

A. INTRODUCTION

This chapter outlines the various infrastructure and utility systems and their capacities that would be required to serve the proposed school campus. The relevant topics include water supply, stormwater removal, and sanitary sewage and solid waste disposal. Generation rates used to estimate the demand generated by the Mott Haven School Facility for these resources are the accepted rates contained in the *City Environmental Quality Review (CEQR) Technical Manual*.

B. EXISTING CONDITIONS**WATER SUPPLY**

The New York City water supply system comprises three watersheds north and northwest of the city: the Delaware, Catskill, and Croton. From these watersheds, water is conveyed as far as 125 miles to the City via a system of reservoirs, aqueducts, and tunnels. Within the City, a grid of pipes distributes water to consumers. The average daily consumption in 2003 was 1.094 billion gallons per day according to New York City Department of Environmental Protection (NYCDEP), the municipal agency that operates the system.

The Bronx's water supply comes primarily from the Croton system. Watersheds within the Croton system collect runoff from areas in Westchester, Dutchess and Putnam Counties and deliver it via open channel streams and rivers to the New Croton Reservoir in Westchester County. From there, water flows to the Jerome Park Reservoir through the Croton Aqueduct, then to the low lying areas of the Bronx and Manhattan. However, water can also come from the Catskill/Delaware system, which originates in the Catskills. Water from this system is brought via aqueducts to the Kensico Reservoir in Westchester County. From the Kensico Reservoir, the water is conveyed to the Hillview Reservoir in the City of Yonkers. Hillview Reservoir serves to balance the fluctuating daily water demand and connects into the system of water pipes that deliver the water in New York City.

Average daily water consumption in the Bronx is estimated at about 187 million gallons per day (mgd). Because of the size of the water supply system, little variation in water pressure occurs from hour to hour, except within the local distribution network. The average water pressure in the Bronx is 38 pounds per square inch (psi). A pressure of 20 psi is considered the minimum acceptable level for uninterrupted service. Because the site is undeveloped and vegetated, it has no water demands.

SANITARY SEWAGE AND STORMWATER

The project site is located in the service area of the Wards Island Water Pollution Control Plant (WPCP). This plant provides full secondary physical and biological treatment of sanitary sewage so that it can be discharged into the City's waterways without adversely affecting water quality.

Mott Haven School Facility

Secondary treatment requires the removal of at least 85 percent of the total dissolved solids and biochemical oxygen demand in the influent. In addition, the effluent is treated with chlorine to kill pathogens. Effluent from the Wards Island WPCP is discharged into the East River. Discharges from the WPCP are regulated by a State Pollutant Discharge Elimination System (SPDES) permit issued by the New York State Department of Environmental Conservation (NYSDEC).

For the Wards Island WPCP, the SPDES permit allows an inflow of 275 mgd. During the past 12 months for which there is data available the Wards Island WPCP had an average flow of 212 mgd, which is below the SPDES permit allowable limit.

For the conveyance of sanitary sewage, the project site is currently served by combined sewers. Combined sewers carry only sanitary sewage during dry weather and convey all sewage to the WPCP. During rain storms and other precipitation events, the combined sewer carries both sanitary sewage and stormwater runoff. The volume of water during a storm is too great for the WPCP to handle. Therefore, the maximum amount of water that the WPCP can handle is sent to the plant, and the excess mixture of sanitary sewage and runoff is discharged into a receiving water body.

Combined sewers are located under Concourse Village West, East 156th Street, and along the eastern portion of the project block. Because the site is undeveloped and vegetated, it does not generate sanitary sewage.

ENERGY

Consolidated Edison (Con Edison) provides energy to the area. Because the site is undeveloped and vegetated, it has no energy demands. However, utility lines are available near the site.

