

ENVIRONMENTAL ASSESSMENT STATEMENT

Tallman Island TI-2/TI-3 Water Pollution Control Plant Plant Upgrade



FEBRUARY 2006



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Attachment A

1. Project Description

A. Background

The New York City Department of Environmental Protection (NYCDEP) is proposing a project known as Tallman Island TI-2 /TI-3 Water Pollution Control Plant Upgrade. This project includes Contract TI-2: Emergency Main Sewage (EMS) Pumping System Modification & Replacement, and Contract TI-3: Plant Upgrade Program (PUP). The purpose of the Tallman Island PUP is to provide more efficient and reliable wastewater treatment and ensure compliance with the State Pollutant Discharge Elimination System (SPDES) permit criteria.

The Project will also include the required elements of the Citywide Comprehensive Nitrogen Management Plan (CNMP) and the Consent Judgment, Index No. 04-402174 (Sup. Ct. New York County, Feinman, P.) for nitrogen which will ultimately benefit the water quality of the Long Island Sound, East River and Powell's Cove and the aquatic inhabitants that rely on these waters. Nitrogen discharges to the NY Harbor have been identified as a significant cause of hypoxia (decrease in oxygen) in the Western Long Island Sound and portions of Jamaica Bay. These conditions can create hypoxic events, especially during the summer months. In order to address this regional water quality issue, NYCDEP has initiated a comprehensive program to reduce nitrogen discharges and to collect performance and cost data concerning the implementation of biological nutrient removal technologies at the City's fourteen wastewater treatment plants.

Tallman Island Water Pollution Control Plant (WPCP) is located at 127-01 Powell's Cove Road in the College Point section of the Borough of Queens. The New York City Department of Public Works designed the original Tallman Island WPCP in the 1930s. The Tallman Island WPCP began operations in time to treat the flow from the 1939 World's Fair at Flushing Meadow Park. The original plant was designed to serve an estimated population of 300,000 with a flow capacity of 40 million gallons per day (mgd). With major expansions and upgrades completed in 1964 and 1979, the plant now consists of two parallel treatment batteries (East and West) and has a design flow capacity of 80 mgd. The plant serves the northeast portion of the Borough of Queens, approximately 17,400 acres (ac) of land with an estimated population of nearly 400,000 residents.

The plant operates under the provision of its State Pollutant Discharge Elimination System (SPDES) permit which is issued and enforced by the New York State Department of Environmental Conservation. Under the permit, the plant is required to provide secondary treatment, which for the Tallman Island facility, includes primary settling, aeration, final settling, and disinfection for a minimum of 1.5 times the design flow (120 mgd). In addition, the plant is required to provide primary treatment (primary settling) and disinfection for the wastewater in excess of 120 mgd up to two times the design flow (160 mgd).

Although the plant has not experienced any major difficulties in meeting its SPDES permit requirements during recent years, the facility requires upgrading to ensure continued compliance with permit limitations, to maintain a safe working environment for the future, and meet the recently mandated citywide nitrogen removal program. Accordingly, NYCDEP has instituted a PUP for the Tallman Island WPCP. The equipment within the plant exceeds the typical industry standard life expectancy. The plant has experienced multiple failures of major equipment such as the main sewage pumps, blowers, force main, thickeners and mixed flow pumps. The PUP would provide for Biological Nutrient Removal (BNR)

by improving the aeration system including the replacement of the diffusers, baffle walls, froth hoods, surface wasting system, and mixers for basic step feed BNR. The PUP will also include the replacement of the aged main sewage pumps, blowers and drive engines with electric motors.

B. Description of Existing Facility

The Tallman Island WPCP site is situated on an approximately 30-acre peninsula at the western edge of Powell's Cove in the College Point section of Queens, New York. The site extends into the waters of the East River, west of the Whitestone Bridge (Attachment B, Figure 1 - Site Location). The facility provides continuous wastewater treatment for the northeast portion of Queens. On-site facilities generally function for the treatment of wastewater and/or handling of sludge (biosolids). The current wastewater treatment unit processes include screening, preliminary settling, grit removal, activated sludge treatment by step aeration, final settling, and disinfection by chlorination. Sludge treatment includes gravity thickening, anaerobic digestion, and sludge dewatering with off-site disposal of the dewatered sludge. A site plan of the existing WPCP is shown in Attachment B, Figure 2 - Existing Tallman Island Water Pollution Control Plant.

The Tallman Island WPCP is staffed by NYCDEP personnel on a 24-hour per day, 7-day per week basis. Facility operations require three shifts of staff that extend from: 7am - 3pm.; 3pm. - 11pm.; and 11pm. - 7am. The facility employs a maximum of 45 people for the 7am. - 3pm. day shift during the weekdays. Eight people work the evening and overnight shifts each on weekdays. All weekend shifts are staffed by eight employees. The NYCDEP also operates a separate facility adjacent to the WPCP, called the Collections Facility crew quarters; this serves as a central headquarters for servicing and maintaining wastewater collection facilities throughout the Tallman Island WPCP service area. Approximately 15 employees are employed at a separate Collections Facility.

On-site WPCP operations include routine maintenance of mechanical and electrical equipment, monitoring of treatment processes (including on-site laboratory analysis of wastewater and sludge), handling and transport of screenings, grit, scum, and sludge removed from the wastewater, maintenance and upkeep of WPCP grounds and structures, and administrative and clerical activities. All traffic enters and exits the Tallman Island WPCP onto Powell's Cove Boulevard. Other than regular employee trips, truck traffic includes: deliveries of fuel oils, chemicals used in wastewater treatment and general administrative supplies; removal of residuals (screenings, grit, scum, and sludge); and ingress and egress of outside contractors.

C. Proposed Action

The proposed action would remedy near-term and long-term plant deficiencies to allow the plant to continue to meet its SPDES permit, improve operations, and maximize treatment plant flow rates. Equally important, the program would identify and remedy safety and health issues, and evaluate and upgrade the plant's infrastructure to support all systems and functions. Furthermore, NYCDEP is mandated to meet Consent Judgment milestones such as BNR improvements construction completion by December 31, 2010.

The proposed action would also include a set of mechanical (e.g., covers and stacks) and operational components (e.g., active carbon-based control technologies) that would control operational odors. At the present time, it is anticipated that at least two facilities would be involved – the grit building and preliminary settling weirs west. Studies are being conducted to determine the need to incorporate odor control with other Tallman Island WPCP process facilities.

The proposed action would meet the following objectives:

- Ensure that the Tallman Island WPCP can treat incoming wastewater flow through primary treatment and disinfection during wet-weather at twice the design dry weather flow (160 mgd) while meeting the mandated treatment efficiencies.
- Ensure that at least 150 percent (120 mgd) of the mean design dry weather flow can be processed through the secondary treatment facilities.
- Prevent flooding nuisances to the adjoining neighborhood.
- Increase the reliability and efficiency of the various process systems.
- Improve the reliability and economics of sludge treatment system.
- Improve instrumentation and process control.
- Provide facilities and treatment modifications to provide step-feed BNR.

