

3.12 INFRASTRUCTURE

INTRODUCTION

This chapter describes three parts of the city’s infrastructure: the water supply, wastewater treatment, and stormwater management systems. Based on the methodology set forth in the *CEQR Technical Manual*, the proposed action would not result in significant adverse impacts to the water supply, wastewater treatment or stormwater management systems. Though this chapter focuses on these three systems, the *CEQR Technical Manual* defines the city “infrastructure” as the physical systems that support the population of the city, also including, but not limited to, the transportation network, waste and sanitation services and public transportation systems. Because many of these topics are discussed in separate chapters of this EIS, the focus of this chapter will remain on the water supply, wastewater treatment and stormwater management systems.

The Department of Environmental Protection estimates that New York City consumes approximately 1.3 billion gallons of water per day. Given the enormous consumption rate the manual also notes the unlikelihood of any particular action resulting in a significant adverse impact on the City’s water supply or water pressure. Since the proposed action would not result in developments that consume an exceptional amount of water, the proposed action is not anticipated to adversely impact the City’s water supply or water pressure.

The proposed rezoning area stretches nearly the entire east-west span of Manhattan from Broadway to Second Avenue (see 2.0, “Project Description”). Wastewater generated in the west is treated at North River water pollution control plant (WPCP), and the Wards Island WPCP treats wastewater from the eastern part of the corridor. Combined, the North River WPCP and Wards Island WPCP are permitted to treat up to 420 million gallons per day (mgd) of wastewater. The *CEQR Technical Manual* indicates that because of the large permitted capacity and the City’s commitment to reducing wastewater production, it is unlikely that a proposed action will significantly augment the existing flow. The proposed action does not contain developments that would generate unusually large flows and is not expected to impact the wastewater treatment plants.

The analysis of stormwater management focuses on the body of water into which stormwater is released in the event of an overflow of the sewer system. In turn, actions involving the reduction or elimination of permeable surfaces or those which direct additional volume to storm sewers would warrant an analysis. The *CEQR Technical Manual* states that stormwater management warrants a detailed analysis if the proposed action contains certain industrial activities (such as manufacturing, processing, or raw materials storage). Actions that would be served by separate sewers, separate storm system or involve the construction of a separate storm system also warrant detailed analysis. Though the proposed action would not warrant a detailed analysis, stormwater management will be discussed because the Future No-Action and With Action condition include the elimination of pervious surfaces due to the development of vacant land.

3.12.1 EXISTING CONDITIONS

Water Supply

The New York City water supply system is comprised of a network of reservoirs, lakes and aqueducts extending into the Catskill region and a pipe network that distributes water within the city. Because the Hudson River, Harlem River and the East River are not potable water sources, New York City obtains nearly all of its water from the Delaware, Catskill and Croton watersheds located within 125 miles north of the city. Water from the watersheds is stored at 19 reservoirs and three control lakes, having a combined capacity of 550 billion gallons. The water is then carried into the city by a number of aqueducts. It enters the city via City Tunnel 1, which runs through the Bronx, Manhattan and Queens, and City Tunnel 2, which runs through the Bronx, Queens and Brooklyn. City Tunnel 3, partially complete, serves the Bronx, Manhattan and Queens, and when fully complete, will terminate in Brooklyn. Staten Island obtains its water from the Richmond Tunnel, an extension of City Tunnel 2.

Once in the city, the three aqueducts disperse water into a network of water mains. Water mains up to 96-inches in diameter feed smaller mains, such as 20, 12 and 8-inch mains, that deliver water to their final destination. These are the same mains that provide water to fire hydrants. Nearly all of the water reaches its consumers by gravity alone although some four percent, generally located at pressure boundaries, high elevations or at a pressure extremity such as Far Rockaway, is pumped to its final destination. There are pressure regulators throughout the city that monitor and control the water pressure.

In the existing condition, uses on the projected development sites include two residential units, 336,641 sf of retail, 115,605 sf of office space, an 8,512 sf hotel, 80,058 sf of community facility, 40,788 sf of storage/manufacturing, 126,908 sf of parking/auto use and 239,570 sf of unoccupied floor area. According to the consumption rates listed in the *CEQR Technical Manual*, it is estimated that the existing facilities consume approximately 101,363 gallons per day (gpd) of water for domestic uses and 90,524 gpd of water for air conditioning for a total 191,887 gpd (0.19 million gallons per day (mgd) of water). These results are displayed in Table 3.12-1.

