

## **A. INTRODUCTION**

The proposed action would not result in significant adverse impacts to the City's water supply, wastewater treatment, and stormwater management systems. For CEQR analysis purposes, 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 document. Given the size of New York City's water supply system and the City's commitment to maintaining adequate water supply and pressures, few actions have the potential to cause significant adverse impacts on this system.

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 *CEQR Technical Manual* also states that detailed analysis of wastewater treatment is needed for those actions with very large flows that have the potential for significant adverse impacts on sewage treatment. As such, the proposed action is analyzed for the volumes of wastewater it would generate in relation to the State Pollutant Discharge Elimination System (SPDES) permitted capacity of the water pollution control plant (WPCP) servicing the proposed action area. The proposed action area is served by the North River WPCP and the study area for the wastewater analysis is the entire area served by that facility, which is referred to as the drainage area.

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), actions that would greatly increase the amount of paved area, actions that would be served by a separate storm system and that would involve construction activities, or construction of a new stormwater outfall. Stormwater management impacts would occur if the proposed action would result in significant degradation of the water quality of the Hudson River, increase the frequency or extent of flooding, or increase the levels of erosion and sedimentation from construction and operation activities. There is not expected to be any significant increase in stormwater volumes in the future with the proposed action as compared to the volumes expected in the future without the proposed action, because the amount of impervious surfaces in the proposed action area would not change substantially. The projected development sites are generally occupied by buildings or pavement under existing conditions, as they would under No-Action and With-Action conditions. Accordingly, an assessment of stormwater management is not

provided in this chapter. Potential impacts to water quality, including those related to stormwater entering the combined sewer system, are assessed in Chapter 11, “Natural Resources.”

By 2013, the proposed action would result in net increases of 4,708 DUs, ~~292,676~~ 195,215 sf of retail space and 198,726 sf of museum space, and net decreases of ~~816,847~~ 796,947 sf of office, 131,100 sf of hotel, ~~40,809~~ 74,818 sf storage/manufacturing, ~~318,580~~ 225,940 sf of parking/auto related uses, and ~~25,064~~ 4,080 sf of vacant space on the 25 projected development sites. The proposed action also includes the site selection and acquisition of the High Line to create a publicly accessible ~~6.7~~ 5.9-acre open space.

The following assessment indicates that, in the future with the proposed action, development on the projected development sites by the analysis year of 2013 would be expected to generate net new water usage of approximately ~~1.46~~ 1.42 million gallons per day (gpd) and approximately ~~0.88~~ 0.86 million gpd of net new wastewater flows. Although the projected development that would likely result from the proposed action would create new demand for water and treatment of sewage, the existing water supply and wastewater treatment systems have adequate capacity to meet the increases in these demands. Additionally, the proposed action would not result in significant adverse impacts to existing stormwater management systems as it would not increase the amount of impervious surface area or introduce new storm systems or sewers that would require SPDES permits from NYSDEC. Therefore, no significant adverse impacts are expected to result to these systems.

The creation of the High Line open space, which extends south of the rezoning area boundary to Gansevoort Street and also includes the post office spur extending east of Tenth Avenue at W. 30th Street, would have no notable effects on infrastructure. This open space would not generate any additional residents and the number of new employees would be minimal; therefore it would not generate any significant new demand on the City’s infrastructure systems.

## **B. EXISTING CONDITIONS**

### **Water Supply**

New York City’s water supply system consists of an extensive network of reservoirs and aqueducts extending as far north as the Catskill region, and a grid of distribution pipes to deliver water from the primary transportation conduits to points of use. Approximately 1.2 billion gallons of water per day are consumed by New York City through this water supply system, of which Manhattan consumes approximately 322 million gallons per day (mgd). Consumption can reach up to 1.5 billion gallons per day (gpd) during the summer months. Potable water for the proposed action area is provided by the New York City water supply system, which consists of a network of aqueducts that bring water from upstate reservoirs. There are no sole source aquifers beneath Manhattan and neither the groundwater beneath Manhattan nor the waters of the lower Hudson River are used as a source for potable water or for other purposes, such as irrigation or industrial processes.