To satisfy the goals and objectives of the proposed action, the proposed action would be implemented as a phased approach. The three phases are supported by two separate contracts (two phases under Contract TI-2 and the third phase under Contract TI-3) that address the near-term and long-term needs of the Tallman Island WPCP. Each of these contracts are described below:

Contract TI-2: Emergency Main Sewage (EMS) Pumping System Modification & Replacement (EMS Pumping System)

The EMS Pumping System consists of two stages. Stage I would provide sufficient pumping capacity for the facility to pump at least the average peak dry-weather flow (66 million gallons per day [mgd]) in the case of a complete failure of the main sewage pumping system and/or engine drive units. Power for the Stage I Pumping System would be provided by the existing Consolidated Edison (Con Ed) service to the facility. In the actual event of a main sewage pump failure and the need to run the Stage I Pumping System, existing electrical loads at the facility would be disconnected (or de-loaded from the existing Con Ed service) so that sufficient power would be available.

Once the Stage I Pumping System is installed, procurement and installation of the Stage II Pumping System would take approximately six months. The Stage II Pumping System would provide dry-weather and wet-weather pumping capacity for the facility up to 120 mgd or 1.5 times the dry-weather flow. It would be located in the existing Pump and Blower Building see Attachment B, Figure 2 - Existing Tallman Island Water Pollution Control Plant.

Power for the Stage II Pumping System would initially be provided by two new on-site 1.6 megawatt (MW) diesel generators. The Stage II Pumping System would only be used in case of a complete failure of the existing main sewage pumps. Once the 27 kV electrical service is available from Con Ed under the Plant Upgrade Program, the Stage II Pumping System would be powered by that electrical service. The Stage II Pumping System would serve as the pump-around system for the Plant Upgrade System and stay in place until February 2010.

Contract TI-3: Plant Upgrade Program (PUP)

The Plant Upgrade Program consists of the removal and replacement of the existing main sewage pumps, their associated engine drive units and the force mains to the east and west battery preliminary tanks. Power for the new equipment installed under the PUP would be provided by Con Ed's 27 kV service via a new substation that would be built on site. To provide pumping of sewage during the main sewage pump and forcemain replacement, pumps from TI -2 Stages I and II will be used to pump 160 mgd. This is known as the "pump around", which would be in service on a full-time basis for a period of about 1 year

starting in January 2009. Once the 27 kV service is available, the two Stage II diesel generators would be relocated to the substation, and an additional new standby generator would be added, to serve as standby power. The EMS Pump System would then be removed once the new main sewage pumps were tested and accepted by NYCDEP.

A summary of the improvements are as follows:

- Return Activated Sludge (RAS) Pump Station (New Facility)
 - Provide a new RAS pumping station and Blower Building to replace existing RAS airlift pumps.
- Blower Building (New Facility)
 - Replace the existing five (5) process air blowers and five (5) dual-fuel engine drive units in the Pump and Blower Building with four (4) new motor-driven process air blowers in the new Blower Building.
- 27 kV Electrical Substation (New Facility)
 - Upgrade the power supply necessary for the WPCP. Includes the relocation of the Stage II electrical generators and the installation of a third to serve as plant standby power.
- Three Electrical Buildings (New Facilities)
 - Provide the necessary power supply to the East and West batteries of Aeration Tanks and to the Sludge Thickeners and Digesters.
- Mixed Flow Pumping Station Modifications
 - Replace the Mixed Flow Pumps, spray water pumps, piping and valves.
- Aeration System Improvements/Tank Modifications
 - Replace existing coarse bubble diffusers with fine bubble membrane-type diffusers, new air headers, control valves and piping.
 - Modify tanks to provide for the step-feed BNR processes. Modifications to the Aeration Tanks include:
 - Replacement of the existing manual influent gates with new actuated influent gates. The operation of the influents will also be automated and controlled by a programmable logic controller (PLC) to provide automatic flow re-direction to Pass D of the Aeration Tanks under wet-weather conditions.
 - Replacement of the existing coarse bubble diffuser system with a full-floor tapered fine bubble diffuser system.
 - Replacement of the existing spray water system with a full coverage spray water system.
 - Additions of fiberglass baffle walls.
 - Addition of slow speed submersible mixers in the anoxic zones.
 - Addition of the new froth control hoods.
 - New automated dissolved oxygen control.
 - Increased Return Activated Sludge (RAS) capacity from 20 percent RAS to 60 percent RAS.
 - Redirection of the centrate from dewatering operations to Pass A.
 - Surface wasting system capable of providing 100 percent Waste Activated Sludge (WAS).

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- Main Sewage Pumping Station
 - Replace the existing five (5) main sewage pumps, piping and valves with five (5) new 60 mgd main sewage pumps.
 - Replace the existing five (5) dual-fuel engine drive units with five (5) new 550 horsepower (hp) motors.
 - Replace the existing East and West Battery Force mains.
 - Sludge Digesters Improvements
 - Replace existing covers with new fixed aluminum geodesic covers and associated piping.
 - Modify gas piping
 - Sludge Thickeners Improvements
 - Replace south thickeners' mechanisms.
 - Replace existing sludge pumps with new pumps and grinders.
 - Process Control System
 - Provide an updated process control/instrumentation/system for the new and modified systems.
 - Centrate Pumping Station
 - A new Centrate Pumping Station would be constructed east of Chlorine Contact Tank No. 1 to convey centrate to the aeration tanks.
 - Demolition and Replacement of Waste Gas Burner (Flare)
 - New Supplemental Boilers
 - Installation of two new supplemental boilers for space and process heating
 - Temporary Field Office Complex
 - A temporary field office complex would be erected north of the North Sludge Thickeners.
 - Miscellaneous Site Work
 - Restoration of paved areas and redirection of stormwater.

Additional work within the boundaries of the facility would involve the replacement of the existing primary screen conveyor system and the modification of the Secondary Bypass System to reroute, measure the excess flow (above 120 mgd) from the East Battery and West Battery to the Bypass Channel and automatically adjust to meet the maximum required overflow during storm events. The replacement of the existing primary screen conveyor system includes the removal and replacement of frame, rollers, belt, motors, and electrical controls. The major items of work for the modification of the Secondary Bypass System would include:

- Provide temporary barriers, dewatering, cleaning and temporary means of overflow during construction.
- Demolish and remove the existing concrete wall, the 48" flowmeter, the most northern stop log, and sealing the 48" conduit.
- Replace stop logs with aluminum stop planks.
- Replace existing dual stem overflow gates with three (3) individual stainless steel overflow gates.
- Provide a new flowmeter in the bypass channel.

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- Provide automatic controls of the overflow weir gates based on the new secondary bypass automatic control system.
 - Provide a new isolation gate.
 - Provide a partition gate, and a partition wall. The partition gate shall be automatically controlled during construction.
 - Provide three (3) ultrasonic level sensors in each of the two preliminary effluent channels (East & West) and in the Equalization channel.
 - Provide all associated concrete, electrical, instrumentation, and site work.
 - Provide all structural work including the stainless steel grating.
 - Replace the sodium hypochlorite solution piping in order to access the area of construction, as well as testing the line.

