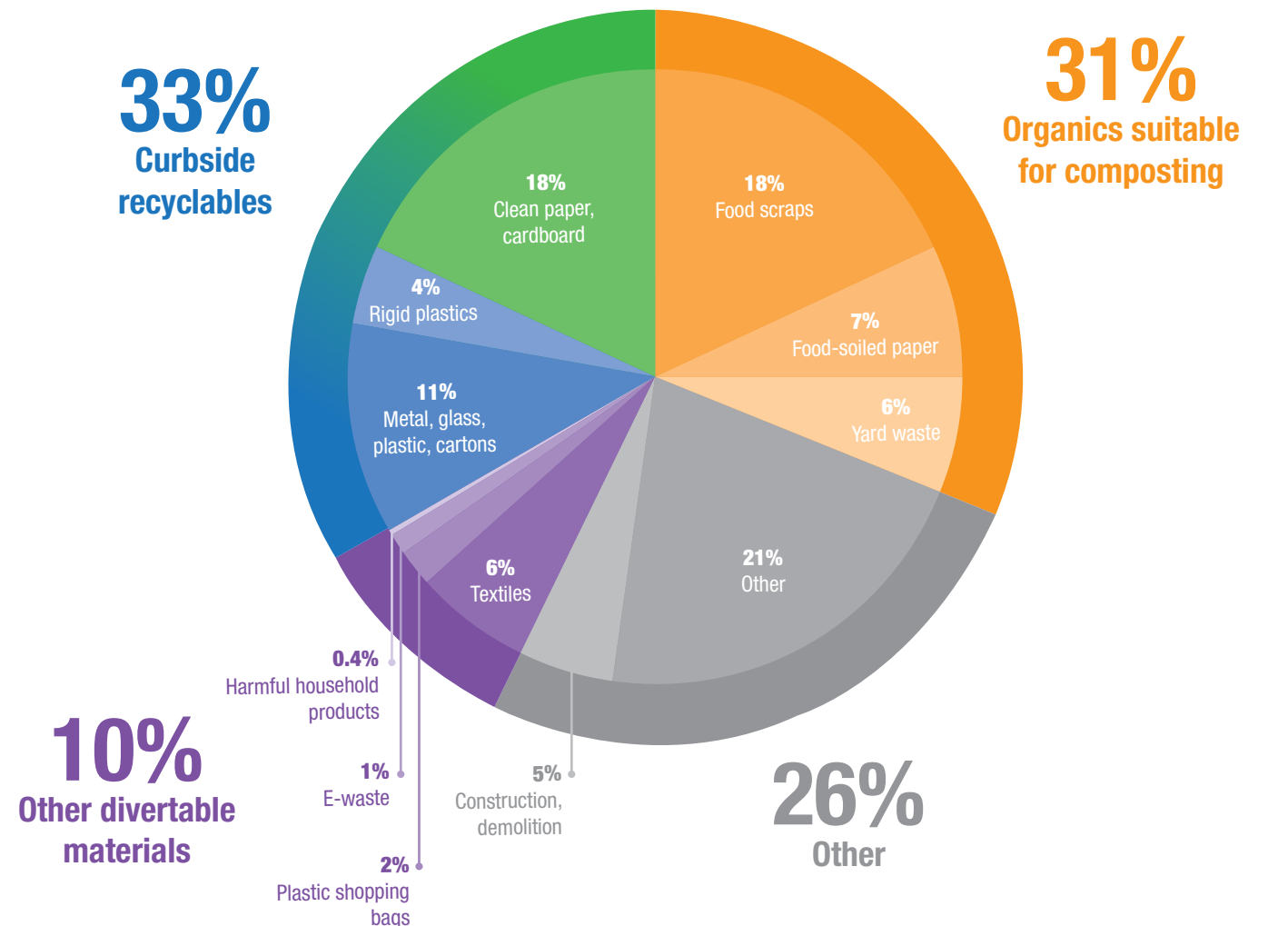
Information Table at NYC Compost Project hosted by Earth Matter.

Introduction

Organics recycling is the cornerstone of sustainable waste management for one simple reason: organics – food scraps, food-soiled paper, and yard trimmings – make up a large percentage of what people throw out. Close to one-third of all materials that New Yorkers put at the curb is organic material – 1.1 million tons a year. In 2012, the City embarked on an ambitious pilot organics collection program to collect that material at the curb from homes, schools and apartment buildings. Over the course of the last three years, the Department of Sanitation (DSNY) has steadily increased the scope of the program and the amount of organic material collected. Our experience has sharpened our understanding of participant behavior, operational requirements, cost considerations and processor acceptance.

On Earth Day 2015, Mayor Bill de Blasio released *One New York: The Plan for a Strong and Just City*, a strategic roadmap the future of our City. Integral to One New York is a commitment to reduce the amount of waste disposed by 90 percent and achieve zero waste to landfills by 2030. The NYC Organics Collection pilot program positions the city to develop an informed, pragmatic and aggressive plan to divert organic waste in pursuit of this ambitious agenda citywide.

Figure 1: NYC's Residential Waste Stream (2013)



Source: 2013 Waste Characterization Study, NYC Department of Sanitation

This report summarizes the first two years of the NYC Organics Collection pilot from 2013 to 2015. It details DSNY's operational approach, outreach methodology, costs, participation, diversion rates and recommendations for the growth of the program.¹ Its conclusions are clear: curbside organics collection is viable, popular and effective. As more and more households are brought into this collective effort, we are on sound footing to pursue Zero Waste and to create a more equitable, resilient and sustainable New York City.

Food scraps, yard trimmings and food-soiled paper make up 31 percent of NYC's "waste pie". To fulfill the City's Zero Waste goal, DSNY is developing programs to reduce waste and to separate and recover individual components of the waste stream for beneficial use. This includes organic material, paper, cardboard, metal, glass and plastics currently collected for recycling; textiles suitable for donation and reuse; and electronic waste and other special wastes that require proper handling.² Of these, organic waste offers the biggest new opportunity not yet tapped.

After traditional recyclables (paper, cardboard, metal, glass and plastic), organic waste suitable for composting is the next largest portion of the waste stream, comprising about one-third of NYC residential curbside waste.

The Many Benefits of Organics Recycling

Organics recycling has interrelated benefits for the environment, local communities and the regional economy. Composting, one form of organics recycling, uses biological processes to transform waste into compost, a natural soil amendment. It is a truly circular form of recycling. Compost is used by farmers, gardeners, and environmental conservationists to maintain and improve soil health. In turn, healthy soil provides a rich substrate for growing food, trees and other plants, helping to combat erosion and improving air and water quality. Anaerobic digestion, another form of organics recycling, creates methane-rich biogas, which can be used in place of natural gas to heat homes, generate electricity and fuel vehicles.

Organics recycling projects involve planning, construction, and operation – all of which create jobs. Several studies have estimated the jobs potential of organics recycling on a per ton basis. A study conducted by the Institute for Local Self-Reliance using data from Maryland estimated that organics processing has roughly six times the employment potential of alternative disposal methods (see Figure 2).³ Because of the local and regional nature of most composting operations, these jobs are linked to economic development that helps local cities, towns and communities.

Organics collection and recycling also contributes to a cleaner, safer city. Rats and other vermin are a problem in many NYC neighborhoods. New Yorkers often initially express concerns that source-separating organic material will increase rodent infestation. In fact, the opposite is true. Keeping organics, including food scraps, in hard-sided, latching bins reduces vermin by cutting off their food supply.



Community gardeners apply DSNY-produced compost to a garden bed to grow vegetables in Queens, NY.

¹ Prior interim reports on the Organics Collection Pilot, the 2014 NYC Community Composting Report and the 2014-2015 Organics Collection Pilot Reports, are available at www.nyc.gov/sanitation.

² The "Other" category (grey) in the "waste pie" includes, for example: treated, contaminated and non-C&D wood products, diapers & sanitary products, carpeting & upholstery, film & flexible plastic products, expanded polystyrene, animal by-products, and other miscellaneous items.

³ Brenda Platt, et. al, Pay Dirt: Composting in Maryland to Reduce Waste, Create Jobs & Protect the Bay, ILSR, May 2013. www.ilsr.org/paydirt.

Two Common Methods of Organics Recycling

Composting refers to the process of breaking down material using bacteria that breathe air like we do. Aerobic bacteria take in oxygen and breathe out CO₂. As they ingest organic material and break it down, they also fix much of the carbon in a form that will stay in the ground. Aerobic composting is the most common form of organics recycling in the US.

Anaerobic digestion (AD) is the second major form of organics recycling. In an enclosed tank, bacteria break down material in the absence of oxygen, releasing methane-rich biogas. AD takes place in fully enclosed tanks that capture nearly 100 percent of the biogas for use as a substitute for natural gas to heat homes or generate electricity. The solid material left over after anaerobic digestion can then be composted aerobically just like any other organic material.

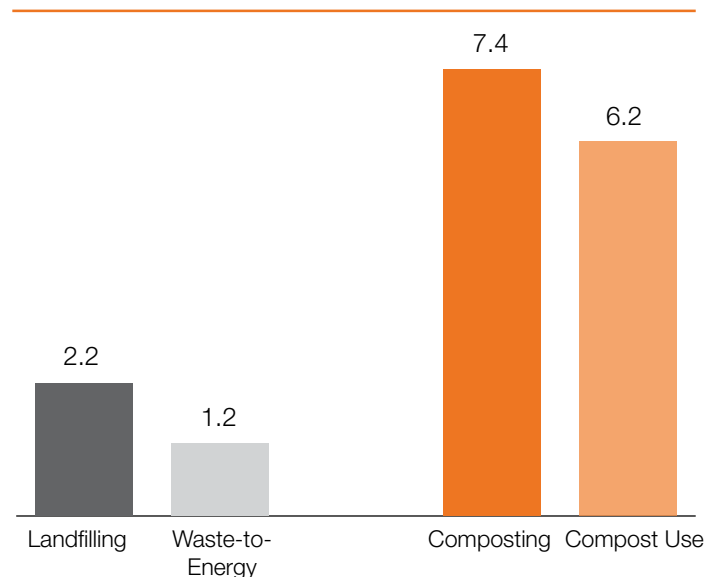
The term “composting” is sometimes applied generally to both forms because of their common use of bacteria and the same end product they produce.

Whether used in agriculture, horticulture, landscape construction or brownfield remediation, compost sequesters carbon in soils and plants, reducing the city’s carbon footprint. Organics recycling reduces the amount of food scraps, yard trimmings, and paper sent to landfills where their anaerobic decomposition releases methane, a potent greenhouse gas. Ton for ton, methane has a global warming potential nearly 25 times higher than that of carbon dioxide. Many modern landfills have systems that trap and collect methane before release, often for the production of heat or electricity. However, even with these collection systems in place, some methane still escapes as “fugitive emissions” into the atmosphere. Anaerobic digestion facilities are designed to more efficiently and effectively produce and collect methane for productive use.

In Fiscal Year 2015, DSNY’s organics recycling programs, including the organics collection pilot program and Christmas tree collection program, reduced NYC’s overall carbon footprint by 0.01 million metric tons of carbon dioxide equivalent (MTCO₂eq).⁴ This modest impact reflects the impact of organics recycling for the limited reach of the pilot to date. For example, recycling 40 percent of all organics in the residential waste stream would reduce waste disposal emissions by 0.22 million MTCO₂eq.

The benefits of organics recycling can be seen at a variety of different scales – at home, in communities and neighborhoods, and in the larger metropolitan region. Community gardeners and urban farmers can benefit by using locally composted material to produce thriving gardens, landscaping, and street trees. At the same time larger regional facilities using controlled aerobic and anaerobic methods can operate more efficiently to turn larger quantities of organics into beneficial products to support regional agriculture, erosion control, and energy projects (see section on Processing Capacity). These features make organics recycling an important part of the overall approach to systemic sustainability envisioned in OneNYC.

Figure 2: Jobs per 10,000 Tons per Year Processed



Source: Platt et. al., 2013

On a ton-per-ton basis, producing and using compost yields far more jobs than disposing of waste.

⁴Based on the U.S. Environmental Protection Agency’s Waste Reduction Model (WARM)

Implementing the Organics Collection Pilot

Passage of Local Law 77 of 2013

The term “**low-rise**” is used in this report to refer to single and two family homes, and multifamily buildings of up to nine units.

“**High-rise**” means buildings of 10 or more units.

“**Institution**” refers to city agencies, non-profit organizations or private schools.

“**Schools**” are public schools managed by DOE.

The New York City Council passed Local Law 77 in 2013 calling for a pilot program to test the efficacy and cost-efficiency of the curbside collection and processing of organic material in our unique urban environment. The Council’s interest in pursuing organics recycling came from the growing recognition that landfilling waste materials that could otherwise be put to productive use is unsustainable, and discarding organic material, in particular, poses significant environmental risks. The Council also looked to other municipalities that successfully offer curbside residential organics collection, including Seattle, Portland, Toronto and San Francisco (see Appendix 7).

Those other cities are very different from New York in terms of size and density, but they offer general models from which to draw inspiration. In each case, cities provide residents with hard-sided carts for curbside collection, along with small kitchen containers for gathering food scraps in the home. They conduct outreach and education explaining what to include with organics recycling and how to store it, and they contract with processors to convert the organic material for beneficial use.

However, these existing programs do not offer standard benchmarks for assessing program success. Instead, organics recycling programs are assessed differently in each city. Often, indicators like the growth of the amount organics collected over time (often years) are monitored as programs gain traction and diversion rates climb.

Diversion Rate answers the question: How much of everything we throw out is kept from disposal and put to good use?

$$\text{Diversion Rate} = \frac{\text{Quantity of recycling (organics, paper, metal, glass and plastic collected)}}{\text{Quantity of all waste collected}}$$

DSNY has focused on several key aspects in developing the NYC Organics Collection pilot program: establishing regular collection service, assessing participant behavior, and developing basic processing infrastructure with which the program can grow.

Initially, we have focused on encouraging resident participation while utilizing existing processing facilities. As a result, we have relied on the successful separation of organic

Community Composting and Food Scrap Drop Off Program

The introduction of curbside organics collection in 2013 followed decades of work by DSNY to promote backyard and community composting in NYC through a vibrant network of neighborhood gardens and composting sites. This history is detailed in DSNY’s “Community Composting Report”. In 2012, DSNY ramped up its partnership with several community organizations to offer expanded opportunities for New Yorkers to drop their household organics at collection points. The response to these efforts shows a burgeoning interest in and commitment to composting among New Yorkers. Between FY11 and FY15, annual quantities collected increased from around 116,000 pounds to more than 2.3 million pounds; with more than 270,000 household drop-offs taking place over the course of a year. This quantity, while relatively small in terms of tonnage, shows New Yorkers’ interest in and willingness to roll up their sleeves and get involved in organics recycling.

material by participants to yield a clean, consistent organics stream. The pilot program has helped DSNY develop a better understanding of the quality and composition of material collected from NYC residents, helping the City build a sustainable, long-term network for managing and processing organic material. The experience has been very similar to the initial roll-out of metal, glass, plastic and paper recycling 25 years ago. As the program grows, the infrastructure and facilities to manage the collected material can be further developed and refined, leading to increased efficiency and more effective processing.

The pilot program targets two groups that DSNY serves: low-rise residential neighborhoods, and schools. In addition, DSNY has encouraged limited high-rise and institutional participation, as collection capacity allowed. While the residential pilot and school programs both collect organic waste and seek to maximize tonnage collected while minimizing contamination, each has a very different set of operational considerations, challenges and opportunities.

Residential Pilot

Over a two year period, DSNY has expanded organics collection service to approximately 133,600 households in the pilot areas, along with 150 high-rise buildings in Manhattan and Brooklyn representing 15,799 households. DSNY will expand service to an additional 53,000 low-rise households and another 52 high-rise buildings with 3,510 households this fall.

DSNY chose the pilot areas based on a number of factors. First, we considered operational factors, including available manpower and equipment for collection. In addition, we sought to emulate the success other cities have had offering organics collection in low

Experimenting with Curbside Organics Recycling in the 1990s

Two decades ago, DSNY conducted a small Organics Collection pilot and determined at that time that the program was not viable. This perspective held for over twenty years, but is being retested at present. Conditions today are different from the 1990s. Strong interest in sustainability, the growth in regional infrastructure for processing organics and the emergence of climate change as a matter of urban and regional concern has set the stage for a different reception to curbside organics collection than was experienced decades prior. For more information on the 1990s pilot, see the Compost in NYC report at www.nyc.gov/sanitation.

