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Draft Solid Waste Management Plan 2026

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Commissioner's Letter

Javier Lojan
Acting Commissioner
NYC Department
of Sanitation

This is an exciting time for solid waste management in New York City. In my 26 years with the New York City Department of Sanitation (DSNY), we have pivoted from the traditional "take, make, and dispose" model to making significant steps toward a circular economy. From asphalt to trees, we are pioneering new ways to reuse and remanufacture what was once considered "waste" right here in New York City.

This is the first Solid Waste Management Plan (SWMP) in two decades, and in that time, we have truly revolutionized the collection and disposal of residential trash. With our development of marine transfer stations following the closure of the Fresh Kills Landfill, DSNY has shifted from exporting by truck to exporting by barge and rail. We made these changes with a commitment to a more sustainable future, and we will continue to move forward, always looking to a cleaner, greener city. The 2026 Solid Waste Management Plan (SWMP26), charts a path forward for responsible management of the City's waste, prioritizing the reduction of waste disposal.

Our team remains at the forefront of implementing innovative programs that establish DSNY as a leader in urban resource recovery. Decades after introducing the mandatory recycling of paper, metal, glass and all rigid plastics, DSNY is pushing forward with an expanded focus on the recovery of additional resources: organic material, batteries and other electronics, textiles, and more. A prime example is our recent launch of the nation's largest and easiest curbside composting program, which is now collecting record amounts of organic material and returning millions of pounds of it to New Yorkers as finished compost and renewable energy.

DSNY has so many programs to offer — Smart Composting Bins, SAFE events, Special Waste Drop-Off Sites, textile recycling bins, and more. I am proud to lead the 10,000 employees who work tirelessly to ensure that these programs not only function seamlessly but are also easy for *all* New Yorkers to participate in.

In addition to DSNY's work, SWMP26 provides a system-level, comprehensive plan to address waste in NYC. Together, these programs will improve public health, protect the environment, and deliver value to our City. Over the next decade, with fully rolled out Commercial Waste Zones, and construction and demolition debris tracked, characterized, and recovered, we will enter a new era of resource management.

I want to express my gratitude to my own team and to all our partners who participated in the development of this comprehensive plan. It would not have been possible without input from several New York City agencies, the City Council, our Borough Presidents, the Environmental Justice Advisory Board and Inch and Meter, a women-owned small business enterprise that worked with us to prepare this report.

NEW YORK CITY DEPARTMENT OF SANITATION

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Acknowledgements

This *Draft Solid Waste Management Plan* (*Draft SWMP26*) was prepared following New York State Department of Environmental Conservation (DEC) guidance, as part of a multiyear effort under the leadership of the New York City Department of Sanitation (DSNY) Deputy Commissioner for Solid Waste Management ***Jennifer McDonnell***, with major support from Director of Resource Recovery, ***Katherine Kitchener*** and the Bureau. DSNY partnered with other City agencies in compiling the Plan and especially identifying strategies to improve waste management and reduce waste over the next decade. DSNY is grateful to the organizations below, and to the many others who have contributed their ideas, expertise, data, and review to make *SWMP26* a plan that will position New York City as a leader in circular economy and benefit all New Yorkers.

Agencies and Offices

New York City Department of Sanitation (DSNY)

New York City Department of Citywide Administrative Services (DCAS)

New York City Department of Design and Construction (DDC)

New York City Department of Environmental Protection (DEP)

New York City Department of City Planning (DCP)

New York City Department of Transportation (NYCDOT)

New York City Economic Development Corporation (EDC)

New York City Housing Authority (NYCHA)

New York City Mayor’s Office of Climate & Environmental Justice (MOCEJ)

New York City Mayor’s Office of Environmental Remediation (MOER)

New York City Mayor’s Office of Food Policy (MOFP)

New York City Public Schools (NYCPS)

New York City Department of Parks and Recreation (Parks)

Consultants

Inch and Meter

VHB

Executive Summary

With approximately 13 million tons of residential, commercial, and construction and demolition (C&D) waste generated each year by its people, organizations, and industries, New York City is the state's largest Planning Unit[1] and home to the largest municipal waste management department in the nation. The past two decades have brought many changes to New York City, including population growth, the passage of new State and local laws and guidance, new infrastructure, and the development of programs that have had a major effect on the New York City Department of Sanitation (DSNY) and its waste management practices. Notable examples include the rollout of the Citywide Residential Organics Program, establishment of Commercial Waste Zones, implementation of the Waste Equity Law, reactivation of marine transfer stations, development of the Staten Island Transfer Station and the Staten Island Compost Facility, and passage of the State's Climate Leadership and Community Protection Act (CLCPA). Socioeconomic shifts affecting the solid waste system include the rapid expansion of e-commerce and the digitization of formerly paper-dependent activities.

Broader national and international policies and events have also affected waste management in New York City. Examples include the COVID-19 pandemic; efforts to address climate change and social and environmental justice, dwindling capacity of existing waste management facilities (including transfer stations, landfills, and incinerators), increasing challenges with siting new facilities; global concerns regarding plastic waste; and policies, including China's National Sword, that limit waste exports.

The goal of the *New York City 2026 Solid Waste Management Plan* (*SWMP26*) is to chart a clear path for the reduction, recovery, and responsible management of New York City's residential, institutional, commercial, special, and C&D waste for the next decade and, when possible, lay the groundwork for waste management practices in the decades beyond. DSNY prepared this *Draft SWMP26* to meet New York State Department of Environmental Conservation (DEC) requirements, following DEC guidance. *SWMP26* proposes programs and initiatives to:

- Reduce waste across all generators and streams.
- Expand and increase the efficiency of recycling and resource recovery efforts.
- Improve existing waste management systems.
- Responsibly manage special waste and reduce pollution and toxicity.
- Reduce greenhouse gas (GHG) emissions that contribute to climate change.

Guided by the U.S. Environmental Protection Agency's (EPA) waste management hierarchy (**Figure ES-1**) and committed to serving residents and businesses across the five boroughs efficiently and equitably, *SWMP26* includes the following eight program areas to achieve these goals:

1. Waste Prevention and Reuse
2. Organics Diversion and Recovery
3. Residential Recycling
4. Residential Municipal Solid Waste (MSW)
5. Commercial Waste
6. Construction and Demolition (C&D) Waste
7. Special Waste
8. Education and Outreach

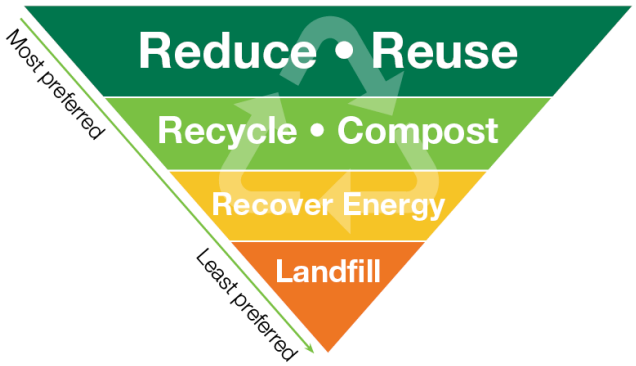
These programs were developed after reviewing best practices for large cities worldwide, consulting resources provided by the state, City and key stakeholders, and analyzing the City's existing conditions. Since 2022, a team has been gathering and analyzing multiyear datasets for all waste streams. The information presented in this *Draft SWMP26* is based on the most recent validated and comprehensive data and information available at the time of preparation. The goal of reviewing the data was to answer a series of questions essential to understanding the current conditions and trends for waste management in New York City:

- What type of waste is generated, and by whom?
- How much of each type is generated, and how is it currently managed?
- What facilities and infrastructure are used to manage waste?
- In what ways is the management of different kinds of waste changing, and why?
- What factors influence waste generation, recycling, recovery, and disposal?
- How can a circular economy—described by EPA as an economy that "reduces material use, redesigns materials and products to be less resource intensive, and recaptures 'waste' as a resource to manufacture new materials and products"—be cultivated?

The following principles and standards guided DSNY in answering these questions and developing *SWMP26*:

- **Evaluating all sources of solid waste** to develop realistic, impactful plans for reducing waste across all sectors and in all boroughs while reducing harm to, and, whenever possible, benefiting the environment and public health.
- **Thoroughly researching and evaluating new and emerging waste management technologies**, weighing the benefits and drawbacks of immediate implementation against a longer-term study and pilot program approach and taking into account the developing technologies likely to emerge in the next decade.
- Strengthening connections with practitioners in resource recovery through new and expanded partnerships, education, and outreach.
- **Maintaining and improving**, wherever possible, access to programs and services.
- Establishing DSNY as a leader in the circular economy as it relates to urban resource recovery.
- **Providing transparency and accountability** in the implementation of *SWMP26* programs.
- **Developing equitable long-term solutions** through waste reduction programs and synergies with the City's *Environmental Justice NYC* (*EJNYC*) *Plan***.**
- **Implementing *SWMP26*** without causing significant adverse impacts and aiming for maximum environmental, health, and socioeconomic benefits.

Figure ES-1. Waste Management Hierarchy



1. Overview of SWMP26

Chapters 1-4 of *Draft SWMP26* assess the current conditions of waste management in New York City, including the amounts and types of waste, existing waste management systems, and DSNY administrative and financial structure. **Chapter 5** presents DSNY's proposed programs and initiatives, with **Chapter 6** laying out the implementation plan and schedule and **Chapter 7** providing waste projections to quantify the anticipated effects of the proposed programs on the amount of waste that would be generated in New York City over the next decade. In addition, eight technical memoranda detail the following:

- Local laws relevant to waste management
- Existing waste reduction, reuse, and recycling programs in New York City
- Accessible capacity for New York City solid waste management
- National and international factors impacting waste management
- Organic waste generation and management in New York City
- Commercial waste in New York City
- New York City commercial recycling rules
- Review of advanced thermal treatment technologies
- New York State Executive Order 22 (EO22) affected entities

2. Current Conditions Assessment

Waste Generation and Composition

With four of its five boroughs located on islands and the highest population density in the nation, New York City has unique and complex needs when it comes to managing waste. It is the most populous city in the United States, with nearly 8.5 million people, and the largest metropolitan economy in the world.[2,3] New York City's residents, businesses, and industries (including C&D) generate more than 13 million tons of waste per year.

New York City's solid waste comes from many sources. Approximately one third of New York City's annual waste is generated by city residents and institutions, and around 40% is generated by the commercial sector. C&D debris and fill (soil and rock) account for nearly half of the city's waste generation, with 5.3 million tons processed at New York City private transfer stations in 2023, based on private transfer station reports to DSNY.[4]

Residential Waste Management

New York City is divided into 59 sanitation districts for managing residential waste. Residential refuse, organics, and recyclables are picked up by DSNY collection vehicles and delivered to one of the City's five transfer stations for refuse, upgraded since the 2006 *Comprehensive Solid Waste Management Plan* (*2006 SWMP*), or to private transfer stations under contract with DSNY. At most of these transfer stations, waste is containerized and moved out of the city by rail, or by barge to rail. Port Liberty container terminal on Staten Island exports nearly 60% of DSNY-managed waste brought to DSNY transfer stations, while the TRANSFLO container terminal in Elizabeth, New Jersey, exports the remaining 40%. All of this containerized waste then moves by rail to its final destinations at incinerators and landfills located in New York State, New Jersey, Pennsylvania, Virginia, and South Carolina.[5]

Another way of assessing waste management in New York City is by the composition of the waste. DSNY periodically conducts waste characterization studies to evaluate the composition of residential waste. DSNY's 2023 *Waste Characterization Study* found that two-thirds of the city's residential waste is comprised of organics (36%) and

recyclables (32%), with another 7% of materials considered divertible from landfills and incinerators (**Figure ES-2**).[6] While the city's population declined by nearly half a million residents during the COVID-19 pandemic, it is once again on the rise and expected to grow to 9.1 million by 2030 and 9.3 million by 2040.[7] This anticipated growth underscores the need to expand efforts to reduce and recover waste.

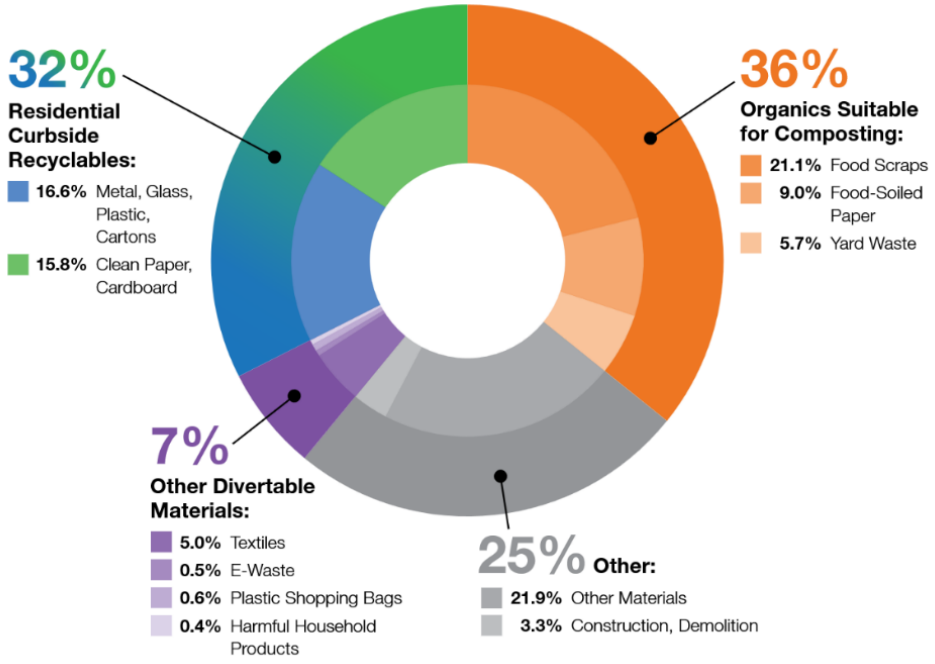


Figure ES-2. New York City Residential Waste by Type, 2023
Source: DSNY, 2023 NYC Waste Characterization Study

Commercial Waste Management

The management of commercial waste has also shifted in the last 20 years. While DSNY does not collect commercial waste (businesses are required to contract with private waste haulers or haul their own waste), DSNY, with the Business Integrity Commission (BIC), oversees the management of commercial waste disposal and the enforcement of commercial waste legislation within the city. Local Law 199 of 2019 created Commercial Waste Zones in order to:

- more safely, efficiently, fairly, and consistently manage commercial waste
- streamline collection to help reduce carting and therefore GHG emissions, which contribute to climate change and air pollution in disadvantaged communities
- better support the enforcement of commercial recycling mandates.

Of note, C&D waste is exempt from Local Law 199.[8] Data currently available for commercial waste is not comprehensive and not of the same quality as data on residential waste. The data gaps identified include amounts of waste generated (because some commercial waste is managed outside of the city), amounts recovered, waste

composition, and processing and disposition locations. Some of the initiatives proposed as part of SMWP26 are aimed at improving data quality.

Current Facilities

DSNY's marine transfer stations (one in Manhattan, two in Brooklyn, and one in Queens) have reduced long-range truck traffic and associated climate and air pollution by containerizing and transporting municipal solid waste (MSW) via barge and rail, more fuel efficient modes of transportation that avoid congested highway bridges and tunnels. DSNY also completed the conversion of a marine transfer station in Manhattan for paper recycling. The Staten Island Compost Facility (SICF), operating since 1991, accepts up to 105,000 cubic yards of yard trimmings and tree debris annually. It also has the capacity to accept 600 tons per week of food waste for composting and 70,000 cubic yards per year of wood waste. SICF is one of seven DEC registered or permitted compost facilities in New York City that keep organic waste out of landfills. The city is also home to 15 privately owned MSW transfer stations; 19 recycling facilities for metal, glass, plastic (MGP) and/or paper; 42 scrap metal processing facilities; 57 vehicle dismantling facilities; 19 fill and 21 C&D transfer stations; and five special waste drop-off sites, one in each borough. The City's Department of Environmental Protection (DEP) owns and operates 14 wastewater resource recovery facilities processing an average of 1.3 billion gallons of wastewater per day.[9]

Key Shifts Since 2006

Since the publication of the *2006 SWMP*, a number of significant land use and societal changes have affected the generation and management of solid waste in New York City, including the development of marine transfer stations to export waste following the closure of the Fresh Kills Landfill on Staten Island; rezoning of numerous manufacturing zones to develop more residential, commercial, and mixed-use properties; and the dawn of the e-commerce era. This has affected waste management in multiple ways:

- Infrastructure has shifted from export by truck to export by rail.
- The composition of residential waste has shifted to be less paper and more plastic based.
- Modified land uses have resulted in the generation of more municipal solid waste compared to historically more industrial waste.
- The shrinking of manufacturing zones with vacant parcels has made it more challenging to site waste infrastructure.

Towards a Circular Economy

Shifts in the past two decades, together with the initiatives proposed in *SWMP26*, mark progress in the transformation of waste management from a linear economy to a circular economy model. Current and future initiatives are leading New York City away from a "take, make, and dispose" model to a system where resources are reused and recovered, thereby reducing waste, the use of natural resources, and GHG emissions. DSNY has supported the development and implementation of several local laws increasing residential engagement with the circular economy, including Local Law 85 of 2023, mandating citywide curbside organics collection for all residential properties, and Local Law 88 of 2023, requiring DSNY to hold community reuse and recycling events in every community board district. DSNY made additional strides in improving commercial waste diversion through the establishment of Commercial Waste Zones, which will allow for closer oversight of commercial waste collection and enforcement of environmental, health,

and safety standards. The Commercial Waste Zones program incentivizes recycling and requires improved data reporting on material quantities and recovery.

Building on these existing programs and infrastructure, *SWMP26*'s initiatives aim to establish DSNY as a leader in the circular economy and urban resource recovery. Over the next decade and beyond, DSNY will significantly reduce the tonnage of waste generated and increase the percentage of waste diverted by launching programs focused on residential waste prevention, reuse, and repair while expanding current residential organics, recycling, and donations programs. Alternatives outlined in *SWMP26* include launching a reusable packaging pilot, advancing reuse and repair programming at community reuse and recycling events, and increasing diversion of textiles from landfills.

In addition to DSNY's role in reducing residential waste, as part of *SWMP26* goals, DSNY will cultivate New York City's commercial circular economy in coordination with multi-sector stakeholders. By providing opportunities to convene stakeholders across material streams and project areas, DSNY will serve as a hub for New York City's circular economy. As a centralized resource, DSNY will focus on expanding the circular economy network, collecting data, leading research and policy, and sharing best practices to grow the coalition while maintaining a commitment to environmental justice and grassroots initiatives. In accordance with Executive Order 23 (EO23: Clean Construction) and the increased focus on New York City's capital projects and commercial C&D sector, DSNY will help identify opportunities to support the goals of EO23, including leveraging Industrial Business Zones, encouraging the growth of reclamation and remanufacturing, sharing performance standards, and promoting reuse and deconstruction.

3. *SWMP26* Programs

SWMP26 initiatives aim to reduce the amount of refuse and increase diversion year over year by maintaining and strengthening current programs in the following:

- **Waste reuse, reduction, and recycling**, by promoting and supporting food rescue and community swaps and exchange programming to extend the use of materials and reduce waste.
- **Resource recovery**, by facilitating the recycling of metals, glass, plastic, textiles, and other materials and through sustainable management of organics. These programs are described in **Attachment B: Existing Waste Reduction, Reuse, and Recycling Programs in New York City** and in **Attachment E: Organic Waste Generation and Management in New York City**.
- **Incentives**, by continuing to offer recycling incentives in New York City, including the 1982 New York State Bottle Bill, which provides for refunds on bottle returns, and DEC grant programs that support reuse, reduction, and recycling efforts.
- **Education and outreach**, by facilitating programs, including signage and site visits in public schools and businesses; organizing events and programs presented by Sanitation Foundation, a nonprofit DSNY partner; and supporting other programs offered by agencies and nonprofits, such as the New York City Public Schools Office of Energy & Sustainability, the New York City Department of Parks and Recreation (Parks) Mulchfest, and the Billion Oyster Project. These and other programs are described in **Attachment B**.
- **Enforcement**, by appropriately deploying environmental police, inspectors, and surveillance cameras, and by encouraging community involvement through illegal dumping reporting and award programs.

The eight programs proposed in *SWMP26* embrace the New York State waste management hierarchy and a closed-loop approach to waste management by (1) prioritizing waste reduction and reuse, (2) expanding recycling and organics diversion efforts, and (3) recovering energy and material resources during the waste management process. Together, these efforts can reduce waste generation and increase resource recovery while continuing to improve New York City's existing waste management systems.

What follows is a summary of the planned initiatives and strategies under each program area to achieve the goals of *SWMP26* and the City's broader, related policies.

1. Waste Prevention and Reuse Program

The Waste Prevention and Reuse program aims to minimize waste generation by (1) reducing the demand for single-use or superfluous items and (2) supporting the reuse of resources through donation, lending, resale, and repair. The program includes the initiatives and strategies listed in **Table ES-1**.

Table ES-1. Waste Prevention and Reuse Program

Initiatives	Agency Strategies
Advance textile reuse programs and reduce textile waste	• Establish textile collection options for all city households and institutions, with additional events and appointment-based pick-up for low-rise buildings (buildings with fewer than 10 units), which were previously excluded from collection programs. • Study potential legislation to increase participation. • Identify avenues for requiring commercial textile reporting to better enforce the recycling requirement for businesses whose waste is made up of more than 10% textiles. • Work to expand enrollment in DSNY's textile recycling program by including office buildings, small businesses, City agencies, and educational and other institutions. • Provide best practices guidance on textiles used by agencies. • Launch pilot projects to increase access to reuse and repair for textiles procured or mandated by the City.
Facilitate reuse and repair by supporting organizations and donateNYC users, and by including construction and demolition (C&D) material reuse	• Support nonprofit and community organizations engaged in reuse and repair by offering technical assistance, strategic relationship development, and access to funding opportunities. • Identify opportunities for increased C&D salvaged material storage and refurbishment. • Build C&D material expertise within DSNY's Reuse and Donations Unit and promote existing donateNYC tools to designers, developers, and contractors to support connecting C&D supply and demand.
Promote packaging reuse and reduction	• Promote at least one pilot packaging reuse program with a New York City partner. • Promote a container reuse program at a public venue. • Expand single-use plastic waste reduction initiatives in schools.
Increase access to reuse centers and support reuse and repair events	• Expand access to community-based reuse centers in each borough. • Integrate reuse and repair into community reuse and recycling events.
Improve data collection and reporting on the benefits of reuse	• Conduct reuse sector research and prepare biennial reports. • Evaluate commercial reuse, repair, and lending capacity in New York City.

Table ES-1. Waste Prevention and Reuse Program

Initiatives	Agency Strategies
Study incentive-based waste management policies	• Research and report on incentive-based policies and practices and explore potential opportunities for incentive-based mechanisms for residential collections in New York City. • Continue to conduct waste characterization studies, per Local Law 14 of 2025, and use the results of those studies to inform policy development.
Convene New York City's circular economy stakeholders	• Convene a network of organizations across sectors in the circular economy. • Develop a virtual hub to increase coordination, compile research, collect data and share best practices. • Develop performance-based specifications to facilitate the use of recycled material and material with recycled content, including reclaimed soil. • Partner with local organizations to promote commercial C&D material reuse.

2. Organics Diversion and Recovery Program

New York City residents and businesses generate over 2 million tons of organic waste per year (as of 2023). Most of this material is discarded with refuse. The Citywide Residential Organics Program launched in 2024, expanding prior opt-in programs for residents and organics management efforts by DSNY, Parks, New York City Public Schools (NYCPS), and DEP. DSNY, in partnership with other City agencies, aims to increase the diversion of organic waste, increase composting and the use of compost, and improve the management of biosolids and biogas produced with wastewater treatment and organics management using codigestion of wastewater and separated organics, such as food waste. **Table ES-2** provides an overview of the initiatives and agency strategies that are proposed as part of the Organics Diversion and Recovery Program.

Table ES-2. Organics Diversion and Recovery Program

Initiatives	Agency Strategies
Increase the quality and quantity of organics diverted citywide	• Study alternatives to clear plastic bag bin liners for organics collection. • Promote the use of paper bags for leaf and yard waste collection. • Explore innovations in collection equipment and operations to improve quality. • Increase participation in the residential curbside collection program. • Increase organics recycling access for New York City Housing Authority (NYCHA) residents. • Ensure continuity in training and education to increase participation in the school curbside organics collection program.
Increase the recovery rate of DSNY-managed organics	• Continue to monitor advancements in technology related to the decontamination of collected organics. • Experiment with methods to increase the recovery of compostable products at the Staten Island Compost Facility (SICF). • Use contractual provisions to maximize the recovery of collected organics.

Table ES-2. Organics Diversion and Recovery Program

Initiatives	Agency Strategies
Increase composting and wood reuse	• Expand leaf and yard waste and overall pre-processing capacity at SICF. • Participate in planning for the future of Rikers Island and the related potential for additional composting capacity. • Initiate the organics processing capacity stakeholder process. • Establish eight new composting locations and upgrade, as necessary, the 17 existing facilities per Local Law 118 of 2024. • Collaborate on the management of woody debris, including direct reuse (milling); on the *NYC Urban Forest Plan;* and on exploring technologies such as biochar production.
Expand codigestion and beneficial use of biosolids and biogas	• Pursue the goal of 100% diversion of biosolids from landfills by 2030 by diversifying end-use sites and vendors. • Reduce overall sludge volume while improving liquid sludge quality through enhanced thickening and digestion processes. In parallel, assess the feasibility of on-site drying technologies to further reduce dewatered solids, enabling more cost-effective and sustainable downstream handling. • Develop plans to expand organics codigestion capacity and biogas. recovery, with the potential for biogas infrastructure on City property. • Advance the pathways identified in the DEP Energy and Carbon Neutrality Plan, Task 3: Biosolids Master Plan, including thermal conversion via pyrolysis or gasification.[10] • Explore innovative methods to beneficially reuse wastewater-derived products in-city. • Build on the *From Trash to Treasure*[11] study to develop new markets for waste-derived resources. • Continue to evaluate opportunities for co-location of new and innovative wastewater and/or organics waste management infrastructure at City-owned properties, including locations that have been previously evaluated, such as Rikers Island.
Promote food donation and rescue	• Make efforts to increase the number of donateNYC Food Portal users and the amount of food donated through the portal. • Expand food rescue initiatives and improve data collection at New York City public schools. • Support other City agencies in creating food donation programs. • Work to increase the amount of food donated by businesses.
Increase in-city use of organic-derived products	• Increase the use of City-produced compost and mulch on NYCHA construction projects and at existing NYCHA development grounds. • Provide public schools with bags of compost for educational purposes and school gardens. • Consider the use of DSNY compost and mulch in landscaped arterial roadways and street medians. • Develop performance-based specifications for soils, compost, and mulch products.

Table ES-2. Organics Diversion and Recovery Program

Initiatives	Agency Strategies
Continue to support community composting	• Manage available funding for community composting groups and botanical gardens in the city. • Work with community composters to operate a composting facility on DSNY property in Gowanus, Brooklyn. • Collect and compile data from composters contracted with the City to quantify the amount of material composted.

3. Residential Recycling Program

DSNY has a well established residential recycling program. However, the City's *2023 Waste Characterization Study* found that much of what could be recycled was not separated for recycling. Approximately one-third of the materials DSNY collected curbside were recyclable metals, glass, plastics (MGP), and paper—about 1 million tons of DSNY-managed waste that could have been recovered in 2023.[6] However, of that amount, only about 600,000 tons of MGP and paper (60%) were separated for recycling by residents and institutions.[6]

The initiatives under the Residential Recycling Program aim to improve and expand recycling recovery efforts and maintain recycling capacity by securing recycling facilities contracts beyond 2034, when current contracts are set to expire. The Residential Recycling Program proposed as part of *SWMP26* includes initiatives to increase the diversion of materials collected curbside, as well as initiatives and agency strategies to recover recyclable materials such as carpets and mattresses, in accordance with Local Law 88 of 2023. **Table ES-3** provides a list of initiatives and agency strategies proposed as part of the Residential Recycling Program.

Table ES-3. Residential Recycling Program

Initiatives	Agency Strategies
Ensure continued capacity for transferring and recovering recyclable materials	• Evaluate options for managing recyclables following the end of contracts with Pratt Industries and Sims Municipal Recycling (SMR) in 2034.
Improve the recovery of collected metals, glass, plastics (MGP), and paper	• Work with SMR to increase the recovery of materials in the MGP stream, such as rigid and film plastics. • Work with SMR to optimize the recovery of glass. • Partner with City agencies to increase participation in recycling programs for MGP and paper. • Monitor progress on Extended Producer Responsibility (EPR) policy for packaging in other jurisdictions and advocate for a New York State EPR for packaging policy.

Table ES-3. Residential Recycling Program

Initiatives	Agency Strategies
Expand residential drop-off and recycling programs	• Maintain and improve existing residential drop-off programs. • Expand community reuse and recycling events to include the collection of other materials, such as textiles and paint. • Work with DEC to implement the State law on carpet EPR in New York City. • Advocate for and advance EPR programs for packaging in accordance with *PlaNYC* (the City's sustainability blueprint) and state legislative efforts. • Work with other local governments across the state to advance an EPR program for mattresses.
Increase residential recycling participation and quality	• Participate in the Sanitation Foundation's Trash Academy. • Update the residential Waste Management Plan approval process for multiple dwelling buildings to ensure all recycling streams are included.[12] • Monitor the effect of residential containerization on recycling capture rates and quality. • Work to increase the diversion of paper from the refuse stream, primarily through recycling education and outreach efforts. • Monitor state-level container redemption/return program and policy development, adapting New York City's recycling program as appropriate. • Optimize the collection of all material streams citywide.

4. Residential Municipal Solid Waste (MSW) Program

These initiatives aim to ensure DSNY's capacity for export and to support the effective management of MSW. Because DSNY maintains responsibility for Fresh Kills and Edgemere Landfills, the program also includes strategies to effectively oversee these sites. **Table ES-3** provides a list of initiatives and agency strategies proposed as part of the Residential MSW Program.

Table ES-4. Residential Municipal Solid Waste Program

Initiatives	Agency Strategies
Ensure capacity for export	• Prioritize planning for changes to Reworld Essex incineration capacity while also evaluating options for other contracts, starting with the contracts that would expire first. • Continue to proactively monitor MSW disposal capacity in the regional market and incorporate trends into long-term planning efforts. • Continue to assess viability of accepting commercial waste at City-owned transfer stations. • Review the status of each facility owned or under contract with DSNY for the management of solid waste, in accordance with the City's *Climate Resiliency Design Guidelines*.[13]

Table ES-4. Residential Municipal Solid Waste Program

Initiatives	Agency Strategies
Maintain the Fresh Kills and Edgemere Landfills post-closure	• Direct Fresh Kills Landfill leachate to a DEP wastewater resource recovery facility (WRRF) and decommission the onsite leachate treatment plant. • Adapt the landfill gas (LFG) facilities at Fresh Kills Landfill to a declining generation rate. • Continue to collaborate on the adaptive reuse of Fresh Kills Landfill. • Complete the Edgemere Landfill solar feasibility study and evaluate next steps. • Adjust inspection and reporting requirements at Fresh Kills and Edgemere Landfills to reflect modified operations and regulatory changes.
Monitor thermal treatment technologies	• Continue to monitor this field through attendance at industry conferences and attention to state and federal policy development, reporting on updated findings in SWMP biennial reports.
Advance New York City's Environmental Justice Plan	• Continue to participate in the development of the citywide *EJNYC Plan* and annual progress reporting. • DSNY will consider the distribution of environmental justice benefits as part of SWMP26 Program implementation. • Report on annual spending with Minority and Women-Owned Business Enterprise (M/WBE) and B-corporations and on nonprofit collaborations.

5. Commercial Waste Program

More than 2 million tons of waste and recyclables generated by New York City's commercial sector are managed at transfer stations in New York City each year.[4,14] Additional commercial waste is hauled directly out of the city before being accounted for in City datasets. A major focus of *SWMP26*, the Commercial Waste Program will implement and monitor the Commercial Waste Zones Program of Local Law 199 (2019). Expanding organics rules for all businesses will help increase the diversion of organic material discarded by businesses. Improved data will support program implementation and monitoring and will inform future policy. **Table ES-5** provides an overview of the initiatives and agency strategies proposed as part of the Commercial Waste Program.

Table ES-5. Commercial Waste Program

Initiatives	Agency Strategies
Implement Commercial Waste Zones	• Implement Commercial Waste Zones in all zones citywide. • Annually report on Commercial Waste Zones pursuant to Local Law 199 of 2019.
Expand organics rules	• Work with New York City Council to expand organics separation requirements to include all businesses.
Increase diversion of recyclables and organics	• Monitor the capture rate and diversion of recyclables in Commercial Waste Zones. • Research barriers to higher diversion rates and identify potential solutions. • Monitor commercial recycling rates and processing capacity.

Table ES-5. Commercial Waste Program

Initiatives	Agency Strategies
Improve data quality	• Report data in biennial SWMP reports, including information on types of businesses and associated waste generation (e.g., industrial, retail, office, etc.). • Complete a commercial waste characterization study per Local Law 14 of 2025. • Collaborate with government partners to improve data on the collection and use of fats, oils, and grease (FOG) waste.

6. Construction and Demolition (C&D) Waste Program

New York City generates more than 2 million tons of C&D debris and approximately 3 million tons of fill annually, based on the amounts received at New York City transfer facilities.[4] Much of this waste is recovered for beneficial use or recycled. Like commercial waste, much of the C&D waste is hauled directly out of New York City and is not well accounted for. The C&D Waste Program will implement New York City's Clean Construction Executive Order (EO23), and aim to improve the recovery, reuse, and repurposing of C&D waste. **Table ES-6** provides an overview of the initiatives and agency strategies proposed as part of the C&D Waste Program.

Table ES-6. Construction and Demolition (C&D) Waste Program

Initiatives	Agency Strategies
Implement Clean Construction Executive Order (EO23)	• Develop construction and demolition guidance for all covered City agencies.
Expand New York City Department of Transportation (NYCDOT) recycling in asphalt	• Continue to provide asphalt millings for use in City projects, private industry, and community developments. • Work on increasing the use of asphalt with higher recycled asphalt pavement (RAP) content and pilot projects with 50% RAP. • Identify opportunities to use recycled materials in asphalt mixtures as they become available in the industry.
Include C&D waste in the circular economy	• Identify opportunities to use recycled concrete aggregate (RCA) and provide unused RCA for use in City projects. • Test the use of low carbon materials and explore recycled content of concrete mixes. • Expand the NYC Clean Soil Bank program's Forbell Street Stockpile yard operation from two to three days per week. • Collaborate on the *NYC Industrial Plan* and on circular economy opportunities related to building and infrastructure material recovery. • Advance research and identify infrastructure for reuse and remanufacturing. • Convene C&D waste processors to identify and address barriers to reuse, recycling, and beneficial use, and to solicit suggestions on improving C&D data. • Work with C&D waste processors and City agencies to develop C&D material reuse incentives.

7. Special Waste Program

Special waste includes hazardous or harmful products and materials that may be corrosive, toxic, or otherwise dangerous. While special waste comprises less than 1% of residential waste by weight, it is especially important to manage it properly to avoid any adverse environmental, health, safety, or economic impacts. **Table ES-7** shows the initiatives and agency strategies proposed as part of the Special Waste Program.

Table ES-7. Special Waste Program

Initiatives	Agency Strategies
Advance special waste recovery and Extended Producer Responsibility (EPR) policies	• Explore the use of recycled tire rubber in infrastructure, including through challenge-based procurement. • Work with state legislators to update EPR policies for batteries. • Work to reduce the risk of fires associated with rechargeable batteries through proper end-of-life management. • Support New York State EPR initiatives and identify opportunities to support photovoltaic (PV) module (solar panel) recycling in City planning and programs. • Work to divert 70% of old PV modules by 2030 and 100% by 2035 for recycling. • Support City and State EPR initiatives for gas cylinders.
Expand community events and centers	• Continue the recently expanded hours at Special Waste Drop-Off Sites in compliance with Local Law 88 of 2023. • Hold community events in every community district. These events will collect e-waste, paint, and textiles.

8. Education and Outreach Program

DSNY education and outreach efforts are ongoing and responsive. They include providing signage, online tools and resources, and in-person training and events to increase waste reduction; the separation of organics, recyclables and textiles; reuse in all waste sectors; and responsible management of special waste. **Table ES-8** provides an overview of initiatives and agency strategies proposed as part of the Education and Outreach Program.

Table ES-8. Education and Outreach Program

Initiatives	Agency Strategies
Work to reduce contamination in all recycling streams	• Create multilingual outreach materials for all waste programs and share them on DSNY's website, via social media, and by mail. • Offer online information sessions, training on new programs, and technical assistance on DSNY rules and regulations to building management and staff. • Continue to attend a variety of community events and activities citywide and offer in-person event requests on the DSNY website. • Identify outreach opportunities with local elected officials and community-based organizations. • Conduct door-to-door neighborhood canvassing for new initiatives or in areas with low compliance with waste management regulations. • Continue to provide waste sorting education and training to school students and their families.
Study and employ new digital tools	• Provide relevant and engaging content on all appropriate social media platforms. • Craft digital tool kits to provide downloadable content to be used by community groups to further outreach and education. • Maintain the "How To Get Rid Of" search tool, Smart Composting Bin app, and donateNYC.
Collaborate with community groups on outreach and education for organics recycling	• Conduct outreach activities in partnership with community groups, focused on providing 40-pound bags of compost; kitchen containers; and paper bags for leaf and yard waste to the public. • Train community groups on DSNY services and talking points to help them be better "ambassadors" of DSNY programs. • Encourage community groups to use culturally relevant engagement strategies to tailor their message and event formats to diverse communities.
Leverage enforcement efforts as a form of education and outreach	• Conduct neighborhood walkthroughs with community partners and elected officials to observe area conditions and apply targeted outreach. • Allow warning periods for new initiatives and issue verbal and written "warning tickets" that provide notice of rules and regulations and ways to avoid a fine in the future. • Post collection laws and associated fines for businesses, residents, agencies, and institutions on the DSNY website.

4. Implementation Timeline and Projections

The programs and initiatives outlined in this plan will be implemented over the 10-year period of *SWMP26*. A more detailed timeline of each initiative is outlined in **Chapter 6**. DSNY will report on implementation progress every other year as part of the required biennial reports to DEC.

Based on DEC waste tonnage projection tools, under a "business as usual" (BAU) scenario, the amount of DSNY-managed and commercial waste generated, including recyclable MGP, paper, textiles, and organics will increase by approximately 3.2% between 2026 and 2036 due to projected population growth. DSNY-managed refuse, recyclables, and organics are projected to increase from 3.8 million tons in 0 (used as the projection baseline) to 4

million tons in 2036. The amount of DSNY-managed material diverted from landfills and incinerators through recycling and composting under the BAU scenario is projected to increase from 0.7 million tons in 2023 to 0.8 million tons in 2036. In the implementation of proposed programs (IPP) scenario, the amount of waste managed by DSNY (waste generation) is projected to decrease by 0.5% per year over the 2026-2036 planning period, while waste diversion from landfills and incinerators is projected to increase to 30% (1.16 million tons) by 2036.

Commercial waste (including refuse, recyclables, and organics) managed within New York City is projected to increase from 2.2 million tons in 2023 to 2.3 million tons in 2036. The amount of commercial material diverted from landfills and incinerators is projected to increase from 0.62 million tons in 2023 to 0.65 million tons (28%) in 2036 in the BAU scenario and to 1.27 million tons (55%) in 2036 in the IPP scenario.

In summary, the proposed programs would reduce the amount of waste generated and increase the amount and percentage of waste diverted from landfills and incinerators for resource recovery. The projected changes are summarized in **Table ES-9**.

Table ES-9. Waste Projections

Sector	Scenario	Amount of Waste (Tons) and % Diverted	2026	2030	2036
DSNY-Managed	Business as usual	Generated	3,867,370	3,945,574	3,997,699
		Diverted	757,886	773,211	783,426
		% Diverted	19.6%	19.6%	19.6%
	Implementation of proposed programs	Generated	3,848,033	3,847,916	3,783,241
		Diverted	791,195	946,546	1,153,958
		% Diverted	20.6%	24.6%	30.5%
Commercial	Business as usual	Generated	2,260,319	2,293,659	2,326,153
		Diverted	634,942	644,308	653,436
		% Diverted	28.1%	28.1%	28.1%
	Implementation of proposed programs	Generated	2,260,319	2,293,659	2,326,153
		Diverted	689,627	921,762	1,272,482
		% Diverted	30.5%	40.2%	54.7%

Overall, the implementation of *SWMP26* would improve resource recovery and material reuse. Proposed waste reduction, reuse, and recycling initiatives would also benefit the environment by reducing traffic and air and noise pollution, as well as the effects of waste management on climate change. *SWMP26* initiatives advance the goals of local and State policies to address climate change and support environmental justice, including State Executive Order 22, City Executive Order 23 on clean construction, and New York State's Climate Leadership and Community Protection Act (CLCPA), as well as other local, state, and federal laws discussed in **Attachment A: Local Laws Relevant to Waste Management**. In addition, *SWMP26*'s waste reduction and reuse strategies and organics and recyclables management strategies offer opportunities to meaningfully reduce the burden of waste management on disadvantaged communities over time.

DSNY will continue to implement programs that benefit New Yorkers and the environment while maintaining the critical service of safe, reliable, and compliant management of municipal solid waste. DSNY will also lead the implementation, reporting, and updating of *SWMP26* on behalf of New York City and will closely coordinate and collaborate with its many stakeholders throughout the process.

Introduction

The New York State Department of Environmental Conservation (DEC) requires each Planning Unit, including New York City, to prepare a Local Solid Waste Management Plan (LSWMP) in accordance with New York State regulations.[15] Each LSWMP assesses existing solid waste management practices, evaluates potential programs and alternatives to reduce waste disposal and increase resource recovery, identifies steps to implement the plan over a 10-year period, and provides projections for solid waste generation and reduction over the course of the plan's implementation. The overarching goal of an LSWMP is to reduce the amount of solid waste destined for disposal by preventing its generation and increasing reuse, recycling, composting, and other organic material recycling methods.[16]

New York City's *Draft 2026 Solid Waste Management Plan (SWMP26)* begins with a Current Conditions Assessment (CCA) that describes existing solid waste management policies, practices, and facilities; presents data on material amounts and flows between 2016 and 2023; and describes and evaluates the waste management policies, initiatives, and other changes that have taken place since the publication of New York City's *2006 SWMP*. The CCA includes the following chapters, per DEC guidance:

Chapter 1: Planning Unit Description

Chapter 2: Waste Generation and Materials Recovery Data

Chapter 3: Existing Solid Waste Management System

Chapter 4: Existing Administrative and Financial Structure

Building on the information and findings of the CCA, SMWP26 proposes programs, initiatives, and agency strategies for implementation over the 10-year planning period and provides for their detailed assessment in the following chapters:

Chapter 5: Program Development

Chapter 6: Implementation Plan and Schedule

Chapter 7: Waste Stream Projections

SWMP26 Structure and Overview

- **Chapter 1: Planning Unit Description** provides an overview of New York City (Region 2), the Planning Unit included in the LSWMP. It identifies solid waste generators and special circumstances that characterize New York City's generation and management of waste. This chapter includes a discussion of the effect of the COVID19 pandemic on waste generation and management in New York City and a description of the city's population, employment, zoning, transportation, environmental justice, land use, and land use change. It also describes New York City's neighborhood planning jurisdictions by borough. Finally, this chapter summarizes the solid waste management activities, projects, and plans implemented by the City since 2006.
- **Chapter 2: Waste Generation and Materials Recovery Data** describes the quantity and composition of solid waste in New York City, with a focus on data collected from 2016 to 2022. The material streams discussed include municipal solid waste (MSW), which includes residential, commercial and institutional waste;

construction and demolition (C&D) debris; industrial and special waste; and biosolids. This chapter also describes the methodology used to estimate the quantity of waste generated and to project the future quantity of waste under the baseline "business as usual" scenario.

› **Chapter 3: Existing Solid Waste Management System** describes the facilities and programs that support waste management in New York City. The chapter includes information on the collection, transport, disposal, and recovery of waste and the waste management facilities that are essential to each step of the waste management process. This chapter also summarizes the waste management and waste reduction and recovery programs in New York City.

› **Chapter 4**: **Existing Administrative and Financial Structure** describes the organizational structure of New York City Department of Sanitation (DSNY) responsible for the LSWMP and provides a summary of policies and regulations that affect solid waste management.

› **Chapter 5: Program Development** describes the programs proposed for implementation over the 10-year planning period to improve the reduction and management of waste material generated in New York City.

› **Chapter 6: Implementation Plan and Schedule** discusses the implementation requirements (e.g., resource and infrastructure needs, administrative and legal considerations, and schedule) as well as economic, employment, and other benefits of the proposed programs.

› **Chapter 7: Waste Stream Projections** discusses the projected qualitative and quantitative impacts of the proposed programs on waste generation, reuse, and recovery.

› **Attachments** offer in-depth discussion of selected topics addressed in *SWMP26*:

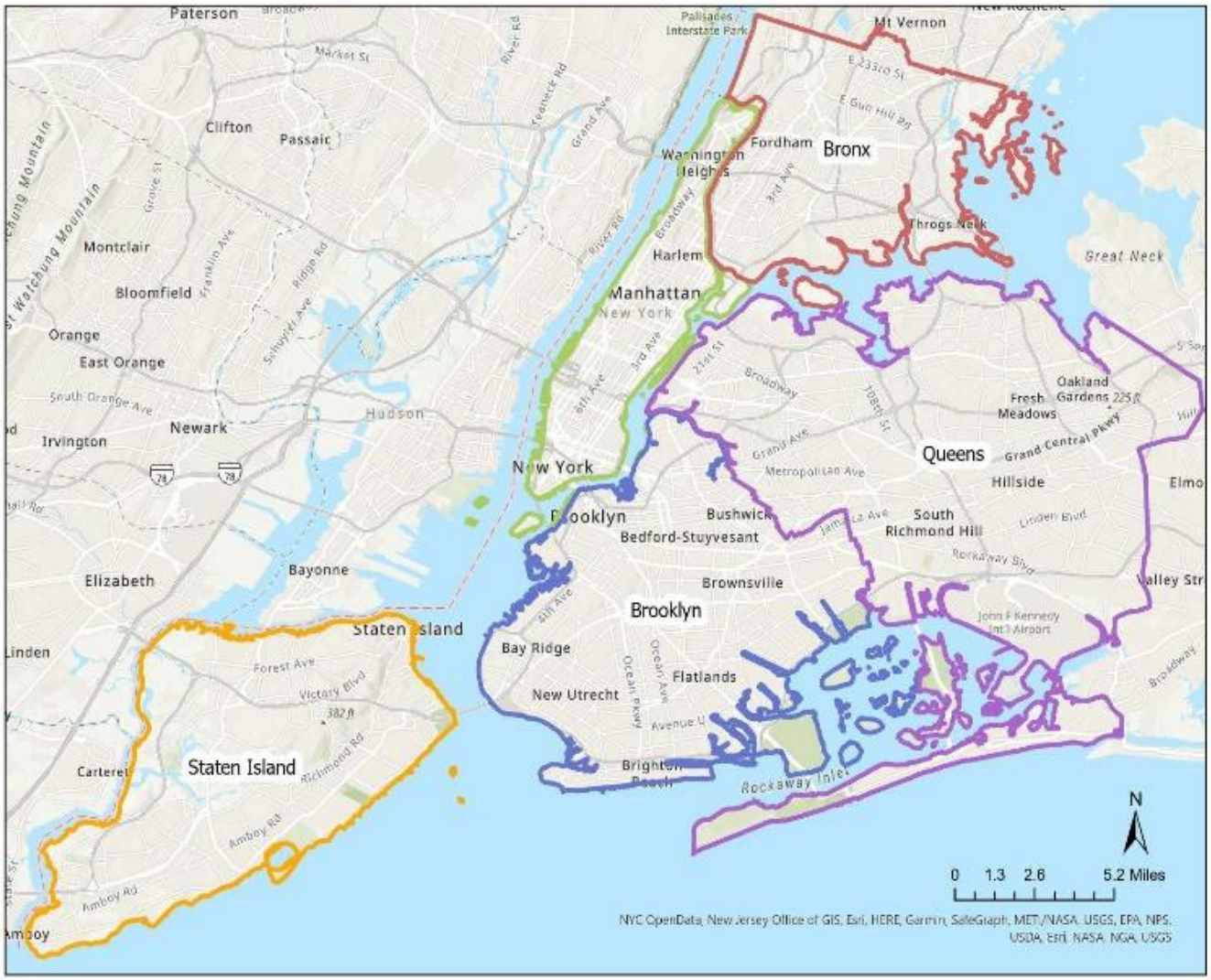
- Attachment A: Local Laws Relevant to Waste Management
- Attachment B: Existing Waste Reduction, Reuse, and Recycling Programs in New York City
- Attachment C: Accessible Capacity for New York City Solid Waste Management
- Attachment D: National and International Factors Impacting Waste Management
- Attachment E: Organic Waste Generation and Management in New York City
- Attachment F: Commercial Waste in New York City
- Attachment G: New York City Commercial Recycling Rules
- Attachment H: Review of Advanced Thermal Treatment Technologies
- Attachment I: New York State Executive Order 22 (EO22) Affected Entities

Chapter 1: Planning Unit Description

1. New York City (Region 2)

New York City is composed of five boroughs aligned with New York State county boundaries: The Bronx (Bronx County), Brooklyn (Kings County), Manhattan (New York County), Queens (Queens County), and Staten Island (Richmond County), as illustrated in **Figure 1-1**. New York City encompasses approximately 300 square miles of land and is home to more than 8 million people.[2] The U.S. city with the largest population and the highest population density, New York City generates more than 12 million tons of waste each year. This number includes residential, institutional and commercial refuse and materials separated for recycling, and industrial, and construction waste. The quantity of waste can be explained in part by the high population density and high levels of commercial activity.

Figure 1-1. Planning Unit: Region 2, New York City



The world average municipal solid waste generation rate is under 1.5 pounds per day per capita (lbs/day/capita). In New York City, approximately 3.2 million tons of refuse—about a quarter of its annual waste—are generated from residential uses each year (not including materials set out for recycling or separated organics). This figure corresponds to a New York City residential refuse generation rate of 2.2 lbs/day/capita. New York City residential refuse and separated recyclable materials and organics totaled approximately 3.9 million tons in 2023— a solid waste generation rate of 2.44 lbs/day/capita. This rate is considerably lower than the U.S average residential generation rate of 4.9 lbs/day/capita, including refuse, recycling, and separated organics.[17]

While the city's large population, high population density, and vibrant economic activity affect waste generation, its geographic position affects waste export. New York City is centrally located within the Northeast megaregion that stretches from Boston to Washington, D.C. Nassau County, New York, lies to the east of the city; Westchester County, New York, to the north; and New Jersey's Bergen, Hudson, Union, Middlesex, and Monmouth counties to the west and south. The city is situated on the three major islands of Manhattan, Staten Island, and on western Long Island (Brooklyn and Queens), as well as on the mainland in the Bronx. Smaller islands include Ellis Island, Governors Island, Liberty Island, and Roosevelt Island with additional islands located in Jamaica Bay.

The city's position on the water and mostly on islands affects the movement of waste. The Hudson River and New York Bay separate the Bronx and Manhattan from New Jersey; the East River (tidal strait) and the Long Island Sound separate the Bronx and Manhattan from Long Island; and the Harlem River (tidal strait) separates Manhattan from the Bronx. Transporting waste between the boroughs and to the mainland requires the use of the congested crossings (tunnels and highway or rail bridges) and/or movement by barge.

Sanitation Districts

Neighborhood planning jurisdictions allow for consistent granular planning and services among the boroughs. There are 59 Community Boards in New York City, which serve as neighborhood planning jurisdictions, referred to as community districts, and sanitation districts. The community districts and sanitation districts share congruent boundaries and consistent nomenclature.

These sanitation districts are outlined in **Figure 1-2. Table 1-1** indicates the neighborhoods that are included in each sanitation district.[18] Sanitation district nomenclature provides the initials of the borough and a number from 01 to 18. DSNY plans for waste management mostly at the city level and uses the sanitation districts to plan for collections only.

Figure 1-2 DSNY Sanitation Districts

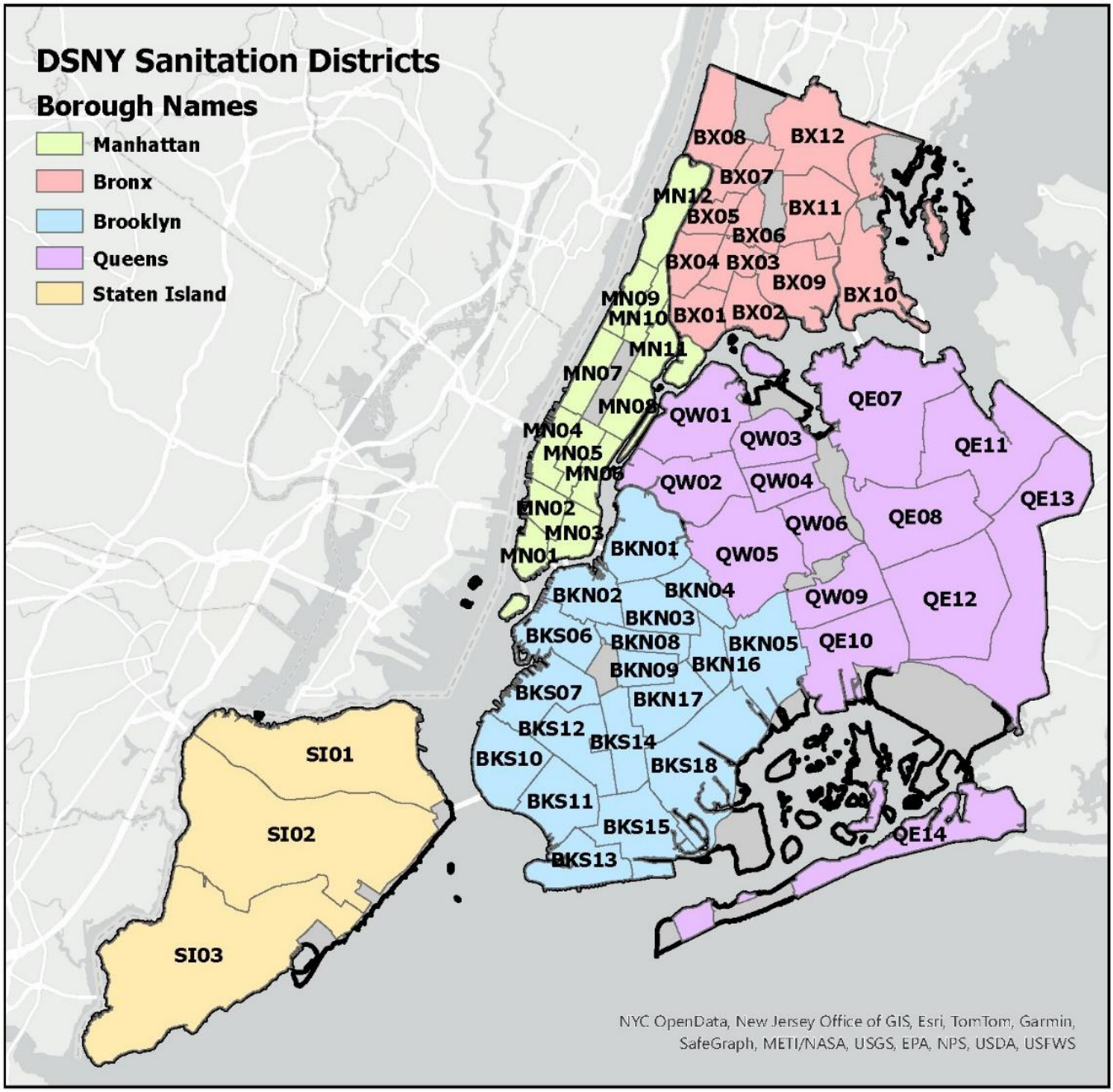


Table 1-1. Sanitation Districts and Corresponding Neighborhoods

Borough	CB / District	Neighborhoods
Bronx	BX01	Mott Haven, Port Morris, Melrose
Bronx	BX02	Hunts Point, Longwood, Morrisania
Bronx	BX03	Crotona Park, Claremont Village, Concourse Village, Woodstock, and Morrisania
Bronx	BX04	Highbridge, Concourse, Mount Eden, Concourse Village
Bronx	BX05	Fordham, University Heights, Morris Heights, Bathgate, and Mount Hope
Bronx	BX06	Belmont, Bathgate, West Farms, East Tremont, and Bronx Park South
Bronx	BX07	Norwood, University Heights, Jerome Park, Bedford Park, Fordham, and Kingsbridge Heights
Bronx	BX08	Fieldston, Kingsbridge, Kingsbridge Heights, Marble Hill, Riverdale, Spuyten Duyvil, Van Cortlandt Village
Bronx	BX09	Parkchester, Unionport Soundview, Castle Hill, Brickner Harding Park, Bronx River and Clason Point
Bronx	BX10	Co-op City, City Island, Spencer Estates, Throggs Neck, Country Club, Zerega, Westchester Square, Pelham Bay, Eastchester Bay, Schuylerville, Edgewater, Locust Point, and Silver Beach
Bronx	BX11	Allerton, Bronx Park East, Eastchester Gardens, Indian Village, Morris Park, Parkside, Pelham Gardens, Pelham Parkway, and Van Nes
Bronx	BX12	Edenwald, Wakefield, Williamsbridge, Woodlawn, Fish Bay, Eastchester, Olinville, and Baychester
Brooklyn	BKN01	Flushing Avenue, Williamsburg, Greenpoint, Northside, and Southside
Brooklyn	BKN022	Brooklyn Heights, Fulton Mall, Boerum Hill, Fort Greene, Brooklyn Navy Yard, Fulton Ferry, and Clinton Hill
Brooklyn	BKN03	Bedford-Stuyvesant, Stuyvesant Heights, and Ocean Hill
Brooklyn	BKN04	Bushwick
Brooklyn	BKN05	East New York, Cypress Hills, Highland Park, New Lots, City Line, Starrett City, and Ridgewood
Brooklyn	BKS06	Red Hook, Carrol Gardens, Park Slope, Gowanus, and Cobble Hill
Brooklyn	BKS07	Sunset Park and Windsor Terrace
Brooklyn	BKN08	Crown Heights, Prospect Heights, and Weeksville
Brooklyn	BKN09	Crown Heights, Prospect Lefferts Gardens, and Wingate
Brooklyn	BKS10	Bay Ridge, Dyker Heights, and Fort Hamilton
Brooklyn	BKS11	Bath Beach, Gravesend, Mapleton, and Bensonhurst
Brooklyn	BKS12	Boro Park, Kensington, Ocean Parkway, and Midwood
Brooklyn	BKS13	Coney Island, Brighton Beach, Bensonhurst, Gravesend, and Seagate
Brooklyn	BKS14	Flatbush, Midwood, Kensington, and Ocean Parkway
Brooklyn	BKS15	Sheepshead Bay, Manhattan Beach, Kings Bay, Gerritsen Beach, Kings Highway, East Gravesend, Madison, Homecrest, and Plum Beach
Brooklyn	BKN16	Brownsville and Ocean Hill
Brooklyn	BKN17	East Flatbush, Remsen Village, Farragut, Rugby, Erasmus and Ditmas Village
Brooklyn	BKS18	Canarsie, Bergen Beach, Mill Basin, Flatlands, Marine Park, Georgetown, and Mill Island
Manhattan	MN01	Tribeca, Seaport/Civic Center, Financial District, Battery Park City
Manhattan	MN02	Greenwich Village, West Village, NoHo, SoHo, Lower East Side, Chinatown, Little Italy
Manhattan	MN03	Tompkins Square, East Village, Lower East Side, Chinatown, Two Bridges
Manhattan	MN04	Clinton, Chelsea

Table 1-1. Sanitation Districts and Corresponding Neighborhoods

Borough	CB / District	Neighborhoods
Manhattan	MN05	Midtown
Manhattan	MN06	Stuyvesant Town, Tudor City, Turtle Bay, Peter Cooper Village, Murray Hill, Gramercy Park, Kips Bay, and Sutton Place
Manhattan	MN07	Manhattan Valley, Upper West Side, and Lincoln Square
Manhattan	MN08	Upper Est Side, Lenox Hill, Yorkville, and Roosevelt Island
Manhattan	MN09	Hamilton Heights, Manhattanville, Morningside Heights, and West Harlem
Manhattan	MN10	Central Harlem
Manhattan	MN11	East Harlem
Manhattan	MN12	Inwood and Washington Heights
Queens	QW01	Astoria, Old Astoria, Long Island City, Queensbridge, Ditmars, Ravenswood, Steinway, Garden Bay, and Woodside
Queens	QW02	Long Island City, Woodside, Sunnyside, and Maspeth
Queens	QW03	Jackson Heights, East Elmhurst, North Corona, and la Guardia Airport
Queens	QW04	Corona, Corona Heights, Elmhurst, and Newtown
Queens	QW05	Ridgewood, Maspeth, Middle Village, and Glendale
Queens	QW06	Forest Hills and Rego Park
Queens	QE07	Flushing, Bay Terrace, College Point, Whitestone, Malba, Beechhurst, Queensboro Hill, Willets Point, Auburndale, Clearview, Linden Hill, and Murray Hill
Queens	QE08	Fresh Meadows, Cunningham Heights, Hilltop Village, Pomonak Houses, Fresh meadows, Jamaica Estates, Holliswood, Flushing South, Utopia, Kew Gardens Hills, and Briarwood
Queens	QW09	Richmond Hill, Woodhaven, Ozone Park, and Kew Gardens
Queens	QE10	Howard Beach, Ozone Park, South Ozone Park, and Richmond Hill
Queens	QE11	Bayside, Douglaston, Little Neck, Auburndale, East Flushing, Oakland Gardens, and Hollis Hills
Queens	QE12	Jamaica, Hollis, St. Albans, Springfield Gardens, Baisley Park, Rochdale Village, and South Jamaica
Queens	QE13	Queens Village, Glen Oaks, New Hyde Park, Bellerose, Cambria Heights, Laurelton, Rosedale, Floral Park, and Brookville
Queens	QE14	Breezy Point, Belle Harbor, Broad Channel, Neponsit, Arverne, Bayswater, Edgemere, Rockaway Park, Rockaway and Far Rockaway
Staten Island	SI01	Arlington, Castleton Corners, Clifton, Concord, Elm Park, Fort Wadsworth, Graniteville, Grymes Hill, Livingston, Mariners Harbor, Meiers Corner, New Brighton, Port Ivory, Port Richmond, Randall Manor, Rosebank, St. George, Shore Acres, Silver Lake, Stapleton, Sunnyside, Tompkinsville, West Brighton, and Westerleigh
Staten Island	SI02	Arrochar, Bloomfield, Bulls Heads, Chelsea, Dongan Hills, Egbertville, Emerson hill, Grant City, Grasmere, High Rock, Lighthouse Hill, Midland Beach, New Dorp, New Springville, Oakwood, Ocean Breeze, Old Town, Richmondtown, South Beach Todt Hill, and Travis
Staten Island	SI03	Annadale, Arden Heights, Bay Terrace, Charleston, Eltingville, Great Kills, Greenridge, Huguenot, Pleasant Plains, Prince's Bay, Richmondtown, Richmond Valley, Rossville, Tottenville, and Woodrow

Source: NYC Open Data

Population and Housing

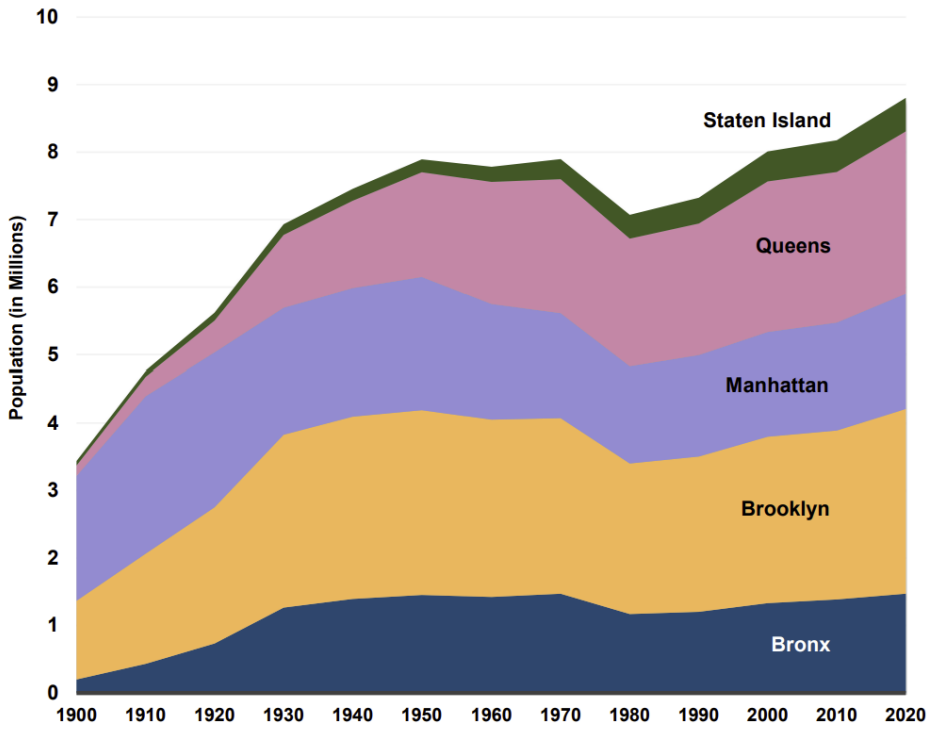
Changes in population impact waste generation and regional waste management. Since the early 1900s, the population of New York City has more than doubled (see **0-2** and **Figure 1-3**). Between 2010 and 2020, New York City's population grew by 7.1%, from 8.2 million in 2010 to 8.8 million in April 1, 2020, with the Bronx, Queens, and Staten Island all achieving record population highs.[3] The pandemic resulted in a population decline as nearly half a million residents moved out of the city, dropping the population between April 2020 and July 2022 to 8.3 million city residents.[8,22] The city's population is expected to grow to 9.1 million by 2030 and to 9.3 million by 2040.[19]

Brooklyn has been the most populous borough since the 1930s and retains almost one-third of New York City's population. Queens, Manhattan, and the Bronx are home to a quarter, a fifth, and a sixth of New York's population, respectively.[20]

Table 1-2. Borough Demographic and Housing Statistics

Borough	Population 2020 (million)	Population 2020 (% of total)	Housing Stock 2021 (% of total)	Total Area (square miles)
Bronx	1.47	16.7%	15%	42.2
Brooklyn	2.74	31.1%	30%	69.4
Manhattan	1.69	19.2%	25%	22.7
Queens	2.41	27.3%	25%	108.7
Staten Island	0.46	5.6%	5%	57.5

Figure 1-3. New York City Population by Borough, 1900-2020



Source: U.S. Census Bureau
Population Division, New York City Department of City Planning

The majority of New York City residences (approximately 75%) are in multiple-dwelling buildings, or those with three or more residential units. In 2021, an estimated 38% of units were in buildings with six or fewer units, and approximately 20% of units were in buildings with 100 or more units. An estimated 62% of units were renter-occupied in 2021.[21]

New York City is a majority minority city according to the 2021 U.S. Census. As reported by the Census, three of the five boroughs had a single majority racial or ethnic group: Bronx residents identified as 56% Hispanic, Manhattan as 54% white, and Staten Island as 59% white. The Bronx, Brooklyn, and Queens had higher proportions of minority groups than Staten Island and Manhattan.[22]

Zoning and Employment

The New York City metropolitan area has the largest metropolitan economy in the world, with a gross metropolitan product of over $1 trillion USD in 2020.[3] Major industries in the city include construction, trade, transportation and utilities, information, tourism, and finance. Additionally, New York City is home to major institutions across multiple sectors, including healthcare, education, and the arts.[23,24]

Zoning in New York City can be parsed into three overarching categories: residential, commercial, and manufacturing. Over the past three decades, numerous areas zoned for manufacturing have been rezoned for residential, commercial, or mixed use.

Areas with commercial zoning include large parts of Manhattan south of 59th Street, DUMBO in west Brooklyn, Flushing in Queens, and East and South Bronx. Commercial zoning is also found along New York City's major thoroughfares, such as 125th Street in Harlem and Fordham Avenue in the Bronx. Mixed-use zoning allows commercial use of buildings within residential neighborhoods. Residential areas can be found throughout the five boroughs except in select zones dedicated to commercial and manufacturing districts.[28]

Areas zoned for manufacturing, also referred to as industrial zones, account for 15% of New York City land area. Areas zoned for manufacturing are primarily along New York City's waterways, including the New York-New Jersey Harbor, the Hudson River, and the East River, as well as canals and creeks, such as Newtown Creek (which comprises part of the border between Brooklyn and Queens) and the Gowanus Canal in Brooklyn. Manufacturing zones include facilities such as distribution centers and waste management facilities. Manufacturing zones are further classified as M1, M2, M3, and MX. M3 zones, where transfer stations and other waste facilities are typically sited, account for approximately 25% of industrial zones by land area, which is less than 4% of New York City's total land area. Between 2012 and 2022, M-Zoned land decreased by 1.5%.[25,26,27,28]

The availability of land designated for manufacturing or industrial activities creates challenges for waste management. Constraints on space designated for waste management facilities limit the types of materials that can be collected and recovered at facilities. Additionally, space limitation near facilities can result in traffic congestion. Finally, limited availability of large parcels of land where zoning allows waste management can result in future capacity challenges. For more information on zoning, see **Chapter 4: Existing Administrative and Financial Structure**. New York City zoning maps are available from City Planning.[28]

Regional industries designated as significant, based on employment, wage, job growth, and expected job growth, in the *New York City Significant Industries* 2021 report, published by the New York State Department of Labor, include construction; trade, transportation, and utilities; information; financial activities; professional and business services; educational services; health care and social assistance; and leisure and hospitality.[24]

Industries with the highest employment rates in New York City include private education; professional and business services; and trade, transportation, and utilities as indicated in **0**. Between 2018 and 2022, increases in employment occurred in the government, information, professional and business services, financial activities, and private education and health services sectors. Employment in the leisure and hospitality; manufacturing; construction; other services; and trade, transportation, and utility sectors declined.