Wastewater Treatment

According to the *CEQR Technical Manual* wastewater is considered to include sanitary sewage, wastewater generated by industries, and stormwater. Water used for air conditioning generates a negligible amount of wastewater for it is recirculated or evaporates in the cooling and heating process.

The majority of New York City's wastewater treatment system is comprised of the sewer network beneath the streets and the 14 water pollution control plants (WPCP) located throughout the city. Wastewater generated in a "drainage basin," the area served by a WPCP, is conveyed through a network of combined sewers to the WPCP. During dry weather, the WPCP primarily treats sanitary sewage. The average daily flow during dry weather is known as the average "dry-

weather flow”. WPCPs have design treatment capacities set at twice their average dry-weather flow for a limited amount of time. However, because the majority of New York City sewers are combined sewers, they are also the recipients of stormwater, rainwater runoff from impermeable surfaces that generally contain pollutants such as oil and floatable debris. During wet weather, stormwater enters the combined sewer system along with sanitary sewage, and are both treated at a WPCP. However, during such wet weather, rainfall runoff can reach 10 to 50 times the dry-weather flow, sometimes well above the WPCP design capacity. To avoid flooding the WPCPs, built-in regulators act as relief valves to direct the excess water to an outfall. During storm events, sanitary sewage entering or already in the combined sewer system, stormwater and debris are discharged untreated into the nearest body of water. This untreated outfall is known as “combined sewer outfall” (CSO). As mentioned above, the majority of New York City wastewater is collected by a combined sewer system and treated by WPCPs, however small areas in Brooklyn, Queens and Staten Island either have separate sewer systems or use septic systems to dispose of sanitary waste.

Wastewater in Harlem, as in the majority of Manhattan, is collected and conveyed through a network of combined sewers that direct the wastewater to water pollution control plants. As mentioned earlier, Harlem is served by two WPCPs. Wastewater from the western part of the 125th Street corridor, generally from Lenox Avenue westward, is treated at the North River WPCP located along the bank of the Hudson River from West 137th Street to West 145th Street. Wastewater generated from Lenox Avenue eastward, is treated at the Wards Island WPCP. Respectively, the North River WPCP and the Wards Island WPCP have State Pollution Discharge Elimination System (SPDES) permits to treat up to 170 mgd and 250 mgd combined to account for 420 mgd of the 1.77 billion gallon per day SPDES permitted capacity of all 14 WPCP.

In the existing condition, the North River WPCP receives and treats from 112 mgd to upwards of 140 mgd and averaged approximated 127 mgd during 2006. Wards Island WPCP, in 2006, treated from 186 mgd to 243 mgd, an average of 218 mgd. The average dry-weather flow in 2006 for both the North River and Wards Island WPCP are displayed in Table 3.12-2.

Based on the wastewater generation rates found in the *CEQR Technical Manual*, existing use on the projected development sites generate approximately 101,363 gpd of wastewater. These results are also displayed in Table 3.12-1.

Table 3.12-1
Existing Water Consumption and Sewage Generation

Land Use	Rate ⁽¹⁾	Existing Condition		
		Area (sf)	Water/Sewage Generation (gpd)	Air Conditioning (gpd)
Residential⁽³⁾	Domestic: 112 gpd/person Air Conditioning: 0.17 gpd/sf	2,000 ⁽²⁾ (2 DUs)	582	340
Retail	Domestic: 0.17 gpd/sf Air Conditioning: 0.17 gpd/sf	336,641	57,229	57,229
Office⁽⁴⁾	Domestic: 25 gpd/person Air Conditioning: 0.10 gpd/sf	115,605	11,561	11,561
Hotel⁽⁶⁾	Domestic: 150 gpd/rm/occupant Air Conditioning: 0.10gpd/sf	8,512	9,000	851
Community Facility	Domestic: 0.17gpd/sf Air Conditioning: 0.17 gpd/sf	80,058	13,610	13,610
Storage/ Manufacturing⁽⁵⁾	Domestic: 0.23 gpd/sf Air Conditioning: 0.17 gpd/sf	40,788	9,381	6,934
Parking/Auto	Domestic: 0 gpd/sf Air Conditioning: 0 gpd/sf	126,908	0	0
Vacant Floor Area	Domestic: 0 gpd/sf Air Conditioning: 0 gpd/sf	239,570	0	0
Subtotals			101,363	90,524
Total Water Consumption			191,887	0.19 mgd