Figure 3: Residential Organics Recycling Service

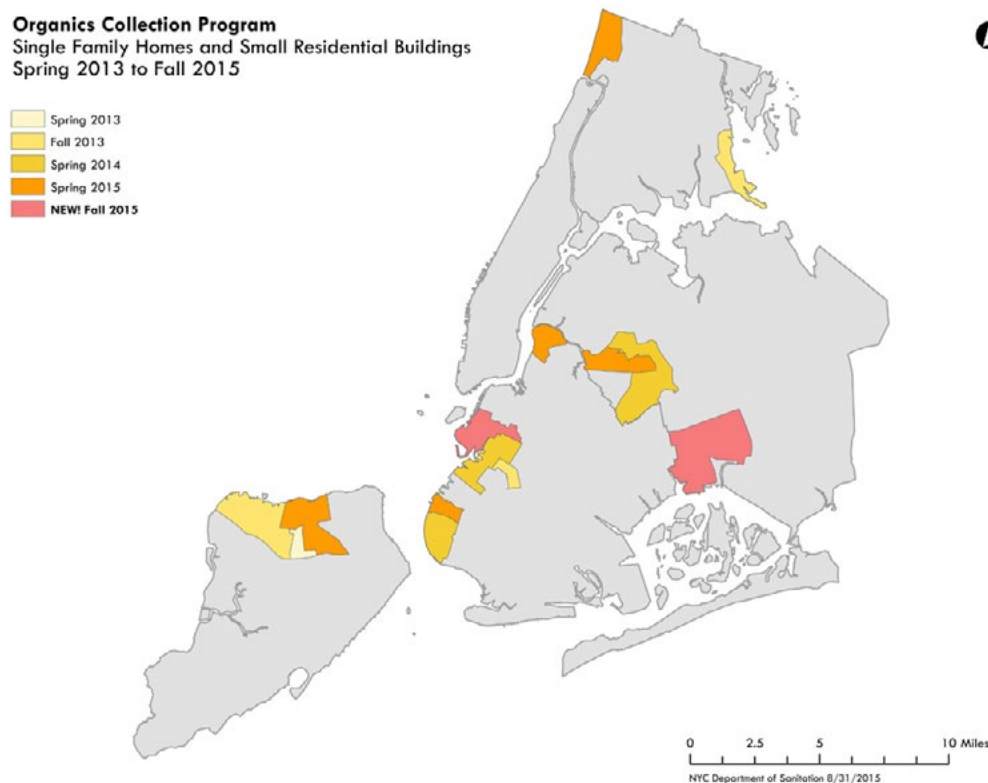
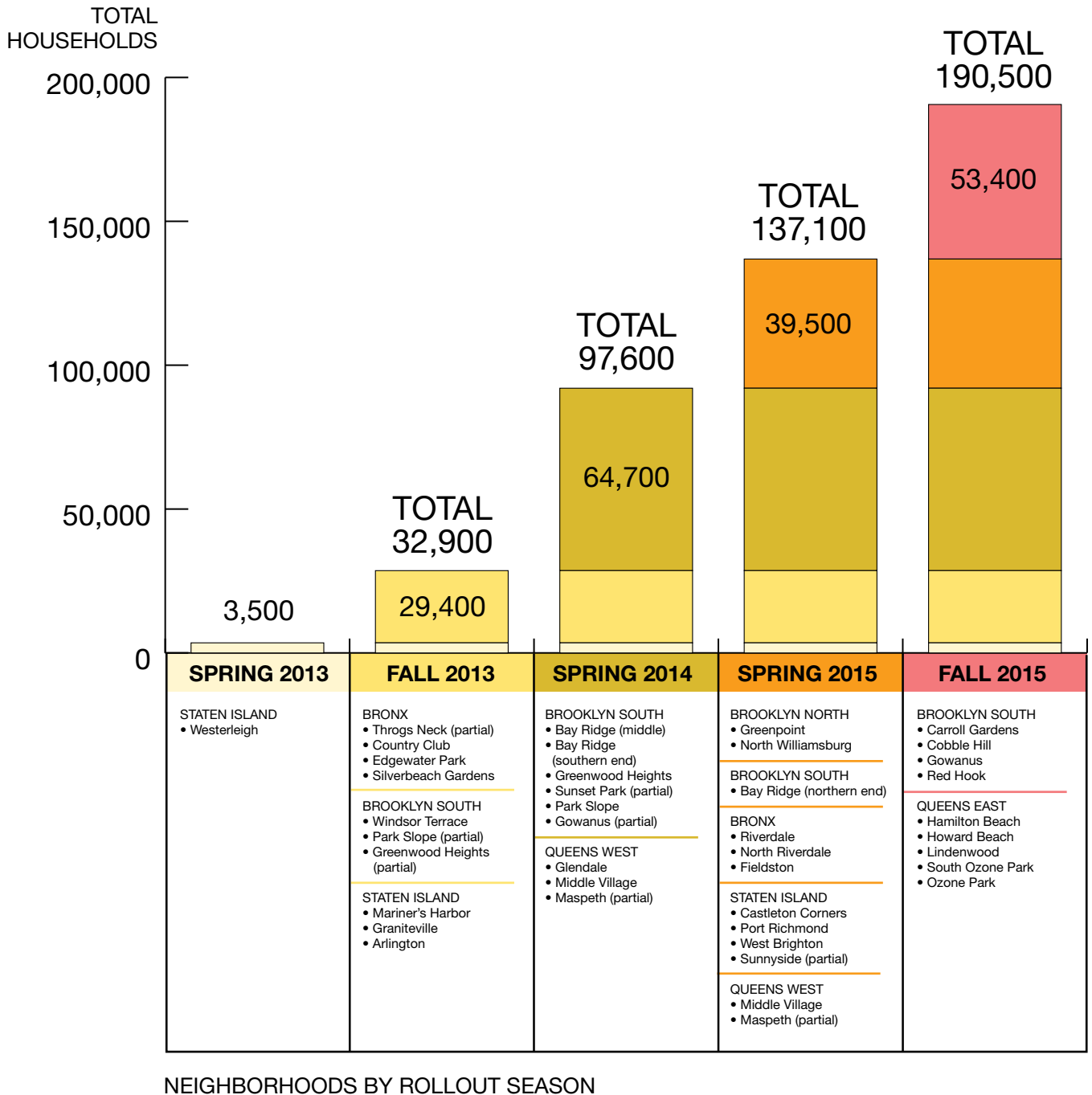


Figure 4: NYC's Organics Collection Pilot Rollout: Participating Neighborhoods & Households by Season

Please note that the information in the chart below reflects low-rise buildings. As of Fall 2015, a total of 202 high-rise buildings accounting for 19,309 are participating in the program. Between FY2013-FY2015, DSNY added 150 high-rise buildings accounting for 15,799 units to the program. For the first half of FY2016 (Summer/Fall 2015,) an additional 52 high-rise buildings representing 3,510 units were added.





“We’ve been participating every week since the staff members handed us the flyer. The food scrap drop off makes lots of sense - we eat lots of produce and want to make sure that we give back to the environment that grows our fruits and vegetables. We also want to throw away less garbage so that our new born can grow up in a greener environment. What makes it convenient for us is that it is on our way to the subway station. We just drop off our frozen food scraps and head to work!”

—Lina Lei and Zigeng L. of Ridgewood, Queens drop their food scraps at Commuter Composting.

and medium density residential neighborhoods. For this reason, only buildings with nine or fewer residential units are automatically enrolled in the organics collection program. The boundaries of each pilot area are coterminous with existing DSNY collection sections to ease operational integration and analysis. In addition, we preferred neighborhoods with high traditional recycling diversion rates. See District Profiles in Appendix 2 for additional information on and maps of each pilot area.

For Manhattan, and for high-rise buildings in the pilot areas, we took a different approach. DSNY and its non-profit partner GrowNYC recruited residential buildings with 10 or more units to voluntarily apply for and enroll in organics collection service.

In denser neighborhoods, this building-by-building approach was necessary because organics separation in high-rise building stock requires stronger commitment on behalf of building management and staff to properly maintain organics bins and educate tenants on how to participate.

Brown organics bins were delivered to all single family homes and small residential buildings (of nine units or fewer) in each pilot area. DSNY also gave each household a “starter kit” with educational materials, coupons for compostable bags and a small kitchen container to collect food scraps. Single family homes and two-unit buildings each received a 13-gallon bin. Buildings with three to nine units received a 21-gallon bin. Residential Buildings with 10 or more units that had enrolled in the program received one or more 21-gallon or 32-gallon brown organics bins, depending on the size of the building.



A leafy suburban street in Staten Island with organics collection. DSNY prioritized these low-density neighborhoods for the pilot program.



High-rise buildings (with 10 or more units) request organics collection and undergo screening and training before they are added to the collection route. Morningside Gardens, one of the first buildings to join, has 980 units.

Interested high-rise buildings go through an enrollment process, including site visits and training, to determine if a building is prepared to manage source-separated organic waste. Buildings recruited for organics collection service often already participate in other DSNY programs, including refashionNYC (textile donations) and ecycleNYC (electronics recycling).

“Our Sanitation people are very nice and they work hard. You want to do good things for them. They’re very friendly. I guess because we’re so residential and we’ve been there for so long. They want their job to be easy and they want your job to be easy.”

—Aida O., Throgs Neck, Bronx, talking about her experience with the organics collection pilot in Bronx District 10, Section 2 at a May 2015 Focus Group



DSNY Sanitation Worker Joseph Falleti on an organics route in Staten Island District 1

Participants were instructed to place any yard trimmings that would not fit in the brown bin in another container. DSNY encouraged residents to use paper lawn & leaf bags, or to place yard trimmings loose in bundles or in cans, but allowed clear plastic bags as an alternative. Woody debris was prohibited in Brooklyn and Queens, due to the ongoing Asian Longhorn Beetle quarantine.

Standard residential collection service in NYC includes one day per week recycling service and two or three day per week refuse collection. From May 2013 through March 2014, DSNY collected organic material once per week in all residential pilot areas on the regular recycling day.

Starting with the 2014 expansion, approximately half of the pilot areas received organics collection service twice per week on regular trash collection days, and the remainder were serviced once per week on their recycling collection day. This allowed for comparison of a once per week schedule against a twice per week schedule to assess the effects on participation. The Brooklyn pilot areas, which received twice weekly collection, did show greater participation and higher program satisfaction than Bronx, Queens and Staten Island pilot areas, which received collection once per week.

High-rise buildings in the pilot areas are served on the same organics routes and on the same schedule as the low-rise buildings. The first high-rise buildings to join organics collection in Manhattan were initially serviced by the school organics truck routes. Starting in October 2014, as more and more buildings enrolled in organics collection, DSNY added dedicated residential organics collection routes to service Manhattan residential buildings three days per week on Monday, Wednesday and Friday. These dedicated residential routes allow the Manhattan high rise collections to be more easily tracked and measured.

High-rise buildings, including large apartment buildings, condominiums and cooperatives, pose specific challenges to organics recycling. Public works and sanitation directors in cities across the US know these challenges well. Typically a building’s infrastructure is set up to make refuse disposal easy, and the recycling of paper and MGP just a bit more onerous. In NYC, large buildings typically have garbage chutes on every floor to send trash



A brown bin, kitchen container and educational materials were issued to residents in organics collection pilot areas.



Brown bins waiting to be delivered to homes.



Yard waste that does not fit into the brown bin with food scraps are set out in lawn and leaf bags or other containers.



Dual-bin trucks have a split hopper so that refuse can be collected on one side, organics on the other.



DSNY truck in Park Slope, Brooklyn urges residents to feed plants, not landfills.

to centralized compactors. Green and blue recycling bins for paper and MGP are located near chutes or in central locations like basements or behind buildings. Residents separate and store their recyclables in small apartments, frequently carrying them out to communal bins. Building staff then retrieve material and carry it out to the curb the night before or the morning of collection day. It's a routine that NYC janitors, porters, and on-site managers know well.

Adding organics to this arrangement is challenging. Organics bins on each floor are not always an option, given space limitations and odor concerns among some residents. Placing the organics bin in a communal area adds to the work responsibilities of building staff. Compactors keep refuse away from sight behind closed doors and inside thick black bags. When organics are deposited in bins, staff must be extra vigilant to keep lids closed, spills cleaned up, and liners refreshed.

These added challenges mean that high-rise buildings need a different approach than standard curbside service offered to low-rise neighborhoods. DSNY developed a voluntary program targeted to buildings with ten or more units that were located in existing pilot areas or in the borough with the greatest concentration of high-rise residential buildings: Manhattan. To enroll, building management would have to work with DSNY staff to create a plan for managing separated organics in a vertical setting. With a plan in place, buildings would be issued one or more brown bins, along with educational materials, on-site training, and coupons for compostable liners. In some cases, property managers and building boards were able to work directly with manufacturers to purchase discounted bags and/or kitchen containers in bulk to provide to their residents.

Building staff then designed their own systems for managing organics. In most cases, they elected to site the brown bin(s) in communal areas to which

What To Recycle With NYC Organics Collection

Food Scraps

including meat, bones, dairy, and prepared foods



Food-Soiled Paper

including napkins, paper plates, and coffee filters



Yard Waste

including plants, garden trimmings, leaves, and grass



No Metal, Glass, Plastic, Cartons, or Clean Paper & Cardboard
Recycle these items separately from organic waste.

No Trash
including plastic shopping bags, plastic wrappers, pet waste, feminine hygiene items, and medical waste



Depending on the neighborhood, we are seeing more or less yard waste mixed in with the food waste and food-soiled paper.

residents had to travel to drop off scraps. Basements, storage rooms on ground floors, lobbies, and behind building areas were popular points for bin siting. A 2014 online survey of residents in apartment buildings participating in the Organics Collection pilot program, found that the vast majority of enrolled buildings used one centralized location for drop off of organic waste. In fact, only 11 percent of respondents reported having a collection container on their floor.

Collections are implemented using two fleet strategies. In most cases, DSNY employs a dedicated rear loader to collect organic material. In Bronx District 10, Section 2, DSNY tested the use of dual-bin trucks to collect organics and refuse in separate compartments of the same truck. The pilot areas being added to organics collection in fall 2015 will also use dual bin trucks for organics/refuse collections to further test the effectiveness of dual bin collections in a whole community district.

Figure 5: Collection Strategies for the Organics Collection Pilot

Customers	Organics Collection Schedule	Fleet Strategy
Houses and small apartment buildings (up to 9 units)	<ul style="list-style-type: none"> • 1x/week “on recycling day” • 2x/week “on trash day” 	<ul style="list-style-type: none"> • Dedicated rear loader • Dual-bin organics/refuse
High-rise apartment buildings (10+ units)	<ul style="list-style-type: none"> • 2x/week in Brooklyn “on trash day” • 3x/week in Manhattan (M, W, F) 	<ul style="list-style-type: none"> • Brooklyn: Same as neighborhood truck • Manhattan: Dedicated rear loader
NYC public schools	Every weekday, with recyclables	Dual-bin organics/recycling
Agencies, non-profits and private schools	Varies	Varies

“I’m very happy with the program, we use compostable bag, not inside the outside container (brown bin) but inside the inside container (kitchen container). I have no complaints, it’s been great, and it’s a good lesson for the kids, and the fact that certain things are not being wasted is really important to me, for the future of our environment.”

—Cori F., Staten Island



School Pilot

Over a three year period, DSNY has rolled out organics collection service to more than 40 percent of NYC's public schools, including all public schools in Manhattan and Staten Island and selected public schools in the Bronx, Brooklyn, and Queens. All told, this totals 722 traditional schools, 28 charter schools co-located in Department of Education (DOE) buildings and 69 private schools, agencies and institutions. (Appendix 4 for the full list of school and institutional sites receiving organics collection service.)

While NYC schools contribute a small part of the total quantity of refuse DSNY manages, they play a big role in sustainability education, acting as testing grounds for institutional reform. There is a clear connection between teaching Zero Waste principles in school and practicing them at home. Kids educate parents, and as they grow contribute to the culture change needed to treat discarded materials as resources instead of wasting them.

