

A. INTRODUCTION

This chapter analyzes the potential impacts of the proposed actions on the City's infrastructure systems. As defined by the City's *City Environmental Quality Review (CEQR) Technical Manual*, the City's "infrastructure" comprises the physical systems supporting its population, including water supply, wastewater treatment, and stormwater management. Other infrastructure components, such as solid waste management, energy and transportation, are addressed separately under CEQR and are assessed in separate chapters of this EIS. This chapter has been updated since the Draft Environmental Impact Statement to reflect changes to the Reasonable Worst-Case Development Scenario as described in Chapter 1, "Project Description." In addition, since the publication of the DEIS in February 2007, DCP has been working with the New York City Department of Buildings (DOB) and the New York City Department of Environmental Protection (DEP), to ensure that future development pursuant to the proposed actions would be coordinated with related infrastructure improvements.

With respect to water supply, according to the *CEQR Technical Manual*, actions that could affect water pressure and would therefore need detailed assessment include actions that would have exceptionally large demand for water (power plants, large cooling systems, etc.); large developments (e.g., those that use more than one million gallons per day); or actions taking place in locations that have weaknesses in the local water supply distribution systems (e.g., creating a large draw of water at locations at the end of the water system where water pressure is low or locations near pressure boundaries). The proposed actions are expected to generate a net incremental increase of 2.8 mgd; thus, an analysis of potential impacts on the water supply is appropriate.

With respect to wastewater treatment, the *CEQR Technical Manual* states that a detailed analysis of wastewater treatment is needed for those proposed actions that have the potential to generate large increases in sewage flows that have the potential for significant adverse impacts on sewage treatment. The proposed actions are expected to generate a net incremental flow in sanitary waste water of 1.6 mgd. Given this sizable projection of added flows, this chapter analyzes the proposed actions with respect to the volumes of wastewater in relation to the State Pollutant Discharge Elimination System (SPDES) permitted capacity of the Jamaica Bay Water Pollution Control Plant (WPCP), which serves the area of the proposed actions.

The *CEQR Technical Manual* also states that a detailed analysis of stormwater management is warranted if a proposed action involves certain types of industrial activities (e.g., manufacturing, processing, or raw materials storage), or actions that would greatly increase the amount of paved area, or areas that would be served by a separate storm system and that would involve construction activities, or construction of a new stormwater outfall system. The proposed actions would affect 186 projected development sites that total about 80 acres. Thus, an analysis of potential impacts on stormwater runoff is appropriate for the proposed actions.

The following assessment discloses that, although the projected developments that would likely result from the proposed action would create new demand for water and treatment of sewage, this analysis concludes that the existing municipal services could handle these increases in demand and no significant adverse infrastructure impacts are expected to result from the proposed actions.

B. EXISTING CONDITIONS

WATER SUPPLY

NEW YORK CITY

New York City's water supply system consists of an extensive network of reservoirs and aqueducts beginning as far north as the Catskill region, with a grid of distribution pipes within New York City that delivers water to points of use. The New York City Department of Environmental Protection (NYCDEP) is the City agency responsible for delivery of this water. NYCDEP provides water to approximately 9 million customers and consumption averages approximately 1.35 billion gallons of water per day.

Most of New York City obtains water from three surface water supply systems—Delaware, Catskill, and Croton. These systems are a network of reservoirs, aqueducts, and tunnels that begin as far as 125 miles north of the City. The system has 18 collecting reservoirs, 2 balancing reservoirs, several dams, 3 major aqueducts, 2 large conveyance tunnels (with a third major tunnel under construction and partially in use) and a system of water mains and ancillary facilities. The three City watersheds cover almost 2,000 square miles, with a storage capacity of 550 billion gallons. Potable water flows to the City through aqueducts, reaching most consumers by gravity flow, although some four percent of the City's water must be pumped to its final destination. Less than 0.1 percent of the City's water consumption comes from groundwater (the Brooklyn/Queens aquifer in the area of the former Jamaica Water Supply Company; see the discussion below).