Notes:

1-Consumption rates obtained from *CEQR Technical Manual* unless otherwise indicated

2-1,000 sf per DU assumed

3-Assumes 2.6 residents per DU. Source-2000 Census for Manhattan Community Districts 9, 10 and 11

4-Assumes 250 sf of office space per person

5-Consumption rates obtained from Special West Chelsea District Rezoning and High Line Open Space EIS, 2004

6- Number of Hotel rooms calculated at 673 sf each. See planning assumptions from Transportation Chapter for source. Occupancy rate of 2 people per room from Special West Chelsea District Rezoning and High Line Open Space EIS, 2004

gpd=gallon per day, mgd=million gallons per day

Table 3.12-2
Monthly Actual Dry Weather Flows for North River and Wards Island WPCP

Month	North River WPCP	Wards Island WPCP
January	128	229
February	120	204
March	112	186
April	127	218
May	125	215
June	140	245
July	137	243
August	133	237
September	127	215
October	130	217
November	129	226
December	115	200
Annual Average	127	218

Source: New York City Department of Environmental Protection (NYCDEP)
 All flows in million gallons per day (mgd)

Stormwater Management

Stormwater runoff from an impermeable surface is collected by catch basins along the street and conveyed by the city’s combined sewer system to a WPCP. During dry weather, regulators built into the combined sewer system channel flows to interceptor sewers leading to a WPCP. However, during storm events, the regulators allow only twice the average dry-weather flow into interceptor sewers and the remaining flow is diverted to a CSO in the Hudson River or East River.

In the existing condition, the projected development sites total 543,809 sf of land, 30,947 sf of which is undeveloped. Since no parklands exist within the project boundary, the 30,947 sf of unpaved and undeveloped lot area will be the only pervious surface considered in the analysis of stormwater. Commercial, industrial and residential uses represent the remaining 512,862 sf. For this analysis, standard NYCDEP runoff coefficients are used to calculate the amount of stormwater runoff for developed areas and vacant land and a standard 5.95 inches per hour rainfall intensity (I) is assumed (a five-year return frequency with a six-minute time of concentration). Stormwater runoff in cubic feet per second (cfs) is displayed in Table 3.12-3. As shown in Table 3.12-3, in the existing condition, the projected development sites generate approximately 60.82 cfs of stormwater.

**Table 3.12-3
 Existing Stormwater Runoff**

	Rooftop/Paved Areas⁽¹⁾	Pervious Area	Total
Area (sf)	512,562	30,947	543,809
Area (acres)	11.78	0.71	12.49
Runoff Coefficient⁽²⁾	0.85	0.3	---
Rainfall Intensity	5.95	5.95	---
Stormwater Discharge (cfs)	59.55	1.27	60.82

Notes:

1-The development site contains rooftops and paved areas of Commercial, Industrial and Residential Zonings above R6.

2-Runoff Coefficients from NYCDEP *Rules and Regulations Governing the Construction of Private Sewers and Drains*. Developed Areas of the 26 development site contains Commercial, Industrial and Residential zonings above R6 and share the same runoff coefficient.

3.12.2 FUTURE WITHOUT THE PROPOSED ACTION

In the 2017 future without the proposed action, anticipated growth in the vicinity of Harlem’s 125th Street Corridor along with development anticipated on 14 of the 26 projected sites would result in additional demand for water, wastewater production and stormwater runoff. As identified in Chapter 2.0, “Project Description,” the future without the proposed action would consist of 304 dwelling units, 635,337 sf of retail space, 512,305 sf of office space, 8,512 sf of hotel, 203,079 sf of community facility, 26,824 sf of storage and manufacturing use and 112,404 sf of parking and auto use. It is anticipated that the existing vacant parcels within the rezoning area would be developed in the future without the proposed action.

