

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

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## **4.2. LAND USE, ZONING, AND PUBLIC POLICY**

### **4.2.1. Introduction**

Land use, zoning, and public policy analyses are performed to assess the effects of a proposed project on existing uses and the project's consistency with underlying zoning and applicable public policies in a study area. This analysis addresses the anticipated compatibility of the proposed Croton Water Treatment Plant (Croton project) and off-site facilities with the surrounding areas during construction and operation of these facilities.

A study area generally includes the area in which a proposed project could have a potential influence on future land use, zoning or public policy. The size of the study area relates to the type and size of the project that is being proposed, and the context of the area that could be affected by this proposal. The proposed project includes three potential water treatment plant sites (the Eastview Site, Westchester, NY, the Mosholu Site, Bronx, NY, and the Harlem River Site, Bronx, NY), potential pressurization of the New Croton Aqueduct (NCA), a tunnel connection system from each potential site to the NCA, and Jerome Park Reservoir modifications. Not only does each study area have a distinct set of land use, zoning, and public policy characteristics, but each study area would also experience different effects from the proposed project. Study areas for the project sites and off-site facilities were identified as follows: (1) a one-mile radius (approximately) was identified for the Eastview Site; (2) a one-half mile radius was identified for the Harlem River Site, the Mosholu Site, and the Jerome Park Reservoir-area facilities. The half-mile radius is standard practice in the dense urban environment with closely spaced streets. This area includes the area immediately around the project site that would be directly influenced by construction and operational activities at the site, as well as, the area that would be affected by construction related traffic traveling to the site from the nearest major transportation corridor (the Major Deegan Expressway). The one-mile radius for the Eastview Site was selected since the distance to the nearest major transportation corridors in the area, including the Taconic State Parkway, the Cross Westchester Expressway (I-287), and the Saw Mill River Parkway are approximately one mile or greater from the site and would function as natural land use barriers. In addition, the study area was expanded for the Eastview Site to be able to encompass the large properties found in the vicinity of the project site, which was not the case for the in-city project sites. (A smaller radius would have captured only a portion of these properties, so following a conservative approach, a one-mile radius was used to delineate this particular study area.)

It is very important to note here that when assessing the potential for significant adverse impacts, if a particular significant adverse impact is identified, the significant impact will be defined relative to distance irrespective of the distance defined as a study area. For instance, if a potential significant adverse impact were identified due to noise level increases predicted at a receptor, those noise level increases would be plotted until they become less than significant noise level changes relative to distance. Furthermore, since many of the thresholds used to define significant adverse impacts are conservative, as is the methodology used by NYCDEP to predict potential impacts, the point of maximum increase is identified irregardless of the size of the initial study area.

#### 4.2.2. Baseline Conditions

The Eastview, Mosholu, and Harlem River Sites would require new tunneling systems and connections to/from the NCA. For the Eastview Site, there are two long term engineering alternatives for the conveyance of treated water to the city: (1) connecting to the NCA directly west of the Eastview Site, where no connection currently exists, downstream from the NCA Shaft No. 10 and (2) connecting into proposed Kensico-City Tunnel. There is also a third engineering alternative for Interim/Permanent Backup Systems, which would connect the water treatment plant to the Delaware Aqueduct. Study areas for the tunneling routes were not delineated, given the short-term nature of the work and the absence of surface disturbances. For the Harlem River Site, there are three engineering alternatives for conveying treated water to the distribution system: (1) using a 180-mgd 7-foot diameter high-level service tunnel to a new shaft chamber and a 155-mgd 7-foot diameter low-level service tunnel to the NCA; (2) using only a 290-mgd 9-foot diameter high-level service tunnel to a new shaft chamber; and (3) using a 290-mgd 9-foot diameter high-level service tunnel to a new shaft chamber and a 155-mgd 7-foot diameter low-level service tunnel to the NCA. For all three treated water engineering alternatives, work activities would occur in the same general areas, with the exception of the absence of the low-level service tunnel from engineering alternative 2, and would occur within the study area for the Harlem River Site. For the Mosholu Site, high-level treated water would be pumped from the water treatment plant wet wells through a new 9-foot diameter treated water tunnel and would supply up to 290 mgd to the new shaft chamber located in the Harris Park Annex, near the Jerome Park Reservoir. Low-level treated water would be conveyed from the water treatment plant through a new 9-foot diameter tunnel to a new shaft chamber located near Gate House No. 5. From this new shaft chamber, low-level treated water would be conveyed to the NCA, downstream of Shaft 21, through a new 8-foot diameter low-level tunnel. Intermediate-level service areas would be supplied from the in-City high-level service, using existing regulators. Harris Park Annex, Gate House No. 5, and Shaft 21 are all located within the study area for Jerome Park Reservoir (see Section 8, Off-Site Facilities).

