

**FINAL ENVIRONMENTAL IMPACT STATEMENT FOR THE
CATSKILL/DELAWARE UV FACILITY**

4.16.	INFRASTRUCTURE AND ENERGY	1
4.16.1.	Introduction.....	1
4.16.2.	Baseline Conditions	1
4.16.2.1.	Existing Conditions.....	1
4.16.2.1.1.	Water supply	1
4.16.2.1.2.	Sanitary Sewage.....	4
4.16.2.2.	Future Without the Project.....	10
4.16.2.2.1.	Without Croton Project at Eastview Site	12
4.16.2.2.2.	With Croton Project at Eastview Site	12
4.16.3.	Potential Impacts.....	14
4.16.3.1.	Potential Project Impacts	14
4.16.3.1.1.	Without Croton Project at Eastview Site	14
4.16.3.1.2.	With Croton Project at Eastview Site	26
4.16.3.2.	Potential Construction Impacts	26
4.16.3.2.1.	Without Croton Project at Eastview Site	26
4.16.3.2.2.	With Croton Project at Eastview Site	34
4.16.4.	Relocating the Hammond House	34
FIGURE 4.16-1.	LOCAL SEWER SUBSYSTEMS AT EASTVIEW SITE.....	5
FIGURE 4.16-2.	STORM DRAINAGE OUTLETS AT EASTVIEW SITE	8
FIGURE 4.16-3.	UNDERGROUND GAS MAINS AT EASTVIEW SITE.....	9
FIGURE 4.16-4.	CON EDISON UNDERGROUND TRANSMISSION LINES AT EASTVIEW SITE	11
FIGURE 4.16-5.	SEPARATE UV TREATMENT SYSTEM FOR MOUNT PLEASANT AND 30 INCH GRAVITY FEED CONNECTION TO DELAWARE SHAFT NO. 18.....	18
FIGURE 4.16-6.	TOWN OF MOUNT PLEASANT PROPOSED RAW WATER CONNECTION TO PUMPING STATION	30
TABLE 4.16-1.	EXISTING UPSTATE WATER SUPPLIERS	3
TABLE 4.16-2.	INFRASTRUCTURE WATER SUPPLY NEEDS	15
TABLE 4.16-3.	TOTAL ELECTRICAL LOADS	24

4.16. INFRASTRUCTURE AND ENERGY

4.16.1. Introduction

This section examines the existing and potential demands upon water, wastewater, stormwater drains, electric systems, and natural gas associated with the proposed Catskill/Delaware Ultraviolet Light Disinfection Facility (UV Facility) project at the Eastview Site. The stormwater management facility is also discussed in this section. For the purpose of this analysis, a study area of approximately one-half mile has been established. The following analysis was performed in accordance with the methodology outlined in [Section 3.16, Data Collection and Impact Methodologies, Infrastructure and Energy](#).

4.16.2. Baseline Conditions

4.16.2.1. Existing Conditions

The Eastview Site consists of two parcels, located in two separate municipalities; roughly 83 acres or 56 percent of the property is located within the Town of Mount Pleasant and 66 acres or 44 percent of the property is located within the Town of Greenburgh. An additional eight acres of land sits to the east of the Eastview Site in the Town of Greenburgh and runs along the Catskill Aqueduct corridor. This parcel of land, which contains the Catskill Aqueduct Connection Chamber and is under a permanent easement with Consolidated Edison Company of New York (Con Edison), would also be included as part of this analysis. The property is bisected by Grasslands Road (Route 100C), which also serves as the border between the Town of Mount Pleasant and the Town of Greenburgh.

The 149-acre Eastview Site is largely undeveloped, with the exception of: (1) Delaware Aqueduct Shaft No. 19, situated on the eastern side of the north parcel with an access road off Route 100C; (2) the Catskill Aqueduct Connection Chamber, situated on the eastern side of the south parcel with an access road off Route 100C; (3) an electrical substation (owned and maintained by Con Edison), situated on the south parcel along Route 100C; (4) Con Edison's electrical transmission lines that run alongside the eastern edge of the south parcel; (5) a small NYCDEP laboratory building on the south parcel, and (6) the historic Hammond House, a private residence.

4.16.2.1.1. Water supply

Eastview Site. The Eastview Site is currently undeveloped and uninhabited, except previous discussed. Water demand at the Hammond House (private residence) is minimal and is supplied by an on-site well. Shaft No. 19 has no permanent employees except for the security post that has two officers per shift. No potable water is available at Shaft No. 19.

Study Area. Westchester County Water District No. 3 (Water District No. 3), which receives its water supply from the Catskill Aqueduct, supplies potable public water to the Grasslands Reservation and the immediate area. The water pressure for Water District No. 3 system is 90 to 100 pounds per square inch (psi), which is well above the minimum acceptable

water pressure of 20 to 25 psi for residential uses. This system accommodates average demand of approximately one million gallons per day (mgd). The majority of the supply from Water District No. 3 is provided to the Grasslands Reservation, which uses approximately 700,000 gallons per day.¹

Westchester County reached an agreement with the City of New York (the City) in 1985 to supply the Water District No. 3 with City water. Determining a capacity to be supplied by the City, a residential population figure of 4,367 people for the purposes of calculating the entitlement was used. The County calculated this figure based upon an artificial population formula using the number of hospital and prison beds and employees at the Grasslands Reservation facilities at the time of the agreement. With developments and expansions of the Reservation facilities over the past years, the facilities currently demand up to their capacity, with most of the supply going to the Westchester County Correctional Facility that is located directly to the east of the Eastview Site. In the event of a water shortage in the Grasslands Reservation, Water District No. 3 has the ability to purchase additional supply from the Town of Greenburgh Water District No. 2, which is also supplied by the City Water Supply System. Currently, neither of the Towns' distribution systems maintains water supply lines in the Eastview Site.

The Grasslands Reservation distribution system consists of a 12-inch pipe that enters the Reservation from Dana Road. The pipe runs along Dana Road and connects to two pipes that run southward, along the east and west sides of the Westchester County Fire Training Center. The pipe east of the Fire Training Center extends to the northeast corner of the Eastview Site. Three gate valves are located in this corner of the water distribution system. From Dana Road, the distribution system on the reservation extends water supply lines to the existing facilities.

Neither the Town of Mount Pleasant nor the Town of Greenburgh maintains water supply lines in or around the Eastview Site.²

Upstate Water Suppliers. Many upstate (i.e., outside of New York City) water suppliers withdraw part or all of their supplies from the New York City Water Supply System. These water suppliers and their retail customers are identified in [Table 4.16-1](#).

¹Information obtained from Mr. Sal Celona, Director of the Westchester Department of Environmental Facilities, on June 29, 2000; and confirmed at the Westchester County meeting with NYCDEP on June 12, 2002.

² Information obtained per a letter dated June 13,2000 from Robert Guena, P.E., Superintendent of the Water and Sewer District in the Town of Mount Pleasant and from a telephone conversation with Rich Fon, Town of Greenburgh Engineering Department, on July 7, 2000.

TABLE 4.16-1. EXISTING UPSTATE WATER SUPPLIERS

Upstate Community/ Water District	Connections	Capacity	Year 2002 Usage
Between Kensico Reservoir and the Eastview Site			
Valhalla ^{1,14}	Catskill Aqueduct	0.66 mgd	243 MG
Hawthorne ^{2,14}	Catskill Aqueduct	0.68 mgd	250.9 MG
Westchester County Water District #3 ³	Catskill Aqueduct	1.1 mgd	295.276 MG
Downstream of Eastview Site			
Greenburgh ⁴	Delaware Aqueduct	6.822 mgd	2,804 MG
Westchester Joint Water Works (WJWW) Low Service Zone ⁵	Delaware Aqueduct	11.49 mgd	4,456 MG
Westchester County Water District #1 ³	Delaware Aqueduct	10 mgd	3,549 MG
Sleepy Hollow ⁶	Catskill Aqueduct	11.0 mgd received from the transmission main from The Catskill Aqueduct at Shaft 10; 4.0 mgd is supplied by The Catskill Pumping Station	372.674 MG
Tarrytown ⁷	Catskill Aqueduct	2.201 mgd	810.5 MG
Greenburgh (Knollwood) ⁸	Delaware Aqueduct	1.5 mgd	Used as an Emergency Standby 8/1/02-750,000 gallons 8/2/02-1,179,000 gallons
Elmsford ⁹	Catskill Aqueduct	0.646 mgd	236.1 MG
Greenburgh (Hartsdale) ⁸	Catskill Aqueduct	1.5 mgd	Emergency Standby not used in 2002
United Water New Rochelle ¹⁰	Catskill Aqueduct	20 mgd	7,300 MG

TABLE 4.16-1. EXISTING UPSTATE WATER SUPPLIERS

Upstate Community/ Water District	Connections	Capacity	Year 2002 Usage
Scarsdale ¹¹	Catskill Aqueduct	3.36 mgd	1,230 MG
Yonkers ¹²	Catskill Aqueduct	29.3 mgd	10,700 MG
Mount Vernon ¹³	Catskill Aqueduct	11 mgd	526 MG

Notes:

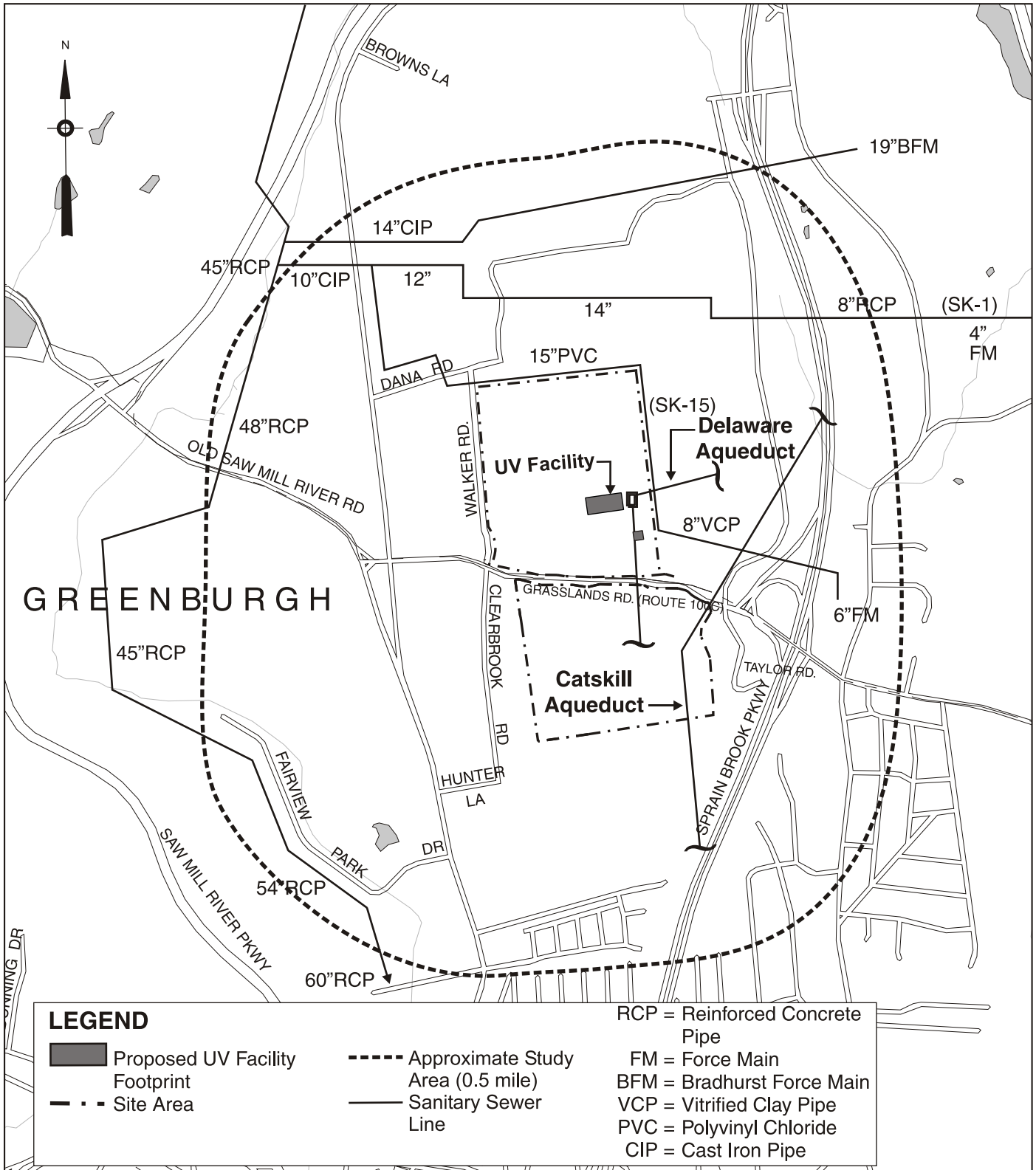
1. ADWQR 2002 obtained from the Valhalla Water District.
2. ADWQR 2002 obtained from the Hawthorne Improvement District.
3. Westchester County Water Districts No. 1 & Westchester County Water District No. 3 ADWQR 2002 obtained from www.westchestergov.com. Also noted that WD#3 is located downstream of the Eastview property and could potentially receive treated water.
4. Information gathered from the Town of Greenburgh website <http://www.greenburghny.com>.
5. Obtained from the Westchester Joint Water Works web-site <http://www.wjww.com>.
6. ADWQR 2002 obtained from Sleepy Hollow.
7. ADWQR 20002 obtained from Village of Tarrytown.
8. Greenburgh (Hartsdale, Knollwood) information obtained from the Town of Greenburgh Superintendents Office.
9. Obtained ADWQR 2002 from the Village of Elmsford Water Department.
10. ADWQR 2002 obtained from the UNWR web-site <http://www.unitedwater.com>. Approximately 90 percent of out supply is from Catskill System. The remaining 10 percent is from Delaware and Croton Systems.
11. ADWQR 2002 obtained from the Village of Scarsdale web-site <http://www.village.scarsdale.ny.us>.
12. ADWQR 2002 obtained from the City of Yonkers web-site <http://www.cityofyonkers.com>. Of the total, 9.02 billion purchased from NYC, 1.65 billion from the Westchester County Water District #1 and 7.55 million from the Town of Greenburgh.
13. Information obtained on conversation from the City of Mount Vernon, Superintendents Office.
14. Thornwood Pumping Station (taps Catskill before Kensico), Valhalla Pumping Station and Hawthorne Pumping Station to be abandoned when Mt. Pleasant Commerce St. Pumping Station is on-line.