Table 1-3. Employment by Sector

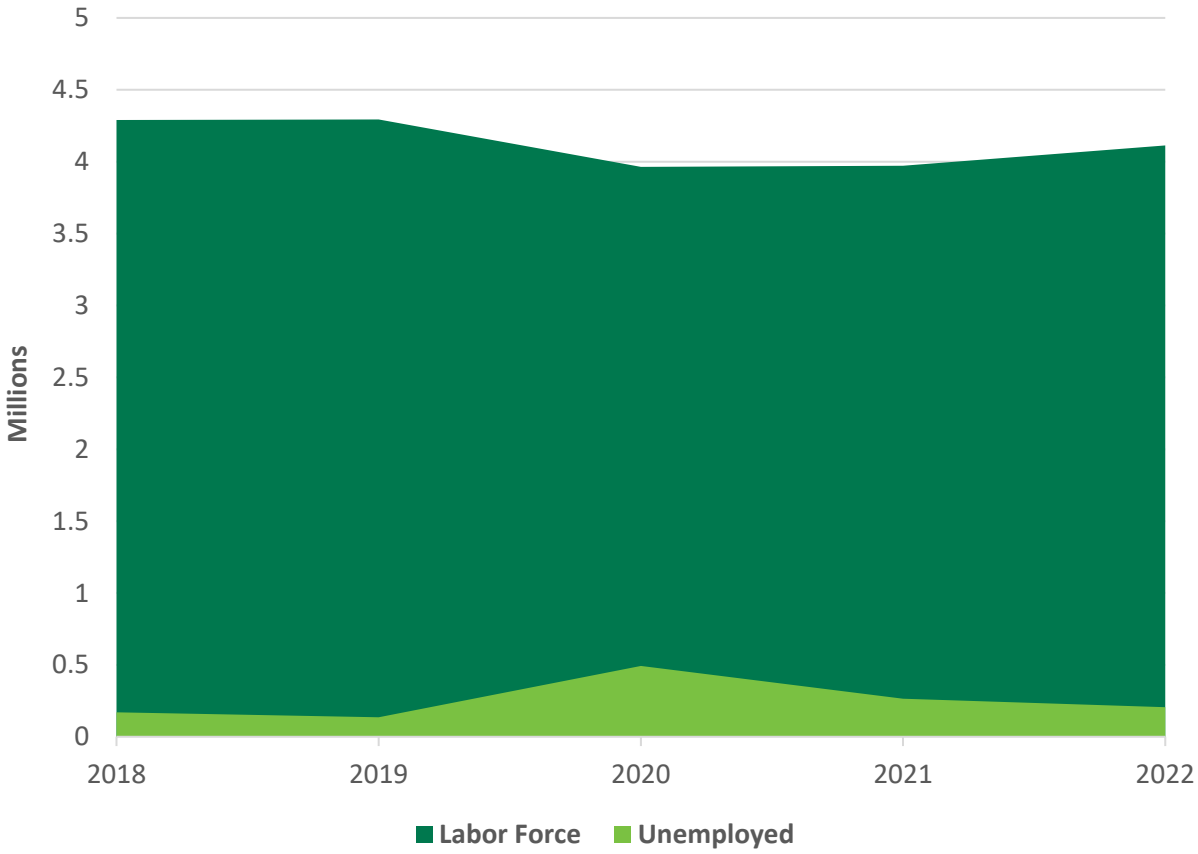
Sector	2018 (Employees)	2019 (Employees)	2020 (Employees)	2021 (Employees)	2022 (Employees)
Government	584,700	587,100	585,600	569,000	566,200
Information	213,100	220,600	207,900	221,000	235,100
Leisure & Hospitality	464,400	468,100	275,700	306,000	402,900
Manufacturing	71,300	68,100	52,900	54,600	57,700
Mining, Logging, & Construction	158,900	161,300	138,900	141,200	143,400
Other Services	193,700	195,700	162,500	168,000	178,500
Professional & Business Services	746,100	772,300	711,000	722,300	775,700
Financial Activities	477,000	485,100	471,100	466,100	486,900
Private Education & Health Services	1,008,300	1,055,400	1,009,800	1,044,700	1,108,100
Trade, Transportation, & Utilities	635,400	636,400	537,100	551,200	582,900

Note: Additional information on sector classification is available from the U.S Bureau of Labor Statistics.[29]
Source: New York State Department of Labor[30]

Employment in New York City has fluctuated with economic recessions and emergencies. The 2008 recession slowed economic growth and employment. However, the post-recession recovery resulted in significant growth in employment in parts of Manhattan, Queens, and Brooklyn. Employment in the city continued to grow until 2020, when the pandemic resulted in widespread job losses.[31, 32]

Prior to the pandemic, in December 2019, almost 4.2 million workers were employed, compared to the 3.9 million employed in December 2022. The unemployment rate was 3.15% in December 2019 and 5% in December 2022. The Bronx had the highest unemployment rate among the boroughs as of March 2023. **Figure 1-4** shows the employment trends in New York City between 2018 and 2022.[33]

Figure 1-4. Labor and Unemployment New York City 2018-2022



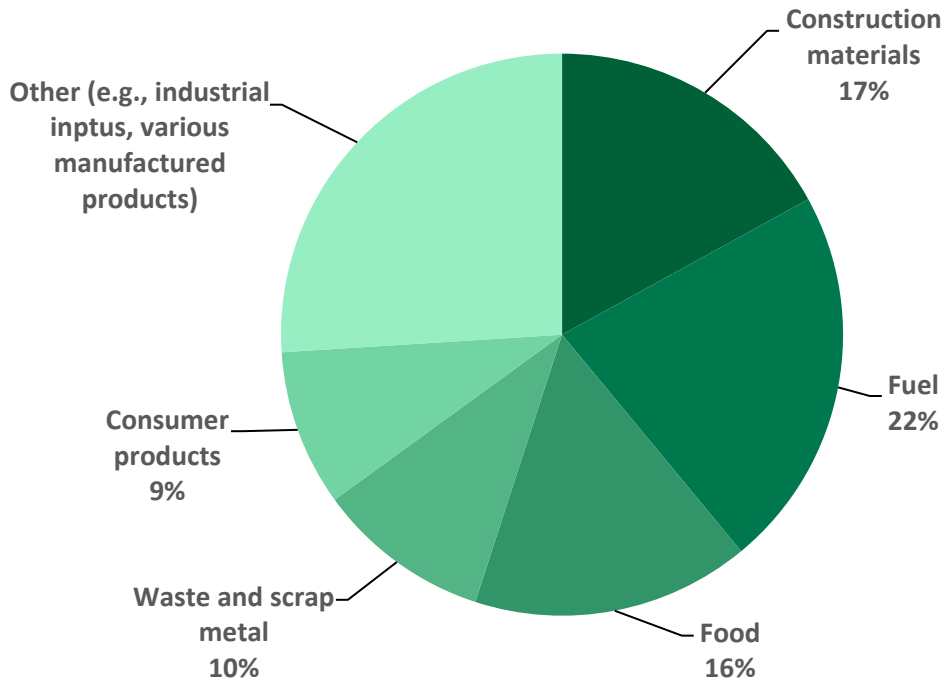
Transport of Waste

New York City depends on multiple modes of transportation to manage waste, recyclable materials, and organics, including rail, barges, and trucks.[34] Trucks transport nearly 90% of freight, including waste, around the city.[35]

The city relies on bridges and tunnels for truck transport of waste between and beyond boroughs. The primary crossings used by sanitation trucks hauling waste out of New York City include the Holland Tunnel, the Lincoln Tunnel, and the George Washington Bridge. Other relevant truck crossings include the Robert F. Kennedy (Triborough), Whitestone, Queensboro, Throgs Neck, and Verrazzano Bridges and the Battery, Holland, and Midtown Tunnels. Additionally, much of New York City's waste is transported by rail and by barge.[36]

After being picked up curbside by truck, much of the DSNY managed waste moves through the City's Marine Transfer Stations (MTS), where the waste is containerized and moved by barge to terminals with rail access, from where the waste is moved by rail to its final destinations. **Figure 1-5** shows that waste is among the top commodities transported in New York City.

Figure 1-5. Top Commodities Transported in NYC



Source: *NYMTC, Regional Freight Plan 2018-2045*

The typical transport of solid waste managed by DSNY is described below, with the DSNY Sanitation Districts shown in **Figure 1-2**.[37] These typical operations may change based on need.

East 91st Street MTS and North Shore MTS

DSNY trucks that collect curbside residential and institutional municipal solid waste (MSW) in Manhattan districts MN05, MN06, MN08, and MN11 transfer solid waste at the East 91st Street MTS in Manhattan. Trucks serving Queens districts QE07, QE08, QE09, QE10, QE11, QE12, and QE13 transfer solid waste at the North Shore MTS in Queens.

Reworld (formerly known as Covanta), contracted by the City, loads containers filled with MSW onto barges at both the East 91st Street and North Shore MTS locations. The barges transport the containers to Port Liberty New York container terminal (Howland Hook) on Staten Island, where the containers are transloaded onto railcars.

From Port Liberty on Staten Island, railcars are moved to Arlington Yard and then across the Aruthur Kill to Oak Island Yard in Newark, New Jersey by Conrail. From Oak Island Yard, CSX moves the containers to the final destinations: Reworld's Delaware Valley Resource Recovery Facility in Chester, Pennsylvania, and Reworld's Niagara Resource Recovery Facility in Niagara, New York. The waste destined to Chester travels over the Conrail Lehigh Line to the CSX Trenton Line and is offloaded at the TRANSFLO terminal near Wilmington, DE and by truck for the remaining

distance to Chester. The waste destined for Niagara travels over the CSX River Line and the Chicago Line to Buffalo, New York, via Selkirk Yard, located about eight miles south of Albany, New York.

Reworld also has the contractual right to dispose of waste at the Lee County landfill in Bishopville, South Carolina, if necessary. Reworld has used the Lee County landfill to dispose of less than 1% of the waste from the East 91st Street and North Shore MTS facilities (based on 2021 data).

Hamilton Avenue MTS and Southwest Brooklyn MTS

DSNY trucks that collect curbside residential and institutional MSW in Brooklyn DSNY Districts BKN02, BKS06, BKS07, BKN08, BKN09, BKS10, BKS14, BKN16, BKN17, and BKS18 transfer solid waste at the Hamilton Avenue MTS in Brooklyn. Trucks serving Brooklyn DSNY Districts BKS11, BKS12, BKS13, and BKS15 transfer solid waste at the Southwest Brooklyn MTS in Brooklyn.

Waste Management, contracted by the City, loads containers filled with MSW onto barges at the Hamilton Avenue MTS and at the Southwest Brooklyn MTS. The barges transport the containers to Waste Management's Elizabeth Marine Terminal in Elizabeth, New Jersey, where they are transloaded onto trucks for a short dray to the CSX TRANSFLO Facility at Elizabethport Yard in Elizabeth.

From the Elizabethport Yard facility, the waste is transported to the Maplewood (Amelia) landfill in Jetersville, Virginia. First, the railcars are advanced to Oak Island Yard in Newark, NJ. At Oak Island, Conrail works with CSX crews and locomotives to build the train that advances the railcars with loaded containers from Oak Island to Collier Yard, in Petersburg, VA. At this location, the cars and containers are interchanged with Norfolk Southern (NS). The cars are placed on a track so NS can take the loads to the WM landfill in Meyersville, VA (Amelia).

Around 60% of the refuse transferred at DSNY's marine transfer stations is exported through Port Liberty New York, and 40% is moved by TRANSFLO.

Staten Island Transfer Station

DSNY trucks that collect curbside residential and institutional MSW from Staten Island DSNY Districts (S101, S102, and S103) transfer solid waste at the Staten Island Transfer Station (SITS). SITS is served by Arlington Yard, which is operated by Conrail. From Arlington Yard, containerized waste is moved by rail to Oak Island Yard, from where it is transported by rail to the Lee County landfill in Bishopville.

Other DSNY Districts transfer waste at privately-owned transfer stations or the Reworld thermal treatment facility in Essex, New Jersey, as summarized below.

Waste Management Harlem River Yard

DSNY trucks that collect curbside residential and institutional MSW from all 12 Bronx DSNY Sanitation Districts transfer waste at Harlem River Yard. Waste Management containerizes the waste and transports it by rail (through Selkirk) to the Atlantic Waste Disposal Landfill in Virginia.

Waste Management Varick Transfer Station

DSNY trucks that collect curbside residential and institutional MSW from northern Brooklyn DSNY Districts (BKN 01, BKN03, BKN04, and BKN05) transfer waste at the Varick Transfer Station in Brooklyn. Most of that waste is then containerized, and hauled by truck to a nearby railyard. The containers are then railed to a NY&A rail yard in

Bushwick, then pulled from Bushwick to Fresh Pond Yard, where they are staged with other freight, interchanged with CSX and taken to Oak Point Yard, in the Bronx. From there, railcars are moved north to the CSX yard at Selkirk, NY, where they are transferred to another trail and transported by rail to the High Acres Landfill in Fairport, New York.

Waste Management Review Avenue Transfer Station

DSNY trucks that collect curbside residential and institutional MSW from western Queens DSNY Districts (QW01, QW02, QW03, QW04, QW05, and QW06) transfer waste at the Waste Management Review Avenue Transfer Station in Queens. The material is containerized and loaded onto railcars on site. The containers are moved to a NY&A railyard (Blissville Yard, in Queens), then pulled to Fresh Pond Yard in Queens, from where they follow the same path as the waste from the WM Varick Transfer Station (described above) to the High Acres Landfill.

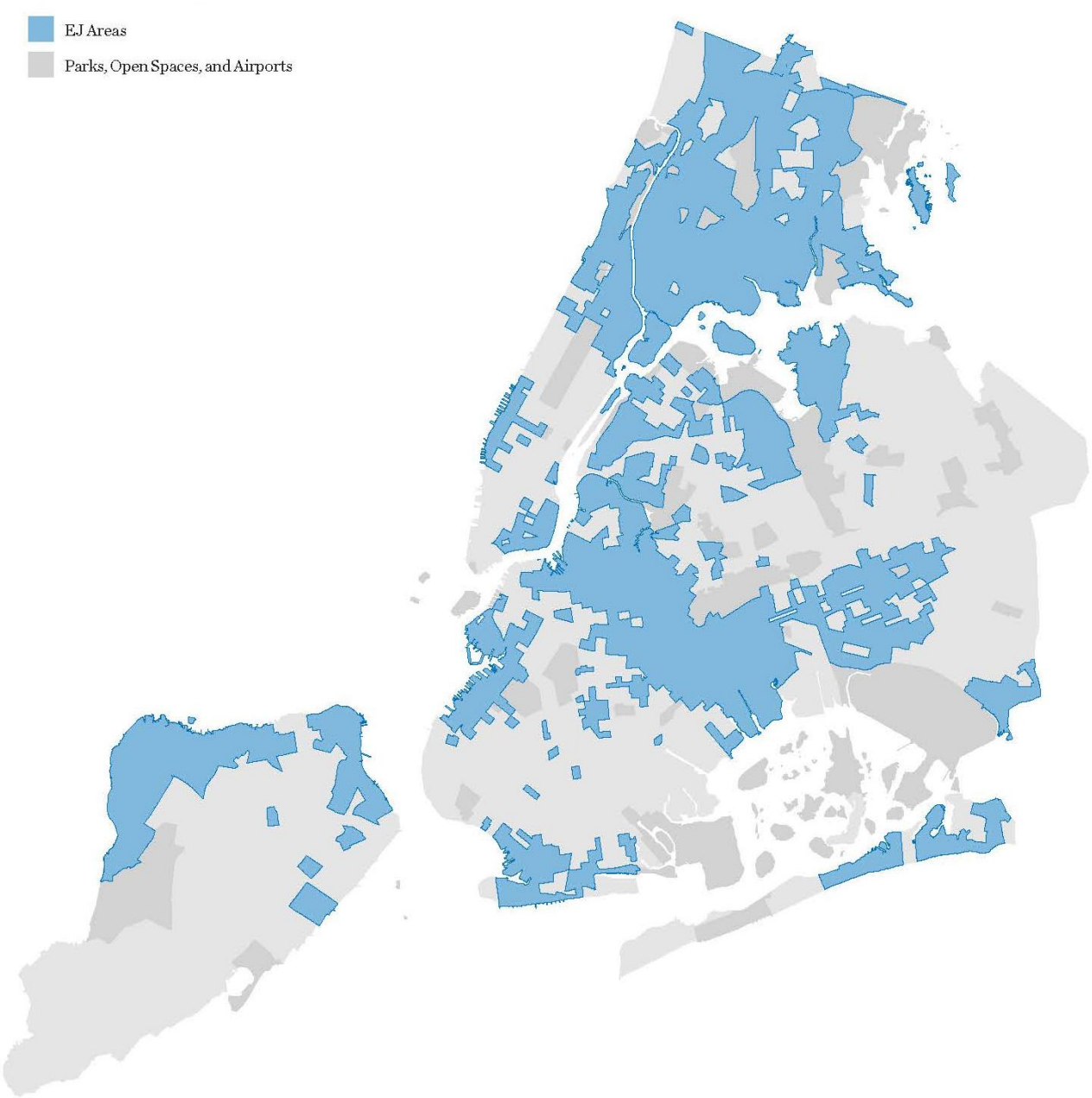
Reworld Thermal Treatment Facility in Essex

DSNY trucks that collect curbside residential and institutional MSW from southern and western Manhattan Sanitation Districts (MN01, MN02, MN03, MN04, MN07, MN09, MN10, and MN12) do not transfer the waste at any transfer stations within New York City. Instead, the waste is hauled by trucks directly to the Reworld Thermal Treatment Facility in Essex. Trucks collecting from Districts MN01, MN02, and MN03 use the Holland Tunnel; trucks that collect from Districts MN04 and MN07 use the Lincoln Tunnel; and trucks that collect from Districts MN09, MN10, and MN12 use the George Washington Bridge.

Environmental Justice

New York City solid waste is generated across the five boroughs; however, a disproportionate quantity of waste is managed in Environmental Justice (EJ) Areas. EJ Areas are identified using New York State's Disadvantaged Communities (DACs) designations. Pursuant to the Climate Leadership and Community Protection Act (CLCPA), the Department of Environmental Conservation convened a Climate Justice Working Group to develop criteria for identifying disadvantaged communities to ensure that frontline and underserved communities benefit from the state's historic transition to cleaner, greener sources of energy, reduced pollution and cleaner air, and economic opportunities.[38] New York State relies on 45 indicators to identify whether a census tract meets the criteria for a DAC, including geographic, public health, environmental hazard, and socioeconomic factors. There are EJ Areas in all five boroughs of New York City with higher prevalence in the Bronx; Harlem; northern and western parts of Brooklyn; northern, western, and southern parts of Queens; and western and northern parts of Staten Island, as depicted in **Figure 1-6**.[39] The density of New York City also makes emissions from waste collection vehicles a concern in neighborhoods with transfer facilities.

Figure 1-6. Environmental Justice Areas in New York City



Source: *Figure from EJNYC: A Study of Environmental Justice in New York City; data from NYS Department of Environmental Conservation, Disadvantaged Communities Criteria, 2023.*

The NYC Mayor's Office of Climate & Environmental Justice (MOCEJ) is dedicated to mitigating historic injustices against low-income and communities of color.[40] Local Law 152 (LL152), also known as the Waste Equity Law (2018), is aimed at mitigating these concerns. LL152 reduced the capacity of transfer stations in impacted communities, namely Brooklyn Community District 1, Queens Community District 12, and Bronx Community Districts 1 and 2, with the goal of reducing the number of trucks moving through nearby neighborhoods.[41] DSNY tracks transfer station throughput of MSW to ensure LL152 compliance.[42] More information on LL152 is available in **Attachment A: Local Laws Relevant to Waste Management**, and on DSNY's website.[43]

Although waste export reduces the impact of waste management on New Yorkers, it affects communities outside of the city. Research published in 2019 shows that 79% of MSW incinerators in the U.S. are located in environmental justice communities. In this study environmental justice communities are defined as 25 percent or more of people live below the federal poverty rate or 25 percent or more of people identify as "minority".[44] **Table 1-4** shows the final destinations of the city's waste, as well as the demographics of poverty rates in those communities. Health effects of being near landfills and other waste facilities include both short-term and long-term ailments, such as coughing, irritation (of eyes, nose, and throat), headache, nausea, as well as respiratory diseases.[45] Additionally, waste management generates greenhouse gas emissions, thereby contributing to climate change. While climate change is a global phenomenon, the adverse effects of climate change are projected to be disproportionally borne by environmental justice communities (both in the U.S. and globally).

Strategies relating to waste reduction, diversion, and recirculation of materials, such as textile repair or donation of edible food, are effective long-term approaches to minimizing the burden of waste on communities within and beyond the city. Expanding these reductions and recirculation strategies is not only environmentally sound but also an EJ imperative, as it directly reduces reliance on distant landfills and incinerators in overburdened communities. With a shift to a green and circular economy, work opportunities in this sector are projected to grow.[46] City agencies, including DSNY, are in the process of phasing in the Community Hiring program, which offers opportunities to jobseekers who are low-income (Income-Based Community Hires) or live in economically disadvantaged communities (Residence-Based Community Hires).[47] Existing initiatives that relate to waste reduction and recirculation are described in **Attachment B: Existing Waste Reduction, Reuse, and Recycling Programs in New York City**.

Table 1-4. Final Waste Destinations and EJ Communities

Facility	Municipality	% of Community that is not White[1]	% of Persons in Poverty[2]
Reworld/Chester	Chester, PA	87.1%	30.8%
Reworld/Niagara	Niagara Falls, NY	34.0%	23.7%
Atlantic Waste Disposal	Waverly, VA	83.5%	7.9%
Commonwealth	Hegins, PA[3]	8.3%	12.5%
Fairless Hills Landfill	Morrisville, PA	30.0%	9.0%
High Acres	Fairport, NY	8.0%	12.9%
Keystone Sanitary Landfill	Dunmore, PA	11.4%	11.4%
Lee County	Bishopville, SC[3]	65.9%	23.3%
Maplewood Landfill/Amelia	Jetersville, VA[3]	26.85%	11.1%

Table 1-4. Final Waste Destinations and EJ Communities

Facility	Municipality	% of Community that is not White[1]	% of Persons in Poverty[2]
Seneca Meadows	Waterloo, NY[3]	9.22%	11.3%
Tullytown	Tullytown, PA[3]	17.59%	6.1%
Westchester Resco	Peekskill, NY	60.86%	10.0%

Notes:
1. Calculated as percentage of community that is not "White, alone."
2. Methodology differences may exist between data sources and are therefore not comparable to other geographic levels.
3. Data for municipalities with fewer than 5,000 residents were gathered for their respective counties.
Sources: DSNY 2021-2022 Biennial Report to DEC, American Community Survey, Population 1-year (2023); American Community Survey, Poverty Status in the Past 12 Months (2023)

Land Use and Land Use Change

A number of substantial land use changes in New York City since the publication of the *2006 SWMP* have affected the generation and management of solid waste. These changes include the closure of the Fresh Kills Landfill and its planned conversion to parkland, the conversion of multiple industrial zones that were suitable for siting solid waste management facilities to residential and mixed-use zones, the overall growth of residential and commercial uses that generate solid waste, and a further reduction in industrial activity and the associated industrial waste. Extensive land development since 2006 has also resulted in construction and demolition waste. Ongoing and planned major infrastructure projects are expected to create additional construction and demolition waste. Projects that are currently in the planning stages may also affect solid waste management.

New York City is also known for its urban parks, which make up nearly 30,000 acres of the city, approximately half of which is natural, undeveloped lands. Developed parks in New York City generate leaf and yard waste, which is managed by the Department of Parks (Parks).[48] Despite the high population density of New York City, green space is distributed throughout the five boroughs in parks, squares, and greenways. Van Cortland Park and Pelham Bay Park in the Bronx, Prospect Park and Marine Park in Brooklyn, Central Park in Manhattan, Flushing Meadows/Corona Park and Forest Park in Queens, and the in-progress Freshkills Park in Staten Island are just some of the many larger parks located within the five boroughs. Many parks in New York City also include organics drop-off locations, composting sites, or chipping facilities to support New York City's growing commitment to organic waste management. Although agricultural activity is limited, community gardens and educational centers support organic waste reduction and community involvement.

Beginning in the 1990s and continuing through the 2000s and 2010s, New York City rezoned numerous neighborhoods. This included the conversion of industrial zones into commercial or residential zones, which resulted in increased mixed use and residential developments across the city. Rezoning during this period led to high levels of construction in Hudson Yards, Long Island City, Williamsburg, Greenpoint, Harlem, and Chelsea, among other neighborhoods. Land use change projects occur frequently across New York City's five boroughs, including greenspace, housing, commercial development, resiliency, and transportation development. Major construction, development, and demolition projects can create high quantities of waste. For development projects in New York City, this can be attributed to the removal of existing buildings and structures. Additionally, the loss of industrial zoning can impact the costs associated with industrial activities, and limit industrial activities that serve the city. A shortage of industrial zones suitable for development, especially large parcels, could limit future waste management options,

by further making it challenging to site transfer stations, organics processing sites, recycling processors, and other waste management infrastructure.

Transportation projects that involve tunneling may also produce waste from the removal of rocks, soil, and other aggregate. The projects that have advanced their planning or construction, as identified through New York City Planning and the MTA, are further discussed.[48,49]

Some of the transportation projects completed between 2006 and 2023 include the reconstruction of the Fulton Transit Center in Manhattan, the Brooklyn L Line subway tunnel rehabilitation, and Phase 1 of the Second Avenue Subway expansion in Manhattan. In addition to generating construction and demolition waste, transportation projects that affect freight rail corridors can affect the transport of waste.

Fresh Kills Landfill

Fresh Kills Landfill on Staten Island ceased operations in 2001. Since then, site remediation has occurred. DSNY, the Department of Parks and Recreation (Parks), and the Department of Environmental Protection (DEP) have collaborated to convert the site into parkland. Parts of the Freshkills Park are currently open to the public, although the majority of the site is still designated as a closed landfill.[50] Sections of Freshkills Park currently open to the public include Schmul Park, Owl Hollow Fields, the New Springville Greenway, and North Park Phase 1.[51]

Resilient Neighborhoods

Climate change requires that New York City plan strategically for the impact of floods and other storm events. To support community adaptation to weather events, the Resilient Neighborhoods project was developed. Since 2013, 11 neighborhoods were selected as study areas for increased resiliency, including Edgewater Park and Harding Park in the Bronx; Canarsie, Gerritsen Beach, and Sheepshead Bay in Brooklyn; Rockaway Park and Beach, Broad Channel, and Hamilton and Old Howard Beaches in Queens; West Chelsea, East Village, Lower East Side, and Two Bridges in Manhattan; and East Shore in Staten Island. The goal of Resilient Neighborhoods is to reduce flood risks, plan for adaptation over time, and ensure neighborhoods are both resilient and vibrant.[52] The redevelopment of these and other neighborhoods will result in the generation of construction and demolition waste over the course of the 2026 – 2036 planning period.

Transportation Projects

Pennsylvania Station Area Civic and Land Use Improvement Project is a project to expand transit access across modes and revitalize the business district surrounding Penn Station. The project has an anticipated completion year of 2027. The Final Environmental Impact Statement (FEIS) for the project was completed in June 2022. According to the FEIS, the project would not result in a significant adverse impact on solid waste and sanitation services from construction or demolition activities. Construction for this project is underway.[53]

Penn Station Access is a project that will connect Metro-North Railroad's New Haven Line to Penn Station, increasing access to the Bronx and Connecticut from midtown Manhattan. Four new stations will be created in the Bronx.[54] This project would use the rail corridor that is also used to transport some New York City waste by rail.

Interborough Express is a project that will expand rapid transit in underserved areas of Brooklyn and Queens.[55] This project would use the rail corridor that is also used to transport some of the New York City waste by rail.

Second Avenue Subway, phase 2 will extend the Q line into Harlem, thereby improving commutes for residents. This project is in the planning phase, and the quantity of waste generated will be determined at a later date.[56]

Special Circumstances

In 2020, the COVID-19 pandemic impacted all aspects of life. The temporary and permanent departure of residents reduced tourism, and loss of life due to the pandemic affected waste generation in the city. New York City's population reached a record high of 8.8 million people in April 2020 and remained at 8.3 million between July 2022 and July 2023 — a 5.3% population decrease from before the pandemic.[2,57] Tourism in 2020 dropped by 67% compared to 2019, reducing the number of visitors (including business travelers) from 66.6 million to 22.3 million. However, the number of tourists visiting New York City is projected to exceed 2019 levels by 2024.[7,58]

Additionally, the pandemic encouraged social distancing and resulted in increases in mail-order delivery. These widespread actions generated more packaging waste in the city. Furthermore, a shift towards remote and hybrid work settings, supply chain delays, increased use of personal protective equipment, and lifestyle alterations also changed the amount and types of waste generated.[59,60] Although the pandemic resulted in widespread changes in behavior, most of that waste generating behavior was temporary. For example, since 2022 when pandemic restrictions changed, PPE use has decreased and in-person work has increased.[61]

2. Neighboring Planning Units

New York City's neighboring planning units include Westchester County, towns and cities in Nassau County, and areas outside of New York State. Waste management facilities within New York City are not commonly used to manage waste that is generated outside of the city. However, New York City relies on facilities outside of its borders, both within and outside of New York State, for waste disposal and processing. The implementation of New York City's *2006 SWMP* established Marine Transfer Stations and systems for export of the MSW. With the implementation of the programs included in SWMP26, the city would reduce but not eliminate its reliance on facilities and waste disposition locations beyond its borders.

3. Changes Since the 2006 SWMP

Since the publication of New York City's *2006 SWMP*, there have been many changes that affected solid waste generation and management. These changes include the development of new waste management facilities and implementation of waste management programs that were included in the *2006 SWMP*; new laws and regulations that affect solid waste management; demographic and economic changes that indirectly affect solid waste; changes in technology and new consumer goods that affect solid waste composition (e.g., the use of electronic communications that reduced office paper and printed newspaper, the proliferation of battery-powered devices and scooters, single-use plastics, etc.), and facility and policy changes outside of New York City that affect the management of New York City waste. This section provides an overview of DSNY activities as well as background changes since 2006.

Facilities

Marine transfer stations allow for the consolidation and transport of waste by barge to nearby facilities for material processing or transfer to rail. Since 2006, four marine transfer station (MTS) projects accepting putrescible waste have been completed, including:

- Hamilton Avenue MTS
- Southwest Brooklyn MTS
- East 91st Street MTS
- North Shore MTS

Bronx Long-Term Export Procurement, Brooklyn Long-Term Export Procurement, Queens Long-Term Export Procurement, and the Intermunicipal Procurement contracts were also completed between 2008 and 2013. These provide processing and export capacity via land-based transit, the first three including a rail requirement. Additionally, the Staten Island Transfer Station was completed and began operations in 2007.

DSNY also opened the Staten Island Compost Facility (SICF) in 2014, following a pilot program established in 1987. SICF is authorized to accept up to 105,000 cubic yards of yard trimmings and tree debris per year and includes a mulch processing facility authorized to accept up to 70,000 cubic yards of tree debris per year. SICF was previously authorized to accept up to 30 tons per week (TPW) of food scraps, or source-separated organics (SSO). The facility was recently upgraded to incorporate the Gore® Cover System technology for improved operations, increasing the SSO limit to 600 TPW.

In 2016, DEP commenced a food waste co-digestion pilot project at the Newtown Creek Wastewater Resource Recovery Facility (WRRF). The successful pilot has matured into a full-scale program where organic waste is converted to renewable energy. This program allows for close collaboration between DEP and DSNY to support energy recovery from residential organic waste, primarily food scraps.[62] Additional information on these facilities is available in **Attachment C: Accessible Capacity for New York City Waste Management**.

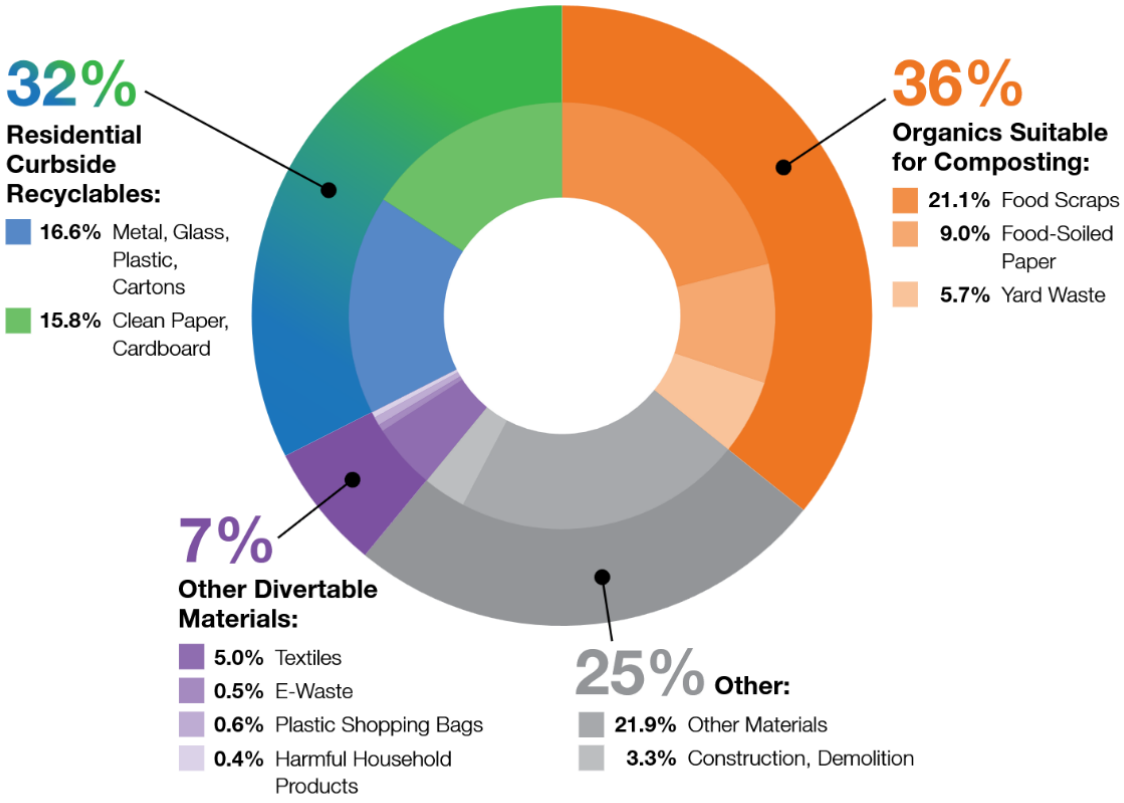
Waste Generation

New York City estimates the quantity and type of waste generated in the planning unit. Based on annual transfer station reports, between 2019 and 2023, DSNY-collected curbside and containerized waste (total refuse, materials set out for recycling, and DSNY-collected organics) has fluctuated between approximately 3.7 million tons per year to 4.0 million tons per year.

Reports on waste characterization are available for 2005 (residential and street basket waste), 2013 (residential waste), 2017 (residential and institutional waste), and 2023 (residential, institutional, and street basket waste).[63]

In the 2023 Waste Characterization Study, approximately one-third of the waste stream could be attributed to organics; one-third of the waste stream could be attributed to recyclables; 7% of material was considered other divertible materials; and 25% was considered refuse or construction and demolition debris. This is depicted in **Figure 1-7**.[64,65]

Figure 1-7. 2023 Waste Characterization Study Results



Source: *DSNY, 2023 Waste Characterization Study*

Materials Recovery

Materials recovery is the reuse or recycling of materials. Since the early 1980s when recycling of MGP and paper was voluntary, materials recovery has evolved to require MGP, paper, and organics separation and expand residential textile and special waste drop-off and collection.

Based on the 2023 Waste Characterization Study, approximately 75% of curbside collected residential and institutional waste can be diverted from landfills and incinerators through recycling and other waste diversion practices. In FY23, material separated for recycling accounted for 20.1% of curbside collected tonnage, this is up from FY17 when 17.4% of curbside collected tonnage was separated and diverted.[6,65]

Since the *2006 SWMP*, there have been various iterations of voluntary recycling programs organized by DSNY, in addition to mandatory residential recycling. Waste prevention and material recovery resources programs that existed when the *2006 SWMP* was published included NYC WasteLe$$ (website), NYC Stuff Exchange (telephone service), NYC Compost Project, NYCWasteLe$$ Business and NYC WasteLe$$ Government (websites), NY Wa$teMatch, Material for the Arts[66], and various literature on waste reduction practices.[67] The information has since been consolidated on the DSNY website. donateNYC, which was launched in 2016, is an outgrowth of the NYC Stuff Exchange and NYC Wa$teMatch programs. In 2023, donateNYC Partners diverted 50,531 tons of material from

landfills and incinerators, an increase from 2016 when 42,777 tons of material were diverted. Additional programs implemented through DSNY since 2006 include refashionNYC and ecycleNYC.[68,69] DSNY streamlined its programming to make it clearer and more accessible. For example, the transition to online platforms for some DSNY programs likely increases accessibility and ease of use. More information on recycling and reuse programs is available in **Attachment B**.

Sustainability

DSNY is transitioning its collection and department vehicle fleet to electric by 2040 in accordance with Executive Order 53 (2020). In the fall of 2022, the Department of Citywide Administration Services (DCAS) released the *Clean Fleet Transition Plan*.[70] DSNY will continue to participate in research and development of new technologies and to evaluate the mechanical reliability and operability of alternative fuel collection trucks to assess their respective environmental and economic performances. DSNY will continue to assess its facilities, build EV infrastructure and work with DCAS and local utilities to receive the necessary funding and service level upgrades to support this major endeavor.[71]

The Department is also improving lighting and energy use in its facilities by transitioning to LED light fixtures and replacing fuel oil with natural gas as an energy source for eight buildings. Currently, DSNY's diesel fleet is running on B20 Biodiesel fuel. DSNY's Manhattan 1, 2 & 5 Garage is a Certified LEED Gold Building. Other sustainability initiatives include pilot-testing a heavy-duty GVW battery-electric refuse collection truck, deployment of the world's first battery-electric street sweeper, as well as the addition of hybrid sweepers and trucks, transition of light-duty fleet vehicles to hybrid-electric, plug-in hybrid electric, and battery electric, EV charging infrastructure, and lowering the use of unleaded fuel.

DSNY is also responsible for maintaining the Landfill Gas Collection System at Fresh Kills Park, which has been collecting the landfill's gas since 1982. This gas is collected through wells that extend beneath the surface of the landfill's waste layer and are connected to a series of pipes and flare stations.

Status of 2006 SWMP Goals and Proposed Actions

Since the publication of the *2006 SWMP*, almost all milestones have been met. These are listed in **Table 1-5**, **Table 1-6**, and **Table 1-7**. **Table 1-5** reviews the progress made on recycling and waste reduction proposed actions; **Table 1-6** reviews the progress made on residential waste proposed actions, including specifics on marine transfer stations and long-term export facilities; and **Table 1-7** reviews the progress made on commercial waste proposed actions.

Table 1-5. Recycling and Waste Reduction

Program Milestone	Scheduled Fiscal Year	Revised Scheduled Fiscal Year	Status/ Implementation	Additional Notes
Proposed Action – Recycling Facilities and Services				
Materials Processing Facility, 30th Street Pier at SBMT				
City and Sims Municipal Recycling ("SMR" formerly Sims Hugo Neu) execute 20-year agreement.	2007		Completed	
SMR's South Brooklyn processing facility to begin receiving paper in addition to MGP.	2011	2013	MGP acceptance began in 2011. Paper acceptance began in CY2013.	
Manhattan "Acceptance Facility" Recyclables Transfer Station				
Finalize site selection and complete design and permitting.	2008	2014	Identified as no longer necessary.	
Complete construction and begin facility operation.	2011	2017	Identified as no longer necessary.	
New Initiatives – Recycling				
Propose LL19 of 1989 amendments to Council, including to replace mandatory tonnage diversion with percentage goals.	2007		Completed	
Reach resolution on draft legislation to revise LL19 of 1989.	2008		Completed	
Hold electronics recycling events across the City and promote via mailings.	Ongoing		Completed; preempted by State EPR e-waste law enactment	DSNY hosts SAFE disposal events, Special Waste Drop-Off Sites, and collaborates on residential e-waste collection for some buildings through ecycleNYC.
Develop electronics recycling legislative initiative.	2007		Completed	New York State Law requires recycling of electronics as outlined in Title 26 Section 27-2621.[72]
Issue Citywide Waste Characterization Study and Final Report.	2007	2017	Completed; updated in 2013, 2017, and 2023	2013 Waste Characterization Study[64] 2017 Waste Characterization Study[65] 2023 Waste Characterization Study[6]
Conduct public education market research.	Ongoing		Completed	

Table 1-5. Recycling and Waste Reduction

Program Milestone	Scheduled Fiscal Year	Revised Scheduled Fiscal Year	Status/ Implementation	Additional Notes
Submit Council on the Environment Outreach and Education Office work plan and budget.	2007		Completed	
Report to Council on the Environment Outreach and Education Office with recommendations.	2007		Completed	
Increase recycling diversion rate.	Ongoing		Incomplete	Recycling rates have been trending down, declining from 18% in FY18 to 17.6% in FY21 and 17% in FY22.[1]
Promote restoration of recycling services.	Ongoing		Completed	Full service was restored in 2004. Outreach and education remain ongoing.
Begin recycling re-education of City Agencies and institutions.	2007		Continuously ongoing	
Require Sims Hugo Neu (SHN) to test feasibility of separating, marketing, and recycling plastics 3-7 and if feasible, DSNY to require source separation and educate public.	2013		Completed. Rigid plastics added FY2013	Sims Hugo New is the former name of Sims Municipal Recycling (SMR)
2010 review of SWMP recycling initiatives.	2010-2011		Completed	
Conduct public recycling pilot.	2007		Completed	
New Initiatives – Waste Reduction				
Market Wa$teMatch to add focus on hospitality, healthcare, and property management industries.	2010-2012		Completed	The Wa$teMatch program is no longer operating. The activities performed by Wa$teMatch now fall under donateNYC programming.
Launch new Citywide publication/campaign to promote junk mail reduction.	2007-2008		Completed	
Resume yard waste collection (where permitted composting facilities are available).	2005	2013	Completed Resumed Fall 2016	DSNY expanded residential organics collections in 2025.
Resume compost education and give-back programs in cooperation with the City's Botanical Gardens.	2005		Completed	

Table 1-5. Recycling and Waste Reduction

Program Milestone	Scheduled Fiscal Year	Revised Scheduled Fiscal Year	Status/ Implementation	Additional Notes
Seek regulation revision to require residents to set out leaves in paper bags, educate public and retailers.	2007		Completed	DSNY expanded residential organics collections and per 2023 revised regulations allows leaves in plastic bags.
Issue electronic newsletter.	Ongoing		Completed	DSNY continued providing electronic newsletters that residents could sign up to receive until the end of 2022.
DEP to issue RFP to study the feasibility of a food waste disposal pilot.	2008		Completed	
DEP to complete food waste disposal feasibility study.	2009		Completed	
Issue new HHW reduction publication.			Completed on-line	
Issue RFP for HHW collection days and report to Council on proposal selection.			Completed	
Commence HHW collection contract.	2009		Completed	
Establish Composting/New Technology Facility Task Force.	2008		Completed	
Resolve feasibility issues regarding development of on-site food composting facility Hunt's Point Food Center.	2007	2014	DEP is investing in the Hunts Point WRRF, including a possible future codigestion project	
DSNY to support legislation to require composting of landscaping organic waste/subsidize and promote bins.	N/A		Completed	Requirements for commercial landscapers are available from DSNY.[73]

Source: DSNY 2021-2022 Biennial Report to DEC, Attachment 1
Note: 1. Based on City Council "Local Law 40" diversion report. Includes DSNY collected curbside and containerized which captures schools, litter baskets, public space recycling and dedicated service at Agencies and Institutions.

Table 1-6 Residential Waste: Facilities and Long-Term Contracts for Transport and Disposal (Export)

Program Milestone	Scheduled Fiscal Year	Revised Scheduled Fiscal Year	Status/ Implementation
Proposed Action – Long-Term Export Facilities and Services			
DSNY Hamilton Avenue Converted MTS, Hamilton Avenue at Gowanus Canal, Brooklyn			
Complete procurement and award Transport & Disposal Contract	2007	2012	Completed February 2017
Complete design and permitting	2007	2008	Completed June 2008
Complete construction/begin facility operation	2010	2014	Completed; facility operation began September 2017
DSNY SW Brooklyn Converted MTS, Shore PKWY at Bay 41st Street, Brooklyn			
Complete procurement and award Transport & Disposal Contract	2007	2012	Completed February 2017
Complete design and permitting	2007	2012	Completed November 2013
Complete construction/begin facility operation	2010	2017	Completed; facility operation began October 2018
DSNY East 91st Street Converted MTS, Manhattan			
Complete procurement and award Transport & Disposal Contract	2007	2012	Completed July 2013
Complete design and permitting	2007	2012	Completed July 2012
Complete construction/begin facility operation	2010	2016	Completed March 2019
DSNY North Shore Converted MTS, 31st Avenue and 122nd Street, Queens			
Complete procurement and award Transport & Disposal Contract	2007	2012	Completed July 2013
Complete design and permitting	2007	2010	Completed January 2010
Complete construction/begin facility operation	2010	2014	Completed March 2015
Bronx Long-Term Export Procurement			
Complete contract negotiations and award contract	2007	2008	Completed July 2007
Complete design permitting and construction, if required, and begin facility operation	2007	2008	Completed July 2007
Brooklyn Long-Term Export Procurement			
Complete design, environmental review, permitting and construction, if required, and begin facility operation	2007	2008	Completed February 2008
Brooklyn Long-Term Export Procurement	2009		Completed March 2009
Queens Long-Term Export Procurement			
Complete design, environmental review permitting and construction, if required, and begin facility operation	2007	2013	Completed November 2013
Queens Long-Term Export Procurement	2009	2013	Completed July 2015
Intermunicipal Procurement for Disposal Services at a Regional Waste-to-Energy Facility			
Complete contract negotiations, award contract and commence service	2007	2012	Completed October 2012

Table 1-6 Residential Waste: Facilities and Long-Term Contracts for Transport and Disposal (Export)

Program Milestone	Scheduled Fiscal Year	Revised Scheduled Fiscal Year	Status/ Implementation
Staten Island Transfer Station Complete facility constructions	2007		Completed 2006
Begin facility operations and implement long term service agreement for container rail transport and disposal	2007		Completed November 2006
Converted MTS Reporting/ Permitting			
Report to Council on RFP process/permit approvals for MTSs	2008		Completed
Report to Council if any of the MTS agreements are not finalized by 2010 and recommend (as appropriate) proposed SWMP modification on handling residential solid waste	2010-2011	2012	Completed FY 2012
Alternative Technology Evaluation and Planning			
Issue Phase 2 Alternative Technology Evaluation	2007		Completed
Evaluate development of a pilot project to establish the basis for commercial application	2007	2012	Completed; RFP Issued March 2012 and Cancelled in FY 2014
Source: DSNY 2021-2022 Biennial Report to DEC			

Table 1-7. Commercial Waste

Program Milestone	Scheduled Fiscal year	Revised Scheduled Fiscal Year	Current Status
Assess Feasibility of Using West 59th Street MTS for Processing Commercial Waste			
Issue an RFP to solicit private vendors	2007		Completed
Report on West 59th Street RFP process progress and required approvals	2008		Completed
Report and recommend (as appropriate) SWMP modifications on commercial waste to Council if the City does not have an executed agreement for use of West 59th Street MTS	2009	2012	Revised SWMP Compliance Report dated February 2012 submitted to Council in March 2012
Use of Converted MTSs to Containerize Commercial Waste			
Assess alternative implementation methods	2009	2013	Pending
Implement selected method	2010	2014	Pending
Report on use of MTSs for transport and disposal of commercial waste	2010	2015	Submitted April 2019 Report to Council
Future Manhattan Capacity			

Table 1-7. Commercial Waste

Program Milestone	Scheduled Fiscal year	Revised Scheduled Fiscal Year	Current Status
Investigate potential alternative Manhattan solid waste transfer station locations and report to Council annually on efforts to identify alternative locations	2008		Completed 2008
Transfer Station Capacity Reduction			
Commence negotiations with transfer station operators to seek transfer station putrescible and C&D capacity (permitted and used) reductions in select CDs	2006	2007	Local Law 152 of 2018
Reach agreement on transfer station capacity reductions by April 2007; if not work with Council to draft legislation to accomplish reductions	2007	2014	Local Law 152 of 2018
MTS host district specific and Bronx capacity reductions to occur	2010	2014	Local Law 152 of 2018
Truck Traffic Analysis			
DSNY and NYCDOT to conduct a traffic study to assess the feasibility of redirecting transfer station truck routes to minimize potential impacts to residential areas	2008	2009	Completed; study for Brooklyn communities issued in 2009
DEP Food Waste Disposal Study			
With support from DSNY and EDC, issue RFP to solicit consultant to conduct study to understand the costs and benefits of the use of commercial food waste disposals in defined areas of the City	2009		Completed; RFP issued in 2007
Consultant to complete study	2009		Completed; report issued in 2008[74]
Source: DSNY 2021-2022 Biennial Report to DEC, Attachment 1			

Chapter 2: Waste Generation and Materials Recovery Data

This chapter describes types and quantities of waste generated in New York City and the movement and management of that waste.

1. Types of Solid Waste

Municipal solid waste (MSW) is generated by residents, institutions, businesses, and industries. The material composition of MSW determines how it can be diverted from landfills or incinerators (through reuse, repair, and recycling). Materials in MSW include paper and cardboard; metal, glass, and plastics; textiles; organic materials; other materials; and contamination such as household hazardous waste (HHW). Most of these materials can be separated and recovered. Special wastes and hazardous wastes have specific handling requirements and should not be disposed of with MSW.

The *2023 Waste Characterization Study* found that 75% of material discarded by residents could be recovered for recycling or beneficial use.[6] A waste characterization study for commercial and construction and demolition waste (C&D) will be completed by January 31, 2032, as mandated by Local Law 14 of 2025. The law also requires an update to the 2023 waste characterization study of DSNY-managed material to be completed by 2028.

Waste can be described as putrescible or non-putrescible. Putrescible waste decomposes readily with the assistance of bacteria and often describes waste that includes a mix of organic and non-organic materials. Putrescible waste includes food waste, paper, textiles, and more. Non-putrescible waste, such as C&D debris and fill, does not easily decompose.

The primary waste stream categories (by material type) documented in *SWMP26* are shown in **Figure 2-1**. These include:

- MSW: includes putrescible MSW, also referred to as refuse
- C&D: includes fill (which can consist of soil, sand, gravel, rock, and other materials), concrete, asphalt, masonry, wood from construction and demolition activities, and other building materials
- Organics: includes food scraps, biosolids, fats, oils, and grease (FOG), yard waste, wood and woodchips, and other plant material
- Recycling: includes metal, glass, and plastic (MGP), bulk and scrap metals, paper and cardboard, and textiles
- Special Waste: includes universal waste such as batteries, electronics, light bulbs, motor oil, and paint. Since HHW also requires special management (although it is not accepted at DSNY's special waste drop-off sites), the discussion of special waste throughout this *SWMP26* includes HHW.

In this document, waste will be categorized based on how it is generated and managed using the following categories:

Publicly-managed—includes material managed by DSNY and other City agencies.

Commercial—includes refuse, recyclables, and organics from offices, restaurants, and retail businesses.

Industrial—includes construction and demolition, material processed by scrap metal processors, and privately-managed special waste.

Figure 2-1. Waste Categorization by Material Type and Subtype

MSW	C&D	Organics	Recycling	Special Waste
Putrescible (Residential, Institutional, and Commercial refuse)	Asphalt	Food Scraps	MGP	Batteries
Street sweepings	Bricks	Christmas Trees	(Metal, glass, plastic)	Electronics
	Bulk Metal	Brush	Cartons	Hazardous Household Waste Mercury Devices
	Concrete	Grass Clippings	Aluminum	
	Recycled Asphalt Pavement	Leaf/Yard Waste	Bulk Metal	Motor oil
	Recycled Concrete Aggregate	Manure	Metal	Regulated Medical Waste
	Fill	Wood/branches	Non-Ferrous Metal	Tires and rims
	Soil/sand/rock	Woodchips	Paper	Vehicle
		Fats, Oils, and Grease	Cardboard	
		WRRF Materials	Textile	
		Biosolids		
		Scum		

MSW - Municipal Solid Waste; C&D - Construction and Demolition Waste; WRRF - Wastewater Resource Recovery Facility

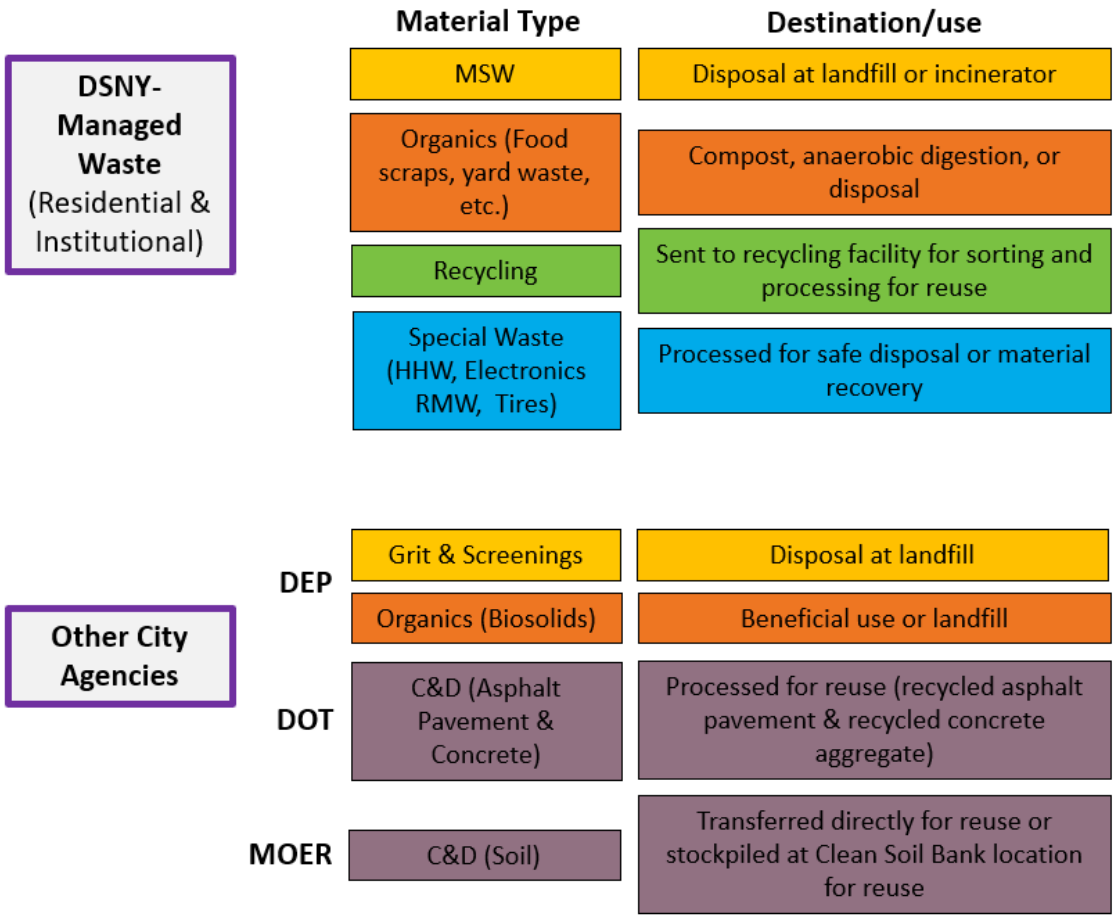
- When categorizing waste, a distinction between generation and management should be noted. Waste generation refers to material produced and encompasses waste that is collected, as well as the waste that is improperly disposed of. Waste management refers to the waste collected, sorted, transported, disposed of, or recovered. Residential and institutional waste in New York City are publicly managed, and commercial and industrial waste are generally privately managed.
- In New York City, information on residential and institutional waste is typically combined and labeled as "residential," as the New York City Department of Sanitation (DSNY) collects waste for both. This includes waste from public schools, other agencies, and residences, often in the same collection trucks. In 2023, 3.8 million tons of residential MSW (including curbside and containerized refuse, recycling, and DSNY-collected organics) were managed by DSNY (excluding special waste).[75,76,77,78,79,80] In comparison, commercial MSW managed within New York City accounted for approximately 2.2 million tons that year (including material disposed as refuse, material set out for recycling, and separated organics, and excluding construction material, scrap metal, and special waste).[4,81,82]
- Businesses are responsible for handling their own waste and hire private waste haulers to collect and dispose of or divert waste. The commercial waste generated by businesses within New York City is likely substantially greater than the amount of commercial waste managed at transfer stations located within New York City, because much of it is hauled by truck directly out of the city (without first being consolidated and accounted for at a transfer station within New York City).

2. Publicly Managed Waste

Residential Waste

Residential MSW includes household waste from New York City's five boroughs. This includes waste from multi-family dwellings, such as apartment complexes, and single-family dwellings. Some larger apartment complexes choose to hire private carters for MSW collections. New York City's population was approximately 8.5 million in 2024.[7] A schematic of publicly managed waste types and end uses or destinations is shown in **Figure 2-2**.

Figure 2-2. Public Waste Management



DSNY collects curbside refuse and source-separated recycling from residential buildings. Additionally, curbside organics collection has been implemented citywide since October 2024.[83] Residents may also bring organic waste to Smart Compost Bins or Food Scrap Drop-off locations around the city. DSNY manages organic materials at the Staten Island Compost Facility and Soundview Park. Residential waste that is considered special waste must be dropped off at DSNY special waste events, such as SAFE (Solvents, Automotives, Flammables, and Electronics) Disposal Events, at Special Waste Drop-Off sites (one in each borough), or at other community special waste collection events.[84,85] HHW may only be brought to SAFE Disposal Event or community events. Buildings with 10 or more units can sign up for free electronics recycling collection through ecycleNYC.

In addition to curbside recycling, organics, and refuse collections, New York City has numerous waste reduction programs managed by city agencies or non-profit organizations. For example, programs such as DSNY Textile Recycling[86] and donateNYC[87] accept used goods including clothing and other household goods for reuse and recycling. This helps extend product lifecycles, reduces demand for newly manufactured goods, and diverts material from landfills or incinerators. DonateNYC also facilitates food donations, diverting edible food from being wasted. More information about DSNY-supported and non-profit waste reduction, reuse, and recycling programs is available in **Attachment B: Existing Waste Reduction, Reuse, and Recycling Programs in New York City**.

Institutional Waste

DSNY also collects certain institutional waste, including waste from New York City agencies and schools (public, parochial, charter, and many private schools), as well as refuse and recycling from many nonprofit organizations in the city. The amounts and types of institutional waste are generally not tracked separately from residential waste because both are collected in the same trucks and routes.

School Waste

DSNY completed the expansion of school curbside composting to all New York City Public Schools by the end of the 2023-2024 school year. To support food waste reduction, New York City's Education Department launched a program in 2024 allowing schools to donate unused packaged food to local food pantries, soup kitchens, and shelters, after a small group of schools piloted a food donation program. Recycling and compost education initiatives support the success of the Citywide Organics Program, teaching children and school staff about material recovery. DSNY continues to provide technical assistance and educational resources to schools to encourage proper recycling and organics diversion, supplying schools with sorting stations for all streams and providing posters, decals, and comprehensive education for both staff and students.

New York City Housing Authority (NYCHA) Waste

NYCHA is the largest public housing authority in North America, with one out of 17 New York City residents living in NYCHA developments.[88] Most of the refuse generated at NYCHA developments is collected by DSNY in large compacting containers. Some of the NYCHA refuse and a small amount of paper and metal, glass, and plastic (MGP) recyclables are collected along with other neighborhood residential curbside collections.[65] Historically, recycling at NYCHA residences has been challenging due to constraints, such as availability of staffing, storage space, and collection facilities. DSNY supports NYCHA's efforts to improve setout of materials and increase waste diversion. DSNY provides recycling training to caretakers and staff, coordinates resident engagement, enrolls NYCHA developments in ecycleNYC, and attends outreach events to promote DSNY initiatives. As part of DSNY's Smart Bin program, DSNY prioritized placement of Smart Bins near NYCHA properties to provide NYCHA residents with access to food waste recycling locations. DSNY also conducted tabling events to promote the program as well as site visits to assess how residents are using the bins.[89] NYCHA's sustainability agenda includes a waste management and recycling strategy, with the following initiatives[90]:

- **Centralized Waste Yards** – This initiative includes the construction/installation of redesigned waste yards with infrastructure including auger compactors for mixed household and bulky refuse, enclosed recycling storage, and some pneumatic waste collection systems. The initiative was identified as a need in the NYCHA 2.0 Waste Management Plan and was funded by the 2019 City Capital Action Plan. NYCHA has 8 new waste yards completed, 15 in construction, 20 in construction procurement, and 69 in design or planning. This initiative is projected to be complete by the end of 2029, providing improved containerization solutions to a majority of NYCHA campuses.
- **Pneumatics System Collection** – In 2024 NYCHA retrofitted Polo Grounds Towers in Manhattan with a pneumatic waste collection system. This pneumatic waste collection system utilizes underground tubes to transport waste and recyclables from buildings to a central facility that DSNY collects the material from. The system is designed to accommodate additional material in the neighborhood.
- **Organics** – NYCHA hosts 8 farms across the five boroughs that have on-site, three-bin compost systems that have been in operation for several years. The food scraps and yard waste collected are processed locally at these sites by Compost Power and Green City Force, and finished compost is provided to NYCHA residents for

NYCHA grounds, community gardens, and urban farms. This model promotes a “closed-loop” system and reduces rodent food sources. NYCHA is also participating in DSNY’s expanded organics collection program, establishing new in-building organics collection (brown bins) at College Point and Leavitt in Queens and supporting sidewalk organics collection bins (Smart Bins) at 39 NYCHA sites across the five boroughs. In 2022, NYCHA expanded on-site organics collection and processing to non-farm sites at Polo Grounds Towers and Patterson Houses by adding three-bin compost systems built and operated by Compost Power. The expanded sites have started to collect resident food scraps from nearby developments and offer an example of an expanded network of residential food waste diversion options.

Street Sweepings and Litter Baskets

Street sweepings, also known as street dirt, are collected by DSNY from New York City’s streets using mechanical brooms. This material is disposed at transfer stations as refuse. In FY24, approximately 56,000 tons of street dirt were collected.[91] Waste from public litter baskets is collected by trucks that collect residential waste and the amounts of waste from litter baskets are included in the amounts reported for residential waste.

Biosolids Waste

Biosolids are an organic byproduct of wastewater (sewage) treatment. Biosolids from New York City are produced from organic matter that remains after wastewater treatment and dewatering at DEP wastewater resource recovery facilities (WRRFs). The quantity of biosolids produced in New York City is directly related to population and will increase as population increases. Biosolids can be productively used as landfill daily cover or beneficially used as fertilizer, compost, or soil amendment. Such beneficial uses of biosolids also reduce greenhouse gas emissions.

In FY23, some of the biosolids were composted or otherwise beneficially used, but a large amount was used for landfill cover, which is not considered a beneficial use. By 2030, DEP aims to divert 100% of biosolids used in or sent to landfill and increase the percentage of biosolids in compost to 40%.[92,93] There are other byproducts produced at WRRFs, including grit, screenings, and scum. These materials are generally not suitable for recovery and are disposed of at landfills.

Special Waste

Special waste is produced at the household, institutional, commercial, and industrial levels and requires specific handling measures to ensure the health and safety of carters, processors, the public, and the environment. DSNY manages special waste produced by residents and City agencies.

Waste management processes and requirements vary for different special waste subcategories, such as automotive waste and electronics. New York City residents can dispose of many special waste materials, including batteries, paint, and electronics, at the DSNY Special Waste Drop-Off sites located in each borough. DSNY also holds SAFE (solvents, automotive, flammables, and electronics) Disposal events annually in all five boroughs. Automotive products, electronics, hazardous household waste, and certain types of medical waste, including needles and pharmaceuticals, are accepted at SAFE Disposal events. Residents can also recycle electronic waste and other materials at DSNY Community Recycling Events held in neighborhoods around the city, as well as through DSNY’s in-building ecycleNYC program and at certain retailers.

Bulk, Scrap, and Recovered Metal Waste

Metal waste can be reclaimed as reused and recycled. Scrap metal is primarily collected by the private sector from construction sites and derelict autos. DSNY manages a small proportion of the city's vehicle waste by contracting vendors to remove abandoned automobiles. DSNY collects bulk metal and oversees the recycling of oil drums from the Bureau of Motor Equipment. Metal is also recovered from incinerators that receive DSNY-managed waste.[75]

3. Commercial Waste

Waste generated by the commercial sector is regulated by City, State, and Federal legislation and regulations. Enforcement and management planning of the commercial waste sector is overseen by DSNY. Addressing waste management in the commercial waste sector, including increasing diversion, is required for *SWMP26*.

An estimated 200,000 businesses were based in New York City in 2024. In 2023, the commercial waste sector generated 1.6 million tons of refuse and (based on 2022 data) 0.6 million tons of material separated for recycling. A large segment of the commercial waste sector in New York City consists of small businesses with fewer than 100 employees. Commercial waste is generated by stores, offices, restaurants, warehouses, and other non-manufacturing facilities.[94] In addition, industrial uses generate waste that includes scrap metal, construction and demolition debris (C&D), waste oil, automotive waste, and hospitals, research institutions, and laboratories generate regulated medical waste. New York City's Business Integrity Commission (BIC) manages and enforces commercial waste regulations.

In 2020, an internal study conducted by DSNY reviewed 12 business waste generator categories, covering an estimated 99% of commercial waste customers in the city. The study estimated a total generation of 4.1 million tons of waste annually, with businesses setting out approximately 71% of their generated waste as refuse, 27% as recycling, and 2% as separated organics. The same study estimated somewhat higher recycling and organics separation rates for food and beverage stores (28% set out for recycling, 9% set out as separated organics) and for restaurants (21% set out for recycling, 4% set out as separated organics).[95] **Attachment F**: **Commercial Waste in New York City** provides additional information on this topic.

Commercial Waste Zones

Businesses are required to have all MSW and recyclable waste privately hauled by either a BIC-licensed private hauler or by obtaining a self-hauler registration from BIC.[96] Local Law 199 for Commercial Waste Zones of 2019 (LL199) is designed to streamline commercial waste collection by designating waste hauling vendors for different parts of the City. Under this program, 20 geographical zones were designated, and businesses must select a vendor from the approved carters within their zone. Carters that are awarded a contract within a New York City commercial waste zone have been determined to meet contractual requirements that ensure fair and transparent pricing, quality customer service, prioritization of workers' and community rights, and a focus on health and safety. Other factors that support the efficiency of commercial waste hauling, as well as environmental justice, are considered in awarding contracts to carters.[97] The implementation of LL199 is intended to optimize efficiency and safety while mitigating truck traffic and undue emissions. This system is designed to collect and manage putrescible waste, including refuse, recyclables, and organics. LL199 will support the enforcement of recycling mandates which, prior to its implementation, were often overlooked by private carters and difficult to enforce. LL199 thus aims to reduce refuse disposal in landfills or incinerators while boosting the diversion of recyclables and organics.[98]

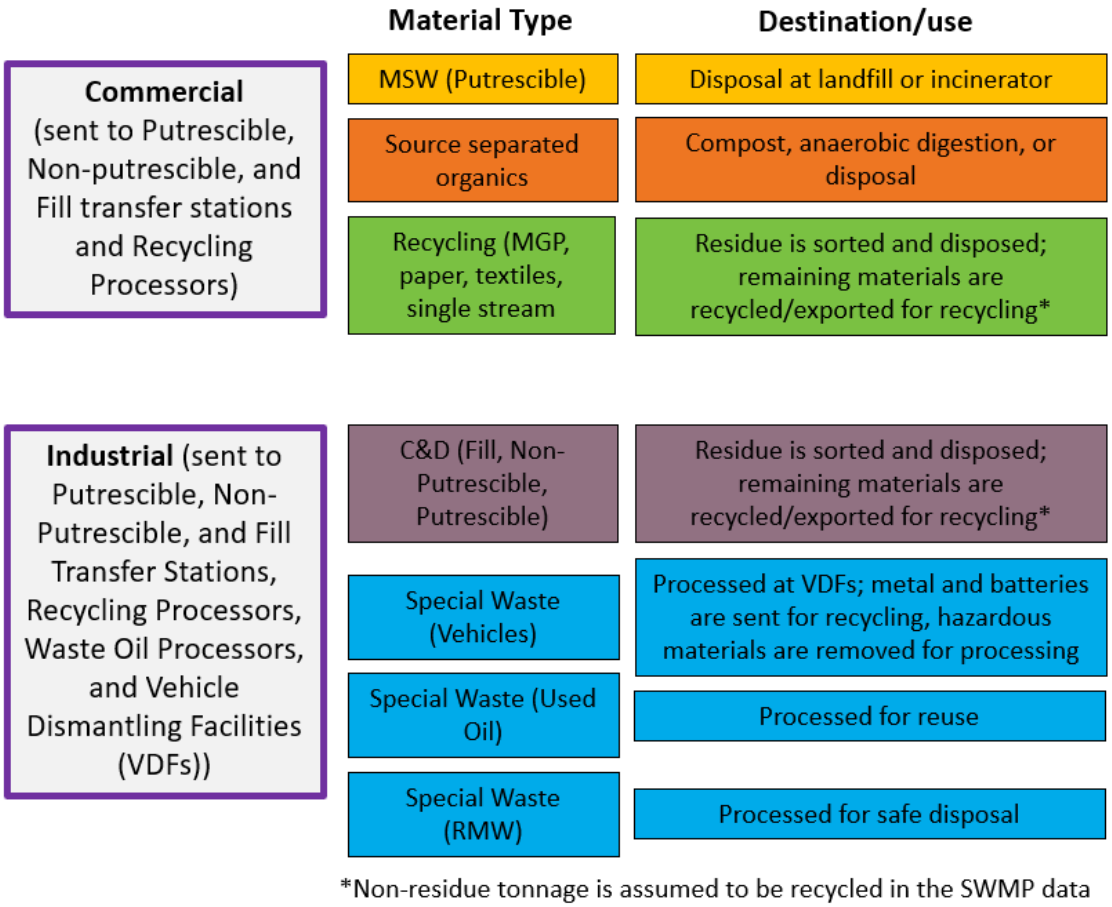
Commercial waste zone contract awards were granted to three carters for each zone in 2024. The first commercial waste zone rollout in the Queens Central zone was fully implemented in January 2025. Program rollout for the remaining zones is planned from November 2025 to December 2027.[99]

The handling of other waste streams, such as non-putrescible C&D, textiles, or electronic waste, falls out of the jurisdiction of LL199 and will remain unchanged. Businesses must still haul this waste privately, but the logistics fall outside the scope of Commercial Waste Zones.

Commercial Waste Management

Commercial waste in New York City is generated by businesses and is managed by private carters. Businesses are required to contract directly with licensed private waste haulers and must follow City rules on separating and setting out waste. While DSNY does not collect commercial waste DSNY, with BIC, oversees the management of commercial waste disposal and the enforcement of commercial waste legislation within the city. **Figure 2-3** illustrates the types of commercial and industrial waste streams in New York City, and their end uses and destinations. **Attachment F** provides additional details on waste management practices, including vendors, routes, and tonnage. Private haulers may choose to provide source-separated recycling, co-collection of recycling, or single-stream collection services. Organics and refuse may not be commingled with paper, plastic, glass, or metal.

Figure 2-3. Private Waste Management



In certain instances, businesses must separate out other waste streams such as textiles or organics, which must also be privately hauled. If 10% of a commercial entity's waste stream in any given month is made up of textiles, that business is required to separate these items for recycling. Some commercial businesses, including food services and retail food stores of certain capacity, are required to set out organics.[100] **Attachment G: New York City Commercial Recycling Rules** includes the list of businesses required to participate in organics recycling.

After registering with BIC, *private hauler* or *self-transport organic waste* are options for businesses that voluntarily or mandatorily recycle organics. An alternative to carting organics is on-site processing. When businesses perform on-site processing of organic waste, they are required to use in-vessel composting techniques or other methods approved by DSNY and submit a registration.[101]

As rare exceptions, businesses can have commercial waste collected by DSNY only if they meet one of the following criteria:[102]

1. Be authorized by law to engage in an occupation in a part of the home in addition to its residential use.
2. Be a licensed NYS lawyer or chiropractor or licensed NYS physician or dentist authorized to engage in individual or group medical practice in a basement or on the first or second floor in the residential portion of the building.
3. Be in a residential portion of a residential building that has been used for occupational purposes since December 15, 1961.