The program started from the ground up. In 2011, a group of parents of students in several public schools in Manhattan began to work with DOE administrators to launch a self-funded and managed food scrap collection



School organics bins set out for collection

2011-12:

Four DOE schools

- Spearheaded by a few PTA's in Manhattan

2012-13:

More than 90 DOE and private schools

- Manhattan, Brooklyn

2013-14:

More than 350 DOE and private schools

- Manhattan, Brooklyn, Staten Island

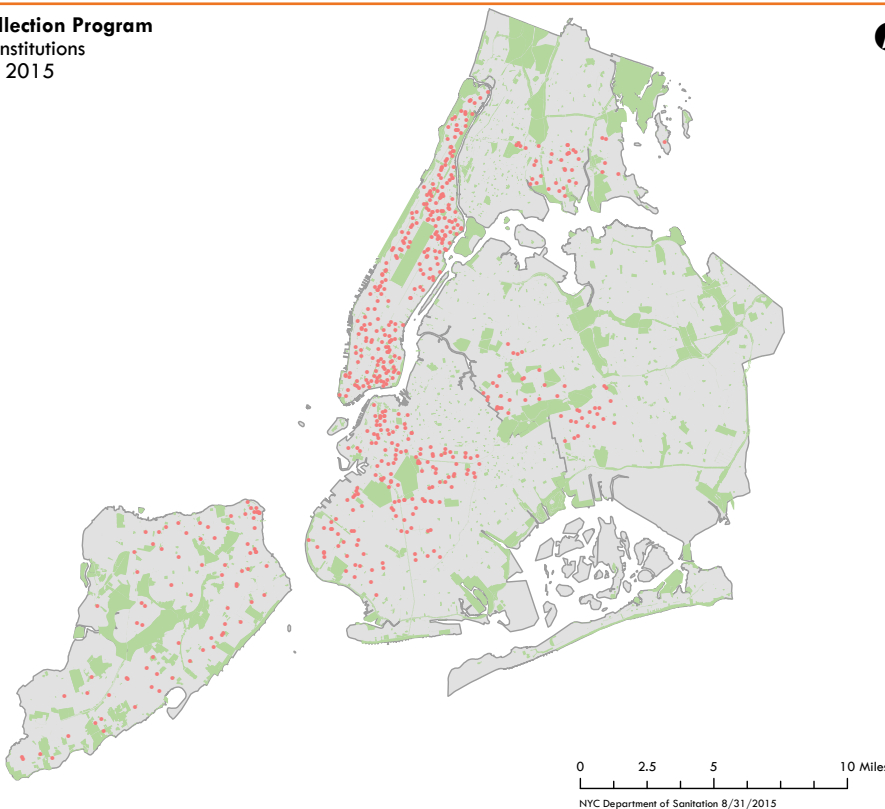
2014-15:

More than 750 DOE and private schools

- All five boroughs

Figure 6: Schools Organics Recycling Service

Organics Collection Program
Schools and Institutions
Through June 2015



40%
of the more than 1,800 NYC public schools participate in organics recycling.

School Kitchens and Cafeterias



It takes a lot of coordination to collect organics from schools.

What kind of waste is generated by Schools?

Most of the material being discarded by schools – in classrooms, cafeterias, offices and common areas – is either paper and cardboard or food waste. The remaining one-tenth is metal, glass, plastic and cartons. Almost nothing discarded by schools cannot be recycled or composted.

DSNY provides many collections to schools every week, and tailors its service based on the type of material.

service during the school year. Food scraps from the cafeteria were collected by a private carter who took the material to a regional composting facility. The effort was a success. Inspired by this “proof of concept”, DSNY began its partnership with DOE to expand organics recycling and enhance recycling of paper, metal, glass and plastic throughout the five boroughs.

The school organics recycling program focuses on separating food scraps and food-soiled paper in school kitchens and cafeterias. DSNY provides 32 or 35-gallon brown organics bins, posters, and decals to each school based on their student population. Each school is instructed to set up waste sorting stations in the cafeteria where students are instructed to separate their recyclables from the refuse.

Like high-rise residential buildings, the successful management of waste and recycling in schools requires close coordination among the building staff, educators and students and a strong commitment to success of the program.

DSNY provides outreach support to DOE to manage their waste and maximize recycling, and trouble-shoots operational issues as they arise. DSNY also funds GrowNYC’s Recycling Champions program to provide intensive educational support for recycling and organics diversion in selected schools. As the program has rolled out many other non-profit and civic organizations have provided hands on outreach and education to support schools to implement organics collection.

DSNY collects organic material from all participating schools Monday through Friday evenings, to allow schools to remove the putrescible portion of their waste nightly. In addition, schools receive four paper collections per week, three metal, glass, plastic and carton collections, and refuse service twice or three times per week, depending on the neighborhood.

Results and Analysis

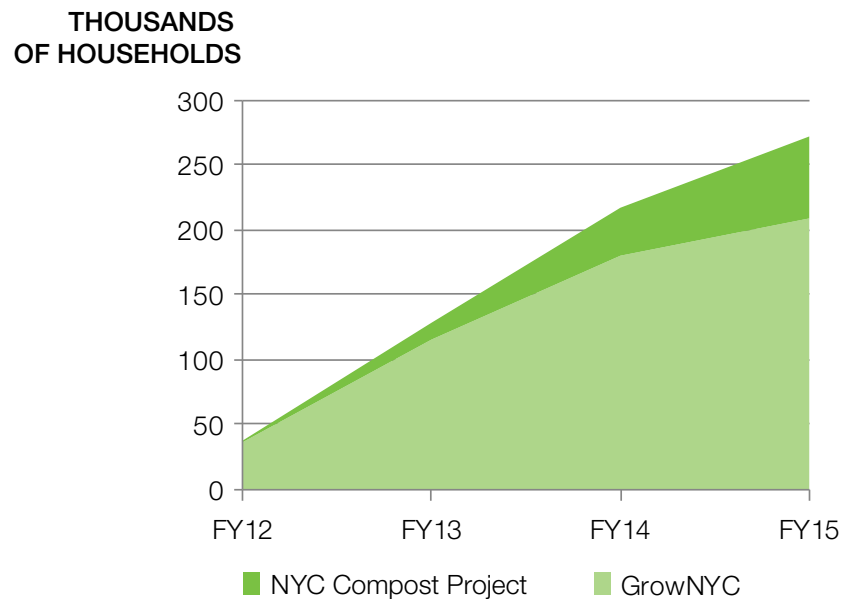
The most important finding from the organics collection pilot is simple: **people are participating.**

Residential Pilot

Over the past three years, hundreds of thousands of New Yorkers have dropped off organic material at Greenmarkets, community gardens, and other sites, showing that they are willing to go out of their way to divert organics for recycling and beneficial use. This popular and growing waste reduction program has built on decades of hard work among community composters dedicated to education and local sustainability by transforming organics into “black gold.” Growing participation in food scrap drop off programs confirms that New Yorkers understand and support composting and food waste reduction.

Figure 7: Number of Households Dropping Off Organics at Collection Sites: Fiscal Year 2012 to 2015

Burgeoning interest in organics recycling is proven by the **hundreds of thousands of people** who go out of their way to drop off food scraps at NYC Compost Project and GrowNYC collection points throughout the city.



Despite this record of achievement, many New Yorkers in 2013 were uncertain whether the City as a whole would embrace curbside organics collection. Curbside programs ask for the participation of everyone, not just people motivated enough to store and transport their food scraps to drop-off points. The organics collection pilot program was meant to answer a question on many people’s minds. Would New Yorkers really participate?

The answer is yes.

From the start of the Organics Collection pilot program through June 2015, DSNY collected 15,850 tons of organic material: 7,640 through the school program and another 8,210 from residential buildings.

In the Residential Pilot Areas, People are Participating

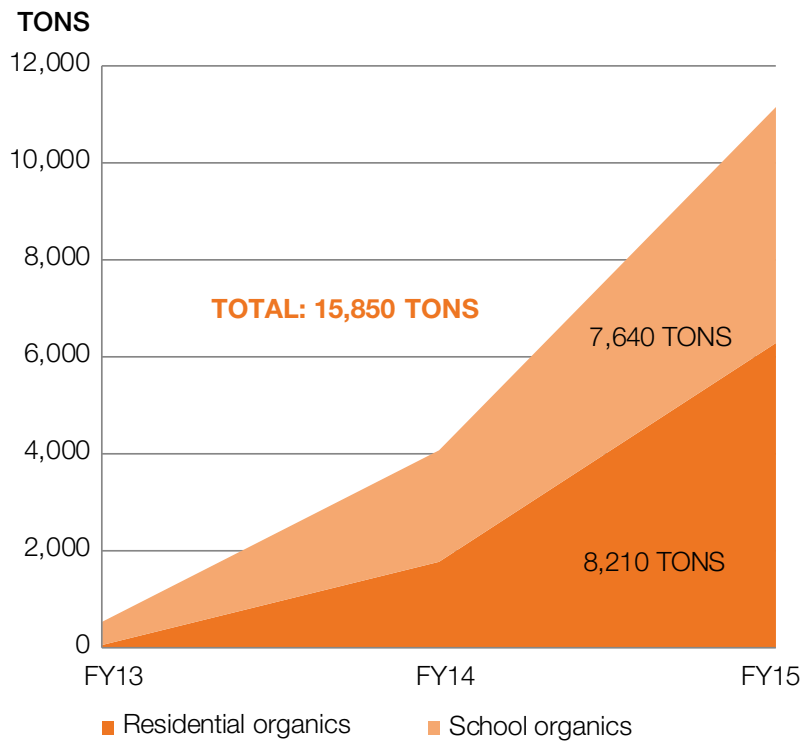
From Westerleigh to Throgs Neck, Bay Ridge to Maspeth, residents of the pilot areas are separating their food scraps, compostable paper and yard trimmings and putting them out in their brown bin. Figure 8 shows the increasing amount of material collected with each year of the organics collection pilot.

The growing amount of organics collected reflects participation rates among residents of the pilot areas. Results of a telephone survey conducted by the Baruch College Survey

Participation Rate answers the question: Out of everyone eligible for the program, how many are participating?

$$\text{Participation Rate} = \frac{\text{Number of households participating}}{\text{All households eligible to participate}}$$

Figure 8: Curbside Organics Collections: Fiscal Year 2013 to 2015



More than **15,000 tons** of food scraps, yard trimmings and compostable paper have been collected since 2013 from residences and schools. Participation and program expansion is ongoing.

Research Center, a nationally recognized leader in public opinion research, provide another perspective. Some 500 pilot area residents were selected at random and contacted for a telephone survey in June 2015. Nearly 70 percent of respondents reported source-separating and setting out organics for collection by DSNY.

Collection data indicate that participation has grown over time, as the service area has expanded and as people have become more accustomed to it. The growth in participation is even clearer on a per household basis, controlling for the growing number of households served by NYC Organics Collection.

The amount of material collected is lower in the winter months, when yard trimmings are less prevalent. Aside from these seasonal fluctuations, participation is climbing, as

“I do participate to keep our city and our neighborhoods and everything cleaner. It’s a better way of controlling the garbage versus having it dispersed all over the place.”

—Mary G., Park Slope, Brooklyn

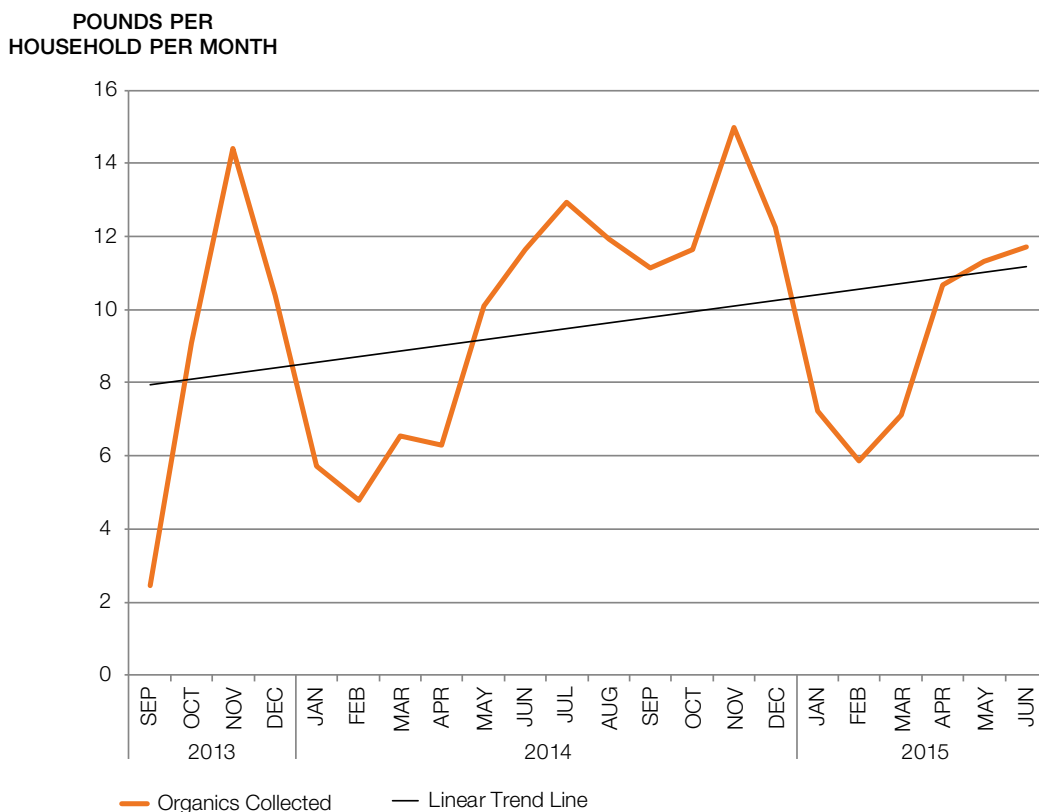
“It’s getting into the habit. Like we did with [paper and MGP] recycling and we did it and now it’s become second nature to us because we’ve been doing it. When we recycle organics, we become creatures of habit, and that’s all it is.”

—Aida O., Throgs Neck, Bronx

Nearly **70 percent** of residents in Pilot Areas report currently participating in organics recycling.

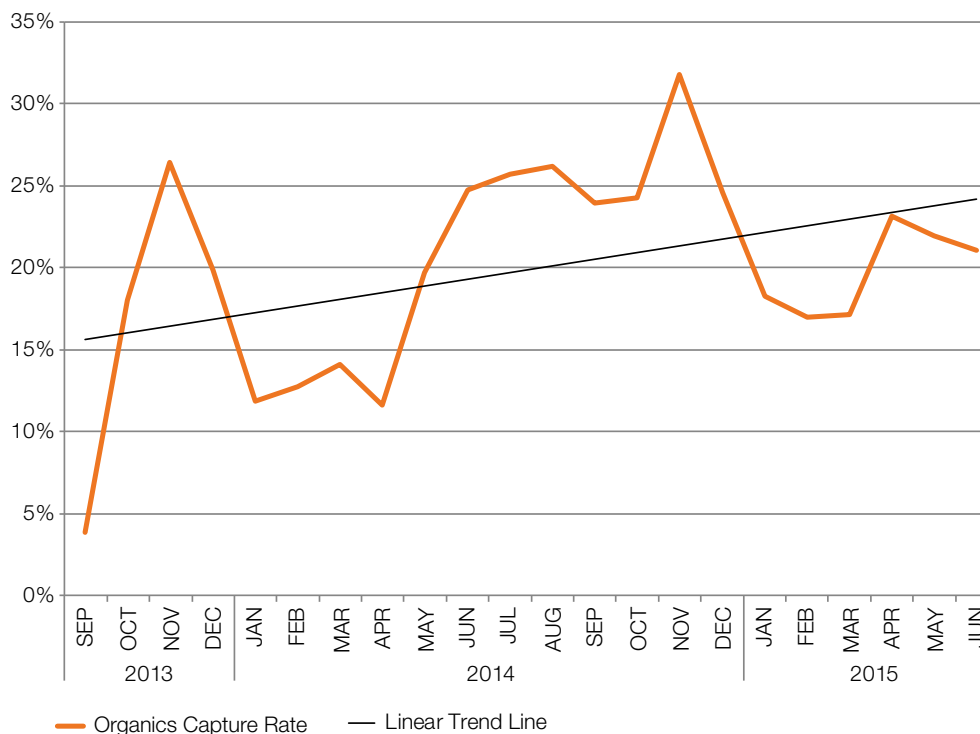
NYC households in pilot areas set out increasing quantities of organics as the pilot progressed, with seasonal fluctuations.

Figure 9: Quantities of Organics Collected on a per Household Basis in Pilot Areas



As time passes, more and more of the organics that should be recycled are making their way into brown bins.

Figure 10: Organics Capture Rates



measured in pounds of material set out per month per household. Appendix 8 shows that the amount of refuse collected also fluctuates seasonally, with a low-point in or around February each year. Organics recycling follows these same patterns, as would be expected for a program that is being integrated into normal household behavior.

We can also evaluate the share of the food scraps, yard trimmings and compostable paper captured by curbside organics collection, as opposed to being disposed of as trash. Past waste characterization studies have shown that organic material makes up an average of 31 percent of all curbside waste. Using this information and the records of the amount of refuse collected from pilot areas, we can estimate the capture rate of organic material, which has grown steadily from year-to-year.

Differences among Pilot Areas

The impact and acceptance of the NYC Organics Collection pilot program have increased since its launch, but results have varied somewhat by neighborhood. In all of the pilot areas, participation has grown from one year to the next. Figure 11 shows that the greatest absolute tonnage comes from the large Sanitation Sections in Queens and Staten Island, and all of the pilot areas have shown year-over-year increases in the amount of material collected.