4.16.2.1.2. Sanitary Sewage

Eastview Site. The Eastview Site is not served by public sewers, and except for the Hammond House (private residence), no sanitary sewage is currently generated on the site. The residents of the Hammond House are served by a private septic system. No significant problems have been reported from this septic system. The officers stationed at Shaft No. 19 security post are provided with a portable restroom. The sanitary sewage is collected and properly disposed of through a contract with a private hauler. There is no connection or discharge to the existing sanitary sewer system from Delaware Shaft No. 19 security post.

Study Area. Portions of the Towns of Mount Pleasant and Greenburgh are located in the Saw Mill River Basin of the Yonkers Joint Sanitary Sewer District. The Yonkers Joint Sanitary Sewer District comprises approximately 85 square miles of drainage and collects from both combined and sanitary sewer systems.

Neither the Town of Mount Pleasant nor the Town of Greenburgh maintains public sanitary sewer utilities within or around the Eastview Site. Three existing private sewer subsystems serve the area around the Eastview Site, all of which originate east of the Sprain Brook Parkway. The flows are then transferred to the Yonkers Joint Treatment Plant, in the City of Yonkers, for treatment. Two sewer subsystems currently serve the Grasslands Reservation (adjacent to the Eastview Site) SK-15 and SK-1; both of which originate east of the Sprain Brook Parkway (Figure 4.16-1). One subsystem (SK-15) originates at Blythedale Children’s Hospital and then proceeds west to collect sanitary flows from the Westchester County Correctional Complex, east of the Eastview Site.



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Not To Scale

Local Sewer Subsystems at Eastview Site

Catskill/Delaware UV Facility

Figure 4.16-1

The second subsystem (SK-1) collects sanitary flows from the Westchester County Correctional Complex and New York Medical College, both located within the Grasslands Reservation. Farther west, the second subsystem picks up flows from businesses along Skyline Drive. A third system (SG-12) originates in the vicinity of Bayberry Road located east of the Sprain Brook Parkway. It then proceeds west to collect sanitary flow from the businesses located west and south of the Eastview Site within the Cross Westchester Executive Park. All three subsystems experience various problems, including lack of capacity for existing flows and infiltration of groundwater. The residences on Taylor Road are not served by public sewers and use private septic systems.

The three subsystems connect to the 48-inch diameter Saw Mill Valley Trunk Sewer, approximately 4,000 feet west of the project site, which travels south adjacent to the Saw Mill River. The Saw Mill Valley Trunk Sewer is owned and maintained by the Westchester County Department of Environmental Facilities (WCDEF) and is in good condition. The trunk sewer is approximately 45 miles long and flows by gravity until it reaches the North Yonkers Pumping Station, which is located near the Yonkers Train Station. The North Yonkers Pumping Station pumps the sanitary sewage through a force main to the Yonkers Joint Treatment Plant. The trunk sewer has no reported problems, and operates at a maximum utilization of 65 percent, which is more than sufficient capacity for all of the flows that it handles. The North Yonkers Pumping Station has a design capacity of 70 million gallons per day (mgd). Daily dry weather flow through the pumping station averaged 24.7 mgd in the year 2002³, indicating sufficient capacity. However, wet weather flows from the combined sewers in the City of Yonkers can exceed its design capacity; during these conditions, the combined sewage is disinfected using chlorine and discharged into the Hudson River.

According to the New York State Department of Environmental Conservation (NYSDEC), the Yonkers Joint Treatment Plant has a State Pollutant Discharge Elimination System (SPDES) permit limit for secondary treatment of 145 mgd. The plant's hydraulic capacity is 330 mgd of flow. This capacity allows it to handle flows from combined sewers during storm events. The plant has met all of its SPDES permit requirements in 2002. The average daily flow to the Yonkers Joint Treatment Plant of 103 mgd is within its SPDES permit limit. At this flow rate, all sanitary sewage receives secondary sewage treatment. During larger storm events (which occur roughly 10 times a year), the flow rate can increase to over 270 mgd. Under these conditions, the wastewater is permitted to bypass the secondary treatment and receives only chlorination treatment before being discharged into the Hudson River.⁴

Stormwater Infrastructure. The Eastview Site receives surface stormwater runoff from sections of Grasslands Reservation. Grasslands Reservation stormwater drainage utilities include subsurface stormwater drains that collect stormwater throughout Grasslands Reservation and direct flow towards eight retention basins (around the campus), and the Eastview Site.

³ Per a telephone conversation with John Devany, Westchester County, Department of Environmental Facilities, on December 22, 2003.

⁴ Per a telephone conversation with Charlie Beckit, Department of Environmental Facilities Supervisor of Operations for the Yonkers Joint Sewage Treatment Plant on June 8, 2000.

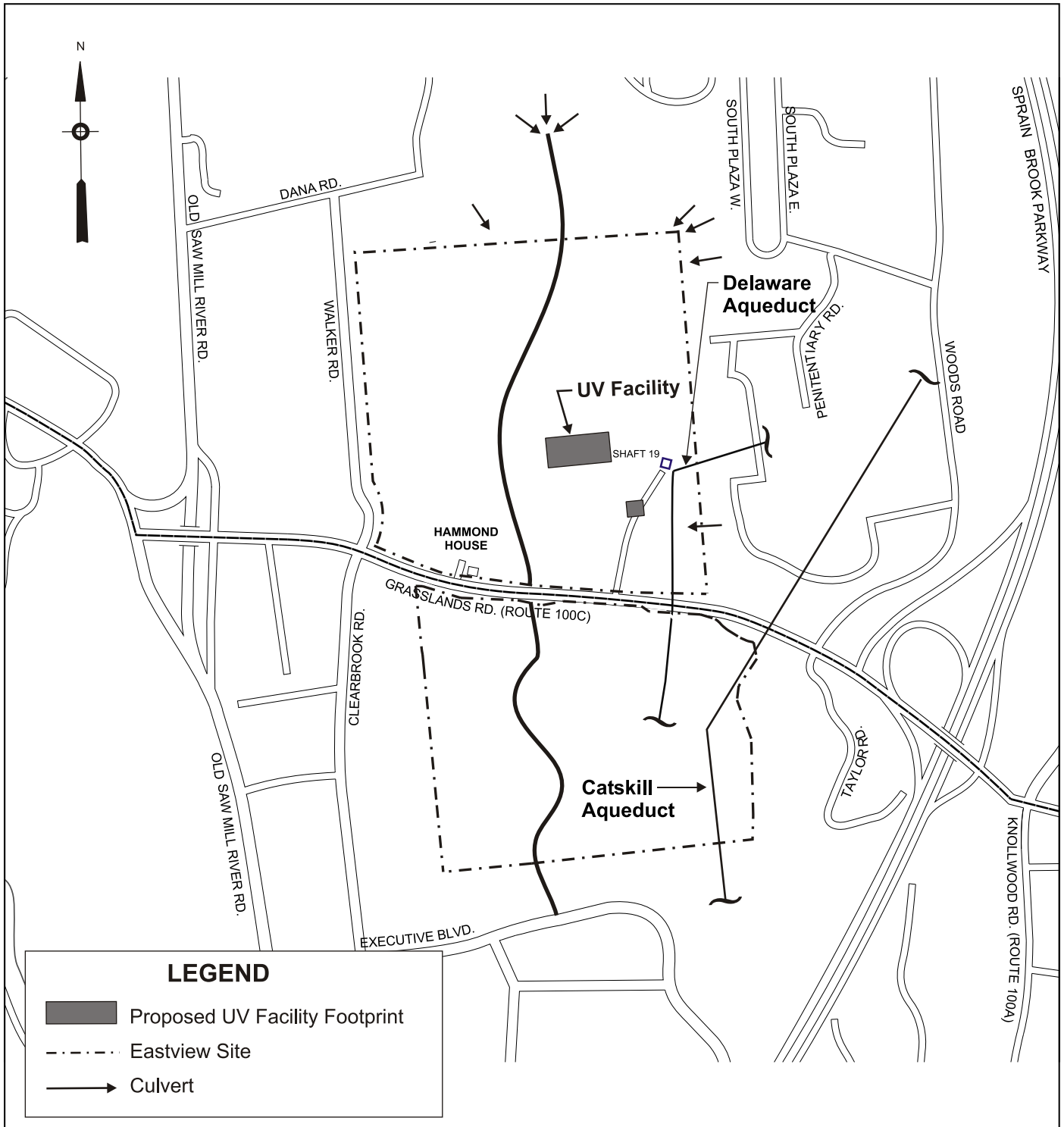
Stormwater runoff from development in Grasslands Reservation enters Mine Brook, which runs through the Eastview Site, via three closely spaced culverts, located approximately 500 ft. north of the Eastview Site. A fourth culvert, located on the west side of Mine Brook delivers storm runoff from the Westchester County Department of Laboratories and Research on Dana Road. Four additional culverts discharge to the Eastview Site along the eastern property line. Three of these culverts discharge near the northeast corner of the Site. The flow travels overland to Mine Brook, both before and after excavation and final construction. The final culvert discharges just south of the Westchester County Correctional Complex parking facility to the ground and this flow is collected during the excavation and final construction by a yard inlet and transported through the stormwater collection system piping and ultimately discharge to Mine Brook. Though this flow passes through the stormwater collection system and detention pond, these flows would not have to be detained and would be “passed through” the system without being detained. Mine Brook meanders through the north parcel and continues flowing south under Route 100C through a 66-inch diameter culvert onto the south parcel (Figure 4.16-2).

For the purpose of this document, the stormwater infrastructure study concentrated on the culverts and surface flow from the Grasslands Reservation that are directly affecting the Eastview Site. The estimated stormwater draining into the Eastview Site from the three-month storm is 6.0 acre-feet. There is no history of flooding or standing water after the storm at the Eastview Site. A visual inspection conducted along the Mine Brook channel in July 2002 revealed evidence of stream bank erosion, most likely from the high runoff during storm events. The brook base flow at the Route 100C culvert is approximately 118 gallons per minute (0.3 cubic feet per second [cfs]) and during the three-month storm event the flow reaches approximately 22 cfs. Section 4.15, *Water Resources*, discusses the surface water sources, water quality, and quantities in detail.