In addition, the Powell's Cove Pumping Station within the Tallman Island WPCP would undergo modifications to replace pumps, motors, piping, associated valves, controls and associated electrical equipment, replace mechanical bar screen, install a removable grinder, install duplex sump pumps and associated piping, and install new lighting. This work would include:

- Installation of an equal capacity temporary pumping system prior to start of construction.
- Replace the Powell's Cove pumps, motors, piping and associated valves within the Pump & Blower Building, controls and associated electrical equipment.
- Replace the seal water system including the pumps, tanks, pipe and fittings, appurtenances, controls and associated electrical equipment.
- Clean the influent channel, bypass channel, and wet well.
- Replace the mechanical bar screen with a new mechanical bar screen and all electrical and controls work.
- Install a removable grinder including all electrical and controls work.
- Wet well modifications including splitting of the wet well with a wall, sandblasting and painting, and stop plank guide installation.
- Replace temporary sump pumps with duplex sump pumps and associated aboveground piping.
- All instrumentation work, including the installation of a PLC Control System, level sensors and other equipment required to automatically control the pumps, climber screen and grinder.
- Install a gas detection system to detect high levels of hydrogen sulfide or low levels of Oxygen and provide an alarm system to evacuate the area.

D. Anticipated Construction Schedule

Table 1-1 lists the main activities of the proposed action and their scheduled timeframes.

All of the proposed action upgrades to the Tallman Island WPCP would be within the existing boundaries of the facility. The new 27 kV Substation would be located on DEP-owned property to the west of the Main Gate that is presently accessible to the public. The proposed site plan, following implementation of the proposed action, is shown in Attachment B (Figure 3A - Components of the Proposed Action). Following completion of the project, the Tallman Island WPCP would operate in a similar manner as under current conditions. The newer equipment and facilities provided by the proposed action would result in more efficient, safer, and less costly operation and maintenance of the WPCP. More details pertaining to specific environmental issues are provided in Section 4, Impact Analyses.

Table 1-1

Proposed Action General Schedule

Activity	Schedule
EMS Pumping System Stage I	April 2005 - March 2006
EMS Pumping System Stage II	March 2006 - August 2006
PUP Notice To Proceed	May 2006
27 kV Service/Generators	May 2006 - October 2008
Start "Pump Around"	January 2009
Complete "Pump Around"	January 2010
Remove EMS Stage I and II Pumps	February 2010
Project Consent Order Completion	December 2010

E. Anticipated Permit Applications

The following are the permit applications or modifications required as part of the construction and operation of the proposed action:

Table 1-2

Required Permits and/or Approvals

Agency	Description
NYSDEC	Title V Air Permit Modification
	State Facility Permit
	Long Island Well Permit
	Fuel Oil Tank Registration
NYSSHPO	Letter of Approval/No Adverse Impact
NYCDBS	Work Notice
	Certificate of Completion
NYCDEP	Backflow Preventer Application
	Groundwater Discharge to Sewer (Notification)
	Tree Protection
NYCLPC	Letter of Approval
Con Edison	Gas Line Modifications
	Electrical Conduit/ Manholes
NYNEX	Telephone Lines/ Manholes
FDNY	Fire Code Compliance

2. Impact Analyses

This section documents the technical analyses of the proposed action (EMS Pumping System and PUP) in relation to the CEQR environmental impact categories. For each impact category, the following elements are reviewed and assessed: existing conditions, anticipated future conditions without the proposed action and anticipated impacts of the proposed action. All technical analyses of environmental impacts were performed in accordance with procedures and recommendations contained in *CEQR Technical Manual*, October 2001 (hereafter denoted as CEQR).

A. Land Use, Zoning, and Public Policy

A.1 Existing Conditions

Land Use - On-Site

The Tallman Island WPCP site has been operated as a wastewater treatment facility by New York City since 1939. Topographically, the site is flat with elevations of about 7 ft to 14 ft above mean sea level (MSL); the site itself and its margins have been extensively filled and modified over time, taking on the existing shape. The majority of the site is covered with infrastructure, buildings, facilities or structures associated with the Tallman Island WPCP's operations. As described above and shown in Attachment B, Figure 2 - Existing Tallman Island WPCP, the primary site structures are:

- Pump and Blower Building
- Storage and Bar Screen Facility
- Gas Holder and Gas Burner
- Digesters
- Sludge Thickeners (North and South)
- Grit Building
- Preliminary Sludge Pumping Station
- Preliminary Settling Tanks
- Aeration Tanks (East and West Batteries)
- Final Settling Tanks
- Chlorine Contact Tanks
- Dewatering Building
- Sludge Storage Tanks.

The remaining limited open space is devoted primarily to the surface road network to access site facilities. Landscaped areas exist near the site entrance, adjacent to several of the on-site structures and along the site perimeter. An area to the west of an existing internal fence, which defines the active portion of the WPCP, has been landscaped using fill from earlier development of the site to create a passive, open space area that is owned and maintained by NYCDEP. Public access to this area is available at a gate opposite 127th Street, and paths provide access along Inlet Cove and along the bulkhead to the NYCDEP pier that extends into the East River. The Tallman Island site and structures reflect its long history as a WPCP with numerous facility modifications, multiple technology upgrades and various aged structures.

Land Use - Off-Site

College Point, Queens, is sharply defined by natural and man-made barriers: to the north and west by the East River and Flushing Bay; and to the south and east by the Whitestone Expressway (I-678). The

quarter-mile radius land use study area for the proposed action is the northernmost portion of the College Point community, part of Community Board 7 Queens (CB7). Attachment B, Figure 4 - General Land Use is derived from the New York City Department of City Planning (NYCDCP) land use map. This review was supplemented by field surveys in December 2004.

Aerial photographs of the site and the study area were reviewed, particularly with respect to identifying the waters edge; it is incorrectly shown on several maps (e.g., the NYCDCP land use and zoning maps), which depict mapped but unbuilt streets in areas that are underwater or are now in the Powell's Cove Park to the east and southeast of the site.

Land use in the surrounding study area is predominantly residential. The residential character reflects the prevailing residential zoning, the majority of which is R3-2 but also includes a small R4 district to the west (in which the Riverview condominium complex at 121st Street is located). The residential areas are generally low-rise with mostly detached or semi-detached single-family homes on the surrounding higher elevations (50 ft). Newer attached one- and two-family housing units are situated in the study area's lower elevations, closer to Powell's Cove Boulevard.

Adjacent to the Tallman Island site on the south is a gated residential development (Silverpointe) comprised of mixed two-family and walk-up multi-family units occupying the blocks north of 6th Avenue and east of 127th Street. A new, gated residential development of approximately 100 garden apartments (Malba Bay) has opened on 11th Avenue at 132nd Street, and other infill homes continue to be built at the periphery of the study area.