4. Industrial Waste

New York State Department of Environmental Conservation (DEC) defines industrial waste as solid waste generated by manufacturing or industrial processes. Such processes may include but are not limited to electric power generators; fertilizer and agricultural chemical manufacturers; metal foundries; pulp and paper processors; and stone, glass, clay, and concrete producers. Industrial waste includes acids, alkalis, caustics, leachate, petroleum, wastewater, sludge, solidified chemicals, paints/pigments, dredge spoil, foundry sand, and end or by-products of incineration, among other materials. Industrial waste means solid waste generated by manufacturing or industrial processes.[103]

New York City is no longer the center of manufacturing that it once was. In part, this is due to the rezoning of industrial areas into mixed, commercial, or residential uses. Manufacturing jobs halved between 1990 and 2023 with manufacturing accounting for 1.3% in 2023.[30] Industrial waste generators in New York City include manufacturers in food (e.g., pasta factories, coffee roasters) and goods (e.g., instruments, furniture). Industries also include Pratt, a paper manufacturer located in Staten Island that recycles paper, other recyclers, and Wastewater Resource Recovery Facilities (WRRFs).

Industrial waste quantified as part of *SWMP26* includes scrap metal, construction and demolition debris (C&D), waste oil, automotive waste, and regulated medical waste. Waste oil (used motor oil) and used cooking oil, automotive waste, and regulated medical are considered special wastes as they can be harmful to human health and the environment if they are not handled and disposed of properly.

Manufacturers producing industrial waste are often not differentiated from commercial waste generators, making tracking this waste stream challenging. However, some data on industrial hazardous waste is available. Manufacturers that generate industrial waste that will discharge industrial wastewater must obtain a permit and comply with City and State regulations. Additional information on permitting is available on DEP's website.[104]

Industrial Waste Management

Industrial waste may require specific handling depending on the material type. This may involve neutralization or other processing of materials prior to transportation to specialized waste processors to reduce risks. However, waste generated by the industrial sector may include organics, MGP, or other recyclable materials.

Construction and demolition debris are handled at transfer stations (non-putrescible and fill). Scrap metal is primarily managed at scrap metal processing facilities. Oil processing facilities, vehicle dismantling facilities, and medical waste management companies process used motor oil and cooking oil, automotive waste, and regulated medical waste respectively. Most of these waste streams can be recycled or beneficially used. Scrap metal, metal from end-of-life vehicles, and components of C&D debris can be recycled. Used motor oil is reprocessed into new lubricating oil. Used cooking oil is processed into biodiesel. Construction and demolition debris materials can be salvaged for reuse or recycling and fill material can be reused. Regulated medical waste is generally incinerated or treated for safe disposal.

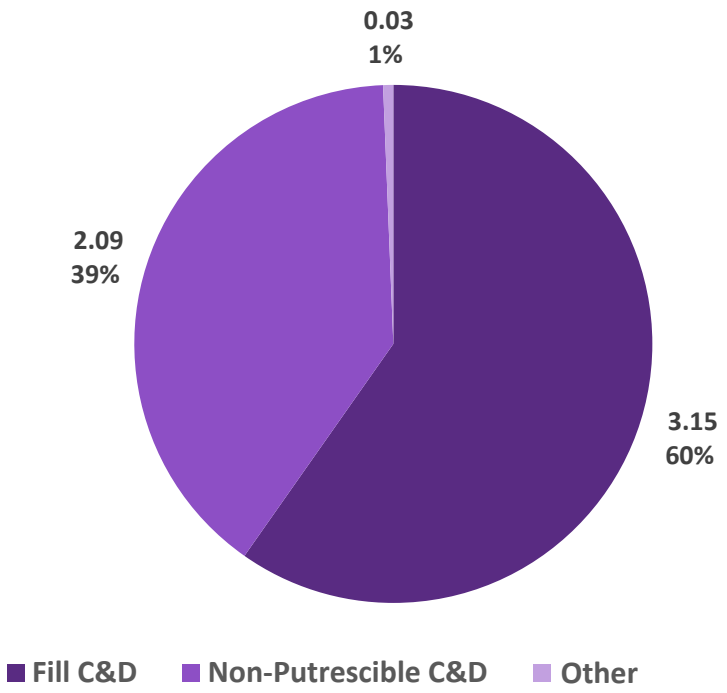
Like other waste generators, the industrial sector can take steps to divert waste. Steinway & Sons, the piano manufacturer, is an example of an industrial waste generator based in New York City. The company does not provide a full list of waste generated at its facility but reports that it makes wood shavings and sawdust available for upcycling. Other manufacturers in New York City include breweries, food processors, and makers of apparel, appliances, furniture, metal products, glass products, and more. Pratt Industries on Staten Island manufactures recycled paper products onsite.

Construction and Demolition (C&D) Waste Management

Construction and demolition (C&D) debris is generated during construction and demolition of buildings and infrastructure. C&D debris is considered industrial waste and includes materials such as concrete, stone, dirt, asphalt, wood, metal, drywall, insulation, and fixtures. These materials are reused, recycled, or landfilled. Some materials require special handling. For example, gypsum (a major component of drywall and wallboard) is recyclable, but crumbles when handled and can contain asbestos and other contaminants.

In 2023, C&D debris processed through non-putrescible and fill transfer stations within New York City accounted for nearly 5.3 million tons of material.[4] A breakdown of C&D material types managed at private transfer stations is shown in **Figure 2-4**.

Figure 2-4. 2023 Privately-managed C&D Materials, Million Tons



Source: *Private transfer station reports to DEC*

In 2020, neighborhoods with the highest levels of demolition included East Concourse-Concourse Village in the Bronx; Hunters Point and Long Island City in Queens; and Erasmus and Boerum Hill in Brooklyn. Neighborhoods with the greatest number of new building permit activity include Hunters Point, Long Island City, and North Corona in Queens; East Williamsburg and Bushwick in Brooklyn; and Midtown in Manhattan. Manhattan had the greatest combined total of permits issued for new buildings, alterations, and demolitions.[105]

Construction and demolition activity aligns with economic activity and employment. As investment in redevelopment and rezoning increase, the waste generation by the C&D sector is expected to increase. Exceptions to this pattern may include extreme weather or other disasters resulting in the demolition of existing infrastructure. **Chapter 1: Planning Unit Description** includes additional information on the relationship between zoning and waste.

The source and quantity of construction and demolition debris determines the waste management of the material. DSNY provides residential collections of C&D debris from small do-it-yourself (DIY) projects and will collect up to 6 bulk items at the curb per collection day.[106] Additional C&D debris must be collected by registered haulers approved to remove construction and demolition waste.

Most C&D material in New York City is managed by the private sector. However, the New York City Department of Transportation (NYCDOT) collects and recycles asphalt and concrete. The Mayor's Office of Environmental Remediation (MOER) administers the Clean Soil Bank (CSB), a clean soil exchange program. The CSB program facilitates the direct transfer of clean soil (fill) from project to project and operates a stockpile for interim staging of material for recovery optimization.

Commercial C&D waste must be transported to a C&D debris handling facility, such as a transfer station or recycler. In 2023, there were 22 C&D waste facilities in New York City, according to DEC database of permitted and registered facilities.[107]

New York City has set ambitious sustainability goals, including achieving carbon neutrality by 2050. Reducing emissions from the built environment is crucial, including embodied carbon emissions (the emissions associated with the extraction, production, transport, and manufacturing stages of building materials and construction). The New York City Economic Development Corporation (EDC) published their *Circular Design & Construction Guidelines* in 2024. The guidelines aim to reduce embodied carbon and waste within EDC capital projects and support the sustainable management of C&D materials citywide. The guidelines include goals for waste reduction and diversion in EDC capital projects: new construction projects must reuse or recycle at least 75% of C&D materials by weight or volume; deconstruction projects must reuse or recycle 75% of salvaged materials; and new construction or deconstruction projects must reuse or recycle 95% of discarded concrete and soil. The report identifies reuse and remanufacturing opportunities for C&D materials including masonry, wood, metals, soils, roofing, and drywall and encourages waste reduction and recycling considerations throughout the design and construction process.[108]

Fill can be reused (also referred to beneficial use) depending on its physical constituents and contaminant levels. DEC identifies five categories of fill:

- Fill type 1: Soil, sand, gravel, or rock generated outside of New York City with no evidence of historical contamination. This can be used for any end use and doesn't require testing.
- Fill type 2: Soil, sand, gravel, or rock with no non-soil constituents. May be used in any setting where the fill meets engineering criteria for use except agricultural land used for raising livestock or producing animal products for human consumption.
- Fill type 3: Soil, sand, gravel, and de minimus amounts of brick, concrete, or asphalt; no other non-soil constituents. May be used in any setting where the fill meets engineering criteria for use except undeveloped land and agricultural crop on land used for raising livestock or producing animal products for human consumption. When used on residential property, this type must be under impermeable surface or under at least 3 inches of fill type 1, type 2, or commercial soil.
- Fill type 4: Has no volume limit for granular, compactible, non-soil constituents except for plastic, gypsum wallboard, wood, paper, or other material that may readily degrade or produce odors. Can be used for embankments or subgrade in transportation corridors and on sites where in-situ materials contain higher levels of contaminants than fill.
- Fill type 5: Has no volume limit for granular, compactible, non-soil constituents except for plastic, gypsum wallboard, wood, paper, or other material that may readily degrade or produce odors. May be used under foundations and pavements above the seasonal highwater table.

For more details, see N.Y. Comp. Codes R. & Regs. Tit. 6 § 360.13 - Special requirements for predetermined beneficial use of fill material.[109]

Scrap Metal Management

In addition to scrap metal generated by the residential sector, the private sector generates and manages scrap metal waste. Scrap metal is processed and resold for the manufacturing of new products. Scrap metal processors receive, process, store, and recycle metal and metal-containing products such as appliances. Scrap metal processors may

be collocated with vehicle dismantling facilities that process end-of-life vehicles, which are considered a special waste as they contain materials with special handling requirements (tires, oil, fluids, batteries, and mercury switches).

Special Waste Management

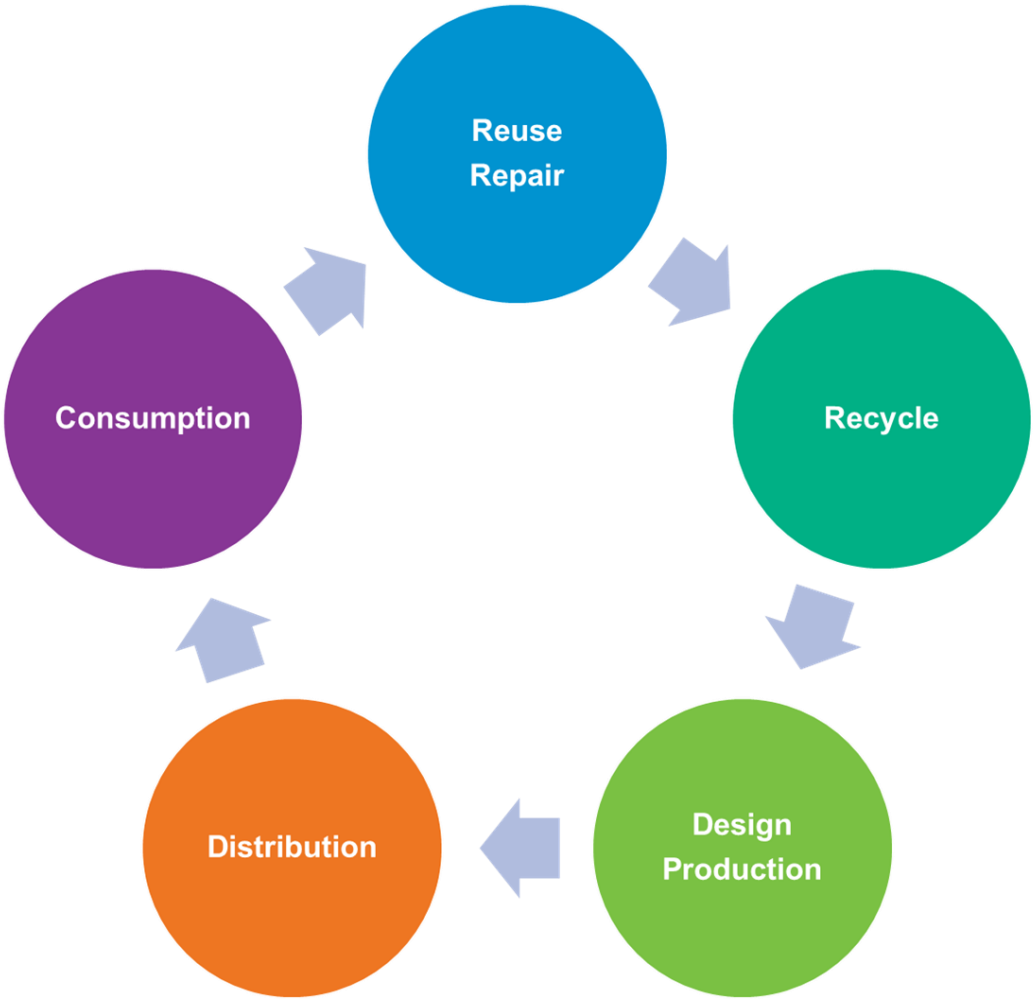
Special waste managed by the private sector includes regulated medical waste; automotive waste, such as car batteries and used motor oil; and used cooking oil. These materials are collected by private carters and processed at material-specific facilities such as vehicle dismantling facilities, oil processors, and medical waste processing facilities. In some cases, extended producer responsibility applies and requires companies to ensure the safe disposal of their products. For instance, the New York State Electronic Equipment Recycling and Reuse Act requires electronic manufacturers to provide free and convenient electronics recycling for individuals and small businesses.

Commercial and industrial businesses are required to dispose of hazardous waste according to federal, state, and local regulations.[110] The Business Integrity Commission (BIC) and DEC oversee special waste generated by commercial and industrial businesses and managed by private haulers.

5. Waste Management Methods

Waste generation at its current scale is the result of a linear economy, where resources are extracted and commodified, products are consumed, and the leftover materials are disposed. Put simply, the life cycle of our resources can be described as “Take, Make, and Dispose.” The resulting amount of waste presents threats to the environment and to public health. Alternatively, a circular or “closed loop” economy reduces the production of waste through waste prevention and resource recovery. A shift towards a circular economy requires reducing the amount of waste generated and diverting materials from the waste stream through reuse and recycling. **Figure 2-5** illustrates how resource use and recovery may look in a circular economy.

Figure 2-5. Circular Economy Systems Diagram



Waste management is influenced by policy and economic factors. From a local to federal level, regulations around waste management influence where and how waste is handled. Key factors to consider as part of waste management planning include population and expected growth, waste generation rates, waste characterization, economic conditions and funding, and system capacity - for disposal, reuse, and recycling.

The material composition of waste is the key factor in determining how waste can be managed. There are multiple ways of managing waste, including recycling, thermal treatment, and landfill disposal. Waste that is not disposed of in a landfill or incinerator is considered diverted waste. Waste diversion through reuse, composting, and recycling minimizes environmental impact by reducing burdens on landfills and incinerators, thereby mitigating greenhouse gas (GHG) emissions. Further, diversion can help to reduce the costs of waste management.[111] Each of these waste management methods can be material specific. For instance, glass is melted or crushed through the recycling process, while paper is shredded and turned into pulp to form new paper or cardboard products.

Waste Reduction

Waste reduction is the process of minimizing generated waste and the need to manufacture new products by increasing the reuse of existing items or eliminating their use. Waste reduction practices may include the rental or repair of products (such as electronics) and lightweighting (use of less material in packaging). It may also include the shift from paper to digital documents, for example.

Reuse

Reuse is the repeated use of an item or product for its original purpose. Reuse extends the life of a product and can include the resale of an item. Thrift stores, exchanges of goods, and creative processes to reincorporate material allow for reuse.[112]

Recycling

Recycling is the process of collecting and processing materials that would otherwise be disposed of and converting them into new materials. Recycling is beneficial because it reduces the quantity of newly mined natural resources and reduces energy consumption in the processing of those materials.[113]

The term “recyclable material” means material that may be separated, collected, processed, marketed and returned to the economy in the form of raw materials or products, including but not limited to, ferrous or non-ferrous metal, glass, paper, cardboard, rigid plastic, food waste, tires and yard waste.[114]

Disposal

Disposal of material is the least preferred method of waste management because it increases costs and contributes to environmental degradation.[115]

Material that is disposed of is sent to landfill or incinerated. Many incineration facilities generate electricity from waste. With incineration, the metals that are disposed of can be recovered, as they are not combusted. Other technologies that apply heat to waste materials with the goal of reducing volume and recovering energy, such as pyrolysis and gasification, are still being developed and refined. These are referred to as advanced thermal treatment (ATT) technologies. Incineration and advanced thermal treatment are described in **Attachment H: Review of Advanced Thermal Treatment Technologies**.

Both incinerators and landfills create air pollution and generate emissions that contribute to climate change. Landfills may also result in water pollution through leaching.[116]

6. Waste Generation and Recovery

There is a significant overlap between industrial waste and commercial waste. For this reason, commercial waste relating to industrial activity is categorized as Commercial Industrial and Special Waste. This subcategory includes C&D waste, scrap metal, and regulated medical waste streams.

Publicly Managed Waste

DSNY Managed Municipal Solid Waste

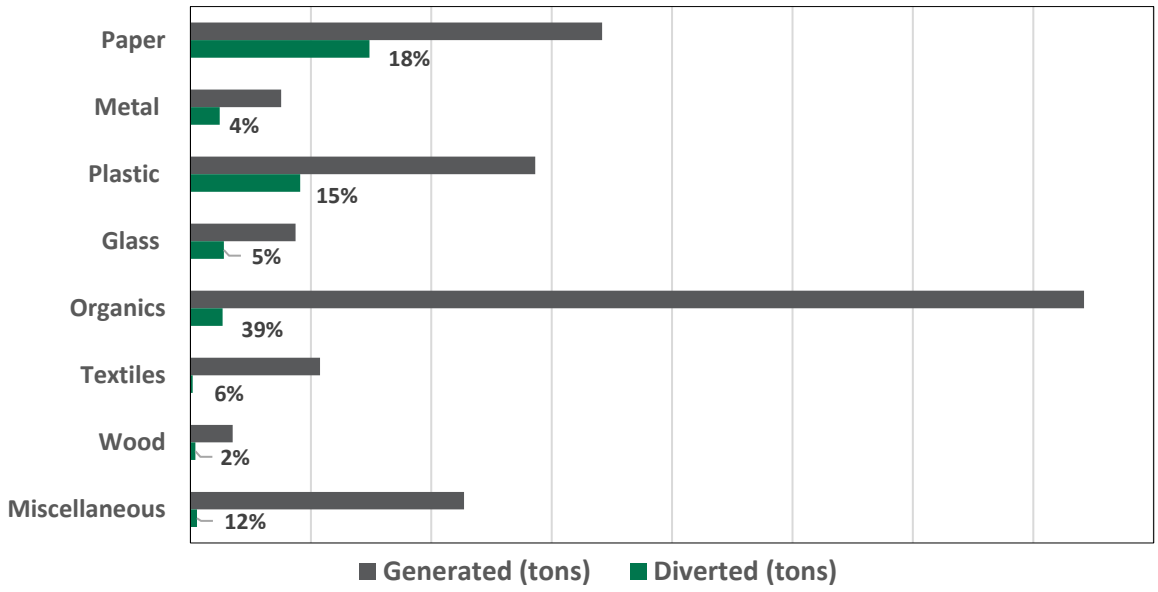
In 2023, DSNY managed 3.8 million tons of residential MSW. Of that, 3.2 million tons were disposed, and nearly 0.7 million tons were diverted, for a 17% diversion rate. The quantity of DSNY waste collected and diverted in 2023 is depicted in **0** and **Figure 2-6** under the broad categories of paper, metal, plastic, glass, wood, textiles, organics, and miscellaneous waste. Miscellaneous waste includes ecycleNYC electronics collections, electronics recycling, harmful products, tires, and rechargeable battery recycling. Diversion rates differ for different materials. Paper has the highest diversion rate, followed by metals, glass, and plastics (MGP).

Table 2-1. DSNY Managed Residential MSW

Waste Type	2023 Generated (Tons)	2023 Diverted (Tons)
Paper	683,859	297,443
MGP	898,238	286,375
Organics	1,484,231	53,393
Wood	70,139	8,136
Textiles	215,221	3,624
Miscellaneous	454,539	10,771
Total	**3,806,227**	**659,742**

Source: DSNY MGP and Paper Summary Report (2023–2024); DSNY Organics Tracking Data (2016–2023); 2023 Waste Characterization Study; LL40 Municipal Refuse and Recycling Report (2023)
Note: MGP – metal, glass, and plastic

Figure 2-6. DSNY-Collected Recyclables Generation and Diversion by Material Type 2023



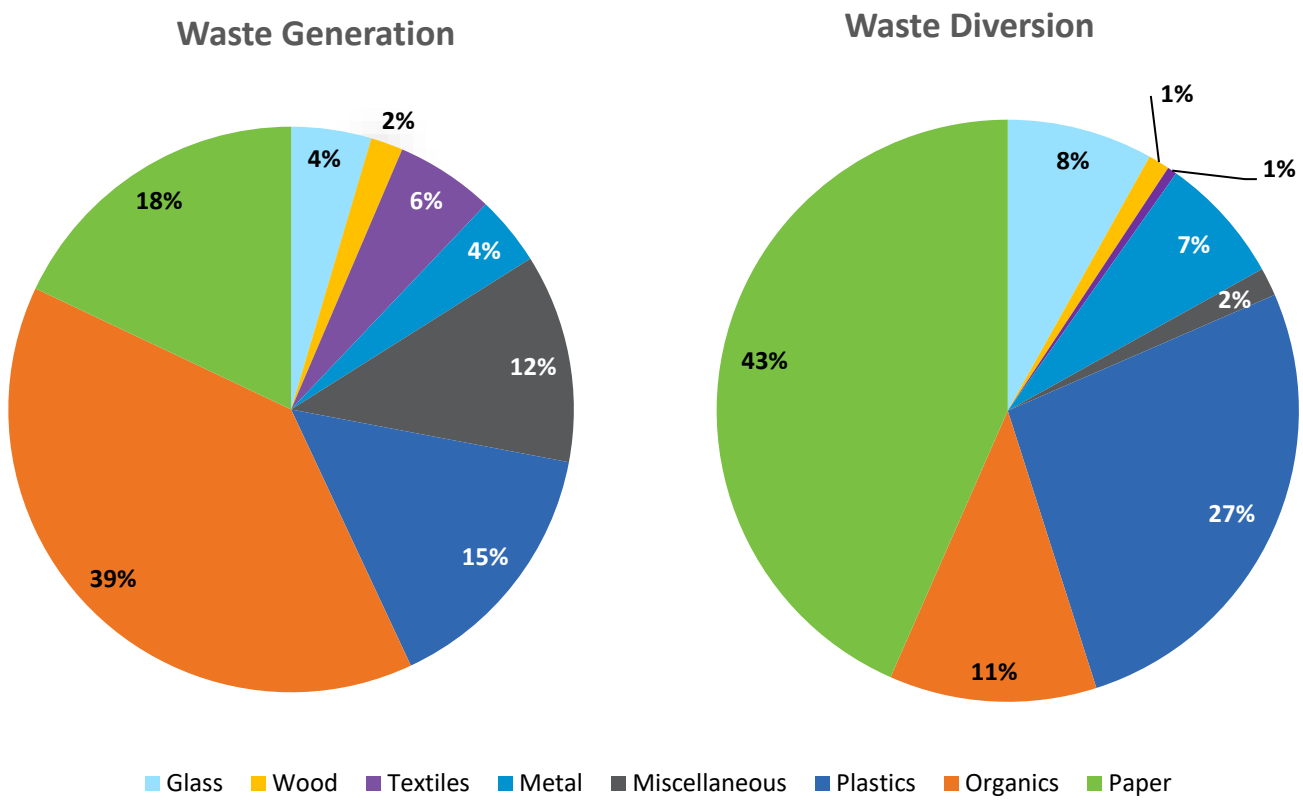
***Source:** DSNY MGP and Paper Summary Report (2023 – 2024); DSNY Organics Tracking Data (2016 – 2023); 2023 Waste Characterization Study; LL40 Municipal Refuse and Recycling Report (2023)*

Waste that is not separated for recycling and composting is collected by DSNY and managed at landfills or incinerators outside of New York City, as there are no active landfills or incinerators in the city.

DSNY Managed Recycling

Waste can be diverted from landfills and incinerators through recycling. The proportion of MSW diversion and generation by material type in 2023 is depicted in **Figure 2-7.** Metals, glass, and plastic accounted for 24% of waste generated by the residential and institutional sector. Paper made up 17% of generated residential and institutional waste. Plastics comprised the highest tonnage of MGP generated. Nearly twice as much plastic waste was generated in 2023 compared to metal or glass. Likewise, nearly two times more plastic waste was diverted that year than metal or glass.

Figure 2-7. DSNY Collected MSW, Generation and Diversion by Material Type, 2023



Source: *DSNY MGP and Paper Summary Report (2023 – 2024); DSNY Organics Tracking Data (2016 – 2023); 2023 Waste; Characterization Study; LL40 Municipal Refuse and Recycling Report (2023)*

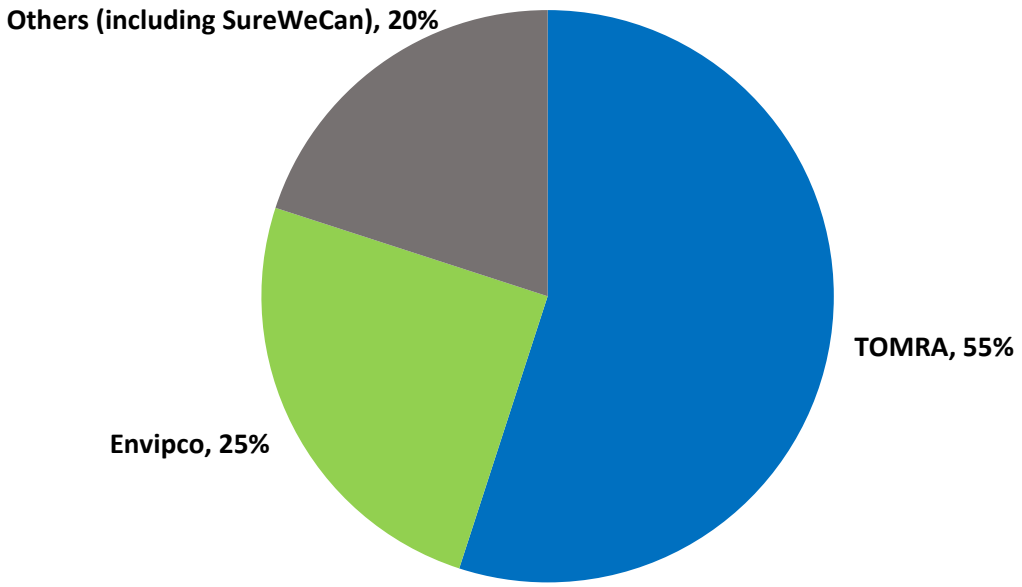
In addition to curbside collection of recyclables that DSNY offers, private bottle redemption centers such as TOMRA, Envipco, SureWeCan and other companies provide an option for discarding metal, glass, and plastic beverage containers with a deposit for recycling, in line with New York State's Returnable Container Act, or Bottle Bill. This legislation was intended to boost the recycling of plastic, glass, and aluminum containers that hold less than one gallon, with some exceptions, by implementing a 5-cent deposit on each qualifying beverage container purchased.[117]

In 2019, redeemed bottles and cans accounted for 72,228 tons of diverted MSW in New York City. In 2022, according to DEC, bottle redemption centers in New York City reported 69,470 tons of collected bottles. Most of these were redeemed through two companies, TOMRA and Envipco.[118] **Table 2-2** and **Figure 2-8** indicate the percentage of the total 2022 redemptions by redemption center.

Table 2-2. 2022 Reported Private Bottle Redemption Centers Breakdown

Redemption Center	Percentage of Reported Redemptions Collected
TOMRA	55%
Envipco	25%
Others (including SureWeCan)	20%
Source: DSNY	

Figure 2-8. 2022 Percentage of Redemptions Collected by Private Bottle Redemption Centers



Source: DSNY

DSNY Managed Organics

In accordance with Local Law 85 of 2023, DSNY implemented a citywide curbside organics program for all residential properties in the Fall 2024. Organics suitable for composting account for 36% of DSNY's residential curbside and containerized refuse pickups, according to the 2023 New York City Waste Characterization Study.[6] In 2023, around 37,600 tons of separated organics were collected by DSNY, and 73% of that amount was recovered for beneficial use.[119] DSNY managed over 30,000 tons of organics at the Staten Island Compost Facility and Soundview Park. Organics that are separated for residential curbside and containerized pickup comprised 1% of the DSNY managed waste stream in 2023. DSNY expects this to increase in 2025 and 2026 as more people participate in the citywide curbside organics program. **Attachment E: Organic Waste Generation and Management in New York City** provides additional information on organics management.

Street Sweepings and Litter Baskets

DSNY reports on the quantity of waste collected from street sweepings on an annual basis, reporting 61,000 tons collected in fiscal year (FY) 2023.[75] In FY23, DSNY collected over 75,000 tons of waste from street baskets, which is included in residential waste tonnage.

Biosolids

New York City generated over 474,281 wet tons of biosolids in 2024. Tunnel Hill Landfill in Ohio, Natural Soil Products Compost Facility in Pennsylvania, and Passaic Valley Sewerage Commission (PVSC) in New Jersey received the largest amounts of biosolids from New York City. **Table 2-3** shows the amount of biosolids sent to these facilities in 2024.[93] While management at other facilities includes composting, alkaline stabilization, and drying, PVSC currently uses biosolids for alternative daily cover at landfills, which is not considered a beneficial use.

Table 2-3. Biosolids Disposed by Site in 2024

Disposition Site	Biosolids Disposed (Wet Tons)
Tunnel Hill Landfill	99,300
Natural Soil Products Compost Facility	99,406
Passaic Valley Sewerage Commission*	52,760
Other Sites	222,815
Total	**474,281**

Source: DEP, Wastewater Resource Recovery Facility Data
Note: * indicates wet ton equivalent.

Special Waste

Over 2,600 tons of household hazardous waste, electronics, batteries, and medical waste were collected and sent for recycling and responsible disposal in 2023. These materials were collected at SAFE disposal events, special waste drop off sites, and through agency safe handling contracts and the ecycleNYC program. Much of the e-waste managed by DSNY is brought directly to contracted electronics recycling facilities.

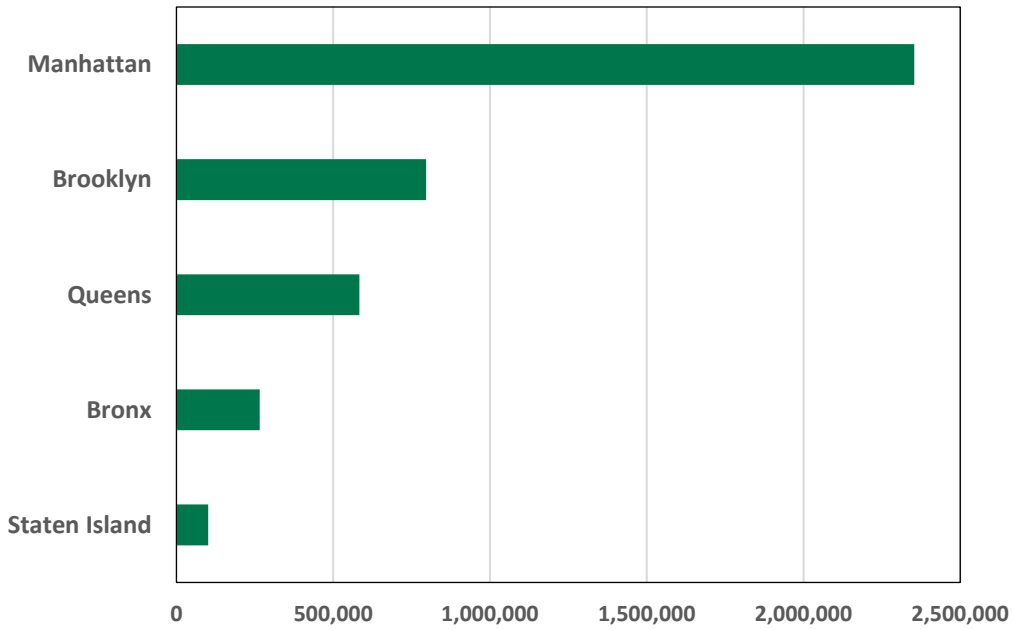
Bulk, Scrap, and Recovered Metal

In FY 2023, DSNY managed 9,680 tons of scrap metal from bulk metal collections and oil drums. This amount also includes metal recovered from Reworld Essex.[75]

Commercial Waste

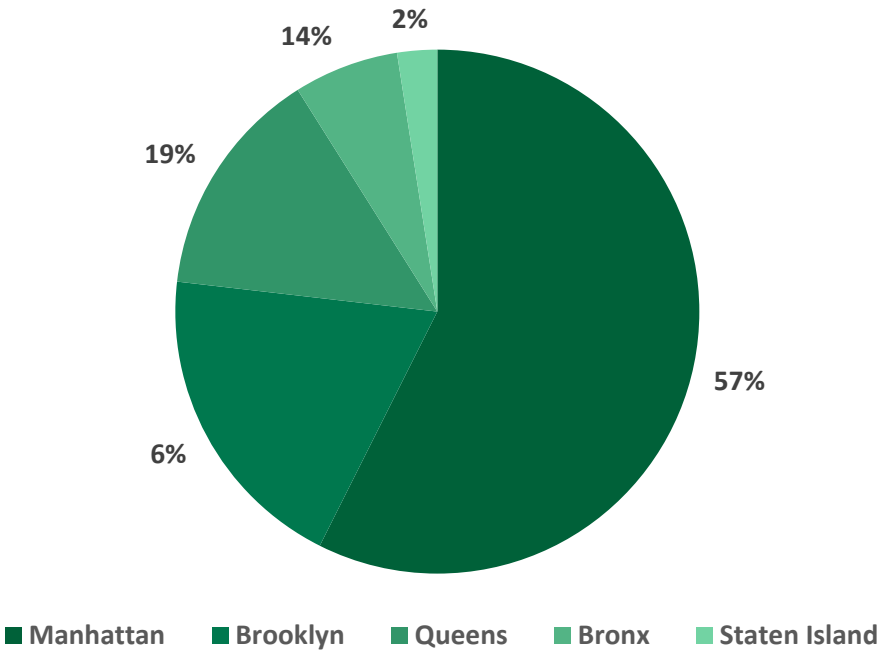
New York City generated an estimated 4 million tons of commercial waste in 2020. Of around 2 million tons of commercial waste is managed at transfer stations in the city each year. More than half— 57%—is generated in Manhattan. **Figure 2-9** and **Figure 2-10** depict the quantity and percent of waste generated by borough in 2020.[95]

Figure 2-9. Annual Amount of Commercially Generated Waste (Tons) by Borough, 2020



Source: *DSNY Commercial Waste Study 2020*

Figure 2-10. Commercial Waste Generation by Borough 2020



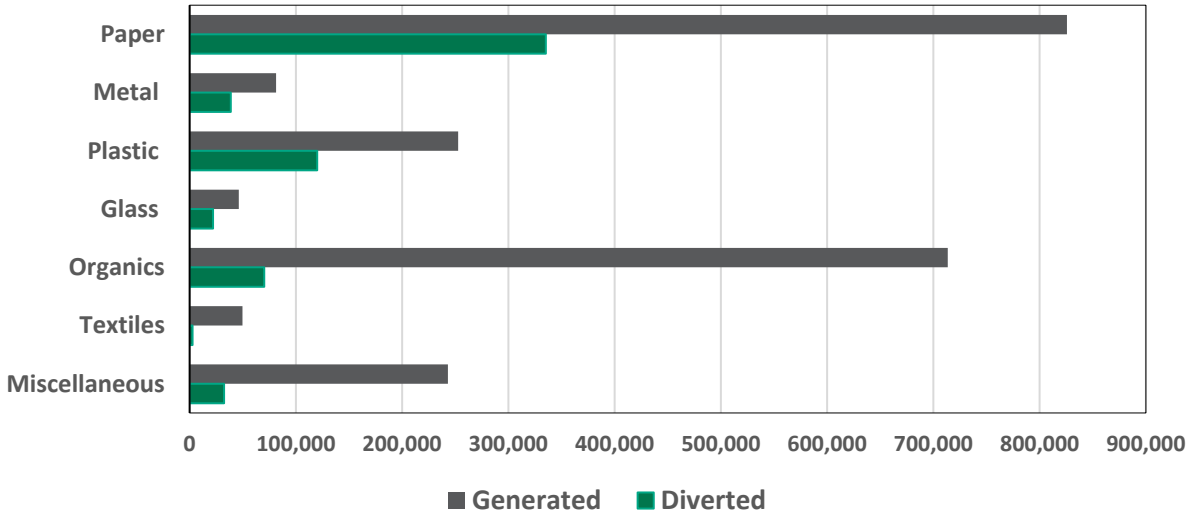
Source: *DSNY Commercial Waste Study 2020*

A DSNY commercial waste study conducted in 2020 collected and extrapolated sample data to develop city-wide estimates based on the number of employees in various commercial sectors. New York City commercial business waste generation profiles were created for the following commercial sectors:

- Arts, Entertainment, and Recreation
- Hotels and Lodging
- Medical and Health
- Retail Trade – All Other
- Services – Management, Administrative, Support, and Social
- Services – Professional, Technical, and Financial
- Services – Repair and Personal
- Retail Trade – Food and Beverage Stores
- Restaurants[16]

Among the commercial sectors, Restaurants produce the greatest quantity of waste, followed by Services - Professional, Technical and Financial. On a per-employee basis, the Retail trade and Restaurants sectors had the highest per-employee waste generation rate.[16] Refuse accounts for approximately 71% of the commercial waste stream, while diverted material accounts for approximately 27%, and separated organic waste accounts for approximately 2%, as depicted in **Figure 2-11 and 2-12,** and **Table 2-4**.[95]

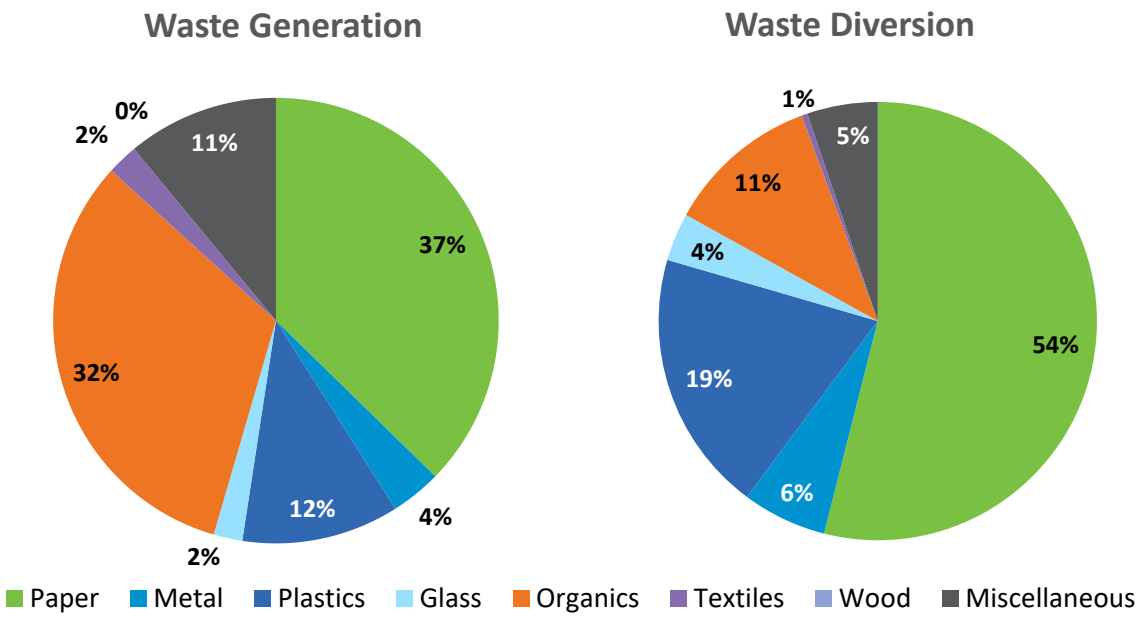
Figure 2-11. 2023 Commercial Recyclables Waste Generation and Diversion by Material Type



Sources: *Putrescible Private Transfer Station Quarterly Reports, Recycling Processor Quarterly Reports, Commercial Organics Transfer Station Reports*

Note: Where 2023 tonnage is not available, 2022 tonnage was applied. See **Table 2-4** for additional details.

Figure 2-12. 2023 Commercial Recyclables Generation and Diversion by Material Type



Sources: *Putrescible Private Transfer Station Quarterly Reports, Recycling Processor Quarterly Reports, Commercial Organics Transfer Station Reports*

Table 2-4. Commercial Waste Generated and Diverted

Material	2023 Generated (Tons)	2023 Diverted (Tons)
Paper*	825,762	335,311
Metal, Glass, Plastic*	380,355	180,852
Organics	713,581	70,369
Textiles*	49,785	2,734
Miscellaneous	243,171	32,388
Total	2,212,654	621,552

Notes:
*Indicates tonnage in 2022 where 2023 tonnage is not available.
Sources: Putrescible Private Transfer Station Quarterly Reports, Recycling Processor Quarterly Reports, Commercial Organics Transfer Station Reports

Imported Recyclables

Due to limitations and logistical complexities associated with importing waste into New York City, facilities within the city typically only handle New York City waste. However, limited waste imports from nearby communities outside of New York City do occur. Many of the facilities that accept waste generated outside of the city are located near the city limits and handle waste from nearby communities. All facilities that were identified as handling imported waste are recycling facilities. However, not all waste entering the city is recorded, and therefore, there may be additional waste generated outside of New York City and managed within the city that is not included in **Table 2-5**.

Table 2-5. Waste Material Imported from Outside of NYC and Managed in NYC, 2019

Recycling Facility	County	Input from Outside of NYC (Tons per Year)
SIMS Brooklyn	Brooklyn	4,798
Commercial Recycling Technology LLC	Queens	2,013
GPB Waste NY LLC – NY NJ Recycling	Queens	11,551
Pratt Industries	Staten Island	166,858
Total		**185,220**

Source: Quarterly Recycling Processor Reports to DSNY.

Construction and Demolition (C&D) Waste

In 2023, around 5.2 million tons of construction and demolition material were handled at non-putrescible and fill transfer stations in New York City, based on private transfer station reports to DSNY. The quantity of C&D and fill material received at New York City's Non-Putrescible and Fill Transfer Stations is shown in **Table 2-6.**

Table 2-6. 2023 Fill and C&D Debris Accepted at NYC Transfer Stations

C&D Material	Quantity (Tons)
Fill Material	3,153,334
C&D Debris	2,096,210
Total	**5,249,544**

Source: Non-Putrescible Private Transfer Station Quarterly Reports; Fill Transfer Station Quarterly Reports

In addition, C&D material is managed by City agencies. Asphalt millings generated from the repaving and repair of roadways can be used to make Reclaimed Asphalt Pavement (RAP). NYCDOT recycles asphalt milled from City streets at the Hamilton and Harper Asphalt Plants. The resulting RAP is available free of charge to private industry and community developments via the Asphalt Millings Bank. In Fiscal Year 2022, NYCDOT processed more than 750,000 tons of pavement material using over 292,000 tons of recycled asphalt pavement. In Fiscal Year 2023, NYCDOT recycled over 261,000 tons of asphalt pavement and recovered 26,500 tons of material as recycled concrete aggregate.[120] **Table 2-7** shows the amount of RAP produced at each NYCDOT facility.

Table 2-7. NYCDOT Recycled Asphalt (Tons Per Year)

NYCDOT Plant	2016	2017	2018	2019	2020	2021	2022	2023	2024
Hamiton	220,801	246,510	205,637	181,423	156,364	158,401	188,998	158,780	166,969
Harper	93,391	91,727	100,831	119,426	81,865	90,067	103,079	102,283	89,424
Total	**314,192**	**338,237**	**306,468**	**300,849**	**238,229**	**248,468**	**292,077**	**261,063**	**256,393**

Source: NYCDOT Data Request
Note: Data is reported by fiscal year.

Recycled concrete aggregate (RCA) from crushing and screening of concrete debris can be used to make concrete. NYCDOT oversees concrete recycling from city sidewalks and other concrete infrastructure, processing the material into RCA. The material is available free of charge to private industry and community developments via the RCA Bank. The on-going RCA program supports inter-agency reuse and recycling with the aim of improving recycled product for use locally. In addition, pilot projects for use of ground glass pozzolan as a cement replacement in concrete are under way, specifically for coastal resilience. Ground glass pozzolan, made from recycled post-consumer glass, can replace up to 50% of cement in concrete.[121] **Table 2-8** shows the quantity of concrete recycled by NYCDOT in fiscal years 2021-2024.

Table 2-8. NYCDOT Recycled Concrete Aggregate (Tons Per Year)

2021	2022	2023	2024
19,437	16,262	26,503	27,605

Source: NYCDOT
Note: Data is reported by fiscal year.

The New York City Clean Soil Bank (CSB) recovers clean soil from deep excavations at construction sites for use on sites in the city that require soil. When project-to-project transfer is not viable, soil can be redirected to the City's Forbell Street CSB stockpile in Brooklyn (which opened in 2020). CSB soils are directed to New York City construction sites, both public and private, and to community and school gardens. The soil has a Beneficial Use Determination (BUD) that can be granted by the City (MOER) under authority by DEC and is therefore suitable for beneficial use and exempt from New York State solid waste facility regulation (6 NYCRR Part 360). The Forbell Stockpile has capacity for 18,000 cubic yards of clean soil.[122] The City has not yet identified a site for the soil bank stockpile after the current lease ends in 2031. **Table 2-9** shows the amount of soil exchanged and stockpiled through the existing program.

Table 2-9. Clean Soil Bank (Tons Per Year)

	2016	2017	2018	2019	2020	2021	2022	2023
Direct soil exchange	178,691	72,825	55,148	30,668	47,025	3,045	76,224	12,900
Soil to Forbell Stockpile	-	-	-	-	17,340	16,892	53,876	29,064
Source: Data provided by MOER								

Bulk, Scrap, and Recovered Metal

In 2023, around 500,000 tons of metal were brought to privately-owned scrap metal processing facilities within New York City. This included around 17,000 tons of aluminum and 34,000 tons of non-ferrous metal.

Regulated Medical Waste

Regulated medical waste (RMW) is defined as "waste which is generated in the diagnosis, treatment, or immunization of human beings or animals, in research pertaining thereto, or in production and testing of biologicals."[123]

Medical waste generators fall into several categories as defined below:

- Hospitals: Facility or institution engaged principally in providing service by or under supervision of a licensed healthcare provider for the prevention, diagnosis or treatment of human disease, pain, injury, deformity or physical condition.
- Ambulatory/Outpatient Facilities: Medical waste generator that provides medical procedures outside a hospital setting.
- Assisted Living Centers: More commonly known as nursing homes or rehabilitation centers.
- Blood Centers or Clinics: Sites that collect and handle donated blood.
- Community Health Centers: Federally funded institutions providing multi-faceted health and wellness services.
- Educational Institutes: Organizations with the primary function of providing education, in the context of MWGs these are often medical schools or research institutions.
- Laboratories: Diagnostic facilities that collected biological samples, such as blood.
- Research Facilities: Centers that generate medical waste by conducting healthcare studies.
- Veterinary Clinics: Health care centers specifically for animals.
- Other: Medical waste generator not covered in the above definitions.

Medical waste generators produce medical waste that requires special handling. However, not all waste generated by these institutions is considered special waste and the waste that does not require special handling is classified and managed as Commercial Business Waste.[124]

New York City has 591 medical waste generating facilities throughout the five boroughs that produce 50 or more pounds of RMW in a 30-day period. Of those, 100 are in the Bronx, 147 in Brooklyn, 177 in Manhattan, 114 in Queens, and 53 on Staten Island, making Manhattan the borough that contains the most RMW-generating facilities.[125] In 2023, over 9,000 tons of medical waste were collected for treatment and disposal by regulated medical waste handling facilities in New York City.[126]

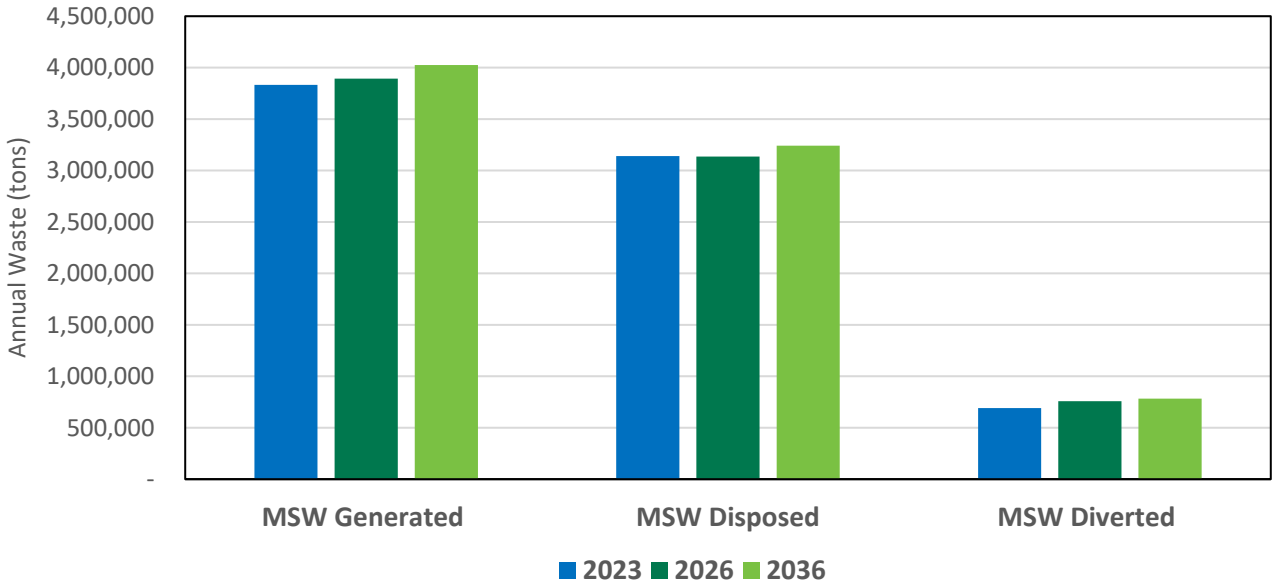
7. Baseline (Business-as-Usual) Projections

Waste generation and recovery projections are estimated based on the methods described in **Chapter 7: Waste Stream Projections**. Under a "business as usual" scenario (without the implementation of waste reduction and diversion programs), waste is expected to increase in the 10-year planning period (2026-2036) as the population of New York City is projected to grow and exceed 9 million people.

In 2023, DSNY collected 3.8 million tons of residential MSW, disposing of 3.1 million tons and diverting around 0.7 million tons. Projected waste generation for 2026 and 2036, respectively, is expected to be 3.9 and 4.0 million tons, disposing a projected 3.1 and 3.2 million tons while diverting close to 0.8 million tons for both 2026 and 2036.

The amount of recycling and organics collected is also expected to increase over this period. **Figure 2-13** provides an overview of the projected quantities of DSNY collected MSW under a business-as-usual scenario. The amount generated includes material separated for organics and material separated for recycling. The projections are based on 2023 (baseline) actual amounts.

Figure 2-13. Residential and Institutional Municipal Solid Waste
Business-as-Usual Projections



Commercial waste is projected separately from DSNY-collected waste. Similar to DSNY-collected waste, commercial waste is projected using 2023 data as the baseline (with the exception MGP and paper, which are based on 2022 quantities). Businesses generated 2.2 million tons of commercial waste in 2023, with 0.6 million tons diverted. These numbers are expected to rise in 2026 and 2036, respectively, to 2.26 and 2.33 million tons generated, and 0.63 and 0.65 million tons diverted. Commercial waste projections are depicted in **Figure 2-14**.

Figure 2-14. Commercial Waste
Business as Usual Projections

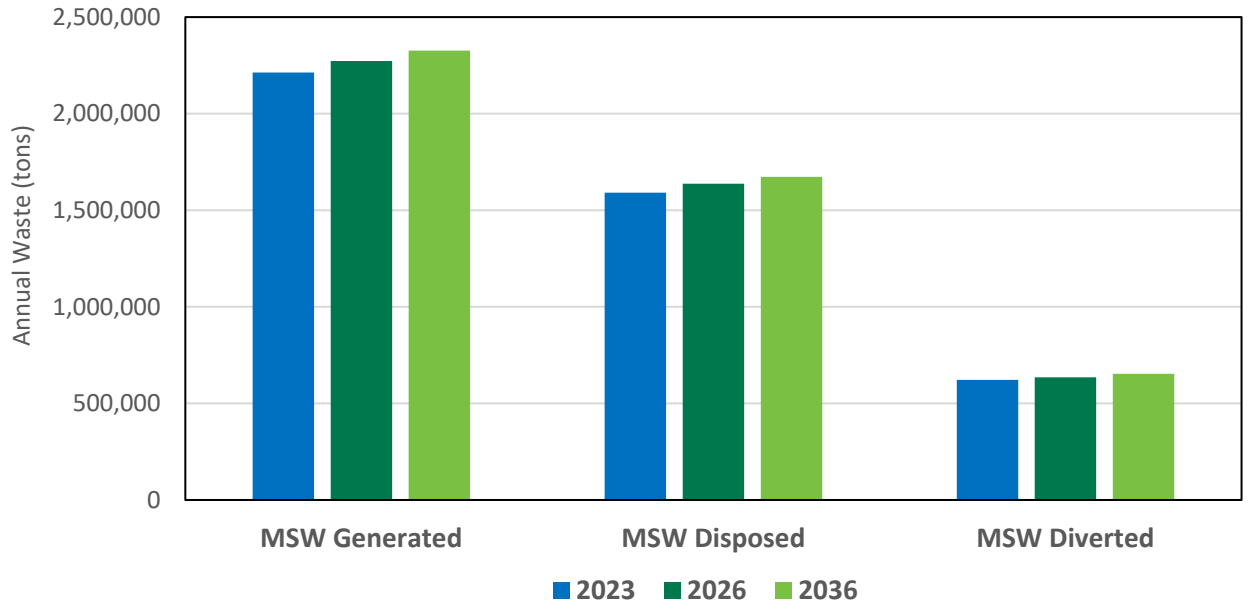


Figure 2-10 compares the recorded and projected generation, disposal, and diversion quantities for 2023, 2026, and 2036 for DSNY-managed and commercial projections.

Table 2-10, DSNY-Managed and Commercial Business-as-Usual Projections

Scenario		2026	2030	2036
DSNY-Managed	**MSW Generated**	3,867,370	3,945,574	3,997,699
	MSW Diverted	757,886	773,211	783,426
	% Diverted	19.6%	19.6%	19.6%
Commercial	**MSW Generated**	2,260,319	2,293,659	2,326,153
	MSW Diverted	634,942	644,308	653,436
	% Diverted	28.1 %	28.1%	28.1%

In addition to DSNY-collected and commercial waste, DEP projected the amount of biosolids produced in New York City. In 2024, 474,281 wet tons of biosolids waste were generated. In 2036, DEP projects 588,511 wet tons of biosolids.

In 2023, New York City generated nearly 5.3 million tons of C&D material (including fill), and 0.5 million tons of metal collected as scrap. C&D and scrap metal generation do not correlate with population. For planning purposes, DSNY is assuming the generation of C&D debris and fill would remain similar to the average generation between 2019 through 2023 (approximately 5.6 million tons).

8. Special Considerations

Waste generation and diversion in New York City are affected by the economy, consumer products, the waste management system, waste management system technologies, natural disasters and other factors.

- The demand for goods can impact waste generated from the types of materials to the types of goods. Historically, this has been seen in the textile sector, which has moved towards polyester derived materials in recent decades, thus changing the disposal options of this waste stream. More recently, during the COVID-19 pandemic, changes in consumption resulted in increased packaging from delivered goods and PPE entering the waste stream. Thus, changes in behavior driven by technology, natural disasters, and current events can lead to changes.
- The implementation of commercial waste zones has the potential to increase the recovery of waste managed by streamlining the sorting and processing of materials. This has the potential to lead to upgrades and increased efficiency in the waste management infrastructure.
- New technologies are increasingly integrated into different sectors. AI is already used in some waste management and recycling facilities to sort material. The continued growth of this and other technological innovations, waste management may rapidly change in the course of the planning period.

Alterations in policy can also result in significant changes to waste generation and recovery. Waste recovery has improved for specific waste streams due to the implementation of policies such as extended producer responsibility (EPR), which requires manufacturers to accept their end-of-life products for recycling.

9. Summary of Data Gaps

There are data gaps within the residential, commercial, and C&D sectors. DSNY will continue to work on improving data collection and reporting in residential waste stream data includes bottle redemption programs, which are reported on a voluntary basis. Therefore, bottle redemption data does not represent all New York City redemptions.[32] Furthermore, proposed amendments to the Bottle Bill have the potential to increase the portion of beverage containers recovered.

Data on the material composition of commercial waste, and the various types of waste collected, is less detailed and comprehensive than available data on publicly managed material. Available commercial refuse and recycling tonnage information is limited because commercial waste is handled by private carters, who were not required to report the quantity of the material they collected prior to the implementation of Commercial Waste Zones. Some private waste haulers transport material outside of New York City, and data required to accurately quantify the tonnage that is hauled directly out of New York City is not reported. Data related to the amount of wood waste that is generated and diverted was also not available for commercial waste. Likewise, due to the private handling of C&D data, information on C&D diversion rates was limited, as some waste may be inconsistently reported as either recycled or disposed. Other system-level data gaps include a lack of data on recycling facility throughput capacity as well as information on urban agricultural facilities' on-site waste handling. Information relating to the amount of waste entering New York City from outside municipalities was also limited, since private waste management companies often do not report this information.

Some information, including regulated medical waste, used cooking oil, vehicle dismantling facility data, and scrap metal processor data, was obtained from annual reports to DEC. These reports are often handwritten and must be manually transcribed. Digitized data collection would improve standardization and facilitate compilation and analysis.

There are few remaining manufacturing facilities in New York City and data on associated industrial waste generated is not readily available.

10. Key Takeaways

Assessing and projecting the types, quantities, and generators of waste will enable DSNY to determine necessary processing and handling resources, target waste streams for waste reduction and diversion, and improve the efficiency of New York City's waste management.

Although the City's data indicates that the amount of MSW is decreasing despite population growth, DEC's projection tool predicts an increase under the "business as usual scenario" (without efforts to reduce waste), in part due to the anticipated population growth. Diversion of waste materials is also expected to increase proportionally. Higher quality data will also result in improvements to future projection and planning efforts.

Chapter 3: Existing Solid Waste Management System

This chapter describes the current waste management system, including collection, transportation, and management of municipal solid waste (MSW) generated in New York City. Specifically, this chapter focuses on exiting modes of transportation used to collect and move waste within the city and beyond, the types of facilities that are used to manage refuse and recycling, along with details on facility geographic distribution, capacity of facilities, and waste management programs. Waste management in New York City requires cooperation between residents and businesses, waste carters and management facilities, New York City Department of Sanitation (DSNY), other City agencies, and private waste management companies. Understanding the intricate and multifaceted processes, partners, and facilities that support the City's waste management practices is a key component to planning. In addition, regulations guide many aspects of waste management systems.

Combined residential, commercial, and industrial activities in New York City resulted in over 13 million tons of waste in 2022, including refuse, recyclable material, construction and demolition debris (C&D), fill, source-separated organics, special waste, and biosolids. DSNY managed approximately four million tons of MSW in calendar year 2022, including refuse, materials separated for recycling, and source-separated organics. DSNY exported an estimated 10,670 tons of refuse daily.[19] That year, the private sector managed approximately 5.3 million tons of C&D and fill, nearly 1.6 million tons of refuse, 600,000 tons of scrap metal, 500,000 tons of recycling, and 100,000 tons of organics (including fats, oils, and grease).

1. Historical Background[127]

New York City's geography, in part, can be explained by early waste management. Through the mid-1800s, waste was disposed of in water bodies, including ponds, canals, bays, and wetlands. This infilling impacted navigation, marine life, and public health. Informal recycling supported a variety of industries, including soap- and candle-making, as well as fertilizers early in the city's history. Through the late 1800s, compost produced in vacant lots was applied to kitchen gardens and farms. Manufacturing plants converted organic waste into fertilizer between the mid-18th and early 19th centuries.

Piles of waste lined the city's streets until the formation of the Department of Street Cleaning in 1881, when the fledgling department began disposing of waste in the Atlantic Ocean. Early waste management infrastructure to support disposal of refuse included carts to collect and transport waste to enclosed piers and barges. These later became known as marine transfer stations. Beginning in 1894, a series of changes in municipal solid waste management took place, including the development of the first incinerator in the U.S. on Governors Island, a preliminary recycling program, and a ban on ocean dumping. However, a return to disposal of waste in the ocean coincided with the start of World War I.

In 1934, the Department of Sanitation was formed. New York City municipally collected waste was disposed within the city or in the ocean during the department's first six decades. Disposal of refuse by this point had expanded from ocean dumping to include incineration, landfilling, and sewage treatment. Treated sewage sludge was disposed in the ocean until 1992. Landfilling continued to change the City's landscape in the 1930s and 1940s when public projects, including parks and highways, relied on municipal solid waste infill. Between 1918 and 1938, the Department of Sanitation built 14 incinerators and 46 landfills. Early incinerators were built to produce significant quantities of electricity. However, an early failure to sell energy generated prevented these facilities from productively using the energy created until the 1970s when the Public Utilities Regulatory Policy Act required utilities to purchase energy

produced by alternative energy sources. Through the 1980s, thousands of small-scale apartment-house incinerators contributed to local waste management. A series of laws and regulations resulted in the closure of incinerators and landfills within the city beginning in the 1970s. Municipal solid waste was incinerated through the early 1990s and in landfills through 2001. Fresh Kills Landfill was the City's largest landfill, and the last in-city waste disposal site to close.

Commercially generated waste was disposed of at Fresh Kills Landfill or exported to Long Island and New Jersey in the 1930s. Increases in tipping fees in the 1980s at Fresh Kills Landfill resulted in the development of more transfer stations to support the export of waste out-of-state. The *2006 SWMP* proposed the conversion of disused Marine Transfer Stations (MTSs) to active use. DSNY developed four MTSs that receive waste delivered by trucks, containerize the waste, and export the containers via barge to terminals with rail access. Reactivation of the MTSs improved the efficiency of waste transportation. A fifth MTS, 59th Street Marine Transfer Station, uses barges to transport paper from Manhattan to Staten Island for recycling. Much of DSNY-managed waste is exported for disposal to facilities upstate and out of state and the MTSs facilitate long-range transport by rail, which is more energy efficient and reduces traffic congestion on roadways, improving air quality.

In addition to improving refuse management, there have also been efforts to improve the diversion of waste from disposal at landfills through recycling. In the mid-1980s, DSNY initiated a voluntary residential recycling program for metal, glass, plastic, and paper. In 1989, the City passed Local Law 19, mandating residential and commercial recycling in all five boroughs. By 1993, DSNY began funding compost outreach and education programming, an on-going effort to support organics recycling in the city. Citywide organics collection for residents and schools rolled out in 2024.[128] There have also been a series of local laws aimed at the commercial sector mandating organics, textiles, and electronic waste recycling, the implementation of commercial waste zones, and state-mandated extended producer responsibility (EPR) laws.

1. Overview

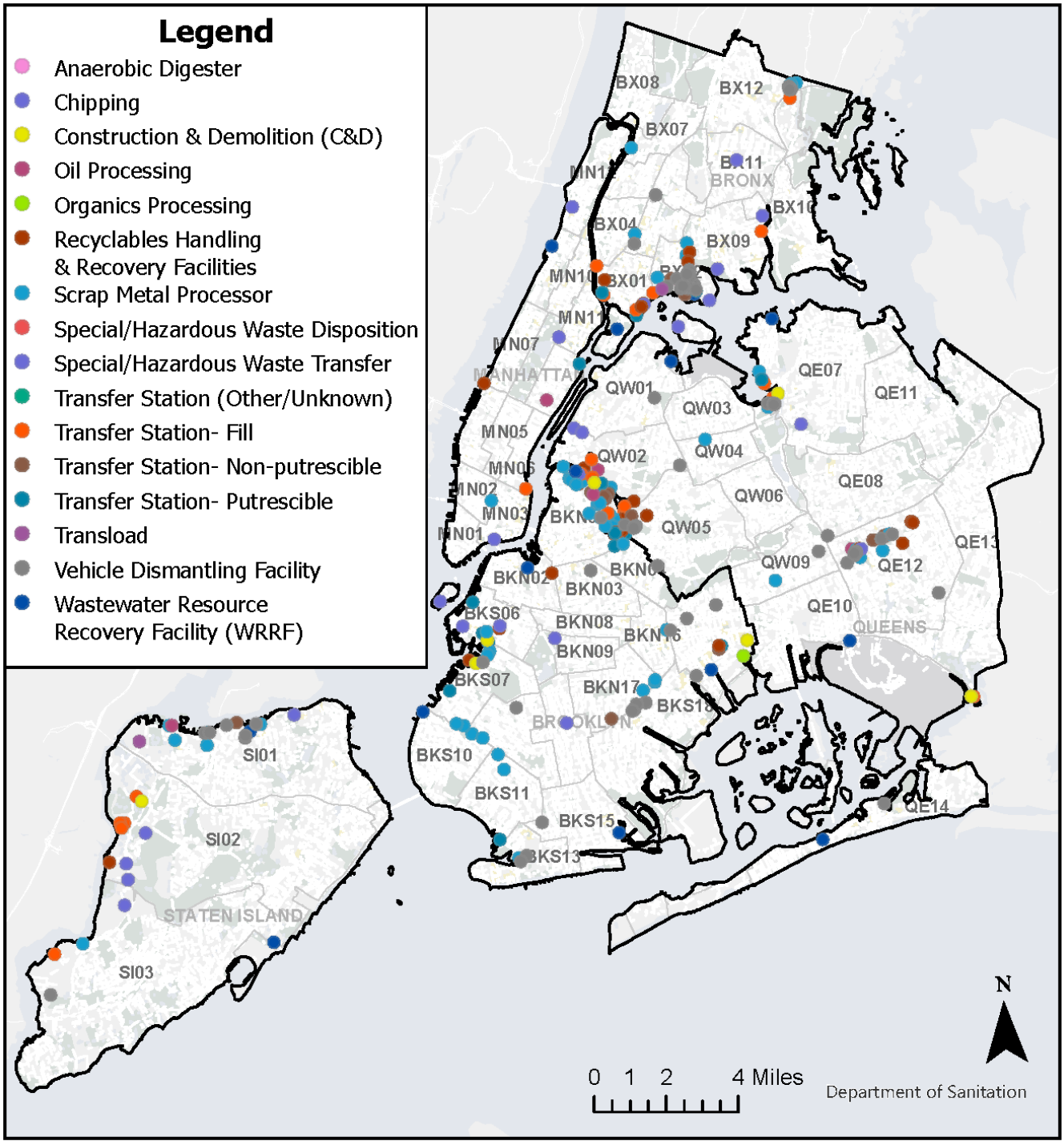
There are over 250 solid waste management facilities in New York City. These include transfer stations (including marine transfer stations), recycling facilities, compost facilities, construction and demolition (C&D) debris transfer and processing facilities, scrap metal processing facilities, vehicle dismantling facilities, cooking oil and yellow grease processing facilities, and wastewater resource recovery facilities (WRRFs). There are no active MSW or C&D debris landfills or incinerators in New York City. Both DSNY and private waste management companies dispose of waste at landfills and incinerators outside of city limits. **Table 3-1** indicates the number of waste processing and management facilities in New York City by facility type. **Figure 3-1** depicts the locations of facilities by type.

Table 3-1. Waste Management Facilities in New York City, 2023

Facility	Number in NYC
Vehicle Dismantling Facilities	42
Construction and Demolition Debris Transfer Stations or Processing Facilities (Non-Putrescible Transfer Stations)	22
Putrescible Transfer Stations (Private and DSNY)	20
Recycling Facilities	19
Fill Transfer Stations	19
Scrap Metal Processing Facilities	14
Wastewater Resource Recovery Facilities	14
DEC Registered or Permitted Compost Facilities	7
Cooking Oil and Yellow Grease Processing Facilities	2

Sources: New York State Department of Environmental Conservation[129]
Note: There are no active landfills or Municipal Solid Waste incinerators in New York City.

Figure 3-1. New York City Waste Management Facilities



The processing capacity of facilities and the availability of space in landfills are major factors in determining DSNY waste management strategies. In 2023, DSNY managed close to 3.2 million tons of residential and institutional refuse. Approximately 2.2 million tons of DSNY-managed refuse were transferred through DSNY and private putrescible transfer stations in New York City; the remainder of the refuse was transported directly to Reword Essex in New Jersey for incineration.[130] The capacity of putrescible private transfer stations in New York City exceeded 5.6 million tons in 2023. Some putrescible private transfer stations process both DSNY-managed and commercial waste.[131,4] Transfer stations are required to maintain extra capacity to ensure storage availability in cases of export delay or emergency. A detailed analysis of New York City's waste management capacity, including transportation and facility limitations, is included in **Attachment C: Accessible Capacity for New York City Solid Waste Management**.

2. Collection and Transportation

Waste in New York City is moved by trucks, barges, and freight trains.

Sanitation Vehicles and Collection

DSNY's vehicle fleet includes waste collection trucks, street sweepers, salt and sand spreaders, and other vehicles and equipment listed in **Table 3-2.** DSNY waste collection vehicles collect residential and institutional refuse and recyclables, while private carters collect commercial waste and C&D debris. After collection, most refuse is transported to public or private transfer facilities. Material set out for recycling is transported to recycling facilities. From transfer stations, material is loaded on barge, rail, or truck (or a combination of these modes) to its final destination, which could include incinerators, landfills, or material recovery facilities.

Table 3-2. DSNY Vehicles by Type, 2024

Vehicle Type	Quantity
Collection trucks	2,410
Light-duty vehicles	1,181
Salt/Sand spreaders	759
Other support vehicles	734
Front-end loaders	487
Street sweepers	461
Total	**6,032**
Source: DSNY's 2024 Annual Report on Alternative Fuel Vehicle Programs.	

DSNY operates diesel, alternative fuel, and electric vehicles. As of 2021, 14% of DSNY's fleet operated on alternative fuels, including electric, hybrid-electric, and natural gas. New York City aims to transition all City-owned vehicles to electric by 2040.[132]

Freight Rail Export

Transfer stations receive and load waste into containers. At Marine Transfer Stations, material is loaded into "intermodal" containers and transported by barge to transload facilities. Once intermodal containers of waste arrive at a transload site, either directly, by truck or barge, the containers are transferred to freight trains and transported to the final destination. Approximately 86% of DSNY-managed refuse was transported by rail in 2023.[131] The remaining tonnage was exported via truck.

The Long-Term Export Program was developed as part of the 2006 *Comprehensive Solid Waste Management Plan*. The program was implemented due to the closure of the Fresh Kills Landfill, shrinking capacity and increased prices at landfills within close range of New York City, and high costs of long-distance export via truck. The program was designed to provide sufficient capacity for increases in waste generation, provide system resiliency, reduce truck traffic, and reduce dependence on long-haul trucks for long-term export. Reducing truck traffic and associated noise and emissions benefits host communities of waste management facilities.

