Chapter 12: Solid Waste

A. INTRODUCTION

This chapter examines the Proposed Actions' potential for significant adverse impacts on solid waste and sanitation services. According to the 2020 *City Environmental Quality Review (CEQR) Technical Manual*, a solid waste and sanitation services assessment is intended to determine whether a project has the potential to cause a substantial increase in solid waste production. Such an increase may overburden available waste management capacity or otherwise be inconsistent with New York City's Solid Waste Management Plan (SWMP) or with state policy related to the City's integrated solid waste management system.

As described in Chapter 1, "Project Description," the Proposed Actions would affect an approximately 56-block, 146-acre area (the Project Area) of the SoHo and NoHo neighborhoods of Manhattan, Community District (CD) 2. The Project Area is generally bounded by Astor Place and Houston Street to the north; Bowery, Lafayette Street, and Baxter Street to the east; Canal Street to the south; and Sixth Avenue, West Broadway, and Broadway to the west. The Reasonable Worst-Case Development Scenario (RWCDS) for the Proposed Actions identifies 26 projected development sites. On the projected development sites, the Proposed Actions are expected to result in a net increase of approximately 1,829 projected dwelling units (DUs) (including 382 to 573 affordable units); 61,789 gross square feet (gsf) (51,752 zoning square feet [zsf]) of projected retail space (local and destination retail and supermarket space); and 20,778 gsf (18,076 zsf) of projected community facility space.

To assess the potential effects of the Proposed Actions on solid waste and sanitation services, the detailed analysis in this chapter estimates the amount of existing solid waste generated on the projected development sites identified in the RWCDS, and provides a comparison of estimates under No Action and With Action conditions.

PRINCIPAL CONCLUSIONS

The Proposed Actions would not result in a significant adverse impact on solid waste and sanitation services. The Proposed Actions would not directly affect a solid waste management facility. Development in the With Action condition would generate an increment above the No Action condition of approximately 42.4 tons per week of solid waste, of which approximately 89 percent (37.8 tons) would be handled by the New York City Department of Sanitation (DSNY) and 11 percent (4.6 tons) would be handled by private carters. This incremental increase in solid waste correlates to the addition of approximately three additional truckloads per week of solid waste handled by DSNY and one truckload per week handled by private carters.

When compared with the solid waste generated under the No Action condition, the additional solid waste resulting from the With Action condition would constitute an increase that would not reach the level of impact significance, as it would be considered negligible relative to the approximately 12,260 tons of solid waste handled by DSNY every day, or the 13,000 tons handled by private

carters.[1] As such, the Proposed Actions would not result in an increase in solid waste that would overburden available waste management capacity. The Proposed Actions would also not conflict with, or require any amendment to, the City's solid waste management objectives as stated in the SWMP.

B. METHODOLOGY

According to the *CEQR Technical Manual*, projects with a generation rate of less than 50 tons (100,000 pounds) of solid waste per week would not result in a significant adverse impact to the City's waste management capacity and do not warrant detailed analysis. Because the Proposed Actions would result in a net increase of just under 50 tons of solid waste per week, and the existing concerns about solid waste management, an assessment of solid waste and sanitation was conducted.

An assessment of solid waste/sanitation services is a density-based technical analysis; as a result, only development on identified projected development sites forms the basis of the analysis. The analysis describes existing and future New York City solid waste disposal practices (including the collection system and disposal methods) and estimates the solid waste generated by activities on the Project Area under existing conditions and in the No Action condition for the 2031 Analysis Year. The chapter also forecasts solid waste generation based on rates for typical land uses and activities, as provided in the *CEQR Technical Manual*, and assesses the effects of the Proposed Actions' incremental solid waste generation on municipal and private sanitation services in the With Action condition.

C. EXISTING CONDITIONS

DSNY is the agency responsible for the collection and disposal of residential and institutional solid waste in the City, while private carters collect solid waste from commercial and manufacturing uses. In addition to collecting municipal solid waste, refuse, and designated recyclable materials generated by residential and institutional uses, including schools, some nonprofit institutions, and many City and state agencies, DSNY also collects waste from City litter baskets, street-sweeping operations, and lot cleaning activities. The DSNY collection fleet is composed of over 2,100 waste collection trucks, with the typical collection truck for refuse carrying approximately 12.5 tons of waste material and the typical recycling truck carrying about 11.5 tons of paper or approximately 10.0 tons of metal, glass, and plastic containers. In total, DSNY collects approximately 9,680 tons per day of residential and institutional refuse and approximately 2,120 tons per day of recyclables.[2]

Commercial establishments (e.g., restaurants, retail facilities, offices, and industries) in New York City contract with private carters for collection and processing and/or disposal of various kinds of solid waste, including municipal solid waste construction and demolition debris, non-hazardous industrial wastes, and recyclables. According to the *CEQR Technical Manual*, commercial carters typically carry between 12 and 15 tons of waste material per truck. The City's businesses, whose waste is collected by private carting companies, generate approximately 13,000 tons of refuse each day.