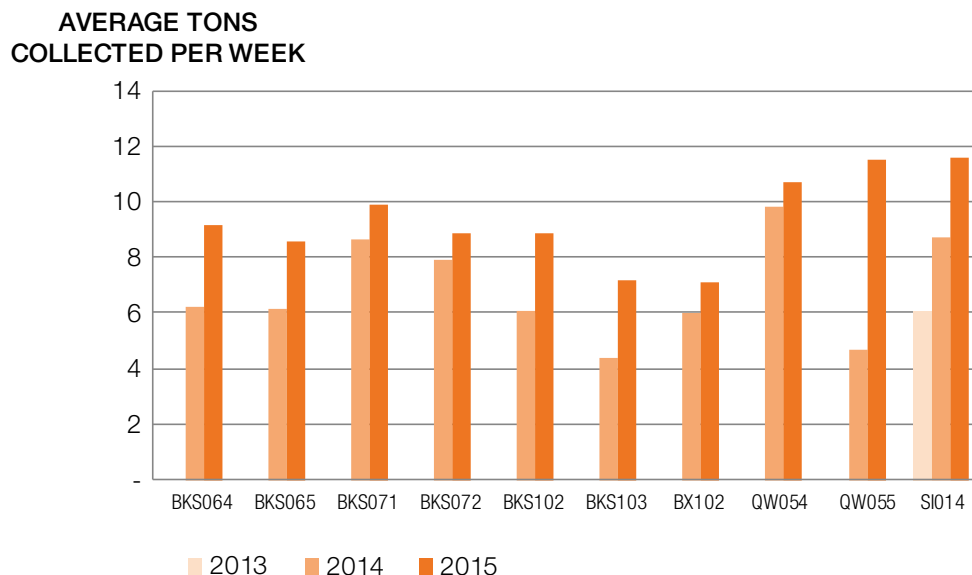
On a per-household basis, a slightly different picture emerges. All ten pilot areas show variation in the pounds per household per month set out over the pilot period. The Brooklyn areas, especially those in Brooklyn District 10, had the highest average per household collections.

Survey results show a majority of residents in each pilot area report participating in the program, and reported participation rates are highest in Brooklyn Districts 6 and 7. Self-reported participation is lowest in the Bronx,

Capture Rate answers the question:
Of all the food scraps, yard trimmings and compostable paper that could be recycled, how much is actually being recycled?

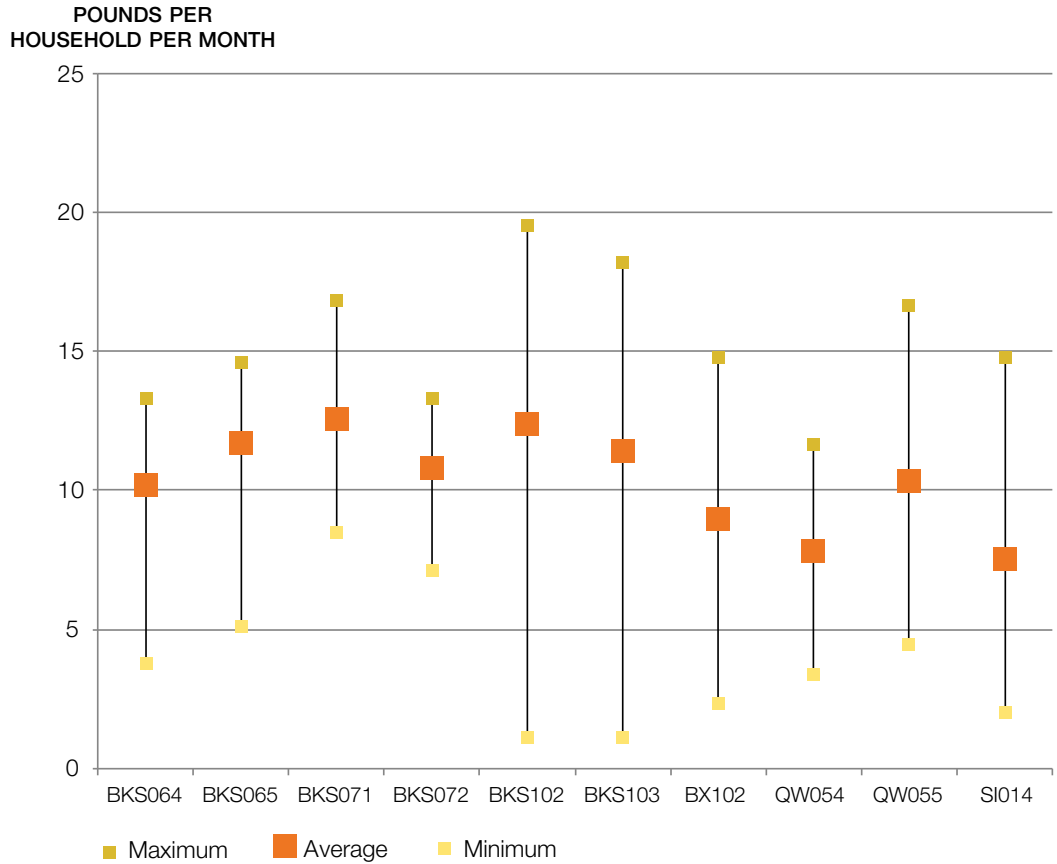
$$\text{Capture Rate} = \frac{\text{Quantity of organics collected}}{\text{Quantity of organics generated as waste}}$$

Figure 11: Weekly Average Residential Organics Collections: Fiscal Year 2013 to 2015



Average tons per week varied by pilot area, with larger more suburban areas yielding more than low-rise urban areas.

Figure 12: Organics Collections in Pounds per Household per Month, by Pilot Area (average, minimum and maximum during pilot period)



Source: DSNY tonnage records normalized using data from U.S. Census 2013 American Community Survey.

“We put stuff out every week. Coffee grounds, eggshells, bones, meat scraps, yard waste and garden trimmings, vegetable trimmings, spoiled food. The bins are great.”

—Brad P., Maspeth, Queens



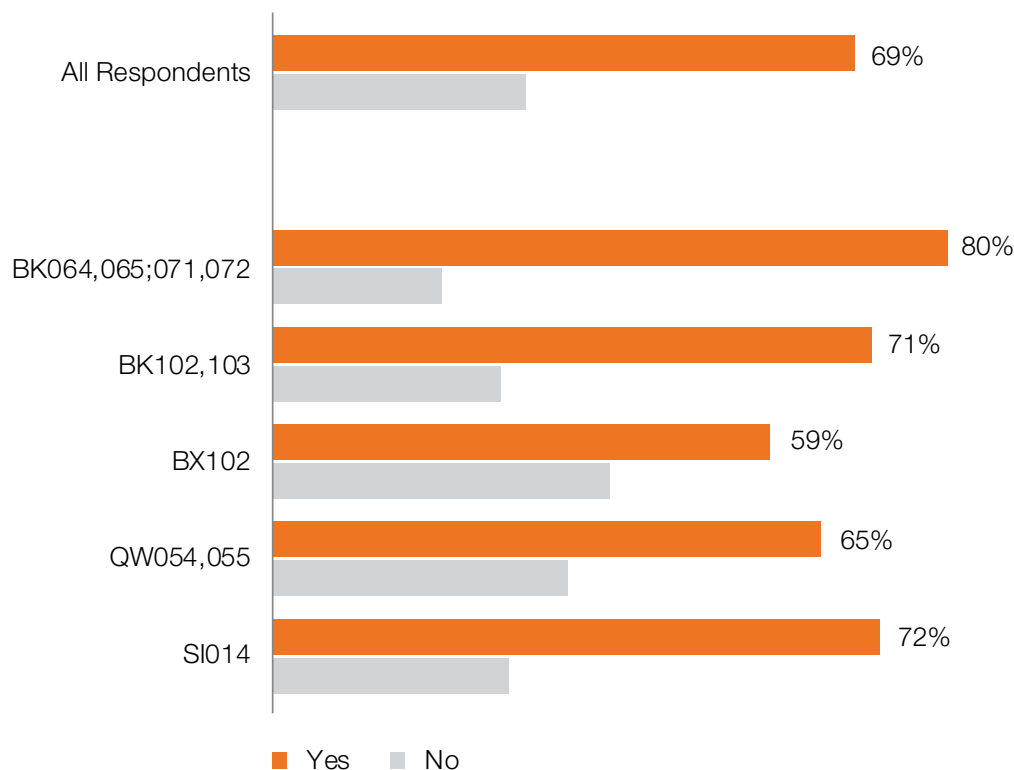
even though per household and total material collected in the Bronx were comparable to those of other zones.

As shown in Figure 14, residents of each pilot area follow the collection schedules set by DSNY, reinforcing the finding that organics recycling is part of the normal curbside setout routine. In Brooklyn, organics collection pilot areas were collected twice per week; in the Bronx, Queens and Staten Island once a week. Figure 14 shows that residents are adhering to these frequencies.

As the NYC Organics Collection program expands in the future, DSNY will consider each district’s density, housing stock, and operational conditions to assign an appropriate collection frequency. Twice-weekly collection did not seem to have a strong effect on self-reported participation among survey respondents. However, the tons collected per-household were higher, on average, in Brooklyn districts that received twice-weekly collection when compared to other boroughs, which received once-weekly collection. Overall, these results indicate that a neighborhood by neighborhood approach to collection frequency can allow DSNY to tailor the program based on operational constraints and neighborhood characteristics without jeopardizing participation and capture rates.

DSNY also tested the use of radio-frequency identification (RFID) tags and readers to anonymously measure the participation of individual households. As a result of operational

Figure 13: Do you currently put any organic waste in the brown bin?



Results vary across pilot areas but all show a **majority of residents participating** in the organics collection pilot.

Source: Survey of 500 randomly selected pilot area residents, Baruch Survey Research Center, June 2015. Results do not include refused or don't know answers and may not total 100% for this reason.

Figure 14: How often do you set out your organics for collection?

	TOTAL	BX102	BK064, 065; BK071, 072	BK102, 103	Q054, 055	SI014
More than twice a week	3%	3%	4%	3%	2%	1%
Twice a week	19%	7%	41%	35%	5%	6%
Once a week	45%	49%	27%	33%	57%	56%
Couple of times per month	9%	7%	8%	8%	6%	16%
Once per month	5%	5%	5%	5%	5%	3%
Less than once per month	4%	4%	4%	3%	6%	2%

Source: DSNY telephone survey of Organics Collection Pilot Residents, conducted June-July 2015 by the Baruch College Survey Research Center. Data excludes responses of don't know, refused or other and may for this reason not sum to 100%.

limitations, DSNY determined that the RFID readers were not appropriate for DSNY's manual collection method and may have been under-reporting program participation. See Appendix 8 for more information.

Overall, the various data on resident participation point to a clear conclusion: although rates may vary a bit from one pilot area to the next, all are substantial, and improving.

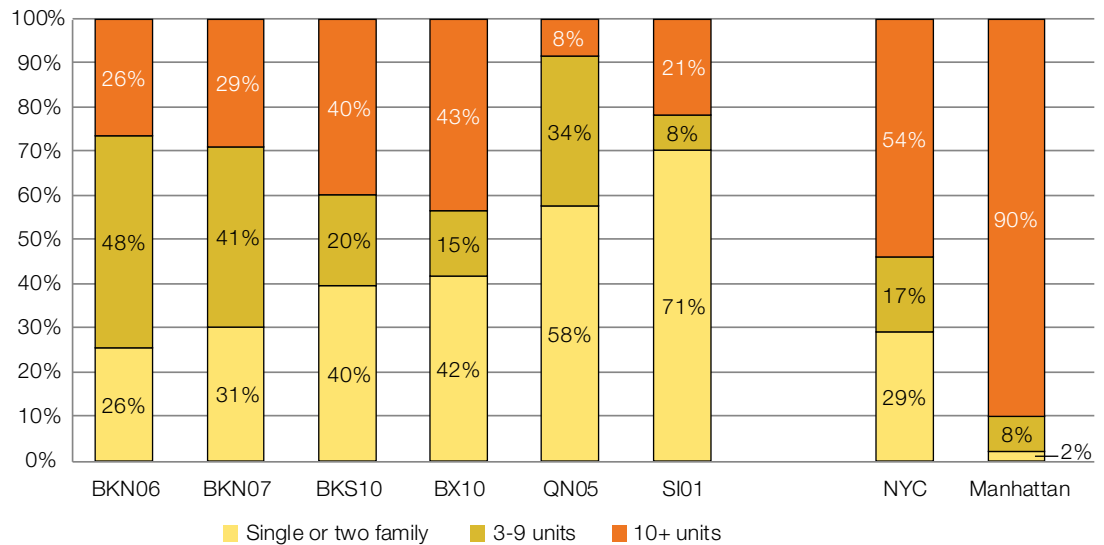
No one measure of participation in the organics collection pilot is perfect, but combined, all indicators point to increasing rates over time.

Organics Recycling in High-Rise Buildings

Most of the residential aspect of the Organics Collection pilot program targets housing in low to medium density neighborhoods. As shown in Figure 15, this type of housing accounts for about half of all residences in NYC. Single-family and two-family homes, which account for around 30 percent of all housing in NYC, tend to be found in more suburban neighborhoods in the outer parts of the Bronx, Brooklyn, Queens and Staten Island. Medium-sized buildings, with three to nine residential units, are the predominant housing type in parts of Brooklyn. These types of buildings were the primary focus of the pilot phase of the NYC Organics Collection program.

Figure 15: Housing by Units in Structure

NYC is a very dense city. The NYC Organics Collection pilot was rolled out areas that were less dense than the City average.

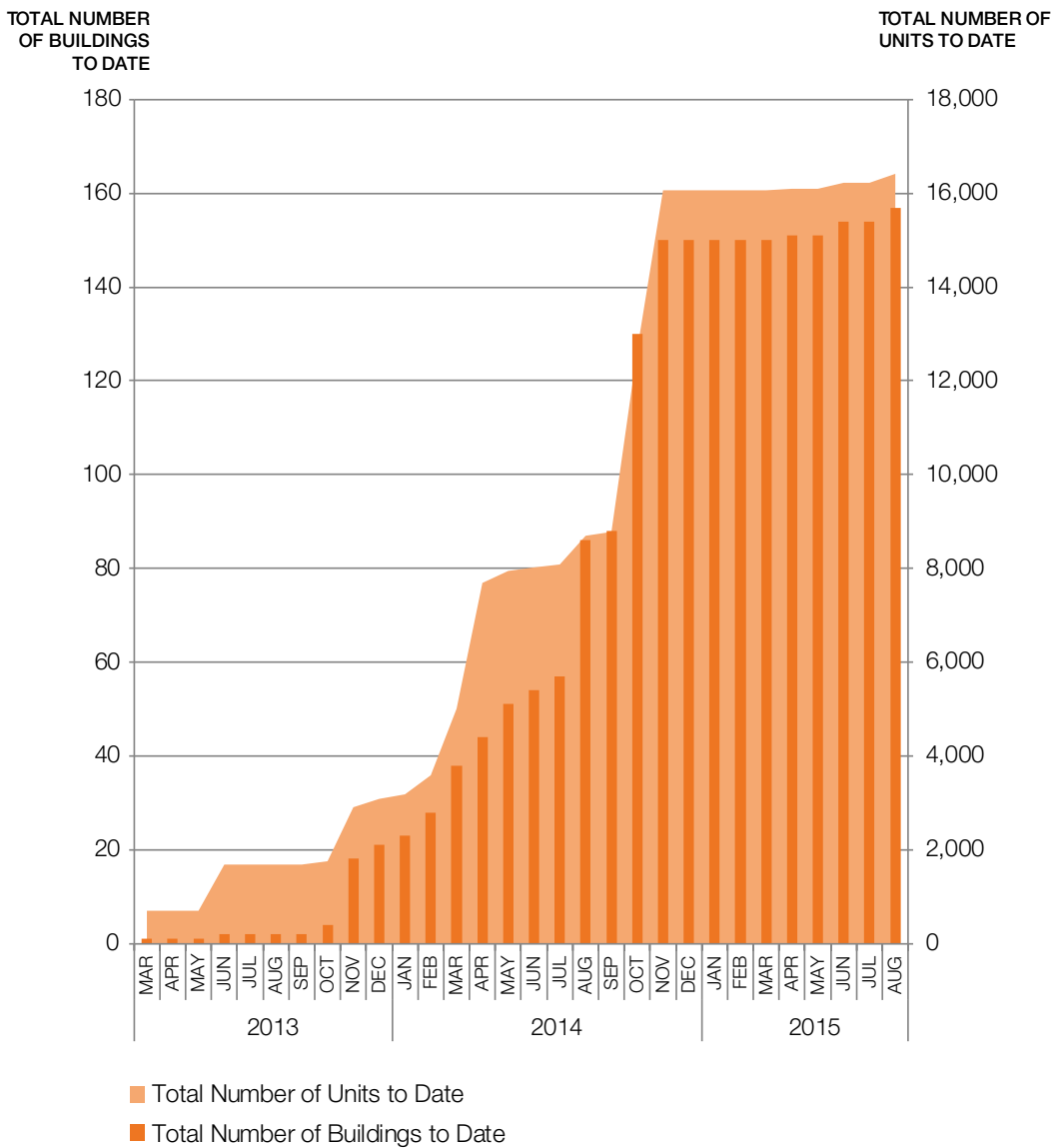


Source: US Census, American Community Survey 2013

As mentioned previously, high-rise buildings pose unique challenges for organics separation, collection, and recycling. To deal with these challenges, DSNY required buildings to apply for enrollment in the NYC Organics Collection pilot program, screening buildings for resident interest, management buy-in and operational capacity. The first high-rise buildings in the pilot were located in Manhattan. They included the Helena, a green development with bins located in large recycling areas on each floor; and Morningside Gardens, a seven-building complex of cooperative housing in Harlem where bins were sited in an outdoor, fenced area some distance from the buildings themselves. Other buildings in Manhattan and the Brooklyn pilot areas followed. To date, no high-rise buildings from Staten Island, the Bronx or Queens receive organics collection service, although some have expressed interest and are going through the enrollment process. DSNY continues to promote enrollment as part of an expanding and maturing program.