As noted above, secondary study areas were also defined to assess the potential impacts from project-generated construction traffic. Secondary study areas include local and county roadways that construction vehicles would be likely to use. Potential land use impacts are generally not assessed along highway corridors, as these roads are designed to carry high volumes of traffic. The following paragraphs provide descriptions of the study areas for the water treatment plant sites and the off-site facilities. Some of the off-site facilities are common to all the water treatment plant sites; however, the extent of the proposed work may vary depending on the water treatment plant site.

The primary study area for the Eastview Site includes the project site where the water treatment plant could be located and the area within roughly one mile of the project site boundaries. This study area includes portions of the Towns of Mount Pleasant and Greenburgh. Specifically, the study area is bordered on the north by Stevens Avenue, on the west by the Saw Mill River Parkway, on the south by the Cross Westchester Expressway (I-287) and the southern edge of the Westchester Community College campus, and on the east by Hillside Avenue (Route 100) and the Taconic State Parkway. The one-mile study area radius was determined in order to capture the large properties that are located adjacent to or near the project site, such as Grasslands

Reservation, the Cross Westchester Executive Park, Westchester Community College, etc. The primary study area also includes the principal traffic routes that would convey project-generated traffic; therefore, a secondary study area has not been defined.

Proposed work associated with the concrete plug and access point to the NCA, located south of NCA Shaft No. 10, is associated only with the Eastview Site. Activities at this site would result in construction activity related to the installation of a concrete plug in the NCA and tunnel-boring activities. The land use, zoning, and public policy analysis does not examine this site because all work activities would occur below the ground surface. Construction activities for the proposed tunnels would be conducted using a tunnel-boring machine.

The primary study area for the Harlem River Site includes the proposed plant site, potential staging areas to the north of the project site, and an area within a one-half mile radius of the project site perimeter. The study area is bordered on the north by West 231<sup>st</sup> Street, on the west by Broadway (in Manhattan), on the east by Jerome Avenue, and on the south by West Burnside Avenue. Numerous off-site facilities and connections occur within this single study area (including an emergency bypass, a raw water tunnel from the NCA to the proposed plant, a low-level service treated water tunnel, and a high-level service treated water tunnel). This study area has been established to include several neighborhoods adjacent to the project site and areas that would be potentially affected by the project-generated traffic and other activity. The principal access route to the water treatment plant site would be the Major Deegan Expressway (Interstate 87). As noted above, this route is not evaluated as a secondary study area because this highway is designed to handle a high traffic volume; however, analyses consider project-related traffic in relation to the exit and entrance ramps of the Major Deegan Expressway. A secondary study area was defined as needed for those local routes that may convey traffic to the off-site facilities within the Harlem River Site primary study area.