Most of New York City obtains water from three surface water supply systems—Delaware, Catskill, and Croton—operated by the New York City Department of Environmental Protection (NYCDEP). These systems form a network of reservoirs, aqueducts, and tunnels extending as far as 125 miles north of the City. The system has 18 collecting reservoirs, two balancing reservoirs, several dams, three major aqueducts, two large water distribution tunnels, with a third major tunnel under construction and partially in use, and a system of water mains and other facilities. The watersheds of the three systems cover almost 2,000 square miles, with 19 reservoirs and three controlled lakes, which have a storage capacity of 550 billion gallons. The water flows to the City through aqueducts, reaching most consumers by gravity alone, although some four percent of the City's water must be pumped to its final destination.

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 was begun in 1970 and 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. The next phases of Water Tunnel No. 3, currently under construction, is intended to provide service to Midtown Manhattan, Lower Manhattan, Brooklyn, and Queens. It is anticipated to be a supplemental water source to the proposed action area.

Within the City, a grid of underground distribution mains distribute water to consumers. Large mains—up to 96 inches in diameter—feed smaller mains, such as 8, 12 and 20-inch mains, that distribute water to individual locations. These mains also provide water to fire hydrants along many of the City's streets. Water pressure throughout the City's water supply system is controlled by pressure regulators.

Most of Manhattan, including the proposed action area, is served by the Catskill/Delaware System via Water Tunnel No. 1 and the Croton System. In the vicinity of the proposed action area, Water Tunnel No. 1 is located several hundred feet below Sixth Avenue and Broadway. Water Tunnel No. 1 ranges between 10 and 14 feet in diameter. Water ascends from Water Tunnel No. 1 through shafts at W. 23rd Street to trunk mains ranging between 20 inches and 48 inches in diameter, running four feet below grade. The trunk mains that would serve the proposed action area generally run north-to-south beneath the avenues. The trunk mains feed distribution mains which run east-to-west along cross streets. Individual smaller mains (12-inch and 20-inch) branch out from the trunk and distribution mains to provide water sources to individual buildings and fire hydrants.

The Department of City Planning has generated estimates for water usage and sewage generation at the 25 projected development sites under existing conditions based on usage and generation rates

provided in the *CEQR Technical Manual* and NYCDEP's *Draft Rules and Regulations Governing the Construction of Private Sewers & Drains*. As discussed in Chapter 1, "Project Description," the proposed action area is currently occupied by residential, commercial, storage/manufacturing, community facility, and parking/auto uses, as well as vacant land and vacant buildings. The 25 projected development sites currently contain the following uses: 101 DUs, ~~519,063~~ 573,437 sf of commercial space, ~~500,198~~ 518,598 sf of storage/manufacturing space, ~~440,146~~ 416,692 sf of parking/auto space, 28,838 sf of community facility space, and ~~80,383~~ 82,883 sf of vacant space. For the purpose of assessment, usage and generation rates for residential, community facility, and commercial uses were taken from the *CEQR Technical Manual*. For analysis purposes, all commercial uses are conservatively assumed to be retail, as retail uses result in higher water usage and sewage generation rates. Usage and generation rates for storage/manufacturing uses were adopted from a NYCDEP publication, *DRAFT Rules and Regulations Governing the Construction of Private Sewers & Drains*. Parking/auto uses and vacant space are assumed to have no water usage nor sewage generation.

The existing uses on the 25 projected development sites in the proposed action area are estimated to currently utilize approximately ~~226,781~~ 240,256 gpd of domestic water (sinks and toilets) and ~~195,347~~ 207,718 gpd of water for air conditioning use each day. The estimated total water usage for the 25 projected development sites is approximately ~~422,128~~ 447,974 gpd (~~0.42~~ 0.45 mgd).