Where buildings did enroll, collection logistics were planned to maximize efficiency. In Brooklyn, buildings were simply added to the normal route serving the rest of the pilot area. In Manhattan, they were at first put on school collection routes that collect food waste from public schools in the neighborhood several times a week. As more buildings signed up, dedicated high-rise collection routes were added. These dedicated routes allow DSNY to separately track tonnage generated in high-rise buildings, showing a steady rate of growth

Figure 16: Organics Collection Pilot High Rise Enrollment



Growing enrollments in high-rise organics recycling attest to widespread interest in the Big Apple.

in the tons collected per month. As of this report’s release, more than 90 high-rise buildings in Manhattan have enrolled in the program, and more than 150 have enrolled citywide.

As the high-rise service has expanded, DSNY has worked with its non-profit partner GrowNYC to conduct several evaluations of different buildings to gain insight into participation rates and other factors. In 2013, just after the Organics Collection pilot program had begun, and then again in 2014, DSNY’s Operations Assistance Unit (OAU) sampled and classified organics, paper and MGP recycling, and refuse setouts over several one-week periods at Morningside Gardens. It was no surprise that they found very little yard waste in setouts (between 0 to 0.1 percent over the course of a sampling week). But they also found that that participation in Organics Collection dramatically improved the building’s diversion rate. Just weeks after the complex began separating organics in 2013, OAU measured a diversion rate of 37 percent, with organics contributing around 6 percentage points of the total. When OAU returned in 2014, this rate had risen to almost 43 percent, with organics now accounting for 17 percentage points.

In 2014, GrowNYC carried out before and after waste audits at several complexes, including Morningside Gardens. These inquiries involved counting all bags of refuse and recycling set out over a week both before and after the introduction of organics recycling. GrowNYC found that refuse volumes decreased by between 13 and 31 percent in the four buildings studied. Its audits also assessed per household quantities and participation rates, finding that about a quarter of tenants were participating at each site, delivering around five pounds per household per week.

The apartment buildings in the NYC Organics Collection pilot were self-selected, motivated to volunteer because of interest in sustainability among the owners, managers or tenants. Challenges to expanding the program to a larger set of high-rise buildings remain. These include concerns about odors as well as the convenience of garbage chutes located on each floor, often much more accessible than a communal organics drop-off area.

Currently, DSNY is addressing these challenges through extensive outreach and collaborative education with building staff. DSNY’s apartment building programs feature dedicated outreach staff assigned to facilitating programs for textile donation (re-fashionNYC) and electronics (e-cycleNYC) drop off within buildings, and on-site troubleshooting and training about paper and MGP recycling. As part of this outreach package, they introduce organics recycling and work with managers of buildings whose owners, tenants and staff show an interest and willingness to participate. DSNY is also currently studying ways to increase the availability of compostable bags, especially in forms that can be easily distributed to tenants (such as rolls available in common areas). As new pilot areas are added and the Organics Collection program expands, DSNY actively recruits high-rise buildings in each of those areas through mailings and, in some cases, door-to-door outreach.

As with all residential collections, the amount of organics picked up from high-rise buildings go down in the winter. Overall, however, **we see an increase in quantities collected.** As more buildings receive organics collection, these tonnages will continue to increase.

Figure 17: Tons of Organic Waste Collected in Manhattan High-Rise Buildings

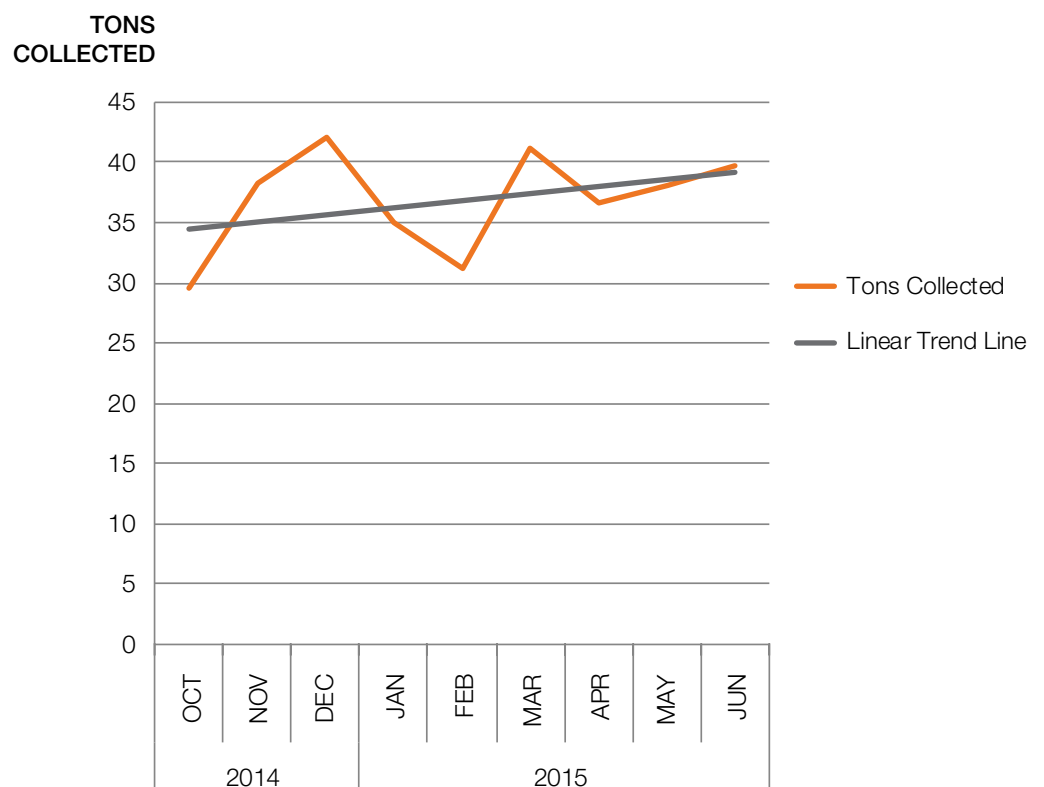
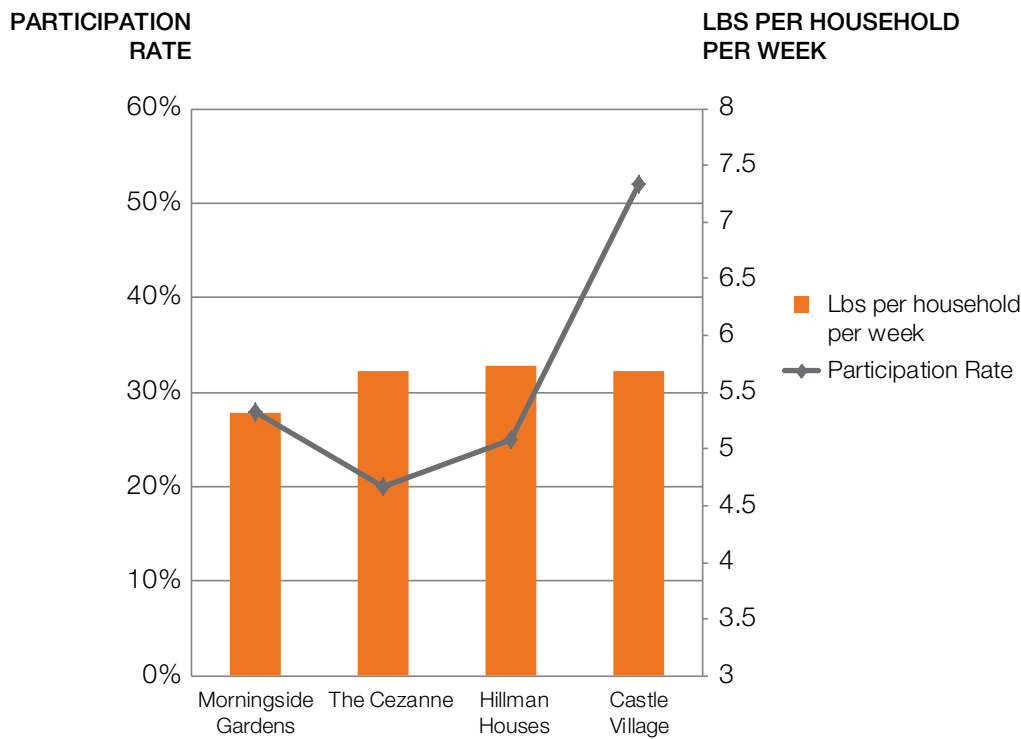


Figure 18: High-Rise Building Waste Audit



Apartment buildings set out an average of about **five and a half pounds of organics per household per week**, and have participation rates between 20 and 50 percent.

Source: GrowNYC Audit.

The NYC Organics Collection program offers benefits to participating buildings in terms of rodent and pest control. Building superintendents are often enthusiastic about the reduction or elimination of rats and mice observed with the introduction of hard-sided, locking containers as part of organics collection enrollment.

Appendix 7 discusses the state of source-separated municipal collection programs in other US cities. The lessons learned from other cities are important, but the fact remains that no other US city comes close to New York City in terms of density of high-rise buildings.

Currently, the apartment organics program is voluntary. Building management must take the initiative to enroll with DSNY and manage the ongoing tasks of consolidating and setting out what tenants bring to centralized points. With 157 high-rise buildings representing 16,637 housing units included in the pilot, we have only begun to scratch the surface of the hundreds of thousands of tons of food scraps and compostable paper generated by high-rise apartment dwellers. In New York City, 30,000 apartment buildings house millions of residents. Making organics recycling work in this type of setting is off to a strong start, with a steep learning curve behind us and a solid base for expansion in the years to come.

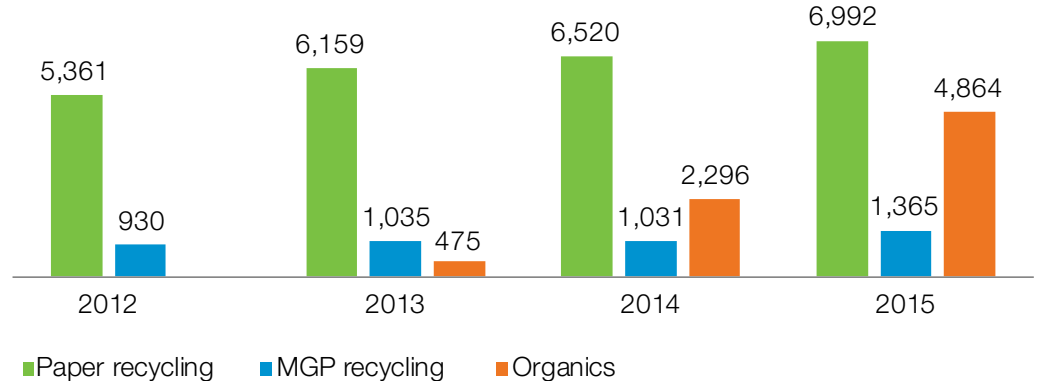
School Pilot

Because of the way collection of schools is organized, it is not possible to track a diversion rate for all schools over time. But we can get a sense of how the organics program is growing in other ways. The amount of material collected on the school truck routes has increased over the last four years, reflecting the expansion of school organics collection service and a growth in traditional recycling collections as organics service has been introduced.

In 2014 and 2015, DSNY audited selected schools participating in the pilot in Brooklyn, Staten Island and Manhattan to assess their diversion rates. Results are shown below. The audits revealed that schools receiving curbside collections on school truck routes had higher diversion rates than schools that used dumpsters for a portion of their refuse and recyclables.

Figure 19: School Route Collection Tonnages: Fiscal Year 2012-2015

As organics collection was introduced into NYC schools, **paper and metal/glass/plastic/carton collections rose along with organics.**



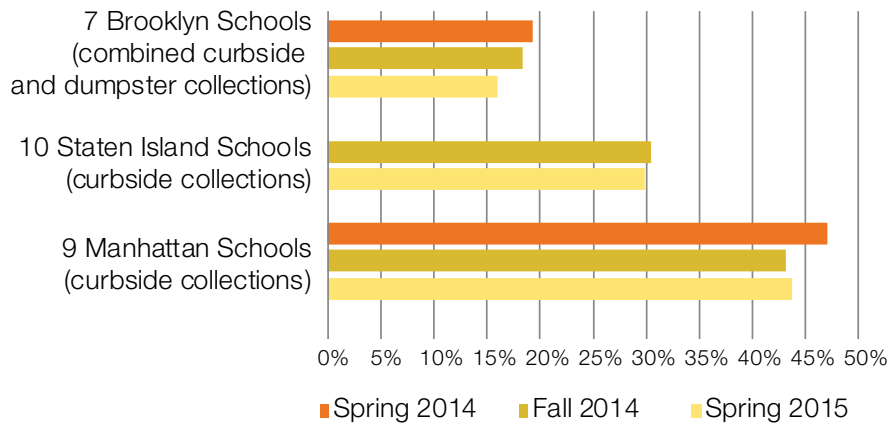
Tracking School Recycling: Challenges to Measurement

The collection of refuse and recycling from schools takes place on dedicated nightly school truck routes, which use dual-bin trucks to efficiently collect multiple material types in the same truck. When schools begin of organics collection service, they receive nightly collection of organics and alternating nights of paper and metal, glass and plastic. These schools receive refuse collection two or three times per week on the neighborhood collection truck.

Because school truck routes only serve schools, we can easily track the amount of material collected. But most schools also receive daytime collection on the regular neighborhood curbside route. And some schools receive containerized collection of some material types. Both neighborhood and containerized trucks pick up from schools and other institutions, as well as numerous residential stops, so the schools cannot be measured separately from the other generators.

For this reason, school route data give us a snapshot of how schools are doing, but do not necessarily capture all material generated.

Figure 20: Diversion Rates Measured in DSNY School Audits



Diversion rates of schools participating in organics collection were impressive, nearly 50 percent in some cases.

DSNY conducted more detailed audits of several Manhattan and Staten Island schools in 2015. These audits found that organics comprised the largest portion of diverted material, followed by paper. Consistent with prior audits and characterization studies, the audits found that metal, glass and plastic comprised a far lower amount of the total diverted material.

In spite of the previously noted challenges with gathering school waste data, these audits demonstrate that many schools are active participants in the NYC Organics Collection program and are diverting increasing amounts of organic material as well as paper and metal, glass and plastic. Building on this success, DSNY and DOE will launch the first 100 Zero Waste Schools in 2016 with the goal of diverting all recyclable or compostable waste from those schools within five years. Through the collaboration of students, parents, teachers, principals, custodians and cafeteria staff, these schools will become models for others and advance a culture of recycling and sustainability throughout the school system.

Figure 21:
Contribution to Audited
Manhattan Schools'
44% Diversion Rate:
Spring 2015

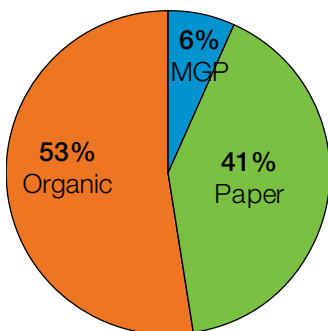
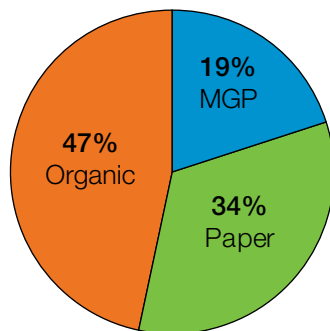


Figure 22:
Contribution to Audited
Staten Island Schools'
30% Diversion Rate:
Spring 2015



Organics and paper contribute heavily to diversion in schools, as compared to metal/glass/plastic/cartons, reflecting school waste composition.

Maspeth High School (Q585), Queens



**REDUCE
& REUSE**



The sorting system implemented in Maspeth H.S.'s cafeteria features signage, carefully thought out bin arrangement, and peer education.