To the southeast of the Tallman Island facility, along the waterfront, is Powell's Cove Park (7.09 ac), a portion of which is being reestablished as a natural salt marsh by the New York City Department of Parks and Recreation (NYCDPR). This area is intended for limited public access and to function as a nature preserve. To the west of the WPCP is the private College Point Yacht Club, with a marina and boat storage area.

The only school in the study area is PS 129 (Patricia A. Larkin School), an elementary school with an enrollment of 772 in October of the 2002-2003 school year (NYC 2004). This school building occupies the block between 7th and 9th Avenues and 128th and 129th Streets.

Modest amounts of vacant and underutilized land exist in the study area, particularly to the west of the facility and north of Lax Avenue where a large waterfront parcel has the potential for R4 residential development (a NYCDCP Restrictive Declaration [D-21] applies to this lot). There are also several small vacant parcels interspersed among the existing developed residential areas.

Zoning - On-Site

The NYC Zoning Resolution is the City's official land use code. The relevant zoning map for the study area is shown in Attachment B, Figure 5 - Zoning Map. The Tallman Island WPCP site is entirely within an M2-1 district that covers the waterfront north of Powell's Cove Boulevard from 125th Street to 6th Avenue. M2-1 districts permit a wide range of industrial uses, occupying the level of performance standards between light industry (M1) and heavy industry (M3). M2-1 districts require off-street parking and have bulk regulations (floor area ratios [FAR] of 2.0). A maximum permitted height of 60 ft, before sky exposure plane setbacks, is permitted. Use Groups 6 through 14 and 16 through 17 are permitted as-of-right; community facilities and residences are prohibited. The existing use of the site is Use Group 18 (sewage treatment), which is permitted as a non-conforming use predating the existing zoning.

The site also falls within the Waterfront Area designations of the Zoning Resolution (ZR Article VI Ch 2); however, as a Use Group 18 in a manufacturing district, the site is exempt from: waterfront public access provisions (ZR VI.2.62-41); visual corridor provisions (ZR VI.2.62-42); screening requirements for parking and loading facilities (ZR VI.2.62-554 and 62-561); special yard regulations (ZR VI.2.62-34); and, related City Planning certification (ZR VI.2.62-71). However, access is provided to the waterfront by and through NYDEP property.

Zoning - Off-Site

Most of the off-site study area is zoned R3-2, although part of a R4 district exists at its western edge. R3-2 districts are the least dense residential zones in which multiple dwellings are allowed, permitting garden apartments and row houses. The R3-2 is extensive in Queens and provides a flexible development envelope with a maximum FAR of 0.5, although this can be increased 20 percent under certain conditions (ZR II.3.23-141(b)). Off-street parking is required. All community facilities are permitted in this zone. R4 districts are similar to R3-2 but with a 50 percent increase in permitted bulk, with densities of about 35 units per acre. R4 districts are present elsewhere in College Point and the adjacent neighborhood of Whitestone.

Public Policy – Waterfront Revitalization Program

The Tallman Island site is located within the coastal zone boundary of New York City where the Local Waterfront Revitalization Program (LWRP) applies. This program includes a set of policy statements that address the waterfront's important resources. For details, see Subsection K and Attachment C (see also Figure 14 of Attachment B).

Public Policy - Community District Needs Statements

In the Queens Community District Needs Statements for Fiscal Years (FY) 1997-2000, there is no specific discussion of the site and the study area (NYCDEP 1996, 1997, 1998). The FY2005 Statement (p.161) notes the need to implement the recommendations of the College Point Traffic Study and the Urban Renewal Area (associated with the College Point Industrial Park and former Flushing Airport, about one mile south of the site), in particular, citing needed improvements to the southbound service road of the Whitestone Expressway. An initial interview conducted with the District Manager of CB7 (Bitterman, 2000) elicited a concern to keep truck traffic from the recently reopened 11th Avenue, and a general concern regarding the prospective volume of trucks that would be using 127th Street to access the site. Subsequent to that meeting, a telephone follow up (Bitterman, 2004) reported that there have been no recent issues associated with the WPCP. A detailed discussion of potential traffic impacts during construction of the proposed action is provided in Subsection O, Traffic and Parking.

A.2 Future Without the Proposed Action

On-Site

If the proposed action is not undertaken, NYCDEP would continue to operate the Tallman Island WPCP at the current permitted daily dry weather capacity of 80 MGD. The Tallman Island site would remain much as it presently exists, with all existing operations continuing. Because no on-site work would be undertaken, there would be no changes to existing land use, zoning, or public policy planning. However, there would be a risk of suspended facility operation should a failure in the main sewage pumps and/or engine drive unit occur a failure to meet permit wastewater discharge requirements, SPDES, could possibly occur should the proposed action not be implemented.

Off-Site - Future Development Projects

NYCDCP has a comprehensive rezoning study for College Point that may have the potential for adoption in 2006. (J. LeChance, December 2004). The proposed rezoning is generally directed to slightly lowering potential development to a more contextual character (i.e., from R4 to R4A and R3 to R3A), however, there is also the likelihood that the portion of the manufacturing district (M2-1) to the west of the WPCP (College Point Yacht Club) may be amended to a C-3A or R4 district, permitting residential or mixed commercial/residential uses. Further to the west at 121st Street, an existing residential project, Riverview condominiums, has a certified proposal to construct an additional 225 units and is beginning its ULURP review (F. Lee, January 2005). Given that the great majority of the study area has little open space remaining for new development, land use conditions in the study area (and the surrounding vicinity) are expected to remain essentially as described under existing conditions.

A.3 Future With the Proposed Action

The first contract of the proposed action – the EMS Pumping Systems - would be installed within the present boundary of the WPCP. The actions are consistent with present on-site uses, and therefore no impacts on land use and zoning would occur. The subsequent activities of the proposed action would involve the upgrading of the above-ground water pollution control technology and provision for a temporary office for the Resident Engineer. These primary above ground elements would include:

- A new RAS Pumping Station and Blower Building.
- A new 27 kV transformer/substation.
- A new Centrate Pumping Station.
- Three small electric substations to serve east, west and northern sections of the plant.
- A reconfiguration of parking, roadways and new landscaping near the main gate and along the central roadway.

The new 27 kV transformer/substation would be located near existing Con Edison lines on Powell's Cove Boulevard. This building is proposed for construction to the west of the existing entrance, in the area that serves as NYCDEP-maintained open space. Approximately 0.25 acres of the 2.75 total acres would be needed. Public access to the waterfront along the western perimeter of the site and to the pier would remain and the new facilities would not encumber views to the water.

The land use characteristics of the surrounding area would be unaffected by the proposed action. The basic land use classification of the site would remain unchanged and the site would not be perceived as significantly different from the public view. The design of the new substation near the plant's entrance would be contextual with the WPCP footprint and would require approval from the New York City Municipal Art Commission. It would not obstruct nearby residents' views (along Powell's Cove Boulevard) of the East River. The continued use of the site's waterfront potential for water pollution control purposes is also consistent with NYS and NYC Waterfront Revitalization Policies. Therefore, there is no potential for significant adverse land use, zoning or public policy impacts.