One of the three surface water systems, the Croton system, collects water from watershed areas in Westchester and Putnam Counties and delivers it to the Jerome Park Reservoir in the Bronx. From there, it is distributed to the Bronx and Manhattan through the New Croton Aqueduct via City Tunnel No.1. The remaining two surface water systems, the Delaware and Catskill systems, collect water from watershed areas in the Catskill Mountains and deliver it to the Hillview Reservoir in Yonkers. From there, it is distributed to the City through two tunnels: City Tunnel No. 2, which goes through the Bronx, Queens, and Brooklyn (and from there through the Richmond Tunnel to Staten Island) and City Tunnel No. 3, which currently serves the Bronx, upper Manhattan, and Roosevelt Island. The construction of City Tunnel No. 3 is scheduled for completion in 2020. The addition of City Tunnel No. 3 is intended to improve the City's water supply while allowing for the inspection and repair of Tunnels 1 and 2. City Tunnel No. 3, which will serve Midtown Manhattan, Lower Manhattan, Brooklyn, and Queens, is anticipated to be a supplemental water source to the Jamaica area.

Within the City, a grid of distribution mains measuring some 6,500 miles distributes water to consumers. Large mains—up to 96 inches in diameter—feed smaller 8-, 12- and 20-inch mains that provide water to individual locations and the fire hydrants along many of the City's streets. Water pressure throughout the City's water supply system is generally controlled by pressure regulators, although some areas are pumped.

PROPOSED REDEVELOPMENT AREA

Until 1996, all of the study area was supplied water by the Jamaica Water Supply Company (JWSC). This water system was groundwater-based; water was provided by local wells and purchased from New York City through interconnections via meter pits. In 1996, NYCDEP purchased this company and had to close most of these wells. Today, there are only a few operating wells that continue to supply water. However, the JWSC pipe network is still mostly utilized for water supply distribution to local customers. Although some customers are still served by groundwater wells, the majority of the water for the area now comes from City Tunnel No. 2. Reservoir water is conveyed through Queens from west to east using large diameter (trunk main) pipes that convey potable water to the local distribution grid through pressure regulator valves. NYCDEP has limited trunk mains throughout this area because JWSC historically supplied water to the area. Nevertheless, there is a north/south, 48-inch trunk main along the western perimeter of the area and another 48-inch trunk main tying into the first main from the west, just south of Liberty Avenue. The only other active water source is roughly 1 mgd of well water from a NYCDEP groundwater facility east of the proposed redevelopment area.

NYCDEP is improving the water supply trunk main network to the area. One such project, QED960, is presently under construction by the New York City Department of Design and Construction. This \$59 million project calls for the installation of a new 48-inch trunk main across the southern perimeter of the area of the proposed action, up to Francis Lewis Boulevard. Additional trunk main work has also been proposed to extend the system further east to Douglaston and south through Queens Village, St. Albans, Cambria Heights, and Laurelton. There is a conceptual 10-year plan to run another trunk main through the Jamaica area from the north to tie into the newly constructed 48-inch main from QED960. In sum, there are a number of proposed NYCDEP projects that are directed at improving the supply of water to the former JWSC service area, with a priority to eliminate smaller sized and older mains.

Table 13-1, below, presents the estimated water consumption and sewage generation at the projected development sites under existing conditions based on rates by land use, provided in the *CEQR Technical Manual* and *NYCDEP's Draft Rules and Regulations Governing the Construction of Private Sewers & Drains* for uses that are not identified in the manual. These data are presented for rates based on gallons per day (gpd). As discussed in Chapter 1, "Project Description," the area of the proposed action area is currently occupied by residential, commercial, community facility and industrial/manufacturing uses, as well as vacant land and vacant buildings. The projected development sites currently contain the following uses: 420,728 square feet of industrial/manufacturing space, 241 dwelling units, 70,000 square feet of community facility use and 1,113,645 square feet of commercial use. For the purposes of this assessment, water consumption and generation rates for residential and commercial use were taken from the *CEQR Technical Manual*. All commercial use was conservatively assumed to be retail, as retail uses demonstrate higher water usage and sewage generation rates. Usage and generation rates for industrial/manufacturing uses were adopted from a DEP publication, *DRAFT Rules and Regulations Governing the Construction of Private Sewers & Drains*.