The drainage area of the Eastview Site was divided into five sub-areas in order to model water flows. All sub-areas receive flows from off-site, with the exception of the western sub-area on the south parcel.

Natural Gas Demand. Consolidated Edison Company of New York (Con Edison) supplies natural gas to all Westchester County municipalities except North Salem, Lewisboro, Pound Ridge, and portions of Bedford and Yorktown. Natural gas is commonly used for heating and non-heating purposes in residential, commercial, and industrial uses. Con Edison maintains two natural gas mains located near the Eastview Site. A high-pressure 8-inch main gas line that runs along Saw Mill River Road and a low-pressure 8-inch gas line along Dana Road. Figure 4.16-3 shows the Con Edison gas main in the study area. No facility on the Eastview Site currently uses natural gas.

Energy Demand. The Hammond House and Delaware Shaft No. 19 are the only current users of energy on the Eastview Site for heating (Hammond House only), lighting, and internal power requirements. They have minimal power requirements.



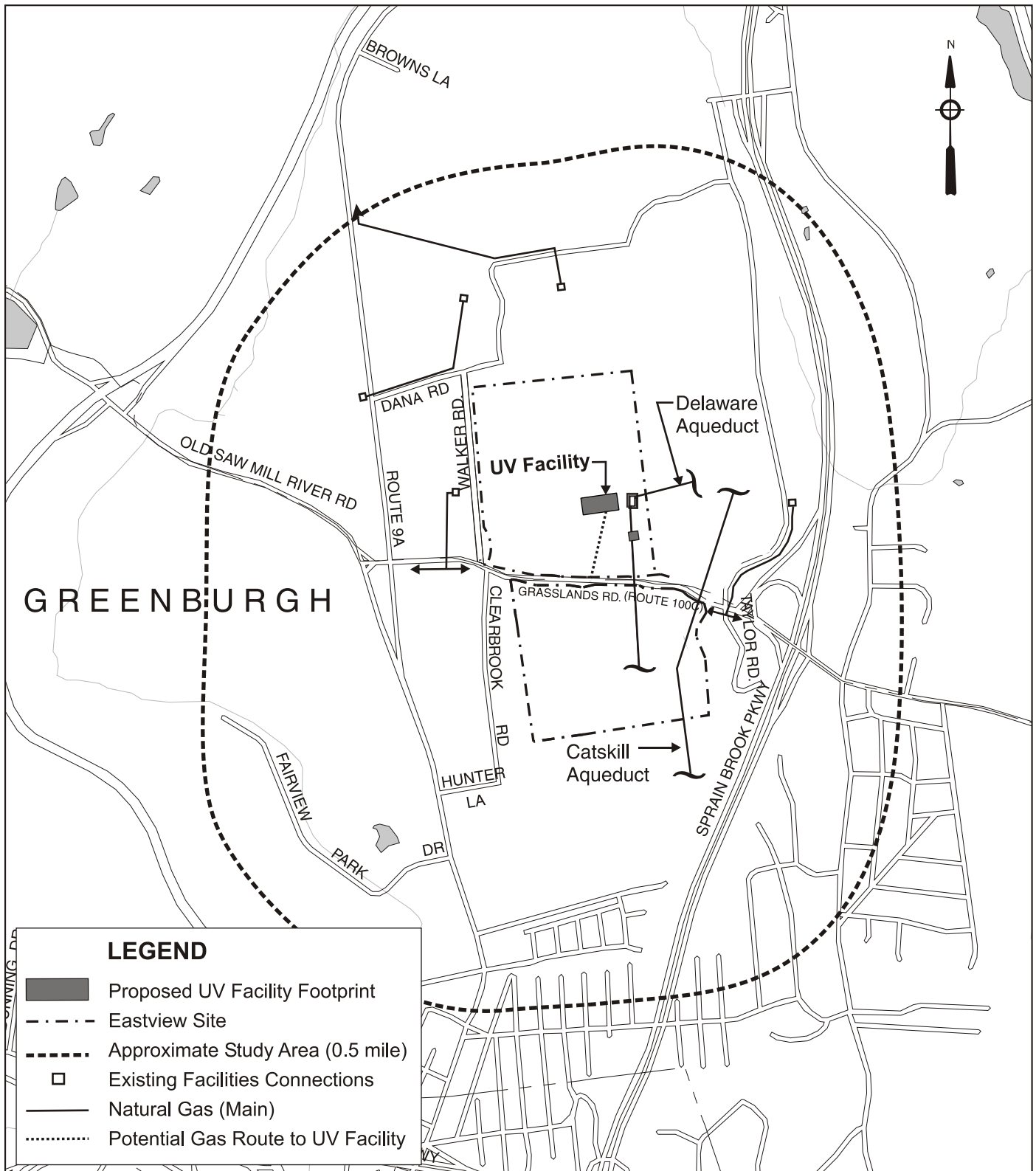
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Not To Scale

Storm Drainage Outlets at Eastview Site

Catskill/Delaware UV Facility

Figure 4.16-2



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Underground Gas Mains at Eastview Site

Catskill/Delaware UV Facility

Figure 4.16-3

Electric power is distributed and transmitted by Con Edison throughout Westchester County. Con Edison supplies power to the area surrounding the Eastview Site through 13.8-kV underground transmission lines (Figure 4.16-4). Con Edison is currently building a new substation on the north parcel that would be used for the proposed UV Facility power requirements. The new substation is substantially complete. According to Con Edison's *Certificate of Environmental Compatibility and Public Need under Article VII Application of the New York State Public Service Law for the Grasslands Project, Westchester County, N.Y., September 2002*, the new substation would supply an anticipated growing demand in the central Westchester County area. The new substation would also supply new developments in the Grasslands Reservation. The Grasslands Reservation currently uses approximately 37 Giga Watt-hours per year. According to the Westchester County Department of Planning,⁵ the electrical demand within the Grasslands Reservation has currently reached its capacity.

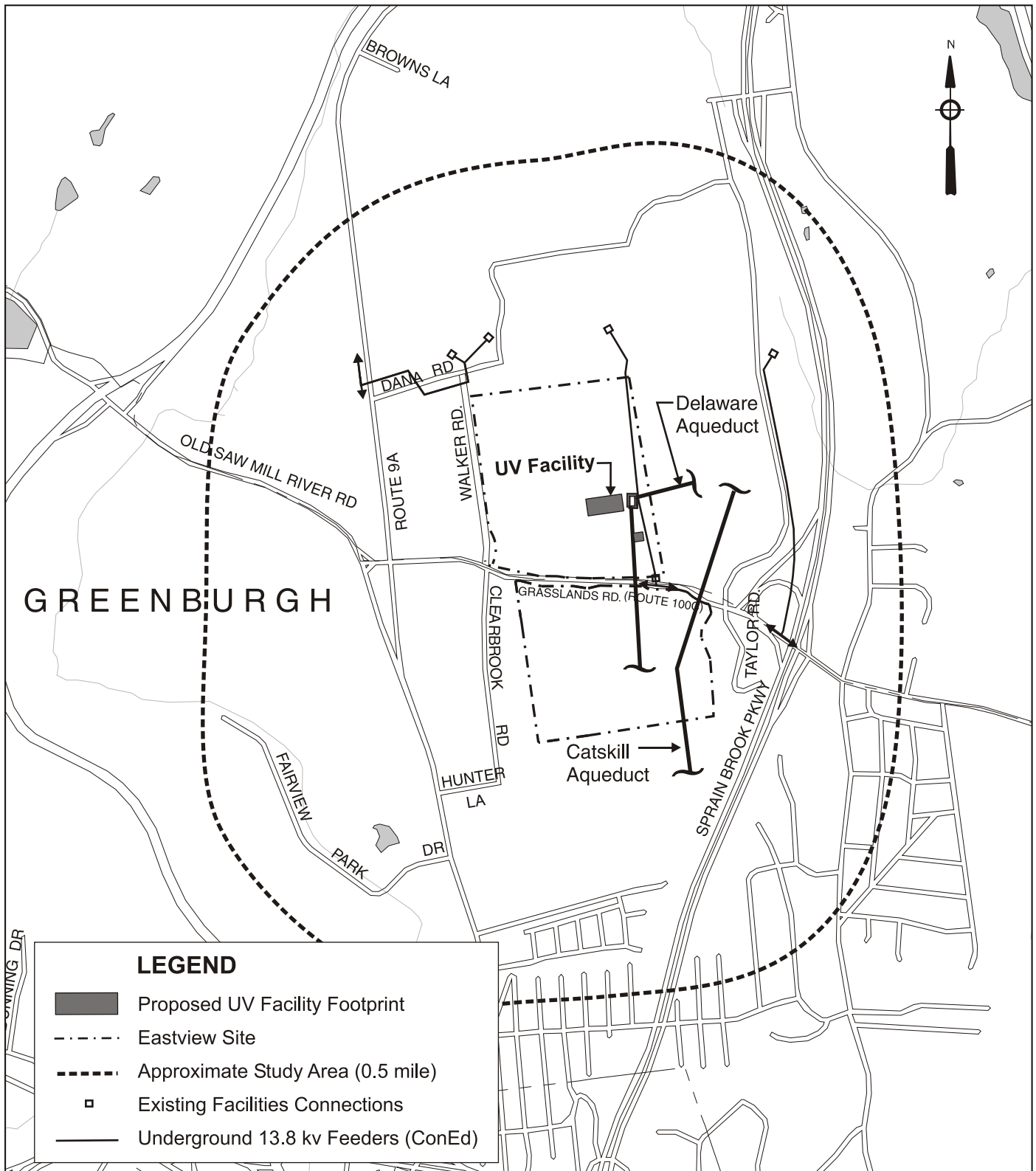
Con Edison owns and operates two substations located on either side of Route 100C near the southeastern corner of the north parcel (servicing the Grasslands Reservation) and on the northeastern corner of the south parcel (servicing the study area). Con Edison currently has a permanent easement with the City for overhead transmission lines that run along the eastern corridor. However, these transmission lines do not service the local area. In addition, overhead transmission lines run east west of the south parcel. These transmission lines do not service the local area. According to Con Edison, the area has no reported problems with energy distribution or usage.

4.16.2.2. Future Without the Project

The Future Without the Project considers the anticipated peak year of construction (2008) and the first full year of operation (2010) for the proposed facility.

For each year, two scenarios were assessed: one in which the NYCDEP Croton Water Treatment Plant (Croton project) is not located on the Eastview Site and another in which the Croton project is located on the site, specifically in the northwest corner of the north parcel. By the peak construction year, two additional NYCDEP projects could be located on the Eastview Site, namely a Police Precinct and an Administration/Laboratory Building. The Police Precinct project has been approved by the Town of Mount Pleasant and would be located in the southwest corner of the north parcel. The location of the Administration/Laboratory Building is less certain, however, as the Eastview Site is one of several properties being considered for that particular building. In addition to these projects, NYCDEP's Kensico-City Tunnel (KCT) may be under construction at the Eastview Site starting in 2009. Therefore, the 2010 analysis year considers the possibility of this project. All of these NYCDEP projects are analyzed to the extent to which information is currently available.

⁵ Meeting Minutes, Westchester County Department of Planning, June 13, 2002.



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Not To Scale

Con Edison Underground Transmission Lines at Eastview Site

Catskill/Delaware UV Facility

Figure 4.16-4

4.16.2.2.1. Without Croton Project at Eastview Site

In the Future Without the Project, it is anticipated that the Eastview Site and study area would undergo several changes from its existing conditions. On the Eastview Site, NYCDEP proposes to build a two-story NYCDEP Police Precinct. Facilities associated with the KCT project are also proposed for the Eastview Site. The Police Precinct would be located on the southwest corner of the north parcel, while the Eastview Site would likely be a staging area for the KCT. Infrastructure services required by these facilities would be made available by independent service connections. The introduction of the Police Precinct would result in future connections to the area infrastructure system. These changes are anticipated to be minimal and not result in a significant impact.

