

**FINAL SUPPLEMENTAL ENVIRONMENTAL IMPACT STATEMENT FOR THE  
CROTON WATER TREATMENT PLANT  
AT THE HARLEM RIVER SITE**

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## **7.7. SOCIOECONOMIC ANALYSIS**

### **7.7.1. Introduction**

This section assesses potential socioeconomic impacts if the proposed Croton Water Treatment Plant (WTP) were located at the Harlem River Site. Potential socioeconomic impacts include direct and indirect displacement and direct or indirect effects on income and employment at the water treatment plant site or the study area. Direct displacement is the geographical dislocation of existing populations, employment, or facilities at the site. Indirect displacement is the displacement of existing populations, employment or facilities due to changes in taxes, property values, living conditions or water rates that could potentially result from the proposed project. Potential beneficial direct and indirect effects include increases in revenue or employment at the site or in the study area.

The study area is based on a one-half mile radius from the periphery of the proposed water treatment plant site. The study area is densely developed, with a mixture of residential, commercial, industrial, and institutional uses, among others. Section 7.2, Land Use, Zoning, and Public Policy describes more detail on the land uses in the study area. The methodology used to prepare this analysis is presented in Section 4.7, Data Collection and Impact Methodologies, Socioeconomic Analysis. Detailed tables containing U.S. Census data used for this analysis at the tract and block group level are presented in Appendix A.

### **7.7.2. Baseline Conditions**

#### **7.7.2.1. Existing Conditions**

##### **7.7.2.1.1. Water Treatment Plant Site**

The proposed water treatment plant site is located southwest of Jerome Park Reservoir along the eastern bank of the Harlem River. The proposed water treatment plant site is located entirely within the Bronx and contains no residential use (and thus has no population). The only existing business located on the water treatment plant is XCEL Ready Mix (a concrete batch plant), which employs 14 people. A second business, a self-storage facility called Storage Post, is currently under construction at the former site of Butler Lumber. Construction of this facility is anticipated to be complete in summer 2004. Transportation and utility uses are found along the entire length of the eastern border of the site (transportation railway lines and storage) and immediately north of the University Heights Bridge (New York City Department of Transportation (NYCDOT) property, which is used as a storage area, and Con Edison property, where a small, un-staffed utility structure is located).

The proposed water treatment plant site contains seven tax lots with various owners (Table 7.7-1). For FY 2002/2003, these tax lots collectively generated total property tax payments of \$239,362.<sup>1</sup>

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<sup>1</sup> NYC Department of Finance. Real Estate Tax Billing Web Service. Accessed October 23, 2003 at <http://nycserv.nyc.gov/nycproperty/nynav/jsp/selectbbl.jsp>.

**TABLE 7.7-1. HARLEM RIVER SITE: TAX LOTS AND TAX PAYMENTS**

<b>Block Number</b>	<b>Lot Number</b>	<b>Owner</b>	<b>Tax Payment (2003-2004)</b>
3231	350	Department of General Services	Exempt
3244	100	Con Edison of NY	NA
3244	120 <sup>1</sup>	Bronx Self Storage, LLC	\$66,742.48
3244	145	Fordham Road Realty	\$13,923.76
3244	160	Fordham Road Realty	\$9,588.24
3244	1	CSX Transportation, Inc.	\$131,129.60
3245	3	CSX Transportation, Inc. <sup>2</sup>	\$17,977.92
<b>Total Tax Payment</b>			<b>\$239,362.00</b>

**Notes:**

1. This lot has been subdivided into three lots: 120, 125, and 130. Further details will be provided as additional subdivision and ownership details become available.
  2. The City of New York is listed as owner of this property; however CSX is listed as the real estate billing name.
- Source:** NYC Department of Finance. Real Estate Tax Billing Web Service. Accessed October 23, 2003 at <http://nycserv.nyc.gov/nycproperty/nynav/jsp/selectbbl.jsp>.  
NA=Not Available

**7.7.2.1.2. Study Area**

This section gives a brief overview of the study area as a whole and highlights general trends both within the study area and New York City (NYC). The study area consists of 75 census block groups in Bronx County and New York County (Figure 7.7-1). Because the study area includes 75 block groups, more detailed information is provided in the discussions of the individual neighborhoods located within the study area. The neighborhood delineations used for this analysis are generally based on those provided by NYC Department of City Planning (NYCDCP) maps, Community Board maps, and street maps. These are: Van Cortlandt Village, Kingsbridge, Marble Hill, Kingsbridge Heights, a small portion of Spuyten Duyvil, Inwood, and University Heights (Section 7.6, Neighborhood Character). The discussions of these neighborhoods are preceded by a general overview of the study area. All neighborhood discussions are based in the context of this study area. Unless otherwise cited, the data in this subsection is from the U.S. Census.

In 2000, approximately 101,400 persons and 34,300 households were in the study area (Table 7.7-2). Compared to NYC and Bronx County in 2000, the study area appeared to be substantially denser and was economically disadvantaged (Table 7.7-2). Each neighborhood discussion provides further detail of these characteristics.



**TABLE 7.7-2. HARLEM RIVER SITE DEMOGRAPHIC SUMMARY TABLE**

<b>Socioeconomic Feature</b>	<b>Geographic Unit</b>	<b>Details (categories differ by feature)</b>					
<b>Population Change and Density, 1990-2000</b>	<b>Neighborhoods:</b>	<b>1990 Pop.</b>	<b>2000 Pop.</b>	<b>% Change 1990-2000</b>	<b>2000 Density (persons per sq mi)</b>		
	Kingsbridge	2,901	3,056	5.3	64,490		
	Marble Hill	7,663	7,790	1.7	66,268		
	Kingsbridge Heights	17,514	18,578	6.1	57,431		
	Spuyten Duyvil	97	93	-4.0	31,531		
	Inwood	25,356	25,885	2.1	62,211		
	University Heights	27,548	28,535	3.6	72,272		
	Van Cortlandt Village	15,704	17,480	11.3	111,264		
	Harlem River Study Area <sup>1</sup>	96,784	101,417	4.8	69,492		
	New York County NY	1,487,536	1,537,195	3.3	66,958		
	Bronx County NY	1,203,789	1,332,650	10.7	31,718		
<b>Change in Number of Households, 1990-2000</b>	<b>Neighborhoods:</b>	<b>1990</b>	<b>2000</b>	<b>% Change 1990-2000</b>			
	Kingsbridge	1,192	1,219	2.3			
	Marble Hill	2,865	2,859	-0.2			
	Kingsbridge Heights	6,026	6,405	6.3			
	Spuyten Duyvil	47	49	3.4			
	Inwood	8,941	9,050	1.2			
	University Heights	8,557	8,923	4.3			
	Van Cortlandt Village	5,498	5,791	5.3			
	Harlem River Study Area <sup>1</sup>	33,127	34,294	3.5			
	New York County NY	716,422	738,644	3.1			
	Bronx County NY	424,112	463,212	9.2			
<b>Racial Composition, 2000 % of Total Population</b>	<b>Neighborhoods:</b>	<b>White</b>	<b>Black</b>	<b>American Indian<sup>2</sup></b>	<b>Asian or Pacific</b>	<b>Other</b>	<b>Hispanic or Latino<sup>3</sup></b>
	Kingsbridge	40.2	27.9	0.4	2.7	28.8	51.3
	Marble Hill	24.1	28.8	1.0	1.7	44.4	66.3
	Kingsbridge Heights	24.6	29.0	0.8	5.0	40.6	60.7
	Spuyten Duyvil	78.1	11.7	0.1	5.1	5.1	9.3
	Inwood	32.2	13.3	1.2	1.9	51.4	68.8
	University Heights	18.7	37.4	1.1	3.3	39.5	61.2

**TABLE 7.7-2. HARLEM RIVER SITE DEMOGRAPHIC SUMMARY TABLE**

<b>Socioeconomic Feature</b>	<b>Geographic Unit</b>	<b>Details (categories differ by feature)</b>					
	Van Cortlandt Village	27.8	21.4	1.0	6.3	43.5	67.1
	Harlem River Study Area	35.1	24.2	0.8	3.7	36.2	55.0
	New York County NY	54.4	17.4	0.5	9.5	18.3	27.2
	Bronx County NY	29.9	35.6	0.9	3.1	30.5	48.4
<b>Age Composition, 2000 % of Total Population</b>	<b>Neighborhoods:</b>	<b>Age 0-4</b>	<b>Age 5-9</b>	<b>Age 10-19</b>	<b>Age 20-44</b>	<b>Age 45-64</b>	<b>Age 65+</b>
	Kingsbridge	8.1	7.5	14.7	40.4	18.7	10.6
	Marble Hill	7.5	9.4	15.1	39.5	20.0	8.5
	Kingsbridge Heights	9.7	9.2	14.6	38.3	17.4	10.8
	Spuyten Duyvil	5.2	5.0	7.3	30.2	28.0	24.3
	Inwood	6.8	7.2	13.3	43.8	20.4	8.4
	University Heights	9.4	10.3	18.8	40.0	16.8	4.9
	Van Cortlandt Village	9.2	10.0	15.4	40.9	18.2	6.2
	Harlem River Study Area	8.0	8.4	14.1	39.0	19.9	10.5
	New York County NY	4.9	4.8	9.4	46.1	22.6	12.2
	Bronx County NY	8.2	9.0	15.7	38.2	18.8	10.1
<b>Change in Median Household Income, 1989-1999</b>	<b>Neighborhoods:</b>	<b>1989</b>	<b>1999</b>	<b>% Change 1989-1999</b>			
	Kingsbridge	\$33,314	\$27,179	-18.4			
	Marble Hill	\$31,221	\$27,603	-11.6			
	Kingsbridge Heights	\$29,536	\$31,312	6.0			
	Spuyten Duyvil	\$76,748	\$68,802	-10.4			
	Inwood	\$30,250	\$28,717	-5.1			
	University Heights	\$24,463	\$26,434	8.1			
	Van Cortlandt Village	\$35,231	\$26,885	-23.7			
	Harlem River Study Area	\$37,252	\$33,848	-9.1			
	New York County NY	\$43,725	\$47,030	7.6			
	Bronx County NY	\$29,741	\$27,611	-7.2			
<b>Change in No. of People Below Poverty Line, 1990-2000</b>	<b>Neighborhoods:</b>	<b>1990</b>	<b>2000</b>	<b>% Change 1990-2000</b>			
	Kingsbridge	569	1,108	94.8			
	Marble Hill	1,955	2,333	19.4			
	Kingsbridge Heights	4,495	5,871	30.6			
	Spuyten Duyvil	2	2	0.0			

**TABLE 7.7-2. HARLEM RIVER SITE DEMOGRAPHIC SUMMARY TABLE**

<b>Socioeconomic Feature</b>	<b>Geographic Unit</b>	<b>Details (categories differ by feature)</b>					
	Inwood	7,862	1,264	-83.9			
	University Heights	10,773	10,908	1.3			
	Van Cortlandt Village	4,312	5,787	34.2			
	Harlem River Study Area	29,965	27,273	-9.0			
	New York County NY	297,617	298,231	0.2			
	Bronx County NY	334,137	395,263	18.3			
<b>Change in Unemployment Rate, 1990-2000</b>	<b>Neighborhoods:</b>	<b>1990</b>	<b>2000</b>	<b>% Change 1990-2000</b>			
	Kingsbridge	4.3	16.4	281.0			
	Marble Hill	9.9	13.8	39.5			
	Kingsbridge Heights	14.0	15.2	7.9			
	Spuyten Duyvil	3.6	4.3	19.7			
	Inwood	9.8	12.3	25.0			
	University Heights	18.6	15.9	-14.8			
	Van Cortlandt Village	12.5	14.2	13.2			
	Harlem River Study Area	10.4	13.1	26.3			
	New York County NY	8.0	8.5	5.9			
	Bronx County NY	11.9	14.3	20.4			
<b>Units in Structure, 2000 % of Total Units</b>	<b>Neighborhoods:</b>	<b>1 Unit Structure</b>	<b>2 to 4 Units in Structure</b>	<b>5+ Units in Structure</b>			
	Kingsbridge	7.4	7.3	85.0			
	Marble Hill	6.9	3.1	90.0			
	Kingsbridge Heights	4.6	3.1	92.3			
	Spuyten Duyvil	3.2	0.5	96.2			
	Inwood	0.4	0.8	98.6			
	University Heights	10.2	9.6	80.2			
	Van Cortlandt Village	3.6	6.7	89.6			
	Harlem River Study Area	10.4	13.1	26.3			
	New York County NY	0.8	2.7	96.4			
	Bronx County NY	11.2	15.8	72.9			