Maspeth High School was a 2015 Citywide winner of the Golden Apple Reduce and Reuse Award. It has been participating in the organics collection pilot since Fall 2014. Students, teachers and staff collaborate to separate food scraps in the cafeteria, as well as paper and metal/glass/plastic/cartons throughout the school. Maspeth H.S. considers organics recycling as part of their overall approach to reducing, reusing and recycling waste. In 2015, students undertook a comprehensive evaluation of the school's waste management systems, implementing a range of programs in gardening, collection drives and environmental advocacy. The school's Green Club took charge in the cafeteria, working with the school custodian to devise a system for students to empty milk cartons for recycling, separate food scraps, and keep plastic film from contaminating either stream. In their award application, students wrote that "the cafeteria generated by far the most waste at the school and all of it went to landfills...The Green Club thought that such a state of affairs in the cafeteria was unacceptable. Food waste and napkins are biodegradable. Rather than be transported great distances to landfills, [the material] could be turned into rich compost and reused."

The school made a request to DSNY to join in the schools pilot and "was lucky to be included when the program reached the Queens neighborhoods of Maspeth and Middle village." DSNY supplied the school with bins and posters, worked with staff to organize separation and setout, and collected material.

Students threw themselves into this project, noting that "volunteers at each grade level agreed to stand at the stations... to instruct their peers about how to sort." Results were overwhelmingly positive, and measurable. Write the students, "from its inception, the new system in place was a game-changer...The number of bags sent to the street was dramatically lowered," with an estimated reduction of 75 percent in number of black-bagged refuse.

The Larger Context: NYC Diversion is Improving among Residences and Schools

The curbside diversion rate is a longstanding measure of the success of the City’s recycling programs. The diversion rate measures the share of recyclables relative to all waste collected in curbside and containerized collections by DSNY. As such, the diversion rate primarily reflects the City’s longstanding citywide paper and metal, glass and plastic collection programs.

Other waste reduction, reuse, and recycling programs, though important, do not contribute substantially to the curbside diversion rate. These programs, including textile donation and electronic waste recycling, reduce the overall amount of waste disposed but do not add to the curbside recycling stream. In addition, the curbside diversion rate only reflects DSNY collections, excluding commercial recycling and the beneficial use of construction and demolition debris, which many other cities include in their diversion rates. Past waste characterization studies show that the fraction of all waste discarded by residents, schools, and institutions comprised of recyclable paper and metal, glass and plastic is about one-third of total waste. Today, if every New Yorker recycled every bit of paper and metal, glass and plastic under DSNY’s curbside program, we would have a curbside diversion rate of 33 percent. In Fiscal Year 2015, the actual rate was 16 percent.

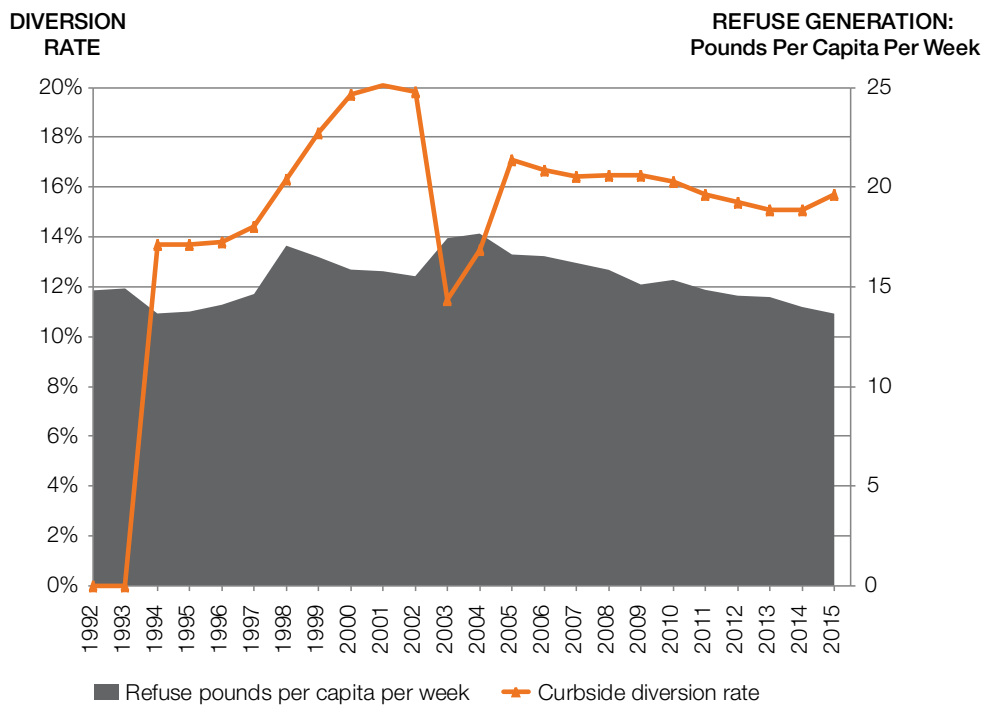
The graph below shows the history of the curbside diversion rate since the establishment of mandatory curbside recycling of paper and metal, glass and plastic, reflecting the early growth of the recycling program and the temporary suspension of glass and plastic



“We think it’s wonderful. My children both help participate, and my youngest one, 9 years old, is on her school’s green team, so she helps out on a daily basis when the school year’s in, with recycling and separating in the lunchroom. So having them help out at home is much easier for me because they’re all on board. It’s great.”

—Jennifer B., Westerleigh, Staten Island

Figure 23: DSNY Diversion Rate and Pounds per Capita per Week: Fiscal Year 1992 to 2015



Since 2012, the diversion rate has begun to reverse the steady decline it saw beginning in 2004. All this time, **refuse generation has been going down.**

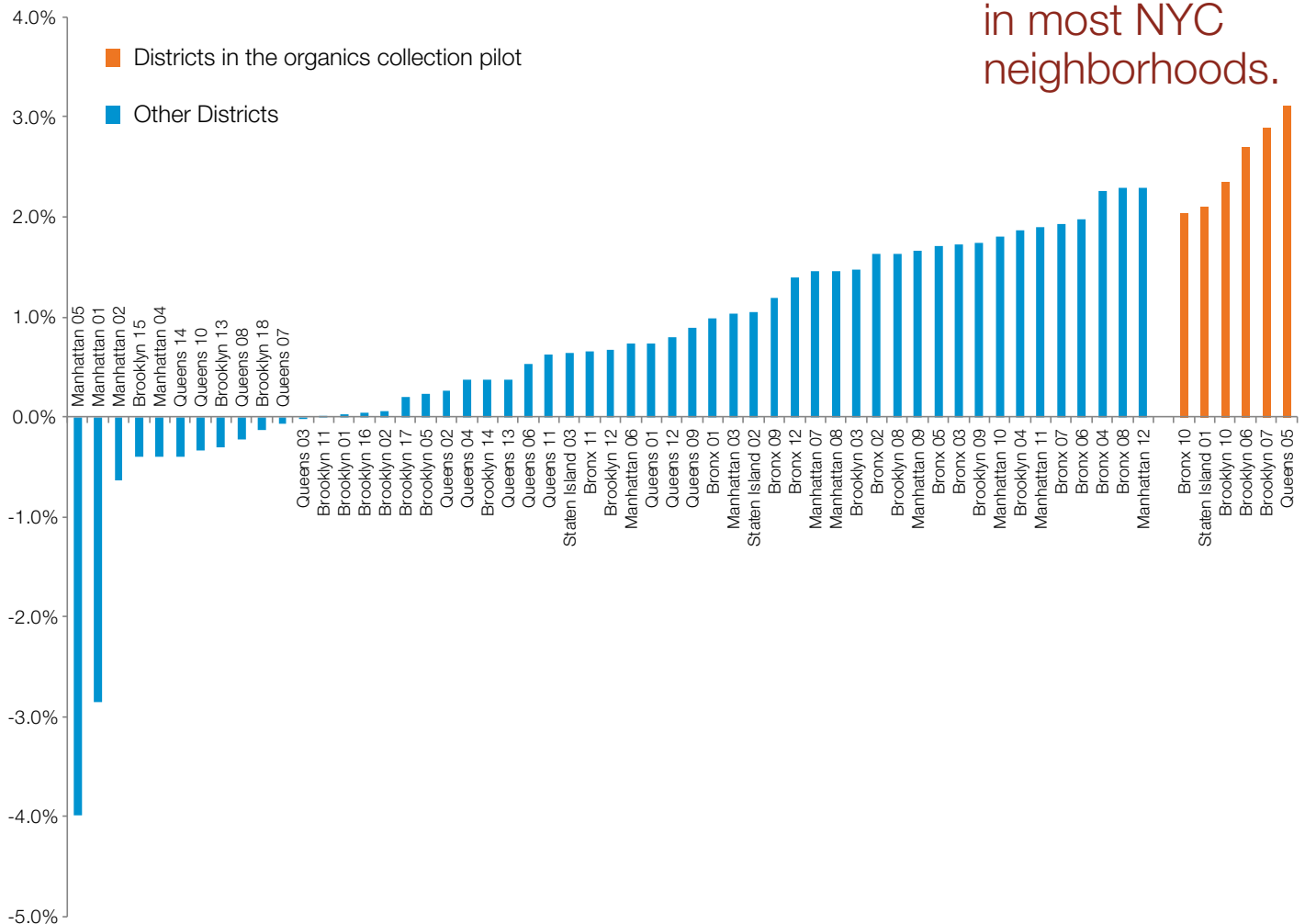
recycling in 2002 and 2003. Although the diversion rate rebounded quickly in 2004 when the City resumed glass and plastics collection, it never reached the higher rates seen prior to suspension.

The recent flattening of the diversion rate at around 15 to 16 percent reflects changing consumer preferences, the growth of electronic media over newspapers and magazines and the substitution of lightweight plastics in place of heavier glass and metal alternatives. It also follows an overall trend of declining waste generation in New York City. As shown in Figure 23, on a per capita basis, weekly refuse generation peaked in 2005 and has steadily declined ever since. This is good news: New Yorkers are wasting less, but the amount of paper and metal, glass and plastic collected has also declined.

In Fiscal Year 2015, the diversion rate increased year-over-year for the first time since 2008, climbing from 15.4 percent to 16 percent. This increase may seem small, but it reflects more than 35,000 tons of additional recycled material over the course of the year. A majority of community districts have also increased their diversion rates in recent years. Figure 24 shows the change in diversion rates for all 59 community districts between 2012 and 2015. Districts containing organics collection pilot areas, denoted in orange, had some of the highest diversion rate increases.

Figure 24: Changes in the Diversion Rate: Fiscal Year 2012 to 2015 for all NYC Community Districts

Diversion is on the rise in most NYC neighborhoods.



While much of the increase in the pilot areas is due to the diversion of organics in those neighborhoods, there have been some beneficial side effects on other curbside recyclables, especially in Brooklyn and Queens. Appendix 2 presents findings on diversion improvements at the District and Section level in detail. The NYC Organics Collection program contributes to an already growing diversion rate in two ways, through the diversion of organic material and by reinforcing of existing curbside recycling.

The majority of residents in the pilot areas are **satisfied** with the program.

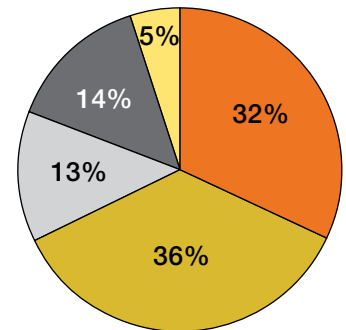
What People Are Telling Us About Organics Recycling

Feedback from residents helps us evaluate the program's success. In addition to the 2015 telephone survey conducted by Baruch College Survey Research Center, we have collected feedback through day-to-day conversations with stakeholders, emails and letters from elected officials and constituents and focus groups with residents of pilot areas. Overall, the feedback has been positive. Nearly 70 percent of survey respondents in pilot areas report being somewhat or very satisfied with the NYC Organics Collection pilot.

Although the majority of respondents in all of the pilot areas report being satisfied with the program, the rates of satisfaction are highest in Brooklyn, where DSNY offers twice-weekly organics collection.

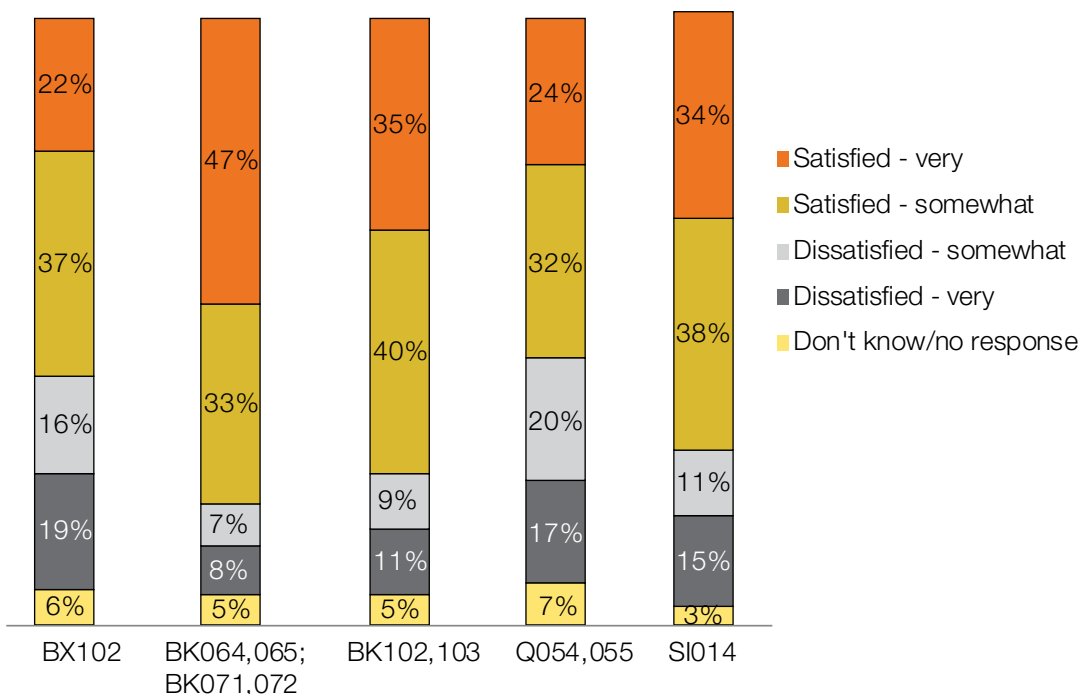
An important finding is that program participants are much more satisfied with the program than nonparticipants.

Figure 26:
How satisfied are you with the Organics Collection Pilot?



- Satisfied - very
- Satisfied - somewhat
- Dissatisfied - somewhat
- Dissatisfied - very
- Don't know/no response

Figure 25: Satisfaction with Organics Collection Pilot Among Different Pilot Areas

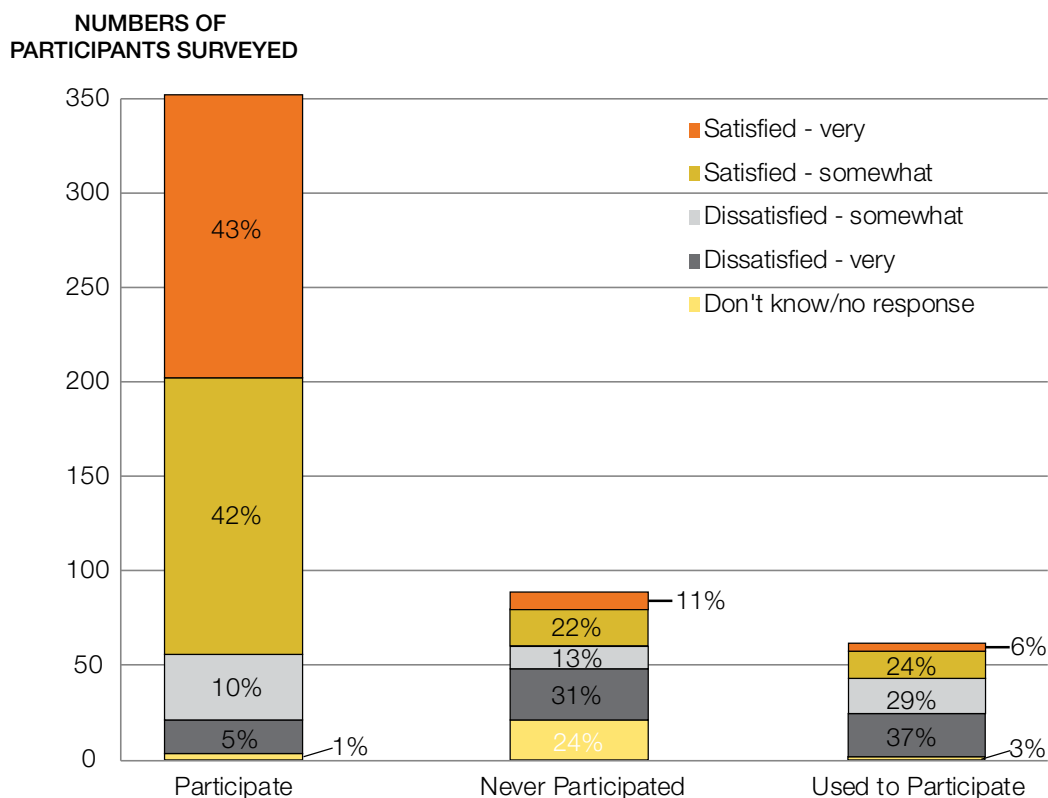


Source: Survey of 500 randomly selected pilot area residents, Baruch Survey Research Center, June 2015. Results reflect those who participate and those who don't.