B. Socioeconomic Conditions

B.1 Existing Conditions

The Tallman Island WPCP site is part of Queens Census Tract 939, which covers much of the surrounding study area. Tract 945, adjacent to the site on the south, extends to the east side of Powell's Cove to the Whitestone Bridge. In addition, a portion of Tract 947 is part of the quarter-mile land use

study area. These three tracts are the study area for potential impacts on socioeconomic characteristics associated with the proposed action. Data from these census tracts are also compared to the larger socioeconomic contexts of Queens County and the City of New York. Attachment B, Figure 6 - Census Tracts presents the boundaries of the census tracts. Detailed demographic and economic data are provided in Attachment F of this EAS.

B.2 Future Without the Proposed Action

Under the future no action condition, the existing socioeconomic conditions within the study area are not anticipated to change in any substantial way. The number of employees and the site operations would remain the same as under the existing condition. No off-site developments would be expected to significantly alter socioeconomic conditions.

B.3 Future With the Proposed Action

Construction of the proposed action would create some local positive economic effects. The value of the proposed action contract is approximately \$207 million. This work would be conducted over approximately four years. The maximum number of construction workers at the site would be about 160. Suppliers of materials and contractors would benefit financially from the sale of goods and services. Local businesses would also likely see short-term economic benefits during construction.

The proposed action would not promote or induce population changes of the WPCP's service area that would result in additional use of the existing infrastructure. The cost of the proposed action would not result in an increase in water/sewer rates for ratepayers in the Tallman Island WPCP service area since rates are determined on a city-wide basis. The proposed action would not displace any residents, businesses, add substantial new development, or change socioeconomic conditions in the neighborhood. When fully operable, the proposed action would not require additional on-site personnel. The workers currently working at the site would continue to be employed there while the new facilities are being constructed. Thus, the action would not have a long-term measurable effect on employment, earnings, and tax revenues. Therefore, based on the CEQR thresholds, a detailed socioeconomic analysis of the proposed action is not warranted. Therefore, there is no potential for significant adverse socioeconomic impacts.

C. Community Facilities

Under CEQR protocols, the typical study area for review of community facilities and services is a one-quarter mile radius of the project site. However, aside from the Tallman Island WPCP itself, few other community facilities are located within the study area; therefore, other selected facilities located outside of the study area are also identified.

C.1 Existing Conditions

The Tallman Island WPCP is located within Queens Community Board (CB) 7. The office for CB 7 is located on 45-35 Kissena Boulevard, approximately three miles south of the site.

Schools and Libraries

One public school is located within the study area - PS 129 (Patricia A. Larkin School), an elementary school with an enrollment of 772 in October of the 2002-03 school year, (NYC 2004). The school

occupies the blocks between 7th and 9th Avenues and 128th and 129th streets, about three blocks south of the site, as shown in Attachment B- Figure 4 General Land Use Map.

Two public middle schools are located to the east of the Whitestone Expressway outside the study area:

- Junior High School 185 (E. Bleeker), about 1.5 miles to the southeast of the Tallman Island WPCP at 147-26 25 Drive (enrollment of 875 students).
- Junior High School 194 (W.H. Carr) at 154-60 17th Avenue, about two miles southeast of the Tallman Island WPCP (enrollment of 896 students).

The public high school serving residents in the vicinity of the Tallman Island WPCP is Flushing High School with 2,713 students. It is located at 35-01 Union Street, about two miles south of the Tallman Island WPCP site.

There are no private or parochial schools within the study area; however, there are several in the wider College Point community:

- St. Paul's Episcopal School, located at 1321 College Point Boulevard, approximately 0.3 miles west of the Tallman Island WPCP site (approximate enrollment of 80 elementary students).
- St. Agnes Academy High School, located at 13-20 124th Street, approximately 0.5 miles south of the site (enrollment of 432 students).
- Holy Trinity School, located at 14-51 143rd Street, approximately 0.7 miles southeast of the site (enrollment of approximately 175 elementary students).
- St. Fidelis School, located at 124-06 14th Avenue, approximately 0.75 miles southwest of the site (enrollment of 423 elementary students).
- St. John Lutheran School at 123-07 22nd Avenue located approximately one mile south of the site (enrollment of 66 elementary students).

The library in the College Point neighborhood is the Queensborough Public Library, Poppenhausen Branch, located at 121-23 14th Avenue, about 0.6 miles southwest of the Tallman Island WPCP site. This library has an annual circulation of 109,280 (NYC, 1999).

Health Care and Day Care Facilities

There are no hospitals within the study area or the College Point neighborhood. The nearest hospitals are located approximately three miles south of the Tallman Island WPCP, and include the New York Hospital Medical Center of Queens (457 beds); Flushing Hospital and Medical Center (250 beds); and, Flushing Hospital North Division (100 beds).

There are no known day care facilities within the study area.

Police and Fire

The Tallman Island WPCP site is within the jurisdiction of the New York City Police Department's (NYPD) 109th Precinct. The precinct police station is located at 37-05 Union Street in Flushing, approximately two miles south of the site. Harbor "George," a NYPD harbor unit facility, is located at 14th Avenue and College Point Boulevard, about 0.9 miles southwest of the Tallman Island WPCP site.

No fire stations are located within the study area. The nearest City fire department facility is Engine Company 297 and Ladder 130, located at 119-11 14th Road, about 0.75 miles southwest of the site.

Parks and Recreational Facilities

There is one NYCDPR park within the study area. Powell's Cove Park, located about three blocks south of the Tallman Island WPCP, is approximately seven acres in size and includes a playground. Powell's Cove Park is undergoing enhancement at the water's edge to create a salt marsh along the southern and western edge of Powell's Cove. An open space area, approximately 2.75 acres in size, exists immediately west of the operating Tallman Island WPCP, with an access gate opposite 127th Street. This land is owned and maintained by NYCDEP and provides public access to the waterfront of Inlet Cove and around the WPCP to the pier that extends into the East River.

Other parks and recreational facilities in the College Point area include:

- Herman A. MacNeil Park (28.87 acres) located about 0.5 miles west of the site.
- Poppenhausen Park (0.05 acres) located at 122nd Street and College Place, about 0.5 miles southwest of the site.
- Poppenhausen Playground (1.14 acres) located at 20th Avenue and 123rd Street, about 0.9 miles south-southwest of the site.
- Frank Golden Memorial Park (11.12 acres) located at 132nd Street and 14th Road, about 0.5 miles south-southeast of the site.

C.2 Future Without the Proposed Action

No impacts to community facilities would occur under the future without the proposed action. The site and the study area would continue to be served in the same manner by the local hospitals, police, and fire facilities. Park and recreational facilities would continue to be used and enjoyed in the same way by the public.

