Chapter 12: Solid Waste and Sanitation Services

A. INTRODUCTION

According to the June 2012 *City Environmental Quality Review (CEQR) Technical Manual*, a solid waste and sanitation services assessment should be conducted if a project would generate solid waste or enacts regulatory changes affecting the management of the city's waste, or if the action involves the construction, operation, or closing of any type of solid waste management facility. The manual also states that projects with a generation rate of less than 100,000 pounds per week are not considered large and do not warrant detailed analysis.

To assess the potential impacts of the proposed project on solid waste and sanitation services, a quantitative assessment was conducted. This entailed the calculation of existing solid waste generation on the project site, as well as a comparison of projected calculations in the future without the proposed project (the No-Action condition) and the future with the proposed project (the With Action condition). This chapter also describes existing and future New York City solid waste disposal practices, and assesses the impacts of the proposed project's solid waste generation on the city's collection needs and disposal capacity. The proposed project's consistency with the city's Solid Waste Management Plan is also assessed.

As described in this chapter, the proposed project would not result in significant adverse impacts on solid waste and sanitation services in either the 2018 or 2038 analysis year. Overall, the proposed project would be consistent with the city's Solid Waste Management Plan.

B. METHODOLOGY

To assess the proposed project's potential impacts on solid waste and sanitation services, this chapter:

- Describes the existing solid waste management services on the project site and estimates solid waste generation under existing conditions and in the No-Action condition (for the 2018 and 2038 analysis years) using solid waste generation rates for typical land uses and activities provided in the *CEQR Technical Manual*;
- Forecasts solid waste generation by the proposed project based on CEQR guidelines; and
- Assesses the impacts of the proposed project's incremental solid waste generation on municipal and private sanitation services.

C. EXISTING CONDITIONS

DESCRIPTION OF CURRENT SANITATION SERVICES

In the City of New York, residential and institutional refuse is handled by the New York City Department of Sanitation (DSNY), while solid waste from commercial and manufacturing uses

is collected by private carters. DSNY collects approximately 15,000 tons per day of refuse and recyclables, of which approximately 4,000 tons are recycled.

Commercial carters pick up solid waste from businesses, manufacturers and offices and take the waste materials to transfer stations where the recyclable materials are separated from the solid waste. The solid waste is consolidated into larger trucks for transport and disposal in landfills outside of New York City. The recyclable materials are sold and transported to manufacturing facilities. Private carters handle about 14,830 tons per week of recyclables and solid waste. In addition, private carters handle about 19,070 tons per day of construction debris and excavated materials.[1]

The city's solid waste management services are undertaken in accordance with the existing Solid Waste Management Plan (SWMP), which is the responsibility of DSNY. The SWMP, which modified the city's previously approved 1992 plan, as amended in 1996 and 2000, was approved for submission to the New York State Department of Environmental Conservation (NYSDEC) by a resolution of the City Council on July 19, 2006. The city adopted the plan on July 27, 2006 and it was approved by NYSDEC in a letter received by DSNY on October 27, 2006. 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 provides for residential and institutional refuse to be brought to certain transfer stations located in each borough for transfer to rail or barge and export to out-of-town disposal facilities. The SWMP also provides for special (hazardous materials) waste collection sites, and composting facilities. New York City's Recycling Law, Local Law 19 of 1989, as amended, 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 Recycling Law also requires commercial establishments to recycle. 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 new SWMP's Long Term Export Program for residential waste is being implemented through: the development of four converted marine transfer stations and; the award of up to five contracts with private transfer stations for consolidation, containerization, and barge or rail export of DSNY-managed waste for disposal and an intergovernmental agreement to dispose of a portion of Manhattan's DSNY-managed waste at a Port Authority waste-to-energy facility in New Jersey. The barges formerly used at MTS facilities would carry new sealed containers or "intermodal containers" capable of being transported on barge or rail. The four MTS facilities would each process up to 4,290 tons per day and accommodate up to 30 collection vehicles at the peak hour, but daily amounts to be processed would be well below these maximums. In the Bronx, waste is currently exported via rail out of the city for disposal from a privately-owned transfer station. In Staten Island, waste is currently exported via rail out of the city for disposal from a city-owned transfer station. In Manhattan, a portion of the waste is disposed of at the Port Authority waste-to-energy plant in New Jersey. In Brooklyn, Queens, and the remainder of

[1] The DSNY SWMP anticipates and provides for a projected increase in solid waste generation citywide over the 20-year plan period as a result of population growth and non-specific development. By 2020, the SWMP anticipates a daily increase of 2,145 tons or 12.7 percent.