**TABLE 7.7-2. HARLEM RIVER SITE DEMOGRAPHIC SUMMARY TABLE**

<b>Socioeconomic Feature</b>	<b>Geographic Unit</b>	<b>Details (categories differ by feature)</b>					
<b>Owner-Occupied Housing Units and Vacancy Rates</b>	<b>Neighborhoods:</b>	<b>% Owner-Occupied Units 1990</b>	<b>% Owner-Occupied Units 2000</b>	<b>% Change 1990-2000</b>	<b>% Vacant 2000 (based on total units)</b>		
	Kingsbridge	14.9	10.0	-32.8	5.0		
	Marble Hill	4.9	6.5	31.7	3.6		
	Kingsbridge Heights	12.5	15.3	22.0	6.8		
	Spuyten Duyvil	43.6	43.5	-0.2	3.8		
	Inwood	7.4	7.6	3.0	2.5		
	University Heights	8.7	10.9	24.6	6.4		
	Van Cortlandt Village	6.2	7.0	12.2	3.3		
	Harlem River Study Area	14.1	14.4	2.6	4.6		
	New York County NY	17.9	20.1	12.7	7.5		
	Bronx County NY	17.9	19.6	9.5	5.6		
<b>Age of Housing Stock, 2000 % of Total Units</b>	<b>Neighborhoods:</b>	<b>Less than 10 Years Old</b>	<b>10 to 19 Years Old</b>	<b>Over 20 Years Old</b>			
	Kingsbridge	0.0	0.0	100.0			
	Marble Hill	1.2	0.2	98.6			
	Kingsbridge Heights	0.5	1.0	98.6			
	Spuyten Duyvil	0.0	4.4	95.6			
	Inwood	1.3	1.8	96.9			
	University Heights	7.7	5.2	87.1			
	Van Cortlandt Village	1.6	2.8	95.5			
	Harlem River Study Area	1.8	2.2	96.0			
	New York County NY	4.3	6.3	89.4			
	Bronx County NY	4.9	4.4	90.7			
<b>Year Householder Moved into Unit, 2000% of Total Householders</b>	<b>Neighborhoods:</b>	<b>Moved in from 1995 to 2000</b>	<b>Moved in from 1990 to 1994</b>	<b>Moved in from 1989 to 1980</b>	<b>Moved in from 1979 or earlier</b>		
	Kingsbridge	53.5	10.0	19.4	17.1		
	Marble Hill	42.5	16.6	16.5	24.4		
	Kingsbridge Heights	40.6	16.9	29.3	13.3		
	Spuyten Duyvil	34.5	13.1	22.0	30.3		



**TABLE 7.7-2. HARLEM RIVER SITE DEMOGRAPHIC SUMMARY TABLE**

<b>Socioeconomic Feature</b>	<b>Geographic Unit</b>	<b>Details (categories differ by feature)</b>					
	Inwood	41.8	18.5	16.9	22.9		
	University Heights	47.7	19.9	20.6	11.8		
	Van Cortlandt Village	49.3	18.8	15.0	16.8		
	Harlem River Study Area	44.3	16.3	20.0	19.5		
	New York County NY	45.3	15.5	14.7	24.5		
	Bronx County NY	43.2	17.4	17.4	22.1		
<b>Comparison of Median Housing Value, 1990-2000</b>	<b>Neighborhoods:</b>	<b>1990 Median Value<sup>5</sup></b>	<b>2000 Median Value</b>	<b>% Change 1990-2000</b>			
	Kingsbridge	\$115,299	\$226,033	96.0			
	Marble Hill	\$199,730	\$148,775	-25.5			
	Kingsbridge Heights	\$207,670	\$133,222	-35.8			
	Spuyten Duyvil	\$373,304	\$111,700	-70.1			
	Inwood	\$215,444	\$40,756	-81.1			
	University Heights	\$200,857	\$161,275	-19.7			
	Van Cortlandt Village	\$211,412	\$183,591	-13.2			
	Harlem River Study Area	\$217,674	\$143,622	-34.0			
	New York County NY	\$642,115	\$361,100	-43.8			
	Bronx County NY	\$229,148	\$183,800	-19.8			
<b>Comparison of Median Monthly Rent, 1990-2000</b>	<b>Neighborhoods:</b>	<b>1990 Median Rent<sup>5</sup></b>	<b>2000 Median Rent</b>	<b>% Change 1990-2000</b>			
	Kingsbridge	\$520	\$518	-0.5			
	Marble Hill	\$539	\$567	5.2			
	Kingsbridge Heights	\$561	\$598	6.5			
	Spuyten Duyvil	\$1,268	\$1,246	-1.7			
	Inwood	\$507	\$584	15.1			
	University Heights	\$503	\$557	10.8			
	Van Cortlandt Village	\$561	\$608	8.4			
	Harlem River Study Area	\$637	\$668	4.9			
	New York County NY	\$630	\$740	17.5			

**TABLE 7.7-2. HARLEM RIVER SITE DEMOGRAPHIC SUMMARY TABLE**

Socioeconomic Feature	Geographic Unit	Details (categories differ by feature)					
	Bronx County NY	\$517	\$560	8.4			

**Notes:**

1. For block groups partially in a study area, the population was based on the percentage of the block group within the study area.
  2. Category appeared as "Native American" in 1990 Census.
  3. Category appeared as "Hispanic" in 1990 Census.
  4. Adjusted to 1999 dollars based on the New York MSA Consumer Price Index (CPI) for 1989 (130.6) and 1999 (177.0).
  5. Adjusted to 2000 dollars based on the New York MSA Consumer Price Index (CPI) for 1990 (138.5) and 2000 (182.5).
- Source: U.S. Department of Commerce, Bureau of Census, 1990 and 2000.

The City has seen a general trend of out-migration of whites and blacks from the 1970s until present. Meanwhile, Asians and persons of Hispanic origin have been migrating into the region.<sup>2</sup> The results have been dramatic shifts in racial and ethnic composition over time. In 2000, the study area generally reflected Bronx County and NYC with 35 percent of the population white, 24 percent black, four percent Asian or Pacific Islander, and 36 percent categorized by the Census as "other" (Table 7.7-2). Also, over half of the study area's population is of Hispanic or Latino origin. The study area's age composition was overall similar to Bronx County, New York County, and NYC (Table 7.7-2).

Economic trends since 1989 in NYC included a decreased median household income (MHI).<sup>3</sup> In addition, poverty and unemployment rates also increased within the same period. After the longest period of employment growth ever recorded for the City (1992-2001), NYC's economic expansion has subsequently lagged.<sup>4</sup> The study area's unemployment rate also increased between 1990 and 2000, but the poverty rate dropped during this same time period (Table 7.7-2).

Two statistics that were uniform across the neighborhoods were occupational sector and means of transportation to work. In 2000, the percentages of the work force in the study area employed in various occupational sectors reflected those of Bronx County (Table 7.7-3). Approximately 52 percent of the work force was employed in either managerial/professional specialties or in technical, sales, and administrative positions. Professional specialties include architects, engineers, teachers, and physicians, among other occupations. In 2000, roughly 62 percent of the workers in the study area used public transportation to get to work, while many others drove alone (17 percent), car pooled (10 percent), or walked (seven percent) (Table 7.7-4).

<sup>2</sup> New York Metropolitan Transportation Council (NYMTC). 1998. Forecasts: Baseline Scenario. NYMTC. New York, NY.

<sup>3</sup> In making this comparison, 1989 MHI was adjusted to 1999 dollars based on the New York MSA Consumer Price Index for 1999.

<sup>4</sup> New York City Department of City Planning (NYCDCP). 2001. 2000/2001 Report on Social Indicators. NYCDCP. New York, NY.

**TABLE 7.7-3. DISTRIBUTION OF OCCUPATIONS IN 2000 HARLEM RIVER SITE STUDY AREA**

<b>Occupation</b>	<b>% of Study Area Work Force</b>	<b>% of New York County Work Force</b>	<b>% of Bronx County Work Force</b>
Management, professional, and related occupations	24.1	55.8	26.6
Service occupations	26.5	12.4	24.5
Sales and office occupations	27.6	23.5	28.9
Farming, fishing, and forestry occupations	0.1	0.0	0.1
Construction, extraction, and maintenance occupations	6.9	2.3	7.7
Production, transportation, and material moving occupations	15.0	6.0	12.3

**Source:** U.S. Department of Commerce, Bureau of Census, 1990 and 2000.

**TABLE 7.7-4. MEANS OF TRANSPORTATION TO WORK IN 2000 HARLEM RIVER SITE STUDY AREA**

<b>Travel Mode</b>	<b>% of Study Area Work Force</b>	<b>% of New York County Work Force</b>	<b>% of Bronx County Work Force</b>
Drive Alone	17.4	7.6	27.0
Car Pool	9.7	3.4	9.3
Bus	13.9	10.1	15.6
Street Car	0.2	0.1	0.2
Subway or El	44.3	43.6	34.6
Railroad	1.7	1.1	2.0
Ferry Boat	0.1	0.1	0.0
Taxi	1.8	4.7	1.3
Motorcycle	-	0.1	0.0
Bicycle	0.3	0.9	0.2
Walk	7.3	21.9	7.2
Other	0.7	0.8	0.6
Work at Home	2.5	5.8	1.9

**Source:** U.S. Department of Commerce, Bureau of Census, 2000.

In 2000, the education attainment of the residents in the study area generally reflected that of Bronx County, but was lower than New York County and NYC. Block groups in University Heights demonstrated particularly low levels of educational attainment. These included block groups 2, 3, and 4 in tract 245, with 52 to 54 percent of the population over the age of 25 without a high school diploma (see Appendix A).

Roughly 90 percent of the housing units in the study area are in structures that contain five or more units (Table 7.7-2). This is largely due to the dense nature of the study area. In 2000, the study area had a relatively low percentage of owner-occupied housing units (14 percent) compared to Bronx County (20 percent) and NYC (30 percent) (Table 7.7-2). The housing stock in the block groups throughout the study area is fairly old, with 96 percent of the units built before 1980 (Table 7.7-2). Also, 61 percent of the study area's householders had moved into their 2000 residence in the ten years prior to the census (Table 7.7-2).

***Van Cortlandt Village.*** The portion of Van Cortlandt Village located within the study area includes the residential area immediately southwest of the Jerome Park Reservoir. The area includes Census block groups in tract 267, tract 273, and tract 277. The majority of this area is residential in nature, although part of the Kingsbridge Armory is located in the southeast portion of this neighborhood.<sup>5</sup>

Slightly less than one-fifth of the study area's population, or 17,480 persons, lived in this part of the study area in 2000 (Table 7.7-2). This portion of the study area gained 1,776 persons between 1990 and 2000. In addition, the number of households in this portion of the neighborhood increased by five percent (Table 7.7-2). This area was substantially denser than either Bronx County or NYC in 2000 (Table 7.7-2). Many of the densities in Table 7.7-1 in Appendix A appear very high. This is due to the small sizes of the block groups and lack of non-residential uses.

Racial diversity for the tracts in Van Cortlandt Village was similar in 2000 (see Appendix A, Table 7.7-3). The dominating racial categories for most tracts were white and black. In addition, a majority of people in each block group reported being of Hispanic or Latino descent, ranging from 54 percent (block group 4 in tract 267) to 74 percent (block group 5 in tract 267). The age composition of this area was similar to Bronx County, New York County, and NYC. The largest age category for the neighborhood was people between the ages of 20 and 44. Approximately 41 percent of the neighborhood's population fell within this age range (Table 7.7-2).

Overall, the majority of the block groups' MHI was lower than that of Bronx County (\$27,611) in 1999. Block group 2 in tract 273 had the highest MHI of \$34,744, while block group 5 in tract 267 had the lowest of \$17,389 (see Appendix A, Table 7.7-5). Most block groups in this portion of the neighborhood experienced a decrease in MHI from 1989 to 1999, block group 3 in tract 267 and block group 4 in tract 273 being exceptions.