Table 13-1
Existing Water Usage/Sewage Generation of Projected Development Sites

Use	Rate	Area (sf)	Water Consumption and Sewage Generation (gpd)	Air Conditioning (gpd) ¹
Commercial ^{1,3}	domestic: 0.17 gpd/sf air conditioning: 0.17 gpd/sf	1,113,645	189,320	189,320
Industrial/Manufacturing ²	domestic: 10,000 gpd/acre air conditioning: 0.17 gpd/sf	420,728	96,586	71,524
Community Facilities ¹	domestic: 0.17 gpd/sf air conditioning: 0.17 gpd/sf	70,000	11,900	11,900
Residential ¹	domestic: 112 gpd/person ⁴ air conditioning: 0.17 gpd/sf	197,773 (241 DU)	84,485	33,621
Subtotals¹			382,291	306,365
Total All Water Consumption¹			688,656	
Notes:				
¹ Usage and generation rates from the <i>CEQR Technical Manual</i> .				
² Usage and generation rates for industrial/manufacturing uses from DEP's <i>Draft Rules and Regulations Governing the Construction of Private Sewers and Drains</i> .				
³ Commercial Use: all assumed as retail.				
⁴ Assumes 3.13 persons per dwelling unit.				

As shown in Table 13-1, the existing uses on the projected development sites in the proposed action area are estimated to currently consume approximately 382,291 gpd for water consumption (sinks and toilets) and an additional 306,365 gpd for air conditioning use each day. Together, the estimated total water usage for the projected development sites is approximately 688,656 gpd.

WATER CONSERVATION

During the 1990s, the City’s various water pollution control plants came under increased scrutiny from federal and state agencies, primarily because the plants exceeded the dry weather flow allowed in their respective SPDES permits. As a result, the City instituted a variety of water conservation measures intended to reduce dry weather flow to these facilities. For example, fire hydrants were equipped with locks to prevent illegal use. In addition, all new plumbing fixtures in the City, including replacements in existing structures and new fixtures in new structures, are required to be of a low-flow design (Local Law No. 29, 1989). The City also implemented a metering program, installing water meters at thousands of properties where water fees had previously been based on property frontage rather than usage. This metering provided a new financial incentive for consumers to conserve. The City also implemented leak detection programs to identify and repair leaks in the water distribution system.

The programs above have, on the whole, been successful, in that they have reduced water demand and the load on the City’s WPCPs. At many water pollution control plants, this reduction has been on the order of several million gallons per day. NYCDEP projects, over the next decade, that savings from the continued implementation of these conservation measures would exceed any increase in water demand from consumers.

SANITARY TREATMENT AND STORMWATER RUNOFF

According to the *CEQR Technical Manual*, for impact assessment purposes, daily sanitary sewage generation is equivalent to the domestic water consumption rates, with the exception of wastewater from air conditioning systems. As noted above in Table 13-1, based on current

domestic wastewater flows, the existing uses on the projected development sites currently generate approximately 382,000 gallons of sanitary sewage per day (0.38 mgd).

New York City’s sewer system consists of a grid of collection sewers beneath the streets that convey wastewater flows to 14 different water pollution control plants (WPCP) that have a combined capacity to treat a total of approximately 1.8 billion gallons of sewage per day. The areas served by each of these plants are called “tributary areas.” Most of the City’s sewer collection system is a “combined” sewer system, i.e., it carries both sanitary sewage from buildings and street stormwater runoff collected in catch basins and storm drains. However, some areas of the City, primarily in southeast Queens (including portions of the project area) and southwest Staten Island, have separate collection lines for sanitary sewage and stormwater.

Collection sewers are generally one to two feet in diameter on side streets, and three or four feet in diameter under larger roadways. They connect to trunk sewers, generally five to seven feet in diameter, which in turn convey the sewage to intercepting sewers. These large intercepting sewers (often up to 10 or 12 feet in diameter) convey the wastewater to the WPCPs for treatment.

The area of the proposed action is located within the tributary area for the Jamaica WPCP, which is located at 150-20 134th Street Jamaica, Queens. The Jamaica Bay WPCP has a design treatment capacity of 100 mpd. All WPCPs in the City are issued operating permits by the New York State Department of Environmental Conservation (NYSDEC) that regulate the flows and pollutant loads for the plant. Permitted flow reflects the design capacity of the plant and is calculated based on a monthly average dry weather flow, as recorded at the WPCP. The most recently recorded average monthly flow rates to Jamaica for the latest 12 months of recorded available data (through December 2005) are shown in Table 13-2. As shown in the table, the average monthly flow rate for the last 12-months is 83 mgd. This flow represents approximately 83 percent of the total SPDES permitted capacity at the WPCP.