SOLID WASTE

In New York City, solid waste from commercial and manufacturing uses is collected by private carters, while residential and institutional refuse is collected by the New York City Department of Sanitation (NYCDOS). Commercial solid waste is typically hauled to out-of-city landfills. Residential waste was formerly disposed of at Fresh Kills Landfill, which stopped receiving solid waste as of March 22, 2001. NYCDOS now collects solid waste, delivers it to transfer stations, and from there private carters take it to facilities generally located in Virginia, Ohio, and Pennsylvania. The municipal waste system handles approximately 13,000 tons per day, and the private carters handle approximately 13,000 per day. Currently, there is no solid waste generated at the project site.

C. THE FUTURE WITHOUT THE PROPOSED PROJECT

WATER SUPPLY

Water demand in the area would be expected to increase as a result of incidental growth; however, this increase is not anticipated to adversely affect the water supply system. The effects of water conservation measures, such as low-flow fixtures and metering, are expected to keep any growth in water demand to a minimum. No major changes to the water distribution system are planned by the City in the project area.

SANITARY SEWAGE

New York City regulations require all new construction and substantial renovation projects to incorporate low-flow fixtures for water conservation purposes. In addition, the City has an active program to install water meters in all buildings. Based on 1998 projections, NYCDEP estimates that the flows to the Wards Island WPCP would increase between 6 and 18 percent, to a range of 206 to 230 mgd by the year 2015. Trends since 1998 have shown that sewage generation has been very close to the low end of the range. This estimated future flow is well below the SPDES permit level of 275 mgd.

STORM WATER

Without the Proposed Project, current runoff patterns at the project site are not expected to change.

SOLID WASTE

The amount of solid waste generated in the area around the project site is generally expected to increase as the residential and institutional populations increase in the future. It is assumed that NYCDOS will continue to collect solid waste, deliver it to transfer stations, and from there private carters would take it to facilities outside of New York City. The City's recycling program will continue in the future.

ENERGY

In the future without the project, there will be no development on the site and therefore, no new demand for energy.

D. PROBABLE IMPACTS OF THE PROPOSED PROJECT

WATER SUPPLY

Water would be attained from a 6" pipe connecting to a street main on Concourse Village West. Using the estimated rates of use provided in the *CEQR Technical Manual*, the proposed school campus would use an average of 73,800 gallons per day (gpd) based on 30 gpd per seat, and another 27,500 gpd for air conditioning during warm weather. The school's water usage would not be expected to noticeably reduce water pressure in the surrounding area. The morning peak hour usage in a school occurs later than the peak hour usage in the surrounding residences.

SANITARY SEWAGE

The proposed facility would connect to existing city sewers adjacent to the site on Concourse Village West. The proposed Mott Haven school campus' sewage generation, conservatively assumed to equal the consumptive water use, would average 73,800 gpd. The sanitary flow from the site would be conveyed to the combined sewer system on nearby streets. Since the lowest floors of the proposed buildings would be below street level ejector and sump pumps would be required. The sanitary sewage would be transported to the Wards Island WPCP. The sewage flow would represent a minimal percent of the WPCP's capacity of 230 million gallons per day. The Wards Island plant has sufficient excess capacity to handle this additional flow.

STORM WATER

Flat roof areas would be utilized for storm water retention prior to discharge into the sewer on Concourse Village West. Stormwater from the paved, landscaped, and recreational areas would drain into the combined sewer on the eastern portion of the project site, with some runoff being detained in an underground storage tank and/or pipe system built beneath the play areas.

SOLID WASTE

Using a solid waste generation rate of 3 pounds per week per student, the proposed schools would be expected to generate fewer than 7,380 pounds of solid waste per week during the school year. To comply with the city's recycling plan, the proposed school would be required to accommodate the source separation of recyclable materials. The Mott Haven school facility disposable wastes and recyclable materials would be collected by NYCDOS. The campus generated waste would be negligible compared with the 13,000 tons per day handled by NYCDOS. Representing less 1 percent of the total volume of solid waste that is currently handled by NYCDOS, the schools would not have a significant effect on New York City's solid waste disposal system nor would it affect its Solid Waste Management Plan.

ENERGY

Using the energy generation rate in the *CEQR Technical Manual*, it is estimated that added electrical demand would be minimal and would require no special appurtenances. Con Edison would be able to meet this demand. *