Manhattan nearly half of the city's residential/institutional refuse continues to be trucked out of the city.[2]

The new SWMP also proposes three broad categories of action to address traffic issues associated with commercial waste handling as follows: (1) improve conditions at and around transfer stations; (2) facilitate a transition from a network heavily reliant on trucks to one that relies primarily on barge and rail; and (3) redistribute private transfer capacity from a small number of communities that have the largest proportion of the system's impacts.

Solid waste on Roosevelt Island is collected by an automated vacuum assisted collection (AVAC) system, except for the Goldwater and Coler Hospitals, whose waste is handled by DSNY. Waste that is collected by AVAC is transported through pneumatic tubes to a central facility where it is compacted and then collected by DSNY trucks. The operation of the AVAC system is the responsibility of the Roosevelt Island Operating Corporation (RIOC). Cornell University does not intend to utilize or connect to the existing RIOC AVAC system.

QUANTITATIVE ANALYSIS OF SOLID WASTE GENERATION

The project site is currently occupied by the Goldwater Hospital facility, which contains up to approximately 991 beds. Utilizing the rates provided in Table 14-1 of the *CEQR Technical Manual*, the hospital currently generates approximately 50,541 pounds of solid waste per week. This waste is collected by DSNY.

D. FUTURE WITHOUT THE PROPOSED PROJECT

2018 ANALYSIS YEAR

In the absence of the proposed project, the project site will be vacant by 2018. As described in Chapter 1, "Project Description," independently of, and prior to, the proposed project, the New York City Health and Hospitals Corporation (NYCHHC) will vacate the Goldwater Hospital facility and relocate patients and services elsewhere. Therefore, the project site will not generate any solid waste by 2018 in the No-Action condition.

2038 ANALYSIS YEAR

As with the 2018 analysis year, the project site is expected to be vacant in the No-Action condition by 2038. By 2038, NYCHHC will have vacated the Goldwater Hospital, and therefore, the project site will not generate any solid waste.

E. PROBABLE IMPACTS OF THE PROPOSED PROJECT

2018 ANALYSIS YEAR (PHASE 1)

Under the With Action condition, Phase 1 of the proposed project would result in the development of approximately 200,000 gross square feet (gsf) of academic space, 104 residential units for Cornell leadership and faculty, 338 residential units for students, 100,000 gsf of corporate co-location space, 170,000 gsf for an Executive Education Center, and 10,000-

[2] DSNY, *Comprehensive Solid Waste Management Plan*, September 2006.

gsf of university-oriented retail uses.[3] Up to another 20,000 gsf would be developed as a central utility plant.

Using the rates provided in Table 14-1 of the *CEQR Technical Manual*, Phase 1 of the proposed project would generate approximately 38,451 pounds of solid waste per week by 2018, of which 23,606 pounds would be handled by DSNY and 14,845 pounds would be handled by commercial carters (see **Table 12-1**).

Table 12-1
Solid Waste Generation of Phase 1 of the Proposed Project

Use	Size (area or units)	Solid Waste Generation (lbs/week)[1]
DSNY Collection		
Academic	200,000 gsf	10,751[2]
Leadership and Faculty Housing	104 units	4,264[3]
Student Housing	463 students	7,871[4]
Utility Plant	20,000 gsf	720[5]
	DSNY Subtotal	*23,606*
Commercial Carter Collection		
Corporate Co-location	100,000 gsf	5,200[6]
Executive Education Center	170,000 gsf	7,275[7]
Retail Uses	10,000 gsf	2,370[8]
	Commercial Carter Subtotal	*14,845*
	Total	**38,451**

Notes: [1]Solid waste generation rates based on Table 14-1 of the *CEQR Technical Manual.*
[2]Assumes an academic population of 827 at a rate of 13 pounds per person.
[3]Assumes a rate of 41 pounds per household.
[4]Assumes a rate of 17 pounds per student.
[5]Assumes 3 workers at a rate of 240 pounds per person.
[6]Assumes 400 workers at a rate of 13 pounds per person.
[7]Assumes 97 workers at a rate of 75 pounds per person.
[8]Assumes 30 workers at a rate of 79 pounds per person.
Sources: Cornell University; *CEQR Technical Manual.*

Solid waste generated by the proposed project would be collected by DSNY collection trucks and private carters. The project site 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 the proposed project by 2018 in the With Action condition would constitute an incremental increase of approximately 19.2 tons per week (approximately 2.7 tons per day) as compared with the No-Action condition. Approximately 11.8 tons of this waste would be handled by DSNY and approximately 7.4 tons of this waste would be handled by commercial carters.

[3] Under the RWCDS described in Chapter 1, "Project Description," retail uses would be included in the overall Phase 1 program and would not result in an additional 10,000 gsf of floor area. However, for the purposes of conservative analysis, retail uses are treated as additional floor area in this chapter.