The Mosholu Golf Course Site is owned by the City and consists of approximately 78 acres within Van Cortlandt Park. The proposed site includes the Mosholu Golf Course Driving Range and a portion of the Allen Shandler Recreation Area, which abuts the golf course to the north. The driving range comprises the area of the proposed water treatment plant, while the Allen Shandler Recreation Area would be utilized for temporary golf course parking, clubhouse facilities, and access to the existing holes of the Mosholu Golf Course during proposed project activities. The Mosholu Golf Course section of the park is bounded by other areas of Van Cortlandt Park including the Allen Shandler Recreation Area to the west and north, Jerome Avenue and the IRT No. 4 elevated train tracks and Woodlawn Subway Station to the east, and Saturn Playground and West Gun Hill Road to the South. The Allen Shandler Recreation Area is bounded on the north by the Major Deegan Expressway and Jerome Avenue. Numerous water supply facilities occur within the one-half mile study area, including the NCA, the New Croton Branch Aqueduct, the Old Croton Aqueduct, and Gate House No. 1. This study area has been established to include several neighborhoods adjacent to the project site and areas that would be potentially affected by the project-generated traffic and other activity. The principal access route to the water treatment plant site would be the Major Deegan Expressway (Interstate 87) to the exit at 233<sup>rd</sup> Street. Traffic would then travel down Jerome Avenue to the access road. As noted above, this route is not evaluated as a secondary study area because this highway is designed to handle a high traffic volume; however, analyses consider project-related traffic in relation to the

exit and entrance ramps of the Major Deegan Expressway. A secondary study area was defined as needed for those local routes that may convey traffic to the off-site facilities within the Mosholu Site primary study area.

All three water treatment plant sites would require work at the offsite facilities in the area of the Jerome Park Reservoir. The study area for Jerome Park Reservoir includes the reservoir and the area within a one-half mile radius of the reservoir perimeter. Numerous off-site facilities and connections are located within this study area (including Gate House No. 2, 3, 5, 6, 7, NCA Shaft No. 21, Mosholu Pumping Station, Jerome Pumping Station, a new shaft chamber in the Harris Park Annex, and the Demonstration water treatment plant). These facilities are evaluated in the context of one overall study area. The study area is bordered on the north by Van Cortlandt Park, on the west by Marble Hill and the Harlem River, on the east by Mosholu Parkway, and on the south by St. James Park. This study area has been established to include several neighborhoods adjacent to the water treatment plant site, areas potentially affected by the project-generated traffic and other activity. A secondary study area was also defined to include the local and county roadways that would convey project-generated construction traffic to state routes.

If the Eastview Site is identified as the preferred site for the Croton project and the pressurization of NCA is chosen as the long term treated water conveyance, then work associated with NCA Shaft No. 9, No. 14, No. 18, Gate House No. 1, and NCA Shaft No. 21 would be required as part of the pressurization of the NCA. Minor internal work could be required at the Croton Lake Gate House if the Eastview Site is identified as the preferred site. The study areas for these locations are described in the following paragraphs.

The Croton Lake Gate House, located in the Town of Yorktown, is situated on the New Croton Reservoir. The Gate House is surrounded largely by undeveloped land, much of which is owned by the City of New York. Since activities at this site would result in only temporary construction activity related to the installation of Potassium permanganate facilities if the Eastview Site is chosen, the primary study area includes the Gate House itself and the surrounding area within roughly one-quarter mile of the site's western, southern, and eastern boundaries. The northern boundary of the Gate House abuts the New Croton Reservoir, which functions as a natural land use barrier. A secondary study area was defined to include the local and county routes that would convey the project's construction vehicles, including Aqueduct Street, Old Kitchawan Road, Chadeayne Road, Pines Bridge Road, and Arcady Road.

NCA Shaft No. 9 is located along the northern border of the Village of Sleepy Hollow beside the Rockefeller State Park Preserve. Activities at this site would consist of temporary construction activity related to the rehabilitation of the NCA. The primary study area includes the shaft site itself and the surrounding area within roughly a one-quarter mile boundary, including portions of the Town of Mount Pleasant and the Village of Sleepy Hollow. A secondary study area was defined to include the local and county routes that would convey the project-generated construction vehicles, including: Sleepy Hollow Road, Webber Avenue, County House Road, Neperan Road, and Old Saw Mill River Road. Although Bedford Road is a State Route (Route 448), a short segment of Bedford Road in the Town of Tarrytown was considered due to its

critical linkage between local roads (Sleepy Hollow Road and County House Road) and U.S. Route 9 (North Broadway), as well as its proximity to residential areas.