Export by rail requires ample lead time to plan and implement rail routes, and risks include capacity constraints, weight and height limitations on routes in New York City, which can limit the available configurations of intermodal containers of waste, and the shared use of tracks with passenger rail. Other considerations are limited track capacity and lack of freight rail connections between the East-of-Hudson and West-of-Hudson region. Rail worker strikes could also result in delays in waste management. The effects of climate change (e.g., heat and track buckling, extreme rainfall and flooding, etc.) can also cause operational disruptions and require costly repairs. Export by rail reduces waste hauling by truck, thereby benefiting regional air quality. Improved air quality benefits communities with high asthma rates, such as the South Bronx. At the same time, communities adjacent to rail infrastructure can be affected by exhaust and noise from freight rail activity. Community engagement and impacts are critical considerations whenever new infrastructure is proposed.

There are several projects underway that can affect freight rail transport in and beyond New York City. These projects include Hunts Point Terminal Market Freight Rail Modernization, Cross Harbor Freight Program, Inter-borough Express, and Penn Station Access.[133] Additional information on freight transportation projects, capacity, and challenges is included in **Attachment C**.

Considerations

The reintroduction of marine transfer stations between 2006 and 2019 has reduced truck traffic associated with waste hauling in New York City. This in turn reduced corresponding levels of air pollution and health impacts for vulnerable populations that have been disproportionately impacted by waste management. Additionally, the implementation of Local Law 152 (LL152) of 2018, also known as the Waste Equity Law, further limits the burden of waste transportation on local communities by reducing the capacity of transfer stations in four community board districts in Brooklyn, Queens, and the Bronx.[134] More information on LL152 is available in **Attachment A**: **Local Laws Relevant to Waste Management**.

Potential disruptions to sanitation transportation include natural disasters, public health emergencies, and inaccessible travel routes. Transportation worker strikes may also disrupt the export of MSW from New York City. These topics are discussed in **Attachment C**.

3. Facilities

Waste management requires multiple facilities to support the sorting, processing, and recovery of material. New York City waste is processed by both public and private sectors to ensure waste disposal practices minimize harm to public health and the environment. Over the past several decades, New York City's waste landscape has changed significantly with the closure of the city's last landfill, changes to waste generation, and shifts in the types of waste facilities that exist.

Solid waste infrastructure and facilities include transfer stations, material processors (including recycling facilities), and disposition sites (end destinations for materials that are discarded or from which resources were already

recovered). Transfer stations increase efficiency by providing a central location for waste carters to unload and containerize material prior to transport to processing facilities. Recycling facilities in New York City are privately owned and process metals, glass, plastic, or paper or other material types. Recycling facilities provide a range of functions, including sorting, cleaning, or recycling, depending on the type of recyclables they process. Organic waste facilities include composting sites and WRRFs. C&D debris is handled at non-putrescible transfer stations, also referred to as construction and demolition debris handling and recovery facilities (CDDHRF) by DEC. Disposition sites include thermal treatment facilities (also referred to as incinerators) and landfills.

New York City must export waste for disposal, as the Fresh Kills Landfill, which was the last landfill in New York City, closed in 2001. This led to the redevelopment of marine transfer stations in accordance with the *2006 SWMP*. The containerization of waste enabled transport by rail, barge, or truck, making long-range transport of refuse more efficient. Other changes in waste management facilities since the *2006 SWMP* include the development of an anaerobic codigestion facility and new and expanded composting and chipping sites, where discarded wood material is turned into mulch.

Since 2006, notable local laws relating to waste management facilities include Local Law 152 (Waste Equity Law), LL199 of 2019 (Commercial Waste Zones), and LL118 of 2024 (Composting Facilities in Parks).

- Changes in private transfer station capacity went into effect in 2020 in accordance with the Waste Equity Law. The law reduced the permitted capacity of transfer stations in environmental justice communities, which experience disproportionate environmental impacts of waste management. This resulted in a decrease in material managed at affected private transfer stations by nearly 3,000 tons per day. The Commercial Waste Zones program aims to improve air quality by reducing the number of private waste collection vehicles traveling through a neighborhood. It also allowed the City to establish safety and efficiency standards and for contracted private haulers. LL199 roll out commenced in January 2025 as discussed in **Attachment F**: **Commercial Waste in New York City**.
- LL118 requires the development of composting facilities at five parks in each borough by 2028. Increasing in-city organics processing capacity supports DSNY's goal to divert more organic materials from landfills. The implementation of this local law will depend on funding availability.

Additional information on local laws can be found in **Attachment A.**

Although the overall quantity of DSNY-managed recycling and refuse has not significantly changed (4.1 million in 2002 compared to 4.0 million in 2024), behaviors and technologies have altered the types of waste generated. The most drastic changes in residential waste generation since 2005 include paper, which decreased from 23% to 16%, and organics, which increased from 28% to 36%.[6] Paper and organics are largely managed within the city. Pratt and Sims process DSNY-managed paper. Organics collected through the Citywide Residential Organics Program are largely processed within New York City at Newtown Creek WRRF or at City-owned composting facilities.

All waste sent for disposal is exported from the city, and a portion of the City's recyclables are exported for processing. DSNY-managed and commercial refuse and recycling were accepted at facilities in Connecticut, Georgia, Kentucky, New Jersey, New York, Ohio, Pennsylvania, South Carolina, and Virginia. This does not include special waste, organics, or C&D. Information on throughput, capacity, location, and type of waste managed by waste management facilities are described in **Attachment C**.

Transfer Stations

Materials Processed: Materials processed through transfer stations may include MSW, recycling, organics, C&D debris, and hazardous waste materials. Wastewater is not processed through transfer stations.[135,136]

Facility Description: Transfer stations connect municipal waste collections to disposal sites by consolidating waste for transfer by larger vehicles. Collection trucks deposit materials at the transfer station. Materials from multiple trucks are then loaded into containers, which are transported by truck or rail out of the City. The process differs slightly for marine transfer stations, where the materials, once containerized, are loaded onto a barge before being transported by rail.

Transfer stations improve efficiency, reduce fuel consumption and collection vehicle costs, and reduce traffic, air emissions, and road wear. Transfer stations may be publicly or privately owned and operated, but they are regulated by federal, state, and municipal agencies.

Transfer stations are distinguished by the types of material they process. Putrescible transfer stations accept refuse. Non-putrescible transfer stations accept recyclables and C&D. Fill transfer stations accept a subset of C&D debris, including rocks, dirt, and soil.

Requirements: Local Law 152 of 2018 reduced the permitted capacity of transfer stations in four community districts by 10,137 tons per day.

Facilities Distribution: In 2023, there were 61 active transfer stations in New York City (including MTSs). 20 transfer stations processed putrescible waste (including waste from DSNY), 22 transfer stations processed non-putrescible (C&D) waste, and 19 transfer stations processed fill materials. Transfer stations are listed by type and county in **Table 3-3**.

The implementation of LL152 affected 22 facilities that hold 24 total transfer station permits. Affected facilities are located in the Bronx, Brooklyn, and Queens.[136] Daily throughput at transfer facilities affected by LL152 averaged 19,102 tons in Calendar Year 2019 (CY19). In 2022, this value reached a record low since LL152's enactment, for an average of 15,861 tons per day. However, the average daily throughput increased to 16,256 tons in 2024. The total permitted capacity of New York City transfer stations as of September 2023 is 35,328 tons per day.[134] For more information on LL152, see **Attachment A** and **Attachment C**.

Table 3-3. Transfer Station Type by County, 2023

County	Non-Putrescible Stations	Putrescible Transfer Stations	Fill Transfer Stations	Total
Bronx	5	3	5	13
Kings	10	9	2	21
New York	0	1	1	2
Queens	5	6	6	17
Richmond	2	1	5	8
Total	22	20	19	**61**

Source: DSNY, Private Transfer Station Data (2023), DSNY Waste Disposal Open Data (2023), Local Law 152 Data (2023)[134]
Notes: Putrescible Transfer Stations listed include DSNY transfer stations.

Marine Transfer Stations

Materials Processed: Materials processed through marine transfer stations (MTSs) may include municipal solid waste and recycling. Wastewater and organics are not processed through MTSs.

Facility Description: MTSs collect and transport waste materials by barge to other transfer stations to be processed or to rail for transport to other facilities. MTSs reduce emissions from collection trucks that would otherwise travel longer routes through New York City.[137]

Requirements: Marine transfer stations require permits issued by New York State.

Facility Distribution: DSNY manages five MTSs to support the transport of MSW throughout the city, as summarized in **Table 3-4**. Converted MTSs containerize waste, a modification to the original MTS, which would load waste directly onto the barge. This simplifies long distance transportation of New York City generated waste, reducing littering. New York City converted marine transfer stations also enable the city to reduce air pollution across boroughs by providing alternative routes for waste collection traffic. DSNY estimated that 192,000 tons per year of greenhouse gas emissions are avoided by using MTSs.[137]

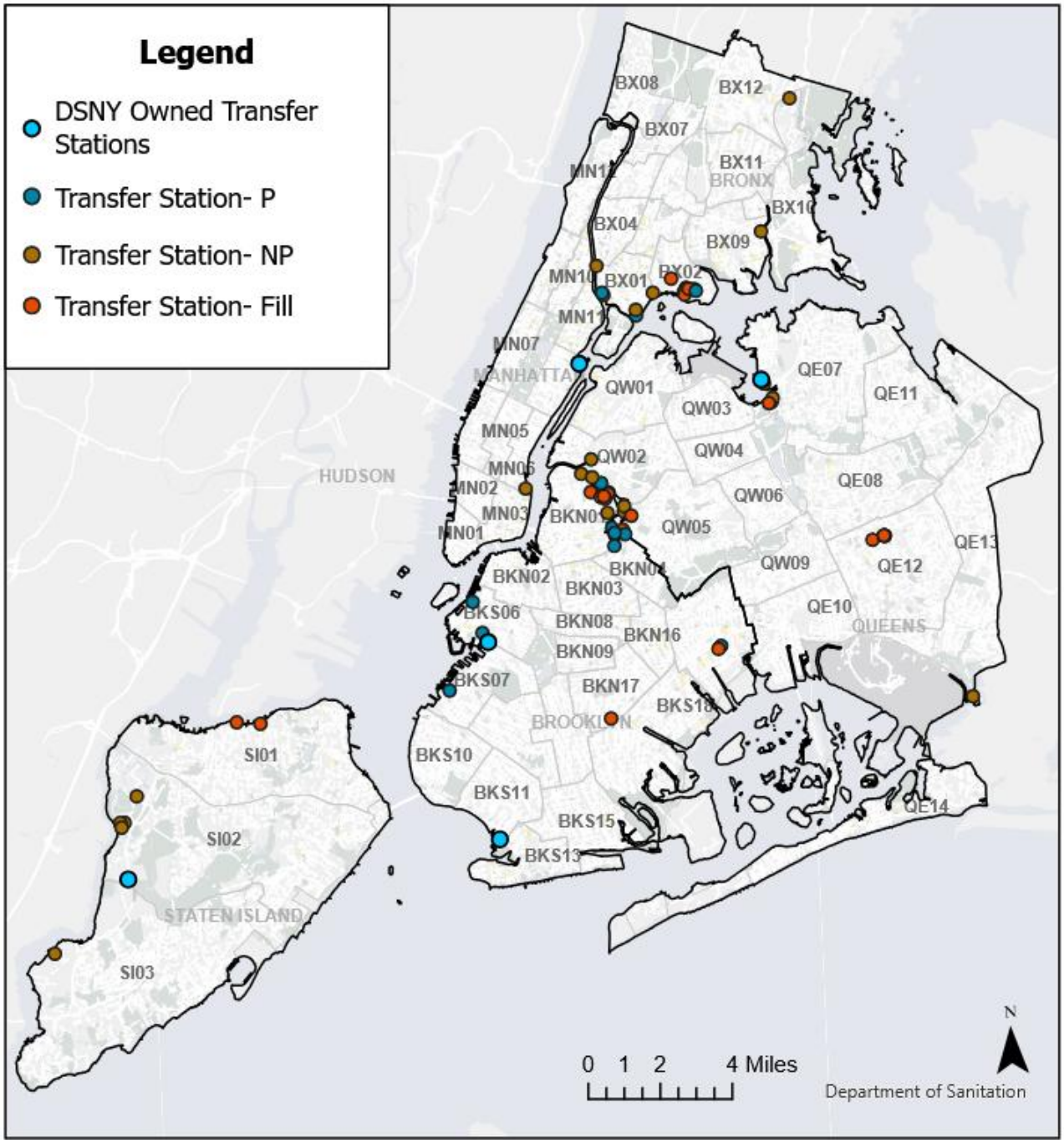
From the marine transfer stations, waste is transported by barge to Container Terminals on Staten Island and in New Jersey, where it is then placed on a train and transported to upstate New York, Pennsylvania, or South Carolina to be incinerated or landfilled.

Table 3-4. Marine Transfer Stations in New York City by County, 2023

County	Number of Marine Transfer Stations
Kings	2
New York	2
Queens	1
Source: NYS Department of Environmental Conservation[138]	

Figure 3-2 shows the locations of private transfer stations and DSNY marine transfer stations.

Figure 3-2 New York City Transfer Stations



Recycling Facilities for Metals, Glass, Plastic, and Paper

Materials Processed: Recyclables, including mixed paper and metals, glass, and plastic (MGP).

Facility Description: Recycling facilities sort and process recyclables. These facilities do not include recycling or take-back facilities that specialize in a single material, such as electronic waste or scrap metal.[139]

Facilities Distribution: In 2022, there were 20 permitted or registered recycling facilities in New York City, as summarized in **Table 3-5.**

Table 3-5. Recycling Facilities by County, 2022

County	Number of MGP and/or Paper Recycling Facilities
Bronx	6
Kings	6
Queens	8
Total	**20**
Sources: (1) DSNY Recycling Data Set (2020); (2) New York State Department of Environmental Conservation (DEC), Permitted Resource Handling and Recycling Facilities[140] (3) DEC, Registered Recycling Handling and Resource Facilities.[141] **Notes:** MGP – metals, glass, plastics	

Scrap Metal Processing Facilities

Materials Processed: Scrap metal includes ferrous and non-ferrous metal or metal parts, such as bars, sheets, wire, automobiles and their parts, etc.

Facilities Description: Scrap metal processing facilities purchase bulk metal from end users for recycling. Metal scrap is sorted, processed, and resold for the manufacturing of new products. Scrap metal processing includes baling, shredding, flattening, or melting to enhance the economic value or improve the handling of materials.

Requirements: Scrap metal recycling requirements are included in 6 CRR-NY- 371.1. All vehicle dismantling facilities and mobile vehicle crushers are required to obtain registration from DEC. Motor vehicle repair shops that store more than 25 end-of-life vehicles onsite at any one time must also register with DEC. Scrap metal processors that store more than 1,000 cubic yards of metal on-site at any one time are required to obtain registration with DEC.[142]

Facilities Distribution: In 2023, 12 facilities registered or permitted to process scrap metal in New York City reported to DEC, as summarized in **Table 3-6**. They received approximately 480,000 tons of scrap metal.[143] An additional 11 scrap metal processors in New York City accepted end-of-life vehicles and metal from vehicles.

Table 3-6. DEC Registered Scrap Metal Processing Facilities in New York City by County, 2023

County	Scrap Metal Processing Facilities
Bronx	3
Kings	7
Richmond	2
Total	**12**
Source: New York State Department of Environmental Conservation Scrap Metal Annual Reports (2023)	

Vehicle Dismantling Facilities

Materials Processed: Motor vehicles.

Facilities Description: Vehicle dismantling facilities, more commonly known as motor vehicle wreckers, or junk dealers, process end-of-life motor vehicles by decommissioning, dismantling, storing and recycling vehicles and their parts. Facilities that process portions of vehicles, such as tires, are not considered to be vehicle dismantling facilities. Metals from vehicles, including that from lead acid batteries, are recycled and salvaged for reuse.[144]

New York State registered motor vehicle repair shops that store 25 or fewer end-of-life vehicles on-stie at a time and scrap metal processing facilities that store up to 1,000 cubic yards outdoors at a time are not considered vehicle dismantling facilities.

Requirements: Vehicle dismantlers are required to inspect vehicles for unauthorized waste, including leaking fluids. Additionally, vehicle dismantlers are required to remove lead acid batteries, mercury-containing devices, refrigerants, air bags, and other environmental pollutants prior to the crushing or shredding of the vehicle. All environmental contaminants in vehicles are required to be appropriately stored for reuse, treatment, or disposal. Records on waste intake and output of waste materials, inspections, monitoring information, training, scheduling, and certifications are required to be kept and submitted in an annual report. Additional requirements on vehicle dismantling facilities are included in New York State Codes, Rules and Regulations (NYCRR) in Subpart 6 CRR-NY IV B361-7.[145]

Facilities Distribution: In 2023, 42 active vehicle dismantling facilities, not including scrap metal processing facilities or motor vehicle repair shops, were registered in New York State Region 2. A summary of vehicle dismantling facilities is listed in **Table 3-7** provides a summary of vehicle dismantling facility locations**.**[146]

Table 3-7. Registered Active Vehicle Dismantling Facilities in New York City by County, 2023

County	Number of Vehicle Dismantling Facilities
Bronx	15
Kings	9
Queens	14
Richmond	4
Total	**42**

Source: New York State Department of Environmental Conservation[146]
Note: Scrap metal processors that reported to DEC as both scrap metal processors and vehicle dismantling facilities were not included in this count.

Composting Facilities

Materials Processed: Food waste, plant matter, compostable products.

Facilities Description: Organics composting sites process organic materials, such as food scraps and yard debris, using a combination of organisms and processes, including microorganisms (e.g. bacteria, fungi), invertebrates (e.g. insects, worms), heat, or mechanical breakdown (e.g. shredding, mixing).[147]

Requirements: Composting operations in New York State are regulated by 6 NYCRR Part 361-3.2 in one of three ways: exempt, registered, or permitted. Regulation of composting facilities depends on the location, quantity, and type of material being composted. Facilities that accept less than 5,000 cubic yards or 2,500 wet tons of single stream organics per year, between 3,000 and 10,000 cubic yards of yard trimmings per year, or animal mortalities[148] require

registration. Facilities that accept more than 5,000 cubic yards or 2,500 wet tons of single stream organics per year, or more than 10,000 cubic yards of yard trimmings per year require permits. Facilities that accept biosolids or other sanitary waste also require permits.[147] In 2024, New York City Council passed Local Law 118 of 2024 requiring the addition of composting facilities in five parks in each borough by July 2028. The fulfillment of this requirement will depend upon available funding.

Facilities Summary: In New York City, there are community and municipally managed compost facilities. Composting sites are managed by DSNY, GreenCity Force and NYCHA, New York City Parks, Red Hook Initiative, Hudson River Park, Battery Park Alliance, and other private, nonprofit, and community groups. DSNY-managed organics are processed at Staten Island Compost Facility, Soundview Park Compost Facility, and Rikers Island Compost Facility. Staten Island Compost Facility expanded capacity to 31,200 tons per year of food waste in 2024. The estimated capacity of DSNY composting facilities is approximately 85,000 tons per year as of 2025.[149,150]

Table 3-8 summarizes the locations of DEC registered or permitted composting facilities in New York City.

Table 3-8. Registered or Permitted Composting Facilities in New York City by County, 2024

County	Number of Composting Facilities
Bronx	1
Kings	1
New York	1
Queens	2*
Richmond	2
Total	**7**

Source: New York State Department of Environmental Conservation[151]
Note: * One of the DEC registered facilities in Queens (Queensborough Bridge) closed during 2024.

Community Gardens and Urban Farms

Due to its high population density, New York City has limited agricultural operations. Many agricultural operations within New York City are community-based gardens and small urban farms. New York City agricultural programs include:

- **NYC Parks GreenThumb:** As America's largest urban gardening program, GreenThumb manages more than 550 urban gardens within the city. A list and map of community gardens located within New York City are available on New York City Parks website.[152]
- **Farms at NYCHA:** As part of the Building Healthy Communities (BHC) initiative, seven urban farms were built and maintained on public housing property throughout the five boroughs. The seven gardens are managed by organizations such as Red Hook Initiative and Green City Force. Farms at NYCHA have collected and processed over 136 tons of compostable organics waste between 2013 and 2024.[153]
- **Commercial Farming:** Commercial farms in New York City must either hire private waste haulers or register as self-haulers with the BIC to manage their waste.

Wastewater Resource Recovery Facilities (WRRF)

Materials Processed: Wastewater, including stormwater and water from New York City sewer systems.

Facilities Description: In New York City, wastewater is processed or managed by the New York City Department of Environmental Protection (DEP) in fourteen wastewater resource recovery facilities (WRRFs). After intake, wastewater is screened and pumped to gravity flow through a series of tanks where it undergoes primary and secondary treatment. The treated water is disinfected and released into waterways, while the solids separated during the liquid treatment process are further processed for stabilization. Solids are stabilized in anaerobic digesters at all facilities to convert sludge into biogas and digestate. Six of the 14 WRRFs have on-site digestate dewatering capabilities. Facilities without on-site dewatering capabilities will transport digestate through force mains or marine vessels to in-city regional dewatering facilities. After dewatering, the solids and/or biosolids are managed through third-party contracts—either sent to landfills, applied directly to farms, or further processed for other beneficial reuses.[9]

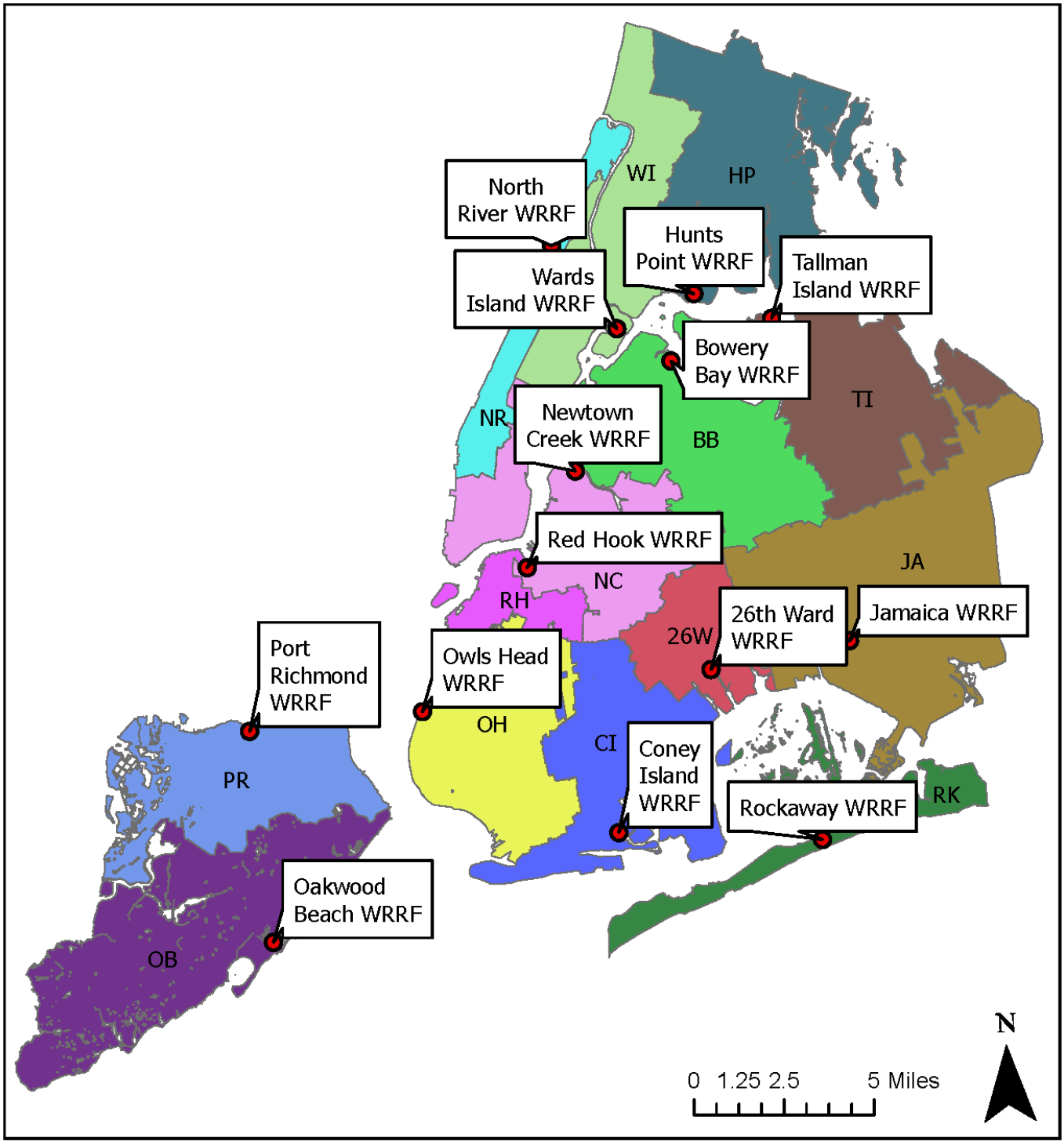
Facilities Summary: The 14 WRRFs process a daily average flow of 1.3 billion gallons of wastewater. The locations of these facilities are summarized in **Table 3-9** and depicted in **Figure 3-3.**

Table 3-9. Wastewater Resource Recovery Facilities in New York City by Borough, 2025

County	Number of WRRFs
Bronx	1
Kings	5
New York	2
Queens	4
Richmond	2
Total	14

Source: New York City Department of Environmental Protection[154]

Figure 3-3. New York City Wastewater Resource Recovery Facilities and Drainage Areas



Anaerobic Digesters for Co-Digestion of Food Waste

Materials Processed: anaerobic digesters process sludge and organic material in the form of slurry. In New York City, slurry is created from blended food scrap organics.[155]

Facility Description: Anaerobic digesters are tanks that process organic matter using micro-organisms and heat in the absence of oxygen. Anaerobic digesters produce biogas, which is mostly methane, that can then be utilized as a local energy source.[155]

DEP constructed new anaerobic digestion infrastructure at the Newtown Creek WRRF in 2009, with the development of eight new digester eggs. Co-digestion of wastewater and food scraps began in 2016.

Organics are first blended into a slurry at the Varick Avenue transfer and then delivered to the Newtown Creek WRRF, where anaerobic digestors convert food scraps and sludge into digestate and biogas.

The biogas is beneficially used on-site as fuel to provide heating to the facility. Excess biogas undergoes purification using biogas-to-grid equipment and is converted into heating fuel, which is distributed to the local gas grid. In 2024, the facility processed an average of 186 wet tons of food scraps per day.[156] The facility has the capacity to process up to 250 tons per day of food waste, and the biogas generated each year is enough to provide for the annual heating needs of nearly 6,000 homes. The digestate biosolids can be beneficially used as soil amendments, or productively used as landfill cover, which replaces the use of soil.[157]

Requirements: Regulations on anaerobic digestion facilities are included in 6 CRR-NY 361-3.3.[158]

C&D Debris Processing Facilities

Materials Processed: C&D debris includes materials generated or excavated from the construction, remodeling, repair, or demolition of structures, buildings, roads, and land clearing, such as concrete, brick, wood, tires, shingles, and asphalt. C&D debris does not include friable asbestos-containing waste, garbage, electrical fixtures containing hazardous liquids, carpeting, furniture, appliances, tires, fuel tanks, or certain containers, such as fuel tanks or drums.[159]

Facilities Description: C&D debris processing facilities, also known as C&D debris handling and recovery facilities (CDDHRF), are facilities that receive, process, and store C&D waste and recyclable and reusable C&D debris.[159]

The expansion of EPR regulations is resulting in facilities that can recirculate some C&D debris, such as carpets, in alignment with the Carpet Collection Program Law, NYS Article 27, Title 33 of the Environmental Conservation Law.[160]

Requirements: CDDHRFs must be registered or permitted and inspected annually. These facilities are also required to submit annual reports that include information on the amount of solid waste received by waste type, service region, and disposal destination. More information on C&D processing requirements is available in CRR-NY361-5.[161]

Facilities Distribution: In 2023, 22 C&D debris processing facilities were identified in New York City, as indicated in **Table 3-10**. All C&D processing facilities in New York City are privately owned.[107]

Table 3-10. Construction and Demolition Debris Processing Facilities by County, 2023

County	Number of C&D Processing Facilities
Bronx	5
Kings	3
New York	1
Queens	6
Richmond	7
Total	**22**

Source: New York State Department of Environmental Conservation

Special Waste Drop-Off Sites

Materials Processed: Universal waste materials collected at Special Waste Drop-Off Sites include batteries, electronics, fluorescent light bulbs and compact fluorescent light bulbs, motor oil and transmission fluid, motor oil filters, paint, passenger car tires, mercury-containing devices, and skin lightening products. Additional materials that can be dropped off at Special Waste Drop-Off Sites are listed on DSNY's website.[85]

Facilities Description: Special Waste Drop-Off Sites are DSNY owned and operated facilities that collect various universal waste materials.

Additional Requirements: Special Waste Drop-Off Sites are required to comply with New York State Codes, Rules, and Regulations (NYCRR) and Federal guidelines on universal waste collection and management.

Facilities Distribution: DSNY maintains five Special Waste Drop-Off Sites in New York City. There is one site in each borough.

Used Cooking Oil and Yellow Grease Processor

Materials Processed: Used cooking oil and yellow grease, also referred to as fats, oils, and greases (FOG).

Facilities Description: Used cooking oil and yellow grease generated in New York City are primarily reused as biofuel and animal feed.

Requirements: According to NYCRR, facilities that accept cooking oil or yellow grease for processing are required to implement a secondary containment system for the storage of all unprocessed and processed used cooking oil and yellow grease, as well as an overfill prevention system, and to ensure that fire prevention and protection systems comply with local and state building and fire codes. An operation and maintenance plan including unauthorized waste procedures, inventory storage processes, vector inspection and mitigation, spill prevention and management, and disposal of other waste generated from processing is required. Facilities are also required to maintain records of waste inventory processing.[162,163]

Facilities Distribution: In 2023, there were two facilities that received used cooking oil and yellow grease in New York City. Combined, these facilities accepted 23,976 tons (approximately 5.7 million gallons[164]) of used cooking oil and yellow grease.[165] The locations of used cooking oil and yellow grease processing facilities are summarized in **Table 3-11**. Additional facilities have operated in New York City in previous years but did not report tonnage to DEC in 2023 and were not included in DEC's list of active solid waste management facilities as of May 2025.[166] However, these facilities may still be operating.

Table 3-11. Cooking Oil and Yellow Grease Processing Facilities by County in 2023

County	Cooking Oil and Yellow Grease Processing Facilities	Recovered Material
Bronx	1	Biofuel
Queens	1	Biofuel
Source: New York Department of Environmental Conservation (DEC), Used Cooking Oil Processing Facilities Annual Reports, 2023[167]		

Waste Tire Storage

Materials Processed: Whole tires or portions of tires, including tire casing separated for retreading and tires with insufficient tread for resale, are considered waste tires. Waste tires do not include crumb rubber.[168]

Facilities Description: In New York City, tires from residents are collected at DSNY Special Waste Drop-Off Sites or at businesses that sell or install tires.

Requirements: Waste tire storage facilities in New York State are required to maintain a permit or registration. Facilities are required to take environmental precautions because improperly stored tires may cause fires or leach into waterways. In the interest of public health and natural resource conservation, and to promote recycling and market development for waste tires, tires must be stored according to Environmental Conservation Law §27-19. Tires may not be disposed of in landfills and are required to be recycled or repurposed for beneficial reuse when possible. Beneficial reuse may include tire retreading or recycling of tires for fuel or rubber products.[169]

New York City and New York State require tire storage, tire rebuilding, and tire byproduct facilities to adhere to location, volume, activity, and fire protection requirements.[170, 171]

Facilities Distribution: In 2019, one waste tire storage facility was registered in New York City; no facilities were registered in 2020. New York City residents can drop-off tires at one of five special waste drop-off facilities in the city or at businesses that sell tires.

Disposal Sites

Disposal sites include landfills and incineration facilities. Although there are no active disposal sites in New York City, 3.15 million tons of DSNY-managed waste is disposed of at landfills and incinerators across multiple states.

Landfills

Materials Processed: Putrescible and non-putrescible waste.

Facilities Description: Landfills are facilities engineered and operated to contain waste while minimizing the harm to the environment.[172]

Requirements: There are currently no active landfills in New York City. Both active and inactive landfills in New York State are regulated by 6 NYCRR 363.[173] In 2023, DSNY-managed waste was disposed at landfills in New York, Pennsylvania, Virginia, and South Carolina. Landfills in Pennsylvania are regulated by Title 25 Code Chapter 273.[174] Landfills in Virginia are regulated by the Virginia Waste Management Act, Title 10.1 Chapter 14.[175] Landfills in South Carlina are regulated by Regulations 61-107.19 Parts III-V.[176]

Facilities Distribution: New York City's last landfill, Fresh Kills, closed in 2001. Portions are being redeveloped into parkland.[50] There are no active landfills currently located in the five boroughs of New York City. The City relies on the long-distance export of waste to landfills via rail.

Thermal Treatment Facilities

Materials Processed: Putrescible and non-putrescible refuse.

Facilities Description: Thermal treatment facilities rely on one of several processes to manage municipal solid waste, including incineration, gasification, and pyrolysis. The most prevalent of these processes in the U.S. is incineration. Incinerators are facilities that burn waste material. Many incinerators recover the energy produced through waste combustion. Metals remaining in the waste stream can be recovered and recycled. Contaminants from incineration of waste material are processed through filters.[177] Additional information on combustion facilities and processes is available in **Attachment C**.

Requirements: Local Law 39 of 1989 required privately-operated incinerators (the majority of approximately 2,500 of the affected incinerators were in apartment buildings) to cease operation within four years of the effective date of the law.[178]

Facilities Distribution: The last publicly owned or operated incinerator in New York City closed operations in 1992. However, refuse generated in New York City is sent to incinerators in upstate New York, New Jersey, and Pennsylvania.[67]

4. Capacity

New York City's ability to manage waste depends on its collection, transportation, facility, and disposition site capacities. Waste generated in New York City is managed within the city and also exported. The export of waste to landfills, incinerators, and recycling facilities in upstate New York and surrounding states relies on the willingness of those facilities and the applicable regulations that allow them to accept waste from elsewhere. If facilities outside of New York City choose not to accept waste generated in the city, a backlog of waste may accumulate. Exceeding transport or waste transfer facility capacities can also result in backlogs. Natural disasters, public health emergencies, and transportation disruptions are some of the other ways in which waste management can be disrupted and result in excess accumulation of material.

In cases of emergency, waste management facilities are permitted to handle greater quantities of material for short periods of time. If the quantity of waste handled exceeds the emergency capacity, temporary storage or alternative waste management practices might be necessary, but these are difficult to implement quickly.

As New York City implements new waste management practices, such as the collection of organics and processing, the capacity required for specific waste streams will change. In 2024, there was sufficient capacity at transfer stations and processing facilities to manage DSNY-managed separated organics, recyclable MGP and paper, refuse, and C&D. Long term capacity challenges include limited landfill and MGP and paper recycling facility capacity. Regional landfills that can accept New York City refuse are expected to reach capacity in the next 25 years, assuming no changes to the refuse acceptance rate, expansion of existing landfills, or the development of new landfills. MGP and paper recycling facilities in New York City are also near capacity. Information on capacity by facility and waste stream is included in **Attachment C.**

Limited capacity information is available for some facility types, such as private recycling and construction demolition debris handling and recovery facility, particularly those that may be exempt from regulations. **Chapter 2: Waste**

Generation and Materials Recovery Data provides additional detail on gaps in data availability, as does **Attachment C**.

5. Waste Management Programs

Enforcement

DSNY rules are enforced by the department's Enforcement Division, which monitors compliance with administrative, recycling, and health laws. The Enforcement Division is organized into three units: the Environmental Police (DSNY Police), Environmental Enforcement Unit, and the Permit Inspection Unit (PIU). Enforcement programs involve the use of the Enforcement Division, surveillance cameras, and community involvement in identifying illegal dumping violations.

Anti-Dumping Initiatives

Anti-dumping initiatives are enacted by DSNY to ensure that communities remain clean, and that waste is handled properly. Enforcement programs related to dumping include community-centric initiatives such as the Illegal Dumping Award Program and the Illegal Dumping Tip Program. The Illegal Dumping Award Program allows those who witness illegal dumping to collect 50% of the fine imposed by New York City on the offender. The witness must sign an affidavit and must also attend hearings if the alleged offender challenges the allegations. The Illegal Dumping Tip Program likewise offers 50% of collected fines to community members who aid DSNY enforcement by providing information that enables DSNY to witness a crime in action. Unlike the Award Program, the Tip Program conceals the identity of the individual providing the tip.[179] DSNY also deployed 96 new enforcement cameras in 2023, with over 250 total cameras deployed to catch illegal dumpers.[180]

Fines

Violations of DSNY regulations may result in fines. In 2023, DSNY issued over 66,000 refuse-related violations and over 47,000 recycling violations. About 4,700 private transfer station inspections occurred in 2023.[180]

Recycling

New York City residents and institutions are required by law to recycle metal, glass jars and bottles, rigid plastic, cartons, mixed paper, and cardboard. Building owners and managers must notify residents of recycling requirements, post signage regarding those requirements, and provide their tenants with the infrastructure to properly recycle. Buildings with four or more residential units must also have an appropriate recycling material storage area. Those who do not abide by these rules must pay fines which range from $25 to $400, depending on the number of residential dwelling units as well as number of prior offenses. DSNY maintains a list of Recycling Laws for Residents.[181]

Businesses are also required to recycle metal, glass and plastic, with fines ranging from $100-$400, depending on the number of prior offenses, and owners or managers of non-residential buildings must provide education on how and when to recycle. Tenants of non-residential units must also educate their employees, customers, clients, etc. on how to recycle, including through signage and clearly labelled recycling bins. DSNY maintains a list of Recycling Laws for Businesses.[100]

Construction & Demolition Debris

C&D material waste must be disposed of separately from other waste streams and is to be collected only with other C&D waste. Fines for violations range from $100-$400, depending on the number of prior offenses. Rules and fines for mishandled C&D waste are outlined by the DSNY Recycling Laws for Businesses.

Textiles

Businesses that generate textile waste as 10% or more of their waste stream in a month must separate out textile waste for recycling. Separation requirements are the responsibility of those who are generating the waste. Fines range from $100-$400, depending on the number of previous offenses. Rules and fines for mishandled textile waste are outlined by the DSNY Recycling Laws for Businesses.[182]

Organics

As of 2020, certain businesses are required to separate organics from other waste streams. The types of businesses that are required to separate organics are listed in **Table 3-12**. DSNY outreach includes notices mailed to all businesses required to separate organic waste. Direct outreach is also conducted by DSNY, with in-person visits to confirm compliance with organics waste separation legislation. Fines for noncompliance range from $50-$200, depending on the number of prior offenses. Rules and fines for mishandled organics waste are outlined by the DSNY Commercial Organics Requirements.[101]

Table 3-12. NYC Businesses Impacted by Commercial Organics Legislation

Category of Generator	Description
Food Service and Grocers Examples: Restaurants, delis, coffee shops, cafeterias	› Floor area is at least 7,000 square feet on its own, or at least 8,000 square feet when combined with other food service establishments in same building or location › Chain (at least two New York City locations) of at least 8,000 square feet › Hotel with at least 100 guests
Examples: Supermarkets and grocery stores	› Floor area of at least 10,000 square feet › Chain (at least three New York City locations) of at least 10,000 square feet
Food Preparation and Event Venues Examples: demonstrations or parades	› Food preparation locations that are at least 6,000 square feet › Catering ` that host events with over 100 attendees › Temporary public events with over 500 attendees
Examples: Professional sports or music venues, food factories, food distributors and restaurant and supermarket suppliers	› Arenas and stadiums that can seat 15,000 or more people › Food manufacturers that occupy at least 25,000 square feet › Food wholesalers that occupy at least 20,000 square feet
Source: New York City Department of Sanitation	

Incentive Programs

As of 2023, New York City maintains limited incentive-based recycling programs and has not instituted volume-based pricing for recycling of materials.

Returnable Container Act (Bottle Bill)

The New York State 1982 Bottle Bill or Returnable Container Act is a state-level incentive that encourages residents to return beverage containers for a monetary return. More information on the Bottle Bill is available in **Attachment A** and **Attachment B: Existing Waste Reduction, Reuse, and Recycling Programs in New York City**.[117] Since the Bottle Bill lowers the amount of recycling material collected curbside, the recycling rate is not comparable to urban areas outside of New York State that do not have similar legislation and incentives for returning beverage containers.

NYCHA Recycling Incentive Program

In 2017, DSNY and NYCHA collaborated to pilot a recycling incentive program for NYCHA residents as a part of Local Law 49 (LL49) of 2017. The pilot program included door-to-door campaigns, recycling workshops, and other outreach activities over a three-year period. A waste characterization study (WCS) was conducted in conjunction with this initiative, and data was collected on recycling habits and current recyclables capture rates.[183] Based on the findings in the WCS, DSNY concluded that the voluntary recycling incentive program for NYCHA residents would not result in a significant increase in recycling rates. More information on LL49 of 2018 is available in **Attachment A**.

Grants

DEC administers various grant programs for supporting waste reuse, reduction, and recycling efforts. Municipalities, public authorities, public benefit corporations, schools, Native American Tribes, and other public organizations and institutions are eligible to receive state assistance programs.[184] DSNY has received funding from DEC for recycling programs.

Local Hauler Licensing

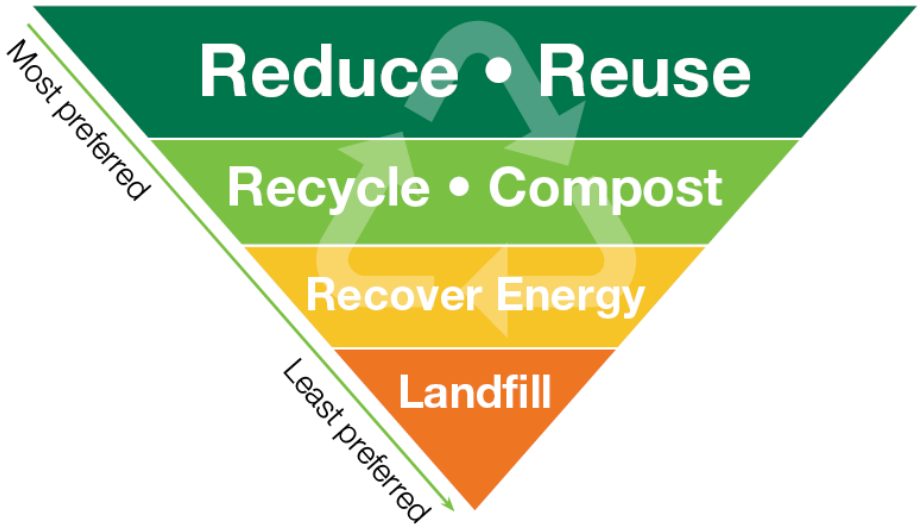
Private waste haulers who transport putrescible and non-putrescible waste from businesses in New York City need to have a Trade Waste Removal License issued by the Business Integrity Commission.[185] Businesses in New York City can also register as self-haulers if they choose not to not to use private waste haulers. Self-hauler licenses do not cover the removal of C&D waste.[186]

Reducing the quantity of waste generated is the most sustainable approach to material use. When waste is generated, material reuse and recycling are the preferred methods of waste management. Food rescue, for example, is a common waste reduction strategy practiced in New York City based on the tonnage of material available through voluntary reporting.

Material Reuse and Recycling Programs

Material reuse and recycling describes waste management practices that repurpose and recover materials. **Figure 3-4** shows the waste management hierarchy, which prioritizes waste reduction, reuse, recycling, and composting over disposal. Material recovery may also include converting material, like rubber tires, into fuel.[115]

Figure 3-4. Waste Management Hierarchy



In New York City, DSNY and other city agencies, including the Department of Transportation (DOT), Department of Cultural Affairs (DCA), and Department of Environmental Conservation (DEC), implement various waste reduction programs. There are also a variety of nonprofit organizations that support material reuse and recycling, including Big Reuse and the Sanitation Foundation.

DSNY and other agencies provide numerous programs and options for material-specific waste reduction, reuse, or recycling in New York City in 2023. These are described in **Attachment B**. Materials described in this document include organics; clothing and textiles; metals, plastics, and glass; electronics; paper and cardboard; construction and demolition debris; harmful or hazardous waste; vehicles; and furniture and appliances.

Public Education and Outreach

A variety of public and nonprofit waste education and outreach programs have been developed to support awareness of waste and waste management. Many of these programs also support recyclables collection and processing as well as organics recovery.[187]

DSNY Programs

- **School Recycling Materials:** DSNY develops educational material for students, including comic books, signage, and activities to increase engagement around waste. These resources can assist teachers in developing curriculums relating to sustainability. Additional information for schools is available in the *NYC Schools Guide to Zero Waste*.[188]
- **Business Resources:** DSNY provides a variety of outreach and educational material for businesses, including signage, training, and site visits. Site visits are complimentary educational visits to businesses by DSNY staff members. Site visits include information on how to comply with commercial recycling rules. Additional information on business training, along with other resources, is available on DSNY's website.[189]

- **Building Maintenance:** DSNY hosts waste management and clean building maintenance training to support education relating to safe waste management and waste reduction. Superintendents who participate in clean building maintenance training can receive a certification.[190]

Sanitation Foundation

Sanitation Foundation, the official nonprofit partner of DSNY, increases awareness of waste through events and programming.[68]

- **Follow Your Waste:** The Sanitation Foundation launched a digital learning resource for elementary school students to teach children about the lifecycle of trash.[191]
- **Trash Academy:** This program provides residents with learning and participation opportunities in the city's waste management. The program also encourages citizen engagement, such as volunteering in outreach and clean ups.
- **Food Waste Toolkit:** The Sanitation Foundation launched the Food Waste Toolkit in 2021 to reduce food waste and support beneficial reuse of organic scraps. This online tool supports individual and commercial action in addressing food waste.
- **Spring and Summer Cleanup Series:** This program connects residents, businesses, and community groups and organizes neighborhood cleanup volunteer events.
- **Adopt Your Spot NYC:** This program provides tools, supplies, and other assistance to New Yorkers who take care of a "spot" that is especially dear to them (such as a tree bed in front of their building) by keeping it free of litter.

Other Programs

Other agencies and nonprofits engage the public in waste awareness and management. These programs include:

- **Recycle Right NY Campaign:** This DEC initiative, coordinated by the New York State Center for Sustainable Materials Management, aims to boost recycling rates while educating New Yorkers about proper recycling, including what should not be put into the recycling waste stream.[192]
- **New York Recycles! Day:** Hosted each November 15th, New York Recycles! Day is supported by the DEC and encourages schools and businesses to organize or attend events relating to waste reduction and to practice recycling and buying recycled goods. This program is part of a larger national program called America Recycles. This event engages students by hosting a poster contest and providing teachers with lessons and activities.[193]
- **Pumpkin Smash** and **Mulchfest** encourage residents to bring in jack-o-lanterns, pumpkins, and gourds to be smashed and composted following Halloween, and Christmas trees to be mulched following Christmas. Pumpkin Smash and Mulchfest provide a unique incentive to divert waste and offer young New Yorkers a hands-on learning experience in waste diversion.[194]
- **Billion Oyster Project** is a nonprofit that diverts oyster, scallop, and clam shells from landfills to be used as a substrate for oyster growth in New York Harbor. Much of this shell waste comes from restaurants and food service businesses. Using shell waste for substrate diverts waste from landfills and boosts the oyster population, which in turn helps clean the harbor water. This program also supports education and science programs for youth.[195]

Data Improvement Efforts

New York City publishes waste management information on NYC Open Data, including maps of public recycling bin locations, collection frequencies by subdivisions, and electronic drop-off locations. Data on DSNY-managed waste, such as monthly collection, details on the City's waste characterization studies, and recycling diversion and capture rates, and information on commercial waste zones, contracted waste management vendors, and trade waste hauler licensees is also publicly available through NYC Open Data. DSNY is also developing a data repository to streamline data management, as well as a GIS database of waste management facilities and waste flow model, which depicts the quantity and type of waste managed at different waste management facilities and shows the flow of waste from generation to final disposal or reuse.

Facilities that process recyclables collected by DSNY report contamination and recovery rates to DSNY. Local Law 40 (LL40) of 2010 was implemented to support increased diversion rates as well as required reporting by DSNY on waste collected, diverted, and recycled. More information on LL40 is available in **Attachment A**. Local Law (LL49) of 2017 required collaboration between DSNY and NYCHA to review voluntary recycling incentive pilot programs[196] to improve the diversion of designated recyclable materials in public housing. Findings from the review determined that voluntary recycling incentive programs are unlikely to significantly improve diversion of designated recyclable materials in public housing and suggested that the incentive pilot programs are less convenient than the existing NYCHA recycling program.[183]

Other initiatives that support recycling data collection efforts include market research that has been conducted to assess behaviors and attitudes related to the City's recycling program. DEC is leading multiple ongoing efforts to assess and improve data collection, including identification and characterization of infrastructure, use of web-based tools for research and data collection, implementation of electronic annual reporting options for facilities and transporters, examination of data discrepancies or gaps, and identification and implementation of methods relating to data extrapolation and facility design-specific analysis and differentiation. These efforts are targeted at industrial and commercial sectors, including generators of C&D waste.[197]

Recycling Markets

Prices of materials that are recovered from waste diversion are contingent on the global supply of those materials. Much of the paper DSNY collects for recycling is delivered to Pratt to be made into linerboard for corrugated cardboard boxes. DSNY collected paper can be sold to recyclers. Revenue from paper recycling in FY2024 was $13 per ton.198 Metal, glass, and plastic are sent to recycling facilities run by SIMS. Current market prices for metals, plastics, glass, paper, and electronics, as well as descriptions of the recycling supply chain, are included in **Attachment D: National and International Factors Impacting Waste Management**.

Chapter 4: Existing Administrative and Financial Structure

1. Overview

This chapter discusses the New York City Department of Sanitation (DSNY) administrative system, financial structure, and regulatory landscape. DSNY is responsible for most solid waste management functions within Region 2 (New York City) and takes a leadership role as the preparer of Local Solid Waste Management Plans, including this *Draft 2026 Solid Waste Management Plan (Draft SWMP26)*. Other government agencies engaged in the solid waste management system and their roles are briefly described below:

1. **The Business Integrity Commission (BIC)** is tasked with setting, monitoring, and enforcing regulations on commercial waste handling in New York City. BIC is responsible for collecting and reporting data on private carter operations, managing commercial waste licensing and registration, regulating safety standards, and eliminating crime in New York City's commercial waste industry. BIC is also responsible for implementing the Commercial Waste Zones (CWZ) program alongside DSNY.
2. **New York City Department of Environmental Protection (DEP)** manages the city's water and wastewater treatment systems. DEP operates 14 Wastewater Resource Recovery Facilities (WRRFs) across the five boroughs and manages the disposition of the biosolids, grit, screenings and scum from wastewater treatment operations, as well as the catch basin cleaning and marine debris collection (floatables program). The Newtown Creek WRRF, in addition to processing sludge from wastewater, co-digests pre-processed organics from food waste. DEP also tracks hazardous waste generators and storage facilities (under Local Law 26 of 1988, the Community Right-to-Know Law) and enforces the City's air pollution and noise codes.
3. **New York City Department of Transportation (NYCDOT)** provides and maintains the City-owned transportation infrastructure and designates truck routes. NYCDOT requires carting companies to obtain a permit for each commercial refuse container (CRC) placed on a city street adjacent to the curb. NYCDOT operates asphalt and concrete recycling facilities and works to incorporate recovered materials, including recycled asphalt (RAP), recycled concrete aggregate (RCA), and warm-mix asphalt, in NYCDOT construction projects.
4. **Mayor's Office of Environmental Remediation (MOER)** promotes the cleanup and redevelopment of vacant contaminated land in New York City. MOER operates the Clean Soil Bank which transfers soil from deep excavations at construction sites free of charge to other public and private New York City development projects. MOER has also launched the PUREsoil NYC Program, which delivers clean soil at no cost to community-based organizations to build new gardens, restore existing community gardens, and improve the quality of degraded soil throughout the city.
5. **Mayor's Office of Climate & Environmental Justice (MOCEJ)** advances city policies and programs related to sustainability and climate change (including reducing waste) and environmental justice, addressing racial and social inequities in health outcomes associated with the environment.
6. **Department of Consumer and Worker Protection (DCWP),** formerly the Department of Consumer Affairs (DCA), protects and enhances the daily economic lives of New Yorkers to create thriving communities. One of DCWP's functions is to license scrap metal processors.

7. **Office of Management and Budget (OMB)** is the City's chief financial agency, tasked with developing and executing the City's expense and capital budgets. New York City's fiscal year (FY) is July 1 through June 30. For example, FY24 began July 1, 2023 and ended June 30, 2024.
8. **Department of City Planning (DCP)** is the City's primary land use agency. Some of DCP's tasks include maintaining the Zoning Resolution text and maps and providing technical support for land use applications, which are relevant to siting and operating waste management facilities. DCP also prepares demographic and employment projections for the City, relevant to DSNY's waste generation projections.
9. **New York City Department of Parks and Recreation (Parks)** maintains the City's parks, playgrounds, beaches, recreational facilities, and street trees. When street trees are damaged as a result of severe weather or other causes, Parks removes the debris. Parks also hosts MulchFest, where New Yorkers bring Christmas trees to local parks to be recycled into mulch.
10. **Department of Design and Construction (DDC)** is the City's primary capital construction project manager. DDC's *Construction & Demolition Waste Manual*[199] is a resource handbook for construction and demolition waste reduction, reuse, and recycling on New York City projects.
11. **New York City Department of Citywide Administrative Services (DCAS)** oversees training for City employees, manages public buildings and properties, purchases goods and services for City agencies, oversees City vehicle fleet, and leads City efforts to reduce carbon emissions from government operations.
12. **New York City Public Schools (Schools)** manages the public school system across New York City's five boroughs. The Department of Education has a sustainability initiative, which includes waste reduction and recycling of metal, glass, plastic, paper and cardboard. As of 2024, all K-12 schools partake in the Citywide Residential Organics Program.
13. **New York City Housing Authority (NYCHA)** provides affordable housing for low- and moderate-income New Yorkers. NYCHA oversees collection of refuse and recycling for NYCHA properties. NYCHA sustainability strategies include improving waste management and recycling, as well as designing for circularity and recycling in construction of capital projects.
14. **New York City Department of Cultural Affairs (DCLA)** promotes and advocates for quality arts programming. DCLA provides free supplies through its Materials for the Arts Program, a waste reduction initiative.
15. **Fire Department of the City of New York (FDNY)** provides fire prevention and protection, emergency medical care, and other critical public safety services in New York City. FDNY works with DSNY to reduce the risk of fires from rechargeable batteries.

2. DSNY Organization and Staffing

DSNY is the largest municipal waste management department in the United States. It manages residential solid waste generated in New York City, oversees the city's commercial and industrial solid waste management facilities, plans for future solid waste management and capacity, and implements programs to manage and reduce waste in the five boroughs. DSNY collects residential and some institutional waste and manages processing of that waste in collaboration with other City agencies and departments. DSNY and the Business Integrity Commission (BIC) together regulate the commercial waste sector.

Several DSNY bureaus and units are responsible for Solid Waste Management Plan (SWMP) development, implementation, updates, and reports, as detailed below.

› **Bureau of Cleaning and Collection:** Cleans streets; collects refuse, recyclables, and organics; removes snow; and provides daily oversight of all collection activities.

› **Enforcement Division:** Monitors compliance with administrative, recycling, and health laws governing the maintenance of clean streets, illegal posting and dumping, theft of recyclables, and proper storage and disposal of recycling and garbage by residents and businesses. The division includes three units:

- Environmental Police (DSNY Police): Regulates and enforces New York City sanitation laws and is staffed by armed New York State Peace Officers.
- Environmental Enforcement: Enforces the local laws that govern the storage, transportation, and disposal of hazardous waste, including asbestos and regulated medical waste. This unit responds to incidents involving the improper disposal of chemicals, household hazardous waste, low-level radioactive waste, and medical waste and conducts inspections of hospitals and nursing homes to ensure proper disposal of regulated medical waste.
- Permit Inspection Unit (PIU): Oversees permitting and inspection of private solid waste transfer stations and collects data on waste managed at private transfer stations.

› **Bureau of Management and Budget:** Units under Management and Budget perform key administrative functions. The units include:

- Engineering Audit Office: Audits contracts, vendor payments, and purchases.
- Fiscal Services: Manages DSNY's annual budget.
- Bureau of Planning and Budget: Plans and manages expense and capital budgets.
- Operations Management Division (OMD): Monitors and analyzes productivity and performance and develops strategies to improve operations. OMD manages much of the data related to DSNY operations.

› **Bureau of Legal Affairs:** Provides legal counsel, advice, and assistance to other DSNY bureaus.

› **Bureau of Public Affairs & Customer Experience:** Coordinates special events, handles media production and communications, plans press conferences and announcements, plans strategic communications projects, and manages website content. Also works to increase the public's understanding of, support of, and participation in curbside composting collection and other DSNY programs.

› **Community Affairs:** Serves as DSNY's point of contact for the public and interagency partners. Represents DSNY to elected officials, businesses, civic associations, community boards, other agencies, and other stakeholders.

› **Bureau of Solid Waste Management (SWM):** Manages waste disposal, recycling, and resource recovery operations after material[200] is collected. SWM includes the following divisions:

- Solid Waste Management Engineering: Responsible for the post-closure management of Fresh Kills and Edgemere Landfills, .and for the design, construction, and maintenance of DSNY owned solid waste management facilities.
- Operations: Responsible for working with the other operating bureaus to manage collected materials and contractors who accept them.

- Resource Recovery: Leads initiatives to reduce waste and increase recycling.
- Administration: provides oversight for fiscal and contract matters, compliance, and analytics

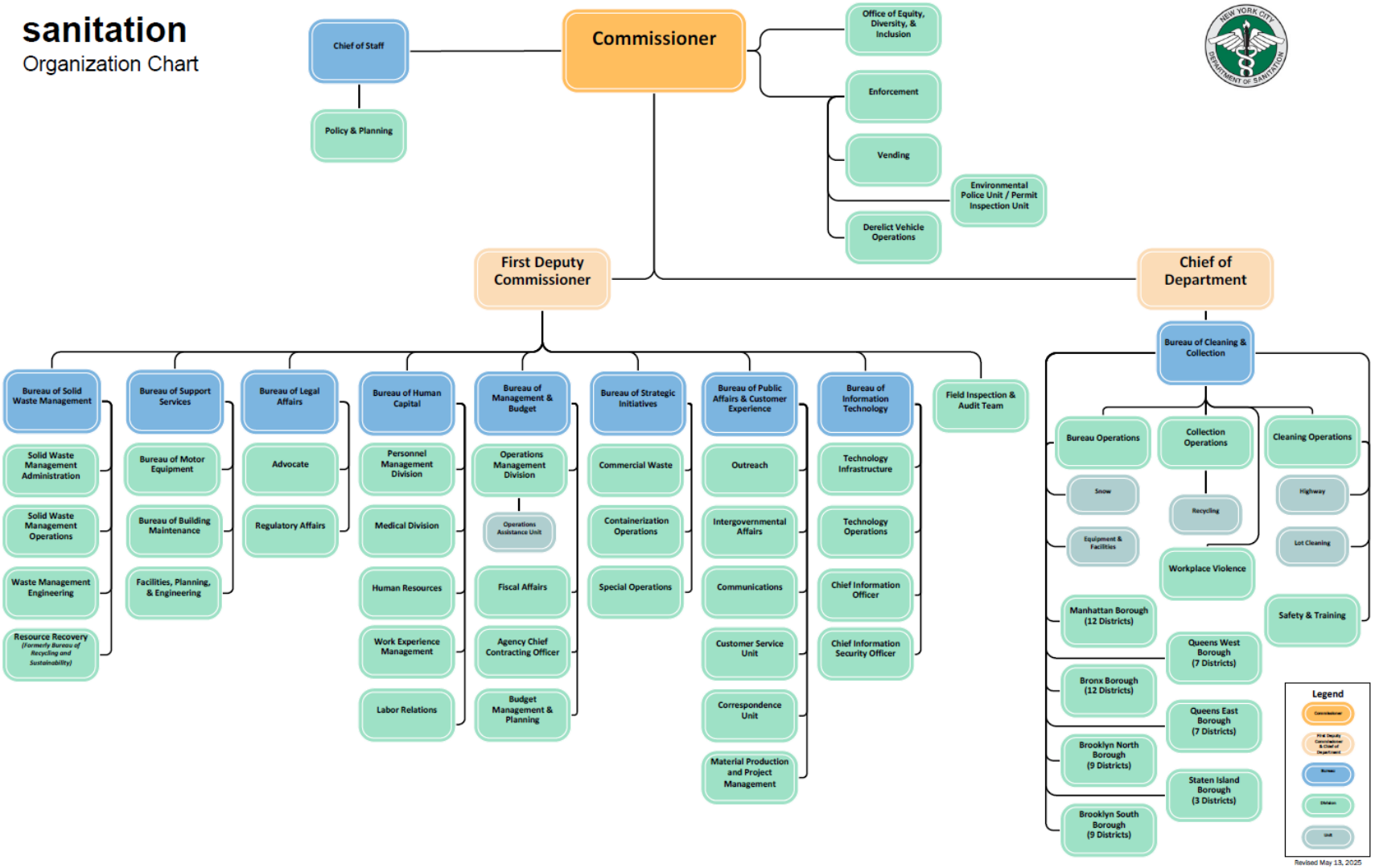
› **Bureau of Strategic Initiatives**: coordinates strategic initiatives for the Agency.

› **Bureau of Commercial Waste:** Oversees outreach, policy, and enforcement related to commercial waste collection and recycling regulations. The Bureau of Commercial Waste is also responsible for implementing Commercial Waste Zones.

› Agency and Building Containerization: Works with City Agencies including Schools and NYCHA to improve recycling infrastructure and participation.

Figure 4-1 shows the organizational chart for DSNY.

Figure 4-1. DSNY Organizational Chart



- Operations (refuse and recycling collection and disposition, facility operations, street cleaning, and snow removal)
- The long-term export program
- Recycling and recycling outreach efforts
- Administrative needs

Table 4-2 shows DSNY's Expense Budget by program. **Table 4-3** and **Figure 4-2** show the Adopted Capital Budget Funding by *2006 SWMP*-related project. In FY23, capital funding for recycling increased dramatically to procure split-body trucks for expanded organics collections.

Table 4-2. DSNY Expense Budget FY16-FY24 ($000)

Programs	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24
Metal, Glass, and Plastic Processing	$16,955	$20.390	$20,793	$21,190	$21,229	$22,833	$22,833	$26,033	$27,633
Organics Processing	$1,797	$13,634	$14,382	$10,818	$15,081	$4,452	$4,448	$8,156	$7,050
Public Education/Outreach	$4,853	$7,302	$6,098	$8,580	$5,997	$5,648	$6,251	$19,392	$13,928
Grow NYC, Printing, Postage, Contracts, and Professional Services[1]	$3,469	$14,282	$4,336	$7,854	$5,672	$1,150	$1,100	$14,949	$1,707
Household Hazardous Waste Program	$1,000	$2,606	$2,606	$2,606	$2,606	$381	$2,606	$2,606	$2,605
Long-Term MTS and Headquarters	$1,710	$1,685	$2,524	$3,573	$3,573	$3,573	$3,573	$3,573	$3,573
Export Contractual Cost[2]	$393,732	$359,469	$392,394	$409,456	$412,442	$369,442	$424,443	$462,816	$478,002
Long Term Export (Legal/Engineering)	$797	$2,270	$1,856	$550	$756	$756	$756	$756	$756
Staten Island Transfer Station	$768	$768	$768	$768	$768	$768	$768	$768	$768
Fresh Kills Landfill Closure Cost	$83,530	$53,958	$71,150	$68,505	$71,450	$56,700	$42,300	$12,740	$12,250
Total	**$508,611**	**$476,362**	**$516,908**	**$533,899**	**$539,573**	**$465,703**	**$509,078**	**$551,790**	**$548,274**

[1]In 2023 and 2024, this included some organics collection (purchase of brown bins, funding for Food Scrap Drop-Off sites (FSDOs), and SMART Bins).

[2]Includes all export contracts – long-term and interim.

MTS: Marine Transfer Station

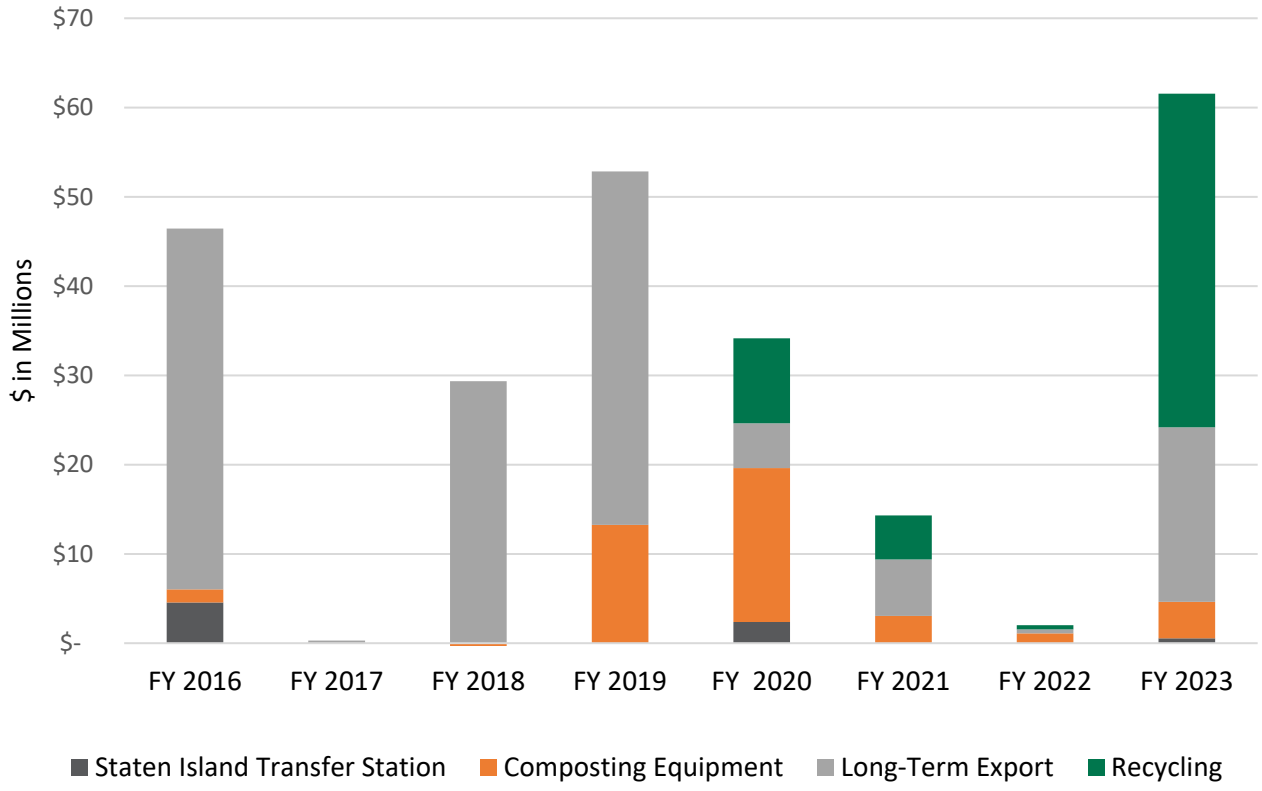
Source: DSNY Biennial Reports to DEC, 2015-2022

Table 4-3. Adopted Capital Budgets for SWMP-Related Projects FY16-FY23 ($000)

Item Description	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25
Staten Island Transfer Station[1]	$4,564	$80	$0	$0	$2,367	$0	$0	$550	$0	$300
Composting Equipment[2]	$1,460	$0	($1,516)	$13,246	$17,247	$3,057	$1,099	$4,083	$380	$0
Long-Term Export[3]	$40,422	$213	$29,348	$39,601	$5,025	$6,320	$459	$19,561	$9,996	$10,848
Recycling[4]	$0	$0	$0	$0	$9,518	$4,934	$464	$37,358	$1,809	$0
Total	**$46,446**	**$293**	**$27,832**	**$52,847**	**$34,156**	**$14,311**	**$2,022**	**$61,552**	**$12,185**	**$11,148**

[1]Includes export equipment FY16-FY19; FY20 budget includes funds for equipment and $1 ($1,000) in FEMA funds FY20; the FY23 budget includes truck scales.
[2]Includes composting equipment and FY22-23 investments in Staten Island and Soundview Park Compost Facilities. Numbers in parentheses indicate funding reductions.
[3]Includes export equipment and $53 ($53,000) in FEMA funds for FY16-FY19 and Marine Transfer Station investments for FY22-FY23.
[4]Includes dual-bin trucks for residential organics collection.
Source: DSNY Biennial Reports to DEC, 2015-2022

Figure 4-2. DSNY Capital Budget Funding, FY16-FY23



Source: *DSNY Biennial Reports to DEC, 2015-2022*

DSNY's Preliminary Capital Commitment Plan for FY25 to FY29 includes a commitment of $1.85 billion. Thirty-two percent of planned expenditures from FY25 to FY29 were planned for FY29. Large expenditures include replacements of garages in the Bronx and Queens, and the replacement of collection trucks and other equipment to support containerized waste collection.

Capital budgets are finalized through a reconciliation process. In January, the Mayor releases the Preliminary Budget: proposed operating and capital expenditures and forecast of revenues for the upcoming fiscal year, plus three subsequent years. The City Council then holds budget hearings with city agencies and the public. In April, the Mayor presents the Council with the Executive Budget — a revised budget proposal for the upcoming year and a complete financial plan for the next three years. The City Council again holds budget hearings and begins negotiations with the Mayor. By June 5, the City Council completes negotiations with the Mayor and then votes to adopt a budget that will serve as the basis of government operations for the upcoming fiscal year. **Table 4-4** shows adopted expense budgets from FY16 to FY25.