**Table 13-2
2004-2005 Average
Monthly Dry Weather Flows
at the Jamaica WPCP**

Month	Average Monthly Flow (mgd)
January, 2005	83
February, 2005	82
March, 2005	83
April, 2005	90
May, 2005	84
June, 2005	85
July, 2005	86
August, 2005	83
September, 2005	80
October, 2005	75
November, 2005	82
December, 2005	85
Total 12-month average	83
Jamaica WPCP SPDES permit limit	100
Sources: New York City Department of Environmental Protection (NYCDEP), December 2005.	

The Jamaica Bay WPCP is designed for a secondary level of treatment (i.e., 85 percent removal of biological oxygen demand and suspended solids). The discharge for the plant is to Jamaica Bay.

SANITARY WASTEWATER AND STORMWATER MANAGEMENT

The majority of New York City (70 percent) is served by a combined sewer collection system; i.e., the sewer pipes carry sanitary wastewater, but also storm water runoff during wet weather events. However, there are several areas of the City where separate sanitary and storm sewers have been installed. As stated above, one such location is the area of the proposed action, which has a combination of both a combined system and separate systems. Within the project area, most of the runoff is handled by on-site dry wells and street seepage basins that discharge the collected stormwater to the ground. Some stormwater is also collected by storm sewers and conveyed to Thurston Basin, which is a tributary to Jamaica Bay.

To reduce stormwater flooding and improve drainage in this area, a new drainage plan—which would include a separate stormwater collection system—is being designed for the area by NYCDEP. With growth and development in this area, the stormwater collection system has been less capable of handling runoff in this area, which has resulted in chronic street flooding and sewer backups due to a lack of adequate storm sewers. With the lack of adequate storm sewers, some catch basins are illegally connected to sanitary sewers, which causes the sanitary sewers to surcharge and back up during rainfall events. To address these drainage problems in the area, NYCDEP is developing a comprehensive separate storm and sanitary sewer drainage plan for the area in order to provide properly sized storm and sanitary sewers.

It is the intention of the proposed drainage plan to install a stormwater collection system that would connect with the existing West Branch trunk sewer and to convey the runoff to Jamaica Bay. It is also recognized that an East Branch trunk stormwater sewer is necessary in order to convey the runoff from the entire 7,000-acre drainage basin. This proposed drainage plan would also include high level storm sewers that would reduce combined flows during wet weather periods in areas that are served by combined sewers and would thus reduce combined sewer overflow (CSO) events. The outlets for the stormwater runoff from the area would be outfalls to Jamaica Bay that are located at Thurston Basin and Bergen Basin.

Individual development projects must also meet requirements for on-site stormwater runoff management, as per NYCDEP requirements. This is intended to ensure that a development properly regulates its stormwater runoff corresponding to the City's 5-year storm. To be issued a permit to connect to a City sewer (for all boroughs except Manhattan), NYCDEP requires that storm runoff from new developments in excess of the amount allowed under the approved drainage plan be detained on-site. The method to be used to calculate this amount is described in the NYCDEP document "Criteria for Determination of Detention Facility Volume" (June 2002).

Currently, as stated above, the vast majority of the sites in the area of the proposed action are developed in some way with residential, commercial, or industrial uses. Over the approximately 80 acres of projected development sites, these uses include manufacturing and commercial uses that cover approximately 50 acres. The balance are low-density residential uses with some parking and vacant (underutilized) sites. As a result, the majority of these sites are covered by impervious surfaces, such as buildings and paved parking that would have high runoff coefficients. It is assumed that most of the buildings in the area pre-date the local law cited above and therefore do not provide any on-site detention.

Additionally, stormwater and wastewater could also be reduced by implementing various “green building” practices, Best Management Practices, and Low Impact Development practices.

C. THE FUTURE WITHOUT THE PROPOSED ACTIONS (NO BUILD)

INTRODUCTION

In the future without the proposed actions, the identified projected development sites are assumed to remain unchanged from existing conditions or become developed by uses that are as-of-right under the existing zoning.