[1] About DSNY: http://www1.nyc.gov/assets/dsny/about/inside-dsny.shtml.

[2] "DSNY Annual Report; New York City Municipal Refuse and Recycling Statistics: Fiscal Year 2018," https://dsny.cityofnewyork.us/wp-content/uploads/2018/10/about_dsny-non-dsny-collections-FY2018.pdf.

Under New York City's mandatory Recycling Law (Tile 16 of the NYC Administrative Code, Chapter 3), DSNY has established and enforces rules requiring that certain designated recyclable materials be separated from household waste for separate collection. New York City residents are required to separate aluminum foil, glass, plastic, and metal containers, and newspapers and other paper waste from household waste for separate collection. Commercial establishments are also subject to mandatory recycling requirements. Businesses must source-separate certain types of paper waste, cardboard, metal items, and construction wastes. Food and beverage establishments must recycle metal, glass, and plastic containers, and aluminum foil, in addition to meeting the commercial recycling requirements.

DSNY delivers most of the refuse it collects to certain public or private solid waste management facilities known as transfer stations in the City or in adjoining communities for processing and transporting to out-of-city disposal facilities. Solid wastes that are not recycled, reused, or converted to a useful product locally must be exported from the City for disposal because New York City does not have public or private local disposal facilities such as sanitary landfills, construction and demolition debris landfills, traditional incinerators, or waste-to-energy resources recovery facilities.

Similarly, commercial refuse and other solid waste that is not carted directly to disposal facilities is delivered to transfer stations for transport to disposal facilities. Non-putrescible waste such as construction and demolition debris typically is sorted at transfer stations, which remove clean fill materials, metal, and wood for recycling and send the residue to landfills for disposal.

As New York City has no public or private local disposal facilities, solid wastes that are not recycled, reused, or converted to a useful product locally must be exported from the City for disposal. Designated recyclable materials are delivered to privately operated materials recovery facilities (MRFs) in the City and surrounding communities. Paper recyclables collected by DSNY in Manhattan, Staten Island, and parts of Brooklyn are transported directly to the Pratt Industries Paper Plant in Staten Island, which processes them for use in the production of liner board and similar products.

As required by New York State Law, the City has adopted a comprehensive SWMP for the long-term management of solid waste generated within its borders. The current SWMP was adopted in 2006 and covers the period through 2025. It is anticipated that the City will amend the current plan after 2025 to build on the ongoing programs to minimize, reuse, recycle, and compost waste, pursuant to the requirements of the New York State Solid Waste Management Act. The SWMP estimates public- and private-sector waste quantities that must be managed over the planning period and identifies processing, transfer, and disposal capacity that will be necessary for such waste. According to the SWMP, the City's commercial solid waste generation is projected to increase to approximately 74,000 tons per week by the year 2025.[3] The amount of DSNY-managed waste is projected to increase to approximately 115,830 tons per week.[4]

The SWMP takes into account the objectives of New York State's SWMP with respect to the preferred hierarchy of waste management methods, in order of preference: waste reduction, recycling, composting, resource conservation and energy production, and landfill disposal. The SWMP includes initiatives and programs for waste minimization, reuse, recycling, composting,

[3] Comprehensive Solid Waste Management Plan, September 2006; Attachment IV, Table IV 2-2.

[4] Comprehensive Solid Waste Management Plan, September 2006; Attachment II, Table II 2-6.

and siting a new waste conversion facility to derive energy from waste, waste transfer, transport, and out-of-city disposal at waste-to-energy facilities and landfills.

With respect to commercial waste, the SWMP provides the capacity for barge export of certain amounts of commercial refuse from four converted DSNY marine transfer stations (MTSs); provides for barge export of construction and demolition waste from the existing DSNY MTSs at West 59th Street; and requires rail export of commercial refuse from the three private transfer stations that also contract to handle DSNY refuse. The SWMP also includes more stringent restrictions on the siting and operation of commercial solid waste transfer stations.