## **Wastewater Treatment**

Most sanitary sewage in the City is collected and conveyed through a combined sewer system operated and maintained by the NYCDEP. This system receives sanitary sewage from residences, businesses, and municipal buildings, as well as stormwater accumulated in catch basins along the streets, from where the combined flow is sent for treatment at one of the City's WPCPs. The proposed action area is served by the North River WPCP, located between W. 135th and W. 145th Streets along the Hudson River. The treated wastewater effluent from the facility is discharged into the Hudson River. The North River WPCP is regulated by a SPDES permit issued by the NYSDEC. The SPDES permit restricts the daily flow at North River WPCP to 170 mgd, based on a 12 month rolling average. The current North River WPCP SPDES permit was issued as a draft in 2003 and remains as a draft. The most recent 12 month period (October 2002 to September 2003) daily flow averaged 132 mgd, well below the 170 mgd permitted limit, according to Table 13-1. During storm events, the North River WPCP is capable of processing up to a maximum of 340 mgd of wastewater.

Based on rates provided in the *CEQR Technical Manual*, the current amount of sewage generated in the proposed action area is estimated to be approximately ~~226,781~~ 240,256 gallons of sanitary sewage per day (~~0.23~~ 0.24 mgd). This volume is included in the total average estimated daily combined flow of 132 mgd treated at the North River WPCP.

**Table, 13-1, North River WPCP Sewage Flows between October 2002 and September 2003**

Month	Year	Sewage Flow	
		Daily (mgd)	Dry (mgd)
October	2002	140	121
November	2002	130	118
December	2002	128	120
January	2003	125	119
February	2003	129	125
March	2003	130	122
April	2003	134	128
May	2003	129	122
June	2003	149	130
July	2003	129	124
August	2003	129	120
September	2003	132	122
<b>Average</b>		<b>132</b>	<b>123</b>

Source: NYCDEP (2003)

Notes:

“Daily” flow is an average daily flow that includes stormwater and sanitary volumes.

“Dry” flow includes sanitary volumes only during dry weather conditions.

## Stormwater Management

Stormwater runoff is collected in catch basins, located along the streets, which drain into the combined sewer system. In the proposed action area, a typical combined sewer has regulators that normally direct the wastewater and stormwater flows to the interceptor sewers, which in turn deliver the combined flows to the North River WPCP. The regulators are designed to allow two times the mean dry weather flow into the interceptor. Thus, in dry weather, all sewage from the trunk sewers flow into the interceptor. During storm events, twice the mean dry weather sewage is diverted to interceptors. Excess diluted combined flows divert to the CSOs, which discharge directly to the Hudson River. Therefore, under a major storm event the water would not backup in building basements or result in flooding.

Within the proposed action area, a large storm event could result in excess wastewater and stormwater flows (combined sewer overflow) as well as street litter (referred to as “floatables”) from CSOs to be discharged into the Hudson River via outfalls located at several locations west of the

proposed action area, including W. 26th Street. In the proposed action area, most stormwater runoff is channeled to the City's combined sewer system, because the area is almost entirely covered with impervious surface consisting of pavement, concrete, and rooftops. CSOs to the Hudson River are relatively sporadic and result primarily from wet weather events, systems/equipment malfunctions, or a combination of both. CSO events depend on the proper functioning of regulators and combined sewers, as well as other factors such as system configuration, regulator weir elevations, and the wet weather pumping operations at the North River WPCP. As a result, some outfalls are subject to more CSO events than others in the North River WPCP drainage area. CSOs located within the North River WPCP drainage area discharge to the Hudson River and northern portions of the Harlem River above W. 190th Street. Within the proposed action area, CSOs occur approximately once per month, on average. The effects of CSOs on the Hudson River water quality are discussed further in Chapter 11, "Natural Resources."