As discussed in Chapter 1, “Project Description,” DCP has identified a No Build scenario for the projected development sites in the Reasonable Worst Case Development Scenario (RWCDs). These No Action developments would result in additional residential, commercial office and retail, community facility, and industrial space. As a result of this No Build development, the future without the proposed action is expected to include 500,646 square feet of industrial/manufacturing space, 1,815 dwelling units, 1,663,485 square feet of commercial use, and 214,344 square feet of community facility space. As shown in Table 13-3, the projected development sites in the future without the proposed action, would consume an estimated 1,104,460 gpd for domestic water use and 734,081 gpd for air conditioning use, yielding a total water consumption of 1,838,541 gpd (approximately 1.8 mgd). Sanitary sewage generated by these sites would be 1,104,460 gpd.

Table 13-3
Water Usage/Sewage Generation on
Projected Development Sites Under No Build Conditions

Use	Rate	Existing			No-Action		
		Area (sf)	Water Consumption and Sewage Generation (gpd)	Air Conditioning (gpd)	Area (sf)	Water Consumption and Sewage Generation (gpd)	Air Conditioning (gpd)
Commercial ^{1,2}	domestic: 0.17 gpd/sf air conditioning: 0.17 gpd/sf	1,113,645	189,320	189,320	<u>1,663,485</u>	<u>282,789</u>	<u>282,789</u>
Industrial/Manufacturing ³	domestic: 10,000 gpd/acre ¹ air conditioning: 0.17 gpd/sf	420,728	96,586	71,524	<u>500,646</u>	<u>114,933</u>	<u>113,231</u>
Community Facilities ¹	domestic: 0.17 gpd/sf air conditioning: 0.17 gpd/sf	70,000	11,900	11,900	214,344	36,438	36,438
Residential ¹	domestic: 112 gpd/person* air conditioning: 0.17 gpd/sf	197,773 (241 DU)	84,485	33,621	<u>1,815,669</u> (<u>1,815</u> DU)	<u>636,500</u>	<u>308,800</u>
Subtotals			382,291	306,365		<u>1,070,660</u>	<u>741,258</u>
Total All Water Consumption			688,656			<u>1,811,918</u>	
Notes:							
¹ Usage and generation rates from the <i>CEQR Technical Manual</i> .							
² Commercial Use: all assumed as retail (to be conservative). Based on public use, assumed same rate for Community Facilities							
³ Usage and generation rates for industrial/manufacturing uses from DEP's <i>Draft Rules and Regulations Governing the Construction of Private Sewers and Drains</i> .							
* Assumes 3.13 residents per DU (dwelling unit).							

WATER SUPPLY

In the future without the proposed actions, water usage on the RWCDs projected development sites would be approximately 1.8 mgd (1.1 mgd for water and 0.7 mgd for air conditioning), an increase of 1.15 mgd from existing conditions. This incremental demand is not large enough to significantly impact the ability of the City's water system to deliver water in the future without the proposed actions (it is less than a 0.1 percent increase). As stated above, there are NYCDEP trunk main projects that are proposed to improve the delivery of water to the Jamaica area. With these proposed improvements, the existing system and grid of water mains within the proposed project area are expected to continue to provide adequate water supply and pressure in the future without the proposed actions.

SANITARY WASTEWATER TREATMENT AND STORMWATER RUNOFF

In the future without the proposed actions, it is assumed that there would be development on the projected development sites as well as background growth in the balance of the Jamaica WPCP that would affect flows to a plant through the 2015 analysis year.

With respect to the development that is anticipated in the future without the proposed actions on the projected development sites, sewage flows are assumed to be the same as the domestic water demand (approximately 1.1 mgd), for an increase of about 0.7 mgd over existing conditions, which represents about 0.84 percent of the average wastewater flows at the Jamaica WPCP and 0.7 percent of its SPDES permitted flows. According to *New York City Demand and Wastewater Flow Projections* (August 1998), the highest projected flows at this WPCP for the 2015 build year is 90.0 mgd. This projection is 10 mgd below the SPDES permitted and design capacity of the Jamaica WPCP. Thus, even with the projected increases in wastewater volumes in the future without the proposed actions, the added flows under the No Build condition would allow the Jamaica Bay WPCP to continue operation within its current design capacity and SPDES-permitted limits. Adding this flow from the No Build condition yields a projected 2015 flow of 91 mgd.