Those block groups that appeared disadvantaged in terms of income, unemployment, and poverty appeared to worsen between 1990 and 2000. Block groups 1, 2, 3, and 5 in tract 267 saw significant increases in the number of persons below the poverty level, ranging from 92 to 108 percent increases during this time period. Also, this portion of the neighborhood's average unemployment rate was slightly higher than Bronx County's rate of 14 percent (see Appendix A, Table 7.7-6 and Table 7.7-7).

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<sup>5</sup> The Kingsbridge Armory resides on the border between the southern end of Van Cortlandt Village and the northern end of Kingsbridge Heights and may be referred to as part of the latter neighborhood in other sections of this document.

In 2000, the majority of the housing stock (72 to 98 percent) was in larger structures containing five or more units (see Appendix A, Table 7.7-10). Block group 2 in tract 277 stands out in that 12 percent of its units are single units (attached or detached), according to 2000 data. This block group includes some of the houses located between Kingsbridge Terrace and Bailey Avenue, west of Jerome Park Reservoir. Owner-occupancy, in general, increased in this area from 1990 to 2000, though the percentages of owner-occupancy remained low, with percentages less than in Bronx County (20 percent) (see Appendix A, Table 7.7-11). Because most of the units were within larger apartment buildings, most ownership opportunities were restricted to those few housing units, condominiums, or cooperatives.

Vacancy rates were fairly low according to 2000 census data, with the highest rate in block group 2 in tract 273 (five percent). Almost all of the vacant units were either for rent or for sale at the time the 2000 Census was taken. As of the 2000 Census, between 84 and 100 percent of the housing in this area was built before 1980 (see Appendix A, Table 7.7-12). Block group 5 in tract 267 also had a larger proportion (16 percent) of units built after 1980 than all of the other block groups. The data suggest that the population in this neighborhood has been fairly transitional; i.e., large proportions of the householders moved into their residences in the five years before the 2000 Census (see Appendix A, Table 7.7-13).

Median housing values greatly varied in 2000 (see Appendix A, Table 7.7-14). Although the average median housing value for this portion of the neighborhood decreased approximately 13 percent from 1990 to 2000, this was significantly less than the 35 percent decrease for the study area. While housing values decreased, the neighborhood's median monthly rent over the same decade increased (see Appendix A, Table 7.7-15). Rent control and stabilization were not accounted for by the U.S. Census. In 2000, the median rents varied somewhat in this area, ranging from \$527 in block group 4 of tract 273 to \$726 in block group 3 of tract 277.

***Kingsbridge.*** This part of the study area includes the narrow strip of land between the Major Deegan Expressway and Kingsbridge Avenue. This area is characterized by commercial, institutional, and residential uses. It includes tract 271.01 (all of block group 1), tract 283 (part of block group 2) and tract 289 (parts of block groups 1, 2, and 3).

Approximately 3,000 of the study area's residents lived in this area in 2000. Overall, this portion of the neighborhood's population increased five percent from 1990 to 2000. However, both block group 1 in tract 271.01 and block group 3 in tract 289 reported a decrease in population of 13 percent in the same decade (see Appendix A, Table 7.7-16). Tract 271.01, which contains some of the Marble Hill apartments, and block group 2 in tract 289 were substantially more dense (154,300 and 193,500 persons per square mile) than the rest of this area, Bronx County (31,700 persons per square mile), New York County (67,000 persons per square mile) and NYC (26,400 persons per square mile). The changes in the number of households from 1990 to 2000 also varied (see Appendix A, Table 7.7-17). The extremes were tract 271.01 with a seven percent decrease and tract 283 with a 39 percent increase.

The block groups in this part of the study area generally differed from one another in racial composition. In 2000, the two racial categories with the greatest variation were white (21 to 67

percent of the population) and black (nine to 55 percent of the population). The racial composition of tract 271.01 was similar to Bronx County, while tracts 283 and 289 were similar to NYC (see Appendix A, Table 7.7-18). A substantial proportion of the block groups' populations (29 to 65 percent) were of Hispanic or Latino origin. In terms of age composition, the block groups were similar to Bronx County but had a notably higher percentage of children under the age of 20 (26 to 35 percent) than New York County (19 percent) (see Appendix A, Table 7.7-19).

The area varied in terms of economic well-being, with block group 3 in tract 289 having the highest MHI (\$50,208) and tract 271.01 having the lowest MHI (\$10,825) (see Appendix A, Table 7.7-20). According to 2000 census data, unemployment rates also varied substantially across this portion of the neighborhood in 2000, varying from a low of zero percent in block group 3 of tract 289 to a high of 33 percent in block group 2 in tract 289 (see Appendix A, Table 7.7-22).

Between 95 and 100 percent of this area's housing units are within larger structures, containing five or more units, according to 2000 data (see Appendix A, Table 7.7-23). An exception is block group 3 in tract 289, where over two-thirds of its units were in smaller structures. This block group includes the houses along Kingsbridge Avenue and Corlear Avenue. Correspondingly, this block group had a higher percentage of owner-occupied housing units (44 percent) than the rest of this area in 2000. Overall, the tracts here experienced decreases in owner-occupancy between 1990 and 2000. The proportion of owner-occupied units lagged behind Bronx County (20 percent) and NYC (30 percent) (see Appendix A, Table 7.7-24).

Vacancy rates in 2000 in this portion of the study area were generally low. Tract 271.01 had the highest percentage (seven percent) of vacant units in this area. According to 2000 data, roughly 93 to 100 percent of the housing stock was built before 1980 (see Appendix A, Table 7.7-25). Block group 1 in tract 271.01 and block group 2 in tract 283 exhibited more stability than the rest of this area, based on the percentages of their populations (58 and 67 percent, respectively) that moved into their 2000 residence before 1990 (see Appendix A, Table 7.7-26). In contrast, 100 percent of the population in block group 3 in tract 289 lived in their residence for less than five years.

Complete median housing value data for this area were not available. However, data that were available indicated that the median housing values increased from 1990 to 2000 (Appendix A, Table 7.7-27). The median monthly rent for this area varied, with 2000 rents ranging from \$266 (block group 1 in tract 271.01) to \$657 (block group 1 in tract 289) (see Appendix A, Table 7.7-28). While the majority of block groups saw increases in rent prices, the median monthly rent decreased for three block groups (block group 1 in tract 271.01, block group 2 in tract 283, and block group 3 in tract 289).

***Marble Hill.*** This relatively small neighborhood is located in the extreme northern lobe of New York County on the northern bank of the North Harlem River where it turns to meet the Hudson River. It consists of tract 309.

An estimated 7,800 persons lived in this part of the study area, and 2,870 households were in this neighborhood in 2000 (Table 7.7-2). Block groups 1 and 2 of tract 309 both saw population decreases (two and 16 percent, respectively) from 1990 to 2000, while block groups 3 and 4 both saw population increases (17 and three percent) during the same decade (see Appendix A, Table 7.7-29). The population densities for the four block groups within this neighborhood varied greatly, ranging from a low of 39,600 persons per square mile (block group 4 in tract 309) to a high of 151,900 persons per square mile (block group 3 in tract 309).

In terms of racial composition, a large proportion of the population of this area in 2000 was Hispanic or Latino (52 to 83 percent) when compared to New York County (27 percent) and NYC (27 percent) (see Appendix A, Table 7.7-31). The age composition of this area roughly mirrored that of New York County in 2000. However, there was a higher percentage of children under ten (16 to 18 percent) in this area than New York County (ten percent) (see Appendix A, Table 7.7-32).

The economic well-being of the residents varied in 2000, ranging from a low of \$16,860 in block group 1 to a high of \$37,314 in block group 4 in tract 309. The average MHI in this area (\$27,603) was very similar to the MHI for Bronx County (\$27,611) (see Appendix A, Table 7.7-33). According to 2000 data, unemployment rates for block groups in this area ranged from eight to 18 percent (see Appendix A, Table 7.7-35).

Approximately 82 to 99 percent of the housing stock in the block groups was within larger structures in 2000 (structures with five or more units) (see Appendix A, Table 7.7-36). This area had a smaller proportion of owner-occupied units (seven percent) in 2000 compared to New York County (20 percent) (Table 7.7-2). This low percentage is due to the predominance of apartments in this area, characterized by a group of high-rise apartments known as the Marble Hill Housing Projects. Vacancy rates were relatively low for all block groups in this area (five percent or less). According to 2000 data, most units were built before 1980 (96 to 100 percent) (see Appendix A, Table 7.7-38).

The median housing values in the block groups ranged from \$91,900 to \$199,000 in 2000, much lower than the average for New York County (\$361,100) and NYC (\$221,200) (see Appendix A, Table 7.7-40). The median monthly rent in 2000 differed among the block groups, ranging from \$374 to \$624 (see Appendix A, Table 7.7-41).

***Kingsbridge Heights.*** This neighborhood, south of the Jerome Park Reservoir, is generally south of West Kingsbridge Road and includes residential areas, parks, and the U.S. Veterans Medical Center. Five census tracts in this neighborhood are located within the study area: tract 261, tract 263, part of tract 265, tract 269, and tract 271.02.

Approximately 18,600 of the study area's population and 6,400 of the households were in this neighborhood in 2000 (see Appendix A, Table 7.7-42 and Table 7.7-43). All but one tract, tract 261, increased in population from 1990 to 2000. The exception, tract 261, experienced a strong decrease in population (32 percent) and households (35 percent). Block group 2 in tract 263 was substantially denser, with 326,159 persons per square mile, than the rest of the neighborhood,

which ranged in density from 23,300 to 157,800 persons per square mile; Bronx County (31,700 persons per square mile); and NYC (26,400 persons per square mile).

In terms of racial composition, the population was almost evenly divided between white, black, and "other." Exceptions included tract 261 with a large black population (63 percent) and tract 271.02 with a large percentage classified as "other" (67 percent). More than half of the population in this portion of the study area was of Hispanic or Latino origin in 2000 (see Appendix A, Table 7.7-44). Block group 1 in tract 261, block group 1 in tract 263, and block group 3 in tract 265 had larger proportions (20, 23, and 21 percent, respectively) of people age 65 or over in 2000 than the remainder of this portion of the study area (four to 13 percent) (see Appendix A, Table 7.7-45). Tract 271.02 had an exceptionally large proportion of children under the age of 20 (47 percent) when compared to Bronx County (33 percent) or NYC (27 percent).

The economic well being of the residents varied, though tracts 263 and 265 appeared to fare worse than the other tracts based on 2000 data. The MHI for these tracts (\$26,343 and \$21,306, respectively) was substantially less than the rest of the neighborhood (see Appendix A, Table 7.7-46). Unemployment rates, which ranged from 11 to 28 percent, were high for all block groups in 2000 when compared to Bronx County (14 percent) and NYC (ten percent) (see Appendix A, Table 7.7-48).

Roughly 83 to 100 percent of the housing stock in the block groups was within larger structures in 2000 (structures with five or more units) (see Appendix A, Table 7.7-49). Block group 1 in tract 265 had a higher proportion of one-unit structures (14 percent) compared to the other block groups. This block group includes those houses across from the Kingsbridge Armory. This block group, along with block group 2 in tract 269, also had a larger proportion of owner-occupied units in 2000 compared to the other block groups with an exception to tract 261 (67 percent); 14 percent of the units in block group 1 in tract 265 were owner-occupied, as were 18 percent of the units in block group 2 in tract 269 (see Appendix A, Table 7.7-50). Tract 261 had a relatively high vacancy rate in 2000 (15 percent). The majority of housing in this neighborhood was built prior to 1980 (94 to 100 percent) (see Appendix A, Table 7.7-51).

In 2000, the median housing values in the block groups ranged greatly from \$57,400 to \$266,000 (see Appendix A, Table 7.7-53). Housing values in this area decreased substantially from 1990 to 2000. However, the average rent for the area rose approximately seven percent during this same period. The median monthly rent in 2000 was varied among the block groups, ranging from \$504 to \$801 (see Appendix A, Table 7.7-54).

***Spuyten Duyvil.*** This heavily wooded and relatively low-density neighborhood is bordered to the east by Marble Hill and is bisected by the Henry Hudson Parkway. A very small portion of this neighborhood lies within the study area, which consists of part of block group 1 in tract 293.

An estimated 93 persons lived in this part of the study area, and 49 households were in this neighborhood in 2000 (Table 7.7-2). This area saw a population decrease of four percent from 1990 to 2000 (Table 7.7-2). This portion of the neighborhood was comparable in density



(31,500 persons per square mile) to Bronx County (31,700) and NYC (26,400) (see Appendix A, Table 7.7-55).