C.3 Future With the Proposed Action

The proposed action would have no significant adverse impacts on community facilities within the study area. As a non-residential facility, there would be no impacts on schools, libraries, and parks and it is anticipated that there would be no increase in personnel at the Tallman Island WPCP. Thus, there would be no increased demand placed on other community facilities and services, such as police, fire, and health care.

The implementation of the proposed action would result in the permanent removal of approximately 0.25 acres from the NYCDEP-owned open space to the west of the Tallman Island WPCP. The removal of this land from public access to construct the electric substation would have minimal impact on the public's current enjoyment of this property. The use of this NYCDEP-owned property for infrastructure improvements would not have a potential for significant adverse impact on the community's open space resources. This issue is further discussed in Subsection D, Open Space.

According to the *CEQR Technical Manual*, actions that add more than 100 residential units to an area generally require detailed analysis for impacts on community facilities; moreover, the demand for community services generally stems from the introduction of new residents to an area as typically associated with residential projects. The proposed action being non-residential, and with no anticipated long-term increase in site workers does not approach the CEQR threshold for a detailed analysis. Therefore, there is no potential for significant adverse impacts on community facilities.

D. Open Space

Open space, as defined under CEQR, includes all publicly or privately owned land that is publicly accessible and has been designated for leisure, play or recreation, or has been set aside for enhancement of the natural environment. Analysis of the potential impacts of a proposed action on existing open spaces is intended to identify whether the proposed action would have an adverse effect on such area, either through direct impact (elimination or alteration of the open space) or indirect impact (overuse of the open space).

D.1 Existing Conditions

A majority of the land in the immediate vicinity of the site is fully developed residential housing, with some small commercial properties. The study area for the review of potential impacts on existing open space resources includes all open spaces within a one-half mile radius of the Tallman Island WPCP. A review of existing United States Geologic Service (USGS) mapping and field reconnaissance within the study area identified six open space areas, including the 2.75 acre lawn turf area on site. Figure 7 - Open Space (Attachment B) presents the study area and the locations of the open space areas in relation to the Tallman Island WPCP. Table 2-1 presents a tabulation of the pertinent characteristics of these existing open spaces, including location, approximate acreage, observed uses, and existing facilities.

Table 2-1
Open Spaces
Within Study Area ⁽¹⁾

Key ⁽²⁾	Location ⁽²⁾	Approximate Total Acreage	Observed Usage	Existing Facilities
1	Open Space West of WPCP Site	2.75 acres owned by NYCDEP	Passive (Strolling, Fishing, Picnicking, etc.)	Lawn/turf with paved walking trails, lighting along walkways, benches, bulkhead along East River waterfront
2	Waterfront Bulkhead and Pier Adjacent to WPCP Site	less than 1 acre	Passive (Strolling, Fishing)	Paved walkway along East River waterfront and decked pier
3	Private Marina (College Point Yacht Club) West of WPCP Site	4 acres	Passive (Strolling, Fishing) Marina-Related Activities	Dry land and dock storage for approximately 100 recreational boats
4	Powell's Cove Park	7 acres above water (plus 17.3 acres of marshland)	Passive (Strolling, Fishing, Picnicking, etc.) and Active (Playground)	Lawn/turf with walkways along Powell's Cove, playground equipment, enhancement of saltmarsh along shore (planned)
5	Herman A. MacNeil Park	29 acres	Passive (Strolling, Fishing, Picnicking, etc.) and Active (Jogging, Skating, Ball-Playing, etc.)	Lawn/turf with paved walking trails, lighting along walkways, benches, bulkhead along East River waterfront, maintained athletic fields and playground
6	Grounds of Public School 129	2 acres	Active (Ball-Playing, Skating)	Fully paved playground and athletic courts
Notes: ⁽¹⁾ Study Area includes all areas within ½ miles of Tallman Island WPCP site and/or adjacent to anticipated construction traffic route (Attachment B, Figure 12). ⁽²⁾ Attachment B, Figure 7 - Open Space.				

D.2 Future Without the Proposed Action

It is anticipated that the existing open spaces described in Subsection D.1 would continue to be maintained in their current condition, with the exception of Powell's Cove Park, where the NYCDPR is implementing enhancements to create a salt marsh along the southern and western edge of Powell's Cove, and the Waterfront Bulkhead and Pier adjacent to the Tallman Island WPCP, where NYCDEP is currently reconstructing dock sections 1 and 2 (estimated completion date is July 31, 2006). Public use and enjoyment of the existing open spaces would continue in a similar manner as presently occurs, under the future without the proposed action condition.

D.3 Future With the Proposed Action

The implementation of the proposed project would result in the permanent removal of approximately 0.25 acres from the NYCDEP-owned open space to the west of the Tallman Island WPCP. No other existing open space resource in the study area would be affected. This area is close to the preliminary settling tanks and furthest from the water's edge, and has little in the way of amenity other than grass and an asphalt path. The removal of this land from public access to construct the electric substation would have minimal impact on the public's enjoyment of this property: it would not affect the earth mound (further to the northwest) and its vantage point for viewing, nor would it affect the public access to the waterfront and the pier.

The loss of access to this 0.25-acre parcel would represent about 0.5 percent of the existing open space in the area (45.75 acres) within one-half mile of the site. The three census tracts comprising the socioeconomic study area (tracts 939, 947 and 945) had a combined 2000 population of 10,042 (Figure 6 of Attachment B). Nonetheless, the ratio of open space to this population is 4.6 acres per 1,000 people, well in excess of the city's planning goal of 2.5 acres per 1,000 people. At this time, the use of this NYCDEP property for infrastructure improvements would not have a significant adverse impact on local open space resources.

The proposed project would not induce population growth within the study area that could overtax existing open spaces. The open space-related impacts of the completed project would not be significant or require additional and detailed open space assessment of long-term impacts. Therefore, there is no potential for significant adverse open space impacts.

E. Shadows

E.1 Existing Conditions

The Tallman Island WPCP is located on the southern shoreline of the eastern portion of the East River. Most existing on-site structures are less than 50 feet tall, and therefore, shadows from these existing buildings fall predominantly within the site (based on a maximum shadow distance equal to 4.3 times the structure height, excluding periods within 1-½ hours of sunrise or sunset). The shadows from the largest on-site structure, the Pump and Blower Building, generally fall within the boundaries of the existing site. Shadows from the Dewatering Building fall along the adjacent northern shoreline of the East River; however, the extent of these shadows is very limited in relation to the area size of the adjacent water body.

E.2 Future Without the Proposed Action

Without the proposed action, no other substantive modifications to existing on-site buildings would occur, and existing shadow conditions would not change.

E.3 Future With the Proposed Action

The EMS Pumping System Project would include the construction of a ground-level platform on which the pumps would be installed; aboveground at-grade piping would also be installed. Equipment would also be installed within the Pump and Blower Building – a structure that already exists on the site. Two new diesel generators to provide power for the EMS Pumping System would reach a height of approximately 15 ft. Given the relatively low height and bulk of these new generators, the shadows cast would be short and fall on existing built-up area. Therefore, there would be no significant shadow impacts from this part of the proposed action.