Water Supply

In the future without the proposed action, the water consumption would total approximately 542,985 gpd (0.54 mgd) including 297,455 gpd of demand generated from domestic uses and 245,529 gpd demand from air conditioning use. As shown, in Table 3.12-4, this would represent an approximately 196,093 gpd increase in water demand for domestic use and a 155,005 gpd increase in demand for air conditioning use. The total demand would increase by approximately 351,097 gpd (0.35 mgd).

Wastewater Treatment

In the future without the proposed action, it is anticipated that the North River WPCP and Wards Island WPCP will maintain their existing SPDES permitted capacity of 170 mgd and 250 mgd respectively. As the No Action projected sites would be along Harlem’s 125th Street corridor, wastewater would continue to be treated at the North River and Wards Island WPCPs. Table 3.12-4 shows that in the future without the proposed action, 196,093 gpd of wastewater

**Table 3.12-4
2017 No-Action Water Consumption and Sewage Generation**

Land Use	Rate ⁽¹⁾	Existing Condition			No-Action Condition			No-Action Increment		
		Area (sf)	Water/Sewage Generation (gpd)	Air Conditioning (gpd)	Area (sf)	Water/ Sewage Generation (gpd)	Air Conditioning (gpd)	Area (sf)	Water/Sewage Generation (gpd)	Air Conditioning (gpd)
Residential⁽³⁾	Domestic: 112 gpd/person Air Conditioning: 0.17 gpd/sf	2,000 ⁽²⁾ (2 DUs)	582	340	272,687 (304 DUs)	88,525	46,357	230,990 (286 DUs)	87,942	46,017
Retail	Domestic: 0.17 gpd/sf Air Conditioning: 0.17 gpd/sf	336,641	57,229	57,229	635,337	108,007	108,007	298,696	50,778	50,778
Office⁽⁴⁾	Domestic: 25 gpd/person Air Conditioning: 0.10 gpd/sf	115,605	11,561	11,561	512,305	51,230	51,230	396,699	39,670	39,670
Hotel⁽⁶⁾	Domestic: 150 gpd/rm/occupant Air Conditioning: 0.10gpd/sf	8,512	9,000	851	8,512	9,000	851	0	0	0
Community Facility	Domestic: 0.17gpd/sf Air Conditioning: 0.17 gpd/sf	80,058	13,610	13,610	203,079	34,523	34,523	123,021	20,914	20,914
Storage/ Manufacturing⁽⁵⁾	Domestic: 0.23 gpd/sf Air Conditioning: 0.17 gpd/sf	40,788	9,381	6,934	26,824	6,170	4,560	-13,964	-3,212	-2,374
Parking/Auto	Domestic: 0 gpd/sf Air Conditioning: 0 gpd/sf	126,908	0	0	112,404	0	0	-14,504	0	0
Vacant Floor Area	Domestic: 0 gpd/sf Air Conditioning: 0 gpd/sf	239,570	0	0	0	0	0	-239,570	0	0
Subtotals			101,363	90,524		297,455	245,529		196,093	155,005
Total Water Consumption			191,887 0.19 mgd			542,985 0.54 mgd			351,097 0.35 mgd	

Notes:

- 1-Consumption rates obtained from *CEQR Technical Manual* unless otherwise indicated
- 2-1,000 sf per DU assumed
- 3-Assumes 2.6 residents per DU. Source-2000 Census for Manhattan Community Districts 9, 10 and 11
- 4-Assumes 250 sf of office space per person
- 5-Consumption rates obtained from Special West Chelsea District Rezoning and High Line Open Space EIS, 2004
- 6- Number of Hotel rooms calculated at 673 sf each. See planning assumptions from Transportation Chapter for source. Occupancy rate of 2 people per room from Special West Chelsea District Rezoning and High Line Open Space EIS, 2004

gpd=gallons per day, mgd=million gallons per day

would be generated in addition to the 101,363 gpd of wastewater generated in the existing condition raising the total to 297,455 gpd (approximately 0.30 mgd). Since wastewater generation is generally equal to the domestic water consumption, the incremental increase in wastewater generation in the No Action conditions is also shown in Table 3.12-4, along with the total estimated wastewater generation. In comparison to the combined SPDES capacity of the North River WPCP and Wards Island WPCP of 420 mgd, the No Action wastewater increment of approximately 196,093 gpd would represent an increase in demand equivalent to 0.047 percent of the combined permitted capacity. In the future without the proposed action, additional wastewater generated by No Action developments are therefore not expected to cause the North River WPCP or the Wards Island WPCP to meet or exceed their permitted capacities.