### C. FUTURE WITHOUT THE PROPOSED ACTION

The anticipated growth that would occur in the future without the proposed action would add new demand for water supply, sewage treatment, and stormwater management services. As identified in Chapter 1, "Project Description," the expected development on the projected development sites under No-Action conditions would consist of 101 DUs, ~~271,578~~ 378,913 sf of retail space, ~~976,847~~ 956,947 sf of office space, 131,100 sf of hotel space, ~~40,809~~ 74,818 sf of storage/manufacturing uses, ~~395,005~~ 302,365 sf of parking/auto related uses, 28,838 sf of community facility space, and ~~25,064~~ 4,080 sf of vacant space. This No-Action development program includes existing uses expected to remain in the future without the proposed action. As shown in Table 13-2, the No-Action development program would consume an estimated ~~216,063~~ 240,142 gpd for domestic water use and ~~185,973~~ 208,011 gpd for air conditioning use, yielding a total water consumption of ~~402,036~~ 448,153 gpd (approximately ~~0.40~~ 0.45 mgd). Sanitary sewage generated by these sites would be ~~216,063~~ 240,142 gpd (~~0.22~~ 0.24 mgd).

As a result of the projected development associated with the Hudson Yards Rezoning and Development Program, it is expected that there would be a substantial increase in water demand and sewage flows in the area located immediately north of West Chelsea. The Hudson Yards project would require improvements to the existing water and sewer infrastructure serving the Hudson Yards drainage area, which is generally between W. 27th and W. 46th streets from Seventh to Twelfth avenues. As a result, the City is planning to implement measures to address these needs.

#### Water Supply

In the future without the proposed action, water usage on the 25 projected development sites would be approximately ~~402,036~~ 448,153 gpd (~~0.40~~ 0.45 mgd), consisting of ~~216,063~~ 240,142 gpd for domestic water consumption and ~~185,973~~ 208,011 gpd for air conditioning, with consumption at approximately the same level as under existing conditions. Under the No-Action scenario, the existing water mains within the proposed action area would continue to provide adequate water pressure. By 2010, development associated with the Hudson Yards rezoning would generate an

estimated demand of 2.8 mgd for domestic consumption and 1.9 mgd for air conditioning uses. As described below, a new water main and other water system upgrades are planned to accommodate the Hudson Yards developments.

**Table 13-2, No-Action Water Usage/Sewage Generation of Projected Development Sites**

Use	Rate <sup>(1,2)</sup>	NO-ACTION		
		Area (sf)	Water/Sewage Generation (gpd) <sup>(1,2)</sup>	Air Conditioning (gpd) <sup>(1,2)</sup>
Storage/ Manufacturing	domestic: 0.23 gpd/sf * air conditioning: 0.17 gpd/sf	<u>74,818</u>	<u>17,208</u>	<u>12,719</u>
Parking/Auto	N.A. **	<u>302,365</u>	--	--
Vacant	NA **	<u>4,080</u>	--	--
Community Facility	domestic: 0.17 gpd/sf *** air conditioning: 0.17 gpd/sf	28,838	4,902	4,902
Residential	domestic: 112 gpd/person**** air conditioning: 0.17 gpd/sf	101,000 † [101 DUs]	18,592	17,170
Commercial	domestic: 0.17 gpd/sf***** air conditioning: 0.17 gpd/sf*****	--	--	--
Retail	domestic: 0.17 gpd/sf air conditioning: 0.17 gpd/sf	<u>378,913</u>	<u>64,415</u>	<u>64,415</u>
Office	domestic: 25 gpd/person***** air conditioning: 0.10 gpd/sf	<u>956,947</u>	<u>95,695</u>	<u>95,695</u>
Hotel	domestic: 150 gpd/rm/guest***** air conditioning: 0.10 gpd/sf	131,100 [262 guests ]	39,330	13,110
<b>Subtotals</b>		--	<u>240,142</u> <b>(0.24 mgd)</b>	<u>208,011</u> <b>(0.21 mgd)</b>
<b>TOTAL</b>			<b><u>448,153 (0.45 mgd)</u></b>	