In terms of racial composition, the population of this area in 2000 was predominantly white (roughly 78 percent) as compared to Bronx County (30 percent) and NYC (45 percent) (Table 7.7-2). The population consisted of a relatively large proportion of elderly people (age 65 and over) (Table 7.7-2).

The economic well being of the residents was relatively good in comparison to other portions of the study area. In 2000, this area's average MHI was more than double the Bronx County average of \$27,611 (Table 7.7-2). The four percent unemployment rate for this portion of Spuyten Duyvil was low in 2000 when compared to the Bronx County (14 percent) and NYC (ten percent) (Table 7.7-2).

Roughly 96 percent of the housing stock in this area consisted of structures with five or more units in 2000 (Table 7.7-2). This is similar to the study area's estimate of 91 percent. This portion of the study area had a larger proportion (44 percent) of owner-occupied units in 2000 compared to Bronx County (20 percent) (Table 7.7-2). The vacancy rate in 2000 was relatively low for this area (four percent). According to 2000 data, 96 percent of the housing units were built before 1980 (Table 7.7-2). The median housing value for this portion of the neighborhood in 2000 (\$111,700) was significantly lower than the value in 1990 (\$373,304) (Table 7.7-2). The median monthly rent for this area also decreased during this period, although much less significantly (Table 7.7-2).

***Inwood.*** This neighborhood, located in Manhattan, consists of the northern portion of Manhattan and is surrounded by water on three sides (the Harlem and Hudson Rivers). The portion of this neighborhood within the study area is comprised of portions of 9 tracts: tract 283, tract 285, tract 289, tract 291, tract 293, tract 297, tract 301, tract 303, and tract 307.

Approximately one-fourth of the study area's population, or 25,900 persons, lived in this part of the study area, and 9,050 households were in this neighborhood in 2000 (Table 7.7-2). The majority of tracts saw population increases from 1990 to 2000, ranging from two to 17 percent (see Appendix A, Table 7.7-68). Tracts that experienced decreases in population include tract 289, tract 291, and tract 297. With the exception of tract 289 and tract 301, most of the block groups were higher in density (up to 229,700 persons per square mile) when compared to New York County (67,000) and NYC (26,400) (see Appendix A, Table 7.7-68).

In terms of racial composition, the population of this area in 2000 was evenly distributed, but often with higher percentages in the "other" and Hispanic or Latino categories when compared to New York County and NYC (see Appendix A, Table 7.7-70). The age composition of this area was similar to that of NYC in 2000 (see Appendix A, Table 7.7-71).

The economic well being of the residents varied in 2000. Block group 2 in tract 293 had a particularly low MHI of \$16,667 (see Appendix A, Table 7.7-72). Unemployment rates in 2000 strongly varied in this area, ranging from three to 24 percent (see Appendix A, Table 7.7-74).

Approximately 99 percent of the housing stock in this portion of the study area consisted of structures with five or more units in 2000 (Table 7.7-2). A small proportion of structures in this area were owner-occupied units in 2000. An exception is block group 1 in tract 307 with 60 percent of the units owner-occupied (see Appendix A, Table 7.7-76). Vacancy rates were relatively low for all block groups in this area (five percent or less). As holds true for the majority of the entire study area, this area largely consists of an older housing stock, according to 2000 data. Most units were built before 1980 (91 to 100 percent) (see Appendix A, Table 7.7-77). One exception was block group 3 of tract 293 where a higher proportion of its units (23 percent) were constructed between 1980 and 2000.

The median housing values in the block groups ranged greatly from \$10,000 to \$82,000 in 2000 (see Appendix A, Table 7.7-79). This range of values is significantly lower than what was reported by the 1990 Census for the same area. The median monthly rent in 1990 varied among the block groups, ranging from \$327 to \$781 (see Appendix A, Table 7.7-80).

***University Heights.*** This neighborhood is generally located south of West/East Fordham Road and is the southernmost neighborhood within the study area. Portions of eight tracts make up this neighborhood: tract 53.02, tract 245, tract 247, tract 249, tract 251, tract 253, tract 255, and tract 257. This neighborhood consists of a mix of high-density residential developments and some commercial areas along major streets. One of the most prominent features in this portion of the study area is the Hall of Fame of Great Americans and Bronx Community College located west of Martin Luther King Junior Boulevard.

In 2000, there were roughly 28,500 persons and 8,923 households in this part of the study area (Table 7.7-2). The majority of tracts saw population increases ranging from two to 55 percent from 1990 to 2000 (see Appendix A, Table 7.7-81). Those with decreases in population include tract 53.02 (12 percent) and tract 253 (less than one percent).

In terms of racial composition, the population of this area in 2000 was largely black or “other.” Approximately 61 percent of the population in this portion of the study area was of Hispanic or Latino origin (Table 7.7-2). The age compositions of the census block groups in this area were relatively similar to one another and to Bronx County (see Appendix A, Table 7.7-84).

The economic well-being of the residents varied in 2000. Block group 9 in tract 53.02, block group 3 in tract 245, and block group 1 in tract 251 seemed particularly disadvantaged with average MHI’s of \$15,500, \$14,200, and \$11,700, respectively (see Appendix A, Table 7.7-85). On the whole, unemployment rates in this area, which ranged from two to 29 percent, were high in 2000 when compared to the Bronx County (14 percent) and NYC (ten percent) (see Appendix A, Table 7.7-87).

Approximately 80 percent of the housing stock in this portion of the study area was within structures with five or more units in 2000 (see Appendix A, Table 7.7-88). One exception was tract 249 with 100 percent of its housing stock consisting of single unit structures. Block group 1 in tract 245 also had a higher proportion of structures with four or fewer units (43 percent) compared to the other block groups. This was reflected in higher owner-occupied rates for tract 249 (46 percent) and block group 1 in tract 245 (32 percent) in 2000. Vacancy rates varied in this

area in 2000, ranging from three to 23 percent (see Appendix A, Table 7.7-89). According to 2000 data, most units in this neighborhood were built before 1980 (63 to 100 percent) (see Appendix A, Table 7.7-90).

The median housing values in the block groups ranged greatly from \$10,000 to \$275,000 in 2000 (see Appendix A, Table 7.7-92). Similar to the rest of the study area, most block groups in this neighborhood experienced a significant decrease in median housing value from 1990 to 2000. However, the average median monthly rent for this portion of the study area experienced an 11 percent increase during this same period. Not all block groups reflected this increase, including block group 9 in tract 53.02 and block group 5 in tract 245, which both experienced decreases in median monthly rent from 1990 to 2000 (see Appendix A, Table 7.7-93).

#### ***7.7.2.1.3. Property Value***

The NYCDP MISLAND database provided the average selling price for residential units by census tract annually from 1993 to 2002. Table 7.7-5 shows the average selling prices for the census tracts in the study area based on the MISLAND data. Data are not consistently reported for each year by type of housing unit. Data are primarily available for two-family housing units. Prices for these units fluctuated over the decade (all dollars were adjusted to 2004 dollars for comparison purposes).

As shown in Table 7.7-2, median housing values in the block groups in the study area in 2000 were varied. According to the 2000 U.S. Census, the median housing value for the study area (\$143,622) was somewhat lower than Bronx County and considerably lower than New York County (\$183,800 and \$361,100, respectively).

#### ***7.7.2.1.4. Study Area Businesses***

Businesses near the proposed water treatment plant site include numerous industrial and retail enterprises including several fast food and auto sales establishments. The predominant businesses to the west of the water treatment plant site are transportation and utility related. Other businesses in this area include auto-related businesses, scrap metal businesses, and a multi-national grocery store. Numerous commercial businesses are located along major streets (e.g. Jerome Avenue, Bailey Avenue, West Fordham Road, and West Kingsbridge Road) and scattered throughout residential neighborhoods in the study area. These provide various services for the study area's residents such as auto repair, dry cleaning, cosmetic care, and food service.

**TABLE 7.7-5. AVERAGE SELLING PRICES FOR RESIDENTIAL UNITS, IN THE HARLEM RIVER STUDY AREA 1993 TO 2002<sup>(1)</sup>**

Year	Average Selling Price <sup>(2)(3)</sup>				
	One Family	Two Family	Large and Small Walk-Up	Elevator Apartment	Residential Condominium
1993	N/A	\$250,662	N/A	N/A	\$173,431
1994	N/A	\$288,087	N/A	N/A	N/A
1995	N/A	\$228,677	N/A	N/A	N/A
1996	N/A	N/A	N/A	N/A	N/A
1997	N/A	\$141,257	\$824,405	N/A	N/A
1998	N/A	\$245,521	N/A	N/A	\$36,888
1999	N/A	\$224,196	N/A	N/A	\$49,171
2000	N/A	\$189,461	N/A	N/A	\$43,633
2001		\$223,285	\$256,137	N/A	N/A
2002	\$381,278	\$220,511	\$342,172	N/A	N/A

**Notes:**

- (1) Based on data for Bronx County Census tracts 239, 243, 245, 247, 251, 253, 255, 257, 263, 265, 267, 269, 273, 277, 283, 289, 293, 409, and New York County Census tracts 283, 285, 289, 291, 293, 303, 307, and 309.
- (2) Excludes multiple lot sales, sales less than \$1,000, and miscellaneous insignificant sales as determined by NYCDCP.
- (3) All dollars were adjusted to 2003 dollars based on the New York MSA Consumer Price Index (CPI) for 2000 (182.5) and 2003 (197.8); then further inflated at 2.75 percent to 2004.

**Source:** NYCDCP, 2003.

According to the 2000 U.S Census, Bronx County's labor force approximated 500,700 persons in 2000, down from 502,300 in 1990. There were 198,751 people employed in Bronx County in 1999, representing a 2.7 percent increase from 1990. Sales/office, construction, and transportation occupations declined during this time period, while service and management/professional occupations increased. New York County's labor force experienced a slight increase during this time period, climbing from 839,205 in 1990 to 841,633 in 2000. The number of people employed in New York County in 1999 was 2,001,945, down 0.7 percent from 1990. Employment in management/professional and sales/office sectors remained the highest, representing 79 percent of all employment in New York County. The estimated number of jobs within the study area was not available.

#### **7.7.2.1.5. Water Rate Structure**

This section summarizes the current water rate structure for City and upstate customers of NYC Water Supply System. This information would be used to assess the potential socioeconomic indirect displacement effects from increased water rates due to the construction of the proposed project at the water treatment plant site.

***Financing Mechanisms for New York City Department of Environmental Protection (NYCDEP) Capital Improvements.*** The NYC water and sewer system is financially self-sustaining, i.e., water and sewer charges are used only to pay for system costs, and annual

revenues equal the cost of running the system. Costs (operating expenses and debt service on new and existing capital improvements) are estimated annually for the entire system and water and sewer rates are adjusted accordingly to provide annual operating revenues equal to the costs. Thus residential, commercial, and industrial users of the water supply system would pay for the capital and operating costs of the proposed project through their water charges.

There are two forms of borrowing available to fund the construction of NYCDEP capital improvement projects: (1) the New York City Municipal Water Finance Authority (“Authority”), and (2) the New York State Drinking Water Revolving Fund Program (SRF).

The Authority is authorized to issue bonds to fund the construction of capital improvement projects. The bonds are payable solely from, and secured by, a pledge of gross revenues from the New York City Water Board. Water and Sewer System fixed rate revenue bonds issued by the Authority for fiscal year 2004 currently carries an interest rate of 5.25 percent and are repaid over a period of 30 years. Amortization of Authority bonds begins in the year that the bonds are issued. Capital improvement projects with multi-year construction schedules, such as the proposed project, are financed with Authority bonds issued once or twice per year in amounts necessary to cover the anticipated construction cost in any given year.

New York State makes lower-cost financing available to municipalities around the state for capital improvement projects related to drinking water. The state receives an annual grant from the U.S. Environmental Protection Agency (USEPA) that provides seed money for construction of facilities related to drinking water. Under a matching fund provision, the State is required to contribute an amount equal to 20 percent of the grant as additional funding. The State invests the seed money, and uses the proceeds to subsidize the interest rate on bonds that it issues through the SRF to finance municipal projects. Municipalities repay the proceeds of the SRF bonds to the State, thus creating a “revolving fund” that can be used for future projects. Interest rates under the SRF program are currently less than bonds issued by municipalities. Rates vary; however, interest rates in FY 2004 are 5.2 percent. This rate is further reduced by one-third to one-half depending on the projects. SRF bonds have a repayment period of 20 years. Leveraged loans for drinking water projects would be approximately one-third less. As with some municipal bonds, the SRF program includes funding for several water projects from around the State in a single bond issue.

