A. INTRODUCTION

The residents, students and employees introduced to the project area as a result of the proposed and future actions would place increased demands on New York City's water supply and sewage treatment/disposal systems. The evaluation of these new demands is based on the proposed residential, community facilities and retail space, which comprise:

- 1,770 new residential units;
- 99,900 square feet of neighborhood retail space;
- 120,000 square feet of space for Boricua College; and
- 20,000 square feet of community facility space.

The analysis in this Environmental Impact Statement concludes that the proposed and future projects would not result in any significant adverse impacts to the existing water supply, sewage treatment, and stormwater discharge systems.

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 the New York City Department of Environmental Protection (DEP), 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.

The project site is serviced by a network of water pipes forming an interconnected looped service. The majority of these interconnected water lines are 8 and 12 inches in diameter, which are standard pipe sizes for local water distribution in New York City. A 48-inch diameter water main lies under 156th Street, and a 20-inch water main is under 161st Street. These two larger water mains supply the smaller water lines that are connected to the individual buildings. The larger water mains also ensure adequate water pressure in the area for household use and fire fighting.

Minimal water is consumed by the uses on the project site. One household and six businesses with about 43 workers are found on the sites to be occupied by the proposed and future projects. These uses consume an estimated 1,500 gallons per day (gpd) of domestic water.

SANITARY SEWAGE

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. 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. As shown on Table 11-1, during the past 12 months the Wards Island WPCP had an average flow of 212 mgd, which is below the SPDES permit allowable limit. In addition, all other permit conditions were met.

Table 11-1
Actual Average Monthly Flows at Wards Island WPCP

Month	Actual Flow (mgd)
February 2005	203
March	204
April	217
May	184
June	213
July	215
August	208
September	193
October	254
November	208
December	215
January 2006	229
12-Month Average	212

Note: Permit Limit: 275 mgd.
Source: New York City Department of Environmental Protection.

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. In the case of the project site, the excess is discharged into the Harlem River.

The sewer lines serving the project area are mostly 12-inches in diameter, the common size for collector sewers in New York City. These collector sewer lines discharge to an 8-foot and 8-foot 10-inch combined sewer line under Brook Avenue. This larger sewer line increases in size to 12 feet by 9 feet as it reaches Regulator 53. During dry weather, the sanitary sewage is conveyed to Wards Island WPCP through a grit chamber at St Ann's Avenue. During wet weather, the excess mixture of sanitary sewage and runoff is discharged in the Bronx Kill by Randalls Island.

The existing uses at the project site currently generate about 1,500 gpd of sanitary sewage.

STORMWATER RUNOFF

The project site is fully developed and primarily consists of impervious surfaces (roof, pavement, roadway, sidewalk) with minimal landscaped or other pervious surfaces. The majority of the stormwater runoff volume discharges directly into the Bronx Kills via an existing outfall.

C. THE FUTURE WITHOUT THE PROPOSED AND FUTURE ACTIONS

In the future without the proposed and future projects, water consumption, sewage generation and stormwater runoff in the Melrose Commons Urban Renewal Area (URA) are expected to increase. By 2009, independently of the proposed and future actions, about 1,331 residential units and about 81,420 square feet of retail space are expected to be built and occupied.

WATER SUPPLY

Water demand in the area would be expected to increase as a result of this growth. The increase in water demand due to planned projects in the Melrose Commons URA is expected to be about 480,000 gpd, and other planned developments outside the URA would also increase demand. These small increases are not anticipated to have an adverse effect on 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. In 1998 projections, DEP estimated that the flows to the Wards Island WPCP would increase to a range of 237 to 262 mgd by 2005. However, the existing flows at the end of 2005 were 212 mgd, well below the low end of this range. This estimated future flow is well below the SPDES permit level of 275 mgd.

STORMWATER RUNOFF

Without the proposed and future actions, current runoff patterns at the project site are not expected to change.

D. THE FUTURE WITH THE PROPOSED AND FUTURE ACTIONS

WATER SUPPLY

The expected water demand from the new development that would result from the proposed and future actions is shown in Table 11-2.

Table 11-2
Projected Water Consumption

Use	Size	Rate	Consumption (gallons per day)
Residential			
Domestic	1,770 units	112 gallons/resident/day	541,625
Air Conditioning	1,732,847 sq. ft.	0.17 gpd/sq. ft.	173,285
Retail Uses			
Domestic	99,900 sq. ft.	0.17 gpd/sq. ft.	17,000
Air conditioning	99,900 sq. ft.	0.17 gpd/sq. ft.	17,000
College			
Domestic	120,000 sq. ft.	0.17 gpd/sq. ft.	20,400
Air conditioning	120,000 sq. ft.	0.17 gpd/sq. ft.	20,400
Community Facility			
Domestic	20,000 sq. ft.	0.17 gpd/sq. ft.	3,400
Air conditioning	20,000 sq. ft.	0.17 gpd/sq. ft.	3,400
TOTAL	**NA**	**NA**	**796,510**

Source: Rates from 2001 *City Environmental Quality Review Technical Manual*.
Residential uses based on 2.9 residents per unit and 94 percent occupancy rate.

The additional demand of about 800,000 gpd is not expected to adversely affect the City's water supply or local water pressure. Pursuant to public law, all plumbing fixtures would be of low-flow design. Compared to the average daily water demand in New York City of about 1.1 billion gpd, the proposed usage represents 0.07 percent of the City's total consumption, which is an insignificant increase. The water supply system has adequate capacity and would not experience a significant adverse impact.

SANITARY SEWAGE

The estimated sanitary sewage generation would be the same as the estimated domestic water demand. The water used for air conditioning evaporates and does not enter the sewer system. The projected sanitary sewage flow from the proposed and future projects would be approximately 581,725 gpd. This generation rate represents approximately 0.21 percent of the SPDES permitted flow of 275 mgd to the Wards Island WPCP and is considered to be insignificant. The proposed and future projects would not have a significant adverse impact on the Wards Island WPCP's ability to properly treat and discharge sanitary sewage.

STORMWATER RUNOFF

Most of the area that would be occupied by the proposed and future projects is currently impermeable and in most areas it would remain impermeable in the future with the proposed and future actions. Therefore, the rate and quantity of runoff that is discharged into the Bronx Kill would not change, and no significant adverse impacts to the stormwater system are expected.

E. CONCLUSION

The proposed and future projects would not result in significant adverse impacts on existing infrastructure systems. The existing city infrastructure has sufficient capacity to accommodate the proposed and future projects without having a significant adverse impact on other users. ✷