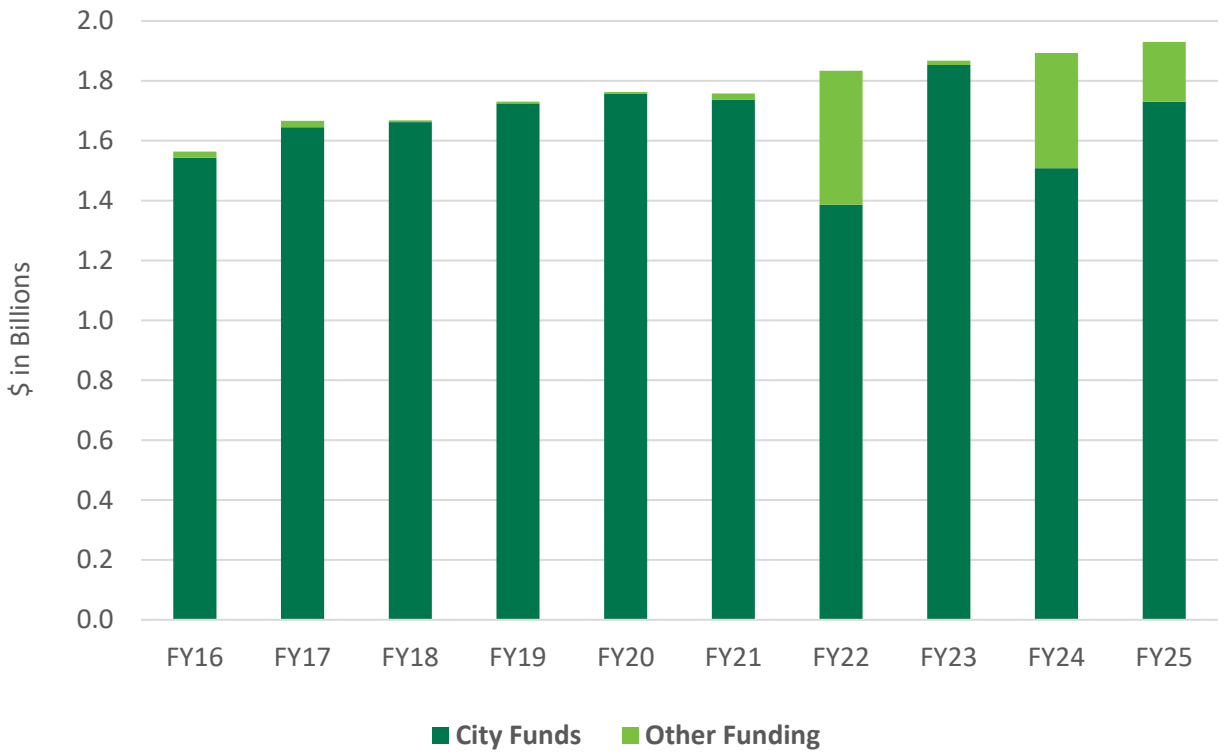
Table 4-4. Funding Summary from Adopted City Expense Budgets, FY16-FY25 ($000)

Funding	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25
City Funds	$1,543,519	$1,644,835	$1,661,960	$1,724,592	$1,756,340	$1,737,703	$1,386,381	$1,853,206	$1,508,434	$1,731,331
Other Categorical Funds	$750	$750	$750	$750	$750	$750	$750	$750	$750	$750
Capital IFA Funds	$4,331	$5,294	$5,331	$5,345	$5,651	$5,702	$5,710	$5,735	$6,018	$6,117
State Funds	$25	$25	$25	$25	$25	$25	$25	$25	$0	$0
Community Development Funds	$15,330	$15,726	$0	$0	$0	$0	$0	$0	$0	$0
Other Federal Funds	$0	$0	$0	$0	$0	$13,570	$441,061	$7,600	$377,690	$200,490
Total	**$1,563,955**	**$1,666,631**	**$1,668,066**	**$1,730,711**	**$1,762,740**	**$1,757,726**	**$1,833,902**	**$1,867,290**	**$1,892,893**	**$1,938,688**

IFA – Inter-fund Agreements
Source: Office of Management and Budget, Funding Summary from Adopted City Budgets[201]

The FY24 budget is approximately $33 million more than the total for the same period presented in the Preliminary Capital Commitment Plan (Preliminary Plan), largely due to increased funding for citywide curbside organics collection. Similar to FY23, the FY24 expense budget did not include increased funding for the following services and programs: fully restored litter basket service, e-waste collection, illegal dumping enforcement, syringe waste removal, and the expansion of the derelict vehicle removal program.[202] DSNY's expense budget in FY23, FY24, and FY25 comprised under 2% of New York City's total budgets in the Executive Plan.[202] As shown in **Figure 4-3** DSNY's funding has generally grown since 2016, with nearly $40 million added to DSNY's expense budget each year. However, this growth in funding was not steady. For example, in FY18, funding only grew by $1.4 million, and in FY21, funding decreased by $5 million. City funding for DSNY was reduced in FY22 and FY24, as federal funding was available and used to meet DSNY's funding needs.

Figure 4-3. DSNY Expense Budget – City Funding by Fiscal Year, FY16-FY2



Source: *Office of Management and Budget, Funding Summary from Adopted City Budgets*[201]

Table 4-5 includes DSNY's operational costs for fiscal years 2016-2024 as reported in the Mayor's Management Reports (MMRs). The MMRs document and track performance metrics for City agencies. According to the Independent Budget Office,[203] fully loaded costs (for refuse and recycling listed in the table) include "the direct costs of collection, processing, and disposal, and allocate indirect costs such as vehicle and building maintenance, legal affairs, and other support and administrative overhead expenditures, based on direct costs."

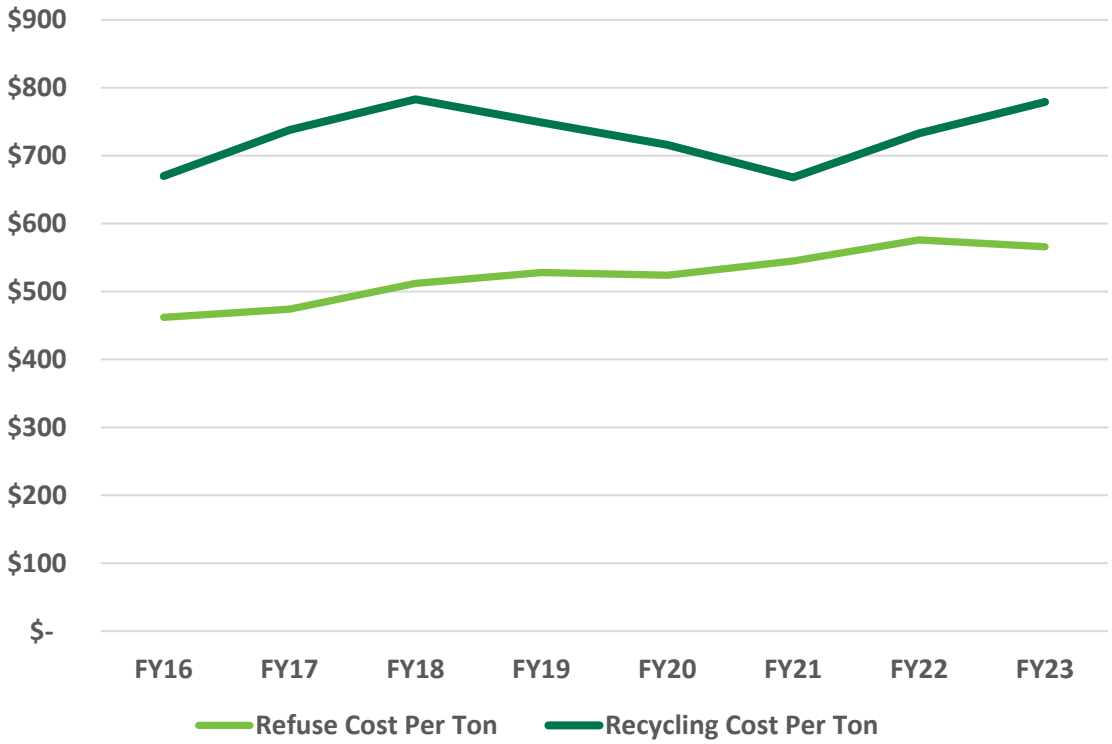
Table 4-5. DSNY Operational Costs, FY16-FY24

Activity-Based Costs	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24
Refuse Collection Cost Per Ton ($)	$291	$291	$310	$317	$311	$342	$365	$344	$320
Refuse Disposal Cost Per Ton ($)	$171	$183	$202	$211	$213	$203	$211	$222	$226
Refuse Cost Per Ton (Fully Loaded) ($)	$462	$474	$512	$528	$524	$545	$576	$566	$547
Recycling Collection Cost Per Ton ($)	$629	$686	$706	$671	$643	$615	$675	$690	$742
Recycling Cost Per Ton (Fully Loaded) ($)	$670	$738	$783	$749	$716	$668	$733	$779	$805
Paper Recycling Revenue Per Ton ($)	$12	$14	$16	$12	$12	$13	$19	$15	$13
Total Tons of Refuse Disposed*	3,196,200	3,213,400	3,193,300	3,248,100	3,204,400	3,399,100	3,351,100	3,162,500	3,202,500
Total Tons Recycled*	740,000	800,000	835,000	868,000	874,000	912,000	816,000	797,000	826,000
Total Cost of Refuse Disposal ($000,000)*	$1,477	$1,523	$1,635	$1,715	$1,679	$1,853	$1,930	$1,790	$1,752
Total Cost of Recycling ($000,000)*	$496	$590	$654	$650	$626	$609	$598	$621	$665

*Approximate values
NA: Not available
Source: NYC Mayor's Office of Operations, *Mayor's Management Reports (MMR)* (fiscal year 2016-2024)[204]

Figure 4-4 illustrates the fully loaded costs of refuse disposal and recycling from information in the MMRs. The higher recycling costs are due to the lower total volume of recycling; a collection truck covering the same distance during a shift collects less in recycling than in refuse, resulting in a higher cost per ton. As shown in **Figure 4-4**, the cost differential between recycling and waste disposal continues to fluctuate.

Figure 4-4. Fully Loaded Refuse Disposal and Recycling Costs, FY16-FY23



***Source**: Mayor's Management Report (MMR)*[204]

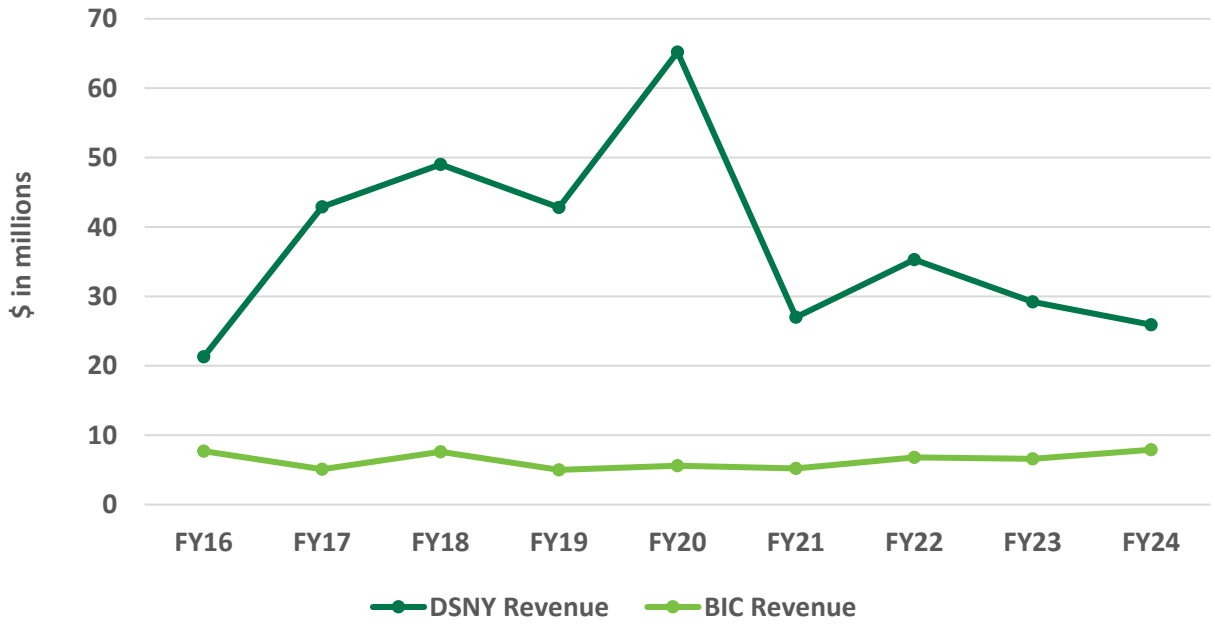
3. Revenue and Funding for DSNY Programs and Operations Outside of City Budget

While tax dollars are a major source of funding for New York City's solid waste management, DSNY gets additional funding through revenue, grant funding, and State and Federal funding. Additional revenue sources include fees and charges DSNY receives from licenses, dumping privileges, sales, and administrative services and fees. BIC revenue includes, among other sources, licenses, fees, fines, and the Law Enforcement Block Grants Program.[205] The actual revenue (as opposed to adopted or modified budgets) by year is shown in **Table 4-6** and **Figure 4-5**.

Table 4-6. DSNY Revenue, FY16-FY24 ($Million)

Year	Department of Sanitation (DSNY)	Business Integrity Commission (BIC)
FY16	$21.3	$7.7
FY17	$42.9	$5.1
FY18	$49.0	$7.6
FY19	$42.8	$5.0
FY20	$65.2	$5.6
FY21	$27.0	$5.2
FY22	$35.3	$6.8
FY23	$29.2	$6.6
FY24	$25.9	$7.9
Source: Comptroller's *Annual Comprehensive Financial Report* (ACFR)[205]		

Figure 4-5. DSNY and BIC Revenue, FY16-FY24



***Source**: Comptroller's Annual Comprehensive Financial Report (ACFR)[205]*

Table 4-7 and **Table 4-8** provide a detailed breakdown of DSNY revenue.

Table 4-7. DSNY Revenue from Licenses, Fees, Miscellaneous, FY16-FY24 ($000)

Revenue Type	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24
Licenses—General	$486	$658	$516	$569	$575	$377	$712	$331	$675
Dumping Privileges	$1,161	$1,239	$1,377	$1,377	$1,246	$1,309	$1,362	$1,299	$1,265
Abandoned Cars, Fresh Kills Landfill Gas Concession (ended FY21), Con Edison access	$3,446	$17,521	$14,950	$14,854	$9,240	$7,117	$81	$3,735	$693
Sanitation Services and Fees	$13	$10	$11	$12	$14	$18	$19	$16	$19
Other Services and Fees	$417	$692	$1,555	$1,445	$726	$602	$534	$1,466	$835
Administrative Services to the Public	$34	$76	$63	$48	$31	$56	$35	$119	$155
Minor Sales	$9,421	$9,760	$10,322	$10,418	$8,624	$8,478	$11,477	$11,487	$9,738
National Incident Management System[1]	$0	$0	$1,093	$0	$0	$0	$0	$0	$1,074
Pollution Remediation Bond Sales	$632	$6,133	$2,418	$6,269	$3,842	$802	$2,911	$4,260	$4,322
Total	**$15,610**	**$36,089**	**$32,305**	**$34,992**	**$24,298**	**$18,759**	**$17,131**	**$22,713**	**$18,776**

Notes: [1]National Incident Management System (NIMS) compliance is required for future federal domestic preparedness funding for local governments. NIMS identifies the roles that government and non-government organizations will take to address domestic incidents and emergencies.
*Revenue sources that were included in the ACFR but are unrelated to solid waste management are excluded from this revenue table.
Source: Comptroller's *Annual Comprehensive Financial Report* (ACFR)[205]

Table 4-8. DSNY Grant and State Funding, FY16-FY24 ($000)

Code	Funding type	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24
29801	NYS Energy Conservation	25	25	35	84	—	—	44	—	—
29982	NYS Dormitory Authority Grant	—	—	40	104	456	—	—	—	—
30255	NYS DEC Recycling	—	—	—	864	2,164	—	11,235	932	504
41900	Private Grants	196	203	213	227	200	—	127	—	—
43900	Private Grants – NYCHA Special Collection, CDL training, other miscellaneous	2,384	2,500	2,216	1,576	1,519	2,654	1,783	1,841	1,343
44061	Non-Governmental Grants	894	500	—	32	760	—	133	97	—

Source: Comptroller's *Annual Comprehensive Financial Report* (ACFR)[205]

4. Performance Assessment

The performance indicators included below were sourced from the *Mayor's Management Reports* from FY16 to FY24.[204] This reporting, mandated by the City Charter, aims to regularly evaluate the efficiency and progress of City agencies in achieving their duties and goals.

Critical indicators are factors that are particularly important for analyzing DSNY's performance. **Table 4-9** includes some of DSNY's financial performance indicators.

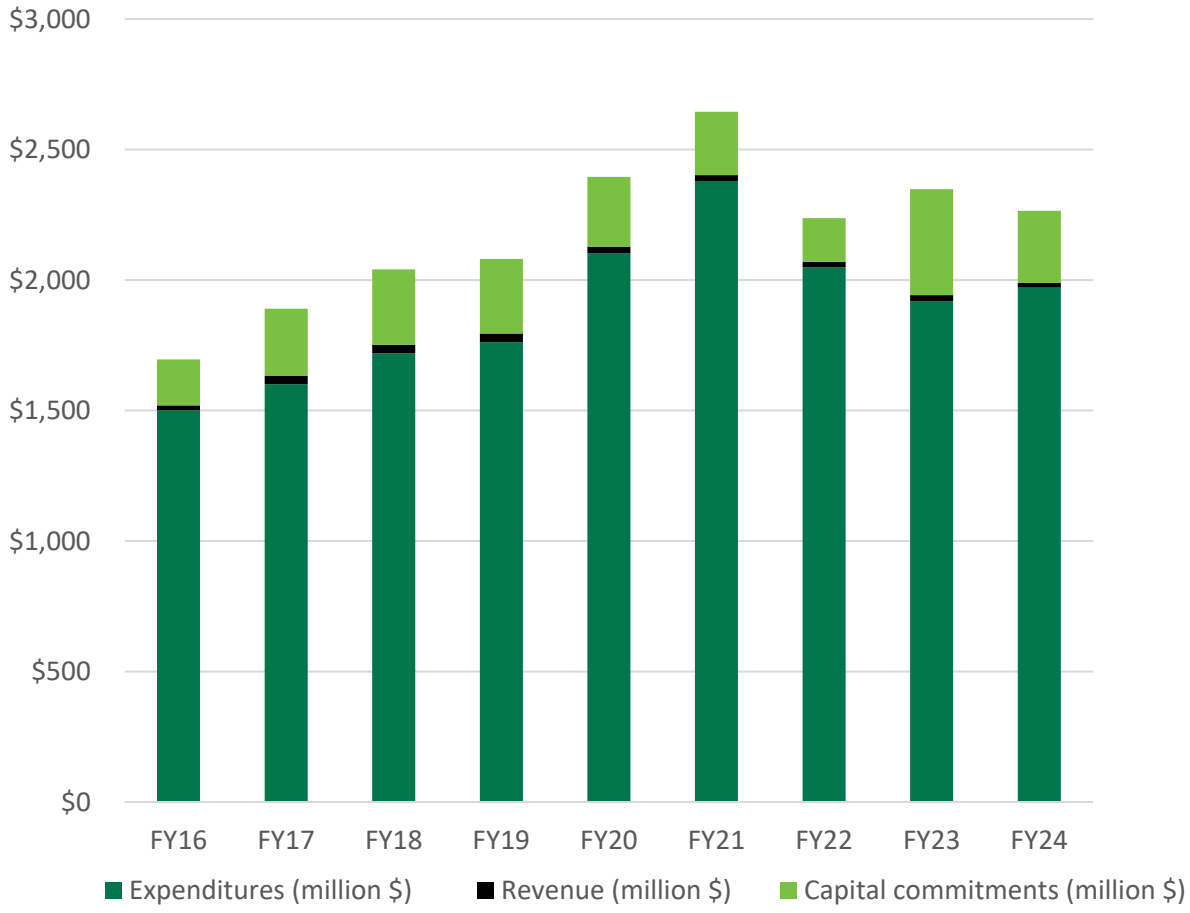
Table 4-9. Agency Resources Performance Indicators, FY16-FY25

Fiscal Indicator	Actual									Plan[1]	
	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25	FY26
Expenditures ($million)[2]	$1,501	$1,601	$1,719	$1,762	$2,103	$2,379	$2,040	$1,919	$1,978	$1,996	$1,932
Revenue ($million)	$19	$33	$33	$33	$25	$23	$21	$23	$18	$16	$20
Personnel (Uniformed)	7,465	7,544	7,558	7,893	7,755	7,220	7,614	8,045	8,150	7,975	7,846
Personnel (Civilian)	2,299	2,445	2,495	2,457	2,171	2,109	2,115	1,979	1,872	1,915	1,918
Overtime Paid ($million)	$101	$118	$164	$138	$156	$283	$284	$176	$163	$156	$129
Capital Commitments ($million)	$176	$256	$289	$286	$267	$243	$171	$406	$283	$399	$296

[1]Authorized Budget Level [2]Expenditures include all funds
Source: *Mayor's Management Report (MMR)*[204]

Figure 4-6 provides an overview of DSNY's spending and revenue as reported in the MMRs.

Figure 4-6. DSNY Financial Overview, FY16-FY24



Note: *DSNY expenditures may exceed the funding authorized in the City's plans.*
Source: *Mayor's Management Reports (MMR)*[204]

DSNY has a team of officers and conducts enforcement efforts to promote compliance with New York City's Recycling laws. PIU conducts inspections of private waste management facilities. Inspections are routine and may occur without prior notice to facility owners and staff. As shown in **Table 4-10**, violations, summonses, and inspections generally decreased from FY16-FY22. In 2023, the "Violations Issued" performance indicator was changed to "Cleanliness Violations Issued" to reflect an expanded list of violation codes that impact the City's cleanliness, resulting in a spike of violations counted under this indicator in FY23 and FY24.

Table 4-10. Violations and Enforcement Performance Indicators, FY16-FY24

Indicators	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24
Recycling Summonses Issued[1]	118,407	100,629	84,682	76,492	55,610	35,590	32,015	47,267	51,848
Violations Issued (Cleanliness Violations)	-	-	55,913	59,904	56,844	42,694	46,329	917,627	992,192
Private Transfer Station Inspections Performed	4,570	5,758	5,875	5,984	5,321	4,064	4,116	4,731	5,895

Note: [1] Includes both residential and commercial.
Source: Mayor's Management Reports[204]

5. Local Laws and Regulations

New York City's waste management practices are shaped in large part by local, state, and federal laws and regulations. In recent years, solid waste management policies have expanded to include environmental justice requirements, product stewardship for the commercial sector, and sustainability initiatives. A comprehensive overview of New York City and New York State laws and regulations relating to municipal solid waste as well as waste reduction, reuse, and recycling are available in **Attachment A: Local Laws Relevant to Waste Management**. In addition, Executive Orders, Zoning, and the Uniform Land Use Review Procedure (ULURP) affect waste management in New York City.

New York City Executive Orders that Affect Waste Management

1. Executive Order 23 of 2022 (Eric Adams) – Directs City capital agencies to adopt construction and operations practices that reduce emissions (includes commitments on waste reduction and recycling).
2. Executive Order 90 of 2021 (Bill De Blasio) – Accelerates electrification of New York City's vehicle fleet.
3. Executive Order 54 of 2020 (Bill De Blasio) – Eliminates unnecessary single-use plastic bottles.
4. Executive Order 42 of 2019 (Bill De Blasio) – Eliminates the use of City funds for the unnecessary purchase of single-use plastic foodware.

Zoning

The City's Zoning Resolution dictates what use types are authorized in specific zones. Industrial and manufacturing uses are included in Use Groups 17 and 18 and are permitted in the three manufacturing districts: M1, M2, and M3. Each district incorporates different performance standards that limit the amount and type of industrial nuisances permitted. Performance standards are the minimum requirements or maximum allowable limits on noise, vibration, smoke, odor, and other effects of industrial uses in Use Groups 17 and 18. Generally, Use Group 18, which is designated as heavy industry and includes transfer stations, is only authorized in M3 districts. However, such uses may be located in M1 and M2 districts if the use complies with the higher performance standards outlined for those districts. All transfer stations and intermodal solid waste container facilities must be sited in accordance with the Zoning Resolution or pursuant to a variance granted by the New York City Board of Standards and Appeals. DSNY rules[206] include specific siting requirements, as detailed in **Table 4-11**.

M3 districts are usually located near the waterfront and buffered from residential areas. Pursuant to the Zoning Resolution and DSNY rules, transfer stations must be sited at least 400 feet from residential districts, public parks, schools, hospitals, and other transfer stations and must abide by applicable industrial performance standards. Because solid waste management infrastructure (including marine transfer stations; dumps; junk or salvage yards; and storage, sorting, and baling facilities for scrap metal, junk, paper, or rags) is generally not compatible with residential uses, such uses are not allowed in residential (R) districts.

In 2018, the City enacted Local Law 152 to address the issue that most of the City's private waste transfer stations and permitted capacity were located in four community districts: Brooklyn Community District 1, Queens Community District 12, and Bronx Community Districts 1 and 2. These districts were disproportionately impacted by this infrastructure. Pursuant to Local Law 152, permitted capacity at putrescible and non-putrescible solid waste transfer stations was reduced by 50% in Brooklyn Community District 1 and by 33% in Queens Community District 12 and Bronx Community Districts 1 and 2.[207]

Table 4-11. New York City Zoning and Siting Requirements for Transfer Stations

Buffer Distance to Residential Districts, Hospitals, Public Parks, and Schools	Buffer Distance Between Transfer Stations[1]	Additional Requirements*	Zoning Requirements
700 feet	400 feet	(i) Facility enclosed; (ii) Queuing area on site; (iii) Offsets required	M2 and/or M3 districts only
600 feet	400 feet	(i) Facility enclosed; (ii) Queuing area on site; (iii) Offsets required	M2 and/or M3 districts only
600 feet	400 feet	Queuing area on site	M2 and/or M3 districts only
500 feet	400 feet	Queuing area on site	M1, M2 and/or M3 allowed
400 feet	400 feet	Queuing area on site	M1, M2 and/or M3 allowed

Note: *For details, please see RCNY § 4-32 Siting Requirements[208]

[1] This requirement does not apply to a new transfer station that is located at or adjacent to a rail yard, rail spur, industrial track or vessel facility if at least 90% of the solid waste received is transported from the facility by rail or vessel.

Uniform Land Use Review Procedure (ULURP)

The New York City Charter requires certain actions that are reviewed by the City Planning Commission to undergo a Uniform Land Use Review Procedure (ULURP). ULURP is a standardized procedure whereby applications affecting the land use of the city would be publicly reviewed. The Charter also established mandated time frames within which application review must take place. Key participants in the ULURP process are now the Department of City Planning (DCP) and City Planning Commission (CPC), Community Boards, Borough Presidents, Borough Boards, City Council and Mayor. The City Charter (Section 197-c, subsection a) makes a number of actions subject to ULURP, with the ones most likely to affect solid waste management and solid waste infrastructure listed below:

› Changes to the city map.

- Designation or change of zoning districts.
- Special Permits within the Zoning Resolution requiring approval of the City Planning Commission (CPC). (Note: CPC authorizations pursuant to the Zoning Resolution are not subject to ULURP. Variances and Special Permits reviewed by the Board of Standards and Appeals are also not subject to ULURP.)
- Site selection for capital projects. This includes the selection of sites for new city facilities such as sanitation garages. A capital project is the construction or acquisition of a public improvement classified as a capital asset of the City.
- Revocable consents, requests for proposals and other solicitations or franchises, and major concessions.
- Sanitary or waterfront landfills.
- Disposition of city owned property. This includes sale, lease, or exchange of real property.
- Acquisition of real property by the City. Office space acquisition is excluded and subject to a separate review pursuant to Section 195 of the City Charter.

6. National and International Influences

In addition to local policies and regulations that guide waste management in New York City, national and international policy and systems shape DSNY waste management practices. An in-depth review of national and international policies and systems that affect the management of waste in New York City (directly or indirectly) is presented in **Attachment D: National and International Factors Impacting Waste Management**, with the key policies summarized in the following text.

Foundational Waste Management Policies in the U.S.

The 1976 Resource Conservation and Recovery Act (RCRA) sets requirements for the tracking, transportation, and disposal of hazardous waste materials. RCRA created standards to reduce pollution and leaching of hazardous waste. Additionally, RCRA set standards for the handling, recovery, and disposal of non-hazardous waste materials. RCRA established the requirement for State Solid Waste Management Plans.[110] Since RCRA was enacted, several amendments to the law have been passed.[209]

Waste flow control laws regulate the movement of waste between and within states.[210] These laws guide the management of waste by type at state and local levels. Extended producer responsibility laws support the recycling and recovery of specific products or materials, such as electronics and batteries.[211] The Clean Water Act (1972) ensures that wastewater and wastewater byproducts are appropriately managed through regularly updated standards and regulations.[212]

Global Policies

In 2017, China implemented Operation National Sword, a policy that limited the types of waste material that can be imported into the country. This caused disruptions across the U.S. waste handling system, increased the costs of disposal, and resulted in more plastic landfilled in the U.S. Other countries in South and Southeast Asia also implemented bans or restrictions on various waste materials in the following years.[213] Large portions of U.S. textile waste are exported for management in East Africa. There are ongoing efforts to restrict the quantity or type of clothing or textiles imported due to the environmental and cultural impacts textile waste has on these countries.[214]

Chapter 5: Program Development

The New York State Department of Environmental Conservation (DEC) requires each Local Solid Waste Management Plan (LSWMP) to include an "Alternatives Evaluation and Selection" chapter identifying and evaluating systemic and technological alternatives for managing all types of waste generated in the Planning Unit. New York City has a mature waste management system and infrastructure in place. Rather than choosing among alternative options, New York City's *Draft 2026 Solid Waste Management Plan (Draft SWMP26)* evaluates existing programs and describes new and proposed programs that aim to reduce waste generation, increase resource recovery, and improve existing waste management over the next 10 years (2026-2036). The discussion of these programs follows DEC's suggested format for the LSWMP; however, the New York City Department of Sanitation (DSNY) refers to this chapter as "Program Development" and to the "Alternatives" as "Programs," with each program consisting of multiple "Initiatives." This chapter builds on the Current Conditions Assessment spanning Chapters 1-4.

SWMP26 includes eight programs primarily structured around types of waste (refuse, organics, recyclable materials (metal, glass, plastic, and paper), construction and demolition debris, and special waste) and waste generators (residential and institutional, commercial, and industrial). The overarching goals of these programs are to (1) decrease the amount of waste disposed and (2) increase the reduction, recycling (including composting and other organics management), and recovery of recyclables, consistent with DEC requirements, all while (3) maintaining a safe and effective solid waste management system in New York City. The programs include:

1. Waste Prevention and Reuse Program
2. Organics Diversion and Recovery Program
3. Residential Recycling Program
4. Residential Municipal Solid Waste (MSW) Program
5. Commercial Waste Program
6. Construction and Demolition (C&D) Waste Program
7. Special Waste Program
8. Education and Outreach Program

As part of each of these programs, DSNY and other New York City agencies are proposing a set of specific initiatives that will further the overarching *SWMP26* goals. As these programs and initiatives are not mutually exclusive, DSNY proposes to advance all of them in parallel.

This chapter includes a discussion of each program and initiative, as well as their anticipated effects on waste and waste management in New York City. In addition, this chapter discusses the opportunities for, and DSNY's commitment to, continued research and development of best waste management practices. Following the program descriptions, this chapter includes a summary of initiatives by City agency.

To the extent possible and applicable, the discussion of each program in this chapter includes the following:

- Description of the program and initiatives
- List of stakeholders, including the lead agency and partners needed for program implementation and program success
- Policy context, providing an overview of existing applicable regulations
- Overview of lifecycle effects

New or modified local laws, ordinances, or regulations that may be required for implementation are discussed in **Chapter 6: Implementation Plan and Schedule**.

Information on the types and amounts of solid waste generated and managed in New York City and data gaps are discussed in **Chapter 2: Waste Generation and Materials Recovery Data**.

1. Waste Prevention and Reuse Program

Waste prevention reduces the demand for single-use or superfluous items and encourages the reuse of existing products. Reuse is at the top of the U.S. Environmental Protection Agency's (EPA) waste management hierarchy — the preferred method of managing waste to avoid waste generation. Donation, repair, and lending are examples of reuse, all of which divert material from the waste stream and therefore reduce waste managed at landfills and incinerators. Reuse can also include the resale of an item.[112]

As part of the Waste Prevention and Reuse Program, DSNY will advance the following initiatives:

(1) Advance textile reuse programs and reduce textile waste.
(2) Facilitate reuse and repair by supporting organizations and donateNYC users and by including construction and demolition (C&D) material reuse.
(3) Promote packaging reuse and reduction.
(4) Increase access to reuse centers and support reuse and repair events.
(5) Improve data collection and reporting on the benefits of reuse.
(6) Study incentive-based waste management policies.
(7) Convene New York City's circular economy stakeholders.

These initiatives will affect both residential and commercial waste streams, as well as a variety of material types.

1.1 Advance Textile Reuse Programs and Reduce Textile Waste

DSNY's *2023 Waste Characterization Study* found that textile waste (clothing, non-clothing fabric, and accessories) accounts for 5% of New York City's residential and institutional waste stream, totaling approximately 155,000 tons annually. An estimated 3.6% of this tonnage is captured through existing diversion programs.

Expand Collection Options and Increase Participation

DSNY currently offers a citywide textile collection program, which is available to apartment buildings with 10 or more units and nonresidential buildings, such as office buildings, businesses, schools, and institutions. All participating buildings receive free and convenient in-building textile collection bins and on-call pickup service. This program is operated through a contract with the New York State Industries for the Disabled, Inc. and Helpsy, finalized in 2025. Textile items suitable for resale are resold in local thrift stores and the rest is sent to textile merchants for salvage (i.e., to make fillings for mattresses, car seats, carpet padding, insulation, etc.). **Table 5-1** shows the number of enrollments in New York City's Textile Recycling Collection program, the number of buildings with textile collection bins, and the estimated weight of textiles collected from 2016 to 2024.

Table 5-1. Residential Textile Collection

Textile Collection Metric	2016	2017	2018	2019	2020	2021	2022	2023	2024
Number of enrollments	736	841	983	1,136	1,178	1,233	1,330	1,411	1,470
Number of buildings with bins	1,192	1,356	1,688	1,913	1,973	2,058	2,190	2,386	2,460
Weight of textiles collected (tons, estimated)	1,554	1,800	2,063	2,355	1,230	1,631	1,777	1,920	1,948

As part of the newly finalized textile collection contract, New York City will expand textile collection with additional events and appointment-based pick-up for low-rise buildings (buildings with fewer than 10 units) previously excluded from collection programs. This program targets the collection of 12,000 tons of textiles per year, or 8% of the estimated total textiles discarded by New York City residents and institutions. This initial program expansion will help establish a framework for a larger collection initiative. Long term, DSNY aims to designate textiles as recyclable by rule and substantially increase the diversion of textiles. In addition to expanded collection capacity, this will require extensive outreach and engagement, with program rollout phases paced so that any policies take effect after textile collection services become available at all residential buildings.

Improve Commercial Sector Reporting on Textiles

Commercial generators of textile waste do not report data on collection, reuse, or recycling activities. Some for-profit brands and organizations offer textile collection or takeback programs, but the capacity of those programs and quantities managed are challenging to track. Under New York City's commercial recycling rules, businesses are required to recycle or repurpose textiles if textiles make up more than 10% of the business's total waste stream. DSNY will work with New York City Council to enact a local law requiring these businesses to report on their textile waste generation and diversion practices.

Local Law 112 of 2021 (LL112) requires data collection and reporting on textile goods purchased by City agencies. The law also established the New York City Local Law 112 Task Force, which authored the 2024 report *Achieving Impact Reductions on Textile-Based Goods Purchased by the City of New York*. One of the recommendations in the report was to develop a pilot project in partnership with an existing firm or organization that collects and recycles textiles (or other hard-to-recycle goods). The goals of this *SWMP26* initiative to advance textile reuse and reduce textile waste are consistent with the task force recommendations for City procurement to:

- Identify where and how agencies can reduce the total volume of textiles purchased.
- Reduce the number of single-use textiles purchased.
- Extend the lifespan of textiles.
- Advise on material composition for the lowest environmental impact upstream and downstream.
- Improve end-of-life management of textiles.

The LL112 Task Force report also recommends leveraging City legislation to promote textile waste reduction and recycling, supporting State and Federal legislation, and expanding data collection. In that report, the task force, which included agency and industry representatives, reviewed textile procurement data submitted by each New York City agency. While there were some data gaps, the report indicates that the City spends approximately $48 million per year on textiles and that most of these textiles are sent to landfills after typical use. Reducing the purchase of single-use textiles and the total amount of textiles purchased while increasing access to textile repair, reuse, and recycling for City agencies would reduce the amount of City-purchased textiles disposed at landfills each year. **Table 5-2** shows average annual City agency spending on textiles.

Table 5-2. City Agency Spending on Textiles (2018-2022)

Textile Category	Contract Value
PPE, medical, and dental (scrubs, masks, etc.)	$36,109,685
Tools, equipment, and supplies	$11,047,682
Apparel: Clothes	$332,494
Bags	$147,096
Furniture	$139,302
Carpets and flooring	$126,039
Curtains, blinds, and draperies	$86,497
Office supplies: Desk supplies	$69,247
Apparel: Accessories	$59,283
Flags	$51,957
Facilities: Cleaning and laundry supplies	$32,546
Fabrics and sewing accessories	$31,507
Apparel: Shoes	$12,997
Agriculture and animals (saddles, blankets, etc.)	$4,275
Total	**$48,250,606**
Note: Textile purchases are not tracked separately. The broad purchase categories included in this table include textiles. Agency spending purely on textiles may therefore be substantially lower. April 2018–April 2022 data.	

To reduce waste and the environmental effects of the textiles purchased by and for New York City agencies, DSNY will work with Department of Citywide Administrative Services (DCAS) and agency procurement teams to direct best practices for New York City's textile procurement and end-of-life management. DSNY will work to improve data collection and provide a better baseline for agency textile use to evaluate the lifespan, disposal, and/or diversion strategies as they are implemented.

Over the next 10 years, DSNY will advance textile reuse and reduce textile waste by implementing the following strategies.

Agency Strategies

- DSNY will establish textile collection options for all city households and institutions, with additional events and appointment-based pick-up for low-rise buildings (buildings with fewer than 10 units), which were previously excluded from collection programs.
- DSNY will study potential legislation to increase participation.
- DSNY will work with the New York City Council to identify avenues for requiring commercial textile reporting to better enforce the recycling requirement for businesses whose waste is made up of more than 10% textiles.
- DSNY will work to expand enrollment in its textile recycling program by including office buildings, small businesses, City agencies, and educational and other institutions.
- DSNY, in coordination with DCAS, will provide best practices guidance on textiles used by agencies.
- DSNY will launch pilot projects to increase access to reuse and repair for textiles procured or mandated by the City.

Stakeholders:

DSNY	Textile producers	Thrift stores
DCAS	Nonprofit organizations	Residents
Textile merchants	Businesses	

1.2 Facilitate Reuse and Repair by Supporting Organizations and DonateNYC Users and by Including Construction and Demolition Material Reuse

The reuse and repair of materials is crucial for waste reduction. These strategies prolong the lifecycle of commodities, allowing for reduced consumption and disposal of resources. DSNY will continue to facilitate reuse/repair initiatives and aims to increase the quantity and types of materials managed through donateNYC. DSNY will also collaborate with other City agencies, nonprofits, and groups to study and promote material reuse and repair strategies and networks.

Facilitate Reuse and Repair by Supporting Organizations and DonateNYC Users

DSNY currently supports material reuse and donation through donateNYC, which includes online tools, nonprofit partnerships, and public events. DonateNYC acts as the matchmaker for donations and relies on users to organize storage and transportation. As of December 2024, the donateNYC Partnership consists of over 70 nonprofit partners.[87]

The donateNYC online tools consist of the following resources:

- Directory: A searchable map for residents to find places in their area to donate, find, borrow, or repair goods
- Exchange: An online tool for businesses and nonprofits to give or receive used or surplus goods
- Food Portal: An online tool for businesses and nonprofits to donate or receive edible food (food donation and rescue is included in the Organics Diversion and Recovery Program)
- Reports: Annual and other reports providing New Yorkers with a better understanding of reuse activities citywide

DSNY will continue to promote donateNYC's programs to residents, agencies, nonprofits, and businesses and facilitate the donation and reuse of goods. DSNY will also consider new and expanded partnerships to boost food recovery and chart the future of donateNYC. DSNY also hosts community reuse and recycling events in each community board each year, in accordance with Local Law 88 of 2023. These events have included:

- Community swaps for reusable, portable items such as clothing, houseware, games, books, and toys
- E-waste collection events

DSNY will identify existing local repair centers and programs and consider partnership opportunities. Securing venues for additional locations could be low or no-cost when collaborating with City institutions or agencies. This initiative could result in employment opportunities in the nonprofit sector or be volunteer based. As part of this initiative, DSNY will also consider outreach and marketing materials and administrative support.

Support Construction and Demolition Material Reuse

In 2023, building products accounted for 0.7% (or 9,293 pounds) of material donated through donateNYC—an increase from 2021, when 7,385 pounds were diverted. Building materials that could potentially be donated include decorative building fixtures, lumber, glass cullet, stones, tiles, and bricks. Other construction and demolition (C&D) materials may also be suitable for reuse.

DSNY aims to increase the quantity of C&D material recovered through donateNYC and through other programs and efforts throughout the City. In 2023, the Executive Order 23 (EO23) Task Force was formed to implement the City's Clean Construction EO23, which was created to reduce emissions (particularly embodied carbon) associated with C&D operations and waste.

Town+Gown is a city-wide university-community partnership program under the New York City Department of Design and Construction (DDC). The program conducts research projects and has multiple working groups that study construction and resource recovery. DSNY's Reuse and Donations Unit will coordinate with the EO23 Task Force, Town+Gown, and other City partners to study and develop C&D material reuse pathways and programs.

Agency Strategies

- DSNY will support nonprofit and community organizations engaged in reuse and repair by offering technical assistance, strategic relationship development, and access to funding opportunities.
- DSNY will collaborate with the EO23 Task Force and Town+Gown's Urban Resource Recovery Working Group to identify opportunities for increased C&D salvaged material storage and refurbishment.
- DSNY will build C&D material expertise within DSNY's Reuse and Donations Unit and promote existing donateNYC tools to designers, developers, and contractors to support connecting C&D supply and demand.

Stakeholders:

DSNY

New York City Department of Transportation (NYCDOT)

DDC

New York City Department of Environmental Protection (DEP)

New York City Mayor's Office of Climate & Environmental Justice (MOCEJ)

DEC

DCAS

New York City Public Schools (NYCPS)

Nonprofit organizations

Commercial businesses

1.3 Promote Packaging Reuse and Reduction

Product packaging substantially contributes to the amount of waste generated in New York City and is a major source of waste from single-use materials. Promoting packaging reuse and reducing the amount of packaging used and disposed will reduce single-use plastics and hard-to-recycle materials in the waste stream. In addition to the reuse and reduction strategies discussed under this initiative, extended producer responsibility (EPR) policies are a powerful driver for waste reduction. Advancement and advocacy for EPR policy for packaging is discussed under the Residential Recycling Program. Additional examples of packaging reuse that DSNY and its agency partners could continue to encourage and explore include refill systems in retail and foods service (e.g., durable delivery boxes, take-back programs for jars and bottles), incentivizing design for packaging for reusable or refillable packaging across a multitude of products.

Container Reuse Pilot

DSNY will conduct a packaging reuse pilot to study and demonstrate packaging reuse applications. There are two reusable packaging models: bring-your-own and exchange programs. For food and beverage establishments, the bring-your-own model minimizes the burden of packaging container management on establishments and places that responsibility on customers. However, containers brought by customers may not be compatible with portion sizes, food and beverage equipment, or health and safety requirements. Exchange programs require on-site collection and cleaning infrastructure and may require a deposit or subscription fee from customers. Both models offer benefits but can also present challenges with economic feasibility and scalability. Workplace and institutional cafeterias are good settings for implementing reusable container initiatives as customers eat on-site, there is typically a single food service provider, and there are on-site dishwashers.

As an example, in 2018, EPA awarded a Sustainable Materials Management grant to the Citizens Committee for New York City to pilot a packaging reuse program.[215] The pilot implemented reusable to-go containers in a workplace cafeteria. It required customers to download an app for using and tracking whether the containers were returned. The pilot identified motivating and limiting factors, which DSNY will consider in promoting other packaging reuse programs.

Large Venue Container Reuse Pilot

Single-use beverage containers are common in the United States—an estimated 120 billion single-use cups are used each year, producing a large quantity of waste that can be reduced by wider adoption of reusable containers.[216] The vast majority of these cups, usually made from plastic-coated paper or plastics such as PET, polylactic acid, or polystyrene, are not recycled at venues. Performance venues offer a controlled environment for piloting reusable items, minimizing complications commonly associated with similar pilots that require consumer and commercial opt-in, return logistics, and long-distance transport and washing.

The City would promote a pilot packaging reuse program at a selected event venue with capacity for 15,000 to 20,000 people. While DSNY does not have data for commercial waste like that generated in stadiums and other large venues, multiple studies have estimated that the average event venue attendee generates 1-2 pounds of trash per visit. A large venue that hosts over 3 million visitors a year may produce between 1,500 and 3,000 tons of consumer waste annually.[217,218]

Plastic Waste Reduction in Schools

With around 900,000 students enrolled and cafeterias serving this large population, NYCPS can meaningfully reduce plastic waste from packaging and continue to shape sustainable habits early in life. Currently, many New York City schools have eliminated single-use plastic utensils, straws, and stirrers, and some use reusable trays and cutlery. NYCPS will take steps to further reduce plastic waste.

Agency Strategies

- DSNY will promote at least one pilot of packaging reuse with a New York City partner.
- DSNY will work with other City agencies to promote a container reuse program at a public venue.
- NYCPS will expand single-use plastic waste reduction initiatives in schools.

Stakeholders:

DSNY	Cafeteria operators
NYCPS	MOCEJ

1.4 Increase Access to Reuse Centers and Support Reuse and Repair Events

Increase Access to Reuse Centers

Based on DSNY's research, partner surveys, and experience, space and transportation are the main pain points in the reuse sector, along with the funds needed to invest in warehousing, retail space, and vehicles. DSNY's donateNYC program is no exception, and the growth of waste diversion efforts is limited by a lack of storage and transportation for the donations posted to online platforms. To address this, DSNY will study reuse centers in other jurisdictions to identify best-practices for implementation in New York City.

Support Repair Events

Repair is an integral and often overlooked element of sustainable waste management. Repair keeps broken items out of landfills by extending their life and reduces the need for new materials to make products. The Open Repair Alliance, which collects and reports on international "Repair Café" data, found that the most frequently seen items at repair cafes are small electronics and household appliances. The Open Repair Alliance, an international group of organizations working to make electrical and electronic products more durable and easier to repair, has documentation on 208,491 repair attempts over 15 years, between 2012 and 2023. The repairs were reported by 1,158 repair groups in 31 countries during 19,986 events.[219] Non-electronic items frequently brought for repair include musical instruments and toys. **Table 5-3** shows the specific items brought to "Repair Cafes" most often.

Table 5-3. Items Commonly Brought to "Repair Cafes"

Item	Number Brought for Repair
Vacuum cleaners	16,056
Lamps	13,782
Power tools	12,809
Hi-fi separates (speakers)	12,600
Coffee makers	12,426
Source: Open Repair Alliance[219] **Notes:** Based on 2012-2023 data on repair cafes around the world.	

DSNY will support and expand capacity for community repair in New York City by working with repair organizations and integrating reuse and repair into community reuse and recycling events (taking inspiration from events put on by the global network of "Repair Cafes". The repair events would be free, community-led events where New Yorkers could bring appliances, textiles, electronics, and other small portable items to be repaired alongside volunteer repair experts. In addition to fixing and keeping items in use, the events would emphasize skill sharing and teach attendees to make simple repairs.

Agency Strategies

- DSNY will expand access to community-based reuse centers in each borough.
- DSNY will integrate reuse and repair into community reuse and recycling events.

Stakeholders:

DSNY Brooklyn Public Library New York Public Library

1.5 Improve Data Collection and Reporting on the Benefits of Reuse

DSNY has conducted novel research on reuse in New York City and developed innovative tools to divert materials through reuse and to quantify the associated environmental benefits. Continued and expanded data collection would further support waste reduction and reuse programs, with the goal of tracking trends in the reuse sector over time, standardizing quantification of environmental benefits, and evaluating the potential for reuse in the commercial sector.

DSNY reports the quantity of diverted and disposed materials every year in Annual *New York City Municipal Refuse and Recycling Statistics Reports*. Additionally, DSNY oversees waste characterization studies. The last study took place in 2023, and the next study is due in 2028. DSNY will also oversee a waste characterization study of commercial waste, including C&D debris, in 2032.

Agency Strategies

- DSNY will conduct reuse sector research and prepare biennial reports.
- DSNY will evaluate commercial reuse, repair, and lending capacity in New York City.

Stakeholder:

DSNY

1.6 Study Incentive-Based Policies

Currently, DSNY collects residential waste in New York City—including refuse, recycling, compost, and bulk—free of direct charge to residents and funded through general tax revenue. A number of other municipalities use financial or other incentives that encourage waste reduction. Examples of incentive-based policies could include financial incentives for companies or individuals who invest in waste reduction technologies, tradable allowances for waste disposal (e.g., permits that set a limit on the amount of solid waste that can be disposed, which can be bought and sold, creating a market-based incentive to reduce waste), and recycling incentive programs (e.g., earning rewards or financial incentives for recycling).

As part of DSNY's Commercial Waste Zone (CWZ) Program, as established by Local Law 199 of 2019, DSNY has instituted rules that incentivize the collection of recyclable and compostable material through targeted price reductions. All private carters that provide service within the implemented commercial waste zones are required to provide recycling and organics collection as standard services. To promote increases in recycling and organics separation, the price-per-ton rate for recycling is projected to be on average 32% less, and the price-per-ton rate for organics is projected to be 18% less, than the rates for trash, with the opportunity for businesses to negotiate even deeper discounts. This creates a meaningful financial incentive for businesses to properly separate their waste.

EPR laws are also a type of incentive-based policy. EPR policies shift the financial and operational responsibility for managing post-consumer waste from waste generators and governments to producers. This encourages manufacturers to design products with longer lifespans, use fewer materials, and incorporate recyclable or reusable components to minimize end-of-life disposal costs.

Incentive-based policies have the potential to reduce the amount of waste generated and increase diversion, and as such could result in the same environmental, health, and socioeconomic benefits associated with other waste reduction and reuse strategies. An additional effect of incentive-based policies is encouraging those generating waste to be more responsible for that waste. Linking waste generation to rewards or penalties could encourage efforts to reduce and divert waste. Financial incentives can be effective at an early stage of reducing waste and promoting waste separation and the behaviors adopted during this stage can be long lasting. In 1997, EPA reported that communities in the United States that had implemented financial policies for waste management reduced waste by 25-30%.[220]

An incentive-based program for residential waste would present several complex challenges that warrant further study of potential program options, outcomes, and effectiveness. Such an initiative would require careful planning to ensure feasibility, equity, and alignment with the City's sustainability goals. Local Law 14 of 2025 requires a waste characterization study of DSNY-managed waste in 2028 and privately-managed waste in 2032. This data will support planning efforts.

Agency Strategies

- DSNY will research and report on incentive-based policies and practices and explore potential opportunities for incentive-based mechanisms for residential collections in New York City.
- DSNY will continue to conduct waste characterization studies, per Local Law 14 of 2025, and use the results of those studies to inform policy development.

Stakeholders:

DSNY

Elected officials

1.7 Convene New York City's Circular Economy Stakeholders

New York City would benefit from having a central hub or convener for the City's circular economy, like other major cities in the U.S and abroad. DSNY currently supports the donateNYC Partnership, which coordinates and collects data on New York City's reuse nonprofits. This provides a snapshot of reuse activity in the city but does not show the full picture of the different sectors and strategies engaged in the circular economy. By bringing together a broader spectrum of stakeholders in the circular economy, DSNY plans to increase waste diversion efforts across sectors, including for-profit, nonprofit, and government sectors as well as informal organizations, such as community groups. By convening the organizations and stakeholders involved and gathering data, DSNY plans to better promote best practices.

Agency specifications on material use can sometimes present a barrier to using new or sustainable products. Specifications are developed for safety and standardization but need to be updated from time to time to account for

material and other advances. DSNY will work with other agencies to develop performance-based specifications to facilitate the reuse of material and use of material with recycled content.

The private sector can also engage in C&D material reuse. C&D materials can be valuable, and salvaging materials avoids disposal costs. DSNY can collaborate with C&D processors to identify barriers to and opportunities in C&D material recovery. In addition, DSNY plans to collaborate with the private sector to expand C&D material reuse infrastructure and supply chains. The forthcoming *NYC Industrial Plan* will identify pathways to support a sustainable industrial economy in New York City. Information and collaboration from this planning effort can be leveraged to promote C&D material recovery. To spur innovation and increase waste reduction beyond DSNY's programming, DSNY plans to pursue the following strategies.

Agency Strategies

- DSNY will convene a network of organizations across sectors in the circular economy.
- DSNY will lead the development of a virtual hub to increase coordination, compile research, collect data, and share best practices.
- Agencies will work to develop performance-based specifications to facilitate the use of recycled material and material with recycled content, including reclaimed soil.
- DSNY will partner with local organizations to promote commercial C&D material reuse.

Stakeholders:

DSNY Businesses Nonprofits

Policy Context for Waste Prevention and Reuse Program

› Extended Producer Responsibility (EPR) policies for packaging, if promulgated, would require companies to reduce packaging and/or improve recycling.

› The 2020 New York State Bag Waste Reduction Act prohibits the distribution of plastic carryout bags by those required to collect New York State sales tax.

› An amendment to New York City Administrative Code § 16-310.1 established a citywide textile reuse and recycling program with accessible textile drop-off bins with labeling and reporting requirements.

› New York State Food Donation and Food Scraps Recycling Law (6 NYCRR Part 350) requires businesses that generate an annual average of two tons of wasted food per week or more to donate excess edible food. New York City is currently exempt due to Local Law 146 of 2013 already covering organics. However, Local Law 146 does not include edible food donation.

› Local Law 36 of 2010 requires City agencies to create waste prevention, reuse, and recycling plans and submit annual implementation reports to DSNY.

› Local Law 77 of 2013 mandated a curbside composting pilot program for schools.

› Local Law 142 of 2013 restricts the sale and use of certain expanded polystyrene items (food-service foam). In addition, the law prohibits manufacturers and stores from selling or offering to sell polystyrene loose-fill packaging (foam packing peanuts).

› Local Law 176 of 2017 requires DSNY to develop and maintain an online food rescue portal.

- Local Law 57 of 2021 requires covered City agencies to submit Food Waste Prevention Plans to DSNY for approval with subsequent plans and reports developed annually. DSNY advises and supports City agency strategies to reduce edible food waste through donation.
- Local Law 112 of 2021 requires data collection and reporting on agency purchases of textile goods.
- Local Law 17 of 2023 prohibits food service establishments, couriers who deliver food, and food delivery platforms from providing eating utensils, extra eating containers, condiment packets, and napkins to customers for take-out and delivery orders unless the customer requests them.
- Local Law 81 of 2023 requires DCAS to donate surplus computers to organizations for beneficial use.
- Local Law 88 of 2023 requires DSNY to host Community Recycling Events in every community district each year to collect inorganic material that is not collected curbside.
- Local Law 35 of 2024 allows reusable beverage containers at sports stadiums.
- Local Law 14 of 2025 requires DSNY to conduct additional waste characterization studies, with a study of residential and institutional waste due in 2028 and a study of commercial waste due by 2032.
- New York City Executive Order 42 of 2019 was enacted to eliminate the use of City funds for the unnecessary purchase of single-use plastic foodware (e.g., forks, spoons, knives, and straws).
- New York City Executive Order 54 of 2020 was enacted to eliminate the use of City funds for the unnecessary purchase of single-use plastic bottles.
- New York City Executive Order 23 (EO23) of 2022 notes that construction is responsible for 23% of global greenhouse gas (GHG) emissions, with the embodied carbon (emissions associated with production and transport of construction materials) from cement manufacturing responsible for an estimated 8% and the embodied carbon from iron and steel production for approximately 7% of global GHG emissions. EO23 directs New York City capital project agencies to reduce embodied carbon, as well as to 1) submit environmental product declarations (EPDs) to the Building Transparency database; 2) include specifications in capital project construction contracts for low-emission vehicles and equipment with a preference for all-electric equipment; 3) endeavor to achieve credits related to lifecycle assessments (LCA) for capital projects that are required to comply with the green building standards and annually submit an LCA report; and 4) develop and submit action plans aimed at reducing embodied carbon in capital projects. An EO23 working group is meeting regularly to advance clean construction policy. The working group is also considering ways to reduce embodied carbon through reuse and remanufacturing.
- New York City's Business Recycling Rules (16 RCNY §1-10 Recycling of Private Carter-Collected Waste) require businesses to recycle textiles if they make up more than 10% of the monthly waste generated by a business. However, reporting on textile data is not mandated.[221]

Potential Lifecycle Effects

The Waste Prevention and Reuse Program would reduce the amount of waste produced and increase the reuse of materials and products, with a focus on textiles, single-use and packaging plastics, and C&D materials. The program would result in less of New York City's waste being incinerated and managed at landfills (an increase in waste diversion). Repairing and reusing products would also reduce the need to manufacture new products and thereby conserve raw materials and natural resources in the long term. Reducing the extraction, transport, and manufacturing of new materials would in turn reduce air pollution that affects health and emissions that contribute to climate change.

The program would also support new employment opportunities and economic activity, especially in the following occupations: tailors, textile repair technicians, sales associates, donation intake staff, material sorters, machine

operators and technicians, facility managers, quality control specialists, recycling facility operators, industrial designers, production workers, data entry specialists, support staff, software developers, and information technology specialists.

The production and waste management of textiles, single-use and packaging plastics, and C&D material are associated with environmental and other challenges that are reduced through the reuse or repair of these materials. Textile production and waste affect air, water, and soil through resource and energy use, pollution, and emissions during material harvesting and transportation, spinning, weaving, dyeing, transport (often trans-oceanic), and irrigation of natural textile material crops. **Attachment D: National and International Factors Impacting Solid Waste Management** discusses some of the issues associated with discarded textiles. *Achieving Impact Reductions for Textile-Based Goods Purchased by the City of New York*, prepared by the New York City Local Law 112 Task Force and published in 2024, provides insight into agency textile lifecycles and impacts.[222]

Post-consumer markets for packaging and single-use plastics are limited and production of plastics from raw materials results in energy use, air pollution, and other effects on the environment, which can be reduced by lowering the demand for new plastic materials through reuse. While pursuing EPR for packaging in the long term could save $150 million per year, based on prior estimates,[89] implementation of the proposed initiatives could further the development of policy and systems for packaging reuse, raise awareness that packaging reuse is possible, and identify the actions needed to scale up packaging reuse pilot projects that would be promoted as part of the Waste Reduction and Reuse Program. As an example of the effects of single-use plastics reduction potential, scaling up the reduction of film plastics for packaging could result in cost savings through reduced contamination of recycling streams and maintenance of recycling equipment in the long term. Implementing packaging reduction pilot programs could result in substantial savings (estimated by DSNY to be between $450,000 and $900,000 per year), given the large amount of packaging waste generated and the disposal costs of that waste. The cost of purchasing reusable items for large venues is challenging to estimate without specific program details, but available estimates indicate the potential to save $76,000 per 1,000 served over a year, which could inform the development of pilot programs.[223]

Certain construction materials, including concrete and steel, can be reused or recycled. The production of concrete and steel is energy intensive, generates greenhouse gas (GHG) emissions, and negatively affects air quality, and disposing of these materials at landfills impacts limited landfill capacity. By reducing the demand for new materials, the lifecycle environmental effects and costs of manufacturing, transporting, and disposing of C&D materials could be reduced while building a circular economy market and systems.

Through enhanced data collection and analysis, DSNY will improve program tracking and evaluation and would be able to adjust these initiatives, if needed, to achieve better waste management results. DSNY will collaborate with MOCEJ on efforts to reduce the embodied carbon of construction materials and will summarize those life-cycle benefits of the Waste Prevention and Reuse Program in the biennial reports to DEC on *SWMP26* implementation.

2. Organics Diversion and Recovery Program

Sustainable management and diversion of organic waste is a major focus of *SWMP26*, consistent with the State SWMP and climate goals. As detailed in **Attachment E: Organic Waste Generation and Management in New York City**, New York City residents generate approximately 1.2 million tons of organic waste per year. In addition, businesses generate between 0.5–1.3 million tons of organic waste annually. The large range for the estimated amount of organic waste generated by businesses reflects gaps in data for the commercial sector that the Commercial Waste Zones Program would address in the future. Prior to the phased implementation of the Citywide Residential Organics Program, which was completed in October 2024, most of the organic waste generated by residents and institutions was discarded with refuse. As an expansion of the existing program, the Organics Diversion and Recovery

Program, which would be implemented as part of *SWMP26*, will focus on organics managed by DSNY, DEP, New York City Housing Authority (NYCHA), New York City Department of Parks and Recreation (Parks), and NYCPS. Initiatives to improve the management of organics generated by the commercial sector are included in the Commercial Waste Program. The following initiatives are part of the Organics Diversion and Recovery Program:

(1) Increase the quality and quantity of organics diverted citywide.

(2) Increase the recovery rate of DSNY-managed organics.

(3) Increase composting and wood reuse.

(4) Expand codigestion and beneficial use of biosolids and biogas.

(5) Promote food donation and rescue.

(6) Increase in-city use of organic-derived products.

(7) Continue to support community composting.

2.1 Increase the Quality and Quantity of Organics Diverted Citywide

The *2023 Waste Characterization Study* found that a large percentage of DSNY-managed waste is suitable for composting; specifically, 36% of residential curbside collected waste, 35% of waste generated by NYCHA, 49% of waste generated at schools, and 37% of waste collected from litter baskets. This indicates that there is potential to substantially increase the diversion of DSNY-managed waste by focusing on optimizing the diversion of organics. Planned improvements to the collection and management of organics generated by the commercial sector are addressed under the Commercial Waste Program.

Increase Organics Quality

The 2023 Waste Characterization Study reflected a contamination rate of 4% for the curbside organics collection program. Plastic garbage bags are the largest source of contamination in the organics waste stream (0.8% of collections), followed by paper and cardboard (0.5%) and compostable plastic bags (0.4%).

A 2024 study of organics contamination in 10 U.S. composting facilities found that plastics are the primary contaminant in organic waste sent to composting facilities. The study recommended more consistent, standardized materials and labeling to ensure that compostable packaging is separated and processed appropriately, as many facilities cannot currently accept compostable packaging.[224] Reducing the use of plastic bags and plastic bin liners for organics separated for collection by DSNY would also reduce contamination.

DSNY uses split-body (or dual-bin) trucks, which allow for the collection of source-separated organics on the same route as curbside collections of refuse. DSNY also has Smart Bins located throughout the city; residents can drop off source-separated organics in the bins for DSNY collections. DSNY also collects organics from schools and non-profit institutions. Reducing contamination avoids operational issues at processing facilities and allows for the production of high-quality compost.

Increase Organics Quantity

DSNY aims to increase the amount of organics collected from residents, institutions, and agencies. DSNY has made major steps in expanding organics recovery with the Citywide Residential Organics Program. Expanding collections

to all schools and New York City residents increased the organics diversion rate by over 5% in less than a year of citywide collections. Curbside collections at NYCHA properties are challenging due to the size of the properties and limited options for organics storage. However, Smart Bins and other food scrap drop-off style collections can be used to collect organics from properties that face challenges in collections for curbside pickup.

Agency Strategies

- DSNY will study alternatives to clear plastic bag bin liners for organics collection.
- DSNY will promote the use of paper bags for leaf and yard waste collection.
- DSNY will explore innovations in collection equipment and operations to improve quality.
- DSNY will partner with City agencies to increase participation in the residential curbside collection program.
- NYCHA will increase organics recycling access for NYCHA residents.
- NYCPS will ensure continuity in training and education to increase participation in the school curbside organics collection program.

Stakeholders:

DSNY	NYCHA
Schools	Residents

2.2 Increase the Recovery Rate of DSNY-Managed Organics

Staten Island Composting Facility (SICF) accepts various organics, including leaves, source-separated food waste, yard waste from private landscapers and residents, manure from horses used by the New York City Police Department (NYPD) Mounted Unit, wood waste, and woodchips. DSNY installed the Gore® Cover System at SICF to support organics processing and took major steps in expanding organics recovery with the Citywide Residential Organics Program. However, due to contamination, not all the collected organic material is diverted from disposal at landfills and incinerators. In addition to SICF, collected organics are delivered to third-party vendors for pre-processing and transfer. **Table 5-4** shows the DSNY contracts for receiving and processing source-separated organics.

Table 5-4. Source Separated Organics Contracts

Abbreviation key: TPY – tons per year; TPD – tons per day; TPW –tons per week; CY – cubic yards; WM – Waste Management

Facility	Location	Capacity	2016-2023 Average TPD*	Start Date	End Date
American Recycling	172-33 Douglas Avenue, Queens NY	150 TPD	25	10/1/2024	9/30/2029
WM- Varick Ave	215 Varick Avenue, Brooklyn NY	300 TPD	47	10/1/2024	9/30/2029
WM- A1	325 Yonkers Avenue, Yonkers NY	150 TPD	N/A	10/1/2024	9/30/2029
WM- Harlem River Yard	98 Lincoln Avenue, Bronx NY	100 TPD	N/A	10/1/2024	9/30/2029
WM- Flora CORE/Elizabeth	847 Flora Street, Elizabeth NJ	50 TPD	N/A	10/1/2024	9/30/2029
WM- Review Avenue	38-50 Review Avenue, Queens NY	100 TPD	N/A	10/1/2024	9/30/2029
Denali Water Solutions - Court St	577 Court Street, Brooklyn NY	50 TPD	N/A	10/1/2024	9/30/2029
Denali Water Solutions - Metropolitan	287 Halleck Street, Bronx NY	110 TPD	3	10/1/2024	9/30/2029
Staten Island Compost Facility (SICF)	450 W. Service Road, Staten Island, NY	150 TPD 600 TPW of food scraps; 70,000 CY/year of tree debris; and 105,000 CY/year of yard trimming and tree debris.	2	7/1/2023	6/30/2026

Source: *DSNY, Oct. 1, 2024*
Notes: The renewal terms for all contracts are two five-year renewals, except the DSNY compost facilities operations contract (which includes SICF, Soundview Park, and Rikers Island) has two three-year renewals and is currently in the first three-year renewal period.
*The average TPD for 2016-2023 represents the tonnage of DSNY-collected source-separated organics accepted by facilities. The average daily tonnage was calculated by dividing the average annual tonnage by 312 (the number of DSNY pick-up days in 2022).
Rows with gray font indicate facilities with pending permits.

The recovery of organics delivered to vendor-sites for processing could also be improved through better decontamination technology and processes. DSNY will work on the following strategies for reducing contamination and recovering more organic material.

Agency Strategies

- DSNY will continue to monitor advancements in technology related to the decontamination of collected organics.
- DSNY will experiment with methods to increase the recovery of compostable products at the Staten Island Compost Facility (SICF).
- DSNY will use contractual provisions to maximize the recovery of collected organics.

Stakeholders:

DSNY	Vendors working on organics recovery

2.3 Increase Composting and Wood Reuse

Increase Composting

As previously mentioned, DSNY has rolled out a Citywide Residential Organics Program that requires residents to separate organic materials (including food scraps and yard waste) and provides curbside pickup. DSNY also collects waste curbside from schools and parks. As detailed in **Attachment E**, Soundview Park, SICF, Rikers Island Compost Facility, and Cunningham Park Mulch Pile are the city's largest composting and wood chipping sites. The closure of the Rikers Island Correctional Facility by 2027 had been planned in 2019. A feasibility study, which was mandated under Local Law 17 of 2021, examined the potential for a new Wastewater Recovery Facility (WRRF) on Rikers Island. The feasibility study, published in March 2024, considered a codigestion processor for both wastewater and food waste and determined that the facility would be feasible.

There are numerous other smaller composting and chipping facilities across the five boroughs. DSNY will continue to monitor the use of existing capacity for each organic substream (e.g., food scraps, leaf and yard waste, trees) and plan for adequate future capacity through SWMP biennial reports to DEC. Considerations for increasing composting will include process optimization at SICF and planning for the future of Rikers Island. DSNY will initiate a stakeholder process for organics processing capacity.

Increase Wood Use

Separately, over the next 10 years, pending receipt of appropriate funding, Parks will be expanding composting and chipping capacity to manage waste from parks per Local Law 118 of 2024.[225] **Table 5-5** shows the Parks-managed contract for waste management.

Table 5-5. New York City Department of Parks and Recreation Contract

Facility	Location	Capacity	Fiscal Year 2024 Use	Start Date	End Date	Renewal Options
Waste Management (Scott Avenue)	485 Scott Avenue Brooklyn NY 11222	761 tons per day	1,305 tons per year	7/1/2021	6/30/2025	One-year renewal was used; new contract bid in progress
Source: *Data provided by New York Department of Parks and Recreation in 2025. Capacity tonnage from 2024 Waste Equity Law data.*						

Parks manages wood from fallen or damaged curbside trees or branches as well as woody material, such as brush, twigs, and logs from work in New York City's open spaces managed by Parks. Instead of sending felled trees and other woody material to landfills, reclaimed wood can be milled into usable lumber for furniture, flooring, or architectural elements. DSNY will work with Parks to expand the existing options for wood reuse. This strategy would not only divert waste from landfills but also reduce the need for virgin lumber, conserving natural resources and lowering carbon emissions.

Not all woody material is suitable for direct beneficial use. For lower-grade material, a potential waste management option is to heat the biomass at a high temperature and low-oxygen environment (pyrolysis) to produce biochar, a carbon-rich charcoal-like product that can be used for soil enhancement. Additional information on pyrolysis is available in **Attachment H: Review of Advanced Thermal Treatment Technologies**. DSNY will work with Parks to evaluate novel options for recovering wood waste.

As required by Local Law 148 of 2023, MOCEJ and Parks are developing a 10-year *Urban Forest Plan*, which will focus on equitably expanding New York City's citywide tree canopy cover to 30% on both public and private land, including street trees, parks, natural areas, and other open spaces. The plan recognizes the importance of urban forests for protecting New Yorkers from extreme heat, improving air quality, absorbing stormwater, and mitigating other climate hazards. DSNY will work with Parks on recovering tree waste from urban trees and the implementation of the *Urban Forest Plan*.

Agency Strategies

- DSNY will expand leaf and yard waste and overall pre-processing capacity at the Staten Island Compost Facility (SICF).
- DSNY will participate in planning for the future of Rikers Island and the related potential for additional composting capacity.
- DSNY will initiate the organics processing capacity stakeholder process.
- Parks will establish eight new composting locations and upgrade, as necessary, the 17 existing facilities per Local Law 118 of 2024.
- DSNY will collaborate with Parks on the management of woody debris, including direct reuse (milling); on the *NYC Urban Forest Plan;* and on exploring technologies such as biochar production.

Stakeholders:

DSNY	Residents	Solid Waste Advisory Boards (SWABs)
Parks	NYCHA	
Schools	Community Composters	

2.4 Expand Codigestion and Beneficial Use of Biosolids and Biogas

To diversify the management of organics and maximize the use of existing infrastructure, DSNY, in partnership with DEP, will develop plans to enhance the codigestion of organics at New York City's WRRFs and the beneficial use of biosolids and biogas produced at WRRFs. The Newtown Creek WRRF already codigests sewage and food scraps generated by New York City residents and businesses. DEP processed almost 870,000 wet tons of organic material at the Newtown Creek WRRF in 2024, including 67,948 wet tons of food scraps and 792,313 wet tons of sludge. Food scraps are an excellent codigestion feedstock as they have high water content, a high conversion rate to biogas, and do not have a major effect on biosolids production. The biogas produced at this WRRF is purified and converted into fuel for heating using the biogas-to-grid system that came online in April 2023. In 2024, the system produced 274,155 MMBtu (million British Thermal Units) of energy,[156] enough to provide heating for about 6,000 households for a year.