The proceeds of both bonds are typically used to finance the cost of the capital improvement program, to fund certain reserves, and to pay costs of issuance, including the premium for bond insurance. The majority of the proceeds is deposited in a construction fund, and smaller percentages of the proceeds are deposited in a debt service reserve fund and the operation and maintenance fund, or are used for various underwriting discounts.

***Total Debt Service Payable from Current Revenues.*** Major investments have been made in the City’s water and sewer infrastructure since the 19th century. Some ongoing capital improvement projects include: (1) the Water Quality Preservation Program, which provides for improvements to the upstate watersheds and includes a land acquisition program, the upgrade of non-City owned water pollution control facilities, and construction of an ultraviolet light water treatment facility; (2) the construction of portions of a new water tunnel (City Tunnel No. 3)

from the Hillview Reservoir to Manhattan, Brooklyn, and Queens to create a more flexible system and provide an alternative water supply system in the event of a disruption of any of the tunnels (Stage 1 of the tunnel construction became operational in 1998); (3) trunk distribution and main replacement; and (4) wastewater treatment plant upgrades and construction in compliance with consent decrees.

The City's water and sewer system was obligated to make debt service payments in Fiscal Year (FY) 2004 of approximately \$654.8 million on outstanding bonds. This number was projected to increase to \$840.6 million in FY 2005. The majority of the debt service would be paid from current water and sewer user payments.

***Existing Rates for City Customers.*** There are approximately 828,000 water and sewer accounts in the City, the vast majority of which receive both water and sewer service. Approximately ninety percent (747,000 accounts) are metered accounts, and annual charges are calculated on actual water usage. Sewer charges are computed as a percentage of water charges. The remaining 88,000 accounts are flat rate accounts and charges are assessed based on building characteristics, the number of housing units in the building, and the number of water-using fixtures in the building. In addition, certain institutions are exempt from payment of water and sewer charges, including religious institutions, certain educational and charitable institutions, homes for the aged, hospitals, and other nonprofit or charitable corporations. In FY 2004, there were approximately 4,000 accounts that are entirely or partially exempt from water and sewer charges. In FY 2004, water and sewer payments for City customers were estimated to be \$1.6 billion.<sup>6</sup>

There are 12 major categories of water and sewer system customers. As indicated in Table 7.7-6, which shows the respective percentage of billings in each category, approximately 65 percent of the user payments that support the water and sewer system come from residential customers.<sup>7</sup> The rate for a single-family residence household effective in FY 2004 is \$1.52 per hundred cubic feet (ccf).<sup>9</sup> This would represent an annual water and sewer charge of \$526 per 100,000 gallons of usage (in 2004 dollars).

***Existing Rates for Upstate Customers.*** Water is provided to customers north of the City on a wholesale basis. The City delivers water to central locations and municipalities or water districts which subsequently distribute the water to their individual customers. For the period 1991 through 2000, the City provided an average of approximately 44,600 million gallons per year, or 122.2 million gallons per day, to upstate municipalities or water districts. The total averaged approximately 8.65 percent of all water supplied to both in-City and upstate customers. The percentage of water supplied to upstate municipalities or water districts has increased in

**TABLE 7.7-6. CITY WATER AND SEWER SYSTEM BILLING**

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<sup>6</sup> NYCMWFA. 2004. New York State Environmental Facilities Corporation. State Clean Water and Drinking Water Revolving Funds Revenue Bonds. Series 2004C. New York City Municipal Water Finance Authority. New York, NY.

<sup>7</sup> NYCMFWA. 2001. Fiscal Year 2001 Comprehensive Annual Financial Report. New York City Municipal Water Finance Authority. New York, NY.

<sup>9</sup> New York City Water Board. Water Rate Increase for Fiscal Year 2004. May 29, 2003.

<b>Classification</b>	<b>Percent of Billings (%)</b>
Single-family dwellings	9.6
Two-family dwellings	10.3
Walk-up apartments	19.0
Elevator apartments	25.7
Factories and Industrial Buildings	5.2
Stores	8.3
Office Buildings	5.6
Utility Properties	2.8
Loft Buildings	2.6
Hospitals and Health Facilities	1.5
Hotels	2.3
Other	7.1
<b>Total</b>	<b>100.0</b>

Source: NYCMFWA. 2001. Fiscal Year 2001 Comprehensive Annual Financial Report. New York City Municipal Water Finance Authority. New York, NY.

recent years, reaching a high of 9.6 percent in 1999. Four upstate water districts are the primary users of water from the Croton system. These four districts received an estimated 1.38 million gallons per day from the Croton system in 2000. Residential demand is estimated to be approximately 89 percent of total demand, with approximately 61,000 households served.

Rates for water supply service to upstate municipalities or water districts are determined in accordance with the Water Supply Act of 1905, which states that rates shall be based on the system's actual cost of service. Charges to upstate customers are established on the basis of actual total cost of water to the City after deducting the capital and operating costs incurred within the City limits for the distribution and delivery of water to City customers. The sale of water and the rates and the charges for that sale are regulated not only by state law, but by individual agreements between the City and upstate water purveyors. Each contract establishes a system of metering the water sales to individual communities and the application of a specific charge per unit of metered volume. According to information from the Authority, in most cases per capita consumption in the upstate communities is less than that of City customers.<sup>10</sup> The regulated rate for upstate municipalities or water districts may not exceed the rate charged to customers within the City. The upstate purveyors must pay for water in excess of allowance quantities at a rate equal to the in-City metered rate.

Rates for water supplied to upstate purveyors were \$342.97 per million gallons in FY 1999, \$383.78 per million gallons in FY 2000, \$414.42 per million gallons in FY 2001, \$448.83 per million gallons in FY 2002, and \$485.71 per million gallons in FY 2003. The FY 2004 rate is \$542.36 per million gallons. In FY 2004, total water payments from upstate customers are estimated to be \$25.4 million. The cost of water per residential household using 100,000 gallons per year in FY 2004 would be approximately \$54 (in 2004 dollars). It is important to note that this dollar amount represents the cost of New York City water only. The purveyor of water to

<sup>10</sup> NYCMWFA. 2002. Water and Sewer System Revenue Bonds. Fiscal 2003 Series A and B Statement. New York City Municipal Water Finance Authority. NY, NY.

the upstate customers would also assess charges for distribution and treatment, as applicable. In addition, upstate customers would be responsible for sewer charges, where applicable.

#### **7.7.2.2. *Future Without the Project***

The Future Without the Project conditions were developed for the anticipated peak year of construction (2009) and the anticipated year of operation (2011) for the proposed plant. The anticipated peak year of construction is based on the peak number of workers. For the purpose of evaluating potential impacts associated with the proposed project on water rates, future baseline conditions in the years 2011 and 2016 are discussed. The year 2011 is selected because it represents the anticipated first year of operation for the proposed plant, and the year 2016 is selected because it represents the year in which all the effects of capital costs would be reflected in the debt service of the bonds issued for the facility.

##### **7.7.2.2.1. *Water Treatment Plant Site***

In the Future Without the Project, it is anticipated that the water treatment plant site would experience some changes from its existing condition. The XCEL Ready Mix concrete batch plant would continue to operate similar to existing conditions, with 14 employees. However, construction of the self-storage facility is scheduled to be complete by summer 2004. This business would add up to three employees at the water treatment plant site, for a total of 17 employees in the Future Without the Project. The water treatment plant site would continue to generate taxes for NYC and Bronx County, similar to current conditions. However, a new tax lot is proposed for the self-storage facility. Block 3244 Lot 120 has been subdivided into three lots: Lot 120, Lot 125, and Lot 130. Further property tax information for these proposed tax lots was not available at the time of preparation of this report. No residential developments are anticipated at the site. Although as described in Section 7.2, Land Use, Zoning and Public Policy, comprehensive waterfront plans have been identified that propose redevelopment of the area, no proposals have been initiated to date.

##### **7.7.2.2.2. *Study Area***

Projections for population, employment, and labor force were undertaken. Data used to prepare projections were obtained from Woods & Poole Economics, Inc. (W&P) at the county-level. To determine the projections for the future analysis years, it was assumed the anticipated growth or decline would occur in even intervals annually.

Projected growth rates for Bronx County and New York County were applied to the study area to determine potential population change for the years 2005, 2010, and 2015 (Table 7.7-7)<sup>11</sup>. Based on these rates, the study area's population would increase by approximately 3,054 people (or 3.2 percent) by the year 2009, and approximately 3,762 people (or 3.9 percent) by the year 2011

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<sup>11</sup> Since the Harlem River Site study area is located in both Bronx and New York Counties, a weighted population projection was performed by taking into account the percentage of land area in Bronx County (57 percent) and New York County (43 percent).



**TABLE 7.7-7. POPULATION PROJECTIONS**

<b>Geographic Unit</b>	<b>2000</b>	<b>2005</b>		<b>2010</b>		<b>2015</b>	
	<b>Total Pop.</b>	<b>Total Pop.</b>	<b>% Change over 2000</b>	<b>Total Pop.</b>	<b>% Change over 2000</b>	<b>Total Pop.</b>	<b>% Change over 2000</b>
Bronx County	1,334,414	1,371,424	2.8	1,407,942	5.5	1,448,147	8.5
New York County	1,539,182	1,549,072	0.6	1,553,033	0.9	1,561,152	1.4
Study Area Estimate	96,960	98,802	1.9	100,354	3.5	102,196	5.4

**Source:** W&P. 2003. County Data Pamphlets for Bronx, NY and New York, NY.

**TABLE 7.7-8. POPULATION PROJECTIONS FOR PEAK CONSTRUCTION AND OPERATION YEARS**

<b>Study Area</b>	<b>2000 Estimate</b>	<b>2009 Population</b>	<b>2011 Population</b>
Harlem River Site Study Area	96,960	100,014	100,722

**Source:** W&P. 2003. County Data Pamphlets for Bronx, NY and New York, NY.

(Table 7.7-8). It should be noted that the study area projections are intended to indicate anticipated trends.

The land zoned for residential use within the study area is for the most part built out. However, a large-scale affordable housing complex, called Fordham Landing, has been proposed on a site located south of the University Heights Bridge and to the west of the Major Deegan Expressway. Although this project is not finalized and has experienced modifications since the original proposal, it has the potential to add a sizeable number of new residents to the study area. Also, eight new three-family homes are proposed in the area of Phelan Place and Billingsley Terrace, near the southern limit of the study area<sup>12</sup>. See Section 9.2, Land Use, Zoning, and Public Policy, for more specific details for these proposed projects.

Aside from new developments, it is anticipated that the study area would also gain additional residences from the rehabilitation of deteriorated buildings and building conversions from non-residential to residential use<sup>13</sup>.

<sup>12</sup> NYCDP. 2001. Community District Needs: The Bronx, Fiscal Years 2002/2003.

<sup>13</sup> NYCDP. 2001. 2000/2001 Report on Social Indicators.

**Property Value.** It is anticipated that existing property value trends would continue. Although housing production levels have risen over the past decade, it is anticipated that housing availability and affordability in NYC would continue to be a concern<sup>14</sup>.

**Study Area Businesses.** Projections for employment and labor force for Bronx County and New York County were also carried out for the years 2005, 2010, and 2015. Both employment (number of jobs) and the labor force are anticipated to increase in Bronx County, while slight decreases are anticipated for New York County (Table 7.7-9). New York County's employment is anticipated to continue to greatly exceed the labor force in the County, whereas the opposite is anticipated for Bronx County. Table 7.7-10 shows the projections for both counties for the two future analysis years. The largest employment increases in NYC are projected to be in the retail and computer sectors<sup>15</sup>.

**TABLE 7.7-9. LABOR FORCE AND EMPLOYMENT PROJECTIONS**

		2000	2005		2010		2015	
		Total	Total	% Change over 2000	Total	% Change over 2000	Total	% Change over 2000
Bronx County	Labor Force (no. of people)*	843,530	872,840	3.5	906,900	7.5	926,180	9.8
	Employment (no. of jobs)	284,660	291,440	2.4	301,820	6.0	314,350	10.4
New York County	Labor Force (no. of people)	1,120,370	1,108,200	-1.1	1,085,070	-3.2	1,061,660	-5.2
	Employment (no. of jobs)*	2,814,710	2,792,440	-0.8	2,801,730	-0.5	2,826,530	0.4

\*Note: Labor force includes all people between the ages of 16 and 65.

