

**FINAL SUPPLEMENTAL ENVIRONMENTAL IMPACT STATEMENT FOR THE  
CROTON WATER TREATMENT PLANT  
METHODOLOGIES**

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## **4.7. SOCIOECONOMIC CONDITIONS**

### **4.7.1. Introduction**

This analysis addresses the potential socioeconomic impacts of the proposed Croton Water Treatment Plant (WTP) project. Socioeconomic impacts may occur when a project would directly or indirectly change population, housing stock, or economic activities in a given area. Construction activities could also have temporary direct impacts. A half-mile study area radius was identified for the proposed sites to assess potential direct impacts.

The socioeconomic evaluation also addresses potential indirect impacts, including an examination of the displacement of residences and/or businesses, changes in water rates, and changes to the regional economy. Indirect displacement is defined as the involuntary displacement of residents, businesses, or employees that result from changes in socioeconomic conditions created or spurred by the proposed project. In most cases, indirect residential displacement occurs when a proposed project increases property values of the surrounding area, which, in turn, result in higher rents. However, in the case of the proposed project, the issue is not whether increasing property values may cause indirect residential or business displacement, but whether the increase in the cost of water would be passed along to consumers, which would lead to higher rents and operating costs and potentially to indirect displacement. The analysis also considered indirect displacement that could result from potentially significant impacts in the areas of neighborhood character, traffic, and noise.

In addition, construction and operation of the proposed project could have an indirect beneficial effect on the regional and New York State economies. Such effects were estimated using the Regional Input-Output Modeling System (RIMS II), developed by the U.S. Department of Commerce for counties within the State of New York. The indirect effects on employment, wages and salaries, and tax revenues were evaluated for both the construction and operation periods. For this analysis, a larger study area was examined since many of these benefits would be regional in nature.

Given the minimal construction activities and temporary impacts at New Croton Aqueduct (NCA) Shaft No. 9, it is not anticipated that there would be any direct socioeconomic impacts at this site. No businesses or institutions, and only a limited number of residences, are located within the study area of NCA Shaft No. 9. Due to these circumstances, an abbreviated socioeconomic assessment is provided. This assessment still includes a characterization of population characteristics, including age, racial composition, and income. However, at the other off-site facilities, a full socioeconomic assessment was conducted.

## **4.7.2. Baseline Conditions**

Baseline Conditions describe past, current, and future data and trends regarding the population and housing stock in the study area, in addition to employment on the sites and economic trends of businesses in the study area and in the larger region. For the most part, the analysis focuses on the half-mile study areas for the three potential water treatment plant sites and off-site facilities. However, many factors, such as employment, extend beyond the boundaries of the study area. Where appropriate, data from a larger region are provided.

### **4.7.2.1. Existing Conditions**

#### **4.7.2.1.1. Socioeconomic Conditions of the Site**

This section describes the socioeconomic characteristics of the proposed sites, including existing businesses, residences, and institutions. An estimate of the number of employees at a site is provided, where applicable. A property tax analysis provides information on the current taxes generated by site. The most recent taxes paid, equalization rate, and tax rates were collected from the local Tax Assessor and Tax Collector.

**Westchester County Sites.** The Westchester County sites consist of the Eastview Site, where the water treatment plant may be located, and the off-site facilities, including NCA Shaft No. 9, NCA Shaft No. 14, and NCA Shaft No. 18. Data presented to describe the socioeconomic conditions of residents for these sites relied upon U.S. Census block group and tract data. For the most part, data from the 2000 U.S. Census were used. In order to identify trends, data from the 1990 U.S. Census were also used. Also, where appropriate, data for Westchester County were presented for comparisons. Data on the socioeconomic conditions of businesses and projections for population and business trends were available at the County level. Existing property tax payments were presented.

**Bronx County Sites.** The Bronx County sites consist of Gate House No. 1, Jerome Park Reservoir, the Mosholu Site, and the Harlem River Site. Data presented to describe the socioeconomic conditions of residents for these sites relied upon U.S. Census block group and tract data. For the most part, data from the 2000 U.S. Census were used. In order to identify trends, data from the 1990 U.S. Census were also used. Also, where appropriate, data for Bronx County, New York County, and New York City (NYC) were presented for comparisons. Data on the socioeconomic conditions of businesses and projections for population and business trends were available at the County level. Existing property tax payments paid by current landowners were presented for the Harlem River Site. Tax payment information was not presented for Gate House No. 1, Jerome Park Reservoir, or the Mosholu Site since NYC owns the land for these sites in its jurisdiction and is tax exempt.