As stated above, the projected development sites in the study area are predominantly covered by rooftops (buildings) and vacant lots with generally impervious surfaces. In the future without the proposed actions, no reduction in the amount of impervious surfaces is anticipated, as additional development is expected to occur at the sites. Under No Build conditions, approximately 186 projected development sites are expected to be developed. This development would include new commercial, industrial, residential, and community facility uses. In the No Build condition, there are few projected development sites that area assumed to be undeveloped. As noted previously, NYCDEP requires stormwater detention in compliance with the drainage plan for existing or for new developments fronting on streets with sewers, if the developed site's storm flow exceeds the allowable flow of the drainage plan. As a result of these requirements, given that the existing development sites are mostly covered with impervious surfaces and do not provide detention, it is expected that there would be some reduction in uncontrolled runoff from private development sites in the future without the proposed actions, as these new developments would be required to incorporate stormwater detention measures such as dry wells or seepage basins to handle stormwater runoff from the developed site.

In addition to the reductions from private lots, NYCDEP is expected to move forward with the above described drainage plan for the area. This plan will provide the basis for upgrading the sewer system.

D. THE FUTURE WITH THE PROPOSED ACTIONS (BUILD)

As described in Chapter 1, “Project Description,” in the future with the proposed actions, it is anticipated that the projected incremental (net) change that would result from the proposed actions at the projected development sites is 3,565 dwelling units, 3.1 million square feet of commercial space, 245,180 square feet of community facility space, and a reduction of 379,752 square feet of industrial/manufacturing space. The analysis presented below is based on these net incremental increases in development at the projected development sites.

WATER SUPPLY

As shown in Table 13-4, in the future with the proposed actions, total water usage on the projected development sites would be about 4.6 mgd, resulting in a net increase of approximately 2.7 mgd over the No-Action Scenario levels and an increase of 0.19 percent over the City’s current daily water demand. This small incremental demand is not large enough to significantly impact the City’s water system. As noted above, NYCDEP is planning to improve the distribution system that conveys water to the Jamaica area along with improvements to older distribution mains within the local grid. These improvements would enhance the system’s ability to handle this additional demand without an impact on local water pressure.

Table 13-4

Water Usage/Sewage Generation at Projected Development Sites

Use	Rate	No-Action			With Action		
		Area (sf)	Water Consumption and Sewage Generation (gpd)	Air Conditioning (gpd) ¹	Area (sf)	Water Consumption and Sewage Generation (gpd)	Air Conditioning (gpd)
Commercial ^{1,2}	Consumption: 0.17 gpd/sf* Air conditioning: 0.17 gpd/sf	<u>1,663,485</u>	<u>282,789</u>	<u>282,789</u>	<u>4,771,199</u>	<u>811,103</u>	<u>811,103</u>
Industrial/ Manufacturing ³	Consumption: 10,000 gpd/acre* Air conditioning: 0.17 gpd/sf	<u>500,646</u>	<u>114,933</u>	<u>113,231</u>	120,894	27,753	20,552
Community Facilities ¹	Consumption: 0.17 gpd/sf Air conditioning: 0.17 gpd/sf	214,344	36,438	36,438	459,524	78,119	78,119
Residential ¹	Consumption: 112 gpd/person* Air conditioning: 0.17 gpd/sf	1,816,669 (<u>1,815</u> DU)	<u>636,500</u>	<u>308,834</u>	5,229,508 (<u>5,380</u> DU)	<u>1,886,012</u>	889,016
Subtotals			<u>1,870,660</u>	<u>741,258</u>		<u>2,802,987</u>	<u>1,798,790</u>
Total All Water Consumption			<u>1,811,918</u>			<u>4,601,777</u>	
Notes:							
¹ Usage and generation rates from the <i>CEQR Technical Manual</i> .							
² Commercial Use: all assumed as retail (to be conservative).							
³ Usage and generation rates for industrial/manufacturing uses from DEP’s <i>Draft Rules and Regulations Governing the Construction of Private Sewers and Drains</i> .							
* Assumes <u>3.13</u> residents per DU.							