Changes within the study area could result in changes to the study areas infrastructure system, these potential changes are presented in **Section 4.2, Land Use, Zoning and Public Policy** future without the project analyses.

Also to note in the Future Without the Project, no change in water quality or hydraulic gradient is anticipated at the taps for either upstream or downstream water suppliers, unless New York City changes its treatment procedures at Kensico Reservoir. Currently as the water leaves Kensico Reservoir, it is chlorinated and fluoridated. The City plans no treatment changes for the Future Without the Project, but future State and Federal regulations may require a change.

In the Future Without the Project, existing structures located on the site would remain, including the Hammond House, the Delaware Shaft No. 19, and the Catskill Aqueduct Connection Chamber(CCC).

4.16.2.2.2. With Croton Project at Eastview Site

In the Future Without the Project, the Croton project could also be located at the Eastview Site. In addition to the proposed Police Precinct and the KCT connection at the Eastview Site, the introduction of the Croton project would introduce additional infrastructure connections. The amount of water consumed, sewage generated, stormwater drainage utilities and energy used within the study area are anticipated to increase. Infrastructure services required by these facilities would be made available by independent service connections.

By the anticipated year of peak construction, the Croton project could be under construction as well, if the Eastview Site moves ahead as the site of the Croton project due to the Mosholu Site becoming unattainable. The construction activities would require 5,000 gallons of water to be supplied every other day by water tankers. Estimated construction related water use would be on the order of 500,000 gallons over the 5 years of construction. During construction, portable rest rooms would be made available. The total amount of sewage generated by employees is estimated to be 1,325 gallons/day, which is assumed to be equivalent to the amount of domestic waste consumed. During construction four (4) temporary feeders supplying 2,500 Kilo Volt Amp (kVA) would be provided by Con Edison to transmit power during construction. The 5,000 kVA of the total temporary demand would transmit the tunnel work that includes the tunnel boring

machine (TBM) and welding. An additional 2,500 would supply electricity to other construction equipment, site lighting, and field office for contractors, resident engineers and the NYCDEP personnel. The outstanding 2,500kVA feeder would serve as backup. During construction, natural gas would not be utilized.

By the anticipated year of operation, the Croton project would be complete and the water supply demands would be approximately 79,000 gpd. The sanitary sewage generation would include domestic waste of up to 1,325 gpd. Also residual from the treatment process: 0.12 to 0.28 mgd with solid loading of 17,300 to 44,500 lbs/day would discharge to sewer system. Energy consumption by the Croton project would require four (4) underground service feeders at 13.2 kV. Average operating load would be 17,515 kW and the maximum operating load would be 25,964 kW. Natural gas at the Croton project would require 50,630 (cfh) for normal operation. During emergency conditions, approximately 1,484 kW of electrical power would be generated on-site using two emergency diesel generators. Each generator would be rated at 1,500 kW, 480 volts, one operating and the other as a backup. A 3,000-gallon underground fuel storage tank would be provided near the generator room, at least 20 feet away from any means of egress.

The introduction of the Croton project at the Eastview Site could affect the availability of the Croton Supply System supplied to current upstate suppliers. Three treated water conduits are currently under consideration: a Delaware Aqueduct Shaft Tunnel Connection, a treated water tunnel to the New Croton Aqueduct (NCA) and a treated water connection to the future KCT. Excavation quantities for a treated water connection to the future KCT cannot be determined until the location of the KCT downtake structure is established.

If the KCT is chosen, the NCA south of the Eastview Site would be de-activated and would be used only during emergencies. If the NCA is chosen, the aqueduct would be pressurized. To enable pressurization, the Aqueduct would be removed from service for a number of years to permit the aqueduct to be rehabilitated to allow pressurization. During either of these scenarios, NYCDEP would work with the upstate suppliers to meet their water supply needs. Many of these suppliers would switch to an alternative connection to the City's supply.

The stormwater drainage system is based on the 50-year design storm consisting of 6.3 inches over a 24-hour period. During construction, the project contractor is responsible for developing and implementing a Sedimentation and Stormwater Control Plan (SSCP).

4.16.3. Potential Impacts

4.16.3.1. Potential Project Impacts

Two scenarios from which to assess the proposed facility's potential impacts have been considered. Both include the NYCDEP Police Precinct, Administration/Laboratory Building, and KCT projects, but only one scenario includes the Croton project. The Croton project could be developed in the Town of Mount Pleasant as well, depending on the outcome of legal challenges to the preferred Mosholu Site. Should the Mosholu Site be determined not to be viable, the Croton project could move forward at the Eastview Site, and both the Croton project and the proposed UV Facility would be under construction at the same time.

4.16.3.1.1. Without Croton Project at Eastview Site

Water Supply. According to the Westchester County Department of Planning, population in the area surrounding the Eastview Site is anticipated to increase by about 5 percent by the Year 2010. This level of increase would not have a major effect on the infrastructure systems. The anticipated decrease in water demand from installation of low-flow plumbing fixtures, as required by New York State, is anticipated to offset any increase in water demand from background growth in the future. Westchester County's estimate of population and employment increases by 2010 accounts for projects, such as the proposed laboratory at the Landmark at Eastview property. Therefore, no net increase in water demand or sewage generation is anticipated. In addition, no net increase in solid waste generation or energy demand is anticipated.

The proposed UV Facility would be staffed 24 hours a day and 7 days a week. NYCDEP would employ approximately 31 people to operate the proposed facility. Therefore with 14 employees working Monday to Friday (8AM to 4 PM) which includes full-time administration and part-time maintenance; Operational staff working 24/7 with three varying shift (7AM to 3PM and 3PM to 11PM and 11PM to 7AM) would operate the proposed UV Facility. In addition, the proposed UV Facility would require water for all plumbing services including fire protection, plant operational demands, and domestic uses (i.e., bathrooms, kitchen, and locker room facilities). [Table 4.16-2](#) provides a breakdown of the water supply needs for the proposed facility.

The requirements for the above services are as follows: domestic/sanitary usage for the facility would be relatively insignificant and would be 0.3 gpm based a demand of 455 gpd, irrigation and maintenance demands would be approximately 200 gpm, and Needed fire flows would be approximately 2,000 gpm for 2 hours which equals 240,000 gallons. The total estimated demand for the proposed facility would be approximately 200 (gpm) for the peak rate.

TABLE 4.16-2. INFRASTRUCTURE WATER SUPPLY NEEDS

Usage	Operations	
	Average Rate	Peak Rate
Domestic/Sanitary	0.3 gpm	0.6 gpm
Irrigation and Maintenance	200 gpm	200 gpm
Fire Protection Flow	2,000 gpm	2,000 gpm
Estimated Water Demand	200 gpm	200 gpm
Average Consumption ⁶	775 gallons/day	775 gallons/day
Total Demand	2,200 gpm	2,200 gpm

Notes:

gpd = gallon per day; gpm = gallon per minute.

The average consumption of water by employees is estimated to be 775 gallons per day (gpd) based on a consumption rate of 25 gpd per person for 31 employees that could be present at the proposed UV Facility. This estimate is conservative and accounts for the presence of visitors at the proposed UV Facility. The peak rate for domestic use is based on the number of water outlets such as sinks, showers, and toilets in the proposed UV Facility, and is in compliance with the *Plumbing Code, Mechanical Code and Fuel Gas Code of New York State (2002)* and the *Building Code of the City of New York (1998)*.

The proposed UV Facility would require water for all plumbing services, including non-potable demands (fire protection, plant operations, area wash-down, irrigation, etc.) and potable demands (domestic usage including bathrooms, kitchen, locker room facilities, and laboratory facilities). A minimum of two connections would be provided (one duty, one standby).

Two 12-inch pipes would be designed to draw water from the Delaware Aqueduct at Shaft No. 19; one pipe would serve fire protection supply and other non-potable uses, and the second pipe would serve as a backup or standby. The non-potable uses would share the same mains entering the proposed UV Facility. Once inside the proposed UV Facility, supplies would be split. Each of these pipes could draw 750 gpm under peak flow conditions. In addition, backup fire protection would be obtained via connection to the County Water District No. 3 that would be provided by a connection to the 12-inch pipe that runs along Dana Road; this connection would require agreements with the County. The latter connection would be sized (8 to 12 inches) for a maximum capacity of 1,250 gpm. The non-potable domestic water, operation water and fire protection water would be supplied directly to the needed services. Potable water would be provided to the Facility via a water main connection to the UV-treated water piping within the proposed UV Facility. Potable water would be available from the proposed UV Facility discharge.

The potential system would allow the water supplied to the proposed UV Facility to be independent of the existing local water supply system that serves the Grasslands Reservation (County Water District No. 3). Therefore, County Water District No. 3 would not be affected by the operation of the proposed UV Facility. Except possibly for the case of a fire emergency, the

⁶ Based on the consumption rate of 25 gpd per person.

water pressure within the County Water District No. 3 would not be affected by the operation of the proposed UV Facility. It is anticipated that other potential NYCDEP facilities would also be independent of the existing local water supply system that serves the Grasslands Reservation and thus would not affect County Water District No. 3.

Currently, water from the Delaware Aqueduct can either be routed through or around Kensico Reservoir through the Delaware Shaft No. 18. Under the proposed project, operation of the Delaware Aqueduct either through or around the Kensico Reservoir would remain unchanged. Water exiting the Delaware Shaft No. 18 continues down the Delaware Aqueduct to the Hillview Reservoir in the City of Yonkers. Delaware Shaft No. 19 is located on the Eastview Site. Water from the Delaware Aqueduct would be conveyed to the proposed UV Facility through a connection from Delaware Shaft No. 19.

Two options are currently being contemplated for delivering Catskill Aqueduct water to the proposed UV Facility. These options include: (1) a new, pressurized CCC on the Catskill Aqueduct just north of the existing CCC, with two 12-foot diameter conduits routed along the east property line to the North Forebay, or (2) a pressure tunnel to the North Forebay from the Catskill Aqueduct, with an aqueduct connection in the vicinity of the Sprain Brook Parkway east of the Eastview Site.

Upstate Water Suppliers. The introduction of the proposed UV Facility would not affect the water suppliers connected to the Croton System; this is due to the fact that the proposed facility would be part of the existing Catskill/Delaware System and would not [receive water from, treat or distribute water to](#) the Croton System. Additionally, water suppliers connected to the Catskill and/or Delaware Aqueducts upstream of Kensico Reservoir would not be affected by the proposed UV Facility. The current operation of the Aqueducts north of Kensico Reservoir would not change as a result of the UV Facility.

