A. INTRODUCTION

According to the *City Environmental Quality Review (CEQR) Technical Manual*, actions involving construction of housing or other development generally do not require an evaluation of solid waste impacts unless they are unusually large (a generation rate of less than 10,000 pounds per week, for example, is not considered large).

As discussed in Chapter 1, "Project Description," the proposed actions would result in a net increase of 1,383 residential units (including 348 affordable units) and a net decrease of 74,439 square feet in commercial space (13,520 square feet of retail space and 60,919 of hotel use).

To assess the potential effects of the proposed actions on solid waste and sanitation services, a quantitative assessment was conducted. This entails the calculation of existing solid waste generation on the projected development sites, as well as a comparison of equivalent calculations in the future both with and without the proposed actions.

PRINCIPAL CONCLUSIONS

The proposed actions would not cause any significant adverse impacts on solid waste and sanitation services. While implementation of the proposed actions would create new demands on solid waste management and sanitation services, the municipal systems serving the primary study area would have adequate capacity to meet the projected increases in solid waste generation. The New York City Department of Sanitation (DSNY), which collects solid waste and recyclables, is currently scheduled to provide municipal solid waste and sanitation services to the projected development sites. Private carters provide these services to non-residential users. The proposed actions would increase the volume of solid waste and recyclables but would not affect the delivery of these services or place a significant burden on the city's solid waste management services (both public and private).

B. METHODOLOGY

As discussed below, this chapter:

- Describes the existing solid waste management services on the projected development sites, using solid waste generation rates for typical land uses and activities provided in the *CEQR Technical Manual*;
- Determines future solid waste demands with the proposed actions for 2017; and
- Assesses the effects of this incremental demand on municipal and private sanitation services.

C. EXISTING CONDITIONS

DESCRIPTION OF CURRENT SANITATION SERVICES

In New York City, DSNY is the city agency responsible for the collection and disposal of municipal solid waste and recyclable materials generated by residences, some nonprofit institutions, tax exempt properties, and city agencies. DSNY also collects waste from city litter baskets, street-sweeping operations, and lot cleaning activities. Fresh Kills, which was New York City's only remaining landfill, was officially closed in March 2001. However, DSNY continues to collect residential and institutional solid waste and recyclables (the municipal waste stream). Under the current interim Solid Waste Management Plan (SWMP), most of the city's municipal solid waste is delivered to transfer stations for sorting and transfer to larger "hopper" trucks and then transported out of the city. Private carters also consolidate commercial solid waste at waste transfer facilities both inside and outside the city, where it is then transported to out-of-city disposal facilities. It is estimated that DSNY collects over 12,000 tons of residential and institutional refuse and recyclables per day.[1]

The city's solid waste management services are undertaken in accordance with the SWMP, which is the responsibility of the DSNY. The SWMP establishes a hierarchy of preferred solid waste management methods to reduce and process solid waste generated within the city. The objectives of the SWMP are, in order of importance: waste minimization; reuse, recycling, or composting; and export for out-of-city disposal. The SWMP mandates that solid waste be transferred to solid waste management facilities located in each borough, including special (hazardous materials) waste collection sites, composting facilities, and bulk residential waste sites. Local Law 19 of 1989 requires that DSNY and private carters collect recyclable materials and deliver them to material recovery facilities. New York City residents are required to separate aluminum foil, glass, plastic and metal containers, and newspapers and other paper wastes from household waste for separate collection. The SWMP also mandates that commercial establishments are subject to recycling requirements. Businesses must source-separate certain types of paper wastes, 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.

The primary study area is located within the DSNY service area covering Manhattan Community District 3. Only the residential components of proposed actions would potentially affect municipal solid waste services in this service area. Commercial establishments (restaurants, retail facilities, offices, industries, etc.) in the city contract with private waste carters for waste and recyclables collection and disposal. Private carters charge a fee on a per-cubic-yard basis. Depending on the source, volume, and the collection route, private carters use either manual or containerized collection. Private carters typically deliver waste to solid waste management facilities located both inside and outside of the city. The collected waste is unloaded from trucks, processed, and then loaded onto larger trucks or rail cars for transport to out-of-city disposal facilities. Overall, the city's businesses, the waste of which is collected by private carting companies, generate another 13,000 tons of refuse each day.[2] Therefore, the total solid waste generated in the city averages approximately 25,000 tons per day (tpd).

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[1] DSNY website: http://www.nyc.gov/html/dos/html/dosfact.html

[2] Ibid.

QUANTITATIVE ANALYSIS OF SOLID WASTE GENERATION

As solid waste/sanitation services are a density-based technical analysis, only developments on projected development sites form the basis for this impact assessment. The projected development sites—including enlargement sites—are currently occupied by 300 dwelling units (DUs) and 667,869 square feet of retail, office, and other commercial uses.