The City's recycling message over the past three decades has been clear: New Yorkers should prevent waste and put material to good use. The survey responses reiterate this message. Residents believe that keeping waste out of landfills is the most convincing reason to recycle organic waste. Respondents also recognize that organics recycling can reduce greenhouse gas emissions and produce valuable products like energy and compost.

Figure 27: Satisfaction with Organics Collection Pilot is Greatest Among Those Who Participate

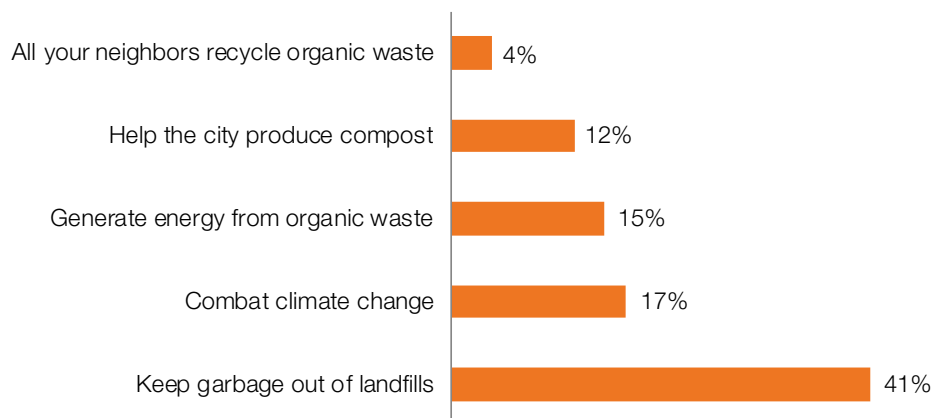
Rates of satisfaction with the Organics Collection Pilot are far higher among participants than those who have never participated, or who tried but did not continue with the program.



Source: Survey of 500 randomly selected pilot area residents, Baruch Survey Research Center, June 2015.

Figure 28: What is the most convincing argument for you about why to recycle organic wastes?

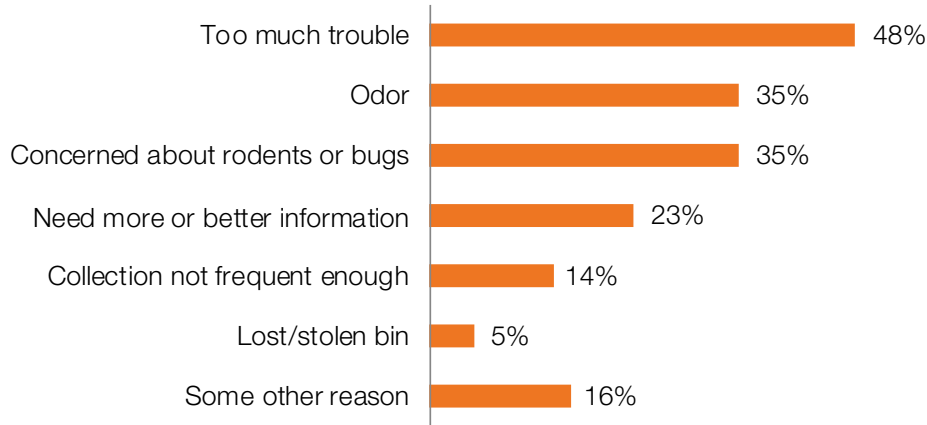
Keeping waste out of landfills is the most common reason to recycle organic waste.



Source: Survey of 500 randomly selected pilot area residents, Baruch Survey Research Center, June 2015. Results do not include refused or don't know answers and may not total 100% for this reason.

Despite this positive feedback, the survey also identified some challenges. Not everyone is participating. Just 12 percent of respondents report having tried and subsequently given up on the program, and 18 percent of respondents never tried to participate in the program. The survey results suggest why. Among those who do not participate, the leading reason is that the program is “too much trouble” (see Figure 29).

Figure 29: If you never participated, why didn't you?



Among pilot area residents who have never tried the program, “too much trouble,” is the leading reason.

Source: Survey of 500 randomly selected pilot area residents, Baruch Survey Research Center, June 2015. Answers are not mutually exclusive and do not total to 100% for this reason.

Figure 30: What is your biggest concern about organic waste recycling? (among participants)



Rats and other rodents are repelled by sealed, hard sided organics bins.

Odor	17%
Will attract rodents	14%
Will attract insects	14%
Too much trouble	5%
Mess and leakage in the kitchen countertop container	3%
Collection not frequent enough	3%
Lack of space	3%
Mess and leakage in outdoor bin	3%
Need more or better information	2%
Compostable plastic bags too expensive	2%
Don't have compostable plastic bags	1%
Need more or different outdoor bins	1%
General sanitation	2%
General cleanliness	1%
Need more or different indoor bins	0%
Other	3%
No concerns	11%
Not sure	13%

Odor, rodents and insects are concerns for some participants. Far fewer consider the program “too much trouble.”

Source: Survey of 500 randomly selected pilot area residents, Baruch Survey Research Center, June 2015. Results may not total 100% due to rounding.

Department of Health Study on Rats and the Organics Collection Pilot

DOHMH conducted 111 organics-specific inspections during the study period with an average of six inspections per building. Overall, organics bins were present during 80 percent of inspections. Among inspections in which organics bins were present, 98 percent were noted as having a clean bin, 65 percent were noted as having a locked bin, and 93 percent were noted as having liners in the bin. DOHMH did not observe gnaw marks, droppings, or new rat burrows around any of the organics bins. Furthermore, the inspectors did not observe new droppings, rat burrows or active rat holes around participating buildings.

Most participants in the pilot areas do not line their brown bins, but those that do use compostable bags most frequently.

In contrast, very few active participants report “too much trouble” as a concern about the program. Among those taking part in the program, concerns that exist are more often related to odor and vermin. Figure 30 lists participants’ concerns in order of prevalence.

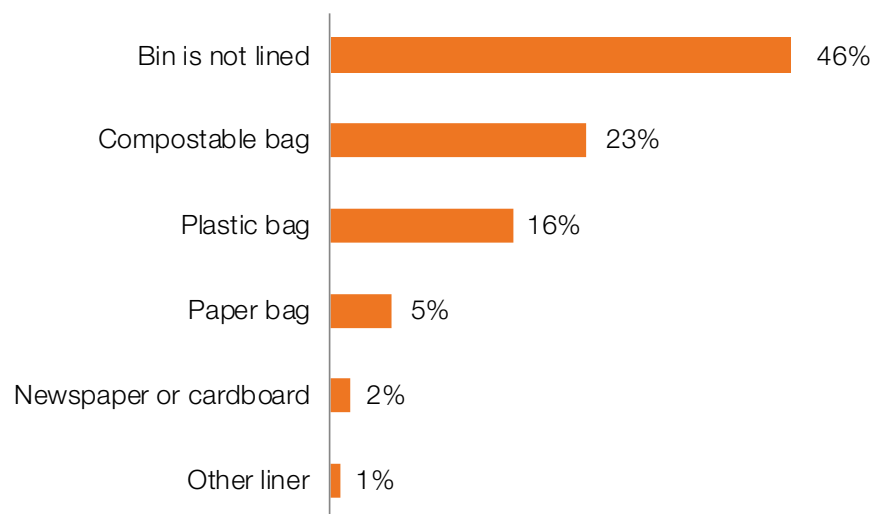
Fortunately these concerns have solutions. Research by the Department of Health and Mental Hygiene (DOHMH) finds that organics collection has no relation to the presence of rats. Multiple reports by building owners highlight the benefits of the hard-sided, rodent-proof bins in discouraging rats, raccoons and other animals.

Compostable bags are another powerful means of stemming odors and containing vermin. As detailed below in the following section, compostable bags allow the convenience of plastic bags without the associated processing challenges. Compostable bags are just as strong, durable and waterproof as traditional plastic bags, but unlike regular plastic, they break down fully in the composting process.

During the pilot, DSNY distributed coupons for compostable bags and information about nearby retailers that sell them. Many residents set out their brown bins without liners, but those who do line their bags more frequently use compostable bags than any other liner.

Overall, resident feedback has been largely positive. Residents generally like organics recycling, and many believe it is an important part of New York City’s responsibility and leadership in addressing climate change, strengthening sustainable communities, and reducing waste. Residents support organics recycling for a simple reason: they want to keep materials out of landfills and to create something useful with that material instead.

Figure 31: With what is the brown bin lined? (Base: those who participate)



Source: Survey of 500 randomly selected pilot area residents, Baruch Survey Research Center, June 2015. Results do not include refused or don't know answers and may not total 100% for this reason.

Processing Organic Material

For any organics recycling program to be viable in the long term, it requires front-end participation in sufficient quantity and quality, a sustainable collection mechanism, and back-end processing that can handle the composition and quantity of incoming material. Each of these steps is critical to the overall system’s efficiency and effectiveness.

The passage of Local Law 77 of 2013¹ and the establishment of the NYC Organics Collection pilot program pushed DSNY to focus on front-end participation while relying on existing collection assets and processing capacity in the region. This meant that the back-end processing of the material would be limited by the capacity of existing facilities and would not be as efficient during the pilot period as it would have been in a more robust infrastructure developed specifically for a curbside program. To plan for a successful future program, DSNY must develop a better understanding of the composition, contamination level and amount of organic material collected. Through this pilot, DSNY has assessed the organic material it collects and delivers to processors, sometimes referred to as feedstock, to inform the future development of the system (or systems) to manage that feedstock.

To date, the material collected under the pilot program has been transported to facilities within NYC and in the region in relatively small quantities. As the program grows and begins to yield tens of thousands or hundreds of thousands of tons annually, DSNY must drive technological change and infrastructure development to accept, process, and beneficially recycle the collected material in a stable, sustainable, and responsible way.

Earlier this fall, DSNY issued a procurement to secure large-scale processing capacity to sustainably grow the NYC Organics Collection program. These vendors will have or will

Capacity relates to the size of a facility and how much it can take in every day, week, month and year. It also reflects the processing technology used, feedstock accepted, and its ability to guarantee acceptance of deliveries.

Figure 32: Processing Facilities Used During the FY13-FY15 Pilot

Prime Contractors	Organics Processing Facility
Brooklyn Transfer	McEnroe Farm, NY
Waste Management	[Peninsula, Delaware]*
	New Milford Farms, CT
	Ag Choice, NJ
WeCare Organics	[Peninsula, Delaware]*
	Delaware County Co-Composting Facility, NY
	Bedminster-Marborough Inc., Mass
DSNY Staten Island Compost Facility	

*Closed

¹ See Appendix 6 for a history of organics management policy and programs over the last 25 years.

Staten Island Compost Facility

The Staten Island Compost Facility was DSNY’s first compost site. Located on approximately 33 acres adjacent to the former Fresh Kills landfill, it is also the largest of the City’s compost facilities. This facility has the potential to meet all of Staten Island’s composting capacity needs for both residential and commercial organic waste.

Currently, this facility accepts and composts both food and yard waste in carefully managed windrows. Material processed at this site come from a variety of sources, including the NYC Department of Parks and Recreation, NYC Organics Collection material from Staten Island schools and residents, and annual Christmas tree collection on Staten Island . This site has also played a critical role in managing woody debris generated during large storms and hurricanes.



DSNY collection truck unloading organics at the Staten Island Compost Facility

In addition, DSNY accepts commercial yard waste at the Staten Island Composting Facility. Once registered with DSNY, any private landscaper or tree service company can pay to drop off yard waste and purchase finished compost in bulk or bags.

To date, the site has accepted food waste from the NYC Organics Collection pilot areas and schools on Staten Island under a pilot permit with the New York State Department of Environmental Conservation (NYSDEC). This pilot permit allows the site to accept up to five tons of food waste per day. In order to better accommodate the processing needs of Staten Island’s expanding organics collection programs, DSNY plans to upgrade the facility to accept a higher volume of organics, including food wastes, from Staten Island households. This upgrade will require a number of infrastructure improvements to satisfy the permitting requirements under NYSDEC Part 360 regulations.

The proposed upgrades will include an enclosed building for unloading and sorting and the installation of a large two-acre concrete pad for the controlled composting of food waste in large covered piles. An aerated static pile system is designed to accelerate the composting progress by introducing a constant flow of oxygen into the composting process, control the exposure to the moisture and other elements, limit the creation of leachate and odors, and treat whatever small amount of leachate is created.

Location	Fresh Kills, Staten Island, NY (former site of DSNY landfill)
Site Size	33 acres
Date Established	1991
Hours of Operation	Monday – Friday, 7:00 am – 3:00 pm
Composting System	Windrows, Scarab Windrow Turner, Outdoors
Permitted Capacity	72,500 cubic yards per year
Types of Organics Accepted	Yard Waste, Food Waste
Sources of Organics	NYC Dept. of Parks and Recreation, NYC Dept. of Sanitation, Private Landscaping Companies
Neighboring Activities	Staten Island Waste Transfer Station, Fresh Kills Landfill, Fresh Kills Park

install the equipment, methods and infrastructure necessary to handle the types and quantities of material that we have. These vendors will also be required to take organic waste on an ongoing basis, and our vendors will be required to operate in all types of conditions and handle varying compositions material delivered to them.

Capacity in and around NYC

Organics recycling operations, ranging from outdoor compost sites to enclosed facilities equipped to extract biogas through anaerobic digestion, exist within and outside the NYC area. Small scale sites are well known to the composting community of New York. Some are as basic as a community garden with just a few bins to which neighbors bring their scraps. Others, like the NYC Compost Project hosted by Big Initiatives site under the Ed Koch Queensboro Bridge, have the ability to continue to grow. In fiscal year 2015, this site composted 500 tons of food scraps, leaves and plant debris, a 25 percent increase over the previous year. These and other local operations epitomize sustainable organics management in New York City, but they are not nearly large enough to process the more than one million tons of organics generated in homes, schools and institutions each year.

In 2015, DSNY conducted a survey to assess regional composting and anaerobic digestion capacity. The survey results show that there are 106 facilities that can process organics within 400 miles of NYC, 26 percent of which are within 100 miles. They range in capacity from less than 1,000 to more than 300,000 tons per year. Within 100 miles of NYC, operating facilities have a total capacity to process more than 200,000 tons of yard trimmings or food scraps per year, with hundreds of thousands of tons of additional capacity in development. These facilities range widely in the type of feedstock they accept. Close to one-half of the facilities surveyed are able to accept post-consumer food waste, but only two of these are within 50 miles of the city. Most facilities closer to NYC are designed to process only leaf and yard waste.

Commingled food and yard waste, as in the NYC Organics Collection program, requires specialized equipment and handling. Yard waste has different material characteristics than food waste; it is less wet and ranges in size from grass clippings to large stumps and branches. Consistency is an important factor for composting, and grinding of large woody items is often practiced to ensure consistency. Food waste, in contrast, tends to be wetter but more consistent in texture. When the yard and food waste are mixed, grinding machinery designed for yard waste does not work well. While there are technological methods to overcome these challenges, they require capital outlays and time to implement. Currently, there are only seven facilities within 100 miles of NYC and 22 facilities between 100 and 400 miles from NYC with the ability to process comingled food and yard waste.



Workers and windrows at the NYC Compost Project hosted by Big Initiatives urban compost site.



Yard waste set out for pickup.

Newtown Creek Wastewater Treatment Plant

Food Waste Pilot



NYC Department of Environmental Protection Newtown Creek Wastewater Treatment Plant

In 2013, the NYC Department of Environmental Protection launched a pilot program at the Newtown Creek Wastewater Treatment plant to process food waste in anaerobic digesters, boosting the production of renewable biogas on site.

Under the pilot program, Waste Management takes in food waste at the company's Varick Avenue transfer station, where they are ground into slurry and transported in sealed

tankers to the Newtown Creek plant. At the plant, the food waste slurry is added to the plant's existing anaerobic digesters, where bacteria convert the organic matter into methane gas. In the future, this gas will be refined into pipeline-quality renewable natural gas and pumped into the local National Grid gas system.

For a short period in 2014, DSNY delivered a small portion of the school organic waste to Waste Management for this pilot. Staff at the transfer station manually removed not only inorganic contamination but also the woody and paper portions of the organic material, as these are not compatible with a wet anaerobic digestion system. After the testing period, it was determined that pure food waste, as restaurants or other food service establishments may generate, would be a more appropriate target feedstock for this facility.

To date, the plant has accepted just a few tons of food waste slurry per day, a small amount when considering the plant's digesters can hold a combined 24 million gallons of wastewater. This year, DEP will begin expand the pilot into a three-year demonstration project, initially accepting 50 tons of food waste slurry per day and increasing to 250 tons per day by 2018.