The proposed action also includes the replacement of the existing digester and gasholder roofs. However, the replacement structures would generally match the heights of the existing structures and therefore, not cast any new or additional shadows.

The major above-grade new structures to be constructed as part of the proposed action include the new RAS/Blower Building, the new 27 kV Substation building near the main gate, and three new substations around the Tallman Island WPCP. These proposed structures are approximately three stories or less and therefore, their shadow impacts would be minimal. The entrance to the new Centrate Pump Building would be seven ft above grade and would have minimal shadow impacts.

Figure 8A - Proposed Action New Shadows (Attachment B) depicts the estimated maximum shadow length of the proposed new structures, based on CEQR methodology indicating shadows 1.5 hours after sunrise and 1.5 hours before sunset, and excluding areas south of the structures on which shadows do not occur due to the sun's inclination. As shown on Figure 8A, the new structures would result in new morning shadows falling on a portion of the open space area to the west of the Tallman Island WPCP and on Powell's Cove Boulevard. Figures 8B, 8C, 8D and 8E show the potential for morning shadows on this affected open space on March 21, May 6, June 21 and December 21, respectively. The western elevation of the 27 kV Substation reaches approximately 23 feet and the early-morning winter shadow could extend as much as 93 feet from the structure into the open space area. The affected area would be east of the access gate to the open space opposite 127th Street, in a grassy area of this open space. The shadows would not affect the earth mound to the west that offers a view of the East River and Inlet Cove, or the waterfront of Inlet Cove and the East River. Shadows would exit the area by 11:45 am (duration 2 hours, 54 minutes) during the worst-case December 21 period.

As noted, new shadows are anticipated on the open space to the west of the WPCP. These shadows are associated with the new 27 kV Substation, which must be located in immediate proximity to the Con Edison power lines feeding the plant from Powell's Cove Boulevard. The shadow impacts would be of relatively short duration during the morning and affect only a small portion of the publicly accessible open space. Such short-term and limited impacts are not considered significantly adverse on this resource or on the usability of this open space, the major features of which would be unaffected. Therefore, there is no potential for significant adverse impacts related to shadows.

F. Historic Resources

CEQR requires New York City agencies to identify archaeological resources and designated or eligible New York City Landmarks and districts (more than 30 years old) and State or National Register-listed or eligible historic resources (more than 50 years old) within the project area established for the EAS. In 2000, the New York State Historic Preservation Office (NYSHPO) and New York City Landmarks Preservation Commission (NYCLPC) requested information on potential archaeological and historic architectural resources at Tallman Island WPCP in response to notification about the proposed action from TAMS Consultants, Inc. in March of 2000 (Attachment D - New York City and National Register Eligibility Assessment). New York City Landmarks Law Criteria, National Register Criteria for Historic Significance, and the seven aspects of historic integrity as defined by the National Register are reviewed as part of this EAS. A complete New York City and National Register Eligibility Assessment of the Tallman Island WPCP for the Tallman Island PUP is contained in Attachment D and has been submitted to NYCLPC and NYSHPO for review.

F.1 Existing Conditions

Prehistoric and Historic Background

Prehistoric and Early Historic Period

The coastline of Queens first attracted settlement several thousand years ago, as warming temperatures and rising sea levels following the retreat of the Wisconsin glacier gradually transformed the area's environment. Since the late 1800s and early 1900s, collectors, avocational archaeologists, and professional archaeologists have documented numerous prehistoric sites along Queens' coastline. The presence of large quantities of shellfish remains and hunting tools attest to the range of food resources available in the area. These sites likely date to the Archaic (ca. 10,000-3,000 years before present [BP]) and Woodland (ca. 3,000-500 BP) Periods, although possible Contact Period (500-200 BP) sites have also been reported (Panamerican Consultants, Inc., 2003). Prior to European settlement, the Matinecock Indians inhabited the general area and occupied a village in Flushing.

In 1645, Dutch New Netherlands Governor Willem Kieft 'purchased' 17,000 wooded acres of Long Island from the Matinecock, including the area around Flushing Bay in the town of Flushing, one of the five towns established by the Dutch in Queens. The purchase included Tallman Island, most likely named for the Tallman family, who relocated from Rhode Island to the town of Flushing in the mid-1600s (www.skep.com/genealogy/PDFs/vtallman.pdf, accessed January 13, 2005).

William Lawrence, whose family hailed from England, was among the Dutch and English settlers to whom Kieft granted parcels to in the Town of Flushing. Lawrence obtained 900 acres in the area that was then known as Tues Neck, near Tallman Island. During the American Revolution, the Lawrence family, like other Queens inhabitants, was subjected to depredations by occupying British and Hessian troops. Furthermore, Hessian soldiers were quartered on Tallman Island "where they could be in a good position to intercept supplies being ferried out of Powell's Cove to George Washington's army at White Plains" (Panamerican Consultants, Inc., 2003; Hecht, 1976). According to a 1777 British map, three brigades were situated along the north shore of Queens, east of present-day College Point. The westernmost location was south of Powell's Cove, the body of water east of Tallman Island (Panamerican Consultants, Inc., 2003).

Because of losses suffered during the Revolutionary War, the Lawrences sold a 320-acre tract of land to Eliphalet Stratton in 1789. The tract was located at Tues Neck, south of Tallman Island, and eventually

came to be known as Strattonport (www.Newsday.com accessed December 30, 2004). Stewart's 1795 map of Flushing illustrates the Strattonport area, and depicts a building and flag in a position corresponding to either Tallman Island or the northern tip of College Point, the community described below. These symbols could represent the Lawrence house or a military installation on Tallman Island, but research could not confirm the exact location of the building and flag (Panamerican Consultants, Inc., 2003).

Establishment of College Point, 19th Century

In 1835, Reverend William Augustus Muhlenberg established Saint Paul's College, an Episcopal seminary, on a point of coastal land immediately west of Tallman Island. Although the seminary was open for little more than a decade, the area came to be known as College Point. During the early 19th century, College Point was dotted with farms, orchards, and undeveloped salt marsh. The location was touted as "one of great beauty," valued "for health, convenience, prospect, and seclusion." (Muhlenberg, 1838).

College Point was transformed in the 1850s when a German immigrant named Conrad Poppenhusen settled in the area and established a factory for vulcanized rubber products, an innovation that replaced whalebone in a growing number of applications. Capitalizing on the decline of the whaling industry, Poppenhusen's factory in College Point was successful and attracted hundreds of immigrant workers. He created a model community with schools, a library, roads, water and sewage systems, and a railroad. Rubber factories proliferated in College Point, which became the "rubber capital of the Northeast" (www.Newsday.com accessed December 30, 2004).

During the 19th century, historic maps indicate that Tallman Island was a landmass separated from the mainland by a marsh with a narrow creek running through it. According to the 1853 Harrison atlas, the landmass was named "Tallmans Island." A road and causeway lead to the island, which was improved with a small wharf, a masonry structure and two smaller frame structures on its northwest tip (Harrison, 1853). The map depicts a large swath of marsh between the island and the mainland, with a narrow creek, known as Morris Creek, running through it (Panamerican Consultants, Inc., 2003). The marsh area partially coincides with the present-day park area located on the west side of WPCP.