DEP has also advanced a large project to construct new anaerobic digesters at the Hunts Point WRRF, with completion anticipated by 2026. Part of the long-term vision for this upgrade is the addition of codigestion capacity for food waste and a biogas-to-grid project, similar to Newtown Creek WRRF. Codigestion and biogas recovery could be integrated at other WRRFs in the future and DSNY will work with MOCEJ to explore those possibilities. Agencies will also work together to explore other co-location of organics management facilities, including at Rikers Island.

In Fiscal Year 2022, 26% of biosolids produced at New York City's WRRFs were composted, 10.2% were alkaline stabilized, and 7.1% were dried; 56.7% of biosolids that year were landfilled. DEP has a goal to divert all biosolids from landfills by 2030. In support of this goal, DEP will evaluate the 2028 contract renewal with Passaic Valley Sewerage Commission (PVSC). PVSC currently uses biosolids for alternative daily cover at landfills, which is not considered a beneficial use. **Table 5-6** shows DEP's biosolids management contracts.

Table 5-6. Biosolids Management Contracts

Contract #	Contractor	Annual Tonnage	Start Date	End Date	Renewal Options
1515-BIO	Denali Water Solutions (Direct Land Beneficial Use)	9,641	8/1/2020	7/31/2027	In second renewal
1534-BIO-1	EPIC (Landfill)	41,264	9/8/2023	9/6/2026	In extension
1534-BIO-2	EPIC (Landfill)	64,006	9/8/2023	9/6/2026	In extension
1564-BIO	Waste Management (Composing Beneficial Use)	77,527	9/22/2021	9/30/2031	Two five-year renewals
1566-BIO	Tully Environmental (Composing Beneficial Use)	103,603	12/1/2021	11/30/2026	Two five-year renewals
1567-BIO	Clean & Green (Dryer Beneficial Use)	128,483	7/17/2022	7/16/2032	One ten-year renewal

Source: *New York Department of Environmental Protection data, provided in 2025*

While there is no need for additional codigestion capacity in the short term and no specific projects are planned at this time, additional in-city organics codigestion capacity in the future would be beneficial to provide flexibility in managing a higher projected diversion of food scraps.

DEP prepared a *Biosolids Master Plan* to evaluate the potential management options and end-uses for biosolids. The plan considers scenarios that involve pyrolysis or gasification to produce syngas, bio-oil, and biochar. DEP will continue to advance this planning and work on identifying ways to use WRRF product in the city, building on its study, *From Trash to Treasure.*[11] WRRFs can also codigest fats, oils, and grease (FOG), as discussed under the Commercial Waste Program.

Over the next 10 years, DSNY and DEP will plan for future development of pre-processing and codigestion capacity at existing and potential new WRRFs to improve biosolids management, including in-city reuse, and expanded biogas recovery.

Agency Strategies

- DEP will pursue the goal of 100% diversion of biosolids from landfills by 2030 by diversifying end-use sites and vendors.
- DEP will reduce overall sludge volume while improving liquid sludge quality through enhanced thickening and digestion processes. In parallel, DEP will assess the feasibility of on-site drying technologies to further reduce dewatered solids, enabling more cost-effective and sustainable downstream handling.
- DEP will work with DSNY and MOCEJ to develop plans to expand organics codigestion capacity and biogas recovery, with the potential for biogas infrastructure on City property.
- DEP will work to advance the pathways identified in the DEP Energy and Carbon Neutrality Plan, Task 3: Biosolids Master Plan, including thermal conversion via pyrolysis or gasification.[10]
- DEP will explore innovative methods to beneficially reuse wastewater-derived products in-city.
- DEP will build on the *From Trash to Treasure*[11] study to develop new markets for waste-derived resources.
- DEP and DSNY will continue to evaluate opportunities for co-location of new and innovative wastewater and/or organics waste management infrastructure at City-owned properties, including locations that have been previously evaluated, such as Rikers Island.

Stakeholders:

DEP DSNY MOCEJ

2.5 Promote Food Donation and Rescue

Promoting food donation and rescue reduces the amount of edible food sent to landfills while reducing hunger and benefiting nonprofits addressing food insecurity. Food waste is generated in schools, cafeterias, universities, nonprofits, food and hospitality businesses, and event venues. Reducing the amount of organic material sent to landfills, incinerators, and organic processing facilities reduces the burden on those systems, minimizes hauling fees, and supports the local community.

New York City programs that support food rescue include the following:

› DSNY's donateNYC Food Portal is a digital tool that connects donors with excess edible food to recipient organizations based on their location, food needs, and capacity. DSNY also supports the donateNYC partnership, which includes many food rescue and distribution organizations.

- In 2023, donateNYC's tools kept 665 tons of material out of landfills. Over 95% of that was food and beverages received and distributed through the donateNYC Food Portal.
- In addition, in 2023, donateNYC partners managed close to 43,000 tons of food and beverage donations.
- The 2023 donateNYC Annual Report included information on donateNYC and the donateNYC partnership's environmental impact of reuse, estimated through DSNY's proprietary Reuse Impact Calculator.[80]
- DonateNYC also builds community by connecting New Yorkers and City agencies, local organizations, and businesses, and assisting with resources, coordination, and goods during disasters.

› NYCPS's network of sustainability coordinators and their Office of Food and Nutrition Services have established guidelines for donating unused packaged food and provides training to support food donation programs in schools.[226]

› New York City Mayor's Office of Food Policy (MOFP) works to promote food security, food access, economic opportunity, sustainability, and equity in the City's food system. The Office's food and climate strategy aims to mitigate the impact of New York City's food consumption on climate, reduce food waste, divert organics from landfill, convene agencies, and conduct research to support these initiatives.[227] The Office of Food Policy's *Food Forward NYC*[228] is a 10-year food policy plan that supports food waste reduction and building a resilient and sustainable supply chain while also reducing waste.

Building on the success of these existing programs, DSNY, NYCPS, and other agencies will work to expand food donations programs. DSNY will also work to increase the amount of edible food donated by businesses.

Agency Strategies

- DSNY will make efforts to increase the number of donateNYC Food Portal users and the amount of food donated through the portal.
- NYCPS will expand food rescue initiatives and improve data collection at New York City public schools, with DSNY support.
- DSNY will support other City agencies in setting up food donation programs.
- DSNY will work to increase the amount of food donated by businesses.

Stakeholders:

DSNY	MOFP	Food rescue and distribution organizations
Schools	Food businesses	

2.6 Increase In-City Use of Organic-Derived Products

The expansion of organics collection and management programs in New York City has also resulted in an increase in beneficial organic products, such as compost and wood chips. Identifying beneficial reuse opportunities for these products locally will support a local, circular organics economy.

DSNY operates compost giveback sites in Staten Island, Brooklyn, and Queens from April to September and holds pop-up community giveback events throughout the City. At these sites and events, all New York City residents are eligible to receive free bags of compost made from food scraps, food-soiled paper, and yard waste collected by DSNY. After registering, residents may pick up two free 40-pound bags of compost. DSNY also provides free compost, mulch, and when available, wood chips to other New York City agencies and nonprofits for their programs, construction, or landscaping projects. For larger projects, DSNY can also deliver pallets of free compost (consisting of sixty 40-pound bags) to New York City agencies, nonprofit organizations, New York City community gardens, and volunteer street-tree care organizations.

Multiple City agencies can partner with DSNY to increase the use of compost in New York City. Some NYCHA locations have on-site composting, and some locations use compost from DSNY on-site to reduce the need for fertilizer. Some NYCHA properties use mulch from DSNY. Parks can use compost on-site, and Local Law 118 requires the development of composting facilities at five parks in each borough by 2028. NYCDOT can also use compost in street medians and landscaped areas.

As discussed, agency specifications can present a barrier to new or sustainable products. DSNY will work with MOCEJ and other agencies to develop performance-based specifications, with the goal of facilitating and encouraging the use of recovered organic material and soil on projects in New York City.

Agency Strategies

- NYCHA will increase the use of City-produced compost and mulch on NYCHA construction projects and existing NYCHA development grounds.
- DSNY will provide public schools with bags of compost for educational purposes and school gardens.
- NYCDOT will consider the use of DSNY compost and mulch in landscaped arterial roadways and street medians.
- DSNY will work with MOCEJ and the EO23 team to develop performance-based specifications for soils, compost, and mulch products.

Stakeholders:

DSNY	NYCHA	MOCEJ
NYCDOT	Schools	
DEP	Parks	

2.7 Continue to Support Community Composting

DSNY has partnered with nonprofit organizations to support community composting for decades. In Fiscal Years 2025 and 2026, DSNY supported and continues to support community compost sites by managing contracts funded through New York City Council discretionary funding. This funding supports staff to facilitate composting at partner

organization sites. Additionally, DSNY collaborates with these community composting groups to provide education and outreach on participation in DSNY's Citywide Residential Organics Program and composting overall. In 2011, the Gowanus Canal Conservancy began composting at the Salt Lot site located along the Gowanus Canal. In 2017, the NYC Compost Project hosted by Big Reuse partnered with the Conservancy and grew the composting site to be the largest community compost site in Brooklyn.[229] In 2024, the site temporarily closed to accommodate a wastewater infrastructure project. DSNY will work with a non-profit community composting partner to reopen and operate the composting facility in Gowanus with capacity up to 150 tons per year under a license agreement with DSNY. There are also hundreds of community composting sites operating in New York City at a variety of scales and using multiple processing technologies. These sites and the groups that operate them are an invaluable component of educating the public on the mechanics and benefits of composting.

Agency Strategies

- Together with the New York City Department of Cultural Affairs (DCLA), DSNY will manage available funding for community composting groups and botanical gardens in the city.
- DSNY will work with community composters to operate a composting facility on DSNY property in Gowanus, Brooklyn.
- DSNY will collect and compile data from composters contracted with the City to quantify the amount of material composted.

Stakeholders:

New York City Council	DCLA
DSNY	Nonprofit community groups

Policy Context for the Organics Diversion and Recovery Program

› Local Law 85 of 2023 established New York City's Citywide Residential Organics Program, which requires residents to separate organic material from refuse and DSNY to collect it curbside.

› Local Law 89 of 2023 mandated that DSNY establish and operate no fewer than 30 organic waste drop-off sites citywide.

› Local Law 118 of 2024 mandates the development of additional composting facilities across the boroughs in City parks.

Potential Lifecycle Effects

Organic waste, when landfilled, produces GHG emissions, including methane and carbon dioxide, which contribute to climate change. While less methane is produced from the incineration of organic waste compared to landfilling, incineration produces carbon dioxide along with air pollutants that affect human health. Reducing the amount of organic matter managed at landfills and incineration facilities reduces associated GHG emissions and allows for the beneficial reuse of organic materials through food rescue, composting, and anaerobic digestion at wastewater resource recovery facilities (WRRFs). Local application of organic products generated through diversion programs supports soil health, reducing the need for the manufacturing and import of fertilizers and amendments. Local management and use of discarded organic material also reduces the need to transport the material, which can reduce costs and the effect on the environment (including traffic and noise, air, and climate pollution). Expanding in-city use

of recovered organics has the potential to reduce costs associated with imported materials for landscaping. Products generated from recovered organics could also continue to be sold to the private sector.

The Organics Diversion and Recovery Program would potentially increase employment opportunities, including for nonprofit staff for donation intake, donation drivers, food rescue sorters and distributors, quality control and health inspection staff, kitchen staff, and community composters. It could also potentially increase employment opportunities for staff to operate organics processing facilities and distribute finished products.

While the budget for this Organics Diversion and Recovery Program will be developed and approved by the Mayor and New York City Council as part of the annual budget process, the following information on past programs is included for reference:

- In Fiscal Year 2023 (FY23), the composting program expense budget was $8.2 million and organics program expense budget (which included brown bins, food scrap drop-offs (FSDOs), Smart Bins, GrowNYC, Printing, Postage, and Contracts) was $14.9 million. In FY24, the expense composting program budget was $7.1 million, and the organics program budget was $1.7 million.[19] For FY25, New York City's adopted budget allocated $6.2 million to support community composting ($5.2 million managed by DSNY and $1 million managed by DCLA).
- In FY22, the adopted capital budget for composting was $1.1 million, and the FY23 capital budget for composting was $4.1 million.

3. Residential Recycling Program

Recyclable materials picked up by DSNY curbside for residents include metals, glass, and plastic (MGP); cartons; and paper. According to the *2023 NYC Waste Characterization Study*, approximately one-third of materials that DSNY collected curbside consisted of MGP and paper.[6] New York City has a well-established recycling program with weekly curbside collection of residential MGP and paper. In FY24, DSNY collected 299,083 tons of paper and cardboard through curbside and containerized collections, and an additional 285,916 tons of MGP.[91] While the recycling program is well established, the *2023 NYC Waste Characterization Study* results indicate that there is opportunity to recover even more material. Based on the study, most of the city's residential waste (75%) can be diverted from landfills, but the diversion rate for FY23 was 20% including organics.

In-city recycling transfer stations accept DSNY recyclable materials, including two Marine Transfer Stations (MTS) for MGP (one in Queens and one in the Bronx), an MTS for paper at 59th Street in Manhattan, and a Material Recovery Facility (MRF) in Brooklyn, operated by Sims Municipal Recycling (SMR). New York City is also home to a paper recycling and paper mill facility (Pratt Industries) on Staten Island, which processes most of the paper set out for recycling and collected by DSNY.

The Residential Recycling Program includes the following initiatives:

(1) Ensure continued capacity for transferring and recovering recyclable materials.

(2) Improve the recovery of collected MGP and paper.

(3) Expand residential drop-off and recycling programs.

(4) Increase residential recycling participation and quality.

The Residential Recycling Program focuses on recyclable materials collected by DSNY from residents and materials managed by DSNY, including those collected from public schools, through the DSNY recycling vouchers for use by other City agencies, and from public recycling bins. Commercial recycling is addressed in the Commercial Waste Program, discussed in this chapter, in **Attachment F: Commercial Waste in New York City**, and in **Attachment G: New York City Commercial Recycling Rules**.

3.1 Ensure Continued Capacity for Transferring and Recovering Recyclable Materials

DSNY has been delivering collected MGP as well as some paper to Sims Municipal Recycling (SMR) since 2005. The current MGP recycling contract with SMR and the current paper recycling contract with Pratt Industries are set to expire in August 2034. DSNY will work on planning for the management of recyclable materials beyond the end of these contracts and will report on this initiative's progress in required biennial reports to DEC.

Agency Strategies

- DSNY will evaluate options for managing recyclables following the end of contracts with Pratt Industries and Sims Municipal Recycling (SMR) in 2034.

Stakeholders:

DSNY

Economic Development Corporation (EDC)

SMR

Pratt Industries

3.2 Improve the Recovery of Collected Metals, Glass, Plastic, and Paper

In the United States, film plastics are not typically accepted with other household recyclables. This is also the case for DSNY-managed curbside recycling. Film plastics are accepted through retail drop-off programs and can be recycled into products including plastic-wood composite lumber and plastic pallets.[230] The *2023 Waste Characterization Study* reported that New York City households generated an average of 12 pounds of plastic shopping bag waste (an example of film plastics) annually. The study documented a significant decline in the prevalence of plastic bags and certain polystyrene products since the implementation of New York State and City legislation aimed at reducing these materials. Specifically, expanded polystyrene decreased by 54%, while plastic shopping bags decreased by 68% between 2017 and 2023.

The contract between DSNY and SMR includes a provision that enables more materials to be recoverable, based on market conditions. SMR currently recovers common plastic polymers, including polyethylene terephthalate (PET), high-density polyethylene (HDPE), and polypropylene (PP). Additional plastics may be recoverable, such as film plastics, or polyethylene (PE). This effort could require retrofits to SMR's facility at the South Brooklyn Marine Terminal (SBMT) and other existing recycling infrastructure.

Glass collected by DSNY is managed at SMR facilities in New York City and transferred to the Jersey City Claremont Material Recovery Facility for recycling. DSNY manages MGP recyclables from other City agencies. DSNY will collaborate with agencies to recover more MGP and paper.

EPR policy aimed at product packaging would hold producers accountable for managing the recycling or disposal of packaging materials. This can encourage the use of more recyclable packaging materials, encourage the use of less material in packaging, support the recycling industry, and shift the financial burden of disposal or recycling from

consumers and municipalities to producers. Packaging EPR laws were proposed in the New York State Senate but were not enacted as of September 2025.

Agency Strategies

- DSNY will work with SMR to increase the recovery of materials in the MGP stream such as rigid and film plastics.
- DSNY will work with SMR to optimize the recovery of glass.
- DSNY will partner with City agencies to increase participation in recycling programs for MGP and paper.
- DSNY will monitor progress on EPR policy for packaging in other jurisdictions and advocate for a New York State EPR for packaging policy.

Stakeholders:

DSNY SMR Pratt Industries

3.3 Expand Residential Drop-Off and Recycling Programs

Drop-Off Programs and Community Events

In addition to the curbside recycling program, DSNY has existing programs for managing residential electronics and textile waste. As discussed in **Chapter 2** and **Attachment B: Existing Waste Reduction, Reuse, and Recycling Programs in New York City**, DSNY runs ecycleNYC and the DSNY Textile Collection Program. DSNY coordinates electronics pickup through its e-waste recycling vendor, Electronic Recyclers International (ERI). That contract is scheduled to end in 2028, with options for two five-year renewals after that. The DSNY Textile Collection Program expanded in 2025, providing in-building collection bins and picking up textiles for free from residents and businesses. DSNY will work to expand existing drop-off programs for electronics, textiles, and paint, and advocate for EPR laws for carpets and mattresses, to capture recyclable materials not regularly collected curbside.

Community reuse and recycling events provide access to convenient recycling opportunities for residents without access to Special Waste Drop-Off Sites, in-building electronics recycling, or textile recycling services. DSNY will expand the types of materials accepted at community reuse and recycling events, including textiles and paint.

Extended Producer Responsibility for Carpets and Mattresses

The New York State legislature passed the Carpet Extended Producer Responsibility (EPR) Bill in 2023, establishing the State's Carpet Collection Program, which requires the producers of carpet and artificial turf to provide free and convenient collection of used carpet materials from residents. DSNY will work with DEC to implement the State law on carpet EPR in New York City and with other local governments across the state to advance an EPR program for mattresses.

A similar mattress EPR law has been approved by the New York State Senate. DSNY found that there were 3,746 tons of mattresses in the residential waste stream in FY25. NYCHA houses one in 17 New Yorkers and was uniquely positioned and motivated to start tackling mattress waste as a means to divert material from landfill and improve its waste management. NYCHA began a mattress recycling program in 2021 and contracted a vendor for mattress recycling. Since the start of the program 33,900 mattresses were collected for recycling through FY25. Contract

details are shown in **Table 5-7**. NYCHA is continuing to explore opportunities for cost effective mattress recycling until an EPR law is in place. Recognizing the city's large population leads to many discarded mattresses, which are bulky and heavy items, New York City will work with other local governments across the state to advance an EPR program for mattresses and thereby work toward diverting this tonnage from landfills.

Table 5-7. New York City Housing Authority Mattress Recycling Contracts

Facility	Location	Start Date	End Date
Renewable Recycling Inc.	3001C New Street Oceanside, NY 11572	4/30/2021	4/29/2026
Source: *New York City Housing Authority 2025*			

Agency Strategies

- DSNY will maintain and improve existing residential drop-off programs.
- DSNY will expand its community reuse and recycling events to include the collection of other materials, such as textiles and paint.
- DSNY will work with DEC to implement the State law on carpet Extended Producer Responsibility (EPR) in New York City.
- New York City will advocate for and advance EPR programs for packaging in accordance with *PlaNYC* (the City's sustainability blueprint) and state legislative efforts.
- New York City will work with other local governments across the state to advance an EPR program for mattresses.

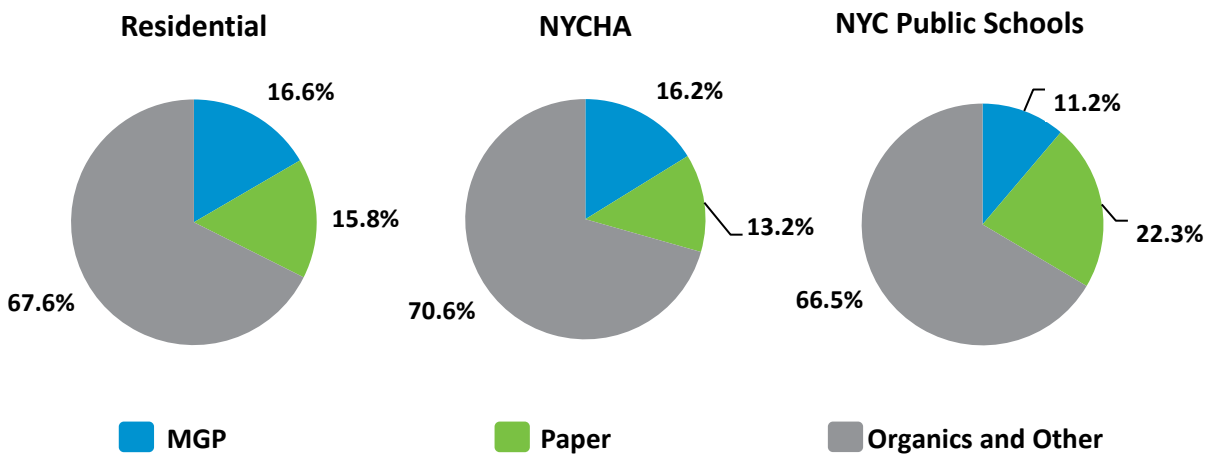
Stakeholders:

DSNY	DEC	Electronics recyclers
NYCHA	PaintCare	Nonprofit partners
ERI	Helpsy	

3.4 Increase Residential Recycling Participation and Quality

DSNY will work on increasing participation in curbside recycling programs and on improving quality by decreasing contamination. The focus of this initiative is twofold: to increase the paper capture rate and to improve the quality of MGP recycling. According to the *2023 Waste Characterization Study*, approximately 32% of waste generated by New York City residents is MGP and paper suitable for recycling (16.6% is MGP and 15.8% is clean paper and cardboard). Further, the study found that approximately 29% of waste generated by NYCHA residents is suitable for recycling (16.2% is MGP and 13.2% is clean paper and cardboard). At schools, the total percentage of waste that is recyclable is similar to residential (34%), but the proportion of MGP and paper is different, with a higher percentage of paper generated at schools than by residents (11.2% of total school waste being MGP and 22.3% being clean paper and cardboard). **Figure 5-1** summarizes this information on residential and institutional recycling.

Figure 5-1. Metal, Glass, Plastic (MGP) and Paper in Residential and Institutional Waste (2023)



Source: *DSNY, 2023 Waste Characterization Study*

Although the increased use of electronic communications has reduced the overall amount of paper waste generated by New York City residents, less than 50% of that paper and cardboard waste is currently set out for recycling. The paper recycling stream is also increasingly contaminated by other materials due to improper separation. The total MGP capture rate (material properly set out for recycling as a percentage of the total of the material generated) was approximately 41% in 2023. The MGP capture rate was lower in 2023 than in all other years included in a Waste Characterization Study since 2005.[6]

Participate in the Trash Academy

The Sanitation Foundation (the official nonprofit partner of DSNY) provides free education through the NYC Trash Academy. The educational series is tailored for New Yorkers passionate about creating a cleaner, healthier, and more sustainable city. The program covers impacts of waste management on the environment, society, and economy. The 2025 course included ten on-demand modules, three virtual office hours sessions with Academy instructors, and two optional in-person events. Students were free to view the modules on their own time or join others in their cohort at scheduled Watch Parties. There was also an option to attend a field trip to SMR (Balcones) Recycling.[231]

Update the Waste Management Plan Approval Process

Pursuant to a rule that went into effect in 2022 (Section 753 of the New York City Charter and Section 16-120 of the New York City Administrative Code), owners or managing agents for some residential developments (generally with 150 or more dwelling units) and certain buildings undergoing major alterations are required to submit building Waste Management Plans to DSNY for review and approval concurrently with submission of plans that include design drawings to the New York City Department of Buildings (DOB). Before this rule, there was no requirement to plan for waste management as part of the design of large new buildings. This resulted in curbside placement of bags full of refuse for collection by DSNY, often in large piles that obstruct pedestrian flow, impact the surrounding areas, and attract rats.

DSNY provides an Excel spreadsheet calculator for estimating waste generation as part of the Waste Management Plan process. As part of the initiative to increase residential recycling participation and quality, DSNY will work on updating the residential Waste Management Plan approval process to include organics and all recyclable materials (e.g., textiles, e-waste) that are not currently included. As of September 2025, the calculator includes refuse, MGP, paper, and bulk items.[12]

Monitor the Effect of Containerization

The Citywide Containerization Program aims to improve street cleanliness and reduce food sources for pests by containerizing the City's waste for collection. In 2023, containerization requirements went into effect for businesses that handle food and chain businesses. In 2024, containerization requirements expanded to all businesses. Residential buildings with 1-9 units are also required to containerize waste in bins as of November 2024. By 2026, all 1-9-unit residential buildings are required to use standardized official New York City Bins. These steps put requirements in place to containerize 70% of New York City's refuse. To address the remaining 30% of refuse, DSNY piloted stationary on-street containers, or "Empire Bins" for larger residential buildings and schools in Manhattan Community District 9 in 2025. DSNY has also proposed expansion of the Empire Bin pilot to achieve a Citywide Containerization Program for larger residential buildings and schools.

The purpose of the Citywide Containerization Program is to support the City's commitment to street cleanliness and to reduce potential food sources for rats and other disease vectors. While the Citywide Containerization Program is not directly related to the *SWMP26* objective to reduce waste and increase diversion, DSNY intends to monitor the impact of containerization on diversion. Full implementation of the Citywide Containerization Program is proposed for 2032, and the program is subject to environmental review, with the Draft Scope of Work for the preparation of an Environmental Impact Statement released for public comment on September 17, 2025.[232]

Monitor Container Redemption Program and Policy Development

New York State's 1982 Returnable Container Act, referred to as the Bottle Bill, is an EPR law that incentivizes the return of plastic, glass, and aluminum beverage containers to their beverage distributor or dealer for recycling. A 5-cent deposit per container is included in the price of purchase and paid back to the consumer upon return. In 2020, this resulted in the recovery of 5.5 billion containers (over 240,000 tons of material) across New York State. Changes to the law could affect the amounts and composition of recyclables managed by DSNY, and DSNY will therefore monitor program development.

Increase Paper Diversion

Paper recycling in New York City is both environmentally and economically beneficial. It reduces the need for virgin tree pulp, cuts landfill use, and lowers GHG emissions. Economically, DSNY earns revenue from selling collected paper to recyclers. Most of the paper collected is brought to Pratt Industries on Staten Island. There, the used paper is recycled locally and made into new products like corrugated pizza boxes, supporting green manufacturing and a circular economy. Expanding education efforts, including in schools and City agencies, could help to improve recycling habits, reduce contamination, and increase the overall effectiveness of DSNY's recycling program.

Expand Recycling for NYCHA Residents

NYCHA is upgrading waste storage and collection areas to improve compaction and containerization as a part of the agency's Sustainability Agenda. It is also pursuing funding to install convenient recycling stations across NYCHA campuses. This would provide larger collection bins located near building entrances, outreach programming, and staff to manage the program. NYCHA will also increase the use of the following technologies: EZ-pack containers serviced by front-end load trucks, auger compacting containers for cardboard, and covered roll-off containers for MGP and cartons. NYCHA will work with DSNY to right-size collection trucks and other equipment for NYCHA collections. DSNY and NYCHA will plan to collaborate on improving the cohesion of recycling collection, compaction, and storage equipment as a part of this initiative.

While bulk material is not currently recycled (and largely contains non-recyclables), NYCHA manages bulk container pickup, via contracts listed in **Table 5-8**. In 2024, NYCHA's bulk container contractors collected 29,755 tons of material.

Table 5-8. New York City Housing Authority Bulk Container Pickup Contracts

Facility	Location	Start Date	End Date	Renewal Options
Century Waste (SI)	623 Dowd Avenue, Elizabeth, NJ 07201	3/1/2024	2/28/2027	Two one-year renewals
Filco (Brooklyn East)	197 Snediker Avenue, Brooklyn, NY 11207	2/27/2024	2/26/2027	Two one-year renewals
Waste Connections (Brooklyn South)	NY- Multiple	3/1/2024	2/28/2027	Two one-year renewals
Waste Connections (Brooklyn West)	NY- Multiple	2/28/2024	2/27/2027	Two one-year renewals
Waste Connections (Queens)	NY- Multiple	2/26/2024	2/25/2027	Two one-year renewals
Waste Connections (Bronx North)	NY- Multiple	3/1/2024	2/28/2027	Two one-year renewals
Waste Connections (Bronx South)	NY- Multiple	11/12/2019	7/31/2026	N/A
Waste Connections (Manhattan North)	NY- Multiple	3/20/2020	7/31/2026	N/A
Waste Connections (Manhattan South)	NY- Multiple	2/10/2020	7/31/2026	N/A
Source: *New York City Housing Authority 2025*				

Agency Strategies

- DSNY will participate in the Sanitation Foundation's Trash Academy.
- DSNY will update the residential Waste Management Plan approval process for multiple dwelling buildings to ensure all recycling streams are included.[12]
- DSNY will monitor the effect of residential containerization on recycling capture rates and quality.
- DSNY will work to increase the diversion of paper from the refuse stream, primarily through recycling education and outreach efforts.
- DSNY will monitor state-level container redemption/return program and policy development, adapting New York City's recycling program as appropriate.
- NYCHA will coordinate with DSNY to optimize the collection of all material streams citywide.

Stakeholders:

DSNY	Residents	Sanitation Foundation
NYCHA	Building owners and managers	

Policy Context for the Recycling Program

› The New York State Returnable Container Act (Bottle Bill) incentivizes the return of beverage containers to the beverage distributor or dealer via a 5-cent deposit per container, which is included in the price of purchase and paid back to the consumer upon return.

› The New York State Plastic Bag Reduction, Reuse, and Recycling Act of 2009 requires larger retail establishments to collect plastic bags and film plastics for recycling. These include grocery bags, garment bags, produce and bread bags, shrink/stretch wrap, shipping envelopes and bubble mailers, bubble wrap, and furniture wrap. Compostable bags and biodegradable bags are not accepted.

› The New York State Bag Waste Reduction Act, effective October 19, 2020, prohibits the distribution of plastic carryout bags by any person required to collect New York State sales tax, with limited exceptions. Prior to this law, New York City residents used more than 10 billion single-use carryout bags every year, costing the City more than $12 million annually to dispose of these bags.

› The New York State Carpet Collection Program Law (Article 27, Title 33 of the Environmental Conservation Law) went into effect on December 28, 2024. In 2018, less than 10% of carpets and rugs were recycled in the United States. The New York State EPR law requires carpet producers to fund a convenient carpet collection program at no cost to consumers and develop recycling opportunities for carpets. The law covers broadloom carpet, modular carpet tiles, artificial turf, and pads or underlayment used with carpet but does not include area rugs, handmade rugs, and mats.

› Local Law 19 of 1989 mandated the separation of recyclable paper and MGP from refuse by residents and schools.

› Local Law 36 of 2010 requires City agencies to submit plans to DSNY to increase waste reduction and recycling.

› Local Law 40 of 2010 requires DSNY to publish the curbside and containerized diversion rate and the DSNY-managed diversion rate.

- Local Law 41 of 2010 outlines the recycling requirements for NYCPS, including the requirement for the chancellor of NYCPS to designate a sustainability director responsible for overseeing waste prevention, reuse, and recycling policy and programs in all NYCPS schools, charter schools, and other facilities under their jurisdiction and for providing an annual report on program implementation and results. The law also requires a sustainability coordinator appointed by the principal and a site-specific waste prevention, reuse, and recycling plan for each school building, where every classroom is required to have separate and appropriately labeled bins for trash and recyclable paper.[233]
- New York City amended the Administrative Code in 2013 to include all rigid plastics as a recyclable material (§ 16-305 Recycling of Department-Managed Solid Waste).
- Local Law 63 of 2016 required retail, convenience, and grocery stores to impose a fee of at least 5 cents for paper bags, with limited exceptions.
- Local Law 86 of 2023 established a goal of zero divertible waste for New York City by 2030. This encompasses citywide-generated recyclable waste, including, but not limited to, types of MGP, yard waste, and any other solid waste required to be recycled or composted pursuant to Chapter 16-303 of New York City Code. Local Law 87 requires reporting on waste diversion.

Potential Lifecycle Effects

MGP and paper recycling reduces the quantity of landfilled or incinerated material. Metals and glass can be repeatedly recovered for recycling and remanufacturing of goods. Increasing the quantity of metals and glass diverted from landfills and incinerators reduces the quantity of raw materials mined, transported, and processed. This in turn reduces negative environmental effects, benefiting air and water quality and reducing GHG emissions, noise, and traffic. The recycling and reuse of plastics is more challenging, as discussed in **Attachments B** and **D**. Paper can also be recycled multiple times and is in fact recycled right in the city. The use of recycled paper reduces the demand for paper produced from tree pulp, thus reducing deforestation. Paper recycling also reduces the demand for landfill space and incineration capacity and their associated environmental effects and emissions, similar to those associated with the disposal of other organic waste. Recycling MGP and paper typically requires less energy and produces less GHG emissions than producing new goods.[234] Furthermore, the City receives revenue from paper separated for recycling ($15 per ton in 2023),[204] while disposal at landfills and incineration are a cost to the City. In the long term, improving diversion rates through implementation of the Residential Recycling Program could result in cost savings for the City. Costs for disposal, recycling, and paper recycling revenue per ton are listed in **Table 5-9.**

While the budget for this Residential Recycling Program would have to be developed and approved by the City, the following information on past programs is included for reference:

- MGP processing programs had an expense budget funding of approximately $26.0 million for FY23 and $27.6 million for FY24.

Table 5-9. Refuse and Recycling Costs and Paper Recycling Revenue, Fiscal Years 2019-2024

Activity-Based Costs	FY19	FY20	FY21	FY22	FY23	FY24
Refuse Cost Per Ton (Fully Loaded) ($)	$528	$524	$545	$576	$566	NA
Recycling Cost Per Ton (Fully Loaded) ($)	$749	$716	$668	$733	$779	NA
Paper Recycling Revenue Per Ton ($)	$12	$12	$13	$19	$15	$13

FY: Fiscal year; NA: Not available
Source: NYC Mayor's Office of Operations, *Mayor's Management Reports (MMR)* for FY16-FY24

4. Residential Municipal Solid Waste Program

The Residential Municipal Solid Waste (MSW) Program will:

(1) Ensure capacity for export.

(2) Maintain the Fresh Kills and Edgemere Landfills post-closure.

(3) Monitor thermal treatment technologies.

(4) Advance New York City's Environmental Justice Plan.

4.1 Ensure Capacity for Export

Contracting for Waste Management Capacity and Monitoring the Regional Market

DSNY will maintain the Marine Transfer Stations (MTSs) and the Staten Island Transfer Station (SITS) and continue to use long-term waste export and disposal contracts to manage residential MSW and other refuse under DSNY's jurisdiction. As the lead agency for managing waste, DSNY negotiates and renews contracts with waste processors, oversees the development and closure of facilities, and integrates City and State goals into planning efforts.

Except for the contracts for operation and export from DSNY's Hamilton MTS and Southwest MTS, all MSW export contracts managed by DSNY will expire within the *SMWP26* 10-year planning period (i.e., before 2036; see **Table 5-10**). Notably, the contract with Reworld (formerly known as Covanta) will expire in the Fall of 2032, and there are no renewal options. An average of 379,326 tons of refuse per year from DSNY's southern and western Manhattan Districts (more than 12% of DSNY-managed refuse) were trucked to this incinerator based on 2016-2023 data provided in **Table 5-10**.

Additionally, the contract for DSNY's SITS and for Harlem River Yard are set to expire in the early years of SWMP26 implementation (in 2026 and 2027, respectively). However, both have renewal options.

Attachment C: Accessible Capacity for New York City Solid Waste Management summarizes the existing system capacity and future potential capacity needs. DSNY's existing infrastructure and contracted capacity are sufficient for waste export within the planning period. The system is reliant on long-distance rail export, with over 85% of the refuse collected by DSNY exported via rail. Over half of DSNY-managed refuse is sent to landfills in Virginia and South Carolina. These states have more landfill capacity than New York State and other Northeastern states, but waste reduction efforts are crucial, as landfill capacity could be depleted around 2050 based on existing capacity and annual acceptance rates. DSNY also sent around 1 million tons of refuse to incineration facilities. Over one-third of this was sent to Reworld Essex. Other incineration facilities in the region may accept tonnage from New York City when the contract with Essex terminates, but DSNY will consider potential limitations due to facility closures and potential restrictions on waste acceptance. Some facilities only accept local material or may be operating at or close to capacity due to depleting disposal capacity in the Northeast. DSNY will therefore continue to proactively monitor the regional capacity for waste management as part of long-term planning.

Table 5-10. Long-Term Contracts

Abbreviation key: TPD – tons per day; TPW – tons per week; MX – Maximum; MTS-Marine Transfer Station

Facility	Location	Contracted Tons Per Year*	Capacity	2016-2023 Average Tons Per Year	Start Date	End Date
Staten Island Transfer Station	Staten Island	608,400	1,950 TPD 7,150 TPW (MX)	215,660	11/13/2006	11/13/2026
Harlem River Yard	Bronx	982,800	3,150 TPD 15,120 TPW (MX)	591,422	8/10/2007	8/9/2027
Waste Management Varick	Brooklyn	444,600	1,425 TPD 6,840 TPW (MX)	344,481	3/1/2009	2/28/2029
Waste Management Review	Queens	561,600	1,750 TPD 7,560 TPW (MX)	290,860	6/27/2015	6/22/2035
North Shore MTS	Queens	1,145,664	3,672 TPD 21,840 TPW (MX)	461,975	8/19/2013	2/28/2035
Hamilton MTS	Brooklyn	1,145,664	3,520 TPD 16,650 (MX)	365,505	9/5/2017	9/4/2037
91st St MTS	Manhattan	580,320	1,860 TPD 9,864 TPW (MX)	138,284	8/19/2013	2/28/2035
Southwest MTS	Brooklyn	657,072	2,106 TPD 11,148 TPW (MX)	227,445	9/5/2017	9/4/2037
Reworld Essex	Newark, NJ	561,600	1,800 TPD 10,000 TPW (MX) 985,000 TPY	379,326	10/1/2012	9/30/2032

Source: *DSNY Contract List, Oct. 1, 2024*, DSNY Biennial Reports, 2016-2022, DSNY Disposal Sites Used by Facilities by Year Open Data for 2023.[5]
Notes: The renewal terms for all contracts are two five-year renewals, except the Reworld Essex (formerly Covanta) contract, which has no option to renew.
*The contracted annual tonnage was calculated by multiplying the daily contracted tonnage by 312, the number of DSNY pick-up days in 2022.

Continue to Assess Viability of Accepting Commercial Waste at City-Owned Transfer Stations

Six of the private transfer stations that accepted DSNY waste also accepted commercial waste in 2023. Approximately 57% of the putrescible waste tonnage received at New York City's private transfer stations was from commercial haulers, and 43% was from DSNY. Most of these facilities that accept both publicly and privately managed waste did not fully utilize their permitted annual capacity. The *2006 SWMP* considered the use of the City-owned transfer stations for commercial waste. While there is a recognized environmental benefit of moving waste by barge and rail, DSNY acknowledges sufficient transfer capacity in the market, and uncertain economics around private use of the City's transfer stations, as well as operational challenges that may result from such use. DSNY will continue to monitor whether the use of City-owned infrastructure for the management of commercial waste would be viable.

Plan for Resilience

New York City's infrastructure, including its waste management systems, is increasingly vulnerable to the impacts of climate change, including flooding, sea-level rise, and more frequent extreme weather events. MTSs and other transfer stations, WRRFs, and intermodal facilities are located along the waterfront or within the current or future projected floodplain, which makes them susceptible to storm surge and inundation. Flooding can disrupt waste collection, damage facilities, and cause waste to enter waterways and communities. In response to these growing risks, the City has developed the *Climate Resiliency Design Guidelines*, which provide a framework for incorporating climate projections into the design of public infrastructure.[13] These guidelines emphasize flood-resistant design, elevation strategies, and the use of resilient materials, ensuring that waste and other critical infrastructure can withstand future climate conditions and continue functioning during and after extreme events. In light of this guidance and to plan for resilience, DSNY will assess its critical infrastructure for vulnerability to climate change.

Agency Strategies

- DSNY will prioritize planning for changes to Reworld Essex incineration capacity while also evaluating options for other contracts, starting with the contracts that would expire first.
- DSNY will continue to proactively monitor MSW disposal capacity in the regional market and incorporate trends into long-term planning efforts.
- DSNY will continue to assess viability of accepting commercial waste at City-owned transfer stations.
- DSNY will review the status of each facility owned or under contract with DSNY for the management of solid waste, in accordance with the City's *Climate Resiliency Design Guidelines.*[13]

Stakeholders:

DSNY	Companies contracted to manage waste
MOCEJ	
Port Authority of New York and New Jersey (PANYNJ)	Community Districts that host transfer stations

4.2 Maintain the Fresh Kills and Edgemere Landfills Post Closure

Although Fresh Kills Landfill closed in 2001, DSNY continues to be responsible for environmental compliance, including compliance with landfill gas, leachate management, stormwater control, and final cover requirements. DSNY completed the final phase of closure construction and placement of final cover on Nov. 30, 2021. DEC certified the final closure on May 4, 2022. Since the closure of the landfill, the production of landfill gas (LFG) has been declining, and DSNY is planning to adapt facilities, as well as inspection and reporting requirements accordingly.

In 2006, the Department of City Planning (DCP) released a draft plan to convert Fresh Kills landfill into a park. Construction of the first section of the park began in 2008. In the long term (beyond the 10-year planning horizon included in *SWMP26*), New York City plans to continue the transformation of Fresh Kills Landfill into public parkland.

The Edgemere Landfill is also no longer accepting waste and over the years, there have been several proposals to consider this site for renewable energy development. As a first step, DSNY is planning a solar feasibility study to evaluate this option. Both the Fresh Kills and Edgemere Landfills account for significant acreage and open space in New York City. DSNY will continue to ensure the landfills are maintained in accordance with all applicable laws and

regulations and that the facilities are optimized to reduce costs to New York City taxpayers while protecting human health and the environment through the following strategies.

Agency Strategies

- DSNY will direct Fresh Kills Landfill leachate to a DEP wastewater resource recovery facility (WRRF) and decommission the onsite leachate treatment plant.
- DSNY will adapt the landfill gas (LFG) facilities at Fresh Kills Landfill to a declining generation rate.
- DSNY will continue to collaborate with Parks and other stakeholders on the adaptive reuse of Fresh Kills Landfill.
- DSNY will support government partners to complete the Edgemere Landfill solar feasibility study and evaluate next steps.
- DSNY will adjust inspection and reporting requirements at Fresh Kills and Edgemere Landfills to reflect modified operations and regulatory changes.

Stakeholders:

DSNY	DEC	DCAS
Parks	DEP	

4.3 Monitor Thermal Treatment Technologies

Despite ongoing efforts to reduce and recycle waste and productively manage organics, New York City continues to rely on landfills and incinerators to manage over 3.2 million tons per year of DSNY-managed waste. Advanced thermal treatment (ATT) technologies are of interest to DSNY as potential alternatives to landfilling and traditional thermal treatment (incineration). DSNY will therefore continue to identify advancements and regulatory changes that may affect the management of New York City's waste in the future. DSNY has prepared an initial overview of ATT technologies in **Attachment H**. The overview includes the current state of practice in the United States and globally and discusses the environmental effects of ATT technologies and regulations that apply. The use of ATT technologies to manage New York City waste may be explored as part of the next SWMP in 2036, if prudent, based on the findings over the next 10 years. This initiative is consistent with the DEC requirement to consider thermal treatment technologies in the SWMP.

Agency Strategies

- DSNY will continue to monitor this field through attendance at industry conferences and attention to state and federal policy development, reporting on updated findings in SWMP biennial reports.

Stakeholders:

DSNY	Parks
DEP	DEC

4.4 Advance New York City's Environmental Justice Plan

MOCEJ is preparing an environmental justice plan (*EJNYC Plan*) in accordance with Local Law 64 of 2017. DSNY is part of an Environmental Justice Interagency Working Group (IWG) that is providing input for the plan. Over the next 10-year period, DSNY will continue to advance the development and implementation of this plan, in cooperation with MOCEJ and other agencies.

EJNYC defines environmental justice as "the fair treatment and meaningful involvement of all people, regardless of race, color, national origin, or income, with respect to the development, implementation, and enforcement of environmental laws, regulations, policies and activities and with respect to the distribution of environmental benefits." Environmental justice concerns with waste management are primarily focused on the locations of waste management infrastructure and associated air emissions noise and odors, particularly in low-income communities and communities of color. Historical land use patterns have resulted in the concentration of industry and waste/recycling management infrastructure in neighborhoods such as the South Bronx, North Brooklyn, and Southeast Queens.

Through the implementation of the *2006 SWMP* and related environmental justice reforms, DSNY has worked to shift more waste handling to rail and barge systems, thereby reducing reliance on exporting waste on diesel trucks in the aforementioned neighborhoods. DSNY has also made efforts to modernize its fleet with lower-emission and electric vehicles. Local Law 152 of 2018 reduced the permitted capacity of private transfer stations in selected community districts, further reducing these impacts. Through waste reduction initiatives, improved recycling, newer fleets, and implementation of commercial waste zones, the programs proposed as part of *SWMP26* will continue to advance environmental justice objectives and distribute environmental benefits across the city. More systemic improvements will require thoughtful zoning to preserve these areas essential to city operations, holistic commitments to a circular economy, and investment in next generation infrastructure.

Another aspect of environmental justice is uplifting historically underrepresented business owners and providing resources and opportunities for those businesses to thrive. New York City's M/WBE program includes multiple initiatives to enhance participation of minority-owned, women-owned, and small business enterprises in City procurement. The program aims to promote fair, competitive, and diverse participation. The City awarded $6.4 billion in total M/WBE contracts during FY24. Small Business Services (SBS) and New York City Mayor's Office of Contract Services (MOCS) have made contracting with M/WBEs easier and have worked to remove barriers to participation. In FY22, DSNY had 332 contracts with M/WBEs, with a total registered contract value of over $15 million.[235] Local Law 174 of 2019 requires New York City agencies to set annual goals for awarding contracts to M/WBEs and mandates reporting. DSNY will continue to facilitate participation of M/WBEs and collaborations with B-corporations and nonprofits and report on progress.

Agency Strategies

- DSNY will continue to participate in the development of the citywide *EJNYC Plan* and annual progress reporting.
- DSNY will consider the distribution of environmental justice benefits as part of SWMP26 Program implementation.
- DSNY will report on annual spending with Minority and Women-Owned Business Enterprise (M/WBE) and B-corporations, and on nonprofit collaborations.

Stakeholders:

MOCEJ
DSNY
IWG
Environmental justice communities
M/WBEs
Nonprofits
B-corporations

Policy Context for the Residential MSW Program

- Edgemere Landfill closed in 1991, making Fresh Kills landfill the last active landfill in the city. As the Fresh Kills Landfill closed in 2001, the City developed its Long-Term Export Program. The *2006 Comprehensive Solid Waste Management Plan* focused on the development of the City's Marine Transfer Stations pursuant to the Long-Term Export Program. This established the City's current approach to refuse management—all refuse is exported via rail, barge, or truck outside of the City, often traveling hundreds of miles to its final destination.
- Fresh Kills and Edgemere Landfills are subject to the requirements of 6 CRR-NY IV B 363 363-9.7—End Use. The proposed end use must not adversely impact the final cover system, must avoid significant adverse impacts on public health and the environment, and any buildings and underground utilities must monitor for methane gas and soil vapor.
- Local Law 60 of 2017 required a study of environmental justice areas and the establishment of an environmental justice portal.[236]
- Local Law 64 of 2017 requires that the IWG develop an environmental justice plan that provides guidance for incorporating environmental justice concerns into City decision-making, identifies possible citywide initiatives for promoting environmental justice, and provides specific recommendations for City agencies.[237]
- The City's *EJNYC Report*[238] is an assessment of historical and present environmental justice issues in New York City. It identifies policy opportunities the City will explore further in the *EJNYC Plan*.
- Updates on the progress of the development of the *EJNYC Plan* are included on the City's website.[239]
- Local Law 152 of 2018, also referred to as the Waste Equity Law, limited the capacity of transfer stations in certain overburdened neighborhoods.[240]
- Local Law 174 of 2019 requires New York City agencies to set annual goals for awarding contracts to M/WBEs and mandates reporting.[241]

Potential Lifecycle Effects

While planning to transition to a circular economy, DSNY must also plan to manage what is not recovered, which has historically averaged over 3 million tons of waste disposed as refuse by residents and institutions every year. Failing to adequately plan to manage mixed refuse could potentially result in the accumulation of waste in the city, which would quickly lead to increases in rat and other disease vector populations, with potential impacts on public health and quality of life. DSNY is therefore planning to secure sufficient waste export and disposal capacity, while working to make waste reduction, reuse, and recycling more accessible for residents.

Much of *SWMP26* programming aims to drive the transition to a circular economy. Continued disposal at landfills and incinerators has negative environmental, health, and economic impacts. Landfills and incinerators create climate pollution and air pollution that impacts public health and disproportionally affects disadvantaged and overburdened communities. Furthermore, capacity in the region is limited, and expanding existing capacity is challenging. Landfills require extensive space and can affect water quality, and both landfills and incinerators affect the health and quality

of life in surrounding communities. Long-range transport of waste to landfills and incinerators also results in environmental impacts, although most of the waste managed by DSNY is moved by barge and rail, which are more energy efficient modes of transport than trucks. Unlike trucks, barges and rail do not contribute to congestion on the region's busy roadways, tunnels, and bridges.

Modifications proposed for the Fresh Kills and Edgemere Landfills would continue to comply with regulatory requirements (including requirements for air quality and water protection) while potentially reducing existing operational costs of managing those two facilities.

As discussed in **Attachment H**, ATT technologies (such as pyrolysis, gasification, and solvolysis) implemented in the United States to date have not been particularly successful. Nonetheless, these technologies have had some success abroad and are continuing to evolve. DSNY will therefore continue to keep up with innovations in waste management and identify potential solutions for consideration beyond the 2036 planning horizon. The lifecycle considerations of advanced thermal treatment technologies are discussed in **Attachment H**.

SWMP26 programming would improve waste management, which would result in environmental, public health, and quality of life benefits for New Yorkers, including for environmental justice populations. There are already some measures in place to address waste equity, such as through the Waste Equity Law (Local Law 152) and through environmental justice programs in New York City. DSNY will continue to participate in developing updates to the *EJNYC Plan*, with an emphasis on environmental justice in decision-making, transparency in data and reporting (including data that will be collected for commercial waste), and access to sustainable waste management and related events for all communities.

While the budget for this Residential MSW Program would have to be developed and approved by the City, the following information on past programs is included for reference:

- The expense budget for export of DSNY-managed MSW was approximately $427 million in FY23 and $478 million in FY24.

5. Commercial Waste Program

The Commercial Waste Program is a major focus of *SWMP26* and includes the following initiatives:

(1) Implement Commercial Waste Zones.

(2) Expand Organics Rules.

(3) Increase diversion of recyclables and organics.

(4) Improve data quality.

5.1 Implement Commercial Waste Zones

Local Law 199 of 2019 established the Commercial Waste Zones (CWZ) program. DSNY will implement this program to improve the management of commercial waste and incentivize separation of recyclables and organics. Through a selective procurement process, carters are authorized to provide commercial waste collection service within one or more of the 20 CWZs. Additional carters are authorized to provide citywide containerized collection service. The program aims to reduce commercial waste collection truck traffic, thereby reducing traffic congestion and noise and improving air quality; create a more transparent and equitable vendor contracting process; and increase safety

through improved labor standards. The CWZ program also incentivizes recycling and the collection of organics through required differential pricing for refuse, organics, and recyclables. In addition, greater enforcement tools through contractual mechanisms and in-field enforcement will give DSNY the ability to monitor carter adherence to the new rules.

Agency Strategies

- DSNY will implement Commercial Waste Zones in all zones citywide.
- DSNY will annually report on Commercial Waste Zones pursuant to Local Law 199 of 2019.

Stakeholders:

DSNY	Businesses	Recycling facilities
Business Integrity Commission (BIC)	Carters	Organics processing facilities
	Private transfer stations	Private sector preprocessors

5.2 Expand Organics Rules

Food-related businesses such as restaurants, event halls, hotels, and others are currently required by law to separate organic waste. Additional information is available in **Attachment A: Local Laws** and **Attachment G**. While food-related businesses, as the main generators of organic waste, are covered by the existing law, all other business and industries in the city cumulatively also generate a substantial amount of organic waste and therefore present an opportunity to increase the organics capture and diversion rates. This initiative would expand the existing regulations to require organics separation for all businesses and would require a modification to local law.

Agency Strategies

- DSNY will work with New York City Council to expand organics separation requirements to include all businesses.

Stakeholders:

DSNY	New York City Council	Businesses
BIC	DEP	Organics processing facilities

5.3 Increase Diversion of Recyclables

Through comparatively favorable pricing as required by contract, DSNY expects that the implementation of the CWZ program will improve the diversion of recyclables. Over the next 10 years, DSNY will continue to monitor the capture rate and diversion of recyclables, including the flow of material. DSNY will report on progress biennially and use the information gathered as part of the initial CWZ program implementation period to adjust future CWZ contract requirements, if needed.

Agency Strategies

- DSNY will monitor the capture rate and diversion of recyclables in Commercial Waste Zones.
- DSNY will research barriers to higher diversion rates and identify potential solutions.
- DSNY will monitor commercial recycling rates and processing capacity.

Stakeholders:

DSNY
BIC
Businesses and Business Improvement Districts (BIDs)
Carters
Waste transfer station operators
Local and regional recycling facility operators
Local and regional organics management facility operators

5.4 Improve Data Quality

Current reporting on commercial waste is limited and inconsistent, which will change once the Commercial Waste Zone program is fully implemented by 2027. This is especially true for commercial waste that is hauled directly out of the city without first being brought to an in-city transfer station. As part of the CWZ program, carters under contract must periodically report waste generation and characterization data, facilities used for collection and disposal, customer information and service details, performance metrics, and more. Further, Local Law 199 of 2019 requires commercial waste vehicles to have GPS devices capable of collecting, storing, and transmitting geographical data. These requirements are included in the contracts with CWZ vendors. Private carters are required to report GPS data in real time to provide information regarding route optimization and efficiency as well as ensuring carters stay within their zone boundaries, as detailed in **Attachment F**.

DSNY is, for the first time, collecting additional data specific to Business and Community Engagement, Fees Collected by Carters, Costs to Dispose of Material at Transfer Stations, Vehicles Miles Traveled (VMT), Collection Data by Waste Stream, and Enforcement from the implemented zones, which will be published in an annual report. Improved data collection will enable DSNY to better assess the total amount of commercial waste generated in New York City, the type of waste collected, and the flow of waste from generator to final disposition. Over the next 10 years, DSNY will continue to collect and monitor the data and make improvements to the data collection and use, as needed.

In addition to the data quality improvements anticipated with the implementation of the CWZ program, better data on fats, oils, and grease (FOG) waste generated by businesses would help future planning efforts. Improving collection of FOG separately from other food waste can result in more efficient management of this organic waste and opportunities for beneficial use. An organics pre-processing facility at Waste Management's Varick Avenue Transfer Station has the infrastructure to receive FOG, which is mixed with organic waste bioslurry and sent to the Newtown Creek WRRF for codigestion. Good quality data on the amount of FOG generated and recovered is currently not available, particularly for FOG collected by private carters and managed outside of New York City.

Agency Strategies

- DSNY will report data in biennial SWMP reports, including information on types of businesses and associated waste generation (e.g., industrial, retail, office, etc.).
- DSNY will complete a commercial waste characterization study per Local Law 14 of 2025.
- DSNY will collaborate with government partners to improve data on the collection and use of fats, oils, and grease (FOG) waste.

Stakeholders:

DSNY	BIC	Carters

Policy Context for the Commercial Waste Program

› Local Law 146 of 2013 requires certain businesses (such as restaurants, grocery stores, food manufacturers, and arenas) as well as large public events (more than 500 people) to separate organic waste (food scraps, food-soiled paper, and plant waste).

› Local Law 199 of 2019 authorized the DSNY commissioner to establish commercial waste collection zones by dividing the city's geographic area into several zones and authorizing a small number of private carters to serve businesses within each zone through a competitive solicitation process. The resulting contracts with CWZ vendors include standards for pricing, customer service, safety, and environmental health as well as requirements to promote the City's commitment to recycling and sustainability. The law and the resulting contracts also require vendors to report information about the collection of commercial waste.

Potential Lifecycle Effects

The implementation of commercial waste zones, the expansion of organics rules, and improvements in data quality will all have a positive effect on the lifecycle of materials managed by the commercial waste sector.

Designed to reduce fuel use, improve labor conditions, and improve routing, the CWZ program also incentivizes recycling and is expected to decrease the amount of commercial waste managed at landfills given the price incentives for recycling and organics.[242] Further, reduced fuel consumption offers air quality benefits while reducing reliance on fossil fuel, and more efficient routing is expected to reduce traffic and noise pollution across the city. An additional benefit of the CWZ program is price regulation, which supports more affordable waste management rates for businesses in New York City. Pricing is now governed by a "maximum rate" that customers can be charged, detailed in the contract between DSNY and the selected carters. Businesses can also negotiate for lower rates. The maximum rates are determined through a combination of volume- or weight-based fees and fees based on waste collection frequency.

While the CWZ program may not directly change the amount of waste managed, the quantity of commercial waste has fluctuated in recent years. From 2019 to 2020, as the pandemic reshaped daily life, many of New York City's commercial businesses shuttered. Employees who could work remotely began doing so, shifting much of the waste they previously generated at workplaces into the residential waste stream. As a result, residential waste amounts slightly increased while commercial waste amounts decreased. Over the course of both 2021 and 2022, the amount of commercial waste began to rise again but has not reached pre-pandemic levels.

Diverting materials for beneficial use, such as composting and anaerobic digestion of organics, results in less waste disposal at landfills. Landfills in the Northeast United States are reaching capacity, and disposing less material reduces the need for landfill capacity. The expansion of organics separation could also create new jobs in site management, support circularity by keeping materials within the community (through distribution to local gardens or landscaping businesses) and reduce methane emission associated with the decomposition of organics at landfills.

Finally, improved data management will enable the City to more accurately track the effectiveness of the CWZ program in achieving the goals set for the management of commercial waste and connected benefits, which address the environmental concerns of New York City residents and businesses.

6. Construction and Demolition Waste Program

Construction and demolition (C&D) waste, or C&D debris, is generated through residential, commercial, and institutional construction and rehabbing activities and infrastructure development. C&D debris includes concrete; asphalt; stone; metal; wood; dry wall; insulation; furniture, fixtures, and equipment (FF&E); and fill (soil and similar material excavated for the purpose of construction and maintenance). These materials can be recovered for beneficial use, recycled, or landfilled.

Construction in New York City generates a large amount of C&D waste, with over 2 million tons per year of C&D material and more than 3 million tons of fill moved through transfer stations in New York City. Additional C&D waste and fill generated in New York City is hauled out of the city, and data on these amounts is limited. Most construction material is imported from outside the city, and most construction waste is exported to landfills outside the city. There is significant potential for diversion of C&D materials from landfills, such as beneficial use of fill, recovery of wood and fixtures, and recycling of metal, asphalt, and concrete.

Opportunities for reuse are limited by the shortage of space for stockpiling materials. Suitable space is challenging to find due to population density and real estate prices. Additionally, the reuse of C&D materials with recycled content on municipal projects is limited by engineering specifications that make the use of recycled materials or materials with recycled content challenging.

New York City agencies will continue to take steps to encourage construction material reuse and recycling and to remove barriers to the use of materials with recycled content. The C&D Waste Program includes the following initiatives:

(1) Implement Clean Construction Executive Order (EO23).

(2) Expand NYCDOT recycling in asphalt.

(3) Include C&D waste in the circular economy.

6.1 Implement Clean Construction Executive Order (EO23)

New York City Executive Order 23 of 2022 (EO23) requires certain City agencies with capital projects DDC, DCAS, DEP, NYCDOT, and Parks) to reduce GHG emissions associated with construction, including embodied carbon (emissions associated with the production and transport of construction materials. EO23 will also result in better data on construction materials, as it will require the use of environmental product declarations (EPDs) and life-cycle analyses. DSNY is part of an EO23 interagency working group that aims to (1) increase recovery of C&D waste from New York City capital construction projects for reuse and reprocessing and (2) increase the amount of reused or reprocessed materials in New York City capital construction projects. EDC is implementing *Clean and Circular Design*

& Construction Guidelines, an operational guide to reduce waste and embodied carbon.[108] DSNY will continue to work with MOCEJ and other City agencies to advance diversion of waste on New York City construction projects, which, given the amount of City agency work, could also drive the construction material reuse market on private construction projects.

Agency Strategies

- MOCEJ will develop construction and demolition material guidance for all covered City agencies.

Stakeholders:

Capital agencies covered by EO23: DDC, DCAS, DEP, NYCDOT, Parks

Other stakeholders working on EO23 implementation: MOCEJ, DSNY, School Construction Authority

6.2 Expand NYCDOT Recycling in Asphalt

NYCDOT repaves and repairs the city's 6,300 lane miles of streets. Old asphalt pavement is removed through a process called milling, and the resulting material is processed into Recycled Asphalt Pavement (RAP). NYCDOT uses RAP to make new asphalt at Hamilton and Harper Asphalt Plants. NYCDOT's asphalt contains an average of 40% RAP— almost twice the national average of 21%. With upgrades to the Harper Plant, NYCDOT will increase the RAP content of its asphalt to 50%, using 30,000 more tons of RAP. NYCDOT makes more milled asphalt than it can use to repave streets.[243] Milled asphalt and excess RAP is available free of charge to private industry and community developments via the Asphalt Millings Bank. DSNY will support NYCDOT in marketing milled asphalt, which reduces C&D waste and embodied carbon.

NYCDOT continues to develop new asphalt formulations from recycled materials. As part of a pilot project in 2022, NYCDOT integrated 10,400 pounds of plastic waste into the asphalt, which was used to resurface two streets in Staten Island. NYCDOT estimated that the project avoided 16,000 pounds of GHG emissions.

Over the next 10-year period, NYCDOT will continue to test various materials mixes and to expand successful use of such materials on New York City projects.

Agency Strategies

- NYCDOT will continue to provide asphalt millings for use in City projects, private industry, and community developments.
- NYCDOT will work on increasing the use of asphalt with higher recycled asphalt pavement (RAP) content and pilot projects with 50% RAP.
- NYCDOT will identify opportunities to use recycled materials in asphalt mixes as they become available in the industry.

Stakeholders:

NYCDOT DSNY MOCEJ

6.3 Include Construction and Demolition Waste in the Circular Economy

Concrete Materials

PlaNYC includes an initiative to implement performance-based standards for low-carbon materials (including a low-carbon material standard for concrete) and to complete a citywide embodied carbon baseline.

Recycled concrete aggregate (RCA), made from crushing and screening concrete debris, can be reused rather than sent to landfill. NYCDOT produces RCA from sidewalk and median reconstruction for use as a sub-base material in sidewalk projects and is now seeking to understand how RCA could be used in the in-house production of new concrete. RCA is available free of charge to City agencies, private industry, and community developments via the RCA Bank.[244] The ongoing RCA program supports interagency reuse and recycling with the aim of improving recycled materials for local use.

In addition, the use of ground glass pozzolan (GGP) as a cement replacement in concrete has demonstrated positive performance for all types of construction. GGPs are made from difficult to repurpose recovered glass and can replace up to 50% of cement in concrete.[245] GGPs significantly reduce embodied carbon while improving concrete strength and durability, creating longer lasting and more cost-effective infrastructure.

Over the next 10-year period, NYCDOT will test the use of low carbon materials and increase recycled content of concrete mixes. DSNY will support NYCDOT in marketing unused RCA and will promote the use of ground glass pozzolan as a cement replacement in concrete, which would reduce C&D waste and embodied carbon emissions.

Clean Soil Bank

Mayor's Office of Environmental Remediation (MOER) administers a clean soil exchange program and operates a physical stockpile to store eligible material. The NYC Clean Soil Bank (CSB) facilitates the recovery of clean soil from deep excavations at construction sites. Soil is reused at construction sites requiring backfill or is redirected to the City's Forbell Street stockpile in Brooklyn, which opened in 2020, for temporary staging. Staging addresses logistical challenges and increases the amount of material recycled. The stockpiled soil can then be used on New York City construction sites, both public and private, and by community and school gardens. Under DEC oversight, OER has the ability to confer Beneficial Use Determinations (BUD) to eligible soil, which is therefore suitable for beneficial use and exempt from New York State solid waste facility regulation (6 NYCRR Part 360). The Forbell Street stockpile has capacity for 18,000 cubic yards of clean soil. The City has not yet identified a site for the soil bank stockpile after the current lease ends in 2031.

NYC Industrial Plan

The Department of City Planning (DCP), in collaboration with other City agencies, is developing a *NYC Industrial Plan* to explore ways to support the development of a modern, growing, and sustainable industrial economy and well-used industrial areas, with planned completion in December 2025. Industry in New York City includes three subsectors: moving (e.g., warehousing and transportation), making (e.g., construction and film production), and maintaining (e.g., waste management and repair). *The NYC Industrial Plan* aims to enable industrial businesses to evolve, innovate, and transition to green technologies; advance a balanced and coherent land and real estate strategy; support modern and efficient freight movements; promote clean and safe industrial areas; and prepare industrial areas for climate threats. DSNY will continue to support DCP with developing the *NYC Industrial Plan*, with

a focus on transportation and warehousing for facilitating reuse and repair, as well as building and infrastructure material recovery. DSNY will include progress updates within the SWMP26 biennial reports.

Working with Construction and Demolition Stakeholders

DSNY is coordinating with stakeholders, including the EO23 Working Group, to increase the reuse or remanufacture of C&D materials. Strategies include, 1) generating demand, 2) increasing supply, 3) connecting supply and demand, and 4) spurring innovation. DSNY, in partnership with other agencies, will research barriers to C&D material reuse, recycling, and beneficial use and identify incentives for increasing recovery and methods for improving data. Supporting these four strategies will advance circular economy principles on capital construction projects. **Table 5-11** shows the potential for C&D material reuse.

Table 5-11. Construction and Demolition Material Reuse Potential

Material	Is there a nascent market?	Is it commonly installed and/or high volume and applicable to multiple building types?	Is it a standard size?	Is it high in embodied carbon?	Is it easy to deconstruct and reuse?	Is it valuable?
Wood	Yes	Yes	Variable	No	Yes	Yes
Structural Steel	Yes	Yes	Variable	Yes	Yes	Yes
Brick	Yes	Yes	Yes	Variable	Yes	Yes
Doors	Yes	Yes	Variable	Variable	Yes	Yes
Flooring	Yes	Yes	Yes	Variable	Yes	Variable
Furniture	Yes	Yes	No	Yes	Yes	Yes
Windows	Yes	Yes	No	Yes	Variable	Yes
Source: RECLAIM NYC, New York City Material Reuse Proposal						

Agency Strategies

- NYCDOT will identify opportunities to use recycled concrete aggregate (RCA) and provide unused RCA for use in City projects.
- NYCDOT will test the use of low carbon materials and explore recycled content of concrete mixes.
- MOER will expand the NYC Clean Soil Bank program's Forbell Street Stockpile yard operation from two to three days per week.
- DSNY will collaborate with EDC and DCP on the *NYC Industrial Plan* and on circular economy opportunities related to building and infrastructure material recovery.
- DSNY will advance research and identify infrastructure for reuse and remanufacturing.
- DSNY will convene C&D waste processors to identify and address barriers to reuse, recycling, and beneficial use, and to solicit suggestions on improving C&D data.
- DSNY will work with C&D waste processors and City agencies to develop C&D material reuse incentives.

Stakeholders:

DSNY	MOER	DDC
NYCDOT	EDC	
MOCEJ	DCP	

Policy Context for the Construction and Demolition Waste Program

› New York State Law 6 NYCRR Parts 360-366 and 369:

- Defines beneficial uses for various materials and identifies criteria for when a BUD or nonspecific facility permit is required.
- Identifies permits, registrations, exemptions, and requirements for facilities managing concrete, asphalt pavement, rock, or brick (CARB); recyclable material; compost and mulch; and soil/fill produced by C&D.
- Includes requirements for the transport of waste, with exemptions for C&D and waste tires.
- Requires landfill liners for various landfill types and requires horizontal gas collection lines for C&D landfills.

› New York State Environmental Conservation Law, Chapter 43-B, Title 27 went into effect in 2020, increasing penalties for unlawful dumping and adding requirements for tracking C&D waste. Article 31 requires cities with a population of 1 million or more to track the movement of construction waste. Waste transporters in applicable areas must track C&D waste types and amounts in waste tracking documents, and waste receivers must confirm, sign, and maintain the documents.

› New York State Executive Order 22, Leading by Example (EO22) directed State agencies to adopt a sustainability and decarbonization program and created the GreenNY Council to guide sustainability initiatives. Executive Order 22 requires the GreenNY Council to provide guidance for reducing embodied carbon in construction materials. For all new construction, adaptive reuse, or significant renovation projects, the policy requires the 75 State agencies and authorities listed in **Attachment I: New York State Executive Order 22 (EO22) Affected Entities** to calculate the total embodied carbon resulting from the project and submit EPDs when available. Some of the affected entities, such as the Metropolitan Transportation Authority (MTA), City University of New York (CUNY), Department of Health (DOH), and Dormitory Authority of the State of New York (DASNY) lead capital construction projects in New York City. EO22 also includes a goal of decreasing waste disposal by 10% every five years from a FY19 baseline until reaching a 75% reduction.

› New York City Executive Order 23, Clean Construction, signed in 2022, aims to reduce emissions associated with the City's capital projects by using low-carbon materials, using EPDs for structural steel and concrete, using low-emission or electric equipment for construction, and conducting a lifecycle assessment for projects.

› Local Law 71 of 2011 requires that asphaltic concrete used to pave New York City streets contain at least 30% RAP by weight, except for certain heavy duty asphaltic concrete mixes, which shall contain not less than 10% RAP by weight.

› As mentioned previously, Local Law 152 of 2018, known as the Waste Equity Law, reduced the capacity of transfer stations in New York City, with the goal of reducing the environmental effects of waste management on overburdened communities in the city. The law includes exemptions for C&D debris being processed for beneficial use, facilities that export waste by rail and have on-site rail infrastructure, and transfer stations that manage fill.

Potential Lifecycle Effects

As mentioned in the discussion of the lifecycle effects of the Waste Prevention and Reuse Program, the production of construction materials, their transport, and their disposal negatively impacts the environment and human health. By reducing the demand for new materials and encouraging reuse, recycling, and use of materials with recycled content, this program would reduce those environmental and health impacts. While the research and pilot projects have fewer tangible benefits in the short term than some of the other initiatives proposed as part of this *SWMP26*, New York City has the scale (with its high population, large and numerous construction projects, and high profile aging infrastructure and buildings) to make a long-term difference, not only in New York City, but also nationally and perhaps globally through demonstrated success with the use of recycled materials. The major value of this program is therefore the ability to try out new approaches and materials and use the successful ones as blueprints for implementation across the city.