#### ***4.7.2.1.2. Socioeconomic Conditions of the Study Area***

This analysis relies upon 1990 and 2000 U.S. Census data to characterize the study area approximately one-half mile around the proposed sites. Where necessary, the study area was adjusted to conform to census tract boundaries. The data have been supplemented by field visits. The population statistics offer a description of the residents in the study area, the town/city (when available), and the respective county. Data include population, household size, racial composition, and age. Measures of economic well-being and employment include numbers of persons below the poverty line, median household income, and the unemployment rate (The threshold varies depending upon family size and age.) Additional information on the study area's workforce has been obtained from data on the occupational sectors and means of transportation to work. Housing statistics provide information on the housing stock in the study area. These statistics include the year the householder moved in, the number of households, number of owner- or renter-occupied units, vacancy rates, number of units in the structure, median housing value (MHV), and median contract (monthly) rent (i.e., not including such expenses as electricity, gas, and telephone service). Note that the U.S. Census Bureau data collection of the MHV was conducted differently during the 1990 U.S. Census and the 2000 U.S. Census. The 1990 U.S. Census included the MHV in the 100 percent survey, however, these data were only included in the sample survey during the 2000 U.S. Census. Therefore, comparisons made between these data sets may not be entirely accurate. Nonetheless, these statistics are valuable in describing not only the character of the study area, but also the stability of the population over time.

Data sources include published U.S. Census tables accessed through the Internet and summary U.S. Census reports for Bronx, New York, and Westchester Counties. LandView V, federal mapping software created by the USEPA, U.S. Census Bureau, U.S. Geological Survey, and National Oceanic and Atmospheric Administration, was used to examine spatial information for the proposed sites and surrounding areas. Some recent data have been obtained from the U.S. Department of Commerce, Bureau of Economic Affairs.

Data from the 1990 and 2000 U.S. Census were presented at the county, municipal, and tract level. Trends within the study area were gauged by tract trends, as available. To characterize the study area in both 1990 and 2000, block group (a sub-unit of a tract) data were used. Often, a study area only includes a portion of a block group. Therefore, estimates were developed for such study areas based on the size of the study area within each block group. For example, if the entire block group is ten square miles, but only one square mile is within the study area, then it is estimated that ten percent of the block group population is within the study area. This method was further refined based on field visits and aerial photo interpretation. The sizes of the block groups were obtained using LandView V, and the area of that portion of the study area within a block group was obtained using a Geographic Information System (GIS) analysis or direct map measurements.

While the analysis of the number of residents and households in the study area provide an actual number, the other calculations provide percentages, rates, or median values. It is assumed that these statistics reflect characteristics of the study area. In other words, if 50 percent of the

population within a block group that includes the study area is reported in the census data to be of Hispanic origin, then it is assumed that 50 percent of the population in the study area portion of that block group is also of Hispanic origin. Exceptions are noted.

In some instances, data from the 1990 U.S. Census are not comparable to 2000 data. Where available, municipal and county census data are also presented to allow for comparisons that help identify those features and trends unique to the study area. Detailed census data and calculations are provided in Appendix A.

Existing trends in residential property values are identified for the study area, or a larger geographic unit, as data allow. Housing values and trends have been gathered from the U.S. Census. For the Bronx, additional data have been provided by New York City Department of City Planning's (NYCDCP) MISLAND database, which provides recent and historical land use, housing and population data by community district, census tract, or tax block. Specifically, data on the sale prices of residential buildings and houses have been provided at the census tract level. For the Eastview Site, additional information on general sales and trends, when necessary, has been obtained from the Westchester County Department of Planning and the Westchester County Tax Commission.

#### ***4.7.2.1.3. Socioeconomic Conditions of Businesses***

This section provides a general overview of existing conditions for businesses and industries. This information has been obtained at the county level. Data include employment, labor force, and general trends as provided by Woods & Poole Economics, Inc. (W&P), the New York State Department of Labor, and the Westchester County Department of Planning. Additional sources of information, specific to particular sites, are indicated in their respective sections. Where applicable, a discussion of commercial property value trends was included, based on information provided by real estate professionals.