(1) gpd = gallons per day; mgd = millions of gallons per day.  
(2) Usage and generation rates for non-industrial/manufacturing uses from the *CEQR Technical Manual*. Usage and generation rates for storage/manufacturing uses from NYCDEP’s *Draft Rules and Regulations Governing the Construction of Private Sewers and Drains*.  
\* Storage/Manufacturing: for domestic usage - assume 0.23 gpd per sf.  
\*\* N.A.= Parking/Auto: assumed as parking or vehicle storage use, therefore no water usage or sewage generation is assumed for this use. Vacant: also no water usage or sewage generation is assumed for vacant space.  
\*\*\* Community Facility Use: all assumed as public use.  
\*\*\*\* Assumes 1.64 residents per DU, with 166 residents in the existing 101 DUs.  
\*\*\*\*\* Existing Commercial Use: all assumed as retail (to be conservative).  
\*\*\*\*\* Office assumes 1 employee per 250 sf  
\*\*\*\*\* Hotel assumes 1,000 sf per hotel room, 2 occupants per room.  
† Estimate based on assumption of 1,000 sf per DU.

NYCDEP has updated the Manhattan Trunk Main Master Plan (hereafter referred to as “Trunk Plan”). The Trunk Plan provides an overview of the rehabilitation required to the existing, aging trunk water main system in Manhattan (20 inches in diameter and larger). Known deficiencies in

the system would be addressed according to this plan. Improvements, mainly connections to Water Tunnel No. 3, which are presently under construction, are included in this plan. Known areas which are expected to have an anticipated growth in population and employment (such as Hudson Yards and West Chelsea) are accounted for in this plan. Potential improvements that may be needed to accommodate Hudson Yards development by 2010 include a new water main along Eleventh Avenue between W. 29th and W. 38th streets and upgrades to the water mains along Tenth Avenue, W. 34th Street, and W. 42nd Street, and replacement mains in the vicinity of the expanded Javits Convention Center and the multi-use facility (New York Sports and Convention Center) due to the capping and abandonment of mains within the footprints of those developments.

Water Tunnel No. 3 would continue to be under construction in 2013. It is unlikely that the segment passing beneath the proposed action area under Tenth Avenue would be available to provide additional water supply. However, the Trunk Plan includes plans for connections to Water Tunnel No. 3, and open sections of it would provide additional capacity in areas of Manhattan to the north.

### **Wastewater Treatment**

Sewage flows generated under the No-Action conditions would be equivalent to the increase in domestic water demand (approximately ~~0.22~~ 0.24 mgd), approximately the same wastewater flows from these sites at the North River WPCP as under existing conditions, which represents about ~~0.16~~ 0.18 percent of the average and ~~0.13~~ 0.14 percent of its SPDES permitted flows. The North River WPCP would continue to operate within its current design capacity and SPDES-permitted limits with the wastewater volumes in the future without the proposed action. By 2010, the redevelopment of the Hudson Yards area to the north would generate approximately 2.8 mgd of sewage and could require improvements to the sewer main along Eleventh Avenue between W. 30th and W. 42nd Streets and Tenth Avenue between W. 34th and W. 42nd Streets.

The NYCDEP is preparing amendments to the Drainage Plan to identify infrastructure improvements for the Hudson Yards area. These improvements would be carried out pursuant to the NYCDEP design specifications and sewer guidelines. This process, completion of which is necessary to permit the public and private developments anticipated to be built in Hudson Yards, would avoid any significant adverse impacts to the City's sewer system. NYCDEP has indicated that the existing North River WPCP would have sufficient capacity to handle the increased wastewater generated by the Hudson Yards projected development in 2025.

### **Stormwater Management**

In the 2013 future without the proposed action, the amount of pervious surfaces in the primary study area would not change substantially compared to existing conditions. Therefore, under a major storm event the water would not backup in building basements or result in flooding.

In addition, under No-Action conditions, the potential for combined sewer overflows into the Hudson River remains. NYCDEP improvements to infrastructure in the future without the proposed action, expected pursuant to the City's ongoing assessment of the existing wastewater and



stormwater infrastructure, accommodate two times the average dry weather flow for the full-build of the proposed Hudson Yards rezoning and the primary study area.