According to the *CEQR Technical Manual*, the typical DSNY collection truck carries approximately 12.5 tons of waste material, and commercial carters typically carry between 12 and 15 tons of waste material per truck. Therefore, the new uses introduced by Phase 1 of the proposed project would be expected to generate solid waste equivalent to approximately one DSNY truck load per week and less than one commercial carter truck load per week. This minimal increase would not overburden existing DSNY or commercial solid waste handling services. In addition, the proposed project would include waste reduction measures that would decrease the incremental demand on DSNY services. As discussed in Chapter 1, "Project Description," sustainability principles would influence the design of the proposed project by focusing on recycling, minimizing waste, and sustainability strategies for the specification, construction, operations, and maintenance of the proposed buildings and public open spaces. The proposed project would be built to LEED Silver certification specifications, which contain provisions regarding recyclables and construction waste management. Thus, Phase 1 of the proposed project would not have a significant adverse impact on the city's solid waste and sanitation services.

2038 ANALYSIS YEAR (FULL BUILD)

By 2038, the full build out of the proposed project would add additional buildings to the campus. The full build out of the proposed project would result in the development of approximately 620,000 gsf of academic space, 246 residential units for Cornell leadership and faculty, 848 residential units for students, 500,000 gsf of corporate co-location space, 170,000 gsf of an Executive Education Center, 40,000 gsf for the central utility plants, and 25,000 gsf of retail uses.

Using the rates provided in Table 14-1 of the *CEQR Technical Manual*, the proposed project would generate approximately 116,029 pounds of solid waste per week by 2038, of which 76,829 pounds would be handled by DSNY and 39,200 pounds would be handled by commercial carters (see **Table 12-2**).

As with Phase 1, solid waste generated by the full build out of the proposed project would be collected by DSNY collection trucks and commercial carters. 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 the proposed project by 2038 in the With Action condition would constitute an incremental increase of approximately 58 tons per week (approximately 8.3 tons per day) as compared with the No-Action condition. Approximately 38.4 tons of this waste would be handled by DSNY and approximately 19.6 tons of this waste would be handled by commercial carters.

Table 12-2
Solid Waste Generation of the Full Build Out of the Proposed Project

Use	Size (area or units)	Solid Waste Generation (lbs/week)[1]
DSNY Collection		
Academic	620,000 gsf	41,639[2]
Leadership and Faculty Housing	246 units	10,086[3]
Student Housing	1,392 students	23,664[4]
Utility Plant	40,000 gsf	1,440[5]
	DSNY Subtotal	*76,829*
Commercial Carter Collection		
Corporate Co-location	500,000 gsf	26,000[6]
Executive Education Center	170,000 gsf	7,275[7]
Retail Uses	25,000 gsf	5,925[8]
	Commercial Carter Subtotal	*39,200*
	TOTAL:	**116,029**

Notes: [1]Solid waste generation rates based on Table 14-1 of the *CEQR Technical Manual.*
[2]Assumes an academic population of 3,203 at a rate of 13 pounds per person.
[3]Assumes a rate of 41 pounds per household.
[4]Assumes a rate of 17 pounds per student.
[5]Assumes 6 workers at a rate of 240 pounds per person.
[6]Assumes 2,000 workers at a rate of 13 pounds per person.
[7]Assumes 97 workers at a rate of 75 pounds per person.
[8]Assumes 75 workers at a rate of 79 pounds per person.
Sources: Cornell University; *CEQR Technical Manual.*

The new uses introduced by the full build out of the proposed project would be expected to generate solid waste equivalent to approximately three DSNY truck loads per week and less than two commercial carter truck loads per week. This minimal increase would not overburden existing DSNY or commercial solid waste handling services. In addition, the proposed project would include waste reduction measures that would decrease the incremental demand on DSNY services. As discussed in Chapter 1, "Project Description," sustainability principles would influence the design of the proposed project by focusing on recycling, minimizing waste, and sustainability strategies for the specification, construction, operations, and maintenance of the proposed buildings and public open spaces. The proposed project would be built to LEED Silver certification specifications, which contain provisions regarding recyclables and construction waste management. Thus, the full build out of the proposed project would not have a significant adverse impact on the city's solid waste and sanitation services.

F. CONCLUSIONS

No significant adverse impacts on solid waste and sanitation services are anticipated as a result of the proposed project. The project site is served by an existing system of solid waste collection and disposal services provided by DSNY and by commercial carters. The net increment of solid waste under the proposed project would be a minimal addition to the city's solid waste stream, and the proposed project would include sustainability measures that would reduce waste generation. Therefore, the proposed project would not result in a significant adverse impact on solid waste and sanitation services and would be consistent with the city's SWMP. ✷