

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

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### **8.3. KENSICO-CITY TUNNEL**

#### **8.3.1. Project Description**

This alternative for the conveyance of treated Croton water to the City involves the construction of an entirely new tunnel from the Kensico Reservoir to the Eastview Site and from there to the City's water distribution system. This new tunnel could potentially be sized to accommodate all of the City's flows, be able to bypass Hillview Reservoir, and provide system redundancy for future maintenance of the other conveyances. If the Croton System were to use this new tunnel, the NCA would be used for emergencies and for system overflows.

The proposed Kensico-City Tunnel (KCT) is still at the stage of a feasibility study<sup>1</sup>. Its primary purpose would be to provide system flexibility for the Catskill/Delaware water supplies. The KCT would be sized to accommodate between 1,600 and 2,400 mgd of treated water, 24 ft. to 29 ft. in diameter, and 12.5 to 16 miles long.

The feasibility study describes three alternative alignments, including three possible intake locations alongside Kensico Reservoir. Two of the alignments include uptake and Downtake chambers on the Eastview site and connections to the Catskill and Delaware aqueducts. The tunnel alignments consider the geology of the rock strata in which the aqueduct would be bored and the hydraulic profile of the proposed routes. In addition to the constraints from the geology, the choice of shaft sites may also affect the final alignment. No specific shaft sites are recommended, but all the alternatives under consideration terminate at the distribution system connections at the Van Cortlandt Valve Chamber in the Bronx.

#### **8.3.2. Generic Project Impacts**

The feasibility study assumes that the subsurface work would take place 24 hours a day. Work on the surface shaft sites would have to comply with local zoning, which generally restricts night work. Shaft sites would have to be at least 2 acres in area to allow for equipment and staging. Each shaft would have parking, ventilation equipment, construction trailers, a crane, electrical substation, and materials laydown areas. During operations the shaft sites would occupy about half an acre. The shaft sites would have to accommodate up to 140 workers and would generate truck traffic from the removal of spoils. This truck traffic would be less than 120 trucks per day. The total spoil to be removed would be about 2,500,000 cubic yards for the largest diameter tunnel under consideration.

The tunneling would encounter groundwater, and the groundwater would have to be treated to remove sediment and discharged to one of the rivers that pass over the

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<sup>1</sup> NYCDEP. 2003. *Feasibility Study: Kensico-City Tunnel*.

alignment. In addition, some or all of the shafts would be used as a dewatering point to empty the aqueduct for maintenance. Dewatering would require discharges of up to 10 cfs (4,600 gpm). This could represent a groundwater flow into some of the possible discharge points. These possible discharge points could be the Hutchinson River, Bronx River, or the Sawmill River, depending on the shaft location. The average annual discharge of the Hutchinson River is only 4 cfs, so dewatering would more than triple the average flow (from 4 cfs to 14 cfs) and bring the river to high, but not flood, condition. If dewatering took place at flood conditions, the flood would be worsened. Average annual flow to the Bronx River is 47 cubic feet, and the Sawmill River is even more. These rivers could accommodate the 10 cfs of water from the aqueduct with much less impact. Siting of the shafts and intake structures would require a thorough environmental impact analysis.

The environmental impact statement for the KCT would analyze flood control, scouring, and other impacts of this action. The long duration of the construction (about 15 years) would require a detailed analysis of the impacts of this proposed work on all environmental parameters. The long duration would require a very thorough consideration of the neighborhoods if any construction would take place near residences or commercial operations that could be sensitive to the long-term trucking of spoils and associated impacts.

In addition to the shafts, the new intake structure at Kensico Reservoir would be a substantial construction project, about 300 ft. by 400 ft. and three levels high. Potential water quality impacts to Kensico Reservoir would be assessed very carefully. This facility would house chemical addition facilities.

Another project component would be a surge tank that would be a low concrete structure about five acres in size. This would have to be downstream of the Ultraviolet Disinfection Facility. One site that has been considered is the City-owned property in Greenburgh, south of the proposed site of the Ultraviolet Disinfection facility. This site is forested with mature trees and has wetland areas that could be impacted.

Finally, after the aqueduct would be finished, the City may seek additional in-City treated water storage. This would require a site up to 25 acres in size. The existing Richmond tanks or the Silver Lake tanks in Staten Island might be modified for this use, but this component is in the very early planning stages.

Construction of the KCT would not start before 2009. There could be a year's overlap in construction between the Croton WTP and the KCT start-up work. The Croton work effort would be past peak in 2009, and it is not anticipated that the combined effect of these two projects would create impacts as large as the impacts during the peak construction period for the Croton WTP alone. The tunnel would be completed in 2019, but other features of this new system would be built for years afterward.

The KCT design is still speculative and a decision to proceed beyond design has not been made and would be subject to a separate and thorough public environmental review

process. If a decision is made to advance the proposed Kensico-City Tunnel, the pressurization of the NCA would not have to proceed. Croton water would be blended with treated Catskill and Delaware water and the entire City's water would be conveyed at the same pressure to the distribution system. The Intermediate and Low Level service areas in the City would be fed by existing boundary valves and regulators. This would add full redundancy to the conveyances and allow for much greater operational flexibility.

The new tunnel would result in the NCA being taken off-line. This section of the NCA would be retained for use as a bypass during surge occurrences, subject to review and approval by the NYSDOH. The Jerome Park Reservoir and the Gate Houses would also be taken off line and retained for Bureau of Water Supply use. The Mosholu and Jerome Pumping Stations would be taken off line, and the Microstrainer Building and Demonstration Water Treatment Plant would be dismantled.

A feasibility study released in December 2003 determined that this KCT is feasible and recommended additional design. The design is currently under procurement.