The DSNY Manhattan District 2 Garage that serves the Project Area is located nearby but outside of the study area in the DSNY facility fronting on Spring Street, West Street, and Washington Street that houses the respective garages for Manhattan Districts 1, 2, and 5.. The garage, one of 59 City-wide, is essential to DSNY's sanitation operations, as it stores and maintains DSNY vehicles that provide refuse collection, recycling, and winter emergency services. The facility allows DSNY to perform its regular duties and execute emergency response, as needed, to the surrounding neighborhoods. The DSNY Manhattan District 2 Garage would not be affected by the land use regulatory changes of the Proposed Actions, and its collection fleet would be expected to accommodate the additional refuse and recyclables generated by the Proposed Actions' projected increase in residential population.

SOLID WASTE GENERATION ON PROJECTED DEVELOPMENT SITES

In total, the 26 projected development sites are currently occupied by approximately 32 DUs; 362,000 sf of commercial floor area—including office and retail space—and 23,000 sf of industrial space. Based on City-wide average rates for solid waste generation used in the SWMP (and provided in Table 14-1 of the *CEQR Technical Manual*), the existing uses on the projected development sites generate a total of approximately 32 tons of solid waste per week. As shown in **Table 12-1**, approximately 98 percent—31 tons (non-residential) per week—of the existing solid waste generated is handled by private carters, and approximately 2 percent—0.7 tons per week—is handled by DSNY.

Table 12-1
Existing Solid Waste Generation on Projected Development Sites

Use	Floor Area (sf)	Population	Solid Waste Generation Rate (lbs/wk)	Solid Waste Generation (lbs/wk)	(tons/wk)
Residential	26,163	32 households	41	1,312	0.66
Office	207,576	830	13	10,794	5.40
Retail	115,052	345	79	27,267	13.63
Auto-Related	0	0	72.5	0	0.00
Other Commercial	39,000	260	75	19,524	9.76
Industrial	23,084	23	182.5	4,213	2.11
Community Facility	0	---	0.03	0	0.00
Total Solid Waste Generation				***63,110***	***31.56***
Solid Waste Handled by DSNY (includes residential and all CF uses)				***1,312***	***0.66***
Solid Waste Handled by Private Carters (all includes commercial and industrial uses)				***61,798***	***30.90***

Notes: Solid waste generation is based on Citywide average waste generation rates presented in Table 14-1 of the *CEQR Technical Manual*, and estimates of workers by use, as follows:
Residential use: 41 lbs/wk per DU.
Office: 13 lbs/wk per employee; assume 1 employee per 250 sf.
General retail: 79 lbs/wk per employee; assume 3 employees per 1,000 sf.
Auto-related: use average of retail and wholesale rate—72.5 lbs per worker; assume 1 employee per 1,000 sf.
Hotel: 75 lbs/wk per employee, assume 2.67 employees per 400 sf.
Industrial use: use average of apparel/textile and printing/publishing rate—182.5 lbs/wk per employee; assume 1 employee per 1,000 sf.
Community facility uses (government office, *CTM 2020 Table 14-1)*: 0.03 lbs/wk. per sf.

D. THE FUTURE WITHOUT THE PROPOSED ACTIONS

As detailed in Chapter 1, "Project Description," the No Action condition on the projected development sites is expected to remain the same as the existing condition. Therefore, solid waste generated by the projected development sites would not change under the No Action condition, as compared to the existing condition.

Table 12-2
No Action Solid Waste Generation on Projected Development Sites

Use	Floor Area (sf)	Population	Solid Waste Generation Rate (lbs/wk)	Solid Waste Generation	
				(lbs/wk)	(tons/wk)
Residential	26,163	32 households	41	1,312	0.66
Office	207,576	830	13	10,794	5.40
Retail	115,052	345	79	27,267	13.63
Auto-Related	0	0	72.5	0	0.00
Other Commercial	39,000	260	75	19,524	9.76
Industrial	23,084	23	182.5	4,213	2.11
Community Facility	0	---	0.03	0	0.00
Total Solid Waste Generation				***63,110***	***31.56***
Solid Waste Handled by DSNY (includes residential and all CF uses)				***1,312***	***0.66***
Solid Waste Handled by Private Carters (all includes commercial and industrial uses)				***61,798***	***30.90***

Notes: Solid waste generation is based on Citywide average waste generation rates presented in Table 14-1 of the *CEQR Technical Manual*, and estimates of workers by use, as follows:
Residential use: 41 lbs/wk per DU.
Office: 13 lbs/wk per employee; assume 1 employee per 250 sf.
General retail: 79 lbs/wk per employee; assume 3 employees per 1,000 sf.
Auto-related: use average of retail and wholesale rate—72.5 lbs per worker; assume 1 employee per 1,000 sf.
Hotel: 75 lbs/wk per employee, assume 2.67 employees per 400 sf.
Industrial use: use average of apparel/textile and printing/publishing rate—182.5 lbs/wk per employee; assume 1 employee per 1,000 sf.
Community facility uses (government office, *CTM 2020 Table 14-1)*: 0.03 lbs/wk. per sf.