Stormwater Management

In the future without the proposed action, stormwater runoff would continue to be collected and channeled through the existing combined sewer system and then conveyed to the North River WPCP or Wards Island WPCP for treatment. Though these two WPCPs would retain their existing combined capacity of 420 mgd, it is anticipated that the existing unpaved and undeveloped lot area would be developed and eliminated in the No Action condition, resulting in an increased volume of stormwater runoff. Table 3.12-5 shows the stormwater runoff generated in the 2017 No Action condition.

Table 3.12-5
2017 No Action Stormwater Runoff

	Rooftop/Paved Areas⁽¹⁾	Pervious Area	Total
Area (sf)	543,809	0	543,809
Area (acres)	12.49	0.00	12.49
Runoff Coefficient⁽²⁾	0.85	0.3	---
Rainfall Intensity	5.95	5.95	---
Stormwater Discharge (cfs)	63.15	0.00	63.15

Notes:

- 1-The development sites contain rooftop and paved areas occupied by Commercial, Industrial and Residential buildings
- 2-Runoff Coefficients from NYCDEP *Rules and Regulations Governing the Construction of Private Sewers and Drains*. Developed Areas of the 26 development site contain Commercial, Industrial and Residential zonings above R6 and share the same runoff coefficient.

In the future without the proposed action, previously vacant lots would be developed according to the existing zoning. Development of vacant lots would divert stormwater into the combined sewer system that otherwise would have been absorbed by the pervious surface. The result would be that nearly the entire surface area of the 26 projected development sites would contribute to stormwater flows. Using the 543,809 sf total lot area of the sites and a uniform runoff coefficient of 0.85 for commercial, manufacturing and residential zoning as specified by NYCDEP and a rainfall intensity of 5.95 inches per hour (a five-year return frequency with a six-minute time of concentration), 63.15 cfs of runoff from No Action developments would collect

in the combined sewers in the future without the proposed action. This would be an increase of 2.33 cfs from the existing 60.82 cfs of stormwater runoff.

3.12.3 FUTURE WITH THE PROPOSED ACTION

In the future with the proposed action, the existing water supply, wastewater treatment and stormwater management systems are expected to support the proposed action. The proposed action would facilitate more mixed-use commercial and residential development than would occur in the future without the proposed action. The proposed action would result in a total of 2,632 dwelling units, 843,923 sf of retail space, 948,319 sf of office space, 20,184 sf of hotel space, 92,094 sf of community facility space and 1,998 sf of parking and auto space. Compared to the No Action condition, the proposed action would add a net total 2,328 dwelling units, 208,586 sf of retail space, 436,015 sf of office space, 11,672 sf of hotel space and a decrease of 110,985 sf of community facility space, 26,824 sf of storage and manufacturing use as well as 110,406 sf of parking and auto space. It is anticipated that no vacant lots or storage and manufacturing space would exist in the future with the proposed action.

Water Supply

The proposed action would not result in significant adverse impacts on the City's water supply system. As shown in Table 3.12-6, in the future with the proposed action, approximately 1,029,939 gpd of water would be consumed for domestic uses and 658,256 gpd for air conditioning, for a total of 1,687,649 gpd (1.69 mgd) an increase of 1,144,664 gpd (1.14 mgd) from the No Action demand. Considering that the City of New York consumes 1.3 billion gallons per day, this increment represents a 0.088 percent increase in demand on the City's water supply system. The project increment, being less than one percent, would therefore be unlikely to adversely impact the City's water supply or water pressure.