NCA Shaft No. 14 is located in the Village of Ardsley beside the Village's public library on American Legion Drive. Since activities at this site would result in only temporary construction activity related to the rehabilitation of the NCA, the primary study area includes the shaft site itself and the surrounding area within one-quarter mile of the site. The local and county roadways that would convey project-generated construction traffic to state routes include Ashford Avenue, Center Street, and American Legion Drive. These routes are located within the primary study area; therefore, a secondary study area was not defined.

NCA Shaft No. 18 is located in the City of Yonkers near the Yonkers Avenue/Midland Avenue intersection and the interchange with the Cross County Parkway. Since activities at this site would result in only temporary construction activity related to the pressurization of the NCA, the primary study area includes the shaft site itself and the area within one-quarter mile of the site. A secondary study area for traffic purposes was not defined for this site because construction traffic would be expected to utilize the Cross County Parkway and access to this parkway lies within the one-quarter mile primary study area. (Commercial vehicles are generally not permitted on the Cross County Parkway, but construction vehicles traveling locally are permitted.) As noted above, potential land use impacts are generally not assessed along highway corridors as these roads were designed to carry high volumes of traffic. Furthermore, the Cross County Parkway does not provide at-grade access, so adjacent land uses would not be affected.

The study area for Gate House No. 1 includes the area within a one-half mile radius of the Gate House. A one-half mile study area was determined for Gate House No. 1, as opposed to the one-quarter mile radius determined for other off-site facilities, based on a longer expected duration of construction and a greater scope of work activity, as compared to other off-site facilities. This study area occurs largely within the limits of Van Cortlandt Park; however, a portion of Woodlawn is located in the eastern portion of the study area. A major transportation corridor (Interstate 87, known as the Major Deegan Expressway in the vicinity of the study area) runs north-south through the center of the study area and would serve as the accessway for construction-related traffic. Since the Major Deegan Expressway is a major highway designed to handle high traffic volumes, it was not evaluated as a secondary study area; the study would evaluate the project-related traffic in relation to the exit and entrance ramps on the Major Deegan Expressway.

#### **4.2.2.1. Existing Conditions**

##### **4.2.2.1.1. Land Use**

Land uses within each study area were categorized into general land use classifications. These classifications for Westchester County consist of: very low density residential, low density residential, medium density residential, high density residential, commercial/residential, commercial, office, institutional, transportation, cemetery, manufacturing, nature preserve, private recreation, active open space, passive open space, undeveloped, and water supply. These classifications are based on Westchester County's 1996 "Generalized Land Use" map, which has

been digitized for the County's GIS system<sup>1</sup>. Land use classifications for the Bronx, consist of: medium density residential, high density residential, industrial, commercial/retail, institutional, transportation/utility, and parks and recreation (open space). The land use classifications provided in the Existing Conditions sections identify the uses within the study areas and, where applicable, identify land use patterns, relationships and trends. Land use classifications were mapped and described in text for each water treatment plant site, off-site facility, and study area.