SANITARY WASTEWATER TREATMENT AND STORMWATER RUNOFF

Sanitary sewage flows in the future with the proposed actions at the projected development sites would be approximately 2.8 mgd, a net increase of approximately 1.7 mgd from flows projected for the No-Action. This increment represents about 1.9 percent of the average wastewater flows at the Jamaica WPCP and 1.6 percent of its SPDES permitted flows. The increase in sanitary sewage resulting from the proposed action is not anticipated to adversely impact the Jamaica Bay WPCP nor cause it to exceed its design capacity or SPDES permit flow limit. Assuming a flow rate of 91.0 mgd in the future without the proposed actions and adding to that the incremental growth of 1.7 mgd yields a projected total flow of 92.7 mgd in 2015, which is within the permitted and design capacity of the plant. Thus, the plant would continue to

adequately treat wastewater effluent. It is noted that adding the proposed action growth into the projected flows is conservative, since the NYCDEP flow projections already take into account population and employment growth within the Jamaica WPCP service area and the baseline flows (83 mgd), are well below the projected 2015 flow rate.

Under the RWCDs, the projected development sites would be covered by buildings and other impervious surfaces. As such, no measurable change to stormwater runoff is expected for these sites from those in the No Build Condition. As stated above, assuming that in both No Build and With Build conditions new developments would be required to provide stormwater detention measures such as dry wells and seepage basins, this would improve the current stormwater runoff patterns and flooding conditions in the area. In addition, no new streets are proposed under the proposed actions, and NYCDEP would continue to move forward with its amended drainage plan for the area and upgrading the sewer system to relieve local street flooding.

E. CONCLUSIONS

To summarize the above infrastructure analysis, the following is expected with respect to potential impacts of the proposed actions:

- The incremental additional waste demands due to the proposed actions are expected to total 2.8 mgd. This added demand represents a 0.2 percent increase in the City's water supply. This added demand is not expected to overburden the City's water supply system. In the No Build condition, NYCDEP has proposed a number of capital projects to improve the supply of water to the Jamaica area, as well as replacing local older water mains. It is expected that with these capital projects in place, the incremental demands of the proposed actions would not adversely impact the local (Jamaica area) water supply system of water pressure. In addition, all new developments (both projected and potential) must comply with Local Law No. 29 of 1989 with respect to water conservation measures.
- It is expected that there would be adequate treatment capacity at the Jamaica WPCP to handle the increased sanitary flows from the development anticipated under the RWCDs. In the future without the proposed actions, the NYCDEP projections of wastewater flows to the Jamaica WPCP are expected to be 90 mgd. This projection takes into consideration population and employment growth within the service area of the Jamaica Bay WPCP over the next 10 years (current baseline average dry weather monthly flows are 83 mgd). Conservatively adding the total flows from development on the projected development sites (both the No Build and Build), would increase the flows to the plant to 92.7 mgd, still within the plant's operating capacity. This assumption also assumes a considerable increase in WPCP flows over the next 10 years (from 83 mgd to 90 mgd). Thus, it is concluded that with the proposed actions no significant adverse impacts would occur on the City's wastewater treatment systems.
- Stormwater runoff from the projected development is expected to be reduced over the baseline conditions, since new development would be required to comply with NYCDEP rules and regulations for detention. This would be an improvement over the uncontrolled runoff that occurs on many of these sites under the current condition. Reduction in runoff from development sites as a result of detention measures such as dry wells or seepage basins should also reduce street flooding.

- NYCDEP is expected to move forward with its drainage plan for the area with the objective of improving the management and conveyance of stormwater and sanitary sewage in the drainage area. To ensure adequate sanitary and stormwater service while improvements are being implemented, the appropriate City agencies will coordinate and apply resources to target system upgrades as areas are developed.
- NYCDEP and the New York City Department of Buildings will coordinate in reviewing and approving all building and sewer applications to ensure that there is sufficient system capacity for developments in the rezoning area.

Based on the analysis pursuant to the *CEQR Technical Manual*, it is concluded that the proposed actions would not result in significant adverse impacts to the local water supply, sanitary wastewater treatment, or stormwater management infrastructure systems. *