Source: W&P. 2003. County Data Pamphlets for Bronx, NY and New York, NY.

A commercial development located north of the water treatment plant site and south of West 225<sup>th</sup> Street is currently under construction. This development, referred to as the River Plaza, is scheduled to be completed by 2004 and would create approximately 600 jobs in the study area<sup>16</sup>. A new Intermediate School/High School (IS/HS 368) is also currently under construction that will create several new jobs in the study area. This school is located between John F. Kennedy High School and Primary School 37 on Terrace View Avenue and is scheduled to be complete

<sup>14</sup> Salins, Peter. 2002. New York City's Housing Gap Revisited. Civic Report No. 25, February 2002. Center for Civic Innovation at the Manhattan Institute.

<sup>15</sup> NYSDOL. 2001. Occupations with Favorable Employment Prospects, 1998-2008: New York City. Available online: <http://www.labor.state.ny.us/pdf/rs45.pdf>.

<sup>16</sup> Information obtained through communication with NYCDP (Nestor Danyluck), December 12, 2002.

**TABLE 7.7-10. LABOR FORCE AND EMPLOYMENT PROJECTIONS FOR PEAK CONSTRUCTION AND OPERATION YEARS**

County		2000 Total	2009 Total	2011 Total
Bronx County	Labor Force (no. of people)*	843,530	900,468	910,675
	Employment (no. of jobs)	284,660	300,032	304,245
New York County	Labor Force (no. of people)*	1,120,370	1,088,103	1,083,398
	Employment (no. of jobs)	2,814,710	2,802,044	2,804,296

\*Note: Labor force includes all people between the ages of 16 and 65.

Source: W&P. 2003. County Data Pamphlets for Bronx, NY and New York, NY.

by the spring of 2004. Complete descriptions of these and other proposed projects within the study area are presented in Section 7.2, Land Use, Zoning, and Public Policy.

**Water Rate Structure.** The New York City Water Board forecasts system-wide revenues and expenses for a future period. The forecast includes an estimate of the annual revenues that would be collected through water and sewer user payments, as well as an estimate of the annual debt service required to amortize bonds issued to fund previous capital improvement projects and future expenditures scheduled under the City's Capital Improvement Program. The City's most recent forecast (covering FY 2004 to FY 2013) was extended to FY 2016, and Croton capital costs were removed for this analysis. The year 2016 was used for the end year of the water rate projection model since 2016 represents the year in which all the effects of the capital costs related to the proposed project would be reflected in the debt service of the bonds issued to finance the capital costs.

Analyzing and illustrating the potential impact of the City's proposed projects on water and sewer rates necessarily involves making a series of assumptions relative to estimated values of a diverse set of key variables. Since it is certain that the future conditions that would be obtained with respect to at least some variables would be different than what is assumed for analytical purposes, the rate impact must be considered illustrative, rather than precise.

The following are among the variables for which assumptions are typically made: construction schedules and estimated costs for proposed projects, the inflation rate on construction costs, the financing rate realized at the time bonds are issued to finance each project's expenditures, anticipated completion dates, contingencies, estimated annual operations and maintenance expenses, the inflation rates on operations and maintenance expenses including personnel costs and materials and equipment costs, and the rate of increase on upstate real estate taxes, as appropriate.

Future Rates for City Customers. Projected increases in rates in the absence of the proposed project have been estimated, as shown in Table 7.7-11. These increases would be

**TABLE 7.7-11 PROJECTED BASE WATER RATES (FUTURE WITHOUT THE PROJECT)<sup>1,2</sup>**

<b>Year</b>	<b>In-City Rate Estimates (\$)</b>	<b>Upstate Rate Estimates (\$)</b>
2011	\$860	\$91
2016	\$1,066	\$116

**Notes:**

1. Projected base case water rate estimates have been updated to reflect, among other factors, January 2004 Capital Program changes and more current estimated interest rates.
2. Costs are inflated annually, thus each year's rate is expressed in that year's respective dollars.

anticipated to occur in the future without the project, and represent an increase in annual water and sewer cost per City customer household using 100,000 gpy from \$526 in FY 2004 to \$1,066 in FY 2016. In FY 2011, the anticipated first year of operation for the proposed Croton plant, water rates would be \$860. Note that these costs are inflated annually, so each year's rate is expressed in that year's respective dollars.

For the lowest income group in the study area, with a predicted 2004 median household income of \$12,055<sup>8</sup> (Tract 271.01), current water and sewer costs account for 4.2 percent of annual median income. The projected rates without the proposed project represent a 52.3 percent increase in water and sewer rates from FY 2004 to FY 2016, accounting for inflation. Assuming an inflation rate of 2.75 percent, household incomes of this lowest income group would increase 38.5 percent to \$16,694 during the same period. The projected increase in rates would raise water and sewer costs from 4.2 percent to 6.4 percent of annual median household income in the Future Without the Project. In FY 2011, the projected rates would be 5.9 percent of annual median household income for this income group.

Future Rates for Upstate Customers. Projections for the upstate uniform rate through the year 2010 in the Future Without the Project have been estimated (Table 7.7-11). As stated above, these costs are inflated annually, so each year's rate is expressed in that year's respective dollars. The City charges upstate suppliers a wholesale rate for the water it supplies to upstate communities. Rates are anticipated to increase from \$542 per million gallons in FY 2004 to \$1,162 per million gallons in FY 2016, a 61.1 percent increase, accounting for inflation. In FY 2011, the anticipated first year of operation for the proposed Croton plant, the anticipated wholesale cost per household using 100,000 gpy would be \$91. The anticipated wholesale cost per household using 100,000 gpy in FY 2016 would be \$116. The actual rate charged to consumers, which includes the supplier's cost of constructing and maintaining the distribution system, varies between water districts within communities and is much higher than the wholesale rate charged by the City to the suppliers.

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<sup>8</sup> \$12,055 is the projected median family income in 2004 of Tract 271.01 in the Kingsbridge area of the Bronx. This was selected as a representative low income housing area for City water users. This income is based on a \$10,825 annual income from the 2000 U.S. Census data, adjusted to 2003 dollars based on the New York MSA Consumer Price Index, and further inflated at 2.75 percent per year to 2004, the current projected year for water rates.

### **7.7.3. Potential Impacts**

This section describes capital and operation and maintenance costs, employment, property tax revenues, water rate changes, and other socioeconomic effects related to the construction and operation of the proposed Croton WTP.

Some modifications to the manner in which the RIMS II multipliers have been used to estimate spin-off benefits as a result of operation of the proposed project have been made during preparation of the Final SEIS. These changes have been made due to additional consultation with the U.S. Bureau of Economic Analysis (BEA) and public comments received suggesting that the spin-off benefits reported in the Draft SEIS appeared to be too high. Based on discussions with the BEA, it was determined that while use of the RIMS II “final-demand multiplier” for estimating spin-off effects during construction of the proposed plant is accurate, the “direct-effect multiplier” is more appropriate for estimating spin-off effects during operation since some assumptions and associations made for operation of the Croton WTP (e.g. relationships between earnings and output or employment and output) do not match the assumptions of the RIMS II model for final-demand.<sup>9</sup> Also, it is important to note that the spin-off benefits reflect total effects (for both operation and construction). In other words, the spin-off benefits reported in this section include both the direct impacts from the operation and construction of the plant itself as well as indirect impacts experienced by the County and region.

In the Draft SEIS, multipliers from Sector 11.0800 (office, industrial, and commercial buildings construction) were used for the RIMS II construction analysis. Subsequently, it was determined that multipliers from Sector 11.0900 (other new construction) were more appropriate to use for the proposed plant since these multipliers are referenced to “other heavy construction,” such as water treatment plant construction, in SIC codes. Thus, Sector 11.0900 multipliers are used for analysis in this Final SEIS. Also, as a means to more reasonably reflect the number of spin-off jobs in response to public comments received on the Draft SEIS, the RIMS II employment multiplier for construction was corrected for inflation in this Final SEIS since the RIMS multipliers reflect 2000 regional data while costs for the proposed plant are in 2003 dollars. Such an adjustment is also recommended by the BEA. Finally, in this Final SEIS, average year employment rather than peak year employment data have been used for the construction analysis. None of these modifications has resulted in changes to any of the results or conclusions.

#### **7.7.3.1. Potential Project Impacts**

The anticipated year of operation for the proposed plant is 2011. Therefore, for most socioeconomic indicators potential project impacts have been assessed by comparing the Future With the Project conditions against the Future Without the Project conditions for the year 2011. This section further describes jobs and other socioeconomic effects related to the proposed project, and then compares them to the Future Without the Project to determine potential socioeconomic impacts. In addition, potential socioeconomic impacts due to increases in water rates are analyzed. As previously noted, costs associated with the debt service issued to finance

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<sup>9</sup> BEA. 2004. Personal communication between BEA and M&E, May 24, 2004.

the project would be reflected in the year 2016. Thus, effects on water rates are discussed for 2016 (in 2016 dollars) in addition to 2011, which was disclosed in the Draft SEIS.

#### ***7.7.3.1.1. Socioeconomic Conditions Associated with the Water Treatment Plant Site***

***Capital and Operation and Maintenance Costs.*** The estimated capital and construction costs for the proposed project would be approximately \$1.2 billion. Annual operation and maintenance would approximate \$25 million. These amounts are in 2003 dollars.

***Jobs.*** The proposed plant would require approximately 53 permanent employees. These new employees may reside in the Bronx, elsewhere in New York City, in Westchester County, or in other nearby counties. NYC may benefit from additional income tax revenue paid by water treatment plant employees living within the City. A resident's income tax depends on his or her income bracket, but includes a flat amount plus a percentage of his or her income above a baseline threshold (see Appendix A).

This analysis provides a range of estimates for total income taxes the City could receive from the workers at the proposed plant. The low estimate assumes that all workers would live outside the City. This situation would not provide any income taxes to the City. The high estimate assumes that all workers would live within the City and file as either single or married but filing separately. This situation would provide the City with just over \$89,000 per year in cumulative income taxes. The actual benefit for the City would be between these two estimates. These estimates do not account for deductions, and the analysis was determined in 2003 dollars and not for the first year of operation (2011). Also, some of the workers may currently be employed by NYCDEP. Calculations are provided in Appendix A.

***Indirect Effects.*** The 53 permanent operations employees, their salaries, and the total dollars invested annually by NYCDEP for operation and maintenance (\$25 million) of the proposed project would create indirect effects on Bronx County's economy. These effects include additional jobs created in the County, associated earnings, and increased output, which are estimated using RIMS II multipliers (see Section 4.7, Data Collection and Impact Methodologies, Socioeconomic Analysis for details on RIMS II). The results are provided in Table 7.7-12, which show that spin-off benefits could add a total of 186 new jobs to the County's economy (including the 53 employees at the plant). It is likely that the benefits to Bronx County would be less, since some of the benefits would occur in other counties. Multipliers were not available for water supply facilities for Bronx County, so this analysis uses the multipliers for the water supply industry for Westchester County.

**TABLE 7.7-12. INDUCED ECONOMIC BENEFITS DURING OPERATION, BRONX COUNTY**

<b>Economic Factor</b>	<b>Induced Effects to Bronx County's Economy</b>
Total Output to County's Economy	\$44,202,500
Total Income	\$6,575,985
Total New Jobs	186

**Source:** Bureau of Economic Analysis, U.S. Department of Commerce. 2003. RIMS II for Westchester County, 2003.

The RIMS II employment multipliers indicate that the most pronounced growth would occur in the following sectors: construction; electric, gas and sanitary services; retail and wholesale trade; business services; and insurance. It is reasonable to conclude that some of the benefits would occur in the immediate area. For example, sales could increase for commercial services including gas stations, convenience stores, and restaurants, such as those found along Broadway, West Fordham Road and West 225<sup>th</sup> Street. If the workers were to frequent businesses during, before, or after the workday, it could result in increased business to area merchants.