On average, the number of persons per household in the primary study area is 1.97. Assuming this household size for existing residential uses, it is estimated that the 300 DUs currently located on the projected development sites house approximately 591 individuals. Based on average waste generation rates presented in Table 3M-1 of the *CEQR Technical Manual*, each individual is estimated to generate an average of 17 pounds per week of solid waste for a total of approximately 10,047 pounds per week. As discussed above, residential uses are served by DSNY collection routes.

It is estimated that there are currently 2,339 employees in the 667,869 square feet of commercial space on the projected development sites. As such, uses on these sites are estimated to generate approximately 92,494 pounds of solid waste per week. These uses are served by private carters. Table 14-1 below summarizes the current conditions on the projected development sites, and provides an estimate of the amount of solid waste currently generated, as well as the total amount of solid waste generated by all of the projected development sites. As shown in the table, the existing uses on the projected development sites currently generate a total of approximately 102,541 pounds (or 51 tons) of solid waste per week, most of which is collected by private carters.

Table 14-1
Existing Solid Waste Generation on Projected Development Sites

Use	Area (sf)	Solid Waste Generation (lbs/wk)[1]
Residential[2]	234,529 (300 DUs)	10,047
Retail[3]	331,816	78,640
Office[4]	109,751	5,707
Other Commercial[5]	226,302	8,147
	Total	**102,541**

Notes:
1 Solid waste generation rates based on the *CEQR Technical Manual.*
2 Assumes 1.97 residents per DU for existing units (based on primary study area weighted average household size) and 17 lbs of solid waste per week per individual.
3 Assumes 3 employees per 1,000 sf of retail space and 79 lbs of solid waste per week per employee.
4 Assumes 1 employee per 250 sf for office space and 13 lbs of solid waste per week per employee.
5 Assumes 1 employee per 250 sf for office space, and 9 lbs of solid waste per week per employee.

D. THE FUTURE WITHOUT THE PROPOSED ACTIONS

In the future without the proposed actions, the identified projected development sites are assumed to either remain unchanged from existing conditions, or become occupied by uses that are as-of-right under existing zoning. As discussed in Chapter 1, "Project Description," the reasonable worst-case development scenario (RWCDS) under the proposed actions anticipates new uses on a number of projected development sites in the future without the proposed actions.

Therefore, it is assumed that, in the future without the proposed actions, the projected development sites would contain 2,534 residential units (including 244 units on the projected enlargement

sites, no change from existing conditions) and 450,928 square feet of commercial space on projected development sites. The net difference between the existing conditions and conditions in the future without the proposed actions is an increase of 2,234 dwelling units, an increase of 58,195 square feet of retail space, a decrease of 109,751 square feet of office space, and an increase of 60,919 square feet of hotel space. The solid waste generation from these uses is presented in Table 14-2.

Table 14-2
Future Without the Proposed Actions:
Solid Waste Generation on Projected Development Sites (No Build)

	Existing		No Build	
Use	Area (sf)	Solid Waste Generation (lbs/wk)[1]	Area (sf)	Solid Waste Generation (lbs/wk)[1]
Residential[2]	234,529 (300 DUs)	10,047	2,468,210 (2,534 DUs)	84,863
Retail[3]	331,816	78,640	390,011	92,433
Office[4]	109,751	5,707	0	0
Other Commercial[5]	226,302	8,147	0	0
Hotel[6]	0	0	60,919	3,800
	Total	**102,541**		**181,096**

Notes:
1 Solid waste generation rates based on the *CEQR Technical Manual.*
2 Assumes 1.97 residents per DU for existing units (based on primary study area weighted average household size) and 17 lbs of solid waste per week per individual.
3 Assumes 3 employees per 1,000 sf of retail space and 79 lbs of solid waste per week per employee.
4 Assumes 1 employee per 250 sf for office space and 13 lbs of solid waste per week per employee.
5 Assumes 1 employee per 250 sf for office space, and 9 lbs of solid waste per week per employee.
6 Assumes 1 employee per three (3) 400-sf hotel rooms and 75 lbs of solid waste per week per employee.

As shown in Table 14-2, the same solid waste generation rate assumptions utilized for existing conditions were applied in calculating solid waste generation in the future without the proposed actions.

Based on the above assumptions, it is estimated that the projected development sites would generate approximately 181,096 pounds (or 91 tons) of solid waste per week, in the future without the proposed actions, of which 84,863 pounds (or 43 tons) would be collected by DSNY and the remaining 96,233 pounds (or 48 tons) would be collected by private carter. As shown in Table 14-2, uses on the projected development sites in the future without the proposed actions would generate approximately 77 percent more solid waste when compared to existing conditions.