Another major benefit of the program is the focus on local processing and use. This would not only nurture a local circular economy, but also reduce key environmental impacts (traffic congestion, air pollution, and noise pollution) associated with the transport of new materials and C&D waste into and out of the city. NYCDOT reports that the use of RAP produced by the City avoids 2 million miles of annual truck trips that would be used to carry milled asphalt to landfills. This reduces congestion, pollution, and roadway wear and tear. Through other asphalt mixes and technologies, NYCDOT decreases emissions, fumes, and odors at asphalt plants and resurfacing work sites, and reduces the amount of energy needed for asphalt production. NYCDOT's use of rubber tires in asphalt mixes facilitates the recycling of tires, increases the durability of pavement, and reduces traffic noise.[246]

While nearly all of the costs for the existing solid waste management system for C&D are borne by the private sector (even the materials and waste for City projects are procured/disposed of by the private sector) any budget for City resources dedicated to the C&D Waste Program would have to be developed and approved by the City, the following information is included for reference:

- The operating and management cost for the Clean Soil Bank Forbell Street Stockpile for two days per week has been approximately $600,000 per year, with MOER staff budget also dedicated to stockpile management.

7. Special Waste Program

DSNY's Special Waste Programs initiatives target the safe disposal of harmful products used by residents and DSNY-managed institutions. Products that require safe disposal include solvents, automotive materials, flammables, and electronics (SAFE materials), as well as other potentially harmful household products. These products are considered hazardous for their potential to catch fire, react, or explode, and/or because they are corrosive or toxic. Special and household hazardous waste (HHW) and electronics make up less than 1% of the waste generated by residents, including from NYCHA, schools, and litter baskets. Despite the relatively small tonnage associated with this waste stream, special waste is important to manage to avoid adverse environmental, health, and economic impacts. Currently, an estimated 31.4% of electronic waste and 9.2% of HHW is captured through existing recycling and special waste collection programs.

Increasing the availability of special and HHW collection supports New York City's waste reduction goals by providing safe avenues for disposal by residents. Improper disposal of these wastes can pollute the environment (soil, water, and air) and pose a threat to human health, including physical injury to sanitation workers. These materials could also contaminate wastewater treatment systems if poured down drains or toilets.[247] Similarly, improper handling of

used electronics and e-waste exposes workers to harmful substances, including heavy metals such as lead, mercury, cadmium, and arsenic. When burned, electronics release toxic fumes into the air. When improperly managed in landfills, e-waste can leach toxins into soil and groundwater, contaminating food chains and ecosystems.

DSNY holds SAFE Disposal events in each borough for residents to drop off harmful products, pharmaceuticals, and electronics and operates Special Waste Drop-Off Sites for use by residents in each borough. In FY 2024, 376 tons of HHW were collected across all five boroughs. Additionally, DSNY oversees ecycleNYC, a program for collecting electronic waste from buildings with 10 or more units. Electronics collected by DSNY through ecycleNYC, SAFE Disposal events, and Special Waste Drop-Off Sites are sent to ERI. ERI holds Responsible Recycling (R2) and e-Stewards certifications for handling e-waste. New York City Public Schools also manage e-waste and universal waste (including batteries and light bulbs), which are handled by Veolia under a contract for all City agencies. New York City Public Schools use Triumvirate Environmental for ballasts, chemicals, lab waste, and mercury-containing devices.

DSNY works to ensure that New York City households, businesses, and government agencies have convenient drop-off locations for unwanted paint to be recycled, in compliance with the New York State Paint Stewardship Program, operated by PaintCare. Similarly, automobile repair shops are required to accept used tires,[168] and wireless telephone service suppliers selling mobile phones must accept used phones for recycling, reuse, or environmentally sound disposal.[248] Under the New York State Electronic Equipment Recycling and Reuse Act (2014), manufacturers of electronic equipment must provide a continuous electronic waste acceptance program, allowing for the convenient collection and recycling or reuse of electronic waste at no cost to consumers.[249] Residents may drop off electronics at the New York City Special Waste Drop-Off Sites, SAFE events organized every year in every borough, or community recycling events organized every year in every community district,[250] or use manufacturer takeback services.[251]

Over the next 10-year period, DSNY will maintain and advance the Special Waste Program through the following initiatives:

(1) Advance special waste recovery and Extended Producer Responsibility (EPR) policies

(2) Expand community events and centers

7.1 Advance Special Waste Recovery and Extended Producer Responsibility Policies

As discussed, EPR policies encourage waste reduction at the source (material production), disincentivize the use of nonrecyclable materials, and encourage manufacturers to design for recyclability. These policies shift some of the responsibility of the management of hard-to-recycle materials from local governments to producers, who can have a greater impact on harmful or difficult-to-recycle waste by eliminating it or reducing it at the source. DSNY will work to advance EPR for materials that are considered special waste, including tires, batteries, gas cylinders, and solar panels.

Tires

DSNY helps manage abandoned vehicles in the city through a contract that is expiring in 2028. As part of this effort, DSNY collects over 500 tons of tires annually (2016-2023 average) from abandoned vehicles. These tires face dwindling domestic markets for recycling. The tires collected by DSNY are a small portion of the total used tire waste generated by residents and businesses in New York City. Most of the used tires are managed by the private sector, with Vehicle Dismantling Facilities (VDFs) reporting the number of tires collected and transferred in annual reports to

DEC. There is a need for market development for end-of-life tires, as described in the New York State 2023 SWMP, *Building the Circular Economy Through Sustainable Materials Management*.[197] DSNY will explore opportunities to support new and sustainable uses for tires, such as rubber-modified asphalt, which can be used to pave surfaces, and tire-derived aggregate, which can be used as infill material for retaining walls, roadside embankments, and stormwater infiltration galleries. Crumb rubber, which is granular particles of rubber made from used tires, can also be used for speed bumps, sign bases, door mats, and rubber wheel stops. The use of recycled tires in infrastructure may be a good candidate for challenge-based procurement.

Batteries

In FY24, 24.4 tons of rechargeable batteries were collected through DSNY's existing recycling program. Batteries, when incorrectly disposed of in curbside refuse collection, cause harm. Batteries contain chemicals and hazardous metals that, when disposed of in landfills or incinerators, pollute air, soil, and waterways.[252] Waste transfer stations and recycling facilities in New York City struggle with fires caused by improper lithium battery disposal. **Table 5-12** summarizes the estimated number of 2024 lithium battery fires for facilities that reported the information to DSNY.

Table 5-12. Number of Lithium Battery Fires by Facility in 2024

Facility	Number of Fires
SMR/South Brooklyn	212
Waste Management Varick Avenue	14
Waste Management Review Avenue	4
Waste Management Harlem River Yard	72

Improperly disposed lithium batteries can also cause fires on collection trucks, with 44 fires in 2024 and a steady increase in the number of lithium battery truck fires since 2017. In 2024, there were three additional battery-related fires in DSNY or Parks garages, one fire at the Reworld Essex incineration facility in New Jersey, and one at a special waste site in Queens in 2023. DSNY will continue to work with the New York City Fire Department (FDNY) and other agencies to reduce the risk of fires associated with rechargeable batteries.

Gas Cylinders

In FY24, DSNY collected 180 tons of gas cylinders across refuse and recycling. When improperly disposed, these products can explode in the hopper of collection trucks, causing injury to sanitation workers and the nearby public. An EPR program could require certain large retailers that sell propane tanks, helium tanks, and/or fire extinguishers to take back such products and arrange for their safe reuse, recycling, or disposal. Currently, the only option to dispose of these products are DSNY SAFE Disposal events.

Solar Panels

Some solar panels contain hazardous materials such as lead and cadmium. The amount of hazardous materials in a solar panel varies by manufacturer and model, and some panels may be classified as hazardous waste under the U.S. Resource Conservation and Recovery Act (RCRA). Some states have signed or proposed EPR laws, but solar panel takeback and recycling is currently not required federally or in New York State, and many solar panels subject to RCRA are improperly disposed. Cost is a barrier to recycling solar panels at scale, with recovered material value only covering around 10% of the recycling costs.[253] Legislation on the safe handling, disposal, and recycling of solar panels is in progress:

- Niagara County, New York became the first local government in the United States to pass an EPR law requiring 100% recovery (takeback) by manufacturers of solar panels by 2026 and 85% recycling by 2031.
- To promote safe handling and disposal, DEC and EPA are considering classifying solar panels as universal waste. Universal waste requires special management.

EPR laws incentivize the development of the solar panel recycling market and technology. As of 2025, there are no facilities in New York City or New York State that recycle solar panels onsite. There are several U.S. facilities that recycle solar panels on-site, including: Fabtech (Massachusetts, Ohio, Illinois, North Carolina, Georgia, and more), Cleanlites (Ohio, Michigan, South Carolina, and Minnesota), First Solar recycling (Ohio), Interco (Illinois), Solarcycle (Arizona and Texas), SolarPanelRecycling.com (North Carolina, Georgia, and Texas), the Retrofit Companies (Minnesota), and Good Point Recycling (Vermont and Massachusetts).

Agency Strategies

- DSNY will work with MOCEJ to explore the use of recycled tire rubber in infrastructure, including through challenge-based procurement.
- DSNY will work with MOCEJ and state legislators to update EPR policies for batteries.
- DSNY will work with the New York City Fire Department (FDNY) to reduce the risk of fires associated with rechargeable batteries through proper end-of-life management.
- DSNY will support New York State EPR initiatives and identify opportunities to support photovoltaic (PV) module (solar panel) recycling in City planning and programs.
- DCAS will work with DSNY to send 70% of old PV modules by 2030 and 100% by 2035 for recycling.
- DSNY will support City and State EPR initiatives for gas cylinders.

Stakeholders:

DSNY	MOCS	DCAS
NYCDOT	DEC	New York City Council
MOCEJ	FDNY	Recycling businesses

7.2 Expand Community Events and Centers

DSNY already holds recycling and reuse events, including pop-up events, community reuse and recycling events, community compost giveback events, and SAFE Disposal events. In FY24, DSNY held 38 community reuse and recycling events. Over 6,500 residents participated, and DSNY collected over 93,500 pounds of reusable goods. Over the next 10 years, DSNY will hold one community recycling event in every community district every year for a total of 59 events.

There is one Special Waste Drop-Off Site located in each borough. In accordance with Local Law 88 of 2023, DSNY expanded the hours of its Special Waste Drop-Off Sites to every Thursday, Friday, and Saturday from 9 a.m.–5 p.m. and added a textile drop-off location in every borough. In addition to community compost giveback events, compost giveback events are scheduled at SICF, Greenpoint Compost Giveback Site in Brooklyn, and two sites in Queens between April and September.[254]

Agency Strategies

- DSNY will continue the recently expanded hours at its Special Waste Drop-Off Sites in compliance with Local Law 88 of 2023.
- DSNY will hold community events in every Community District. These events will collect e-waste, paint, and textiles.

Stakeholders:

DSNY	DEC
US DOE	Recycling businesses

Policy Context for the Special Waste Program

› RCRA specifies requirements for hazardous waste management.

› The NYS Electronic Equipment Recycling and Reuse Act (Environmental Conservation Law, Article 27, Title 26) requires manufacturers to provide free and convenient recycling of electronic waste to most consumers in the state. The law includes a disposal ban, and as of the start of 2015, consumers must not dispose of covered electronic equipment with refuse and should instead use a manufacturer's takeback program or go to an electronic waste collection site. The law includes requirements for collection sites, consolidation facilities, recycling facilities, retailers, and solid and hazardous waste facilities and haulers, in addition to manufacturers and consumers.[72] The law also includes labeling and reporting requirements.

› The NYS Rechargeable Battery Law bans the disposal of rechargeable batteries. It requires manufacturers to fund and plan the collection and recycling of rechargeable batteries sold in the state, to engage in outreach and education efforts, and to submit a plan to DEC. The law does not cover batteries or battery packs weighing 25 pounds or more; batteries used as the principal power source for a vehicle, such as an automobile, boat, truck, tractor, golf cart, or wheelchair; batteries for storage of electricity generated by an alternative power source, such as solar or wind-driven generators; batteries for backup that is an integral component of an electronic device; or any non-rechargeable, single-use batteries such as common alkaline batteries.[cclv] Accordingly, batteries for micromobility devices such as e-bikes and e-scooters are not covered by the New York State Rechargeable Battery Law. In recent years, ridership of e-bikes and e-scooters has increased substantially, as has the ridership of illegal e-mopeds that use low-quality and uncertified lithium-ion batteries. The proliferation of these low-quality batteries, combined with unsafe charging practices, has contributed to an increase in fires started by lithium-ion batteries, which are now a leading cause of fires and fire deaths in New York City.[cclvi] The law also does not cover embedded batteries, such as those used in vaping devices, electric toothbrushes, toys, etc. According to the most recent Waste Characterization Study, 57% of all battery-containing material categories were found to have embedded batteries.

› The New York State Waste Tire Management and Recycling Act (New York State's EPR policy for tires) requires tire service centers and businesses that sell tires in New York State to accept waste tires and prohibits land burial of tires. Tires must not be landfilled unless DEC determines that it is not feasible to recycle the material.

› Local Law 39 of 2010 established a citywide program to divert household hazardous waste from DSNY-managed solid waste, including special drop-off events and designated drop-off sites in each borough.

› Local Law 88 of 2023 required DSNY to expand the recycling program to establish at least two community recycling centers in each borough by the end of 2024. The recycling centers must accept inorganic material

that is not accepted at curbside collection for reuse and recycling. Local Law 88 of 2023 also requires DSNY to host a community recycling event in each community district annually.

Potential Lifecycle Effects

Special and hazardous waste can pose dangers to waste management staff. In particular, tires, rechargeable batteries, and gas cylinders can cause fires if handled, stored, or disposed of incorrectly. Fires caused by these materials, in addition to endangering humans and damaging property, generate hazardous air pollution, which adversely affects respiratory health in the short term and other health outcomes with long-term exposure. Further, when batteries and other special waste are disposed improperly as refuse, they can release toxic heavy metals and other chemicals into soil, potentially affecting water systems through groundwater and stormwater runoff. This in turn can affect public health and wildlife. Improperly discarded solar panels, which contain materials like lead and cadmium telluride, can also contaminate soil. Paint and other household hazardous waste, if improperly disposed, can generate volatile organic compounds (VOCs), polluting air, soil, and groundwater. EPR policies and the proposed *SWMP26* strategies for improving the management of special waste, including greater access for residents to take advantage of existing programs, can reduce the negative impacts on the environment and human health that are associated with special waste disposal.

Furthermore, the extraction, transport and manufacture of products that are considered special waste at the end of their useful life consumes energy and affects the environment. Efforts to recover the materials within those products for beneficial use can displace the need for raw materials (e.g., the use of recycled rubber from tires in infrastructure could reduce the demand for other construction materials, such as concrete or asphalt). This has the potential to avoid the environmental impacts of extracting new raw materials and manufacturing new products while also reducing the amount of waste requiring management and disposal.

While the budget for the Special Waste Program would have to be developed and approved by the City, the following information on past and existing programs is included for reference:

- The expense budget for DSNY's Household Hazardous Waste Program was approximately $2.6 million each for FY23 and FY24. This funding was reduced to $1.4 million in FY24 due to citywide budget cuts.

8. Education and Outreach Program

DSNY conducts education and outreach for residents, businesses, agencies, and other organizations to promote participation in waste reduction, reuse, and recycling opportunities and to increase compliance with State and local laws and initiatives. Education and outreach efforts are ongoing and include printed signage, online and social media outreach, and in-person events aimed at increasing recycling and organics separation and reducing contamination of the recycling and organics waste streams. In-person events include Touch-a-Truck events and DSNY educational programming by request (training, presentations, and site visits for those requesting assistance), tabling events, and presentations and speeches. The initiatives proposed as part of this program are supportive of all other programs proposed in this *SWMP26* and the benefits of education and outreach are therefore realized from the enhancement they provide to those other programs. The policy context and lifecycle benefits for this program are common to all of the initiatives proposed as part of this program and are therefore discussed following the list of the proposed initiatives (whereas for other programs these discussions were included for each specific initiative).

Training programs offered by DSNY include Clean Buildings training for residential buildings and City agencies including NYCHA, building maintenance staff, residents, and institutions. These trainings provide information on

DSNY protocol and regulations, organics and recycling best practices, and available resources. Between the Clean Building Trainings for agencies, regular maintenance staff trainings, webinars, and site visits, as well as NYCHA Recycle First Initiative trainings, DSNY conducted 40 trainings for over 900 participants in FY24. Additionally, to raise awareness of the Citywide Residential Organics Program, DSNY conducted door-knocking campaigns in boroughs newly receiving service and provided information at outreach events and community board meetings. DSNY received a $2 million Recycling Education and Outreach grant from EPA to implement an education outreach campaign around the citywide expansion of curbside composting, with a focus on historically underserved communities. DSNY also coordinates with community composting groups to share outreach materials.

As part of the CWZ program, DSNY is reaching out to businesses and institutions to share information and facilitate program implementation. Examples of this work, which will continue as part of *SWMP26* implementation, include in-person visits by DSNY's field team (after initial phone calls); targeted information sessions for elected officials, stakeholder representatives, merchant organizations, nonprofit organizations, and houses of worship; and targeted outreach for large corporations and institutions (e.g., corporations, utilities, universities, hospitals, museums, markets, stadiums, and state agencies). In addition to outreach in English, DSNY's field team is planning outreach to small businesses in other languages, including Spanish, Mandarin, French, and Albanian.

Additionally, the Sanitation Foundation (DSNY's non-profit partner) provides ongoing education and outreach programs and resources including the NYC Trash Academy, Adopt Your Spot NYC, the NYC Big Spring Clean, the Follow your Waste Tool, community stewards, summer cleanups, workshops, youth education, and the food waste toolkit. Other organizations involved in education and outreach include nonprofits, such as Lower East Side Ecology Center (LESEC); GrowNYC; Big Reuse; DEP, which provides educational tours of the Newtown Creek WRRF; New York City Public Schools Office of Energy & Sustainability, by educating the 900,000 enrolled students and their families; and recycling businesses, such as SMR and Cooper Recycling, which also offer educational tours.

Over the next 10-year period, DSNY will maintain and advance the Education and Outreach Program through the following initiatives:

(1) Work to reduce contamination in all recycling streams.

(2) Study and employ new digital tools.

(3) Collaborate with community groups on outreach and education for organics recycling.

(4) Leverage enforcement efforts as a form of education and outreach.

8.1 Work to Reduce Contamination in All Recycling Streams

Agency Strategies

- DSNY will create multilingual outreach materials for all waste programs and share them on DSNY's website, via social media, and by mail.
- DSNY will offer information sessions, training on new programs, and technical assistance on DSNY rules and regulations to building management and staff.
- DSNY will continue to attend a variety of community events and activities citywide and offer in-person event requests on the DSNY website.
- DSNY will identify outreach opportunities with local elected officials and community-based organizations.

- DSNY will conduct door-to-door neighborhood canvassing for new initiatives or in areas with low compliance with waste management regulations.
- NYCPS will continue to provide waste sorting education and training to school students and their families.

8.2 Study and Employ New Digital Tools

Agency Strategies

- DSNY will provide relevant and engaging content on all appropriate social media platforms.
- DSNY will craft digital tool kits to provide downloadable content to be used by community groups to further outreach and education.
- DSNY will maintain the "How To Get Rid Of" search tool, Smart Composting Bin app, and donateNYC.

8.3 Collaborate with Community Groups on Outreach and Education for Organics Recycling

Agency Strategies

- DSNY will conduct outreach activities in partnership with community groups, focused on providing 40-pound bags of compost; kitchen containers; and paper bags for leaf and yard waste to the public.
- DSNY will train community groups on DSNY services and talking points to help them to be better "ambassadors" of DSNY programs.
- DSNY will encourage community groups to use culturally relevant engagement strategies to tailor their message and event formats to diverse communities.

8.4 Leverage Enforcement Efforts

Agency Strategies

- DSNY will conduct neighborhood walkthroughs with community partners and elected officials to observe area conditions and apply targeted outreach.
- Allow warning periods for new initiatives and issue verbal and written "warning tickets" that provide notice of rules and regulations and ways to avoid a fine in the future.
- DSNY will post collection laws and associated fines for businesses, residents, agencies, and institutions on the DSNY website.

Stakeholders:

DSNY	Sanitation Foundation	Community organizations
NYCHA	SWABs	
NYCPS	Elected officials	

Policy Context for the Education and Outreach Program

› Existing recycling education and outreach regulations include requiring certain residential dwellings to post guidelines for residents on source-separated recyclables (Local Law 34 of 2010).

Potential Lifecycle Effects

Although education and outreach do not directly reduce the amount of waste or increase diversion, they have the potential to make other proposed programs more effective and are an essential component of solid waste management planning. Without the participation of residents and businesses, no large-scale programming by City agencies, no matter how well designed and implemented, can have major success. People cannot participate in programs they are not aware of, and confusion about programs and policies increase the likelihood of noncompliance. Many of DSNY's initiatives require a significant change in behavior among a large and diverse population. To properly educate the public, DSNY must run multifaceted communications campaigns with numerous touch points including in-person events, social media posts, virtual trainings, and direct mailers, among others. For programs like curbside organics, these efforts have been successful. When combined with a robust warning and enforcement effort, the sustained outreach led to a dramatic increase in participation since its initial launch. As more residents participate in DSNY's ongoing programs, the public's demand for and reliance on these initiatives also expands.

While the budget for the Education and Outreach Program would have to be developed and approved by the City, the following information on past and existing programs is included for reference:

- The expense budget funding for public education and outreach (including organics) in FY23 and FY24 was $19.4 million and $14.0 million, respectively. Future spending on public education and outreach is anticipated to be between $10–20 million annually. No capital expenses are anticipated as part of this budget.

Summary of Initiatives by City Agency

DCAS

- DSNY, in coordination with DCAS, will provide best practices guidance on textiles used by agencies. *(Waste Prevention and Reuse Program, Initiative 1.1)*
- DCAS will work with DSNY to send 70% of old PV modules by 2030 and 100% by 2035 for recycling. *(Special Waste Program, Initiative 7.1)*

DCLA

- Together with the New York City Department of Cultural Affairs (DCLA), DSNY will manage available funding for community composting groups and botanical gardens in the city. *(Organics Diversion and Recovery Program, Initiative 2.7)*

DCP and EDC

- DSNY will collaborate with EDC and DCP on the *NYC Industrial Plan* and on circular economy opportunities related to building and infrastructure material recovery.
  (Construction and Demolition Waste Program, Initiative 6.3)

DEP

- DEP will pursue the goal of 100% diversion of biosolids from landfills by 2030 by diversifying end-use sites and vendors.
  (Organics Diversion and Recovery Program, Initiative 2.4)
- DEP will reduce overall sludge volume while improving liquid sludge quality through enhanced thickening and digestion processes. In parallel, DEP will assess the feasibility of on-site drying technologies to further reduce dewatered solids, enabling more cost-effective and sustainable downstream handling.
  (Organics Diversion and Recovery Program, Initiative 2.4)
- DEP will work with DSNY and MOCEJ to develop plans to expand organics codigestion capacity and biogas recovery, with the potential for biogas infrastructure on City property.
  (Organics Diversion and Recovery Program, Initiative 2.4)
- DEP will work to advance the pathways identified in the DEP Energy and Carbon Neutrality Plan, Task 3: Biosolids Master Plan, including thermal conversion via pyrolysis or gasification.[10]
  (Organics Diversion and Recovery Program, Initiative 2.4)
- DEP will explore innovative methods to beneficially reuse wastewater-derived products in-city.
  (Organics Diversion and Recovery Program, Initiative 2.4)
- DEP will build on the *From Trash to Treasure*[11] study to develop new markets for waste-derived resources.
  (Organics Diversion and Recovery Program, Initiative 2.4)
- DEP and DSNY will continue to evaluate opportunities for co-location of new and innovative wastewater and/or organics waste management infrastructure at City-owned properties, including locations that have been previously evaluated, such as Rikers Island.
  (Organics Diversion and Recovery Program, Initiative 2.4)
- DSNY will direct Fresh Kills Landfill leachate to a DEP wastewater resource recovery facility (WRRF) and decommission the onsite leachate treatment plant.
  (Residential Municipal Solid Waste Program, Initiative 4.2)

FDNY

- DSNY will work with the New York City Fire Department (FDNY) to reduce the risk of fires associated with rechargeable batteries through proper end-of-life management.
  (Special Waste Program, Initiative 7.1)

NYCPS

- NYCPS will expand single-use plastic waste reduction initiatives in schools.
  (Waste Prevention and Reuse Program, Initiative 1.3)
- NYCPS will ensure continuity in training and education to increase participation in the school curbside organics collection program.
  (Organics Diversion and Recovery Program, Initiative 2.1)
- NYCPS will expand food rescue initiatives and improve data collection at New York City public schools, with DSNY support.
  (Organics Diversion and Recovery Program, Initiative 2.5)
- DSNY will provide public schools with bags of compost for educational purposes and school gardens.
  (Organics Diversion and Recovery Program, Initiative 2.6)
- NYCPS will continue to provide waste sorting education and training to school students and their families.
  (Education and Outreach Program, Initiative 8.1)

MOCEJ

- DEP will work with DSNY and MOCEJ to develop plans to expand organics codigestion capacity and biogas recovery, with the potential for biogas infrastructure on City property.
  (Organics Diversion and Recovery Program, Initiative 2.4)
- DSNY will work with MOCEJ and the EO23 team to develop performance-based specifications for soils, compost, and mulch products.
  (Organics Diversion and Recovery Program, Initiative 2.6)
- DSNY will continue to participate in the development of the citywide *EJNYC Plan* and annual progress reporting.
  (Residential Municipal Solid Waste Program, Initiative 4.4)
- MOCEJ will develop construction and demolition material guidance for all covered City agencies.
  (Construction and Demolition Waste Program, Initiative 6.1)
- DSNY will work with MOCEJ to explore the use of recycled tire rubber in infrastructure, including through challenge-based procurement.
  (Special Waste Program, Initiative 7.1)
- DSNY will work with MOCEJ and state legislators to update EPR policies for batteries.
  (Special Waste Program, Initiative 7.1)

MOER

- MOER will expand the NYC Clean Soil Bank program's Forbell Street Stockpile yard operation from two to three days per week.
  (Construction and Demolition Waste Program, Initiative 6.3)

NYCDOT

- NYCDOT will consider the use of DSNY compost and mulch in landscaped arterial roadways and street medians.
  (Organics Diversion and Recovery Program, Initiative 2.6)
- NYCDOT will continue to provide asphalt millings for use in City projects, private industry, and community developments.
  (Construction and Demolition Waste Program, Initiative 6.2)
- NYCDOT will work on increasing the use of asphalt with higher recycled asphalt pavement (RAP) content and pilot projects with 50% RAP.
  (Construction and Demolition Waste Program, Initiative 6.2)
- NYCDOT will identify opportunities to use recycled materials in asphalt mixes as they become available in the industry.
  (Construction and Demolition Waste Program, Initiative 6.2)
- NYCDOT will identify opportunities to use recycled concrete aggregate (RCA) and provide unused RCA for use in City projects.
  (Construction and Demolition Waste Program, Initiative 6.3)
- NYCDOT will test the use of low carbon materials and explore recycled content of concrete mixes.
  (Construction and Demolition Waste Program, Initiative 6.3)

NYCHA

- NYCHA will increase organics recycling access for NYCHA residents.
  (Organics Diversion and Recovery Program, Initiative 2.1)
- NYCHA will increase the use of City-produced compost and mulch on NYCHA construction projects and at existing NYCHA development grounds.
  (Organics Diversion and Recovery Program, Initiative 2.6)
- NYCHA will coordinate with DSNY to optimize the collection of all material streams citywide.
  (Residential Recycling Program, Initiative 3.4)

Parks

- Parks will establish eight new composting locations and upgrade, as necessary, the 17 existing facilities per Local Law 118 of 2024.
  (Organics Diversion and Recovery Program, Initiative 2.3)
- DSNY will collaborate with Parks on the management of woody debris, including direct reuse (milling); on the *NYC Urban Forest Plan;* and on exploring technologies such as biochar production.
  (Organics Diversion and Recovery Program, Initiative 2.3)
- DSNY will continue to collaborate with Parks and other stakeholders on the adaptive reuse of Fresh Kills Landfill.
  (Residential Municipal Solid Waste Program, Initiative 4.2)

Other / Multi-Agency

- DSNY will work with the New York City Council to identify avenues for requiring commercial textile reporting to better enforce the recycling requirement for businesses whose waste is made up of more than 10% textiles.
  (Waste Prevention and Reuse Program, Initiative 1.1)
- DSNY will work to expand enrollment in its textile recycling program by including office buildings, small businesses, City agencies, and educational and other institutions.
  (Waste Prevention and Reuse Program, Initiative 1.1)
- DSNY will collaborate with the Executive Order 23 (EO23) Task Force and Town+Gown's Urban Resource Recovery Working Group to identify opportunities for increased C&D salvaged material storage and refurbishment.
  (Waste Prevention and Reuse Program, Initiative 1.2)
- DSNY will work with other City agencies to promote a container reuse program at a public venue.
  (Waste Prevention and Reuse Program, Initiative 1.3)
- Agencies will work to develop performance-based specifications to facilitate the use of recycled material and material with recycled content, including reclaimed soil.
  (Waste Prevention and Reuse Program, Initiative 1.7)
- DSNY will support other City agencies in setting up food donation programs.
  (Organics Diversion and Recovery Program, Initiative 2.5)
- DSNY will work with MOCEJ and the EO23 team to develop performance-based specifications for soils, compost, and mulch products.
  (Organics Diversion and Recovery Program, Initiative 2.6)
- DSNY will partner with City agencies to increase participation in recycling programs for MGP and paper.
  (Residential Recycling Program, Initiative 3.2)
- New York City will advocate for and advance EPR programs for packaging in accordance with PlaNYC (the City's sustainability blueprint) and state legislative efforts.
  (Residential Recycling Program, Initiative 3.3)
- New York City will work with other local governments across the state to advance an EPR program for mattresses.
  (Residential Recycling Program, Initiative 3.3)
- DSNY will support government partners to complete the Edgemere Landfill solar feasibility study and evaluate next steps.
  (Residential Municipal Solid Waste Program, Initiative 4.2)
- DSNY will work with New York City Council to expand organics separation requirements to include all businesses.
  (Commercial Waste Program, Initiative 5.2)
- DSNY will collaborate with government partners to improve data on the collection and use of fats, oils, and grease (FOG) waste.
  (Commercial Waste Program, Initiative 5.4)
- MOCEJ will develop construction and demolition material guidance for all covered City agencies.
  (Construction and Demolition Waste Program, Initiative 6.1)

- DSNY will work with C&D processors and City agencies to develop C&D material reuse incentives. *(Construction and Demolition Waste Program, Initiative 6.3)*
- DSNY will support New York State EPR initiatives and identify opportunities to support photovoltaic (PV) module (solar panel) recycling in City planning and programs. *(Special Waste Program, Initiative 7.1)*
- DSNY will support City and State EPR initiatives for gas cylinders. *(Special Waste Program, Initiative 7.1)*

Key Points

- *SWMP26* proposes eight programs to achieve three overarching goals: 1) decrease the amount of waste disposed by residents, institutions, businesses, and construction and other industries in New York City; 2) increase opportunities for reduction, reuse, repair, and recycling and the use of recycled material and material with recycled content; and 3) continue to responsibly manage remaining waste and New York City's closed landfills.
- Through the initiatives in the **Waste Prevention and Reuse Program**, DSNY will: 1) advance textile reuse programs and reduce textile waste; 2) facilitate reuse and repair by supporting organizations and donateNYC users, and by including C&D material reuse; 3) promote packaging reuse and reduction; 4) increase access to reuse centers and support reuse and repair events; 5) continue and expand DSNY's research in and reporting on incentive-based waste management policies; and 6) convene New York City circular economy stakeholders and establish a virtual hub for sharing research, data, and best practices. These initiatives will reduce the amount of waste produced in New York City, thus reducing the amount of waste managed at incinerators and landfills. They will also increase the reuse of products, thereby avoiding the use of natural resources and fossil fuels used to manufacture new products, and supporting new employment opportunities and economic activity.
- Initiatives in the **Organics Diversion and Recovery Program** will: 1) increase the quality and quantity of organics diverted in New York City, 2) increase the recovery rate of DSNY-managed organics, 3) increase composting and wood reuse, 4) expand codigestion and beneficial use of biosolids and biogas, 5) promote food donation and rescue, 6) increase in-city use of organic derived products, and 7) continue to support community composting. By reducing the amount of organic matter managed at landfills and incineration facilities, these initiatives will reduce GHG emissions and the environmental impact of transporting organic material for disposition. The program also has the potential to increase employment opportunities in the city.
- Initiatives in the **Residential Recycling Program** will: 1) ensure continued capacity for transferring and recovering recyclable materials, 2) improve the recovery of collected MGP and paper, 3) expand residential drop-off and recycling programs, and 4) increase residential recycling participation and quality. These initiatives will increase the diversion of MGP and paper from the municipal waste stream, thereby reducing the quantity of recyclable refuse that is landfilled and incinerated. This program will also reduce demand for natural resources and the environmental effects associated with their sourcing and production.
- Initiatives in the **Residential Municipal Solid Waste Program** will: 1) ensure capacity for the export of MSW, 2) maintain the Fresh Kills and Edgemere Landfills post-closure, 3) monitor thermal treatment technologies, and 4) advance New York City's *Environmental Justice Plan*. These initiatives will secure sufficient waste export and disposal capacity while working to transition to a circular economy. The program also expands efforts to reduce the impact of waste transport and incineration on the environment and public health.

- Initiatives in the **Commercial Waste Program** will: 1) implement CWZs, 2) expand organics rules, 3) increase diversion of recyclables and organics, and 4) improve data quality. These initiatives are intended to reduce fuel use, improve labor conditions, regulate commercial waste collection pricing, and reduce the environmental and health impacts of commercial waste collection throughout the city and especially in disadvantaged communities. The program will also reduce the amount of waste disposed in landfills and support the circular economy.
- Initiatives in the **Construction and Demolition Waste Program** will: 1) implement the Clean Construction Executive Order (EO23), 2) expand NYCDOT recycling in asphalt, and 3) include C&D waste in the circular economy. These initiatives reduce the demand for new construction materials and encourage the reuse and recycling of C&D materials, in turn reducing the environmental and public health impacts of C&D material production and disposal. The program will also support and strengthen the local circular economy.
- Initiatives in the **Special Waste Program** will: 1) advance special waste recovery and EPR policies and 2) expand community events and centers. These initiatives will increase the diversion of special waste from the municipal waste stream, reducing risks to the environment, property, and public health. Recovering special waste for beneficial reuse also reduces the need for raw materials and supports the circular economy.
- Through the initiatives in the **Education and Outreach Program**, DSNY will: 1) work to reduce contamination in all recycling streams, 2) study and employ new digital tools, 3) collaborate with community groups on outreach and education for organics recycling, and 4) leverage enforcement efforts as a form of education and outreach. This program will support all other *SWMP26* programs by increasing awareness, and therefore participation in and compliance with, all other programs and initiatives.

Chapter 6: Implementation Plan and Schedule

As part of a Local Solid Waste Management Plan (LSWMP), the New York State Department of Environmental Conservation (DEC) requires an "Implementation Plan and Schedule" for the proposed solid waste management alternatives. This chapter discusses the implementation plan and schedule for the eight programs proposed for New York City in **Chapter 5: Program Development**. To the extent possible and applicable, this chapter includes the following for each program:

Proposed milestones and schedule the strategies included in the program

Regulatory considerations, including new or modified regulatory actions recommended or required to support the program

Proposed performance metrics, including new metrics and those already in use and reported as part of existing programs

Potential system and resource needs. All programs will leverage existing infrastructure, where possible, or infrastructure for which plans are already under development. During implementation, the New York City Department of Sanitation (DSNY) will report any additional infrastructure needs identified as part of biennial reports. It is important to note that some of the needs will be met by other City agencies and the nonprofit and private sectors.

1. Waste Prevention and Reuse Program

Proposed Milestones and Schedule

Table 6-1 shows the proposed milestones and implementation schedule for each initiative and strategy under the Waste Prevention and Reuse Program.

Table 6-1. Waste Prevention and Reuse Program
Proposed Milestones and Schedule

Initiatives	Strategy Milestones	Schedule
1.1 Advance textile reuse programs and reduce textile waste	Establish textile collection options for all households and institutions, with additional events and appointment-based pick-up for low-rise buildings (buildings with fewer than 10 units), which were previously excluded from collection programs.	2028-2032
	Study potential legislation to increase participation.	2026-2028
	Identify avenues for requiring commercial textile reporting to better enforce the recycling requirement.	2026-2028
	Expand enrollment in DSNY's textile recycling program by including office buildings, small businesses, City agencies, and educational and other institutions.	Ongoing
	Provide best practices guidance on textiles used by agencies.	2028-2030
	Launch pilot projects to increase access to reuse and repair for textiles procured or mandated by the City.	2030-2032

Table 6-1. Waste Prevention and Reuse Program Proposed Milestones and Schedule

Initiatives	Strategy Milestones	Schedule
1.2 Facilitate reuse and repair by supporting organizations and donateNYC users, and by including construction and demolition (C&D) material reuse	Support nonprofit and community organizations engaged in reuse and repair by offering technical assistance, strategic relationship development, and access to funding opportunities.	Ongoing
	Identify opportunities for increased C&D salvaged material storage and refurbishment.	Ongoing
	Build C&D expertise within DSNY's Reuse and Donations Unit and promote existing donateNYC tools to designers, developers, and contractors to support connecting C&D supply and demand.	Ongoing
1.3 Promote packaging reuse and reduction	Promote at least one pilot of packaging reuse with a New York City partner.	2030-2032
	Promote a container reuse program at a public venue.	2032-2034
1.4 Increase access to reuse centers and support reuse and repair events	Expand access to community-based reuse centers in each borough.	2030
	Integrate reuse and repair into community reuse and recycling events.	Ongoing
1.5 Improve data collection and reporting on the benefits of reuse	Conduct reuse sector research and prepare biennial reports.	Ongoing
	Evaluate commercial reuse, repair, and lending capacity.	2034
1.6 Study incentive-based policies	Research and report on incentive-based policies and practices and explore potential opportunities for incentive-based mechanisms for residential collections in New York City.	2034-2036
	Continue to conduct Waste Characterization Studies, per Local Law 14 of 2025, and use the results of those studies to inform policy development.	2028-2032
1.7 Convene New York City's circular economy stakeholders	Convene a network of organizations across sectors in the circular economy.	2027-2034
	Develop a virtual hub to increase coordination, compile research, collect data, and share best practices.	2028-2029
	Develop performance-based specifications to facilitate the use of recycled material and material with recycled content, including reclaimed soil.	Ongoing
	Partner with local organizations to promote commercial C&D material reuse.	Ongoing

Regulatory Considerations

The suite of initiatives and strategies proposed as part of the Waste Prevention and Reuse Program would support existing state and local laws and rely primarily on existing regulations for implementation. The textile reuse and waste reduction initiative, however, would require new regulations to require data collection and reporting from businesses whose textile waste accounts for more than 10% of their total waste.

In addition, DSNY will research the legal and regulatory aspects of incentive-based policies for residential, institutional, and commercial waste generators, as well as the policy and regulatory framework for mandatory diversion of residential and institutional textiles from disposal. Further, the data gathered as part of this program on the capacity for textile management could support future legislation mandating commercial textile waste tracking.

Although no new laws or regulations would be required to expand opportunities for repair, research to support laws mandating repair of some items could be advanced as part of the proposed initiatives.

Proposed Performance Metrics

DSNY will track the performance of the Waste Prevention and Reuse Program using the following metrics (items with an asterisk are part of existing programs already being reported):

- Residential and institutional textile tonnage collected and diverted
- Commercial textile tonnage collected and diverted
- Number of buildings participating in textile collection programs
- Amount of disposable packaging reduced through reusable packaging pilot(s)
- Number of participants attending repair events
- Number of community reuse and repair events
- Material type and quantity successfully repaired or reused at community events
- Number of circular economy network partners

Potential System and Resource Needs

Implementation of the Waste Prevention and Reuse Program would rely on the following new, modified, or expanded systems and resources:

› Physical

- Collection vehicles for textiles discarded by residents and institutions
- Storage or processing locations for textiles discarded by residents and institutions
- Locations and bins for collecting agency textiles
- Locations for repair and reuse workshops and events, including community reuse centers in each borough
- Locations and resources for community-based reuse and repair centers
- Venue(s) for packaging reuse pilot program
- Physical storage locations for reusable materials

Technology

- Platform for reporting on commercial textile waste
- Reuse data collection and reporting tools

Vendors and Partners

- Packaging pilot program partner(s)
- Education and outreach materials, program promotion resources, and vendors

Implementation of the Waste Prevention and Reuse Program would require time from the following staff:

- Program planning, analysis, and administration
- Education and outreach
- Enforcement
- Citywide C&D workgroup (EO23 task force)
- Legal and administrative

2. Organics Diversion and Recovery Program

Proposed Milestones and Schedule

Table 6-2 shows the proposed milestones and implementation schedule for each initiative and strategy under the Organics Diversion and Recovery Program.

Table 6-2. Organics Diversion and Recovery Program Proposed Milestones and Schedule

Initiatives	Strategy Milestones	Schedule
2.1 Increase the quality and quantity of organics diverted citywide	Study alternatives to clear plastic bag bin liners for organics collection.	2026-2028
	Promote the use of paper bags for leaf and yard waste collection.	2026-2028
	Explore innovations in collection equipment and operations to improve quality.	2027-2030
	Increase participation in the residential curbside collection program.	2026-2036
	Increase organics recycling access for New York City Housing Authority (NYCHA) residents.	2026-2032
	Ensure continuity in training and education to increase participation in the school curbside organics collection program.	2026-2036
2.2 Increase the recovery rate of DSNY-managed organics	Continue to monitor advancements in technology related to the decontamination of collected organics.	2026-2036
	Experiment with methods to increase the recovery of compostable products at the Staten Island Compost Facility (SICF).	2026-2036
	Use contractual provisions to maximize the recovery of collected organics.	2028-2032
2.3 Increase composting and wood reuse	Expand leaf and yard waste and overall pre-processing capacity at SICF.	2029-2036
	Participate in planning for the future of Rikers Island and the related potential for additional composting capacity.	2029-2034
	Initiate the organics processing capacity stakeholder process.	2027-2030
	Establish eight new composting locations and upgrade, as necessary, the 17 existing facilities per Local Law 118 of 2024.	2026-2027
	Collaborate on the management of woody debris, including direct reuse (milling); on the *NYC Urban Forest Plan;* and on exploring technologies such as biochar production.	2031-2034
2.4 Expand codigestion and beneficial use of biosolids and biogas	Pursue the goal of 100% diversion of biosolids from landfills by 2030 by diversifying end-use sites and vendors.	2026-2030
	Reduce overall sludge volume while improving liquid sludge quality through enhanced thickening and digestion processes. In parallel, assess the feasibility of on-site drying technologies to further reduce dewatered solids, enabling more cost-effective and sustainable downstream handling.	2026-2036
	Develop plans to expand codigestion capacity and biogas recovery, with the potential for biogas infrastructure on City property.	2026-2036

Table 6-2. Organics Diversion and Recovery Program Proposed Milestones and Schedule

Initiatives	Strategy Milestones	Schedule
	Advance the pathways identified in the DEP Energy and Carbon Neutrality Plan, Task 3: Biosolids Master Plan, including thermal conversion via pyrolysis or gasification.[10]	2026-2036
	Explore innovative methods to beneficially reuse wastewater-derived products in-city.	2026-2030
	Build on the *From Trash to Treasure*[11] study to develop new markets for waste-derived resources.	2029-2032
	Continue to evaluate opportunities for co-location of new and innovative wastewater and/or organics waste management infrastructure at City-owned properties, including locations that have been previously evaluated, such as Rikers Island.	2031-2036
2.5 Promote food donation and rescue	Make efforts to increase the number of donateNYC Food Portal users and the amount of food donated through the portal.	Ongoing
	Expand food rescue initiatives and improve data collection at New York City public schools.	2026-2030
	Support other City agencies in setting up food donation programs.	2029-2030
	Work to increase the amount of edible food donated by businesses.	Ongoing
2.6 Increase in-city use of organic-derived products	Increase the use of City-produced compost and mulch on NYCHA construction projects and at existing development grounds.	2028-2032
	Provide public schools with bags of compost for educational purposes and school gardens.	2026-2036
	Consider the use of DSNY compost and mulch in landscaped arterial roadways and street medians.	2033-2036
	Develop performance-based specifications for soils, compost, and mulch products.	2026-2032
2.7 Continue to support community composting	Manage available funding for community composting groups and botanical gardens in the city.	Ongoing
	Work with community composters to operate a community composting facility on DSNY property in Gowanus, Brooklyn.	2026-2036
	Collect and compile data from composters contracted with the City to quantify the amount of material composted.	Ongoing

Regulatory Considerations

The Organics Diversion and Recovery Program focuses on the implementation of the significance of mandatory citywide organics diversion for residents and could be implemented without new legislation. However, processing capacity changes at the Staten Island Compost Facility (SICF) would require a permit modification. Some of the proposed initiatives entail planning and studies that could lead to further action that may require new legislation, permits, and environmental review. For example, if, as part of the exploration of technologies such as biochar production, the City wanted to implement that technology, further regulatory consideration would be needed. Similarly, expansion of codigestion capacity, additional composting capacity on Rikers Island, and thermal conversion of biosolids would potentially require permits, environmental review, and alignment with zoning regulations.

To increase the beneficial use of biosolids, DEP will evaluate the contract renewal with Passaic Valley Sewerage Commission (PVSC) in 2028 in accordance with the 100% diversion rate goal. However, no specific actions, beyond planning and studying feasibility, are proposed at this time.

While not required for implementation, new local laws could support the implementation of the Organics Diversion and Recovery Program.

Proposed Performance Metrics

DSNY will track the performance of the Organics Diversion and Recovery Program using the following metrics (items with an asterisk are part of existing programs already being reported):

- Tons of source-separated organics collected as part of the residential curbside collection program*
- Tons of source-separated organics from NYCHA residents using Smart Bins
- Tons of source-separated organics processed on site at NYCHA developments*
- Tons of source-separated organics collected as part of the school curbside collection program
- Percent of DSNY-collected organics recovered for beneficial use*
- Tons of organics processed at SICF*
- Tons of woody debris reused through milling
- Number of new and upgraded composting locations developed by Parks
- Percent of biosolids diverted from landfills*
- Percent of biosolids volume reduction attributed to enhanced thickening and digestion processes
- Codigestion capacity percent increase
- Amount of biogas recovered
- Number of donateNYC Food Portal users*
- Amount of food donated through the donateNYC Food Portal*
- Number of City agencies with established food donation programs
- Amount of edible food donated through the donateNYC Partnership
- Amount of DSNY compost and mulch distributed from DSNY compost facilities
- Amount of organic material composted at the Community Composting Facility on DSNY property in Gowanus, Brooklyn

Potential System and Resource Needs

Implementation of the Organics Diversion and Recovery Program would require the following new, modified, or expanded systems and resources:

Physical

- New and replacement equipment at SICF
- Wood milling equipment
- Composting equipment for new Parks sites per Local Law 118 of 2024
- New biosolids end-use applications and sites
- Storage and refrigeration space for City agency food donation programs
- Bags of compost for educational purposes and school gardens

Technology

- DonateNYC Food Portal updates
- Tools for improving food rescue and other organics data collection at public schools
- Data collection and reporting tools for composters to quantify the amount of material composted

Operational

- Education and Outreach investments for the curbside collection program to increase the use of paper bags for leaf and yard waste collection

Implementation of the Organics Diversion and Recovery Program would require time from staff at multiple City agencies, including DSNY. DSNY anticipates no new additional staff requirements to fulfill these needs:

- Planning, analysis, communications, legal, engineering, information technology and administration, at DSNY and partner agencies
- NYCHA building and facility management - NYCHA will require additional staffing
- SICF operations, engineering, and management
- Parks planning and management
- City agencies involved in planning for the future of Rikers Island

3. Residential Recycling Program

Proposed Milestones and Schedule

Table 6-3 shows the proposed milestones and implementation schedule for each initiative and strategy under the Residential Recycling Program. Several strategies utilize Extended Producer Responsibility (EPR), which is a mandatory form of product stewardship that places the primary financial and managerial responsibility for the environmentally responsible end-of-life management of a product on its producer or manufacturer.[211]

Table 6-3. Residential Recycling Program Proposed Milestones and Schedule

Initiatives	Strategy Milestones	Schedule
3.1 Ensure continued capacity for transferring and recovering recyclable materials	Evaluate options for managing recyclables following the end of contracts with Pratt Industries and Sims Municipal Recycling (SMR) in 2034.	2027-2034
3.2 Improve the recovery of collected metals, glass, plastics (MGP), and paper	Work with SMR to increase the recovery of materials in the MGP stream, such as rigid and film plastics.	Ongoing
	Work with SMR to optimize the recovery of glass.	Ongoing
	Partner with City agencies to increase participation in recycling programs for MGP and paper.	Ongoing
	Monitor progress on Extended Producer Responsibility (EPR) policy for packaging in other jurisdictions and advocate for a New York State EPR for packaging policy.	Ongoing
3.3 Expand residential drop-off and recycling programs	Maintain and improve existing residential drop-off programs.	Ongoing
	Expand community recycling events to include the collection of other materials, such as textiles and paint.	2026-2028
	Work with DEC to implement the State law on carpet EPR in New York City.	2026
	Advocate for and advance EPR programs for packaging in accordance with *PlaNYC* (the City's sustainability blueprint) and state legislative efforts.	2031-2034
	Work with other local governments across the state to advance an EPR program for mattresses.	2026-2036
3.4 Increase residential recycling participation and quality	Participate in the Sanitation Foundation's Trash Academy.	Ongoing
	Update the residential Waste Management Plan approval process for multiple dwelling buildings to ensure all recycling streams are included.[12]	2026-2027
	Monitor the effect of residential containerization on recycling capture rates and quality.	2027-2032
	Work to increase the diversion of paper from the refuse stream, primarily through recycling education and outreach efforts.	Ongoing
	Monitor state-level container redemption/return program and policy development, adapting New York City's recycling program as appropriate.	Ongoing
	Optimize the collection of all material streams citywide.	2026-2030

Regulatory Considerations

The Residential Recycling Program is well established and would not require new local legislation. If EPR policies are implemented at the state level or in other jurisdictions, New York City could potentially enact supportive legislation to help implement these policies at the local level. If New York State makes changes to the Returnable Container Act (Bottle Bill), DSNY would evaluate any required updates to the City's recycling contract with SMR.

The City is in the process of updating the *City Environmental Quality Review (CEQR) Technical Manual*, which City agencies use to systematically evaluate the environmental impacts of projects that require City approvals. As part of that process, DSNY would update the Waste Management Plan approval process—which is required for certain larger proposed developments—to ensure that all recycling streams are included. While no new legislation would be needed, regulatory tools would need to be updated to make them consistent with existing policy, local laws, and executive orders (such as recycling laws and Executive Order 23 on Clean Construction).

Proposed Performance Metrics

DSNY will track the performance of the Residential Recycling Program using the following metrics (items with an asterisk are part of existing programs already being reported):

- Securing of sufficient capacity for recycling paper and MGP beyond 2034*
- Number of participants in residential drop-off programs and the amount of waste collected through these programs*
- Number of community recycling events that include additional material types, such as textiles and paint
- Tons of recyclables collected directly from NYCHA properties

Potential System and Resource Needs

Implementation of the Residential Recycling Program would require the following new, modified, or expanded systems and resources:

Technology

- Improvements at MGP transfer stations and sorting facilities, along with market development, to increase the recovery of materials in the MGP stream such as rigid and film plastics and glass

Vendors and Partners

- New contracts for recycling beyond 2034
- Contracts for managing additional materials at existing residential drop-off programs and community recycling events

Operational

- Agency contracts, dedicated locations for recyclable storage, and outreach to increase participation in MGP and paper recycling
- Updated residential Waste Management Plan approval process to include all recycling streams
- Education and outreach materials for increasing the diversion of paper

Implementation of the Residential Recycling Program would require time from the following staff:

- Management, planning, analysis, enforcement, procurement, and legal
- Partner agency sustainability (or similar) and solid waste management
- Drop-off program and Community Recycling Events
- Sanitation Foundation/Trash Academy
- Outreach and education
- NYCHA sustainability and property management - NYCHA requires additional staffing

4. Residential Municipal Solid Waste Program

Proposed Milestones and Schedule

Table 6-4 shows the proposed milestones and implementation schedule for each initiative and strategy under the Residential Municipal Solid Waste (MSW) Program.

Table 6-4. Residential Municipal Solid Waste Program Proposed Milestones and Schedule

Initiatives	Strategy Milestones	Schedule
4.1 Ensure capacity for export	Prioritize planning for changes to Reworld Essex incineration capacity while also evaluating options for other contracts, starting with the contracts that would expire first.	Ongoing
	Continue to proactively monitor MSW disposal capacity in the regional market and incorporate trends into long-term planning efforts.	2026-2036
	Continue to assess viability of accepting commercial waste at City-owned transfer stations.	2026-2028
	Review the status of each facility owned or under contract with DSNY for the management of solid waste, in light of the City's Climate Resiliency Design Guidelines.	2026-2034
4.2 Maintain the Fresh Kills and Edgemere Landfills post-closure	Direct Fresh Kills Landfill leachate to a DEP wastewater resource recovery facility (WRRF) and decommission the onsite leachate treatment plant.	2026-2028
	Adapt the landfill gas (LFG) facilities at Fresh Kills Landfill to a declining generation rate.	2026-2036
	Continue to collaborate on the adaptive reuse of Fresh Kills Landfill.	2026-2036
	Complete Edgemere Landfill solar feasibility study and evaluate next steps.	2026
	Adjust inspection and reporting requirements at Fresh Kills and Edgemere Landfills to reflect modified operations and regulatory changes.	2026-2036
4.3 Monitor thermal treatment technologies	Continue to monitor this field through attendance at industry conferences and attention to state and federal policy development, reporting on updated findings in SWMP biennial reports.	2026-2036
4.4 Advance New York City's *Environmental Justice Plan* (*EJNYC Plan*)	Continue to participate in the development of the citywide *EJNYC Plan* and annual progress reporting.	2026-2036
	Consider the distribution of environmental justice benefits as part of SWMP26 Program implementation.	2026-2036
	Report on annual spending with Minority and Women-Owned Business Enterprise (M/WBE) and B-corporations, and on nonprofit collaborations.	Ongoing

Regulatory Considerations

Like the Residential Recycling Program, the Residential MSW Program is well established. DSNY proposes to maintain, improve, and expand the programs that are already in place. The Residential MSW Program may, however, require the following regulatory actions, contracts, permits, or policy development:

- New contracts to ensure sufficient disposal capacity
- Policies or rules regarding acceptance of commercial waste at City-owned transfer stations
- Permit modifications for proposed operational and system changes at the Fresh Kills Landfill
- Approvals for adaptive reuse of Fresh Kills or other closed landfills in the city, if any discretionary actions are proposed in the future
- Policies or rules to address environmental justice concerns related to waste and waste management, in accordance with the *Environmental Justice NYC Plan* (*EJNYC Plan*) to be released in 2026 by the Mayor's Office of Climate & Environmental Justice (MOCEJ)

Proposed Performance Metrics

DSNY will track the performance of the Residential MSW Program using the following metrics (items with an asterisk are part of existing programs already being reported):

- Contracts and associated disposal capacity through 2036*
- Milestones in development of processes and tools for monitoring MSW disposal capacity in the regional market and incorporating trends into long-term planning efforts
- Milestones on the construction of modifications to the Fresh Kills leachate collection and discharge to a DEP WRRF
- Milestones on decommissioning the Fresh Kills Landfill onsite leachate treatment plant
- Completion of proposed infrastructure changes, and adjustment of required permitting and reporting for Fresh Kills and Edgemere landfills
- Fresh Kills South Park Synthetic Turf Fields and Landscape Construction
- Edgemere Landfill solar feasibility study and next steps
- Biennial reports summarizing advances in thermal treatment, takeaways from industry conferences, and state and federal policy
- Report on alignment of the *New York City 2026 Solid Waste Management Plan* (*SWMP26)* with the *EJNYC Plan*

Potential System and Resource Needs

Implementation of the Residential MSW Program would require the following new, modified, or expanded systems and resources:

Physical

- Infrastructure to direct Fresh Kills Landfill leachate to a DEP WRRF and decommission the onsite treatment plant
- Engineering and construction/decommissioning to adapt the LFG facilities at Fresh Kills Landfill to a declining generation rate

Technology

- Processes and tools for monitoring MSW disposal capacity in the regional market and incorporating trends into long-term planning efforts

Vendors and Partners

- New contracts for MSW management

Implementation of the Residential MSW Program would require time from the following staff:

- Planning, analysis, engineering, management, policy, procurement, enforcement, and legal
- Parks planners and management and staff from other agencies involved in planning for the adaptive reuse of Fresh Kills Landfill
- Agency staff involved in the development and implementation of the citywide *EJNYC Plan*

5. Commercial Waste Program

Proposed Milestones and Schedule

Table 6-5 shows the proposed milestones and implementation schedule for each initiative and strategy under the Commercial Waste Program.

Table 6-5. Commercial Waste Program Proposed Milestones and Schedule

Initiatives	Strategy Milestones	Schedule
5.1 Implement Commercial Waste Zones	Implement Commercial Waste Zones in all zones citywide	2026-2027 (commenced in 2025)
	Annually report on Commercial Waste Zones pursuant to Local Law 199 of 2019.	2026-2036
5.2 Expand organics rules	Work with New York City Council to expand organics separation requirements to include all businesses.	2026-2027
5.3 Increase diversion of recyclables and organics	Monitor the capture rate and diversion of recyclables in Commercial Waste Zones.	2026-2036
	Research barriers to higher diversion rates and identify potential solutions.	2029-2034
	Monitor commercial recycling rates and processing capacity.	Ongoing
5.4 Improve data quality	Report data in biennial SWMP reports, including information on types of businesses and associated waste generation (e.g., industrial, retail, office, etc.).	2029-2036
	Complete commercial waste characterization study per Local Law 14 of 2025.	2032
	Collaborate with government partners to improve data on the collection and use of fats, oils, and grease (FOG) waste.	2026-2028

Regulatory Considerations

The regulations needed to implement Commercial Waste Zones (CWZ) are already in place. DSNY does not anticipate that any new regulations would be necessary to improve data quality or increase the diversion of recyclables. However, the expansion of the organic waste rules to cover all businesses would require an amendment to Local Law 146 of 2013.

Proposed Performance Metrics

DSNY will track the performance of the Commercial Waste Program using the following metrics (items with an asterisk are part of existing programs already being reported):

- Milestones for completing each of the 10 CWZ rollout phases, with full implementation by the end of 2027
- Reduction in overlapping commercial waste collection routes
- Percentage of regulated businesses in compliance with organics separation requirements
- Tons of organic waste collected monthly, tracked by zone and carter, to evaluate the scale and impact of expanded organics collection
- Diversion rate of recyclables as a share of total commercial waste collected
- Percentage of carters submitting timely and complete GPS-based and customer service data, as required by Local Law 199

Potential System and Resource Needs

Implementation of the Commercial Waste Program would require the following new, modified, or expanded systems and resources:

Physical

- Capacity for increased processing of commercial organics and recyclables

Technology

- Development of centralized data management and reporting platforms for collection, validation, and analysis of GPS, customer, and tonnage data submitted by carters
- Enhanced tools for field enforcement and inspection to monitor safety standards, route efficiency, and compliance with organics and recycling rules
- Processes for evaluating zone-level performance and adjusting program requirements through future CWZ contract modifications

Vendors and Partners

- Management of contracts with awardees and designated carters for the CWZ program
- Outreach and educational resources to support businesses in complying with expanded organics rules and recycling requirements

Implementation of the Commercial Waste Program would require time from the following staff:

- Planning, data analysis, enforcement, legal, procurement, and policy staff to support CWZ implementation, data reporting, and compliance oversight
- IT and GIS staff to support the development and maintenance of systems for data integration and performance tracking
- Outreach and education staff to coordinate business-facing communication and training on organics, recycling, and safety standards

- Staff from the Business Integrity Commission (BIC) and other partner agencies involved in commercial waste regulation, contract compliance, and interagency coordination

6. Construction and Demolition (C&D) Waste Program

Proposed Milestones and Schedule

Table 6-6 shows the proposed milestones and implementation schedule for each initiative and strategy under the Construction and Demolition Waste Program.

Table 6-6. C&D Waste Program
Proposed Milestones and Schedule

Initiatives	Strategy Milestones	Schedule
6.1 Implement Clean Construction Executive Order (EO23)	Develop construction and demolition guidance for all covered City agencies.	2026-2027
6.2 Expand New York City Department of Transportation (NYCDOT) recycling in asphalt	Continue to provide asphalt millings for use in City projects, private industry, and community developments.	2026-2036
	Work on increasing the use of asphalt with higher recycled asphalt pavement (RAP) content and pilot projects with 50% RAP.	2026-2036
	Identify opportunities to use recycled materials in asphalt mixes as they become available in the industry.	2026-2030
6.3 Include C&D waste in the circular economy	Identify opportunities to use recycled concrete aggregate (RCA) and provide unused RCA for use in City projects.	2026-2036
	Test the use of low carbon materials and explore recycled content of concrete mixes.	2026-2036
	Expand the NYC Clean Soil Bank program's Forbell Street Stockpile yard operation from two to three days per week.	2026-2036
	Collaborate on the *NYC Industrial Plan* and on circular economy opportunities related to building and infrastructure material recovery.	2026-2036
	Advance research and identify infrastructure for reuse and remanufacturing.	2026-2030
	Convene C&D waste processors to identify and address barriers to reuse, recycling, and beneficial use, and to solicit suggestions on improving C&D data.	2026-2036
	Work with C&D waste processors and City agencies to develop C&D material reuse incentives.	2026-2034

Regulatory Considerations

The initiatives and strategies proposed as part of the Construction and Demolition (C&D) Waste Program are focused on improving and expanding existing efforts, improving data collection and reporting, and advancing research and testing to provide recommendations for increased reuse and recycling of C&D materials, as well as use of materials with greater recycled content on City projects. The implementation of these strategies would not require new legislation. However, new legislation requiring C&D material recycling and use of recycled materials on City projects

could support further waste reduction and the development of a circular economy. The C&D Waste Program would advance existing policy, including Executive Order 23 of 2022.

Proposed Performance Metrics

DSNY will track the performance of the C&D Waste Program using the following metrics (items with an asterisk are part of existing programs already being reported):

- Draft and final completed best management practices guidance for covered City agencies and guidance use in operations and projects based on follow-up agency surveys
- Tons of recycled asphalt pavement (RAP) and recycled concrete aggregate (RCA) used in City projects*
- Summary reports on use of recycled materials in asphalt mixes
- Availability of data on steel from street corners and signs
- Summary reports on testing the use of new construction materials from recovered or alternative feedstocks and recommendations for use on projects/performance-based specifications, such as low carbon concrete mixes and ground glass pozzolan
- The number of operating days for the Clean Soil Bank's Forbell Street Stockpile yard, and the tons of clean soil reused and exchanged*
- Inclusion of updates on the *NYC Industrial Plan*[25] and circular economy recommendations on material recovery from buildings and infrastructure in biennial reports

Potential System and Resource Needs

The implementation of the program would require the following new, modified, or expanded systems and resources:

Technology

- Tools for tracking and reporting data
- Tools for tracking lifecycle benefits (including embodied carbon) of the use of RAP, RCA, steel, clean soil, and other recycled materials on City projects
    - EO23 of 2022 (Clean Construction Executive Order) instructs capital project agencies and contractors to submit environmental product declarations (EPDs) for City projects to the publicly available Building Transparency database, overseen by the Mayor's Office of Climate & Environmental Justice (MOCEJ).[257]
- Process and template for reporting summaries of research results

Operational

- Process for identifying locations for pilot projects and developing those projects

Implementation of the program would require time from the following staff:

- Planning, research, analysis, engineering, construction, legal, and management staff at the New York City Department of Transportation (NYCDOT), DSNY, Department of Design and Construction (DDC), and other partner agencies

7. Special Waste Program

Proposed Milestones and Schedule

Table 6-7 shows the proposed milestones and implementation schedule for each initiative and strategy under the Special Waste Program.

Table 6-7. Special Waste Program Proposed Milestones and Schedule

Initiatives	Strategy Milestones	Schedule
7.1 Advance special waste recovery and Extended Producer Responsibility (EPR) policies	Explore the use of recycled tire rubber in infrastructure, including through challenge-based procurement.	2029-2032
	Work with state legislators to update EPR policies for batteries.	2026-2028
	Work to reduce the risk of fires associated with rechargeable batteries through proper end-of-life management.	2026-2030
	Support New York State EPR initiatives and identify opportunities to support photovoltaic (PV) module (solar panel) recycling in City planning and programs.	2026-2030
	Work to divert 70% of old PV modules by 2030 and 100% by 2035 for recycling.	2026-2035
	Support City and State EPR initiatives for gas cylinders.	2027-2030
7.2 Expand community events and centers	Continue the recently expanded hours at Special Waste Drop-Off Sites in compliance with Local Law 88 of 2023.	2026-2036
	Hold community events in every Community District. These events will collect e-waste, paint, and textiles.	2026-2036

Regulatory Considerations

Local Law 88 of 2023 mandates for expanded hours at Special Waste Drop-off Sites, where residents can drop off special and hazardous waste. DSNY will work with the New York City Fire Department (FDNY) and other stakeholders to reduce the risk of fires associated with disposable batteries. Risk could be reduced by educating consumers and other stakeholders; implementing measures to detect improperly disposed batteries and having a process in place for managing them; and through greater enforcement, including increased fines for improper disposal, which may require changes to local laws.

New laws could support greater participation in the Special Waste Program. In particular, several strategies that are part of the Special Waste Program are aimed at advocating for State laws on enhanced producer responsibility (EPR), including updates to EPR regulations for batteries, to cover more battery types and embedded batteries; photovoltaic (PV) modules (for solar energy); and gas cylinders.

Proposed Performance Metrics

DSNY will track the performance of the Special Waste Program using the following metrics (items with an asterisk are part of existing programs already being reported):

- Summary reports on research on the use of recycled tire rubber in infrastructure
- Status and results of challenge-based procurement for the use of recycled tire rubber in infrastructure

- Status of EPR policies for batteries, PV modules, and gas cylinders
- Number and weight of rechargeable batteries recovered at DSNY events and collection sites
- Amount of PV modules sent for recycling
- Amount of special waste collected at Special Waste Drop-off Sites
- Number of participants using the Special Waste Drop-off Sites
- Number of community events each year, by Community District*
- Amount of waste collected by type at community events each year, by Community District
- Number of participants at community events by Community District

Potential System and Resource Needs

Implementation of the Special Waste Program would require the following new, modified, or expanded systems and resources:

Physical

- Space for storing and sorting, and equipment for transporting material collected at community events

Technology

- A process for managing rechargeable batteries
- A database on City-owned PV modules and a summary report on installation and maintenance practices, disposal and recycling options, and recommendations on reducing waste and recycling

Vendors and Partners

- A request for proposals for challenge-based procurement for the use of recycled tire rubber in infrastructure

Operational

- Educational materials for consumers and waste management staff at agencies and in the private sector on the proper management and handling of rechargeable batteries and existing supporting policies (e.g., EPR)

The implementation of the program would require time from the following staff:

- Planning, research, procurement, management, safety, enforcement, GIS/data analysis, legal, and communications
- Health and safety, Fire Department safety
- Special Waste Drop-off Sites
- Solvents, automotive, flammables, and electronics (SAFE) events
- Community event planning and management

8. Education and Outreach Program

Proposed Milestones and Schedule

Table 6-8 shows the proposed milestones and implementation schedule for each initiative under the Education and Outreach Program.

Table 6-8. Education and Outreach Program Proposed Initiatives and Schedule

Initiatives	Strategy Milestones	Schedule
8.1 Work to reduce contamination in all recycling	Create multi-lingual outreach materials for all waste programs and share them on DSNY's website, via social media, and by mail.	Ongoing
	Offer online information sessions, training on new programs, and technical assistance on DSNY rules and regulations to building management and staff.	Ongoing
	Continue to attend a variety of community events and activities citywide and offer in-person event requests on the DSNY website.	Ongoing
	Identify outreach opportunities with local elected officials and community-based organizations.	Ongoing
	Conduct door-to-door neighborhood canvassing for new initiatives or in areas with low compliance with waste management regulations.	Ongoing
	Continue to provide waste sorting education and training to school students and their families.	Ongoing
8.2 Study and employ new digital tools	Provide relevant and engaging content on all appropriate social media platforms.	2029-2030
	Craft digital tool kits to provide downloadable content to be used by community groups to further outreach and education.	2027-2030
	Maintain the "How To Get Rid Of" search tool, Smart Composting Bin app, and donateNYC.	Ongoing
8.3 Collaborate with community groups on outreach and education for organics recycling	Conduct joint outreach activities focused on providing 40-pound bags of compost; kitchen containers; and paper leaf and yard waste bags to the public for free.	2026-2036
	Train community groups on DSNY services and talking points to help them be better "ambassadors" of DSNY programs.	Ongoing
	Encourage community groups to use culturally relevant engagement strategies to tailor their message and event formats to diverse communities.	Ongoing
8.4 Leverage enforcement efforts as a form of education and outreach	Conduct neighborhood walkthroughs with community partners and elected officials to observe area conditions and apply targeted outreach.	Ongoing
	Allow warning periods for new initiatives and issue verbal and written "warning tickets" that provide notice of rules and regulations and ways to avoid a fine in the future.	Ongoing
	Post collection laws and associated fines for businesses, residents, agencies, and institutions on the DSNY website.	2026

Regulatory Considerations

Implementation of the Education and Outreach Program would not require new legislation. However, new or updated policies or rules may be needed to enhance enforcement through consequences for noncompliance.

Proposed Performance Metrics

DSNY will track the performance of the Education and Outreach Program using the following metrics (items with an asterisk are part of existing programs already being reported):

- Updated education and outreach materials for each waste type
- Development of opportunities and process for addressing community questions on proper waste disposal, recycling, and opportunities for reuse
- Percentage of contamination in each recycling stream (based on waste characterization studies)*
- Summary report on the study of using new digital tools for outreach and education efforts
- Summary data on collaboration efforts with community composters and DEP
- Number of enforcement warnings and fines issued as part of education and outreach efforts by year and Community District*
- Data on community outreach and engagement events, including information on location, number of participants, staff and volunteer participation, and material collected*
- Number of training events provided and the number of participants in training programs*

Potential System and Resource Needs

Implementation of the program would require the following new, modified, or expanded systems and resources:

- Updated education and outreach materials
- Administration of community surveys
- System for addressing community questions on waste
- Plan for considering new digital tools
- Enhanced enforcement plan

Implementation of the program would require time from the following staff:

- Education and outreach, communications, graphic design, training, enforcement, planning, analysis, information technology, volunteer coordinators, and management

Chapter 7: Waste Stream Projections

As part of the Local Solid Waste Management Plan (LSWMP), the New York State Department of Environmental Conservation (DEC) requires "Waste Stream Projections". This chapter discusses waste stream projections and projection methodologies for residential and institutional municipal solid waste (MSW), managed by the New York Department of Sanitation (DSNY), commercial waste, construction and demolition (C&D) waste, and biosolids for the 2026–2036 period. Projections in this chapter include two scenarios: under the business-as-usual (BAU) and with the implementation of the proposed programs (IPP). The proposed programs are described in **Chapter 5: Program Development** and the implementation of the proposed programs is discussed in **Chapter 6: Implementation Plan and Schedule**.