#### ***4.7.2.1.4. Water Rate Structure***

Information on the current water rate structure for both City and upstate customers was collected. Different forms of borrowing employed by the New York City Department of Environmental Protection (NYCDEP) to fund capital improvement projects were discussed. These forms include bonds issued by the Municipal Water Finance Authority, and bonds issued through the State Revolving Loan Fund Program, which is administered by the New York State Environmental Facilities Corporation. Information on the current City billing system and the classification of customers in the City service area was discussed.

Information sources include recent revenue bond filings that outline the City's water and sewer capital plan and revenue program and a history of water and sewer rates for both the City and upstate customers.

Average annual water and sewer bills for residential households in NYC are calculated based on current rates for water and sewer usage as applied to an estimated usage of 100,000 gallons per year (gpy) per household. Average annual cost for Croton water to residential households using 100,000 gallons of water per year in upstate service areas is calculated based on the current rate the City charges upstate water purveyors. That rate is assessed on a per million gallon usage basis.

#### **4.7.2.2. Future Without the Project**

This section identifies trends and conditions in the study areas for the peak construction year of the proposed project based on the year for peak number of construction workers on-site, and the anticipated year of operation (2010 for the proposed Eastview Site; 2011 for both the proposed Mosholu Site and Harlem River Site). For the Mosholu Site and Harlem River Site, the following have been contacted: NYC Department of City Planning, NYC Economic Development Corporation, NYC Department of Parks and Recreation, the South Bronx Economic Development Agency, the Bronx Borough President's office, the Bronx Buildings Department, Montefiore Medical Center, and the NYC Department of Housing Preservation and Development. For the Eastview Site in the Town of Mount Pleasant, local planning departments and the Westchester County Department of Planning have been contacted. For the discussion of water rates the future analysis year is 2016, which is the year in which all the effects of capital costs would be reflected in the debt service of the bonds issued for the facility. Thus, 2016 is provided for comparison in addition to the anticipated year of operation for the proposed water treatment plant, as was used in the Draft SEIS.

##### **4.7.2.2.1. Socioeconomic Conditions of the Site**

Based on current trends and information collected from various agencies and sources, the predicted future conditions of the sites have been described. The discussion includes changes in terms of facilities at the sites, population employment, and property tax revenues.

##### **4.7.2.2.2. Socioeconomic Conditions in the Study Area**

The predicted future conditions of the study area are described in this section.

**Study Area Residents.** The most recent projections for population have been obtained, although they are available only for geographic units larger than the study areas. W&P provided county-level annual population forecasts for the Bronx, New York, and Westchester Counties through the year 2025. W&P's forecasts take into account age, sex, and racial-ethnic composition. The numbers are refined based on national and local agency projections and trends. Using the available projections, estimates for the study areas have been made for the future analysis years; it was assumed that the growth or decline would occur over each five-year period in even annual increments.

Projections for housing are not available. The analysis gauges the future housing conditions based on current trends and proposed projects within the study area, as identified in the Land Use, Zoning, and Public Policy analysis and based on the likely future scenarios for individual

sites (see Section 4.2, Data Collection and Impact Methodologies; Land Use, Zoning, Public Policy).

**Study Area Businesses.** W&P provided projections on employment and labor force at the county level. Using these data, estimates were calculated for employment (number of jobs) and labor force for the future analysis years.

**Water Rate Structure.** Projected capital expenditures, excluding the proposed project, through the year 2016 were calculated to provide a basis for estimating City and upstate water rates per household in the Future Without the Project. As stated previously, the year 2016 was selected 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. Thus, 2016 is provided for comparison in addition to the anticipated first year of operation for the proposed water treatment plant (2010 for the proposed Eastview Site; 2011 for both the proposed Mosholu Site and Harlem River Site), as was used in the Draft SEIS. Estimates of City and upstate household charges, in the future year in the absence of the proposed project, were calculated based on the rate of increase in the City's other projected capital expenditures.

### **4.7.3. Potential Impacts**

This section discusses those potential impacts associated with the operation and construction of the proposed water treatment plant and off-site facilities.