In October 2004, DSNY issued a draft new SWMP that established the anticipated structure of New York City's solid waste management for the next 20 years, including a Long Term Export program. The City Council approved the plan in July 2006. The city's Long Term Export Program is anticipated to be implemented through: (1) the development of four converted marine transfer stations (MTS); (2) the award of up to five contracts with private transfer stations for barge or rail export of DSNY-managed waste for disposal; and (3) an intergovernmental agreement to dispose a portion of Manhattan's DSNY-managed waste at a Port Authority waste-to-energy facility in New Jersey. DSNY continues to collect residential and institutional solid waste and take it to transfer stations for out-of-city disposal until the long-term plan is fully implemented. Under the updated SWMP, the waste generated by the primary study area would

be transported to the Essex County Resource Recovery facility in Newark, New Jersey under an agreement with the Port Authority of New York and New Jersey.

E. PROBABLE IMPACTS OF THE PROPOSED ACTIONS

As discussed in Chapter 1, "Project Description," it is anticipated that new development occurring on the projected development sites would consist of 3,917 residential units, including 348 affordable units, and 376,489 square feet of commercial space. Compared to conditions in the future without the proposed actions, this represents a net increase of 1,383 residential units (including 348 affordable units) and a 74,439-square-foot reduction in the total amount of commercial space (13,520 square feet of retail space and 60,919 of hotel use).

The same assumptions for calculating solid waste generation were used for conditions in both the future without and with the proposed actions. Table 14-3 shows the cumulative solid waste expected by use in the future with the proposed actions. It is estimated that the projected development sites would generate 220,375 pounds (or 110 tons) of solid waste per week in the future with the proposed actions. As shown in Table 14-3, new development of on the projected sites in the future with the proposed actions would generate an additional 39,279 pounds (or 20 tons) of solid waste per week over the conditions in the future without the proposed actions.

Table 14-3
Future With the Proposed Actions:
Comparison of Solid Waste Generation on Projected Development Sites (Build)

Use	No Build		Build		Solid Waste Increment (lbs/wk)[1]
	Area (sf)	Solid Waste Generation (lbs/wk)[1]	Area (sf)	Solid Waste Generation (lbs/wk)[1]	
Residential[2]	2,468,210 (2,534 DUs)	84,863	3,839,737 (3,917 DUs)	131,147	46,284
Retail[3]	390,011	92,433	376,491	89,228	-3,205
Hotel[4]	60,919	3,800	0	0	-3,800
	Total	**181,096**		**220,375**	**39,279**

Notes:
1 Solid waste generation rates based on the *CEQR Technical Manual*.
2 Assumes 1.97 residents per DU for existing units (based on primary study area weighted average household size) and 17 lbs of solid waste per week per individual.
3 Assumes 3 employees per 1,000 sf of retail space and 79 lbs of solid waste per week per employee.
4 Assumes 1 employee per three (3) 400-sf hotel rooms and 75 lbs of solid waste per week per employee.

Whereas most of the solid waste generated on the projected development sites in the existing conditions and in the future without the proposed actions would be associated with non-residential uses, and hence collected by private carting companies, residential uses on these sites would generate an estimated 131,147 pounds (or 66 tons) of solid waste per week in the future with the proposed actions. Solid waste generated by new residential development would be collected by DSNY collection trucks and would be served by existing DSNY collection routes; as a practice, DSNY adjusts its operations to service the community. Residents would be required to participate in the city's ongoing recycling program for paper, metals, and certain types of plastics and glass.

The solid waste generated by residential uses in the future with the proposed actions would be equivalent to approximately 66 tons per week (or 9.4 tons per day), for a net increase of almost 23 tons per week (or about 3.3 tons per day) compared to conditions in the future without the proposed actions. According to the *CEQR Technical Manual*, the typical DSNY collection truck for residential refuse carries approximately 12.5 tons of waste material. Therefore, the new residential uses induced by the proposed actions on the projected development sites would be expected to generate solid waste equivalent to approximately less than one-half truck load per day. Given that the projected development sites are spread out over the 111-block primary study area and with currently available collection services in the area, this minimal increase is not expected to overburden the DSNY's solid waste handling services. Thus, the proposed actions would not have a significant adverse impact on the city's solid waste and sanitation services.

In addition, the net reduction in the commercial waste stream (approximately 3.5 tons per week) as a result of the proposed actions would not result in significant adverse impacts to the private solid waste management industry.

F. CONCLUSION

Development under the RWCDS would occur in an area that is currently served by DSNY residential trash and recycling pick-ups. The proposed actions would not adversely affect the delivery of these services, or place a significant burden on the city's solid waste management system. The net increase in solid waste to be collected by DSNY under the proposed actions is about 3.3 tons per day, which, when compared to the estimated 12,000 tons per day of residential and institutional refuse and recyclables collected by DSNY, is a minimal increase. Commercial waste would have a net decrease of about 3.5 tons per week.

In sum, given that there is an extensive system of solid waste collection and disposal services available to the study area for both residential solid waste services provided by DSNY and commercial/industrial collection provided by private carters, and that the net increments of solid waste under the proposed actions would be a minimal addition to the city's solid waste stream. It is therefore concluded that the proposed actions would not adversely impact solid waste and sanitation services and would not conflict with the city's SWMP. ✷