However, water suppliers connected to the Catskill and/or Delaware Aqueducts downstream of Kensico Reservoir would be affected by the proposed facility, either hydraulically or by the availability of UV treated water. Between Kensico Reservoir and the Eastview Site, the hydraulic gradient available to water suppliers connected to the Catskill Aqueduct would increase by approximately 40 feet; there are no water suppliers connected to the Delaware Aqueduct along this length. Also, between Kensico Reservoir and the Eastview Site, the Aqueducts would be supplying untreated water to the UV Facility, so these sections of the Aqueducts would not contain UV treated water. Water suppliers along this length could not directly receive UV treated water from their existing aqueduct taps

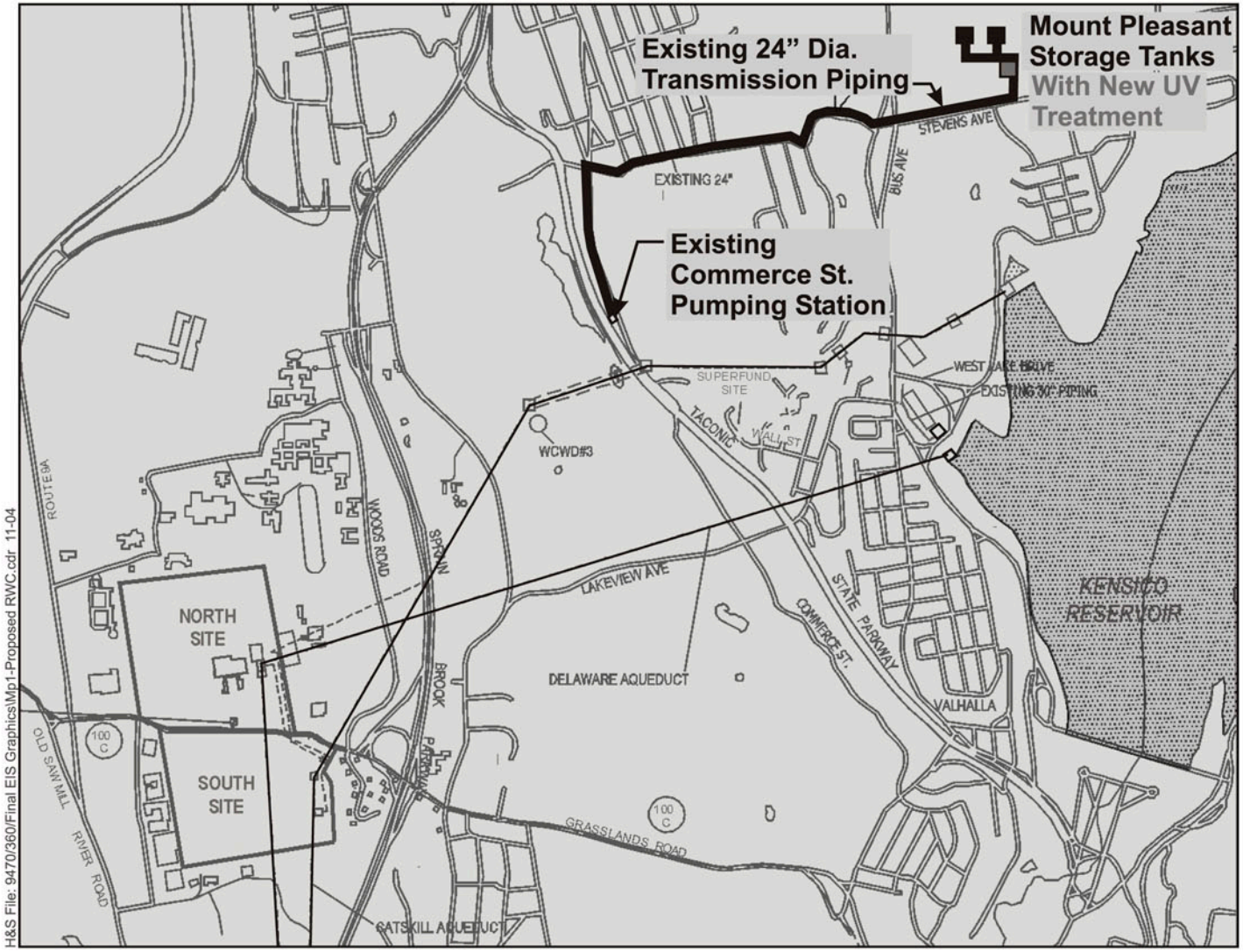
Affected water suppliers connected to the Catskill and/or Delaware Aqueducts between the Eastview Site and Hillview Reservoir, or to Hillview Reservoir itself, would receive treated water from the proposed UV Facility, and the hydraulic gradient at these water suppliers' taps would not change as a result of the proposed facility.

Treated Water for the Town of Mount Pleasant.

When the proposed UV Facility is placed into operation, the Town of Mount Pleasant would be provided access to UV treated water either through the NYCDEP UV Facility or through a UV building at Mount Pleasant's Stevens Avenue Storage Tanks provided by the NYCDEP. Although NYCDEP does not have an obligation to provide alternative water supply connections, NYCDEP is committing to providing the Town of Mount Pleasant with facilities for UV treated water to ameliorate the consequences of electing to site the UV Facility at the Eastview Site. The siting of the UV Facility at the Eastview Site would potentially impact the community with several lengthy construction projects (e.g., the Catskill Aqueduct Pressurization, the Kensico Dam Reconstruction, and the UV Facility construction), which would result in inconvenience from traffic congestion and other potentially adverse impacts from major construction activities. Two options are being considered for providing a permanent UV treated water supply to the Town.

One option is to construct a separate UV building in the Town of Mount Pleasant at the existing Stevens Avenue Storage Tanks, which are supplied from the existing Commerce Street Pumping Station (Figure 4.16-5). The UV units would be installed within a new stand-alone building located on Town property, to the southeast of the existing storage tanks. The footprint of the Mount Pleasant UV Building would be approximately 30 feet by 40 feet. The building would be located on a cleared area that is part of the Town's property. The Town would have the ability to draw from either the Catskill or Delaware Aqueducts through the existing Commerce Street Pumping Station from either: 1) the Delaware Aqueduct via a 30-inch gravity feed connection from Shaft No. 18 that could be installed for supplying Delaware Aqueduct water during extended shutdowns of the Catskill Aqueduct for pressurization work (see potential construction impacts below), or 2) from the Town's existing connection to the Kensico Siphon of the Catskill Aqueduct. See Section 5.1, *Kensico Reservoir Work Sites*, for further discussion of this option.

A second option is to construct a permanent pumping station, located at the Eastview Site, which would convey water from the UV Facility. If UV treated water is supplied from the proposed UV Facility, a permanent pumping station would be constructed on the edge of the NYCDEP's property to allow easy access by the Town from Route 100C to enable this flow to enter the Town's distribution system. See Section 7, *Alternatives*, for a detailed discussion of this option.



H&S File: 9470360/Final EIS Graphics/Mp1-Proposed RWC.cdr 11-04

Separate UV Treatment System for Mount Pleasant

Catskill/Delaware UV Facility

Figure 4.16-5

Sanitary Sewage. The proposed UV Facility would generate both domestic waste from employees and visitors. Sanitary wastes generated at the proposed UV Facility would be conveyed by sewer to the existing 48-inch-diameter Saw Mill Valley Trunk Sewer, which is part of the Yonkers Joint Sanitary Sewer District. The existing trunk sewer is located approximately 4,000 feet west of the proposed UV Facility and conveys wastewater to the Yonkers Joint Treatment Plant.

Sanitary sewage would be generated from the domestic uses. Domestic usage would include all of the employee use of bathrooms, kitchen, and locker room facilities. The employee breakdown would be as follows: administration, part-time maintenance, day shift, off-shift and over-night. As per the *CEQR Technical Manual*, the sewage generation rate assumed for the employees in an office setting is typically 25 gpd per employee. Therefore, based on the water consumption estimates for employees and visitors at the proposed UV Facility, as discussed above, under the water supply demands, the total daily demand for sanitary sewage is estimated to be 455 gpd (100 + 80 + 150 + 125 gpd), which is assumed to be equivalent to the amount of domestic water consumed.

The sanitary sewage generated at the proposed UV Facility would be treated at the Yonkers Joint Treatment Plant, located in the City of Yonkers, NY. The existing average daily flow to the Yonkers Joint Treatment Plant is approximately 103 mgd and the SPDES permit limit is 145 mgd. The maximum estimated daily flow to be generated by the proposed UV Facility is approximately 605 gpd. The administration personnel would generate 100 gpd (4 x 25 gpd x 5 days equals 500 gal/wk), part-time maintenance personnel would generate 80 gpd (10 x 8 gpd x 5 days equals 400 gal/wk), day shift and off shift personnel would generate 150 gpd each (6 x 25 gpd x 7 days equals 1050 gal/wk) and the over-night personnel would generate 125 gpd (5 x 25 gpd x 7 days equals 875 gal/wk). Estimated daily flow would be 455 gpd with an estimated weekly flow of 3,185 gallons per week (455 gpd x 7 days).

The sewage flowing to the Yonkers Joint Treatment Plant from the proposed UV Facility would be a small percentage (<0.001 percent) of the Yonkers Joint Treatment Plant SPDES permit limit. This would be an insignificant increase in the amount of sewage to be handled by the Yonkers Joint Treatment Plant. In addition, the 48-inch diameter Saw Mill Valley Trunk Sewer has a maximum capacity of 32 mgd, which is sufficient to handle the proposed UV Facility generated sewage. Since the increase in sewage is within the capacity of the Saw Mill Valley Trunk Sewer and the Yonkers Joint Treatment Plant SPDES permit limit, no significant adverse impacts from sanitary sewage are anticipated.

Stormwater Infrastructure. The stormwater flow selected for the design of stormwater drainage system would be based on a design for several storms, as determined by *U.S. Department of Agriculture Technical Paper No. 40*⁷, and as stated in the *Westchester County Stormwater Management Practices Manual*.

⁷ 1961. Technical Paper No. 40. Rain fall Frequency Atlas of the United States for Durations from 30 Minutes to 24 Hours and Return Periods from 1 to 100 Years. Prepared by David M. Hershfield, Cooperative Studies Division, Hydrologic Services Division, for Engineering Division, Soil Conservation Service, U.S. Department of Agriculture. Washington, D.C.

The stormwater collection infrastructure for the proposed UV Facility would be designed for the 50-yr, 24-hr storm event (6.3 inches), as required by the Town of Mount Pleasant. Stormwater detention would be designed for the 100-yr, 24-hr event (7.2 inches) with all flows from greater events, as well as off-site flows, being passed through the system without detention. Both the storm drainage collection system and the detention basin/enhanced wetland would be designed such that there are no overflows along the length of the system and the 100-yr, 24-hr storm (7.2 inches) gets conveyed to the pretreatment forebay and the detention basin/enhanced wetland would attenuate the flows to pre-developed flows. Rainfall depths from Westchester County, NY are based on the *Stormwater Management Practices Manual*.

From a hydraulic standpoint, the site north of Route 100C was divided up into two separate areas referred to as the northeast, and northwest portions of the Eastview Site. The areas south of Route 100C are referred to as the southeast and southwest portions. The eastern and western areas have distinctly different pre-development and post-development conditions. Mine Brook bisects the site from north to south. The northeast portion of the site consists of all areas located east of the existing stream and north of Route 100C. The northwest portion of the site consists of the areas located west of the existing stream and north of Route 100C. The proposed UV Facility would be located on the northeastern portion of the site.

The stormwater management plan developed for the proposed UV Facility would provide long-term control and treatment of stormwater runoff from the Eastview Site. The key components of the stormwater management plan are stormwater collection and detention. With the proposed UV Facility, approximately 9 acres of the site would be occupied by the facility infrastructure such as buildings, offices, roads, parking areas and other associated impervious areas. As part of the stormwater management plan, a fully-functional storm sewer collection system was designed to protect the infrastructure from storm-related flooding damage.

Based on the conceptual design site plan a storm sewer network was laid out. Once the storm pipes and catch basins were placed on the plan, they were then sized according to the amount of flow that they would be required to convey. The flow rate to each individual catch basin was calculated using the Rational Method. For this project, most pipes were designed for the 50-year storm event. With the storm sewer network in place, the runoff would be directed to a stormwater detention basin.

The Town of Mount Pleasant requires the on-site detention of stormwater runoff generated from a 100-year 24-hour duration storm (7.2 inches of rainfall) so that the post-developed peak runoff flows do not exceed the pre-developed peak runoff flows.

Approximately 4.5 acre-ft of stormwater storage would be needed to meet these requirements. This was achieved by designing best management practices (BMP) that utilized the existing topographic features and optimized the available on-line storage. The degraded reed grass marsh upstream of Route 100C presented a unique opportunity to expand and enhance the existing wetland while providing the necessary storage and natural attenuation of stormwater flows. Two BMPs were designed adjacent to the reed grass marsh to attenuate the flows. The potential BMPs, consisting of a pretreatment forebay, extended detention wetland, and a created stream channel, would attenuate the adverse impacts of the untreated stormwater runoff by attenuating

peak flows and reducing pollutant loads to downstream reaches. The pretreatment forebays are located east of Mine Brook below the access roadway and west of the facility, and just south of the facility and are both adequately sized to detain stormwater volumes up to the 3-month storm. The pretreatment forebays can also provide for the water quality treatment by way of removal of sediment, nutrients, and bacteria. Approximately 80 percent sediment removal can be achieved, and 50 percent removal of nutrients, such as phosphorus and nitrogen.

Once the water surface elevation in the forebays exceeds that of the weir (El. 310 and 301, respectively), the flow would spill over the weir into a newly created stream segment, and flow towards an existing wetland. It must be noted that an existing phragmites marsh exists at the site of the proposed enhanced wetland. Historical data suggests that the existing phragmites coverage has doubled in the last three to four years and if not addressed correctly, would impact the upstream forested wetlands by converting them to a monoculture reed marsh.