1. Waste Projection Methodology Overview

Model and Projection Overview

To assist Planning Units with developing waste projections, DEC developed the **Population and Municipal Solid Waste Composition Calculator (MSW Calculator)**.[258] The waste projections for the residential **(Section 2)** and commercial **(Section 3)** sectors are based on this DEC model. The MSW Calculator uses population changes and historic waste generation and composition data to project waste generation and diversion. Model users can input Planning Unit specific data and adjust assumptions on waste diversion to evaluate the effect of different waste management scenarios. In addition to providing inputs for the MSW Calculator, DSNY further modified the MSW Calculator to use local data and refine built-in assumptions. Three major modifications to the MSW Calculator are 1) population data, 2) waste composition data, and 3) the extension of the projections to 2036 to cover the planning period for this *2026 Solid Waste Management Plan (SWMP26)*.

DSNY developed a separate calculation methodology for C&D material, based on the data available, as described in **Section 4**. Biosolids projections and methodology are discussed in **Section 5**. Projections for industrial and special wastes other than C&D materials (e.g., medical waste, scrap metal, and vehicle dismantling facility material) were not developed as these waste streams would not be affected by the initiatives proposed in *SWMP26*.

Although the MSW Calculator is designed to project future waste generation for the combined residential and commercial sectors, the calculator was used to prepare separate projections for DSNY-managed waste and for privately-managed commercial waste. This approach was used for both the BAU and IPP scenarios. There are several reasons for this modification, including:

- The available data for DSNY-managed waste is of better quality than the data for commercial waste.
- New York City conducted waste-characterization studies for the DSNY-managed waste (2023), and separately for the commercial waste stream (2012). Bifurcating the projection estimates allowed for use of both of these New York City-specific datasets, thus improving accuracy.
- *SWMP26* includes programs and initiatives aimed at both DSNY-managed and commercial waste. It is useful for DSNY to have separate projections based on the generator type.

The **Planning Period** used for the projections is 2026 through 2036. With the exception of DSNY-managed organic waste, the DSNY-managed waste and commercial waste projections are based on a 2023 baseline, selected as the

most recent year of available data across different waste streams.[259] It is also the year of the most recent waste characterization study for the residential sector available at the time of the analysis. The **Planning Unit** applied to the waste projections was set to New York City.

Population Projections

The amount of waste generated by residents generally scales with population. The MSW Calculator includes multi-year population data for each county in New York State, based on the 2010 U.S. Census. DSNY modified the default population information available within the calculator for New York City counties (the five boroughs) using the New York Metropolitan Transportation Council (NYMTC) projections, available in their *2055 Socioeconomic and Demographic (SED) Forecasts*.[7] NYMTC is the Metropolitan Planning Organization for the region. NYMTC's demographic projections are used by New York City's Department of City Planning and other City agencies that plan for providing services and infrastructure for a growing population and economy. Additional information on NYMTC's methodology and source data used for the projections is available in the SED Forecast reports. NYMTC's population projections used in the MSW Calculator are summarized **in Table 7-1**.

Table 7-1. Population Projections

County / Borough	2020	2025	2030	2040
Bronx	1,454,816	1,515,667	1,548,245	1,595,881
Kings (Brooklyn)	2,647,112	2,760,391	2,820,822	2,894,388
New York (Manhattan)	1,668,548	1,698,050	1,735,482	1,768,412
Queens	2,349,324	2,418,636	2,463,405	2,500,457
Richmond (Staten Island)	484,897	491,202	495,047	502,327
New York City Total	**8,604,697**	**8,883,946**	**9,063,001**	**9,261,465**

Source: New York Metropolitan Transportation Council (NYMTC), *2055 Socioeconomic and Demographic (SED) Forecasts*.

Following the methodology built into the MSW Calculator (using NYMTC data), the waste amount projections are based on average population growth. The average annual population growth rate for 2020-2030 (0.53%) is applied to waste projections through 2030, while an average annual growth rate for 2030–2040 (0.22%) is applied to waste projections from 2031 through 2036.

Commercial waste generation is more directly related to employment by type of commercial establishment. Large commercial uses tend to generate more waste than smaller ones, and the amounts and types of waste vary by type of use. For example, the waste generated by business offices, restaurants, medical offices, retail, and childcare are all likely to be different both in terms of per capita amount and type of waste. New York City's Environmental Quality Review (CEQR) *Technical Manual* provides estimated waste generation rates for some types of commercial uses in the "Solid Waste and Sanitation Services" chapter, Table 14-1.[260] While employment-based projections and projections that account for the type of commercial establishment could be considered in the future, with information that is currently readily available, DSNY used the population-based approach in the MSW Calculator to develop both residential and commercial waste projections.

Waste Generation Baseline

The MSW Calculator includes three options for specifying the amount of waste generated in the planning unit:

1. Option 1: “I know the amount of MSW generated (tons/year)”
2. Option 2: “The planning unit Average MSW Generation Rate (lb./person/day) is:”
3. Option 3: “The amount of MSW Generated and the planning unit Average MSW Generation Rate are unknown.”

When Option 1 is selected, the amount of waste specified by the calculator user for the baseline year is the starting point for future year projections for generated waste. When Option 2 is selected, the calculator outputs a ton per year generation rate by multiplying the average per person per day generation rate by the baseline year population and converting the units from lb./day to tons/year. When Option 3 is selected, a state average MSW generation rate of 5.15 lb./person/day serves as the basis for the projections. Since information on the amount of MSW generated in New York City is available, Option 1 was selected for projecting both DSNY-managed waste and commercial waste for both the BAU and IPP scenarios.

Forecasting Future Conditions

The MSW Calculator also provides three options for projecting the waste generation rate:

1. Option 1: “MSW generation rate does not change. Consequently, MSW generation fluctuates with the population of the planning unit, if the population increases, waste generation will rise as well, and vice versa.”
2. Option 2: “MSW generation amount remains the same, regardless of whether or not the planning unit's population fluctuates.”
3. Option 3: “As a result of successfully implementing the Local Solid Waste Management Plan, MSW generation will be reduced by an annual factor of…” (the MSW Calculator allows the user to select an as input an annual reduction of 0.5%, 1.0%, 1.5%, or 2.0%; as discussed, DSNY selected an annual reduction of 0.5%).

- The projections developed for the BAU scenario are based on Option 1 for both DSNY-managed and for commercial waste.
- The projections developed for the IPP scenario for DSNY-managed waste are based on a modified version of Option 3. In addition to the waste reduction modeled using the MSW Calculator, anticipated increases in diversion are calculated for each material type.
- The projections developed for the IPP scenario for commercial waste are based on a modified version of Option 3, which maintains BAU baseline waste generation tonnages to reflect population growth, while increasing the waste diversion rate. This approach is based on the assumption that waste disposal would be reduced by diverting a larger share of the waste from landfills and incinerators.

2. DSNY-Managed Waste Projection Methodology

Baseline for DSNY-Managed Waste

The MSW Calculator projects total waste generated and diverted in future years, based on user inputs on waste generation and diversion in the baseline year. To project future waste generation and diversion, DSNY gathered the

baseline waste generation and diversion data and population projection data and added it as input to the MSW Calculator for both the BAU and IPP scenarios. The waste generated (as modeled in the calculator) is the total of "MSW Disposed" (refuse) and "MSW Diverted" (waste separated for diversion via recycling, composting, or other methods). The estimated total DSNY-managed waste generated in 2023 is approximately 3.85 million tons. This total is the sum of 3.15 million tons of DSNY-managed "MSW Disposed" and approximately 0.7 million tons of "MSW Diverted".

Table 7-2 summarizes the amounts of DSNY-managed waste diverted in 2023 (except for organics, which are a 2025 estimate), by material category.

Table 7-2. DSNY-Managed Diverted Waste, 2023 Baseline

Material	Tons Diverted
Paper	297,443
Metal, Glass, Plastic (MGP)	286,375
Organics (2025)	141,045*
Textiles	3,624
Wood	8,136
Miscellaneous**	10,771
Diverted Total	**747,394**

Sources: New York City Municipal Refuse and Recycling Report (FY23, FY25), DSNY Monthly Tonnage Data; donateNYC Annual Report 2023, DSNY internal datasets (refashionNYC, Paper, and MGP)
Notes: *A 2025 baseline is used for organics (while a 2023 baseline is used for other materials).
**Miscellaneous material includes ecycleNYC Electronics Collections and Electronics Recycling.

Based on the population and the 2023 baseline DSNY-managed waste generation (including both refuse and recyclables from residential and some institutional sources), the per capita DSNY-managed daily waste generation rate was calculated to be 2.4 pounds per person per day. This number should not be compared to the statewide waste generation rate of 5.1 pounds per person per day because the statewide numbers include both residential and commercial waste, while the 2.4 pounds per person per day includes only DSNY-managed waste.

DSNY-Managed Waste Composition

DSNY conducts waste characterization studies to assess the composition of waste generated by residents, New York City Housing Authority (NYCHA) residents, and public schools. Waste characterization studies (WCS) involve sampling waste and categorizing the waste by material and product to determine the waste composition for the city. The waste characterization studies include both material thrown out as refuse and material set out for recycling. The *2023 NYC Waste Characterization Study* (2023 WCS)[8] is the most recent assessment of residential waste. The waste composition estimates obtained from the 2023 WCS for use in DSNY-managed waste projections are provided in **Table 7-3**.

Table 7-3. Residential Waste Categories and Composition Estimates

Material Category (DSNY)	% in DSNY-Curbside and Containerized Collections
Paper	**27.1%**
Newspaper	0.8%
Plain OCC/Kraft Paper	7.2%
High-Grade Paper	0.4%
Mixed Low-Grade Paper	7.1%
Compostable: Containers and Packaging	0.4%
Compostable: Other Soiled Paper/Waxed OCC/Kraft	8.7%
Other Non-Recyclable Paper	1.7%
Beverage Cartons and Aseptic Boxes	0.4%
Shredded Paper	0.3%
Plastic	**15.1%**
#1 PET Bottles - Clear & Green	1.5%
#1 PET Bottles - All Other Colors	0.1%
#2 HDPE Natural Bottles	0.4%
#2 HDPE Colored Bottles	0.5%
#3-#7 & Unlabeled Bottles	0.1%
Thermoforms	1.2%
Tubs & Lids	0.9%
#6 Expanded Polystyrene Containers & Packaging (EPS)	0.3%
#1-#7 Other Rigid Containers/Packaging	0.3%
Film: Retail Bags & Sleeves	0.7%
Film: Garbage Bags	3.9%
Film: Oversize Items	0.3%
Film: Other #2/#4 Polyethylene Bags	0.5%
Film: Other Non-Polyethylene/ Contaminated	1.6%
Single-Use Plastics	0.8%
Appliances: Plastic	0.2%
Bulk/Rigid: Plastic	0.1%
Bulk/Rigid: Plastic Toys/Housewares	0.4%
Bulk/Rigid: Other Durable	0.2%
Other Plastics Materials not Elsewhere Classified	0.9%
Glass	**4.6%**
Clear Container Glass	1.7%
Green Container Glass	1.0%
Brown Container Glass	0.3%
Other Color Container Glass	0.1%
Mixed Cullet	1.2%
Other Glass	0.3%
Metal	**4.0%**
Aluminum Cans & Bottles	0.3%
Aluminum Foil/Containers	0.9%
Other Aluminum	0.1%
Other Non-Ferrous	0.2%
Steel/Tin Food Cans	0.8%
Empty Aerosol Cans	0.2%
Other Ferrous	0.8%
Mixed Metals	0.6%
Appliances: Ferrous	0.2%

Table 7-3. Residential Waste Categories and Composition Estimates

Material Category (DSNY)	% in DSNY-Curbside and Containerized Collections
Organics	**43.7%**
Shoes/Rubber/Leather*	0.9%
Yard Waste	5.7%
Food: Loose	14.6%
Food: Intact Packaging	1.5%
Food: Open Packaging	4.6%
Food: Liquid	0.5%
Non-C&D Wood	0.5%
Textiles: Non-Clothing*	1.7%
Textiles: Woven Bags*	0.3%
Textiles: Clothing - Stretchy Fabric*	0.7%
Textiles: Clothing - Non-Stretchy*	1.2%
Carpet/ Upholstery: Broadloom Carpet*	0.2%
Carpet/ Upholstery: Other Carpet*	0.2%
Carpet/ Upholstery: Spring Mattresses and Boxsprings*	0.1%
Carpet/ Upholstery: Other Upholstery*	0.2%
Disposable Diapers & Sanitary Products*	4.6%
Animal By-Products	1.9%
Garden Hoses*	0.0%
Fines*	3.1%
Miscellaneous Organics	1.1%
Electronic Waste	**0.5%**
Audio/Visual Equipment (TV Peripherals - Covered)	0.2%
Audio/Visual Equipment (Non-Covered)	0.3%
Other Computer Equipment	0.1%
Construction & Demolition	**3.2%**
Untreated Dimension Lumber, Pallets, Crates	0.4%
Treated/Contaminated/ Composite Wood	0.9%
Other C&D Debris Not Elsewhere Classified	1.9%
Hazardous Household Waste**	**0.4%**
Home Medical Products	0.2%
Pharmaceuticals	0.1%
Other Potentially Harmful Wastes	0.1%
Miscellaneous	**1.4%**
Miscellaneous Inorganics	1.4%
Total	**100.00%**

Source: New York City Department of Sanitation, *2023 NYC Waste Characterization Study*, Citywide Material Subtype Categorization.
Notes: * Indicates items that were recategorized as a different material (e.g., upholstery recategorized from organics to textiles).
** In the New York State Department of Environmental Conservation (DEC) Population and Municipal Solid Waste Composition Calculator, hazardous household waste is a sub-category of miscellaneous waste.
***Material categories for materials that make up less than 0.1% of the total waste are not shown.

Since the material categories and subcategories available in the MSW Calculator differed somewhat from the naming and grouping of categories and subcategories used in the 2023 WCS, New York City's categories and subcategories of waste were grouped and allocated to calculator categories and subcategories, as summarized in **Table 7-4**.

Table 7-4. Waste Characterization Alignment

DEC Population and Municipal Solid Waste Calculator Material Categories	*2023 NYC Waste Characterization Study* Material Categories
Newspaper	Newspaper
Corrugated Cardboard	Plain OCC/Kraft Paper
Other Recyclable Paper	High-Grade Paper; Mixed Low-Grade Paper; Shredded Paper
Other Compostable Paper	Compostable: Containers & Packaging; Compostable: Other Soiled Paper/Waxed OCC/Kraft
Ferrous Containers	Steel/Tin Food Cans; Empty Aerosol Cans
Aluminum Containers	Aluminum Cans & Bottles; Aluminum Foil/Containers
Other Ferrous Metals	Other Ferrous; Appliances Ferrous
Other Non-Ferrous Metals: Other Aluminum	Other Aluminum
Other Non-Ferrous Metals: Automotive Batteries	Wet-Cell Batteries
Other Non-Ferrous Metals: Other Non-Aluminum	Other Non-Ferrous; Mixed Metals; Appliances Non-Ferrous
PET Containers	#1 PET Bottles - Clear & Green; #1 PET Bottles - All Other Colors
HDPE Containers	#2 HDPE Natural Bottles; #2 HDPE Colored Bottles
Other Plastic (#3-#7) Containers	#3-#7 & Unlabeled Bottles
Film Plastic	Film (All)
Other Plastic: Durables	Tubs & Lids; Appliances: Plastic; Bulk/Rigid: Plastic; Bulk/Rigid: Plastic Toys/ Housewares; Bulk/Rigid: Other Durables
Other Plastic: Non-Durables	Thermoforms; Other PVC; Single-Use Plastics; Other Plastics Materials not Elsewhere Classified
Other Plastic: Packaging	#6 Expanded Polystyrene Containers & Packaging (EPS); #1 - #7 Other Rigid Containers/Packaging
Glass Bottles, Jars and Containers	Clear Container Glass; Green Container Glass; Brown Container Glass; Other Color Container Glass
Other Glass (Flat Glass, Dishware, Light Bulbs, etc.)	Mixed Cullet; Other Glass
Food Scraps	Compostable: Containers & Packaging; Compostable: Other Soiled Paper/Waxed OCC/Kraft; Food: Loose; Food: Intact Packaging; Food: Open Packaging; Food: Liquid; Animal By-Products
Leaves and Grass / Pruning and Trimmings	Yard Waste; Miscellaneous Organics
Clothing Footwear, Towels, Sheets	Shoe/ Rubber/ Leather; Textiles: Non-Clothing; Textiles: Woven Bags; Textiles: Clothing - Stretchy Fabric; Textiles: Clothing - Non-Stretchy
Carpet	Carpet/ Upholstery: Broadloom Carpet; Carpet/ Upholstery: Tile Carpet; Carpet/ Upholstery: Other Carpet; Carpet/ Upholstery: Spring Mattresses and Boxsprings; Carpet/ Upholstery: Other upholstery
Total Wood (Pallets, Crates, Adulterated and Non-Adulterated Wood)	Non-C&D Wood; Untreated Dimension Lumber; Pallets; Crates; Treated/Contaminated/ Composite Wood
DIY - Construction & Renovation Materials	Other C&D Debris Not Elsewhere Classified
Diapers	Disposable Diapers & Sanitary Products
Electronics	Audio/ Visual Equipment (TV Peripherals - Covered); Audio/ Visual Equipment (Non-Covered); Computer Monitors; Televisions; Other Computer Equipment
Tires	*Not included in 2023 WCS*

Table 7-4. Waste Characterization Alignment

DEC Population and Municipal Solid Waste Calculator Material Categories	*2023 NYC Waste Characterization Study* Material Categories
Household Hazardous Waste	Oil Filters; Antifreeze; E-Mobility Batteries; Vape Pens; Rechargeable Batteries; Other Dry-Cell Batteries; Water-Based Adhesives/ Glues; Latex Paint; Oil-Based Paint/Solvent; Fluorescent Tubes/CFLs; Mercury-Laden Wastes; Compressed Gas Cylinders; Fire Extinguishers; Home Medical Products; Pharmaceuticals; Pesticides/Herbicides/Rodenticides; Other Potentially Harmful Waste
Soils and Fines	Fines
Other Composite Materials: Durable and/or Inert	Miscellaneous Inorganic; Garden Hoses

The amount of recycled MGP (see **Table 7-2**) is not reported separately for metal, for glass, and for plastic, but as a total. Therefore, to project each material separately for input into the MSW Calculator, the total 2023 tonnage of recycled MGP was multiplied by the percent of metal, percent of glass, and percent of plastic in the 2023 WCS. The composition of the MGP stream is based on the 2023 WCS and is summarized in **Table 7-5.**[6,263]

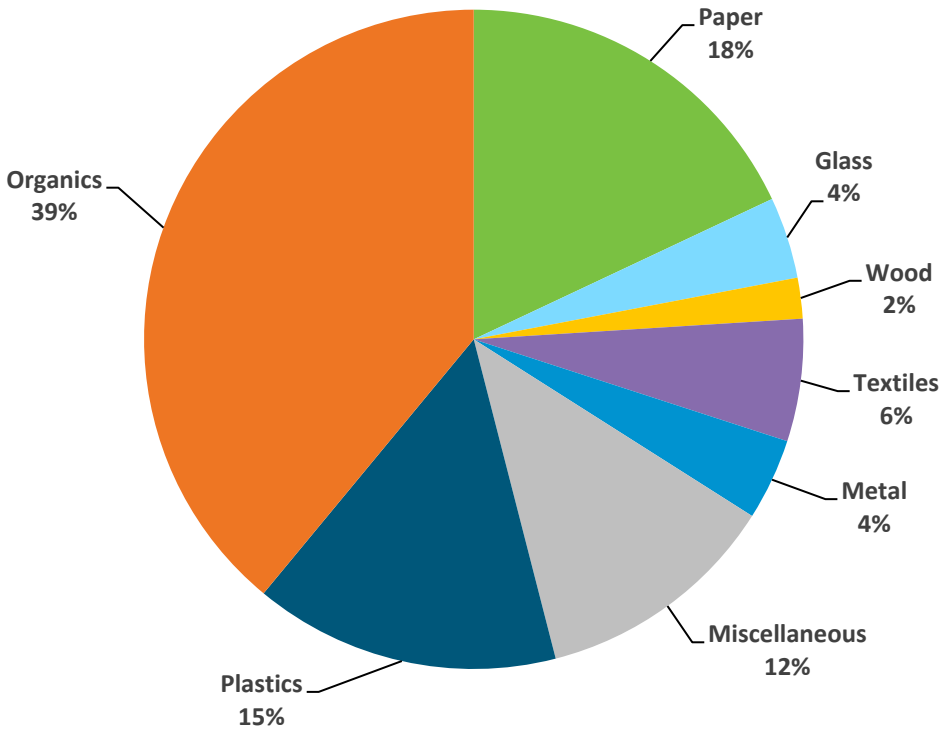
Table 7-5. New York City Metal, Plastic, Glass (MGP) Composition (2023)

Material	% of New York City MPG Stream
Metal	16.8
Glass	19.4
Plastic	63.8
Total MPG	100

Source: New York City Department of Sanitation, *2023 NYC Waste Characterization Study*
Note: Variations in percent composition of MPG between publicly available documents can be attributed to differences in rounding.

Figure 7-1 illustrates the DSNY-collected waste composition, based on the 2023 WCS, as allocated to the material categories used in the MSW Calculator for projections. The most notable difference is observed with organics, where the 2023 WCS attributes 36% of the waste stream to organics compared to the MSW Calculator, which attributes 39% to organics.

Figure 7-1. DSNY-Collected Waste Composition as Allocated to MSW Calculator Categories



BAU Scenario Projection Methodology for DSNY-Managed Waste

Under the BAU scenario, the quantity of waste generated each year is dependent on the Planning Unit's population. The breakdown of material type and subtype, however, is consistent with that provided in the baseline year. Additionally, the projections are based on the assumption that the diversion rate would remain the same as in the baseline year. For example, the diversion rate in 2023 baseline year was 17.8%. In 2036, the projected diversion rate is also 17.8%. Under the BAU scenario, the projected diversion rate of material subtypes is also the same as in the 2023 baseline year, except for organics. In fall of 2024, DSNY implemented the Citywide Residential Organics Program, and started collecting organics curbside from residents in all boroughs. Due to the implementation of the Citywide Residential Organics Program DSNY adjusted the projected diversion rate for organics under the BAU scenario, to account for the benefits anticipated as part of that ongoing program.

BAU Scenario Projection Methodology for DSNY-Managed Organics

Unique to organics projections is the use of a 2025 as the baseline for estimating the amount of organics diverted to account for the implementation of the Citywide Residential Organics Program. The 2025 organics baseline is based on actual curbside collections between January 2025 and July 2025 and estimates for the remainder of the year (August 2025 through December 2025), for which actual tonnage was not available when projections were developed. For August 2025 through December 2025, a conservative estimate of 7% diversion for residential organics and 3% diversion for schools were applied to estimate the 2025 baseline. The total amount of residential and school organics

diverted is 110,000 tons, based on these estimates for 2025. With the addition of Rikers Island food waste, private landscaper leaf and yard waste, organics collected from Green Markets and City-funded community compost locations (approximately 31,000 tons), the total 2025 organics diversion baseline is estimated at approximately 141,000 tons.

Using 2025 as the baseline, the organics capture rate (modeled as equal the diversion rate for projections purposes) is estimated to be 9.3% of total organics generated. The BAU projections for organics are based on the assumption that the diversion rate of 9.3% estimated for 2025 would remain constant throughout the projection period.

IPP Scenario Projection Methodology for DSNY-Managed Waste

DSNY proposes eight programs, each consisting of multiple initiatives and strategies that DSNY or other City agencies will implement. Programs include the following: 1) Waste Prevention and Reuse, 2) Organics Diversion and Recycling, 3) Residential Recycling, 4) Residential Municipal Solid Waste, 5) Commercial Waste, 6) Construction and Demolition Waste, 7) Special Waste, and 8) Education and Outreach.

Some of the proposed initiatives are aimed at improving waste management, some at reducing waste, and others at increasing diversion. IPP projections are based on anticipated increases in diversion due to the implementation of waste reduction and diversion programs proposed in *SWMP26*.

Table 7-6 classifies program initiatives by their ability to reduce or divert waste and indicates whether the anticipated benefits of each initiative are quantifiable. To following questions guided the categorization of the initiatives:

1) Does the initiative reduce or divert waste? If so, does the initiative affect generation, collection, processing of material, or beneficial reuse?

2) Are key components of the initiative quantifiable?

While some initiatives would not result in a direct or quantifiable effect on waste generation or diversion, they nonetheless support planned or on-going waste reduction or diversion efforts, improving waste management practices through education, outreach, and policy. An example is the initiative to improve data collection and reporting on the benefits of reuse. Gathering and analyzing data is important for policy development and expansion, but does not in itself reduce waste. Other initiatives have long-term waste reduction or diversion potential, but would be unlikely to result in a notable reduction or diversion of waste during the planning period. An example is the initiative to convene New York City's circular economy stakeholders. The information exchange and collaboration among stakeholders could result in the development of new strategies and solutions for reducing and managing waste. While the implementation of such solutions could occur over the planning period, it is unlikely that such solutions would have an effect at the hundreds of thousands of tons per year scale over the planning period. In addition, the initiatives proposed as part of the Residential MSW Program are aimed at the safe and compliant management of refuse. While these initiatives are a necessary component on *SWMP26*, they do not affect waste reduction or waste diversion and therefore have no impact on waste projections.

The projected decreases in waste generation rate and increases in diversion rate were developed for the IPP scenario for DSNY-managed waste considering the effects presented in **Table 7-6** cumulatively.

Table 7-6. Programs and Initiatives by Waste Reduction and Diversion Effect

Program	Initiative	Will the program contribute to waste reduction or diversion directly? If so, how?	Are key components of the initiative quantifiable?
Waste Prevention and Reuse	Advance textile reuse programs and reduce textile waste.	Waste reduction and diversion - collection	Yes
	Facilitate reuse and repair by supporting organizations and donateNYC users, and by including construction and demolition (C&D) material reuse.	Waste reduction – beneficial reuse	Yes
	Promote packaging reuse and reduction.	Waste reduction	Yes
	Increase access to reuse centers and support reuse and repair events.	Indirect	No
	Improve data collection and reporting on the benefits of reuse.	Indirect	No
	Study incentive-based waste management policies.	Indirect in the long-term	No
	Convene New York City's circular economy stakeholders.	Indirect	No
Organics Diversion and Recovery	Increase the quality and quantity of organics diverted citywide.	Waste diversion - collection	Yes
	Increase the recovery rate of DSNY-managed organics.	Waste diversion – material processing	Yes
	Increase composting and wood reuse.	Waste diversion – beneficial reuse	Yes
	Expand codigestion and beneficial use of biosolids and biogas.	Waste diversion – material processing, beneficial reuse	Yes
	Promote food donation and rescue.	Waste reduction	Yes
	Increase in-city use of organic-derived products.	Waste diversion – beneficial reuse	Yes
	Continue to support community composting.	Waste diversion - collection	Yes
Residential Recycling	Ensure continued capacity for transferring and recovering recyclable materials.	Waste diversion – material processing	Yes
	Improve the recovery of collected metals, glass, plastic (MGP), and paper.	Waste diversion – material processing	Yes
	Expand residential drop-off and recycling programs.	Waste diversion - collection	Yes
	Increase residential recycling participation and quality.	Waste diversion - collection	Yes
Residential Municipal Solid Waste	Ensure capacity for export.	No	No
	Maintain the Fresh Kills and Edgemere Landfills post-closure.	No	No
	Monitor thermal treatment technologies.	No	No
	Advance New York City's Environmental Justice Plan.	Indirect	No
Special Waste	Advance special waste recovery and Extended Producer Responsibility (EPR) policies.	Indirect (short- and long-term)	No
	Expanded community events and centers.	Indirect	No
Education and Outreach	Work to reduce contamination in all recycling streams.	Indirect	No
	Study and employ new digital tools.	Indirect	No

Table 7-6. Programs and Initiatives by Waste Reduction and Diversion Effect

Program	Initiative	Will the program contribute to waste reduction or diversion directly? If so, how?	Are key components of the initiative quantifiable?
	Collaborate with community groups on outreach and education for organics recycling.	Indirect	No
	Leverage enforcement efforts as a form of education and outreach.	Indirect	No

Methodology for Projecting Waste Reduction and Diversion

To project the effects of the proposed programs on waste reduction, the MSW Calculator has the option to apply a universal reduction in waste year over year. This modeling input applies a reduction equally across all waste streams. The default waste reduction factor in the MSW Calculator is 0.5%, and this factor was used for the IPP scenario for all DSNY-managed material.

To project the effect of waste diversion, initiatives that contribute to diversion are categorized by their anticipated effects by material type. Initiatives can increase diversion at the point of collection processing, beneficial reuse, or at all three of these stages. For the development of the projections, the capture rate and the diversion rate of a material are modeled as equal.[261]

For materials with well-established diversion programs, like MGP and paper, the projections are based on the assumption that the proposed initiatives would slightly increase the diversion rate and that the rate of increase in the diversion rate from year to year would remain steady. On the other hand, for materials for which diversion programs are still developing or relatively new (e.g., organics), or with potential to expand (e.g., textiles), the projections are based on variable increases in the diversion rate. Initially, as new or developing programs “ramp up”, a higher rate of diversion increase is used. Over time, as increasing number of residents participate in new diversion opportunities, it becomes more challenging to further increase participation and compliance, and the modeled diversion rate increases in later years are therefore lower. This approach and the diversion rate increases used in the MSW Calculator for the various materials managed by DSNY are summarized in **Table 7-7**.

Table 7-7. Annual Diversion Rate Increase by Material

Material	Time Period	Diversion Rate Increase
Paper	2025 - 2036	0.25%
Metals, Glass, Plastics (MGP)	2025 – 2036	0.25%
Organics*	2025 – 2026	30%
	2026 - 2027	25%
	2027 - 2028	20%
	2028 – 2029	18%
	2029 – 2030	16%
	2030 – 2031	14%
	2031 – 2032	12%
	2032 – 2033	10%
	2033 – 2034	9%
	2034 – 2035	8%
	2035 – 2036	7%
Textiles**	2026 – 2027	1.0%
	2028 – 2029	1.5%
	2030 – 2033	1.0%
	2034 – 2036	0.5%
Wood	2026 - 2028	2.5%
	2029 - 2031	1.0%
	2032 - 2036	0.5%
Miscellaneous	2026 – 2027	1.0%
	2028 – 2031	0.75%
	2032 – 2034	0.5%
	2035 – 2036	0.25%

Notes:
*Organics annual increases are only applied to residential organics collections. In the early years of the program, grow in diversion rate is anticipated to remain high before gradually decreasing as the program becomes more established. It should also be noted that the diversion rate is projected to continue to grow throughout the planning period, just at a slower rate, as the program matures.
** With the planned growth of the textiles program over the course of the planning period, the growth rate is anticipated to increase initially before decreasing as the program matures. The diversion rate is projected to continue to grow throughout the planning period.

IPP Scenario Projection Methodology for DSNY-Managed Organics

Efforts to enhance the existing Citywide Residential Organics Program and increase participation through the initiatives proposed as part of *SWMP26* Organics Diversion and Recovery Program will contribute to additional diversion. The IPP scenario projections are based on the assumption that the organics diverted will gradually increase to 30% in 2036 as organic programming expands.[262] Residential organics diversion is also projected to increase, while other diversion (from schools, private landscaper leaf and yard waste, Rikers Island food waste, and other organics)is assumed to remain stable over the planning period.

The projected initial increase in the organic waste diversion rate is greater in initial years of the program, starting at 30% between 2025 and 2026. Lower diversion rate increases are projected for subsequent years. The rates of increase in diversion used for the organics IPP projections are summarized in **Table 7-7**. The amount of organics collected and food donated in the fiscal year period 2021-2025 is reported in **Table 7-8**.[263]

Table 7-8. 2021–2025 Fiscal Year Organics Diversion (Tons)

	2021	2022	2023	2024	2025
DSNY-Managed	4,296,676	4,138,110	3,943,781	4,012,513	3,846,880*
Organics Generated	1,675,480	1,613,648	1,537,869	1,564,671	1,500,083*
Separated Organics**	2,059	13,967	32,772	53,882	110,000
Private Landscaper Leaf and Yard Waste	25,646	28,128	26,509	27,086	25,285
Other Organics Collected	1,965	3,422	4,949	3,394	3,941
Rikers Island Food Waste	2,028	2,188	2,181	2,159	1,819
Total Organics Diverted*	31,699	47,705	66,412	86,521	141,045
% Diverted	1.9%	3.0%	4.3%	5.5%	9.4%

Source: *Fiscal Year 2021 – 2025, New York City Municipal Refuse and Recycling Statistics Report*
Notes: *2025 waste generation and organics generation values are estimated, as a data set for the full year was not available at the time of the analysis.
The amount of organics generated is estimated based on the waste composition in **Figure 7-1, according to which organics make up 39% of DSNY-managed waste.
*** Food donations are excluded because there is no direct effect on the diversion rate (the effect is on waste reduction).

3. Commercial Waste Projection Methodology

As mentioned, the projections of future commercial waste generation and diversion in New York City were developed using the MSW Calculator. The analysis begins by establishing a baseline of waste generation and diversion levels for 2023, which serves as the foundation for scenario modeling. Using these inputs, future projections were developed for the BAU scenario and the Implementation of Proposed Programs (IPP) scenario, each applying different modeling approaches to estimate waste generation and diversion over the planning period. The BAU scenario projects future waste generation based on population growth while holding diversion rates constant at 2023 baseline levels. In contrast, the IPP scenario assumes the same waste generation projections but applies higher diversion rates to reflect the anticipated effect of proposed programs on waste diversion.

Baseline for Commercial Waste

At the time of analysis, 2023 was the most recent year with complete commercial waste data available for refuse and was therefore used to develop the baseline. In 2023, New York City's commercial sector generated approximately 2.2 million tons of waste. This total is the sum of approximately 1.6 million tons of commercial "MSW Disposed" (as reported by private transfer stations) and approximately 0.6 million tons of diverted waste (estimated based on 2022 data, the most recent available for recycling, as reported by recycling processors within New York City). Diverted waste includes recycled materials (such as paper, metals, glass, plastics, textiles, and other recyclables) as well as organics managed through composting. These baseline values provided the starting point for projecting future waste quantities. The 2023 diverted tons by material category are summarized in **Table 7-9**.[264]

Table 7-9. 2023 Commercial Waste, Diverted Material

Material	Tons Diverted
Paper	335,311
Metal, Plastic, Glass	180,852
Organics	70,269
Textiles	2,734
Miscellaneous	32,387
Total	**621,553**

Commercial waste generation was assessed using data from three main sources available to DSNY: the Putrescible Private Transfer Station Quarterly Reports,[4] Recycling Processor Quarterly Reports,[264] and Commercial Organics Transfer Station Quarterly Reports.[82] These datasets provide information on the amount of commercial waste received by transfer stations and processing facilities, as well as the amounts that are subsequently diverted or disposed for each quarter of a calendar year.

The Putrescible Private Transfer Station Quarterly Reports provide tonnages of municipal solid waste (MSW) and source-separated recyclables (SSR) received. All MSW tonnage is assumed to be disposed, while all SSR tonnage is assumed to be diverted through recycling.

The Recycling Processor Quarterly Reports provide the amounts of specific recyclable materials received, including paper (which encompasses mixed paper, cardboard, commingled paper, and old corrugated cardboard), MGP (metal, glass, plastic), bulk metal, single stream recyclables, textiles, and other recyclables. These reports also include the quantities of each material that is recycled.[264]

The Commercial Organics Transfer Station Quarterly Reports provide amounts of organics received, all of which are assumed to be diverted.

The completeness, availability, and quality of data vary depending on the reporting practices of individual transfer stations and recycling processors. For materials where 2023 data were unavailable, 2022 data were used as proxy values for BAU and IPP scenarios, under the assumption that material quantities are relatively consistent year over year.

Based on the population and the 2023 baseline commercial waste generation (including both refuse and recyclables), the per capita commercial daily waste generation rate was calculated to be 1.39 lb./person/day. While this baseline reflects the best available data, DSNY expects future improvement in commercial waste data reporting as the Commercial Waste Zones (CWZ) program and other initiatives, as detailed in **Chapter 5**, are fully implemented.

Commercial Waste Composition

Putrescible Private Transfer Station and Recycling Processor Quarterly Reports typically group materials into broad categories, such as SSR in the Putrescible Private Transfer Station Quarterly Reports and MGP in the Recycling Processor Quarterly Reports. To allow for more detailed projections of waste generation and diversion by material type, DSNY's *New York City Commercial Solid Waste Study and Analysis* (2012 WCS) was applied to further categorize the reported tonnages.

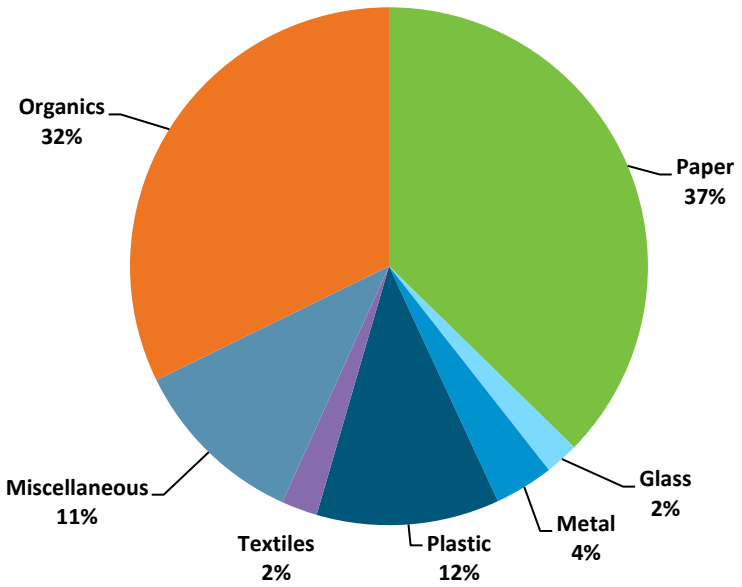
The commercial waste composition estimates from the 2012 WCS are summarized in **Table 7-10**.[265] **Figure 7-2** illustrates the commercial waste composition, based on the 2012 WCS, as allocated to the material categories used in the MSW Calculator.

Table 7-10. New York City Commercial Waste Composition, 2012

Material	Composition
Paper	37.32%
Glass	2.09%
Metal	3.68%
Plastic	11.42%
Electronics	0.23%
Food	25.44%
Yard	3.48%
Textiles	1.97%
Carpet	0.27%
Other Organics	3.33%
Construction and Demolition (C&D)[1]	8.75%
Designated Hazardous Waste	0.46%
Special Waste	1.01%
Mixed Residue	0.54%
Total	100%

Note: The C&D composition shown is not representative of all the C&D waste generated in the city. Only C&D waste from generally smaller C&D projects can be combined with the commercial waste stream, for example, window replacement in a commercial building.

Figure 7-1. Commercial Waste Composition as Allocated to DEC Categories



As with the DSNY-managed waste, Option 1 ("I know the amount of MSW generated") was selected in the MSW Calculator for commercial waste projections.

BAU Scenario Projection Methodology for Commercial Waste

For the BAU scenario, projections for commercial waste generation and diversion between 2026 and 2036 were developed using the MSW Calculator. Although the implementation of the Commercial Waste Zones (CWZ) program began in 2024, no changes associated with CWZ or other new initiatives were factored into the BAU scenario, which assumes no major policy or programmatic changes to prevent, reduce, or divert waste beyond existing practices would be implemented during the planning period. Under this scenario, waste generation increases in proportion to population growth, and diversion rates remain constant at current levels throughout the planning period.

Once the total waste projections were developed for each year, the calculator applied the waste composition percentages from DSNY's 2012 Commercial Waste Characterization Study[10] to estimate the future tonnage of each material type. Diversion projections were then calculated by applying the 2023 baseline diversion rates for each material to the corresponding projected generation. These diversion rates remained constant throughout the planning period, reflecting a conservative assumption that no major improvements in diversion would occur under the BAU scenario.

IPP Projection Methodology for Commercial Waste

DSNY's strategy for increasing commercial waste diversion focuses on both strengthening existing local laws and launching new initiatives within its Commercial Waste Zones (CWZ) framework. Key legislation includes Local Law 199 of 2019, which authorized the creation of Commercial Waste Zones to improve safety, reduce traffic and emissions from waste hauling vehicles, and increase the diversion of recyclables and organics. Under this plan, New York City is divided into 20 geographic zones, each serviced by up to three authorized private carters. This zoning model is designed to streamline waste collection, limit redundancy, and centralize oversight. The phased rollout of this program started in September 2024, with additional zones set for implementation through 2027.

Additional supportive legislation includes Local Law 146 of 2013, which originally required large food service businesses to separate organic waste. Over time, this requirement has expanded to include more business types and waste volumes. Recognizing that past enforcement alone had not yielded desired diversion rates, DSNY developed a targeted set of initiatives to complement the CWZ rollout and further strengthen diversion efforts.

Below is a summary of the four proposed initiatives under the *SWMP26* Commercial Waste Program. Further details are available in **Chapter 5.**

Summary of proposed initiatives:

- **5.1 CWZ Implementation**: Implements price incentives within Commercial Waste Zones, offering reduced rates for separated recyclables and organics, encouraging businesses to source-separate materials to benefit from lower disposal fees.
- **5.2 Expand Organics Rules**: Expands the requirements of Local Law 146 by mandating organic waste separation for a broader range of businesses and establishments.
- **5.3 Increase Diversion of Recyclables and Organics**: Monitors the progress of recycling diversion from CWZ's pricing incentives and uses biennial reports to inform future contract adjustments.

- **5.4 Improved Data Quality**: Enhances the quality, consistency, and transparency of waste-related data reporting from private carters and transfer stations. Improved data accuracy will enable DSNY to better monitor commercial waste flows, verify diversion rates, and conduct regular waste audits.

Information on the implementation schedule for these initiatives is available in **Chapter 6.**

To model the IPP projections for the 2026–2036 planning period, two key parameters were established:

1. **Commercial Waste Generation**: Total generation is assumed to follow the same year-by-year projections as the BAU scenario. This approach reflects expected population growth and associated waste increases, with the focus on improving diversion rates as the primary strategy for reducing commercial waste disposal.
2. **Diversion Rate Increases**: Starting in 2026, diversion rates are increased gradually to 2026— by 30% from the 2023 diversion rates for organics of 9.85%, and by 25% from the 2023 diversion rates for all other materials, as listed in **Table 7-11**. The greater increase for commercial organics reflects a greater policy emphasis on this material. The diversion increases are distributed evenly across the years using linear interpolation, resulting in average annual increases of approximately 2.73% for organics and 2.27% for all other waste types.

Table 7-11 provides the existing diversion rate and the expected diversion rate by the end of the planning period by material type.

Table 7-11. Diversion Rate Increases

Commercial Waste Material Type	Diversion Rate in 2023	Projected Diversion Rate by 2036
Paper	40.61%	65.61%
Metal	47.59%	72.59%
Plastic	47.54%	72.54%
Glass	47.53%	72.53%
Organics	9.85%	39.85%
Textiles	5.50%	30.50%
Miscellaneous	13.31%	38.31%

4. Construction and Demolition (C&D) Waste Projections Methodology

The development of C&D debris and fill material projections considered Non-Putrescible and Fill Private Transfer Station Reports[4] to DSNY from 2016 to 2023, with data summarized in **Table 7-12**. There was no consistent trend in the amount of C&D debris over this time span. The data shows that fill amounts decreased between 2016 and 2020 before increasing gradually through 2023.

Table 7-12. New York City Construction and Demolition Debris and Fill Material Trends (Million Tons)

Row Labels	2016	2017	2018	2019	2020	2021	2022	2023	Average 2018 - 2023
C&D Debris	2.50	2.61	2.72	2.54	2.09	2.11	2.11	2.12	2.28
Fill	5.55	5.15	4.07	3.71	3.01	3.02	3.19	3.15	3.36
Total	**8.04**	**7.76**	**6.79**	**6.25**	**5.10**	**5.13**	**5.30**	**5.27**	**5.64**

Source: Non-Putrescible and Fill Private Transfer Station Reports.
Note: The tons of material shown include adjustments to tonnage accepted by transfer stations, such as removal of DSNY-delivered waste, transfers between stations, and materials from outside of the city.

Due to C&D waste data gaps and the fluctuations in material illustrated in **Table 7-12** it is challenging to forecast the amount of C&D debris and fill. DSNY also considered using DEC's projection calculator for C&D waste but did not have sufficient data for it. The amount of C&D debris and fill that would be generated over the 2026 to 2036 planning period is therefore projected to stay constant at the 2018 to 2023 average reported in **Table 7-12**. 2016 – 2017 data was excluded from the average as more recent data indicates substantially lower quantities of C&D waste.

It is assumed that most uncontaminated fill is reused. For a sample of C&D facilities reviewed, diversion rates reported in DSNY and DEC reports varied from 40% to 60%. Based on this, 50% of C&D debris is assumed to be recycled or otherwise diverted from landfills in the baseline year. For the BAU scenario, that 50% diversion for C&D debris is also assumed for all years through 2036. For the IPP scenario, the C&D debris diverted is projected to increase by 10% (to 60%), increasing gradually over the planning period. The projected diversion rate for C&D waste is indicated in **Table 7-13.**

Table 7-13. C&D Waste Assumed Diversion

Scenario	2026	2030	2036
Business-As-Usual (BAU)	50%	50%	50%
Implementation of Proposed Programs (IPP)	50%	54%	60%

5. Biosolids Projection Methodology

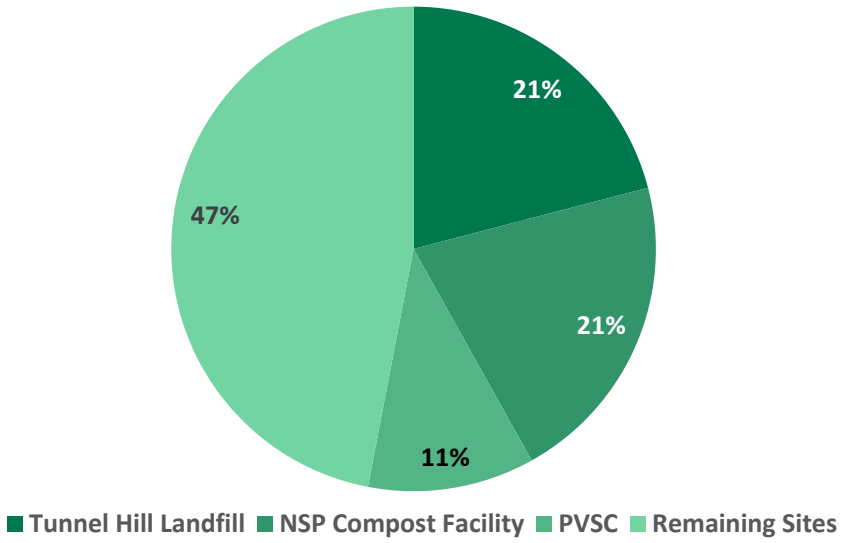
Baseline for Biosolids

DEP collects data on the annual generation and disposition of biosolids. DEP reported that 474,281 wet tons of biosolids were generated in New York City in 2024 and that amount was used as the baseline for projections, along with data on average changes in the amount of biosolids over the 2019 to 2023 period.[93] These biosolids were primarily delivered to three locations: Tunnel Hill Landfill, Natural Soil Products (NSP) Compost Facility, and Passaic Valley Sewerage Commission (PVSC), as summarized in **Table 7-14** and **Figure 7-3**. Biosolids management in 2024 included alkaline stabilization (for mine or agricultural use), composting, landfill, and thermal drying.

Table 7-14. Biosolids Disposed by Site in 2024

Disposition Site	Biosolids Disposed (Wet Tons)
Tunnel Hill Landfill (OH)	99,300
Natural Soil Products Compost Facility (PA)	99,406
Passaic Valley Sewerage Commission (NJ)	52,760
Remaining Sites	222,815
Total	**474,281**
Source: New York City Department of Environmental Protection (DEP) Wastewater Resource Recovery Facility Data.	

Figure 7-3. 2024 Biosolids Disposed by Site



Source: *New York City Department of Environmental Protection (DEP)*

6. Waste Projection Result Summary

DSNY-Managed Organics Projections

Organic material diversion has been a major part of New York City's waste management programming from 2022 through 2025. If no additional programming is added to the existing organics programming (BAU scenario), it is anticipated that 9.4% of organic waste will be diverted in 2036. In comparison, in the IPP scenario, organics diverted are expected to reach 30% by 2036. **Table 7-15** compares the BAU and IPP scenarios for organic waste generation and diversion.

Table 7-15. DSNY-Managed Organics Projections (Tons)

Scenario	Amount of Waste (Tons) and % Diverted	2026	2030	2036
Business-As-Usual (BAU)	Organics Generated	1,508,074	1,538,569	1,558,895
	Organics Diverted	141,796	144,664	146,575
	% Diverted	9.4%	9.4%	9.4%
Implementation of Proposed Programs (IPP)	Organics Generated	1,500,533	1,500,487	1,475,267
	Organics Diverted	165,514	227,189	444,627
	% Diverted	11.0%	18.5%	30.1%

DSNY-Managed Waste Projections

Using the methodology and datasets described in **Section 2**, approximately 4.0 million tons of DSNY-managed waste are projected to be generated in 2036 under the BAU scenario, while 3.8 million tons are projected to be generated in the IPP scenario. In 2036, the diversion rates for the BAU scenario are projected to be approximately 19.6%, or 0.8 million tons. The successful implementation of proposed programs is projected to divert 30.5% of DSNY-managed waste or 1.15 million tons in 2036. **Table 7-16** compares the total DSNY-managed waste generation and diversion (including organics) for the BAU and IPP scenarios in 2026, 2030, and 2036.

Table 7-16. DSNY-Managed Waste Projections (Tons)

Scenario	Amount of Waste (Tons) and % Diverted	2026	2030	2036
Business-As-Usual (BAU)	MSW Generated	3,867,370	3,945,574	3,997,699
	MSW Diverted	757,886	773,211	783,426
	% Diverted	19.6%	19.6%	19.6%
Implementation of Proposed Programs (IPP)	MSW Generated	3,843,033	3,847,916	3,783,241
	MSW Diverted	791,195	946,546	1,153,958
	% Diverted	20.6%	24.6%	30.5%

Commercial Waste Projections

According to the methodology and data outlined in **Section 3**, commercial waste generation under the BAU scenario is projected to reach approximately 2.3 million tons in 2036, with 28.1% or 0.65 million tons diverted. The IPP scenario assumes the same total waste generation as the BAU scenario but, with the proposed programs in place, projects a significantly higher diversion rate of 54.7%, equating to 1.27 million tons diverted. **Table 7-17** provides a comparison of waste generation and diversion under the two scenarios.

Table 7-17. Commercial Waste Projections (Tons)

Scenario	Amount of Waste (Tons) and % Diverted	2026	2030	2036
Business-As-Usual (BAU)	Generated	2,260,319	2,293,659	2,326,153
	Diverted	634,942	644,308	653,436
	% Diverted	28.1 %	28.1%	28.1%
Implementation of Proposed Programs (IPP)	Generated	2,260,319	2,293,659	2,326,153
	Diverted	689,627	921,762	1,272,482
	% Diverted	30.5%	40.1%	54.7%

Construction and Demolition Waste

In 2023, the total C&D debris generated in New York City was 2.12 million tons, not including fill. This amount is projected to increase to 2.28 million tons by 2036. **Table 7-18** shows the C&D debris BAU and IPP projections for C&D debris.

Table 7-18. C&D Debris Waste Projections (Tons)

Scenario	Amount of Waste (Tons) and % Diverted	2026	2030	2036
Business-As-Usual (BAU)	Generated	2,282,532	2,282,532	2,282,532
	Diverted	1,141,266	1,141,266	1,141,266
	% Diverted	50%	50%	50%
Implementation of Proposed Programs (IPP)	Generated	2,282,532	2,282,532	2,282,532
	Diverted	1,141,266	1,232,567	1,369,519
	% Diverted	50%	54%	60%
Note: The amount of fill projected during the planning period is not included in this table.				

The amount of fill is projected to be 3.86 million tons per year over the planning period, based on the 2016-2023 average.

Biosolids

Table 7-19 shows DEP's projections for biosolids tonnage through the remainder of the planning period. Per capita tonnages are expected to decrease due to improvements in solids separation and stabilization processes at multiple WRRFs over the next 10 to 20 years, offsetting the increases expected from population growth.

Table 7-19. Biosolids Projections

Year	Total Wet Tons
2026	491,649
2030	528,318
2036	588,511

7. Conclusions

Even as the quantity of waste generated is projected to increase during the 2026–2036 planning period with the projected population growth, the proportion of material that is diverted is anticipated to increase to 30.4% for DSNY-managed waste in the IPP scenario.

In 2023, DSNY collected 3.8 million tons of residential MSW, disposing of 3.1 million tons and diverting 0.7 million tons. In the BAU scenario, projected waste generation for 2026 and 2036, respectively, is expected to be 3.9 and 4.0 million tons, while diverted tonnage is projected at 0.8 million tons for both 2026 and 2036. In the IPP scenario, the quantity of waste generated is anticipated to reach 3.8 million tons with approximately 1.2 million tons diverted.

The commercial sector generated 2.21 million tons of waste managed in New York City in 2023, with 0.6 million tons diverted. Under BAU scenario, waste generation is projected to increase to 2.26 million tons in 2026 and 2.33 million tons in 2036, with diverted amounts rising to 0.63 million tons and 0.65 million tons, respectively. Under the IPP

scenario, waste generation is expected to match the BAU projections for both years, but diversion is projected to increase substantially to 0.69 million tons in 2026 and 1.3 million tons in 2036.

A substantial increase in the amount of C&D material diverted is projected for the planning period, increasing from the current estimated 50% to a projected 60% with the implementation of the proposed programs. While DEP is projecting an increase in the amount of biosolids produced over the planning period, DEP is working to increase the diversion of biosolids, with a target of 100% diversion by 2030, if feasible.

Overall, a modest increase in diversion and a decrease in the amount of waste sent to landfills and incinerators is projected for materials for which recycling and diversion programs are well established. For organics, textiles, commercial waste, and construction waste, with the implementation of *SWMP26*, more substantial diversion rate increases are projected.

Waste generation and diversion in New York City are affected by the economy, consumer products, waste management system and technology, and other factors. Alterations in policy can also result in significant changes to waste generation and recovery. Waste recovery has improved for specific waste streams due to implementation of local and state legislation, such as extended producer responsibility (EPR), which requires manufacturers to accept their end-of-life products for recycling. If additional EPR legislation is passed at the City or State level, waste diversion is expected to be greater than projected.

List of Abbreviations

Abbreviation	Definition
ACFR	Annual Comprehensive Financial Report
AD	anaerobic digestion
ADC	alternative daily cover
AF&PA	American Forest & Paper Association
AI	artificial intelligence
AISD	active indirect solar dryers
ASME	American Society of Mechanical Engineers
ATPD	average tons per day
ATT	advanced thermal treatment
BAU	business as usual
BHC	Building Healthy Communities
BIC	Business Integrity Commission
BIFs	boilers and industrial furnaces
BMP	best management practices
BPA	bisphenol A
BUD	Beneficial Use Determination
C&D	construction and demolition
CAGR	compound annual growth rate
CARB	concrete, asphalt pavement, rock, or brick
CCA	Current Conditions Assessment
CD	community district
CDDHRF	Construction and Demolition Debris Handling and Recovery Facility
CEQR	City Environmental Quality Review
CES	Clean Energy Standard
CFC	chlorofluorocarbon
CFR	Code of Federal Regulation
CJWG	Climate Justice Working Group
CLCPA	Climate Leadership and Community Protection Act
CO_2	carbon dioxide
CPC	City Planning Commission
CSB	New York City Clean Soil Bank
CUNY	City University of New York
CWZ	Commercial Waste Zone
CY	calendar year
DAC	disadvantaged community
DASNY	Dormitory Authority of the State of New York
DAR	Division of Air Resources
DCAS	Department of Citywide Administrative Services
DCLA	New York City Department of Cultural Affairs

Abbreviation	Definition
DCP	Department of City Planning
DCWP	Department of Consumer and Worker Protection
DDC	New York City Department of Design and Construction
DEC	New York State Department of Environmental Conservation
DEP	New York City Department of Environmental Protection
DES	New York City Department of Emergency Services
DGEIS	Draft Generic Environmental Impact Statement
DOB	New York City Department of Buildings
DOE	U.S. Department of Energy
DOH	New York City Department of Health
DSNY	New York City Department of Sanitation
EAC	East African Community
EAS	Environmental Assessment Statement
ECL	New York State Environmental Conservation Law
EDC	New York City Economic Development Corporation
EIA	U.S. Energy Information Administration
EIS	Environmental Impact Statement
EJ	environmental justice
EJNYC	Environmental Justice New York City
ENV	Environmental Conservation chapter of the Consolidated Laws of New York State
EO	Executive Order
EPA	U.S. Environmental Protection Agency
EPD	environmental product declaration
EPR	extended producer responsibility
EPS	expanded polystyrene
ERI	Electronic Recyclers International
EV	electric vehicle
FDNY	Fire Department of the City of New York
FEIS	Final Environmental Impact Statement
FGEIS	Final Generic Environmental Impact Statement
FOG	fats, oils, and grease
FSDO	food scrap drop-off
FY	fiscal year
GAIA	Global Alliance for Incinerator Alternatives
GCT	Global Container Terminal
GHG	greenhouse gas
GIS	geographic information systems
GWh	gigawatt hours
GWth	gigawatts of thermal energy
HCFC	hydrochlorofluorocarbons
HDPE	high-density polyethylene
HHW	household hazardous waste

Abbreviation	Definition
IFA	Inter-Fund Agreements
IGCC	integrated gasification combined cycle
IIJA	Infrastructure Investment and Jobs Act
IPCC	International Panel on Climate Change
IPP	implementation of proposed programs
IWG	interagency working group
kWh	kilowatt hours
LAC	Latin American and Caribbean
LCA	lifecycle assessment
LDPE	low-density polyethylene
LEED	Leadership in Energy and Environmental Design
LES	Lower East Side
LFG	landfill gas
LIPA	Long Island Power Authority
LL	Local Law
LMOP	Landfill Methane Outreach Program
LSWMP	Local Solid Waste Management Plan
M/WBE	minority- and women-owned business enterprise
MACT	Maximum Achievable Control Technology
MGP	metal, glass, and plastic
MMBtu	million British thermal units
MMR	Mayor's Management Report
MOCEJ	New York City Mayor's Office of Climate & Environmental Justice
MOCS	New York City Mayor's Office of Contracting Services
MOER	New York City Mayor's Office of Environmental Remediation
MRF	material recovery facility
MSW	municipal solid waste
MT	metric ton
MTA	Metropolitan Transportation Authority
MTS	Marine Transfer Station
MWG	medical waste generator
NBDP	National Biosolids Data Project
NESHAP	National Emission Standards for Hazardous Air Pollutants
NETL	National Energy and Technology Laboratory
NIMS	National Incident Management System
NJDEP	New Jersey Department of Environmental Protection
NMP	n-methylpyrrolidone
NRC	National Recycling Coalition
NS	Norfolk Southern
NSPS	New Source Performance Standards
NY&A	New York & Atlantic
NYCAC	New York City Administrative Code

Abbreviation	Definition
NYCCP	New York City Compost Project
NYCDOT	New York City Department of Transportation
NYCHA	New York City Housing Authority
NYCPS	New York City Public Schools
NYCRR	New York City Codes, Rules, and Regulations
NYMTC	New York Metropolitan Transportation Council
NYPA	New York Power Authority
NYPD	New York City Police Department
NYSERDA	New York State Energy Research and Development Authority
OCH	Office of Community Hiring and Workforce Development
OCPs	organochlorine pesticides
OECD	Organisation for Economic Cooperation and Development
OIG	Office of Inspector General
OMB	Office of Management and Budget
OMD	Operations Management Division (DSNY)
OSHA	Occupational Safety and Health Administration
PADEP	Pennsylvania Department of Environmental Protection
PANYNJ	Port Authority of New York and New Jersey
Parks	Department of Parks and Recreation
PBDE	polybrominated diphenyl esters
PCBs	polychlorinated biphenyls
PCR	post-consumer resin
PE	polyethylene
PET	polyethylene terephthalate
PFAS	per- and polyfluoroalkyl substances
PFRP	Process to Further Reduce Pathogens
PHA	polyhydroxyalkanoate
PIU	Permit Inspection Unit (DSNY)
PLA	polylactic acid
PM	particulate matter
PP	polypropylene
PPE	personal protective equipment
PPWR	Packaging and Packaging Waste Regulation
PS	polystyrene
PUP	post-use plastics
PV	photovoltaic
PVC	polyvinyl chloride
PVSC	Passaic Valley Sewerage Commission
QBG	Queens Botanical Garden
R2	Responsible Recycling (an ERI program)
RAP	recycled asphalt pavement
RCA	recycled concrete aggregate

Abbreviation	Definition
RCRA	Resource Conservation and Recovery Act
RDF	refuse-derived fuel
RFP	request for proposal
RGA	recycled glass aggregate
RGGI	Regional Greenhouse Gas Initiative
RHRF	recyclables handling and recovery facilities
RIRRC	Rhode Island Resource Recovery Corporation
RMW	regulated medical waste
RNG	renewable natural gas
SAFE	solvents, automotive, flammable, electronics
SBMT	South Brooklyn Marine Terminal
SBS	New York City Small Business Services
SED	Socioeconomic and Demographic
SEQRA	State Environmental Quality Review Act
SICF	Staten Island Compost Facility
SITS	Staten Island Transfer Station
SMR	Sims Municipal Recycling
SSO	source-separated organics
SSR	source-separated recyclable
StEP	Solving the E-Waste Problem
SWAB	Solid Waste Advisory Board
SWIFR	Solid Waste Infrastructure for Recycling
SWM	Bureau of Solid Waste Management
SWMP26	2026 Solid Waste Management Plan
TPD	tons per day
TPW	tons per week
TPY	tons per year
ULURP	Uniform Land Use Review Procedure
USITC	United States International Trade Commission
UTENJA	Utility Thermal Energy Network and Jobs Act
VDF	vehicle dismantling facility
VOC	volatile organic compound
WCS	waste characterization study
WM	Waste Management
WRRF	Wastewater Resource Recovery Facility
WTE	waste-to-energy

Glossary of Terms

advanced thermal treatment: a process that uses heat without combustion to process waste

alternative daily cover: material other than soil, such as slurry, tarp, foam, or **ash**, used to cover exposed solid waste in a sanitary **landfill**; a portion of **biosolids** produced from wastewater treatment in New York City are productively used as alternative daily cover

anaerobic digestion: the process by which microorganisms break down organic (carbon-based) materials, such as food waste, grease, and wastewater solids, in the absence of oxygen

ash: a byproduct of **incineration** and **waste-to-energy** processes

beneficial use: the use or reuse of waste materials or waste by-products that would otherwise be discarded as a substitute for raw or manufactured material; in New York State, the Department of Environmental Conservation (DEC) evaluates waste materials for beneficial uses as defined by the department's regulations (e.g., 6 NYCRR Part 360); a Beneficial Use Determination (BUD) is a designation by the DEC that confirms a material can be used productively without harming human health or the environment

biofuel: fuel produced from **biomass** (organic materials), as opposed to fossil fuels

biogas: a byproduct of wastewater (sewage) treatment by **anaerobic digestion** that can be used as a fuel; composed of a mixture of gases including primarily methane and carbon dioxide

biomass: non-fossilized and biodegradable organic material originating from plants, animals and/or micro-organisms, including waste and by-products of waste processing

bio-oil: the product of **biomass pyrolysis** and a potential alternative to conventional fossil fuels

biosolids: an organic byproduct of wastewater (sewage) treatment and dewatering

char, biochar: the carbon-rich, absorbent by-product of **pyrolysis**

circular economy: a system that keeps materials and products in circulation for as long as possible by reducing material use, including through design so that materials and products are less resource intensive, and by recapturing “waste” as a usable resource; defined by the U.S. Environmental Protection Agency as involving “industrial processes and economic activities that are restorative or regenerative by design, enable[ing] resources used in such processes and activities to maintain their highest value for as long as possible, and aim[ing] for the elimination of waste through the superior design of materials, products, and systems”

climate change: changes in the state of the climate attributed to human activity that alter the composition of the global atmosphere in addition to natural climate variability

codigestion: a process in which energy-rich organic waste materials are added to anaerobic digesters (e.g., wastewater digesters) to support the diversion of organic waste and the production of **biogas**

commercial waste zones: the 20 geographical zones for commercial waste collection in New York City, established per Local Law 199 of 2019

community districts: the 59 neighborhood planning jurisdictions in New York City; community districts share boundaries with **sanitation districts**

compost: a dark, crumbly, nutrient-rich material resembling topsoil that is the end product of the controlled decomposition of organic waste

construction and demolition debris: waste generated during the construction and demolition of buildings and infrastructure, including materials such as concrete, stone, dirt, asphalt, wood, metal, drywall, insulation, and fixtures

disadvantaged communities: communities that bear burdens of negative public health effects, environmental pollution, impacts of climate change, and possess certain socioeconomic criteria, or comprise high concentrations of low and moderate-income households, under the New York State Climate Act

Environmental Impact Statement: a document required for certain major projects, programs, and legislative proposals that have the potential to significantly affect the environment

environmental justice: the fair treatment and meaningful involvement of all people, regardless of race, color, national origin, or income, with respect to the development, implementation, and enforcement of environmental laws, regulations, policies, and activities and with respect to the distribution of environmental benefits

Environmental Product Declaration: disclosure of a product's key impacts on the environment, including **greenhouse gas** emissions resulting from its manufacture

e-waste: discarded electronic devices, including computers, cell phones, and televisions

extended producer responsibility: the responsibility of manufacturers for the post-consumer management of their products, designed to incentivize environmental considerations including durability, reuse, remanufacturing, and recycling and safe, accessible product disposal

feedstock: waste material used in processes such as **gasification** to transform waste into fuel or other **beneficial use** products

fill: clean soil, typically from a construction project

fiscal year: a 12-month period not the calendar year used for tax and accounting purposes; for DSNY, the fiscal year begins July 1 and ends June 30

gasification: the process by which heat is applied to carbon-based waste materials without combustion, converting the waste into synthetic fuel gas (**syngas**)

greenhouse gases: gases, such as carbon dioxide (CO_2) and methane, that trap heat in the atmosphere and contribute to **climate change**

hazardous waste: waste that poses substantial or potential threats to public health or the environment due to its ignitability, corrosiveness, reactivity, and/or toxicity

household hazardous waste: products containing hazardous substances (see **hazardous waste**) that are used and disposed of by individual rather than industrial consumers, such as paints, solvents, and pesticides

hydrolysis: an emerging **advanced thermal treatment** process that uses water, heat, and pressure to break down organic matter and is used as a pre-treatment method for the **anaerobic digestion** of sewage sludge

incineration: the burning (combustion) of waste at high temperatures

industrial waste: unwanted materials produced in or eliminated from an industrial operation and categorized under a variety of headings, such as liquid waste, sludge, solid waste, and hazardous waste

landfill: land waste disposal site in which waste is generally spread in thin layers, compacted, and covered with a fresh layer of soil or **alternate daily cover** each day

landfill gas: a by-product of the decomposition of organic material in landfills; composed of roughly 50% methane, 50% carbon dioxide (CO_2), and a small amount of non-methane organic compounds

mass burn: the combustion of minimally sorted or unsorted waste in an oxygen-rich chamber; the most common type of **waste-to-energy incineration**, the process generates steam for heating or generators that produce electricity

medical waste, regulated medical waste: a type of **special waste** generated by hospitals and other health care facilities in the diagnosis, treatment, or immunization of human beings or animals; in research pertaining thereto; or in the production and testing of biologicals

non-putrescible waste: waste that does not easily decompose, such as **construction and demolition debris** and **fill**

organic waste: discarded carbon-based materials that come from living things and are readily biodegradable

PFAS: per- and polyfluoroalkyl substances, a group of widely used synthetic chemicals believed to lead to significant health effects with high levels of exposure

Planning Unit: in New York State, one of 69 recognized organizational structures responsible for developing and implementing a successful Local Solid Waste Management Plan (LSWMP) for its community; New York City is the state's largest Planning Unit

putrescible waste: waste that decomposes readily with the assistance of bacteria, typically composed of a mix of organic and non-organic materials, including food waste, paper, textiles, and more

pyrolysis: the process by which heat is applied to a system to decompose waste without combustion to generate synthetic fuels such as **bio-oil**

refuse: garbage or trash, typically either not recyclable or not properly separated for recycling

refuse-derived fuel: fuel produced from the combustion of waste

reuse: the use of a product or component of a product in its original form more than once, for the same or an alternate purpose

sanitation districts: the 59 neighborhood planning jurisdictions in New York City; sanitation districts share boundaries with **community districts**

slag: a solid waste by-product of **gasification**, usually made up of silica-based materials; toxic materials embedded in slag are non-leachable, enabling slag to be repurposed for **beneficial use**

sludge: settleable solids separated from water during processing

Smart Bins: DSNY waste and **compost** bins located in neighborhoods throughout the city, accessible to residents via a smart phone app

solid waste: any garbage or refuse, discarded material, and sludge from wastewater treatment plants

solvolysis: an emerging **advanced thermal treatment** technology sometimes called “chemical recycling”

source-separated organics (SSO): organic waste separated by waste generators from non-compostable waste

special waste: discarded material that requires specific handling measures to ensure the health and safety of carters, processors, the public, and the environment; examples include electronics, automotive waste, and **medical waste**

syngas: synthetic fuel created from carbon-based **feedstock** through the process of **gasification**

thermal treatment: any process by which waste is transformed using high temperatures

transfer station: a facility where solid waste, including source-separated recyclables, is received, consolidated, and then transported to another facility for processing, treatment, further transfer, or disposal

volatile organic compounds (VOCs): compounds that have a high vapor pressure and low water solubility; emitted by a wide array of products such as paints, pesticides, and cleaning supplies, VOCs may have short- and long-term adverse health effects

waste management hierarchy: an approach to waste management that prioritizes waste reduction, reuse, recycling, and composting over disposal

waste: discarded materials, including material that can be composted or recycled; trash

waste-to-energy: energy produced from the combustion of post-recycled municipal solid waste, animal waste or animal byproducts, biogas, **landfill** methane, or other **biomass** that has been diverted from or separated from other waste out of a municipal waste stream

Endnotes

1 For New York State Department of Environmental Conservation (6 CRR-NY IV B 360 Notes), Planning Unit means, for locations within New York State, a county; two or more counties acting jointly; a local government agency or authority established pursuant to State Law for the purposes of managing solid waste; any city in the county of Nassau; any of the above in combination with one or more neighboring cities, towns, or villages; or two or more cities, towns, or villages, or any combination of them, that the department determines to be capable of implementing a regional waste management program. In order for a county to be a planning unit it must include all cities, towns, and villages within its borders, https://dec.ny.gov/sites/default/files/2024-10/part360fulltextadopt.pdf

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16 DEC, Local Solid Waste Management Plan Development: http://www.dec.ny.gov/environmental-protection/waste-management/solid-waste-management-planning/lswmp-development

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19 DSNY, *Solid Waste Management Plan Biennial Update Report 2021-2022.* (2023). https://www.nyc.gov/assets/dsny/downloads/resources/reports/solid-waste-management/2006-swmp/swmp-2006-biennial-update-reports/swmp-biennial-update-2021-2022.pdf

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