#### **4.7.3.1. Potential Project Impacts**

This section describes capital and operation and maintenance costs, employment, property tax revenues, 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 impacts due to increases in water rates were analyzed.

##### **4.7.3.1.1. Socioeconomic Conditions Associated with the Water Treatment Plant Sites and Off-site Facilities**

**Capital and Operation and Maintenance Costs.** The estimated costs for the proposed water treatment plant sites were described. Costs associated with off-site facilities were included in these estimates.

**Jobs.** The number of anticipated employees at the sites due to the proposed project has been described in this section. Personal income tax information was collected for those municipalities that tax income. A range of tax rates was collected for married and single employees, and resident and non-resident employees, in different income brackets. Using the anticipated salary of each worker and the municipality's income tax rate, an estimated range was provided as to how much revenue would be returned to the municipality in the form of income tax paid by the facilities' employees. The low estimate assumes that all workers live outside of the city/town and the high estimate assumes that all workers live within the municipalities. The

economic impact from the potential new project-generated employment was reduced by the loss of jobs from any potentially displaced businesses. This figure represents economic benefits of the proposed project to the area. Appendix A provides calculations.

***Property Tax Revenues.*** Assessed values of the proposed water treatment plant could not be obtained from the NYC Department of Finance or the local Tax Assessors of the Westchester County municipalities. The Utilities Division of the New York State Division of Equalization and Assessment was contacted to recommend a reasonable method to calculate the value of the proposed facility. Based on the Division's input and information gathered from past watershed land acquisition and taxing agreements with localities, the tax revenues were based on the taxable components of the capital and construction costs. This method deducts those costs associated with the conveyance of water to and from the New Croton Aqueduct. The commercial and industrial equalization rate (unique to each municipality) is applied to the cost to arrive at its assessed value. To determine the potential property taxes generated by the proposed plant, the current tax rates, as applicable, are applied to the assessed value. The equalization and tax rates have been obtained from each municipality. It should be noted that this methodology very likely results in a conservative estimate.

***Indirect Effects.*** The proposed project's potential effects on local and regional businesses were evaluated for the water treatment plant sites in terms of additional jobs that the proposed project would add directly and indirectly. A qualitative description of general benefits to the local area due to the new employment was provided in this section.

The potential economic impacts at the county level are quantified using RIMS II, which provides multipliers.<sup>1</sup> The multipliers used for the analysis represent regional data from 2000. These multipliers account for the inter-industry relationships in a county, and can help to determine numerous potential economic impacts of a proposed project. The output, earnings, and employment that would be induced by this proposed project are determined by applying the multipliers to the annual operation and maintenance costs. Output is the gross sales; earnings are the sum of wages and salaries, proprietors' income, and other labor income, minus employer contributions to private pension and welfare; and employment is the number of jobs. The results indicate the potential jobs that may be added to the county's economy. Appendix A provides the calculations.

***Potential Displacement Impacts.*** This subsection describes the methodology used to assess direct and indirect residential, business, and institutional displacement. The methodology is the same for both potential project impacts and potential construction impacts.

**Direct Residential Displacement.** Proposed project and construction plans have been reviewed to determine whether any current residences would be removed from the sites or off-site facilities study areas. The requirements of the proposed project have been reviewed to determine whether it would be necessary to construct on a parcel or a portion of a parcel in such a way that the parcel would be rendered unfit for its current use. This was accomplished by

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<sup>1</sup> Bureau of Economic Analysis. 2003. RIMS II Multipliers for Westchester County and Bronx County (software). United States Bureau of Economic Analysis, U.S. Department of Commerce. Washington, D.C.



identifying the current land uses of all properties that could be affected by construction and operation.

Direct Business or Institutional Displacement. The proposed project and construction plans have been reviewed to determine whether any current businesses would be directly removed from a proposed site or its study area. The requirements of the proposed project have been reviewed to determine whether it would be necessary to construct on a parcel, or a portion of a parcel, in such a way that the parcel would be rendered unfit for its current use.