Under the proposed facility, the existing reed marsh would be removed, the area excavated and regraded, and the weir north of Route 100C reconstructed to optimize the upstream storage and creation of a diversely vegetated wetland. The enhanced wetland, consisting of a low and high marsh, would be diversely vegetated with native species, such as *Soft Rush*, *Pickrel Weed*, *Lizard Tail*, *Spicebush*, *New England Aster*, and *Sensitive Fern*. Opportunities would be taken to increase vegetative diversity, wherever feasible, while keeping with the context of the native community. The construction of a multi-stage weir along with the culvert replacement would allow the flow to be stored and released gradually to the downstream areas to reduce erosion. This measure would also meet the Town of Mount Pleasant stormwater detention requirements (see [Section 4.15, Water Resources](#), for details regarding stormwater collection system modeling).

Stabilization and structural best management practices (BMPs) would be implemented during the operation phases of the proposed UV Facility in order to ensure that peak flows would be dissipated to avoid on-site erosion and that the pre-construction stormwater runoff volumes would be maintained to avoid impacts on surface water and wetland hydrology. A complete description of the potential BMPs for stormwater management at the proposed UV Facility would be included in the Stormwater Pollution Prevention Plan (SWPPP). The SWPPP for the proposed UV Facility site would be prepared in accordance with the requirements outlined in the New York City' CEQR Technical Manual, New York State Department of Environmental Conservation (NYSDEC) State Pollutant Discharge Elimination System (SPDES) stormwater permit documentation, and Westchester County Best Management Practices.

The permanent above ground structures on the north parcel would include the main treatment facility, flow control structure, North and South Forebay structures, an electrical generator building, and the stormwater detention basins/enhanced wetland. The main facility would have a drainage system to convey roof runoff by gravity to the stormwater detention basin/enhanced wetland. Rainwater on the roofs would be collected through a system of roof drains or gutters. The roof would be pitched to roof drains or gutters located at the low points of the roof. Roof drain piping would be connected to interior roof leaders and discharged to a point five feet outside the building wall. Storm drainage piping and fittings would be of construction similar to sanitary drainage. An underdrain system would be provided to collect water at an elevation of

approximately 310 to 312 feet MSL (mean sea level). A potential small superstructure would be associated with the new raw water Catskill Connection Chamber (CCC) and there would be a small superstructure associated with the existing CCC. In both instances, this small structure would consist of an access point with stairs leading to the connection chamber.

The structural pollution prevention BMPs would also be provided as localized treatment for runoff from impervious areas such as access roadways and parking areas. These BMPs would be designed to remove oil and sediment from stormwater during frequent wet weather events. They would be sized to treat the peak flow from the 5-year 24-hour storm, and would provide removal of approximately 80 percent of total suspended solids. The basin would have an outlet structure with a spillway. The primary spillway configuration would be designed to hold a 25-year storm event and pass up to a pre-developed 100-year storm event without overtopping the basin containment berm, while maintaining the pre-developed outflow levels at all times. The basin would also convey off site runoff as required. These off site areas are located to the east of the Eastview Site and the northern region of the Eastview property. This off-site run-off would be collected in the storm drainage system and transported to the detention basin. A volume of run-off equivalent to this off-site flow would be “passed through” the detention pond without being detained, as it is not necessary for the proposed project to detain off-site flows. All outflow from the detention pond, both on-site and off-site, would be discharged to Mine Brook upstream of the culvert passing under Route 100C. The controlled release of water from the detention basin/enhanced wetland would be discharged to Mine Brook, which is situated adjacent to the detention basin/enhanced wetland to the east, and flow from north to south through the Eastview Site.

In addition to a facility foundation drain, an emergency overflow would be provided at the proposed UV Facility as a means of alleviating flood conditions that could result from catastrophic failure of process piping or UV equipment inside the building. While the potential for an overflow condition at the proposed UV Facility is considered extremely remote, provision to reduce flooding within the proposed facility would be included as a safety measure for employees working at the facility and as a preventative measure to reduce potential damage to UV equipment. This emergency overflow from the proposed UV Facility would be discharged to Mine Brook just upstream of Route 100C on the north parcel. In an emergency scenario due to the catastrophic failure of a process train, a total volume of approximately 1.5 acre-ft with a maximum flow rate of 50,000 gpm (112 cfs) could occur. This instantaneous discharge would equate to a peak flow rate generated at the culvert crossing on Route 100C from a 1 to 2 year storm. The total volume discharged (1.5 acre-ft) is 15 percent of the runoff generated at the culvert crossing on Route 100C from a 3-month storm. These peak flows and volumes, which could be discharged in an emergency condition, would not have a significant impact on the existing stream corridor of Mine Brook.

No significant adverse impact on the existing stormwater conditions is anticipated during the operation of the proposed UV Facility. Existing runoff discharging to Mine Brook during the operation would be maintained. There would be no connection between the stormwater drainage from the proposed UV Facility site and the Westchester County maintained stormwater sewer. Therefore, no significant adverse impact is anticipated to the Westchester County-maintained stormwater infrastructure surrounding the Eastview Site by the proposed BMPs and the site

drainage systems. It is anticipated that other potential NYCDEP projects for the Eastview Site would not result in a significant adverse impact on existing stormwater conditions during operation of the proposed facility.

Energy Demand. The electrical power distribution system for the proposed UV Facility would comply with all Federal, State, City, and Local codes. The design would consider safety, reliability, flexibility, ease of operation and maintenance, life cycle costs, and energy conservation, which would be in accordance with *Energy Policy Act* of 1992, and *New York State Energy Conservation Construction Code, 2002*.

Electric power for the proposed UV Facility would be furnished by the New York Power Authority (NYPA), which has a contract to supply electricity to New York City government facilities. NYPA generates, buys, and transmits electrical power on a wholesale basis. NYPA would supply electrical power through the Con Edison distribution system. The distribution of electricity to the proposed UV Facility would be the responsibility of Con Edison. Electric supply for the proposed UV Facility would be provided from the proposed Con Edison Grasslands Substation, abutting the Eastview Site on the eastern boundary of the north parcel, approximately 400 ft north of Route 100C.

From the Con Edison Grasslands Substation, feeders would run west along Route 100C and then come into the site from near the southeast corner of the north parcel. The proposed UV Facility's normal electrical service would consist of two underground service feeders, each at 13.8-kV from the Grassland Con Edison Substation. Each primary service substation, to be located next to the Electrical/Generator Building, would provide electrical power for one of the UV quadrants. The substations would consist of fused primary switches, step down transformers, and low voltage draw-out switchgear. Additionally, 480V motor control centers would be housed in the electrical room to supply power to building equipment loads. 13.8kV feeders would run from this building to the proposed UV Facility in underground duct banks. A maximum of two service conduits plus a spare conduit would be provided in each duct bank. Two duct banks would be required, and they would be at least 20 feet apart as required by Con Edison. Con Edison would use triplex-shielded cable for underground feeders from their substation to the property line manholes. Conduit for underground feeders would be steel encased in concrete. Con Edison's scope of installation would terminate at the property line manholes on the north site. From the property line manholes, NYCDEP contractors would continue the underground service feeders to the Electrical/Generator Building.

The Electrical/Generator Building would function as the main electrical distribution center for the proposed UV Facility and other structures on the Eastview Site. Both Con Edison primary service feeders and the plant-wide standby generators would connect to the main switchgear lineups, and distribution to the unit substations would be provided from this building.

The utility primary switchgear lineups and the isolation transformers would be mounted outside the Electrical/Generator Building in a fenced area directly to the east of the building. The primary switchgear would house the utility metering equipment and would serve as the service entrance disconnect for each utility feeder entering the Eastview Site. The transformers would be pad-mounted type and would provide electrical isolation between the utility system and the

proposed UV Facility distribution system, and would also act to reduce the available fault current from the utility.

Con Edison has designated the project site as a first contingency area. This means that the feeders may be taken out of service by Con Edison (with or without prior notice to NYCDEP) at any time for any reason. The proposed UV Facility would be capable of operating at the maximum capacity (2,020 mgd and up to 2,400 mgd ultimately) during first contingency.

The feeders supplying the proposed UV Facility would be independent of the electric distribution grid within the Grasslands Reservation and therefore would not pose a significant adverse impact on the facilities within the Reservation. Table 4.16-3 shows the total electrical loads for the proposed facility. The electrical demands of the proposed UV Facility were calculated for the following three scenarios: connected load, maximum capacity and average demand. The connected load is the energy demand that would result if all equipment, including standby units, were operating simultaneously, and represents the amount of power that must be made instantaneously available to the facilities by the power generator/supplier (NYPA/Con Edison). Maximum demand represents the total load of all electrical equipment operating simultaneously at the short-term maximum facility capacity flow of 2,400 mgd. Average demand reflects the total load of all normally operating equipment during the long-term average treatment requirements (1,310 mgd). Emergency demand would supply emergency equipment, the security system, communication systems, the lightning protection system, the facility control system and other safety equipment. Reduction in actual demand due to power generated within the plant, if any, would be considered in the maximum demand. Electrical equipment would be sized based on all power being supplied by the utility company. Estimated total electrical loads are shown below in Table 4.16-3.

TABLE 4.16-3. TOTAL ELECTRICAL LOADS

Total Demand	Estimated Load	
	kW	kVA ¹
Connected load	6,800	9,450
Maximum Operating Load (2,400 mgd)	6,400	8,900
Average Operating Load (1,310 mgd)	4,450	6,150
Emergency Load (2,400 mgd)	6,400	8,900

Notes:

1. kW = kVA x pf, where pf is the power factor (a measure of electrical efficiency)

The Electrical/Generator Building would house the main 13.8kV utility switchgear, 13.8kV generator paralleling switchgear, and 480V distribution equipment (motor control centers, etc. for equipment within the Electrical/Generator Building). Equipment would all be located in two main electrical rooms within the proposed UV Facility. Electrical rooms would be similar in size and have similar amount and types of equipment. Each electrical room would contain two unit substations that would step the voltage from 13.8kV down to 480V for distribution within the facility. Each substation would provide electrical power for one of the UV quadrants. The substations would consist of fused primary switches; step down transformers and low voltage

draw-out switchgear. Additionally, 480V motor control centers would be housed in the electrical room to supply power to building equipment loads.

Two main isolation transformers would be provided on the incoming utility lines from the Con Edison Grasslands substation. The two 10,000-KVA pad-mounted isolation transformers would be installed in a fenced in area directly adjacent to the Electrical/Generator Building for the incoming utility feeders from Con Edison.

In case all Con Edison feeders are out of service (and during one-hour monthly exercising), four (4) emergency standby diesel generators, each rated 1,750 kW would provide emergency power for full Facility capacity. In the event of a power failure, all four generators would be running simultaneously until power is restored. Based on preliminary figures, a peak proposed UV Facility demand load of 7,340 kW would require four 1,750 kW generator units. Upon loss of Con Edison power, all generators would start simultaneously, synchronize to the generator switchgear bus, and then tie in to 15 kV distribution switchgear. There would be more flexibility and reliability by using four smaller units than one or two larger units. The generators would be available for fire pumps, fire alarm and fire protection, smoke purging exhaust fans, emergency elevators, and other emergency equipment in case of fire or other emergency conditions within 10 seconds of a power failure as required by the National Electric Code. Emergency power for the security system, communication systems, lightning protection system, facility control system and other safety equipment would also be provided. For the disinfection process, emergency power would also be provided. Additionally, emergency lighting systems would be provided as a life safety measure to provide emergency lighting until the generators are brought online or the utility power is restored. Four hours of fuel storage in a day tank adjacent to the emergency generator would be provided to allow for exercising the unit. Two 20,000-gallon tanks would be installed underground in a vault, at least 20 feet away from any means of egress.

All process controls, and computer and communications systems would have individual uninterruptible power supplies (UPS). With the sensitivity of the UV system to power disturbances, UPS systems would be provided (Batteries and UPS systems would be provided to sustain the process until the back-up generators pick up the loads). The proposed UV Facility would also contain dedicated rooms for the UPS and their associated battery systems. The UPS are being supplied to provide continuous, uninterrupted power to the UV modules. They would enable the UV lamps to operate uninterrupted during utility system disturbances, and would maintain the UV lamps during the time it takes for the standby generators to automatically start and power the distribution system in the event of a utility failure. All of the electrical equipment in the proposed UV Facility would be installed in dedicated electrical or UPS/battery rooms within the facility.