If this demonstration project is successful, the plant has the capacity to process up to 500 tons of food waste per day, eight percent of the city's total food waste generation from residents and businesses combined. This scale is unprecedented anywhere in the country and has the potential to produce enough energy to heat 5,200 homes and reduce annual greenhouse gas emissions by 90,000 tons. Together, DSNY and DEP will evaluate the success of the program based on its effects on the wastewater treatment process and resulting biosolids and the cost-competitiveness of alternative methods of processing. The New York State Energy Research and Development Authority has contributed \$250,000 dollars for a comprehensive testing and monitoring program to assess the entire lifecycle of processing food scraps through anaerobic digestion, including pre-processing, digestion, dewatering, centrate treatment, and biosolids application.

While the material collected in the pilot has been quite clean – only 5 percent contamination by weight – the type of contaminants in the material can be problematic for processors. Inorganic materials like plastic, glass, metal or stone do not break down in the composting process. They may interfere with processing machinery and require additional screening out at the end. Plastics, on the other hand, often do break down into small pieces, but they do not biodegrade. As a result, they remain in compost, interfering with biological processes and yielding a compost product that is unsightly and low value. This is particularly true in the case of expanded polystyrene (foam plastic used in trays, coffee cups and take out containers), which breaks into small pieces quite easily. Although the City’s ban on expanded polystyrene food service containers was recently blocked by a State judge, the City is pursuing alternative strategies for reducing or eliminating this material from the waste stream.

Plastic bags are the largest component of organics contamination in most programs, including the NYC Organics Collection program. Despite how clean the material is inside the bags, most of the current compost facilities will not accept organic waste delivered in plastic bags, including both large-size curbside liners and smaller shopping bags. One notable exception was Peninsula Composting Facility in Delaware, which closed in 2014 for reasons unrelated to the NYC Organics Collection program.

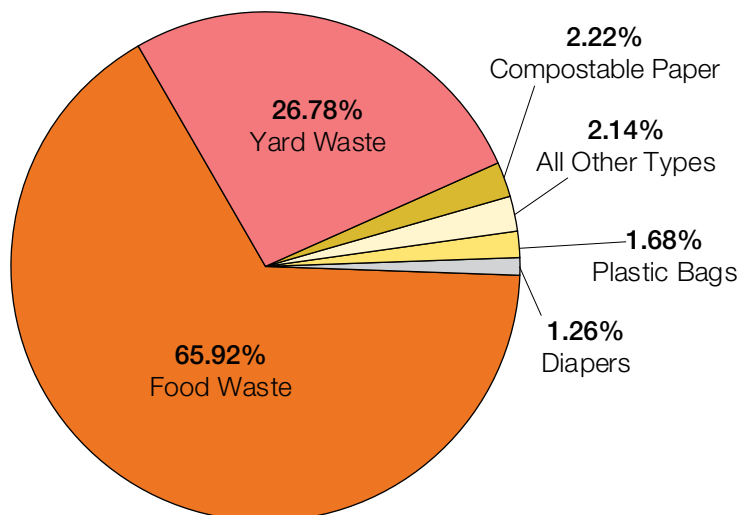
Through the pilot, we have identified that the use of bags is important for building front-end participation in the program. In our outreach and education, residents are encouraged to forego lining their brown bin, or to use alternatives to plastic bags both in indoor and outdoor bins. Many participants, however, continue to use conventional plastic bags to contain organics. For curbside organics to work at a large scale in NYC, the issue of bags for indoor and outdoor use has to be addressed – there is just no way around the need for people to contain their food scraps, compostable paper and yard trimmings inside and outside the house. Fortunately, there is a potential a solution: compostable plastic bags.

Compostable plastics are often made from plant materials, and can completely break down biologically during the compost process. Compostable plastic bags look and feel similar to

Not Suitable for Composting

Contamination with non-compostable inorganic materials, as well as fecal matter from diapers and pet wastes, is unacceptable and should be vigorously discouraged through education, enforcement, and the provision of alternative methods of disposal for these troublesome items. Alternatives include recycling programs for plastics, metal, glass and building materials like rocks, brick and sand; SAFE handling and other drop-off and take back programs for household hazardous waste; textile donation programs for unwanted clothing, shoes and linens; prevention programs that encourage the use of cloth diapers; and refuse collection for a dwindling fraction of what is left over.

Figure 33: Composition of Residential Organic Waste Audited Spring 2015



Source: DSNY waste audit.

Contamination in residential organics is low by weight, totaling around 5 percent.

New York City is one of the founding members of the Urban School Food Alliance, which was formed to leverage the collective purchasing power of multiple school districts to be able to make more sustainable and environmentally preferred purchasing choices. Along with Miami, Los Angeles, Dallas, Orlando and Chicago, DOE is working to replace the containers and packaging used in school food service with compostable alternatives. The first procurement change has been a switch from foam trays to compostable plates.

This fall, all DOE public schools are using compostable plates for all menus, dramatically reducing one of the main contaminants in the organics bins. However, other contaminants remain. Some compostable alternatives to bags, packaging and containers require specialized processing, and the Department and its vendors are involved in testing the products being proposed by the Urban School Food Alliance.

regular plastic bags, and most people cannot tell the difference between the two. This can be both helpful and harmful, as consumers have a difficult time identifying whether a plastic product is truly compostable. For this reason, programs that encourage or require the use of compostable plastics may inadvertently lead to more regular plastics contamination, as well-meaning residents and businesses mistakenly add non-compostable tableware, containers or bags to their organics bin. In addition, compostable bags currently available in New York City retailers vary in strength and quality. DSNY is actively working with manufacturers and retailers to ensure that NYC residents have access to high quality, durable compostable bags.

Compostable packaging alternatives are commonly more expensive than conventional plastic products. During the expansion of the pilot program, DSNY worked with local retailers to add compostable bags to their inventories, and provided every resident of the pilot area with a list of these stores and coupons for the purchase of compostable plastic bags.

Some cities require supermarkets and other large retailers to supply compostable shopping bags instead of conventional bags at checkout. Seattle and San Francisco both require this as part of their comprehensive single-use bag reduction policies. While residents in these cities still need to purchase larger bin liners, they receive – and reuse – smaller compostable bags in the course of their daily life, making participation far easier. New York City is currently exploring policy options to reduce the use of single-use plastic bags, potentially including a fee or ban on their use.

At present, many processors in the region are reluctant or unwilling to accept compostable plastic bags, and in some cases this resistance extends to other compostable packaging alternatives made of paper, wood or other plant fibers like bagasse. First, it is hard for processors to distinguish between compostable and traditional plastics. In addition, these materials, like some yard waste, take longer to break down than food scraps, soft paper, and leaves and grass. In the survey of processors, forty-three percent of respondents indicated that they preferred to receive organic waste that was not delivered in any type of bag, but instead delivered loose. This resistance may stem from the fact that different types of technology are needed to process these materials, and that longer processing turnaround affect facility economics.

As collection of food scraps from residential and businesses grows, this perspective should evolve. Biological processing technologies can safely break down wood, paper and compostable plastics, but the challenge is bringing them up to scale to meet NYC's capacity needs. This system will take time to develop. In the near term, the current procurement will be the first step to bridge the gap between the expanding NYC Organics Collection program and the limits of current processing capacity in the region.



Alternatives to Foam Trays: Compostable Plates and Paper Boats

Pilot Costs

Like any new and burgeoning program, the NYC Organics Collection pilot has had significant startup costs as DSNY seeks to develop and evaluate a successful, long-term program. In Fiscal Year 2014, the first full fiscal year of the pilot program, the total cost of the residential collection pilot was \$4.60 million. The school program that year cost \$1.41 million, and the total NYC Organics program cost was \$6.01 million. In the program's first year, one-time costs associated with containers and RFID readers comprised a large portion of the total costs. Because the program was in its infancy and participation was still developing, the processing costs were a small fraction of the total costs.

In the second full fiscal year of the pilot, the program grew substantially, serving 153,000 households and 722 schools by the end of Fiscal Year 2015. Program costs also grew to a total of \$13.07 million. Processing costs increased substantially in the second full year of the program as the amount of material collected also increased, although these costs still represent less than 10 percent of the total cost and were largely offset by export cost savings. In Fiscal Year 2015, the average organics processing cost was \$113 per ton.²

As NYC Organics Collection continues to grow and participation in the program expands further, it will become more and more efficient. Particularly, as residents become more comfortable with the idea of separating their organic waste, the tons of material collected per shift will likely increase, reducing the collection cost per ton. This fall, DSNY will expand service to two full community districts without adding any new collection costs by swapping dual-bin collection trucks to collect both refuse and organics in the same truck where single-bin rear loading collection trucks had previously been used for just refuse. DSNY will continue to explore new collection strategies to improve productivity and reduce collection costs.

"I think it's a terrific idea. I mean I would use that in a heartbeat... You can take these bags and not feel guilty about putting your trash in them, or your organics in them."

—Focus group member John V. of Bay Ridge, Brooklyn on getting compostable plastic bags as grocery bags at the supermarket



"I think that if we're already recycling plastic, cardboard, metal, and things like that then it shouldn't be that much harder to set aside whatever food scraps or dirty plates we have. It's really easy to do, and it shouldn't be a big deal to do it...it's just part of the recycling program."

—Aida C., Bronx

²Excludes the operation costs of the Staten Island Compost Facility, which also accepts yard waste from the New York City Parks Department and local landscapers.

Next Steps

At the beginning of the NYC Organics Collection program, it was unclear whether New Yorkers would voluntarily separate their food scraps, yard waste, and food-soiled paper. In the early 1990s, the last time such a program had been tested, the results were disappointing, and the program was discontinued. Twenty years later, New York City is a vastly different place. The City has taken great steps toward being a more sustainable, resilient, and equitable place. We better understand and appreciate the relationship between our neighborhoods, infrastructure and natural environment. For example, the community gardens movement, which often goes hand-in-hand with community composting, links food security to community development and environmental education. Most importantly, there is a growing awareness today that our waste – whether organic and inorganic – does not really go “away” and that we share collective responsibility for what happens to it.

The NYC Organics Collection pilot program has demonstrated that New Yorkers are ready and are willing to take part in this important civic undertaking. Today, DSNY collects more than ten thousand tons of organic waste per year, but that is still a still relatively small in comparison to the more than one million tons of organic waste disposed of by New Yorkers each year. The following are recommendations to build on this early success to develop a robust, sustainable, and cost-effective organic waste management program in New York City.

Continue and Grow the Organics Collection Pilot

In April, Mayor de Blasio released *One New York: The Plan for a Strong and Just City*. As part of OneNYC’s ambitious Zero Waste goals, the Mayor announced a goal to expand the NYC Organics Program to serve all New Yorkers by the end of 2018, through either curbside collection or convenient local drop-off sites. DSNY will meet that goal by continuing to expand both the curbside and drop-off programs, beginning with the first two full-district curbside collection pilot areas this fall.

In October 2015, we will be introducing organics recycling in two new areas: the remainder of Brooklyn District 6 and all of Queens District 10. We will also add more high-rise apartment buildings to the program. In total, DSNY will expand service this fall to more than 50,000 additional households, bringing the total number of households served to nearly 210,000.

Next year, DSNY will continue to expand the curbside program. At the same time, we will launch the first 100 Zero Waste Schools, with a goal of diverting all recyclable and compostable waste from those schools within five years.

For the residential program, we will continue to pursue a voluntary approach, building on and reinforcing the extensive outreach and education we have carried out over the past two years. We will leverage our strategic partnerships with nonprofit organizations to promote the program in conjunction with mailings, online media, and field outreach. Our best educational and operational tool will continue to be the brown bin itself. The bin conveys a powerful message of safety, organization and commitment on the part of the City help

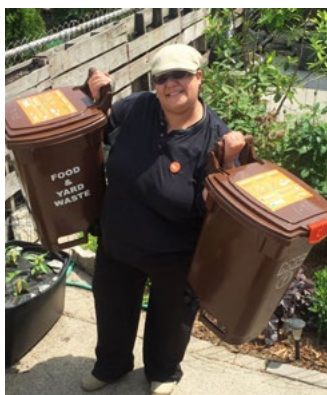
“It certainly should be mandatory, I think people can adjust. I think probably in larger developments or smaller apartments there may be some things that you have to adjust to, but it has reduced my garbage, in fact my second pick up of the week I really don’t have anything to throw out. We’re seeing in our household a definite reduction of garbage. A colleague has been composting for years and said they have very little garbage and I’m finding that out actually.”

—Robert H., Queens



“Your containers are amazing at keeping the critters out. As you know Queens is loaded with raccoons and we had no issues whatsoever. It’s easy to handle, the bins are easy to roll out to the street. We go through quite a lot of stuff here as chefs. We buy a lot of things whole and break them down. So that’s come in handy. They’re easy to clean too, one good hose down. They’re fantastic. We really have had no issues.”

—Wendy T., Queens



residents comply with organics recycling. Our message has been and will continue to be welcoming and informative, inviting recipients to join their neighbors in reducing landfills and creating compost.

In the coming years, we will continue to recognize and support small scale, local composting. Through the New York City Compost Project and other partnerships, we will foster the community composting movement and work to maintain and develop drop off sites in neighborhoods not served by curbside organics collection, especially in Manhattan and the densest areas of other boroughs.

In schools, DSNY will continue to work with our partners at DOE to make all recycling – organics, paper and metal, glass and plastic – standard practice at all New York City schools. Through the Zero Waste Schools program, we will foster a culture of recycling and create models for the rest of the school system.

In New York City, organic waste diversion offers the greatest opportunity to reduce the amount of waste we send to landfills. New Yorkers are excited about the NYC Organics Collection program. While we harness this positive momentum and expand collection service and drop-off opportunities, we must also focus our efforts on developing larger scale processing infrastructure in our region. And we must continue to focus on the quality of material collected, both by educating the public on the use of paper or compostable bags and by ensuring that our processors have the adequate technology to sort out contamination that we expect to see.

As the 21st century unfolds, the way we think about managing cities continues to change. In the realm of solid waste, cities all over the world are coming realize that simply burying waste in landfills is environmentally, socially and economically irresponsible. Organics recycling is a powerful alternative with promising benefits on all three fronts. In the years to come, recycling more and more of our food scraps, yard waste and compostable paper into soil and energy help us meet our Zero Waste goals, providing fertile ground on which to grow a more equitable, resilient, and sustainable New York City.



“We are big time supporters! Happy to see New York advance recycling efforts.”

—Hassan H. , Brooklyn

Acknowledgements

We graciously thank the many people who shared their expertise, assistance and support to DSNY to execute this pilot program.

- First and foremost to the New Yorkers participating in organics recycling, thank you for leading the way to zero waste and for sharing your experiences, good and challenging, which have helped us to tweak and improve the program as we learn and grow.
- We thank the Council Members past and present who sponsored and supported the passage of Local Law 77 of 2013, and to all of the elected officials and their staff who have lent their support and leadership as we ask New Yorkers to embark on a DSNY diversion program and service strategy. Council Members who welcomed the pilot in their Districts include: Deborah Rose, Antonio Reynoso, Brad Lander, Stephen Levin, Carlos Menchaca, Vincent Gentile, Elizabeth Crowley, James Vacca, Andrew Cohen; Borough Presidents James Oddo, Gale Brewer, Eric Adams, Melinda Katz, Ruben Diaz Jr. and Former Borough Presidents Scott Stringer, Marty Markowitz, James Molinaro, Helen Marshall.
- The “D-3 Moms” who started a small independent composting program in four schools on the Upper West Side of Manhattan as a proof of concept that food scrap recycling could increase diversion in New York City schools: Lisa Maller, Emily Fano, Laura Rosenshine, Jennifer “Jenny GreenJeans” Prescott, Pamela French (videographer), Megan Nordgren, Anna Giordano, Theresa DiCristi, Gia Machlin
- Community Boards who have been critical partners to notify and educate residents about the pilot program and to provide essential feedback on the program’s benefits and challenges, including Community Board One in Staten Island; Community Boards One, Six, Seven, and Ten in Brooklyn; Community Boards Eight and Ten in the Bronx; and Community Boards Five and Ten in Queens.
- Agencies and institutions who have partnered with us to implement the pilot and to study its impacts on New Yorkers and the NYC environment especially Dr. Sharon Jaye of the Department of Education, Caroline Bragdon of the Department of Health and Mental Hygiene, and Anthony Fiore of the Department of Environmental Protection.
- Organics processing vendors who have provided critical feedback to determine the quality of feedstock and processing techniques and infrastructure needed to effectively create beneficial reuse to compost and energy generation.
- The Brooklyn and Manhattan Solid Waste Advisory Boards.
- Thank you to all of the civic organizations and local community groups who offered useful advice and provided critical outreach support to their communities.
- Our non-profit partners GrowNYC and the NYC Compost Project for effective and motivating outreach, education and training of residents and schools what, how and why to divert organics.



sanitation

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