#### **D. FUTURE WITH THE PROPOSED ACTION**

In the future with the proposed action, all of the storage/manufacturing, hotel, and vacant uses, and a substantial portion of the office and parking/auto uses anticipated under No-Action conditions would be replaced by residential, retail, and community facility uses. As described in Chapter 1, “Project Description,” it is expected that under With-Action conditions, the projected development sites would contain approximately 4,809 DUs, ~~564,254~~ 574,128 sf of retail, 160,000 sf of office, 76,425 sf of parking/auto, and 227,564 sf of community facility space. The incremental difference between the With-Action and No-Action water demand and sewage generation serves as the basis for the impact analyses. The net change in development occurring as a result of the proposed action includes net increases of approximately 4,708 DUs, ~~292,676~~ 195,215 sf of retail space and 198,726 sf of museum space, and net decreases of ~~816,847~~ 796,947 sf of office, 131,100 sf of hotel, ~~40,809~~ 74,818 sf storage/manufacturing, ~~318,580~~ 225,940 sf of parking/auto related uses, and ~~25,064~~ 4,080 sf of vacant space.

#### **Water Supply**

The future with the proposed action would not result in significant adverse impacts to the City’s water supply system. As shown in Table 13-3, in the future with the proposed action, total water usage, inclusive of domestic and air conditioning usage, would be ~~1,864,813~~ 1,868,171 gpd (~~1.86~~ 1.87 mgd), resulting in a net increase of ~~1,462,777~~ 1,420,018 gpd (~~1.46~~ 1.42 mgd) over No-Action conditions. This ~~1,462,777~~ 1,420,018 gpd (~~1.46~~ 1.42 mgd) additional demand would represent an increase of 0.12 percent from the City’s current water demand of 1.2 billion gpd (1,200 mgd). This relatively small incremental demand is not large enough to significantly impact the ability of the City’s water system to deliver water. As such, the future with the proposed action conditions would not result in significant adverse impacts upon the City’s water supply nor local water pressure.

#### **Wastewater Treatment**

The proposed action would not result in significant adverse impacts to the City’s wastewater treatment system. As also shown in Table 13-3, sanitary sewage flows in the future with the proposed action would be approximately ~~1,097,345~~ 1,099,024 gpd (1.10 mgd), an increase of approximately ~~881,282~~ 858,882 (~~0.88~~ 0.86 mgd) from flows forecasted under No-Action conditions. This increment represents about ~~0.67~~ 0.65 percent of the existing average wastewater flows at the North River WPCP and ~~0.52~~ 0.51 percent of its SPDES permitted flows. With North River WPCP operating substantially below capacity, the increase in sanitary sewage resulting from the proposed action is not anticipated to adversely impact WPCP operations nor cause it to exceed its design capacity or SPDES permit flow limit. As such, the proposed action would not result in significant adverse impacts upon the City’s sanitary sewage and wastewater management system.