Existing sources of information were consulted. Sources for Westchester County include the County's 1996 Generalized Land Use Maps, and *Patterns for Westchester: The Land and the People*<sup>2</sup>. Other town/city-specific documents were consulted including existing or proposed comprehensive plans; these plans were identified and summarized in their respective sections. Resources for the Bronx sites include City land use maps, the *New York City Financial Plan for Fiscal Years 2002 to 2006*<sup>3</sup>, *Dilemma in the Millennium – Capital Needs of the World's Capital City*<sup>4</sup>, the *Bronx Strategic Policy Statement*<sup>5</sup>, *Manhattan Strategic Policy Statement*<sup>6</sup>, *Shaping the City's Future: New York City Planning and Zoning Report*<sup>7</sup>, and *Community District Needs Statements, Fiscal Year 2004* for the Bronx and Manhattan<sup>8</sup>. For both New York City and Westchester County, street maps, topographic maps, and aerial photographs were consulted to obtain land use information. In addition, field visits were conducted to confirm the published land use information. For the Westchester sites, field visits were conducted in August 2001, June 2002, and August 2003. For the Bronx sites, field visits were conducted in July 2001, July 2002, August 2002, and August 2003.

Land uses within the study areas for the NCA pressurization and tunnel connection systems were investigated within a primary and a secondary study area. Land use information within the primary study area for the sites located in Westchester County and the Bronx were based on generalized land use data provided by county and local GIS resources, tax maps, field reconnaissance, and aerial photographs. Land use information within the secondary study areas for the sites located in Westchester County and the Bronx identified and described land uses fronting on selected road systems and uses sensitive to project-generated construction traffic.

#### **4.2.2.1.2. Zoning**

The most recent zoning ordinances and zoning maps were collected and reviewed to provide information describing the existing zoning regulations for each of the project sites and off-site facilities and designated study areas. For each applicable zoning district, the analysis

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<sup>1</sup> GIS. <http://www.westchestergov.com> (WCLUI96).

<sup>2</sup> *Patterns for Westchester: the Land and the People* is Westchester County's long range planning policy document. This document is available on the Internet at: <http://www.westchestergov.com/patterns/>.

<sup>3</sup> *New York City Financial Plan for Fiscal Years 2002 to 2006* was released by the City of New York Office of the Mayor on February 13, 2002.

<sup>4</sup> *Dilemma in the Millennium – Capital Needs of the Worlds Capital City* was released by the City of New York Office of the Comptroller in August 1998.

<sup>5</sup> 2002 - 2005 *Bronx Strategic Policy Statement* by Bronx Borough President Adolfo Carrion, Jr.

<sup>6</sup> 2002 *Manhattan Strategic Policy Statement* by Manhattan Borough President C. Virginia Fields.

<sup>7</sup> *Shaping the City's Future: New York City Planning and Zoning Report* was released by the New York City Planning Commission in 1993.

<sup>8</sup> *Community District Needs Statements* are prepared by New York City's Community Boards.

discusses examples of typical land uses allowed as-of-right (i.e., not requiring discretionary approval) in each study area. Where applicable, special permit uses are listed for certain zoning districts. The zoning regulations were also consulted to determine maximum facility dimensions and minimum parking requirements.

#### ***4.2.2.1.3. Public Policy***

Plans, policies, need statements and relevant reports were researched through multiple sources including direct contact with planning departments and other municipal and county entities and research via the internet. These documents were reviewed to determine applicability to the study area. Observations made during field visits, along with previous studies by boroughs and municipalities, revealed ongoing trends that were projected to future years. Information presented in the Socioeconomic Analysis also helps to identify future trends, such as population changes, that may affect the study area (see Eastview Site, Socioeconomic Analysis, Section 5.7, Mosholu Site, Socioeconomic Analysis, Section 6.7, and Harlem River Site, Socioeconomic Analysis, Section 7.7).

#### ***4.2.2.2. Future Without the Project***

Planning departments were consulted about future development, planning policies, and zoning changes that may affect each site and study area. A list was compiled of all the development proposals that can be reasonably expected to be completed by the proposed project's build year. Also, observations during field visits, along with previous studies by the boroughs and municipalities, indicated ongoing trends, which were projected to future years. Using the information gathered, in combination with market conditions, constraints and incentives, land use conditions and trends were predicted for the Future Without the Project. Information from the Socioeconomic Conditions Analysis also helped to identify future trends, such as population changes, that may affect the study area (see Eastview Site, Socioeconomic Analysis, Section 5.7, Mosholu Site, Socioeconomic Analysis, Section 6.7, and Harlem River Site, Socioeconomic Analysis, Section 7.7).