As required by New York State law, the City has adopted a comprehensive SWMP for the long-term management of solid waste generated within its borders. The current SWMP was adopted in 2006 and covers a period through 2025. The SWMP estimates public- and private-sector waste quantities that must be managed over the planning period and identifies processing, transfer, and disposal capacity that will be necessary for such waste. According to the SWMP, the City's commercial solid waste generation is projected to increase to approximately 74,000 tons per week by the year 2025.[5] The amount of DSNY-managed waste is projected to increase to approximately 118,830 tons per week.[6]

OTHER CITY INITIATIVES

DSNY is seeking creative solutions for containerized refuse and recycling that will increase waste diversion, including by reduction, reuse, and recycling; reduce the volume of consolidated material set out on City sidewalks; reduce vehicle miles traveled (VMT) and greenhouse gas (GHG) emissions associated with waste collection; and/or improve the cleanliness of City streets and sidewalks. Two such programs are the Commercial Waste Zones (CWZ) and the Clean Curbs

[5] SWMP, September 2006. Attachment IV, Table IV 2-2.

[6] SWMP, September 2006, Attachment II, Table II 202.

programs. The programs, discussed in more detail below, are beyond the scope of the Proposed Actions and will be implemented irrespective of the Proposed Actions on a citywide basis.

COMMERCIAL WASTE ZONES

In November 2019, Mayor de Blasio signed LL199 of 2019 into law, requiring the establishment of Commercial Waste Zones (CWZ) throughout New York City. The CWZ program aims to create a safe and efficient commercial waste collection system that advances zero waste goals while providing high-quality, low-cost service to City businesses.

The CWZ program will divide the City into 20 zones, each served by up to three carters selected through a competitive process; the Project Area is within Zone 7—the Manhattan Southwest zone. The program, which is in the RFP process and is anticipated to be rolled out in 2022, is slated to eliminate 18 million miles of heavy-duty truck traffic every year from City streets. Manhattan CD 2, which includes the Project Area, is expected to transition from 49 overlapping private operations to just three. CWZ will reduce truck traffic associated with commercial waste collection by 50 percent, eliminating millions of heavy-duty truck miles from City streets every year, while strengthening service standards and allowing for customer choice.

CLEAN CURBS PROGRAM

DSNY is collaborating with the New York City Department of Transportation (DOT) on the Clean Curbs pilot program for commercial waste. Through a pilot program, private entities, such as Business Improvement Districts (BIDs), can apply for the opportunity to have sealed, on-street containers for their trash and recycling storage, which will reduce their need to set out bags of recyclables and garbage for collection on City sidewalks. The program will permit private entities to set out containers for solid waste on the street or sidewalk—reducing rodents, odors, and unsightly waste from sidewalks. The containers improve pedestrian flow and mobility while also enhancing collection efficiency. BIDs or retailers would apply to DSNY to install the containers. The parties would execute a maintenance agreement and procure insurance prior to installation.

E. THE FUTURE WITH THE PROPOSED ACTIONS

Under the With Action condition, the 26 projected development sites are expected to result in the addition of approximately 1,861 DUs, which is a net increase of approximately 1,829 DUs as compared with the No Action condition. The Proposed Actions are expected to result in net decreases of approximately 24,000 sf of commercial space and 23,000 sf of industrial and manufacturing space. The Proposed Actions are also expected to result in a net increase of approximately 21,000 sf of community facility space as compared with the No Action condition.

As shown in **Table 12-3**, the total solid waste generation under the Proposed Actions would be approximately 74 tons per week, which represents an additional 42 tons in weekly solid waste generation as compared with the No Action condition.

As shown in **Table 12-3**, commercial and industrial uses under the Proposed Actions would generate approximately 35 tons of solid waste per week. Solid waste generated by commercial and industrial uses would be collected by private commercial carters and commercial buildings developed under the Proposed Actions would be subject to mandatory recycling requirements for paper, metals, construction waste, and aluminum foil as well as metal, glass, and plastic containers. Residential and community facility uses would generate approximately 38 tons of solid waste per week under the With Action condition (see **Table 12-4**).