If it is determined that direct displacement would occur, relocation of the affected business/institution within the area was analyzed. If relocation could not be guaranteed, information on the existing businesses and institutions that would be displaced was collected to determine the following: (1) the number of businesses and employees that would be displaced, (2) if any regulations or plans protect the businesses, (3) if they are location-dependent, and (4) whether they contribute significantly to the regional economy. Socioeconomic factors associated with the existing businesses or institutions, such as jobs and property taxes, are compared to those anticipated to be generated by the proposed project.

If the business could not be relocated, the significance of the existing business/institution would be compared to the proposed plant and off-site facilities. Then by comparing the magnitude of the loss to the overall study area trend, the potential impact could be gauged. If it is determined to be significant, then mitigation is considered.

Indirect Displacement. Indirect residential, business, and institutional displacement was analyzed by reviewing potential impacts identified in other analyses to determine if their effects would cause significant changes in the study area that would cause residents, businesses, or institutions to leave the area. Particularly, those properties in the vicinity of significant noise, traffic, neighborhood character impacts, and other impacts, as relevant, were evaluated. If the analysis reveals that the effects of the proposed project would result in indirect displacement, the significance of the displacement was analyzed in a similar fashion to direct displacement (see above).

*Water Rate Structure.* The anticipated maximum annual payment related to the construction and operation of the proposed project was calculated. The projected increases in water charges are presented in this section for both City and upstate customers. The allocation of costs related to the proposed project is based on the existing allocation of costs associated with maintaining and improving the City's water system. These costs are based on usage. For the period 1985-2000, inclusive, the City provided an average of 43,789 million gallons per year (gpy) of water to upstate customers. This represented approximately 8.27 percent of all water supplied to both in-city and upstate customers.<sup>2</sup>

Annual cost increases in the anticipated first year of operation for the proposed water treatment plant (2010 for the proposed Eastview Site; 2011 for both the proposed Mosholu Site and Harlem River Site) and in the year 2016 to individual households were calculated using the

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<sup>2</sup> New York Water Board. 2001. Report on the Cost of Supplying Water to Upstate Customers for the 2002 Rate Year. Draft Prepared by Black and Veatch New York LLP.

anticipated rate for water and sewer service for City residents and water service only for upstate residents. As previously discussed, the year 2016 was used since it 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. As an illustrative example of potential water rate impacts resulting from the proposed project, the year 2016 rates were then applied to estimate usage of 100,000 gpy per household. The anticipated percentage increase in monthly costs due to the implementation of the proposed project was presented.

Impacts on low income rate payers were considered in addition to the median family income residents because the burden of increased rates would be greatest on low income households. This analysis began with the lowest median income in all of the study areas, as determined from the 2000 U.S. census. This income was \$10,825 from census Tract 271.01 in the Kingsbridge area of the Bronx. This income was 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, which is the most current year for which water rates are confirmed. This 2004 income, which was \$12,055, was then further inflated to 2016, the year when all the bonding for the Croton WTP would be in place (as previously discussed). This 2004 income differs slightly from what was presented in the DEIS (\$12,066) due to the availability and use of the annual seasonally adjusted CPI for 2003. The increase in water rates was then compared in absolute and percentage terms to the household incomes of these low income water users.

#### **4.7.3.2. Potential Construction Impacts**

This section evaluates the effects construction activities and construction workers could have on the municipality's and County's economies. A more detailed analysis for a site is conducted if the proposed activities would involve construction of a long duration that could affect nearby residents and businesses.

**Jobs.** The peak number of construction employees at the project sites in the peak construction year was estimated. Income tax benefits that would accrue to either the city or county are provided, based on a median salary.

**Indirect Effects.** The same analysis based on the RIMS II multipliers, as discussed under "Potential Project Impacts," was performed to determine indirect effects due to construction. The analysis is based on the capital and construction cost for the proposed project. Because not all the investment dollars would be spent in the immediate area the costs are proportioned. Based on similar projects, it is assumed that 40 percent of the capital and construction costs would be spent outside of the particular county. The remaining 60 percent of the construction costs is assumed to have regional economic effects.

**Potential Displacement Impacts.** The potential for construction activity to result in direct and indirect displacement was analyzed. The methodology is the same as under Potential Project Impacts.

#### **4.7.4. Mitigation**

The need for mitigation is evaluated if any significant impacts are identified. Mitigation strategies are dependent upon the nature of the estimated displacement and the potential impacts causing such displacement.