Wastewater Treatment

In the future with the proposed action, wastewater from the study area would continue to be treated by both the North River WPCP and the Wards Island WPCP. These two facilities would retain their respective SPDES permitted capacities of 170 mgd and 250 mgd for a combined capacity of 420 mgd. As shown in Table 3.12-6, the proposed action would generate approximately 1,029,393 gpd of sanitary sewage, an increase of 731,938 gpd (0.73 mgd) from the No Action condition, equivalent to 0.17 percent of the treatment capacity of the combined WPCPs. North River WPCP and Wards Island WPCP would receive approximately 497,066 gpd and 281,524 gpd of wastewater from the proposed action, equivalent to approximately 0.29 and 0.11 percent of the capacity of the respective WPCPs. Table 3.12-7 shows the additional wastewater generated in the respective drainage basins of the North River WPCP and Wards Island WPCP. Since the proposed action would add less than one fifth of one percent of the combined capacity of the two WPCPs, it would not adversely impact either the North River WPCP or Wards Island WPCP.

**Table 3.12-6
2017 With-Action Water Consumption and Sewage Generation**

Land Use	Rate ⁽¹⁾	No-Action Condition			With-Action Condition			Combined With-Action Increment		
		Area (sf)	Water/ Sewage Generation (gpd)	Air Conditioning (gpd)	Area (sf)	Water/ Sewage Generation (gpd)	Air Conditioning (gpd)	Area (sf)	Water/ Sewage Generation (gpd)	Air Conditioning (gpd)
Residential⁽³⁾	Domestic: 112 gpd/person Air Conditioning: 0.17 gpd/sf	272,687 (304 DUs)	88,525	46,357	2,366,368 (2,632 DUs)	766,438	402,283	2,093,681 (2,328 DUs)	677,914	355,926
Retail	Domestic: 0.17 gpd/sf Air Conditioning: 0.17 gpd/sf	635,337	108,007	108,007	843,923	143,467	143,467	208,586	35,460	35,460
Office⁽⁴⁾	Domestic: 25 gpd/person Air Conditioning: 0.10 gpd/sf	512,305	51,230	51,230	948,319	94,832	94,832	436,015	43,601	43,601
Hotel⁽⁶⁾	Domestic: 150 gpd/rm/occupant Air Conditioning: 0.10 gpd/sf	8,512	9,000	851	20,184	9,000	2,018	11,672	0	1,167
Community Facility	Domestic: 0.17 gpd/sf Air Conditioning: 0.17 gpd/sf	203,079	34,523	34,523	92,094	15,656	15,656	-110,985	-18,867	-18,867
Storage/ Manufacturing⁽⁵⁾	Domestic: 0.23 gpd/sf Air Conditioning: 0.17 gpd/sf	26,824	6,170	4,560	0	0	0	-26,824	-6,170	-4,560
Parking/Auto	Domestic: 0 gpd/sf Air Conditioning: 0 gpd/sf	112,404	0	0	1,998	0	0	-110,406	0	0
Vacant Floor Area	Domestic: 0 gpd/sf Air Conditioning: 0 gpd/sf	0	0	0	0	0	0	0	0	0
Subtotals			297,455	245,529		1,029,393	658,256		731,938	412,727
Total Water Consumption			542,985			1,687,649			1,144,664	
			0.54 mgd			1.69 mgd			1.14 mgd	

Notes:

- 1-Consumption rates obtained from *CEQR Technical Manual* unless otherwise indicated
- 2-1,000 sf per DU assumed
- 3-Assumes 2.6 residents per DU. Source-2000 Census for Manhattan Community Districts 9, 10 and 11
- 4-Assumes 250 sf of office space per person
- 5-Consumption rates obtained from Special West Chelsea District Rezoning and High Line Open Space EIS, 2004
- 6- Number of Hotel rooms calculated at 673 sf each. See planning assumptions from Transportation Chapter for source. Occupancy rate of 2 people per room from Special West Chelsea District Rezoning and High Line Open Space EIS, 2004