Table 12-3
With-Action Solid Waste Generation on Projected Development Sites

Use	Floor Area (sf)	Population	Solid Waste Generation Rate (lbs/wk)	Solid Waste Generation	
				(lbs/wk)	(tons/wk)
Residential	1,832,891	1861	41	76,301	38.15
Retail	143,233	430	79	33,946	16.97
Supermarket	33,608	101	284	28,634	14.32
Other Commercial	0	0	75	0	0.00
Office	160,765	643	13	8,360	4.18
Storage	0	0	9	0	0.00
Industrial	0	0	182.5	0	0.00
Community Facility	20,778	---	0.03	623	0.31
Total Solid Waste Generation				***147,864***	***73.93***
Solid Waste Handled by DSNY (includes residential and all CF uses)				***76,924***	***38.46***
Solid Waste Handled by Private Carters				***70,940***	***35.47***

Notes: Solid waste generation is based on Citywide average waste generation rates presented in Table 14-1 of the *CEQR Technical Manual*, and estimates of workers by use, as follows:
Residential use: 41 lbs/wk per DU.
General retail: 79 lbs/wk per employee; assume 3 employees per 1,000 sf.
Supermarket: 284 lbs/wk per employee; assume 3 employees per 1,000 sf.
Office: 13 lbs/wk per employee; assume 1 employee per 250 sf.
Industrial use: use average of apparel/textile and printing/publishing rate—182.5 lbs/wk per employee; assume 1 employee per 1,000 sf.
Community facility uses (government office, (*CTM 2020 Table 14-1)*: 0.03 lbs/wk. per sf.

Table 12-4
Comparison of Weekly Solid Waste Generation on Projected Development Sites (Existing, No Action, With Action Conditions)

	Existing Condition	No Action Condition	With Action Condition	Increment (No Action to With Action)
Total Solid Waste Generation (tons/wk)	31.6	31.6	73.9	42.4
Solid Waste Handled by DSNY (tons/wk)	0.7	0.7	38.5	37.8
Solid Waste Handled by Private Carters (tons/wk)	30.9	30.9	35.5	4.6

According to the *CEQR Technical Manual*, for projects resulting in the development of more than either 500 residential units or 100,000 square feet (sf) of commercial space, such as the Proposed Actions, the proposed location and method of storage of refuse and recyclables prior to collection should be disclosed. As described above, the Proposed Actions would rezone approximately 56 blocks in Manhattan CD 2. According to the RWCDS prepared to identify likely development that could reasonably result from the Proposed Actions, no single building would be developed with more than 300 units or 100,000 sf of community facility/commercial space. Solid waste generated by residential and community facility uses would be placed curbside for collection by DSNY trucks and would be served by existing DSNY collection routes. As a general practice, DSNY adjusts its operations to service the community. Residents will be required to participate in the City's recycling program for paper, metals, and certain types of plastics and glass.

As shown in **Table 12-4**, compared with the No Action condition the Proposed Actions would result in an approximately 38-ton increase in weekly solid waste handled by DSNY. This would represent approximately 0.01 percent of the City's anticipated future waste generation handled by DSNY (it is estimated that DSNY will manage 115,830 tons of solid waste for export, recycling

compost, and refuse per week by 2025), as projected in the 2006 SWMP. [7] Based on the typical DSNY collection truck capacity of approximately 12.5 tons, the new residential and community facility uses introduced by the Proposed Actions would be expected to generate solid waste equivalent to approximately three truckloads per week. This increase is not expected to overburden DSNY's solid waste handling services.

Compared with the No Action condition, conditions with the Proposed Actions would result in an approximately 4.6-ton increase in weekly solid waste handled by private carters. This would represent approximately 0.01 percent of the City's anticipated future commercial waste generation, as it is estimated that private carters will carry 74,000 tons of solid waste per week by 2025, as projected in the SWMP. Based on the typical commercial carter capacity of between 12 and 15 tons of waste material per truck, the Proposed Actions would require one additional collection truck per week compared with the No Action condition. As the Project Area is within Manhattan Zone 7 of the City's CWZ system, the three future authorized commercial waste carters for this zone would be expected to adequately service the commercial customers' incremental waste and recyclables generated as a result of the Proposed Actions. Therefore, the net increment in commercial solid waste handled by private carters would not overburden the City's waste management system.

Overall, the Proposed Actions would not conflict with the SWMP, or have a direct effect on a solid waste management facility. The Proposed Actions would generate a net increase pf approximately three DSNY truckloads and one commercial carter truckloads of refuse per week. The incremental solid waste generated by the Proposed Actions would not overburden the City's solid waste handling systems, and therefore the Proposed Actions would not have a significant adverse impact on the City's solid waste and sanitation services. ✷

[7] Comprehensive Solid Waste Management Plan, September 2006; Attachment II, Table IV 2-2, p. 4. Accessed August 8, 2016.