**Table 13-3, With-Action Water Usage/Sewage Generation of Projected Development Sites**

Use	NO-ACTION			WITH-ACTION			WITH-ACTION INCREMENT	
	Area (sf)	Water/Sewage Generation (gpd) <sup>(1,2)</sup>	Air Conditioning (gpd) <sup>(1,2)</sup>	Area (sf)	Water/Sewage Generation (gpd) <sup>(1,2)</sup>	Air Conditioning (gpd) <sup>(1,2)</sup>	Water/Sewage Generation (gpd) <sup>(1,2)</sup>	Air Conditioning (gpd) <sup>(1,2)</sup>
Storage/Manufacturing	<u>74,818</u>	<u>17,208</u>	<u>12,719</u>	0	--	--	<u>-17,208</u>	<u>-12,719</u>
Parking/Auto	<u>302,365</u>	--	--	76,425 *	--	--	--	--
Vacant	<u>4,080</u>	--	--	0	--	--	--	--
Community Facility	28,838	4,902	4,902	227,564	38,686	38,686	33,784	33,784
Residential	101,000 [101 DUs]	18,592	17,170	3,628,585 [4,809 DUs]	946,736	616,859	928,144	599,689
Retail	<u>378,913</u>	<u>64,415</u>	<u>64,415</u>	<u>574,128</u>	<u>97,602</u>	<u>97,602</u>	<u>33,187</u>	<u>33,187</u>
Office	<u>956,947</u>	<u>95,695</u>	<u>95,695</u>	160,000	16,000	16,000	<u>-79,695</u>	<u>-79,695</u>
Hotel	131,100 [262 guests]	39,330	13,110	0	--	--	-39,330	-13,110
<b>Subtotals</b>	--	<u>240,142</u> <b>(0.24 mgd)</b>	<u>208,011</u> <b>(0.21 mgd)</b>	--	<u>1,099,024</u> <b>(1.10 mgd)</b>	<u>769,147</u> <b>(0.77 mgd)</b>	<u>858,882</u> <b>(0.86 mgd)</b>	<u>561,136</u> <b>(0.56 mgd)</b>
<b>TOTAL</b>	<u>448,153</u> <b>(0.45 mgd)</b>			<u>1,868,171</u> <b>(1.87 mgd)</b>			<u>1,420,018</u> <b>(1.42 mgd)</b>	

Refer to Table 13-2 for water usage and sewage generation rate assumptions and related notes.

\* Includes only off-site accessory parking for governmental use; does not include permitted on-site accessory parking.

## Stormwater Management

In the 2013 future with the proposed action, the amount of pervious surfaces in the primary study area could increase compared to existing conditions. The proposed High Line open space and the adjacent areas, which would be required to provide open space under the High Line adjacency controls, would replace impervious surfaces with pervious areas. Pursuant to the special requirements set forth in Section 98-323 of the proposed zoning text, at least 20 percent of the lot area of zoning lots occupied by or adjacent to zoning lots occupied by the High Line must be landscaped open area. Appendix A provides the proposed zoning text amendment. This amendment would help to ensure that the impervious surface within the primary study area would decrease under With-Action conditions. Therefore, stormwater volumes are not expected to increase as a result of the proposed action.

Under With-Action conditions, the potential for CSOs would continue. With increased sewage flow from the projected development sites generated by the proposed action, the magnitude of CSOs during storm events would likely increase as compared to No-Action conditions. However, even under a major storm event it is not anticipated that building basements would be flooded. The effects of possible increases in the discharge of untreated sewage during CSOs is assessed in Chapter 11, "Natural Resources."

## E. BASE FAR SCENARIO

The Base FAR Scenario would not result in significant adverse impacts to the City’s water supply, wastewater treatment, or stormwater management systems. This scenario is expected to result in less residential development than the proposed action, as it would permit lower density development. As discussed in Chapter 1, “Project Description,” the Base FAR Scenario, it is expected to generate a net increase of 3,041 DUs on the projected development sites, or approximately 1,667 fewer dwelling units than the proposed action. The Base FAR Scenario is expected to result in the same amount of projected development for non-residential uses. As this scenario would generate the same amount of non-residential development and less residential development than the proposed action, it would commensurately generate less demand on the water supply system and lower sewage flows. As shown in Table 13-4, under the Base FAR Scenario, total water usage, inclusive of domestic and air conditioning usage, on the projected development sites would have a net increase of ~~879,816~~ 837,057 gpd (~~0.88~~ 0.84 mgd) over No-Action conditions. Thus, the Base FAR Scenario net water demand would be approximately 0.58 mgd less than the net demand of the proposed action. As also shown in the table, under the Base FAR Scenario, sanitary sewage flows would have a net increase of ~~551,778~~ 529,378 gpd (~~0.55~~ 0.53 mgd) over No-Action conditions. Thus, the Base FAR Scenario net sewage flow would be approximately 0.33 mgd less than the net flow of the proposed action. Table 13-4 shows the Base FAR incremental demand and provides the With-Action increment and shows the difference between the proposed action and Base FAR Scenario water supply demand and wastewater flows.