**Property Values.** It is difficult to determine the extent to which potential project-related impacts would cause displacement. One potential indicator of how project-related impacts affect displacement is reduced property values since property values in an area reflect the willingness or unwillingness of people to live in a certain area. To determine potential impacts to property values during operation of the proposed plant, literature was reviewed that covered a broad range of land uses perceived as undesirable or unwanted. Unfortunately, no studies were identified that were similar in nature to the proposed plant and its operation. The studies focused on noxious land uses (such as incinerators, hazardous waste facilities, and Superfund sites), and less noxious uses (mental health facilities and subsidized housing). Other land uses addressed in the studies included high voltage transmission lines and mining. Overall, each type of undesirable land use had unique features that were analyzed to determine potential impacts to property values, including health and safety risks, visibility, or the introduction of distinct population groups to the neighborhood.

The studies were inconclusive or conflicting in their results. For example, research by Greenberg et al. indicated that an incinerator decreased property values and increased residents' desires to relocate according to the distance from the site<sup>17</sup>, while research by Liu claimed that empirical studies have not provided any conclusive evidence as to whether an undesirable facility negatively affects nearby property values<sup>18</sup>. In addition, Steelman and Carmin state that the siting of facilities such as landfills or incinerators often make significant contributions to surrounding neighborhoods by providing local jobs and economic stability, thereby minimizing

<sup>17</sup> Greenberg, Michael, Dona Schneider, and Jim Parry. 1995. Brown Fields, a Regional Incinerator and Resident Perception of Neighborhood Quality. *Risk: Health, Safety, & Environment* Vol. 6, No. 3, pp. 241-260.

<sup>18</sup> Liu, Feng. 1997. Dynamics and Causation of Environmental Equity, Locally Unwanted Land Uses, and Neighborhood Changes. *Environmental Management* Vol. 21, No. 5, pp. 643-656.

any impacts on property values<sup>19</sup>. A study of high voltage electric transmission lines was determined to have an effect on property values, but only for a narrow corridor of houses in direct proximity to the lines<sup>20</sup>. The study attributed the effects to the appearance of the lines. Any power lines associated with the proposed plant would be underground.

Some studies recognized that many external factors affect the rating of neighborhood quality and property values rather than any specific land use, such as presence of crime, litter, and existing undesirable land uses<sup>21</sup>. These factors further complicate a comparison between the studies and the proposed project. Most of the studies noted a lack of adequate sales data. Many studies did not address whether the values that were affected would rebound over time. However, Kiel and McClain did discuss rebounding in a study on an incinerator. They noted that the combination of the loss by the seller takes and the benefit the buyer realizes after the property values rebound results in no overall loss in value<sup>22</sup>.

Many of the studies stressed the importance of community involvement during the siting process in order to lessen the negative perceptions associated with a facility. Research by Liu suggests that the impact of an undesirable land use on the socioeconomic structure of a neighborhood depends on how the neighborhood responds to the undesirable land use and what risks they perceive as a result of it<sup>23</sup>.

The proposed project is not considered to be similar to projects within undesirable land use categories. The operation of the proposed project is not anticipated to generate appreciable amounts of undesirable pollution. Therefore, it is not anticipated that the operation of the proposed plant would significantly cause commercial or residential property values to rise or fall. It should be noted that the proposed project could have positive benefits on property values since the water treatment plant site would offer limited public access to the riverfront and new facilities that could include a riverfront pedestrian walkway and other public amenities.

#### ***7.7.3.1.2. Potential Displacement Impacts (other than those due to Water Rate changes)***

This section analyzes the potential for direct and indirect displacement during operation of the proposed project.

The proposed project would be located on land currently owned by NYCDOT, Con Edison, Fordham Road Realty Corporation, XCEL Ready Mix concrete batch plant, Storage Post, and

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<sup>19</sup> Steelman, Toddi A. and Joann Carmin. 1998. Common Property, Collective Interests, and Community Opposition to Locally Unwanted Land Uses. *Society & Natural Resources*. 11, pp. 485-504.

<sup>20</sup> Hamilton, S. W. and G.M. Schwann. 1995. Do high voltage electric transmission lines affect property value? *Land Economics*. 71, pp. 436 - 439.

<sup>21</sup> Greenberg, Michael, Dona Schneider, and Jim Parry. 1995. Brown Fields, a Regional Incinerator and Resident Perception of Neighborhood Quality. *Risk: Health, Safety, & Environment* Vol. 6, No. 3, pp. 241-260.

<sup>22</sup> Kiel, K.A. and K. T. McClain. 1995. House Prices during Siting Decision Stages: The Case of an Incinerator from Rumor through Operation. *Journal of Environmental Economics and Management*. 28, pp. 241-255.

<sup>23</sup> Liu, Feng. 1997. Dynamics and Causation of Environmental Equity, Locally Unwanted Land Uses, and Neighborhood Changes. *Environmental Management* Vol. 21, No. 5, pp. 643-656.



Consolidated Rail Corporation (CSX). An agreement with the property owners and lessees to vacate would have to be negotiated for the proposed project to proceed.

Of the properties affected, only two have businesses. The batch plant is located on property owned by Fordham Realty Corp, and the self-storage facility is located on property owned by Bronx Self Storage. The existing batch plant and self-storage facility would be directly displaced as a result of the proposed project. The City would negotiate a purchase of these properties and the businesses would likely relocate elsewhere in the Bronx or another City borough. Based on the relatively small number of people employed and the type and size of business conducted at the batch plant and self-storage facility, these businesses do not contribute significantly to the regional economy. Although the batch plant's current site is somewhat unique with respect to its close proximity to both the Harlem River and rail service, the plant does not utilize either of these for business purposes. The business does not use water from the river for mixing concrete, and all transport is conducted by truck. The self-storage facility also does not utilize the river or rail service for business purposes. Other concrete services and storage facilities are located near the study area, and there are other potential relocation sites available in the Bronx and surrounding area. Neither of the businesses is subject to protection under any regulations or publicly adopted plans. Although the batch plant and self-storage facility contribute to the existing industrial uses that characterize the water treatment plant site, the removal of these businesses would not have a significant impact on the overall character of this area due to the sheer number of other industrial uses in the vicinity. Based on these circumstances, the removal and relocation of the batch plant and self-storage facility is not considered a significant displacement.

Currently, the NYCDOT uses its property for storage of maintenance material and access to the University Heights Bridge for maintenance. NYCDOT would retain the right to access a highway maintenance easement adjacent to the West Fordham Road access ramp; NYCDEP would work with NYCDOT to determine an alternative area that NYCDOT could use as a storage/staging area in place of their current area to the north of the University Heights Bridge.

Consolidated Rail (CSX) would experience loss of land for potential future use due to the proposed project. Sand and gravel is currently being stored at the CSX property. CSX would be compensated for this land.

The utility lines associated with the Con Edison property would remain operational and the existing brick structure would be dismantled. Con Edison would also be compensated for their land.

**Jobs.** Combined, the batch plant and self-storage facility employ 17 people at their existing locations. As discussed above, the proposed project would generate 53 employees. Since the batch plant and self-storage facility would have to be relocated if the proposed plant were constructed, a net gain of 36 jobs at the site would result.

**Property Tax Revenues.** The total amount of property taxes generated by the affected properties was approximately \$239,362 for FY 2003/2004. This NYC property tax revenue

would be lost since the proposed plant would be a City-operated facility and therefore exempt from property taxes.

Significant indirect displacement during operation is not anticipated. Since there would be few impacts associated with the operation of the proposed plant, it is not anticipated that the operation of the proposed plant would significantly impact property values or other socioeconomic conditions. However, the proposed project would revitalize a portion of the eastern bank of the Harlem River and would provide limited public access along the riverfront. This is not anticipated to significantly impact property values in the area.

#### **7.7.3.1.3. Water Rate Structure**

The following describes the potential socioeconomic impacts on City and upstate consumers of the City Water Supply System due to potential water rate increases from the proposed project. If these rate increases were high enough, potential indirect socioeconomic impacts such as housing dislocation could occur.

**Capital Costs.** Table 7.7-13 shows the anticipated capital costs in 2003 dollars for the proposed project. As discussed in Section 4.7, Data Collection and Impact Methodologies, Socioeconomic Analysis and also noted in the Existing Conditions of this chapter, there are two forms of borrowing that would be available to fund the construction of the proposed project and off-site facilities: (1) bonds issued by the New York City Municipal Water Finance Authority ("Authority"), and (2) bonds issued through the State Revolving Fund Loan Program (SRF). Between the Draft SEIS and the Final SEIS, based on public comments on the Draft SEIS and interagency communications, NYCDEP has modified the amenities package for the Harlem River Site. If the Harlem River Site were selected for the proposed water treatment plant, a \$30 million amenities package would include costs required for construction of a riverfront pedestrian walkway, a pedestrian overpass connecting the site to 225<sup>th</sup> Street, as well as for open space amenities at the site. The costs associated with this amenities package are reflected in Table 5.7-13.

**TABLE 7.7-13. ESTIMATED CAPITAL AND O&M COSTS AT THE HARLEM RIVER SITE**

<b>Capital Cost</b>	<b>O&amp;M Cost</b>
\$1,215,000,000	\$25,000,000

**Note:** Costs reflects total costs for all components of the project in 2003 dollars.

It is assumed that the Authority would issue long-term debt for the permanent financing of the capital costs. The long-term debt of the Authority is assumed to cover a term of 30 years, with the level repayment of principal and interest on the bonds, and an annual interest rate of approximately 6.26 percent, which is the weighted average of anticipated interest rates between FY 2004 and FY 2016. The interest cost on commercial paper and the principal and interest cost for Authority debt become an additional revenue requirement that must be met through the rates and charges of the water and sewer system.

The City may be able to obtain a low-interest SRF from the State Environmental Facilities Corporation (EFC) for part or all of the construction costs for the proposed project. Funds obtained from the EFC would carry a lower interest rate; however, these funds must be repaid in a shorter time frame (20 years as opposed to 30 years). The result is that overall debt service using SRF funding would not result in a substantially lower cost than Authority financing.

***Operating Costs.*** Operating costs include the labor required to operate and maintain the systems, as well as expenses such as electricity, chemicals, spare parts and property taxes. Labor costs are escalated from the year 2011 at the rate of 2.5 percent per year and costs other than labor are escalated at the rate of three percent per year. These escalations are consistent with the rates used in the financial forecast prepared in connection with the issuance of the bonds.

***Potential Impacts on City and Upstate Consumers.*** The following section evaluates potential socioeconomic impacts due to water rate increases on City and upstate consumers of the City Water Supply system. The year 2016 was used for the end year of the water rate projection model since 2016 represents the year in which all the effects of the capital costs related to the proposed Croton project alternatives would be reflected in the debt service of the bonds issued to finance the capital costs. While total costs over the life of the proposed project would vary depending upon the type of financing method selected (due to the shorter repayment period, but lower interest rate imposed by the SRF program), as noted above, the actual difference in cost between the Authority financing and the SRF financing is negligible. Therefore, the anticipated rate increases and the effect on charges to residential consumers have been developed for the Harlem River Site using only the Authority form of financing.

Analyzing and illustrating the potential impact of the proposed Croton plant at the Harlem River Site on water and sewer rates necessarily involves making a series of assumptions relative to estimated values of a diverse set of key variables. Since it is certain that the future conditions that would be obtained with respect to at least some variables would be different than what is assumed for analytical purposes, the rate impact must be considered illustrative, rather than precise.

The following are among the variables for which assumptions have been made: the proposed project's construction schedule and its estimated costs, the inflation rate on construction costs, the financing rate realized at the time bonds are issued to finance each project's expenditures, the anticipated completion date, contingencies, the estimated annual operations and maintenance expenses, and the inflation rates on operations and maintenance expenses including personnel costs and materials and equipment costs.

Using these assumptions, the allocation of the project costs for the years 2011 and 2016 has been developed for the proposed Croton project with the \$30 amenities package. Table 7.7-14 shows the anticipated charge to City and upstate consumers in the years 2011 and 2016 (in 2011 dollars and 2016 dollars, respectively), the anticipated dollar increase over the estimated rate without the proposed project (base rate), and the percentage increase the new rate represents over the base rate. The base rates, which reflect the City's CIP without the proposed Croton project, are also shown in this table.

**TABLE 7.7-14 ESTIMATED ANNUAL WATER RATES FOR HARLEM RIVER  
WATER TREATMENT PLANT**

Water Rate Projection Model	Year	In-City Rates (Dollar)	Increase over Base Rate		Upstate Rate (Dollar)	Increase over Base Rate	
			(Dollar)	(Percent)		(Dollar)	(Percent)
<b>Base Case (CIP without Croton)</b>	2011	860	0	0.0	91	0	0.0
	2016	1,066	0	0.0	116	0	0.0
<b>Harlem River with \$30 million amenities</b>	2011	894	34	4.0	91	0	0.0
	2016	1,112	46	4.3	116	0	0.0

**Note:** Base rate is the estimated rate cost in the Future Without the Project. Each year's rate is expressed in that year's respective dollars.