It is not anticipated that other potential NYCDEP projects would have significant adverse impacts on the surrounding community power systems.

Gas Demand. Con Edison would deliver natural gas to the gas meter room within the proposed facility. Gas supply to the proposed UV Facility would be supplied through a 6-inch main connecting from the gas main on Route 100C near the proposed emergency entrance. Con Edison would meet consumption of the additional natural gas demand by the proposed facility,

and no significant impact on the Con Edison supply system is anticipated. The proposed UV Facility heating system would be provided by three 400 hp dual fuel (natural gas/fuel oil) hot water boilers. The three boilers would be provided to meet the heating requirements (two operating and one standby). Each boiler would be provided with a flue gas reclamation system to reduce NO_x emissions. Natural gas would be used to fuel the boilers with the exception of limited days during extreme cold weather, when fuel oil would be used. As stated above, a fuel storage design would include two 20,000 gallon tanks underground in a vault. These tanks would contain No. 2 fuel oil and would be used for both emergency generators and as a back-up source of fuel for the boilers. The exact location of the fuel oil storage tanks would be determined in the final design. The capacity of the fuel storage is equivalent to a 15 days supply. Fuel oil would only be utilized during the months of December through March (heating season).

4.16.3.1.2. With Croton Project at Eastview Site

As noted above, the Croton project may be located on the Eastview Site in the Future Without the Project. The incremental effects on the study area Infrastructure from operation of the proposed UV Facility would be the same in the Future With the Project regardless of whether the Croton project is operating on the Eastview Site. Therefore no significant Infrastructure adverse impact is anticipated.

4.16.3.2. Potential Construction Impacts

The Future With the Project considers the anticipated peak year of construction (2008) for the proposed facility. For each year, two scenarios are assessed: one in which the NYCDEP Croton project is not located on the Eastview Site and another in which the Croton project is located on the site, specifically in the northwest corner of the north parcel. 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 2008 for both of these scenarios.

4.16.3.2.1. Without Croton Project at Eastview Site

Early construction activities at the proposed UV Facility site would include installation of site security, clearing and grubbing and developing site haul roads. Perimeter fencing would be installed, and the residential engineer's field office complex would be constructed. Temporary site utilities for electrical power, telephones, site lighting, water, and sewer would be installed at this initial stage. During construction of the proposed UV Facility, any underground activities could entail the potential interruption of utility services. Locating and preserving the safety of any electric and natural gas lines would be responsibility of Con Edison, while water and sanitary sewer utility safety would be the responsibility of the contractor and construction manager.

Water Supply. Initially, the water supply used on the construction site would be provided by water tankers until a connection is made to the 12-inch pipe that runs along Dana Road (see existing conditions). From April 2005 to May 2006, water tankers would deliver an estimated 5,000 gallons per day. A sufficient number of storage tanks would be provided on-site for an uninterrupted water supply service. Estimated construction related water usage would be on the

order of 4 million gallons over the 38 months at a usage rate of 5,000 gallons per day. Water from the water tanks would be used for wetting exposed soil and roadways during excavation, washing down concrete trucks during pouring operations, and general clean up. The wetting operation would be required to prevent fugitive dust from entering the air during construction.

The Water District No. 3 system (existing system) would be monitored for water pressure fluctuation during construction by the Contractor. In the event that the water pressure in the existing 12-inch pipe on Dana Road is reduced from the normal operation pressure or close to 20 pounds per square inch (psi) the Contractor would discontinue the service from the existing system. Consequently, the Contractor would select a method of supplying water from alternate sources to best suit their method of working.

During the latter part of the construction activities a service connection to the Delaware Aqueduct would be made. This connection would allow the Contractor to withdraw necessary water for the final stages of the construction process. This Delaware System would not be interrupted during the potential construction activities. There are no extended shutdowns anticipated for making appropriate connections to the Delaware Aqueduct (Shaft No. 19). This connection would be constructed under normal flow conditions or under reduced flow conditions as permitted by the NYCDEP. The Delaware System has a total storage capacity of 326 billion gallons and a safe yield of approximately 580 mgd. The supply drawn to the construction site would equate to less than 0.0035 percent of the total flow in the Delaware Aqueduct; therefore, no significant adverse impacts are anticipated to the supply system.

Since the Catskill system could not be called upon during construction activities, accommodation must be made for downstream suppliers and the Town of Mount Pleasant; see the Upstate Water Suppliers discussion below.

Upstate Water Suppliers. During the Catskill Aqueduct pressurization work, the Catskill Aqueduct would need to be refurbished, and reconstructed along certain segments. To accomplish this, a series of seasonal shutdowns (September to May) of the Aqueduct are planned. To allow for prolonged shutdowns (i.e., dewatering) of the Catskill Aqueduct, NYCDEP would provide a water connection to the existing Commerce Street Pumping Station located in the Town of Mount Pleasant (for users between Kensico Reservoir and the Eastview Site). For affected users between the Eastview Site and Hillview Reservoir, NYCDEP could 1) provide a water connection to the Catskill Aqueduct south of the rehabilitation work or 2) backfeed water by gravity from Hillview Reservoir.

Catskill Aqueduct Users between Kensico Reservoir and the Eastview Site.

The NYCDEP committed to UV disinfection in the Filtration Avoidance Determination and prefers siting the facility at the Eastview Site in order to optimize the system's hydrology. The result of NYCDEP's decision to site the UV Facility at the Eastview Site and the Catskill Aqueduct pressurization work would require periodic shutdowns of the Catskill Aqueduct. These periodic shutdowns would interrupt the water supply to the Town of Mount Pleasant. Unlike the short-term shutdowns of 24 -36 hours that were implemented earlier this year to facilitate inspection of the Aqueduct, the proposed shutdowns would need to be substantially

longer to support demolition and construction activities within the Aqueduct and its ancillary facilities. Since the Catskill Aqueduct is currently the sole source for water within the Town of Mount Pleasant and the existing water supply infrastructure within the Town can only accommodate 1-2 day disruptions in service, it would be impractical to attempt the necessary aqueduct modifications in the absence of an alternate water source or delivery conduit for the Town. Therefore, NYCDEP would provide a water source for the Town in order to facilitate the proposed Catskill Aqueduct Pressurization work and enable NYCDEP to shut down the Aqueduct for extended periods of time. The Town of Mount Pleasant currently has available two connections to the City's Catskill Aqueduct: 1) near the Catskill Venturi Meter off of Columbus Avenue, and 2) a tap on the Kensico Siphon adjacent to the Taconic State Parkway. As described above, during the refurbishment/reconstruction of the Catskill Aqueduct, the Aqueduct would be shut down and dewatered, so these connections would not be available. Therefore, two options are being considered for providing Delaware Aqueduct water to the Town during extended shutdowns of the Catskill Aqueduct for the pressurization work.

The first option is a 30-inch diameter gravity feed connection that could be installed from the Delaware Shaft No. 18 Flow Control Structure to the existing Commerce Street Pumping Station. The gravity feed connection from the Delaware Shaft No. 18 Flow Control Structure would be routed from the Kensico campus heading west along Lakeview Avenue and Wall Street before intersecting Commerce Street (Figure 4.16-6). This route consists of public roads and a Mount Pleasant Right-of-Way, which is adjacent to an industrial park (Farrand Controls Division, Ruhle Companies, Inc.) prior to intersecting Commerce Street. Construction would commence in late 2006. See Section 5.1, *Kensico Reservoir Work Sites*, for further discussion of this option. The second option could provide for the construction of a temporary booster pumping station at the Eastview Site and installation of a 24-inch diameter force main to convey water from a temporary bypass pumping station on Delaware Shaft No. 19 to a connection at Mount Pleasant's Commerce Street Pumping Station. See Section 7, *Alternatives*, for further discussion of this option. WCWD3 would continue receiving water from its connections to the Towns of Mount Pleasant and Greenburgh.

The pumped supply from the Delaware Shaft No. 19 could be routed from the Eastview Site to Commerce Street following one of two possible routes:

- One route alternative would exit the Eastview Site to the east along Grasslands Road (Route 100C), and follow Route 100C east to Woods Road (Penitentiary Road), west of the Sprain Brook Parkway. The piping would continue north along Woods Road onto Westchester County property; then east through the County property; then east across the Sprain Brook Parkway; then east through County property to Route 100; then north along Route 100 to Lakeview Avenue (Old Tarrytown Road). The piping would continue down Lakeview Avenue; north on Commerce Street; under Davis Brook (Davis Brook is currently piped in this location); continue east along Commerce Street; east under the Metro North Railroad tracks and the Taconic State Parkway; and connect to the Commerce Street Pumping Station.
- The other route alternative would follow the same path as the first alternative up to the intersection with Route 100. At this point, the paths deviate. The piping would continue north along Route 100 to the Catskill Aqueduct Easement into the Gate of Heaven Cemetery to the

east; then east within the City property through Gate of Heaven Cemetery; under David Brook (Davis Brook is currently piped in this location); east under the Metro North Railroad tracks; east under the Taconic State Parkway; and connect to the Commerce Street Pumping Station.

The installation of a water main to Mount Pleasant's Commerce Street Pumping Station would be similar to a typical utility installation, and would cover approximately 100 linear feet per day.

Catskill Aqueduct Users Between the Eastview Site and Hillview Reservoir.

Two options are being considered for providing temporary water to affected consumers of the Catskill Aqueduct water supply during extended shutdowns to be conducted during the pressurization work. These options include:

- Option 1 – At the Eastview Site, establish a temporary pumping station at Delaware Shaft No. 19; install a bypass water main to the Catskill Aqueduct downstream of the Catskill Connection Chamber (CCC), and an emergency generator; or
- Option 2 – Backfeed water by gravity from Hillview Reservoir. Possibly install a temporary pumping station at Hillview Reservoir if required for the affected users.

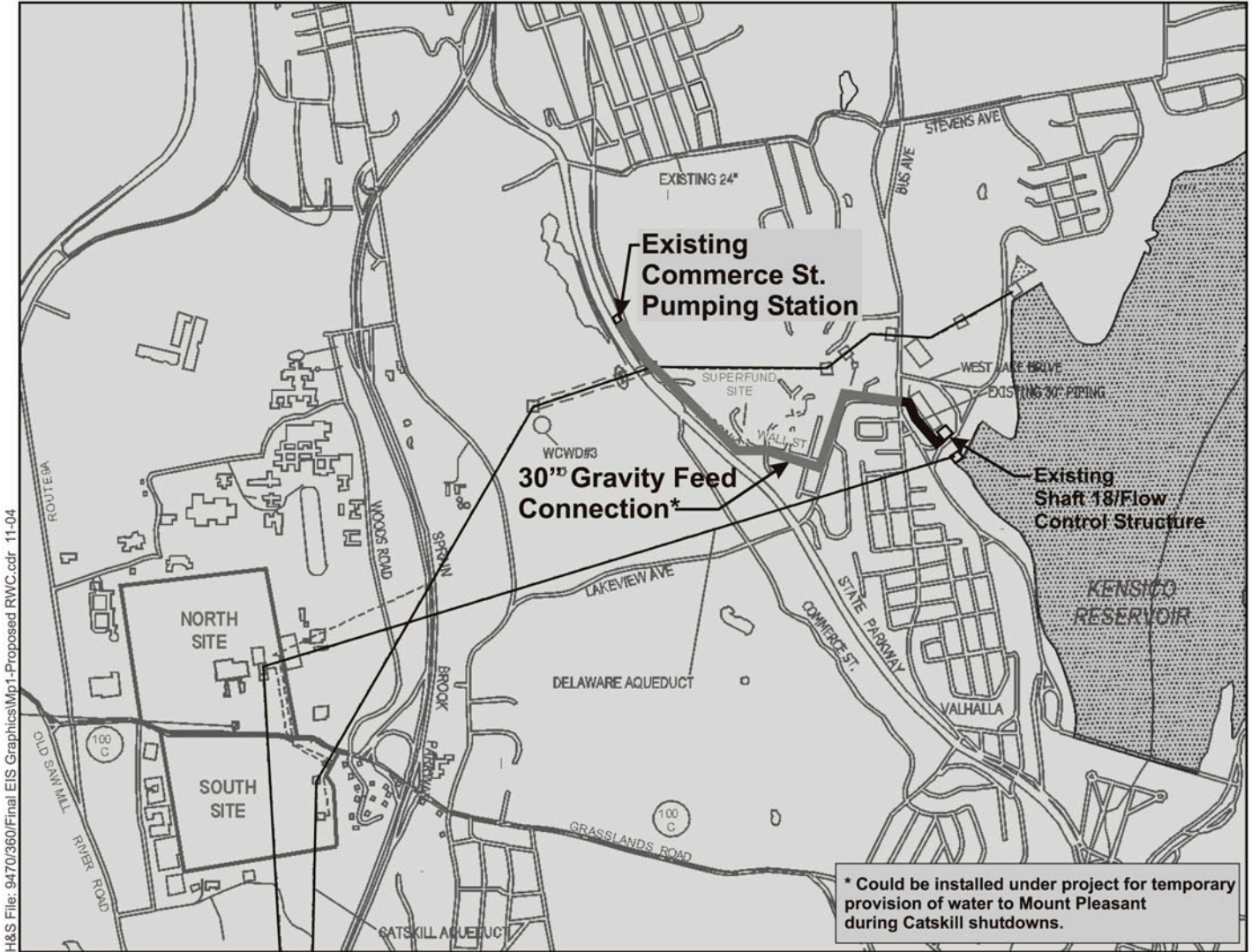
Work required to complete Option 1 would occur at the Eastview Site. Option 2 would involve work at Hillview Reservoir. No significant impacts to study area infrastructure are anticipated from implementation of either Option.