gpd=gallons per day, mgd=million gallons per day

**Table 3.12-7
2017 With-Action Increment Water Consumption and Sewage Generation**

Land Use	Rate ⁽¹⁾	Combined With-Action Increment			North River WPCP With-Action Increment			Wards Island WPCP With-Action Increment		
		Area (sf)	Water/ Sewage Generation (gpd)	Air Conditioning (gpd)	Area (sf)	Water/ Sewage Generation (gpd)	Air Conditioning (gpd)	Area (sf)	Water/ Sewage Generation (gpd)	Air Conditioning (gpd)
Residential⁽³⁾	Domestic: 112 gpd/person Air Conditioning: 0.17 gpd/sf	2,093,681 (2,328 DUs)	677,914	355,926	1,292,331 (1,437 DUs)	418,454	219,696	946,435 (1,051 DUs)	306,051	160,894
Retail	Domestic: 0.17 gpd/sf Air Conditioning: 0.17 gpd/sf	208,586	35,460	35,460	132,324	22,495	22,495	76,262	12,964	12,964
Office⁽⁴⁾	Domestic: 25 gpd/person Air Conditioning: 0.10 gpd/sf	436,015	43,601	43,601	470,565	47,057	47,057	-34,551	-3,455	-3,455
Hotel⁽⁶⁾	Domestic: 150 gpd/rm/occupant Air Conditioning: 0.10gpd/sf	11,672	0	1,167	20,184	9,000	2,018	-8,512	-9,000	-851
Community Facility	Domestic: 0.17gpd/sf Air Conditioning: 0.17 gpd/sf	-110,985	-18,867	-18,867	0	0	0	-110,985	-18,867	-18,867
Storage/ Manufacturing⁽⁵⁾	Domestic: 0.23 gpd/sf Air Conditioning: 0.17 gpd/sf	-26,824	-6,170	-4,560	0	0	0	-26,824	-6,170	-4,560
Parking/Auto	Domestic: 0 gpd/sf Air Conditioning: 0 gpd/sf	-110,406	0	0	-79,717	0	0	-30,689	0	0
Vacant Floor Area	Domestic: 0 gpd/sf Air Conditioning: 0 gpd/sf	0	0	0	0	0	0	0	0	0
Subtotals			731,938	412,727		497,006	291,266		281,524	146,125
Total Water Consumption			1,144,664 1.14 mgd			788,272 0.79 mgd			427,648 0.43 mgd	

Notes:

- 1-Consumption rates obtained from *CEQR Technical Manual* unless otherwise indicated
- 2-1,000 sf per DU assumed
- 3-Assumes 2.6 residents per DU. Source-2000 Census for Manhattan Community Districts 9, 10 and 11
- 4-Assumes 250 sf of office space per person
- 5-Consumption rates obtained from Special West Chelsea District Rezoning and High Line Open Space EIS, 2004
- 6- Number of Hotel rooms calculated at 673 sf each. See planning assumptions from Transportation Chapter for source. Occupancy rate of 2 people per room from Special West Chelsea District Rezoning and High Line Open Space EIS, 2004

gpd=gallons per day, mgd=million gallons per day

Stormwater Management

In the future with the proposed action, the amount of impervious surface in the study area would not increase because all unpaved and undeveloped lots will have been developed in the No Action scenario. In the future with the proposed action, the volume of stormwater runoff would be similar to that calculated for the No Action condition, resulting in a negligible With Action increment. Consequently, the proposed action would not impact the City's stormwater management system.

CONCLUSION

The proposed action would not adversely impact the City's infrastructure. Development on the 26 projected sites would produce an additional 1,144,664 gpd (1.14 mgd) demand on the City's water supply system, representing a 0.088 percent increase. As this is less than one-tenth of one percent of the City's water supply, the proposed action would not result in a significant adverse impact to the City's water supply or water pressure.

The proposed action would not adversely impact the City's wastewater treatment system. The North River WPCP and Wards Island WPCP would receive approximately 497,066 gpd and 281,524 gpd of additional wastewater as a result of the proposed action, equivalent to approximately 0.29 and 0.11 percent of their treatment capacities, respectively. As this represents a relatively small incremental demand that would not significantly augment the amount of wastewater treated by either WPCP, no adverse impact on the City's wastewater treatment system would result from the proposed action.

The proposed action would not adversely impact the City's stormwater management system as development under the proposed action would not reduce or eliminate permeable surfaces compared to the development anticipated in the no-action condition. Therefore, no additional stormwater would be diverted into the City's combined sewer system as a result of the proposed action.

It should be noted that the above analysis assumes the construction of conventional buildings, and does not account for the benefits of green building techniques, which generally decrease water demand and stormwater generation. Such buildings would draw less from the City's water supply, generate less stormwater than estimated and help to reduce the likelihood of a CSO event. Should the projected developments include green buildings, the proposed action would likely discharge less stormwater into the combined sewer system than the No Action condition and consume less water than estimated in Table 3.12-6.