### **4.2.3. Potential Impacts**

#### ***4.2.3.1. Potential Project Impacts***

##### ***4.2.3.1.1. Land Use***

A detailed land use analysis was conducted to assess the project's potential land use impacts on the proposed work areas and the surrounding study areas, pursuant to the *CEQR Technical Manual*. Direct land use impacts associated with the operation of the proposed project and off-site facilities were described in conjunction with multiple parameters, including socioeconomic conditions, traffic and transportation, open space, noise, visual character, neighborhood character, and air quality analyses. The land use analysis also evaluated the project's compatibility with expected future land uses. Specifically, the use, size, and other special characteristics of the proposed project were described in relation to the surrounding area.



There are three types of land use effects the proposed project may have. The effects themselves were not considered significant unless certain criteria were met. The first type of effect is displacement. The thresholds to determine whether displacement is significant and adverse were discussed in the Socioeconomic Analysis (see Data Collection and Impact Methodologies, Socioeconomic Conditions Analysis, Section 4.7). The second type of effect is the creation of an incompatible land use. Such a land use change would be significant and adverse if it:

- (1) Interferes with the functioning of other land uses;
- (2) Conflicts with public policy; and/or
- (3) Significantly alters the area's neighborhood character (see Data Collection and Impact Methodologies, Neighborhood Character, Section 4.6).

The third type of effect the proposed project may have is to cause the surrounding land uses to change. Change is considered significant and adverse if it:

- (1) Conflicts with other surrounding uses;
- (2) Is incompatible with public policy;
- (3) Creates an increase in density that is not consistent with public policy or the increase overburdens the area;
- (4) Increases density of development, thereby exceeding the capacity of the study area to support such development;
- (5) Accelerates a negative trend; and/or
- (6) Negatively affects the real estate market forces.

The potential effects generated by the proposed plant are evaluated in light of these criteria. The analysis of future conditions associated with the project identifies the differences in use (with and without the project) of the sites during the build year, identifies the proposed uses' compatibility with the surrounding land uses, and discusses whether the action would have the ability to generate change in the study area. Therefore, the extent to which land use impacts were evaluated varied depending on the nature of the proposed work at each site and the overall land use context.

#### ***4.2.3.1.2. Zoning and Other Public Policy***

This analysis discusses whether a zoning ordinance, map change, or special approval would be required to build the proposed project. Such requirements are described, as is the process for making the changes. If zoning changes are required, their potential effects on other zoning districts in the study area are evaluated. The proposed project's compliance with existing plans and policies are also described. Where the proposed project would conflict with a policy or plan, the effects on that policy or plan is described and the importance of the conflict is assessed.

Potential zoning impacts are significant and adverse if: (1) the proposed project creates a use that cannot readily comply with the underlying district; (2) the land use is significantly inconsistent with plans or policies for the site or study area; or (3) significant material changes to the zoning regulations or policies are necessary to implement the proposed project. The analysis of the

future conditions associated with the project identifies changes to the zoning regulations and zoning maps, and evaluates potential effects on existing and planned public policies.

#### **4.2.3.2. *Potential Construction Impacts***

The affected areas were determined based on the real extent of construction activities. The potential impact analysis was conducted in a similar fashion to that described in the Potential Project Impacts section above, with consideration of the duration of construction activities.

#### **4.2.4. Mitigation**

Specific mitigation measures were developed when significant adverse impacts on land use, zoning, or public policy were identified. The mitigation measures are intended to reduce or eliminate impacts related to open space, noise, traffic, aesthetics, and socioeconomic conditions, all of which contribute to the compatibility of land uses. Mitigation measures are also developed to eliminate or minimize non-conformance with applicable zoning regulations and to ensure compliance with public policy.