Option 1 - Temporary Pumping Station/Bypass Main.

A temporary Delaware Shaft No. 19 Pumping Station would be established at the Eastview Site to convey Delaware Aqueduct water to the Catskill Aqueduct, downstream of the existing CCC. The estimated capacity of the station would be 50 mgd, based upon historic demand data. Three pumps (2 duty, 1 standby) would be located on existing Shaft No. 19. The pumps and valves would be enclosed in a temporary housing. Roof openings could be provided in the structure to allow for pump access by mobile crane.

Electrical Power. Electrical power would be supplied to the site from two 4160-volt feeds (double-ended), installed in a concrete encased ductbank.

Emergency Generator. An emergency diesel generator would be located to the north of Shaft No. 19, in the vicinity of the proposed UV Facility construction trailer offices. The estimated capacity of the emergency diesel generator would be about 1,500 kW.



Town of Mount Pleasant Proposed Raw Water Connection to Pumping Station

Catskill/Delaware UV Facility

Figure 4.16-6

Catskill Bypass Pipeline. A 42-inch diameter bypass main would be constructed to convey water from Shaft No. 19 to the Catskill Aqueduct. The design capacity of the bypass main would be 50 mgd. Approximately 2,800 linear feet of main would be required for the bypass. The bypass main would run south along the east property line, passing under Route 100C. Upon crossing Route 100C, the transmission line would be routed further to the east, across the Catskill Aqueduct and would continue south along the east side of the Catskill Aqueduct. The “tap” or aqueduct connection would be located downstream of the CCC. The 42-inch bypass main would be installed using traditional open cut soil/rock excavation, with exception of the section required to traverse Route 100C. This segment would be jacked/bored in order to minimize traffic impacts.

Option 2 - Backfeed from Hillview Reservoir.

Under this option, Delaware Aqueduct water could be supplied to Uptake Chamber #1, located at Hillview Reservoir, during Catskill Aqueduct shutdowns and allowed to backfeed into the Catskill Aqueduct to supply affected users. Water would flow up the Aqueduct without pumping if the water level within Hillview Reservoir is maintained above a minimum water level; otherwise pumping could be required. The City of Yonkers and Mt. Vernon draw water directly from the forebay of Uptake Chamber #1.

If required to maintain a minimum water level in Uptake #1, temporary pumping equipment could be installed to feed water into Uptake #1. Due to limited space inside the Uptake Chamber, the pumps would likely be installed in the reservoir, adjacent to Uptake Chamber #1. The discharge from the pumps would either penetrate the exterior wall of existing Uptake #1 superstructure or, if possible, a sub-aqueous discharge could be provided through the existing waterways on the east or west side of the Uptake #1 Chamber.

Three submersible pumps would lift water from the Reservoir and discharge into the uptake shaft. Pumping would only be required when the water elevation in the shaft was less than a minimum level required to feed affected users. Since the normal operating range for Hillview Reservoir satisfies the minimum required water level for users operating on backfeed from Hillview Reservoir, pumping would only be required on an as-needed basis.

An emergency generator would be located in the vicinity of the Uptake #1 Chamber on the north end of Hillview to power the pumps in the event of a power failure.

Construction of either of these water supply options would commence in late 2006.

Coordination of the Shutdowns of the Catskill and New Croton Aqueducts. The Catskill Aqueduct shutdown periods are anticipated to occur during three of the four available shutdown seasons (from September through May) from 2007 to 2011. In addition, if the Croton project were located on the Eastview Site, it would require shutdowns of the New Croton Aqueduct (NCA). NYCDEP policy is to coordinate the shutdowns of the Catskill and NCA so that they do not occur at the same time.

While the use of the NCA is necessary for any of the three sites being considered for the Croton project, the work required and ultimate use of each segment of the NCA and associated facilities varies according to the site selection for the Croton project. The work on the NCA involves two major components; general repairs to the NCA and the connection of the NCA to the Croton project. NYCDEP currently anticipates that the majority of the NCA baseline rehabilitation work would be performed over the three available shutdown seasons between October 2004 and April 2007 (2004 to 2005, 2005 to 2006, and 2006 to 2007). For the Croton project at the Eastview Site, the 2008 to 2009 shutdown season would be used for connecting the Croton project to the NCA. For the Croton project located at Mosholu, the 2009 to 2010 shutdown season would be used for the needed connections between the NCA and the Croton project. The final work to complete the NCA rehabilitation would be performed during the same shutdown season that is needed for the Croton project connections to the NCA, if necessary. If this additional rehabilitation work is needed and cannot be completed during this season, this work would take place after the Croton project is placed on-line. If the Croton project is located at the Eastview Site and the NCA is chosen as the means to convey treated water, the NCA south of the Croton project would have to be pressurized. This pressurization work would take place from 2011 to 2015, after the Croton project is placed in service.

During these shutdowns, NYCDEP would work with the upstate suppliers to meet their water supply needs. Many of these suppliers currently have alternative connections to the City's supply that would be used during certain periods during these shutdowns. The NYCDEP has already initiated coordination with the towns and water utilities served by the NCA and the Catskill Aqueduct to plan for the upcoming out of service periods of each aqueduct for inspection and rehabilitation. Based on this coordination, the City and upstate suppliers would continue to receive water during construction of the Croton project and the proposed UV Facility.

Sanitary Sewage. During the construction period, from mid 2005 to August 2009, portable rest rooms would be made available for construction personnel. The anticipated amount of sewage generated construction personnel during the peak construction period is assumed to be equivalent to the amount of water consumed; 12,000 gpd (based on 480 workers). The sanitary sewage would be collected and properly disposed of through a contract with a private hauler. Connection to the existing sanitary sewage lines around the Grasslands Reservation would be made for the construction activities.

Stormwater Infrastructure. Stabilization and structural best management practices (BMPs) would be included in the design to ensure that peak flows would be dissipated to avoid on-site erosion, and that total runoff from each storm would be maintained to avoid impacting the site hydrology. Stormwater management, erosion and sedimentation control measures would be implemented in a phased approach during construction. Phase I of the construction would include clearing and grubbing and building the site access roads. Early in the construction phase, the entire proposed UV Facility site would be fenced and a combination of steel cable barriers and concrete jersey barriers placed to demarcate the limits of construction. Erosion control features would be implemented prior to the topsoil removal and excavation. A silt fence and double row of haybales would be installed inside the jersey barriers to assist in erosion and sedimentation control. Phase II would include more excavation of the area in which the main

buildings would be constructed. Erosion control features, such as diversion ditches and two stormwater basins, would be installed prior to the building excavation. The proposed stormwater basins would be designed as a sedimentation basin during construction and converted into the stormwater basin after the excavation work is completed. Phase III would include building construction. Stormwater pipes, underdrains and other BMP features, which include settling tanks and oil/grease separators, would be installed during the building construction. would be collected in a stormwater retention basin. This water would be pumped out of the basin and into a settling tank before being discharged to Mine Brook. [Section 4.14, Natural Resources](#) and [Section 4.15, Water Resources](#), present the anticipated protection measures and stormwater flow measurements during construction.

The stormwater BMPs would be developed and implemented independent of the existing stormwater infrastructure surrounding the site. The BMPs would be in compliance with the Westchester County Stormwater Management Practices Manual and the NYSDEC SPDES stormwater permit requirements. There is no potentially significant adverse impact anticipated to occur from the stormwater runoff from the construction site to the existing infrastructures. Stormwater BMPs would be developed for other potential NYCDEP projects at the Eastview Site. These BMPs would also be in compliance with the Westchester County Stormwater Management Practices Manual and the NYSDEC SPDES stormwater permit requirements. The BMPs that would be developed for other potential NYCDEP project are not anticipated to significantly impact the existing infrastructure.

The sedimentation and erosion controls and stormwater management practices as described earlier would be employed to minimize erosion, and prevent sedimentation of Mine Brook and adjacent wetlands. Control measures would include stabilization of disturbed areas, and structural controls to divert runoff and remove sediment. In addition to managing stormwater runoff and erosion, the BMPs would help to ensure that measures are taken to prevent accidental releases of fuels, lubricating fluids, or other hazardous materials from construction supplies and equipment.

Energy Demand. Construction power would be obtained at 4,160 volts from an existing Con Edison's Grasslands Reservation Substation. The Contractor would install a temporary overhead pole line with a 4,160-volt feeder from the service point at Route 100C to the vicinity of the construction trailer area. At the trailer area, a new 300 kVA step-down transformer and secondary service provided by Con Edison would provide 120/208 volt three phase power to the trailer complex. All feeders for the construction activities are intended/anticipated to be three phase, meaning that there are three wires and a ground wire per feeder.

The Contractor would also have the option of providing temporary power through the use of temporary/portable generators as necessary. Based on conversations with the utility company, the temporary usage of electrical power from the substation would not result in a significant adverse impact. A second substation located approximately one-half mile west of the Eastview Site is also available to meet the construction-related demands if necessary.

The main access to the proposed UV Facility would be from Walker Road, which is located to the west of the north parcel in the Town of Mount Pleasant. A connection from Walker Road (Bee Line Boulevard) would be used for construction entrance power. A separate temporary

electrical service line would be installed along the eastern property line to power the possible bypass pumping station at Shaft No. 19. This power would be connected from the 4,160 volt power line within the site. The design would also include a 900 KW emergency standby generator that consists of three (3) 250 horse power vertical turbine pumps (2 operating and 1 stand-by).

Natural Gas Demand. Natural gas would not be utilized during the construction activities of the proposed UV Facility. No connection to the existing gas main would be made; therefore, no significant adverse impact is anticipated.

4.16.3.2.2. With Croton Project at Eastview Site

As noted above, the Croton project may be located on the Eastview Site in the Future Without the Project. The incremental effects on study area Infrastructure from construction of the proposed UV Facility would be the same in the Future With the Project regardless of whether the Croton project is under construction on the Eastview Site. Therefore no significant adverse impact to study area infrastructure is anticipated.

4.16.4. Relocating the Hammond House

NYCDEP may choose in the future to relocate the Hammond House from the Eastview Site to another location as part of the proposed UV Facility project due to security concerns associated with a private residence being located on the same site as critical components of the City's water system. As shown in [Section 7, Alternatives, Figure 7-8](#), which shows the NYCDEP's comprehensive long-term plan for the site, the Hammond House would be an isolated residential use surrounded by NYCDEP's water supply facilities.

Services provided to the existing Hammond House includes an on-site well for water demands, energy demands for heating, lighting and internal power requirements and private septic system. Each of these service connections would be discontinued. Discontinuance of the private septic system would require complete removal and remediation.