**Table 13-4, Base FAR Scenario Water Usage/Sewage Generation of Projected Development Sites**

Use	BASE FAR SCENARIO INCREMENT			ACTION INCREMENT *		DIFFERENCE	
	Area (sf)	Water/ Sewage Generation (gpd) <sup>(1,2)</sup>	Air Conditioning (gpd) <sup>(1,2)</sup>	Water/ Sewage Generation (gpd) <sup>(1,2)</sup>	Air Conditioning (gpd) <sup>(1,2)</sup>	Water/ Sewage Generation (gpd) <sup>(1,2)</sup>	Air Conditioning (gpd) <sup>(1,2)</sup>
Storage/ Manufacturing	<u>-74,818</u>	<u>-17,208</u>	<u>-12,719</u>	<u>-17,208</u>	<u>-12,719</u>	0	0
Parking/ Auto	<u>-225,940</u>	0	0	0	0	0	0
Community Facility	198,726	33,784	33,784	33,784	33,784	0	0
Residential	3,041 DUs †	598,640	346,232	928,144	599,689	329,504	253,457
Retail	<u>195,215</u>	<u>33,187</u>	<u>33,187</u>	<u>33,187</u>	<u>33,187</u>	0	0
Office	<u>-796,947</u>	<u>-79,695</u>	<u>-79,695</u>	<u>-79,695</u>	<u>-79,695</u>	0	0
Hotel	-131,100	-39,330	-13,110	-39,330	-13,110	0	0
<b>Subtotals</b>	--	<u>529,378</u> <b>(0.53 mgd)</b>	<u>307,679</u> <b>(0.31 mgd)</b>	<u>858,882</u> <b>(0.86 mgd)</b>	<u>561,136</u> <b>(0.56 mgd)</b>	<b>329,504</b> <b>(0.33 mgd)</b>	<b>253,457</b> <b>(0.25 mgd)</b>
<b>TOTAL</b>		<b><u>837,057 (0.84 mgd)</u></b>		<b><u>1,420,018 (1.42 mgd)</u></b>		<b>582,961 (0.58 mgd)</b>	

† 2,036,659 sf of residential space

Refer to Table 13-2 for water usage and sewage generation rate assumptions and related notes.

\* From Table 13-3

## F. CONCLUSION

The future with the proposed action is not anticipated to result in significant adverse impacts to infrastructure. Demand for water supply on the 25 projected development sites would experience a net increase of ~~1,462,777~~ 1,420,018 gpd (~~1.46~~ 1.42 mgd) as a result of the proposed action by 2013. This relatively small incremental demand is not large enough to significantly impact the ability of the City's water system to deliver water. As such, the proposed action would not result in significant adverse impacts on the City's water supply nor local water pressure. It also should be noted that independent of the proposed action the NYCDEP Trunk Plan is being updated as an overview of the rehabilitation required to the existing, aging trunk water main system in Manhattan (20 inches in diameter and larger) and known areas which would have an anticipated growth in population and employment (such as Hudson Yards and West Chelsea) are accounted for in this plan.

Sewage flows, resulting in increased demand on the North River WPCP would experience a net increase of ~~881,282~~ 858,882 gpd (~~0.88~~ 0.86 mgd) as a result of the proposed action by 2013. The increase in sanitary sewage resulting from the proposed action is not anticipated to adversely impact the North River WPCP nor cause it to exceed its design capacity or SPDES permit flow limit. As such, the proposed action would not result in significant adverse impacts upon the City's sanitary sewage and wastewater management system.

There is not expected to be any significant increase in stormwater volumes in the future with the proposed action as compared to the volumes expected in the future without the proposed action, because the amount of impervious surfaces in the proposed action area would not change substantially. The projected development sites are generally occupied by buildings or pavement under existing, as they would under No-Action and With-Action conditions.

Additionally, when combined with No-Action developments (including the Hudson Yards development), action generated development from the proposed action would not result in significant adverse cumulative impacts on the City's water supply, nor would it have a significant adverse impact on the wastewater treatment systems.