As previously noted, costs associated with the debt service issued to finance the project would be reflected in the year 2016. Thus, the year 2016 is used for the following water rate discussion as an illustrative example of potential water rate impacts resulting from the proposed project. The water rate projection for the proposed project with the \$30 million amenities package has been used as a representative example for this discussion. Note that values are presented in 2016 dollars.

As noted in Table 7.7-14, the average annual payment per household required in 2016 to support the City share of the proposed project would be \$46. This represents a 4.3 percent increase over the base rate (\$1,066, without the proposed project) in the year 2016.

There would be no anticipated increase in annual customer cost to upstate consumers in 2016 as a result of the proposed project since no work would occur outside the City if the water treatment plant were located in the Bronx, as presented in Table 7.7-14. Thus, no increase over the base rate is anticipated in the year 2016 as a result of the proposed project.

**Potential Impacts on City Residential Consumers.** In 2000, approximately 2.1 million units in the City were renter-occupied (69.8 percent) and over 900,000 units were owner-occupied (30.2 percent), as shown in Table 7.7-15. Queens had the highest number of owner-occupied units (334,815); Brooklyn had the highest number of renter-occupied units (642,360).

As described above, in the year 2016, the proposed project would require an increase of approximately \$46, or 4.3 percent, in annual water and sewer payments per average household. Table 7.7-16 presents the median gross rent in the five boroughs in 2016 (presented in 2016 dollars), to be consistent with the end year of the water rate projection model. Gross rent is defined by the U.S. Census as the contract rent plus the estimated average monthly cost of utilities (electricity, gas, water and sewer) and fuels (oil, coal, kerosene, wood, etc.) if these are paid by the renter. In 2016, the estimated median monthly gross rent ranges from \$960 in the Bronx to \$1,232 in Manhattan. The average for all renter-occupied units in the City would be

**TABLE 7.7-15. DISTRIBUTION OF HOUSING UNITS  
IN NEW YORK CITY, 2000**

<b>Borough</b>	<b>Renter occupied</b>	<b>Owner occupied</b>	<b>Percent Renter (%)</b>	<b>Percent Owner (%)</b>
Bronx	372,525	90,687	80.4	19.6
Brooklyn	642,360	238,367	72.9	27.1
Manhattan	589,912	148,732	79.9	20.1
Queens	447,849	334,815	57.2	42.8
Staten Island	56,646	99,695	36.2	63.8
New York City	2,109,292	912,296	69.8	30.2

**Source:** U.S. Department of Commerce, Bureau of Census, 2000.

**TABLE 7.7-16. POTENTIAL IMPACT ON RENTER MEDIAN MONTHLY GROSS  
RENT<sup>1</sup>**

<b>Borough</b>	<b>Median Monthly Gross Rent<sup>2</sup></b>	<b>Increase as Percentage of Median Monthly Gross Rent (%)</b>
Bronx	\$960	0.40
Brooklyn	\$1,040	0.37
Manhattan	\$1,232	0.31
Queens	\$1,200	0.32
Staten Island	\$1,149	0.33
New York City	\$1,091	0.35

**Notes:**

1. Represents percentage increase in 2016 dollars due to implementation of the proposed project.
2. Adjusted to 2003 dollars based on the New York MSA Consumer Price Index (CPI) for 2000 (182.5) and 2003 (197.8); then further inflated at 2.75 percent per year to 2016, the end year of the water rate projection model.

**Source:** U.S. Department of Commerce, Bureau of Census, 2000.

\$1,091. As shown in Table 7.7-16, the additional monthly rate charge of less than four dollars (figured by dividing the annual rate increase by twelve) related to implementation of the proposed project would represent increases of less than one percent in median monthly gross rent.

Table 7.7-17 presents the median monthly costs of owner-occupied units in the five boroughs in 2000, expressed in 2016 dollars to be consistent with the end year of the water rate projection model. The median monthly owner costs are estimated by the U.S. Census for one-family houses and include the following expenses: mortgages (including first, second, and third

**TABLE 7.7-17. POTENTIAL IMPACT ON CITY OWNER MEDIAN MONTHLY COST<sup>1</sup>**

<b>Borough</b>	<b>Median Monthly Owner Cost<sup>2</sup></b>	<b>Increase as Percentage of Median Monthly Owner Cost (%)</b>
Bronx	\$2,452	0.16
Brooklyn	\$2,484	0.15
Manhattan	\$5,596	0.07
Queens	\$2,472	0.16
Staten Island	\$2,215	0.17
New York City	\$2,418	0.16

**Notes:**

1. Represents percentage increase in 2016 dollars due to implementation of the proposed project.
2. Adjusted to 2003 dollars based on the New York MSA Consumer Price Index (CPI) for 2000 (182.5) and 2003 (197.8); then further inflated at 2.75 percent per year to 2016, the end year of the water rate projection model.

**Source:** U.S. Department of Commerce, Bureau of Census, 2000.

mortgages), equity loans, real estate taxes, insurance, utilities (including water, electricity and gas), heating fuel, and other miscellaneous fees. In 2016, median monthly owner-occupied unit costs were highest in Manhattan, \$5,596, and lowest in Staten Island, \$2,215. The average for all owner-occupied units in New York City would be \$2,418. As shown in Table 7.7-17, the implementation of the proposed project would result in increases of less than one percent in monthly owner cost, using the same method as above.

The potential impact of the proposed project was also evaluated for the lowest income groups in the City. As discussed in the Future Without the Project section above, median household income for in-City customers in the lowest income block in the Bronx study area (Tract 271.01) is projected to be \$12,055 in 2004, and is expected to rise to \$16,694 by 2016. Water and sewer rates are expected to rise from 4.4 percent of annual income in 2004 to 6.4 percent in 2016 without the proposed Croton WTP. The additional \$46 of annual water and sewer costs resulting from the construction and operation of the proposed Croton WTP would raise the percentage of annual income that would go to water and sewer payments from 6.4 percent to 6.7 percent. This incremental increased expense of 0.3 percent of annual income to the lowest income group is not considered significant, and the costs to other users would be less adverse.

While the proposed project would result in a minimal increase in monthly costs to both renters and owners of residential units in New York City, it is unlikely that they would relocate from the City as a result of the proposed project. Therefore, the proposed project is not anticipated to result in significant adverse socioeconomic impacts on New York City residential system consumers, including those within the study area.

### **7.7.3.2. *Potential Construction Impacts***

The anticipated year of peak construction for the proposed plant is 2009. Therefore, potential construction impacts have been assessed by comparing the Future With the Project conditions against the Future Without the Project conditions for the year 2009. This section further describes jobs and other socioeconomic effects related to the proposed construction activities, and then compares them to the Future Without the Project to determine potential socioeconomic impacts. References to other analyses are included where appropriate.

#### **7.7.3.2.1. *Jobs***

Roughly 634 workers per day would be on-site in the peak year. Since it is not certain what the salaries of each construction worker would be, a median salary of approximately \$49,600 (based on the salaries of the types of construction workers that would be on-site) was used to determine examples of income tax benefits the City could see. Since the New York City Commuter Tax has recently been repealed, one worker, with this median salary and living outside of New York City, would not pay any taxes to the City. If residing in New York City, however, the same worker would pay approximately \$1,700 in taxes per year to the City (Appendix A).

#### **7.7.3.2.2. *Indirect Effects***

The 634 construction workers would likely add money to the local economy through their visits to area businesses. The RIMS II multipliers used for this analysis are available by county for certain detailed industries. The detailed industries are based on the 1999/2000 annual input-output accounts and are referenced to standard industrial classification (SIC) codes. The multipliers for the Croton analysis for the construction period are those developed for the construction industry, specifically Sector 11.0900, other new construction (construction other than residential, commercial, or industrial buildings, or highway and streets).

The multipliers for each county are derived based on data from national input-output accounts and other secondary data, and then adjusted by regional data. These regional data account for variations in the level of activity in the various sectors of the local economy. According to data provided by the U.S. Department of Commerce Bureau of Economic Analysis, multipliers for new activities tend to be higher in a region when existing levels of that activity are fairly low. Conversely, when there is already a fairly high level of a certain activity, the multiplier for new input into that activity is relatively low. Thus, multipliers for new input in the water supply and sewerage system classifications are higher in Westchester County where the existing infrastructure is less developed than in Bronx County where the infrastructure systems are essentially fully developed.

The RIMS II multipliers for the construction industry indicate that the sectors that would benefit most during construction are retail trade and business services. It is not possible to determine exactly where the workers may conduct business, but it is likely that they would visit gas stations, convenience stores, and restaurants. The dollar investment that NYCDEP would make

for construction of the proposed plant, including capital costs, could add an average of 448 new jobs per year of construction to the economy, according to the RIMS II multipliers for Bronx County (Table 7.7-18 and Appendix A). The actual benefit would be less since the benefits would likely spill over to other counties.

**TABLE 7.7-18. INDUCED ECONOMIC BENEFITS DURING CONSTRUCTION, BRONX COUNTY**

<b>Economic Factor</b>	<b>Induced Effect to County's Economy</b>
Total Output to County's Economy	\$1,590,070,500
Total Income	\$132,435,000
Average Annual Employment	448

**Source:** Bureau of Economic Analysis, U.S. Department of Commerce. 2003. RIMS II for Bronx County, 2003.

**7.7.3.2.3. Potential Displacement Due to Construction Related Noise, Vibrations, Traffic and Air Quality Impacts**

The characteristics of the proposed project were reviewed to identify impacts that could result in indirect displacement due to construction related noise, vibrations, traffic, and air quality impacts. This analysis depends upon other analyses, as discussed below. Refer to the respective sections for an explanation of peak years.

**Noise.** Five noise sensitive receptors located in the vicinity of the proposed water treatment plant site were studied for potential impacts: the proposed Fordham Landing apartment complex to the south; Fordham Landing Park to the southeast; a private residence to the east; an apartment complex, also to the east; and an apartment complex to the northeast.

The apartment complexes to south and east, and the private residence each would experience a temporary increase in noise due to on-site construction activities. This temporary increase would not be considered significant (see Section 7.10, Noise Analysis). Noise associated with construction traffic traveling to and from the site would not cause a significant adverse impact.

**Vibrations.** Due to the magnitude of this project, it is possible that excavation activities may cause vibrations. Vibrations could occur due to rock blasting activities and from tunnel boring machine (TBMs). The shafts of the proposed water treatment plant would be cut with TBMs. It is possible that blasting may be utilized in a minor way for some of the shaft work. However, these potential vibrations would be monitored and/or controlled and would not be considered significant (see Section 7.10, Noise Analysis).

**Traffic.** As discussed in Section 7.9, Traffic and Transportation, construction activities associated with the proposed project may produce a significant impact at three intersections in the Harlem River vicinity. A high volume of traffic currently characterizes many of the roadways within the surrounding study area, and the addition of the construction-related vehicles may result in significant impacts to traffic conditions. However, no displacement or indirect effects would be anticipated to occur given that mitigation measures would be incorporated into



the project to address the significant traffic-related impacts during construction (see Section 7.9, Traffic and Transportation, and Section 9, Mitigation).

***Air Quality.*** Air quality could be affected by both mobile and stationary sources. The mobile source emissions during construction or operations from vehicles would not result in significant air quality impacts.

Stationary sources include diesel emissions from heavy equipment and fugitive dust emissions raised from the movement of bulk material during construction, and boiler emissions during operations. The concentrations resulting from construction and operation of stationary equipment would not be significant. See Section 7.11 for detailed information on air quality analyses.

***Other.*** Construction would directly displace the batch plant and the self-storage facility, as discussed previously in the potential project impact section. The displacement of these businesses would be handled through negotiations between the City and the current property owners.

Overall, jobs created and their indirect effects would result in positive socioeconomic effects within the study area. Noise levels that exceed the CEQR threshold at sensitive receptor locations would be temporary and therefore not significant, significant traffic impacts would be mitigated, and there no significant impacts to air quality would be expected after the implementation of mitigation measures. Based on the above analysis, it is not anticipated that significant adverse socioeconomic impacts would occur during construction.