An 1859 Walling map of College Point depicts the same structures, northwest wharf and roads on Tallman Island, and shows the island as still separated from the mainland by a marsh area. On the 1859 map, island improvements are attributed to Mrs. Van Wyck, a possible relation to the Dutch family who settled in Brooklyn during the mid-1600s (www.carman.net/van_wyck_family.htm accessed January 13, 2005). In 1859, the island was still accessed via the causeway depicted in the 1853 map (Walling, 1859).

An 1873 Beers map shows structures in roughly the same locations as the earlier maps, now attributed to "A. Morris." The island shape conforms to proportions reflected on 1930s maps of the island, reflecting a roughly triangular shape with the landmass separated from the mainland by Morris Creek. The 1873 map also depicts a proposed road network on the island, including an east-west alignment at the southern end of the island labeled 'Avenue H,' and a north-south alignment forming a horseshoe curve at the northern end of the island (Beers, 1873). No evidence has been recovered to indicate that these roads were constructed.

Tallman Island as a Summer Resort, Late 1800s-1920s

Topographical maps produced in the 1890s by the US Geological Survey (USGS) and Wolverton depict Tallman Island similar in shape and size to the 1873 map with marshland fed by Morris Creek still

separating the island from the mainland. Buildings and structures on the map are attributed to H. Funke, and a structure labeled “Point View,” a resort most likely established in the 1880s, is also documented on the island. Furthermore, a pier has been constructed on the north side of the island, north of the structures depicted on earlier maps. Access to island was gained via causeway depicted in the 1853 map. A portion of present-day Lax Avenue appears to be in the former location of this 19th century causeway (Wolverton, 1891; USGS, 1891).

At the turn of the 20th century, Tallman Island became a resort for summer excursionists, known as Witzel’s Point or Point View Island, owned by Joseph Witzel (Panamerican Consultants, Inc., 2003). The 1891 USGS map shows structures associated with the resort, including a new pier at the northern tip of the island. A 1916 Sanborn map depicts the resort in detail, indicating that the causeway over the creek still remained in the same location as the 1850s. The resort structures were clustered in the northwest portion of the island in roughly the same location as those depicted on 19th century maps. The 1916 map depicts a jetty-type structure in the former location of the wharf shown on the northwest corner of the island in 19th century maps. Structures depicted on the 1850s maps were apparently demolished when the resort was established. On the 1916 map, multiple structures were located east of the causeway on the northern portion of the island. These included a large dining pavilion with a water tank on a trestle at the northwest corner of the structure, an ice house, and a kitchen with pantry attached on its east facade. East of the dining pavilion was a bowling alley. To the north, there was a dwelling and bar rooms, a dance pavilion, a rifle range, and a small photo studio. Several smaller service buildings were located west of the causeway, including two wagon houses, a shed, and a coop. A pier and bathhouse were located at the northern tip of the island (Sanborn, 1916).

Around 1920, a breakwater was constructed immediately south of the eastern outlet of Morris Creek where it flowed into Powell’s Cove, east of Tallman Island. This feature was probably associated with a boat club located east of 129th Street in the vicinity of present day 6th Avenue (Panamerican Consultants, Inc., 2003). A 1924 aerial view also shows the breakwater, as well as a small area of landfill just west of it, along the eastern edge of the marsh south of Morris Creek. A strip of fill also appears to connect the western side of Tallman Island with the mainland west of the causeway by 1924, suggesting that the western outlet of Morris Creek was blocked or relegated to a small channel or culvert. The landfill blocking the western outlet of Morris Creek, coupled with the construction of the breakwater near the eastern outlet, resulted in the stagnation of the southern portion of the marsh between Tallman Island and the mainland and may have induced growth of phragmites. The area between Tallman Island and Morris Creek appears to have evolved in a different manner than its southern counterpart. The 1924 aerial photograph indicates that the marsh area was divided by channels, and may have been used for salt hay farming (Panamerican Consultants, Inc., 2003; Fairchild, 1924).

Tallman Island Converted to Sewage Treatment Plant, 1930s

By the 1930s, the rubber industry in College Point was on the decline and many rubber factories closed because of the advent of the plastics industry, impact of the economic downturn caused by the Stock Market crash of 1929, and ensuing Great Depression (www.Newsday.com accessed December 30, 2004). However, development did not flag in College Point. During the 1930s, the New York City government, under the leadership of Mayor Fiorello LaGuardia, embarked on a wastewater treatment plant construction program to build a system of facilities City-wide that would provide biological treatment of sewage.

The Tallman Island WPCP was constructed between 1937-39 according to designs prepared by the New York City Department of Sanitation (NYCDOS), Bureau of Sewage Disposal and Intercepting Sewers. It was built on the sparsely developed island in College Point, Queens, and was the first sewage treatment

plant in Queens and the third sewage treatment plant erected in New York City (NYCDEP, c. 1998). Plant construction required filling of the island on its north and east sides, and construction of an access road atop former marshland on its south side. As initially conceived, the plant had the capacity to treat 40 MGD of sewage. It was also designed to facilitate future expansion as the population along the north shore of Queens grew throughout the 20th century (Anonymous, April 23, 1939).

The Tallman Island plant was completed and dedicated by Mayor Fiorello LaGuardia in April 1939, in time to treat the sewage flow from the 1939 World's Fair located southwest of the site in Flushing Meadows Park (Anonymous, April 23, 1939).

The \$3.8 million plant originally consisted of ten major facilities (known as the East Battery) (New York Times, April 23, 1939). Sanborn maps (1943) indicate that the complex originally included:

- Pump and Blower Building.
- Pumping Station.
- Preliminary Settling Tank Nos. 1-3.
- Aeration Tank Nos. 1-2.
- Final Settling Tank Nos. 1-4.
- Four Digester Tanks.
- Two Sludge Thickener Tanks.
- Two Sludge Storage Tanks.
- Grit Tank House.
- Pier.

The principal building on the site, the Pump and Blower Building, was a buff-colored brick building with Art Modern details. The high-bay building was originally pierced by industrial steel casement windows and contained eight gas-powered engines that powered the machinery for the sewage treatment process. Other original features included the Pumping Station and various tanks including Art Deco-style Sludge Digestion Tanks, Preliminary Settling Tank Nos. 1-3, Aeration Tank Nos. 1-2, Final Settling Tank Nos. 1-4, Sludge Thickener Tanks, Sludge Storage Tanks and a Grit Tank House. A wood pier on wood piles was located at the northwestern edge of the property in the original location of the recreational pier from the island's prior recreational use. The pier facilitated removal of sludge from the plant via scows.

The Tallman Island complex processed sewage via the activated sludge process and was the first plant in New York City and the US to apply the step aeration process rather than plug flow (Sawyer, 1965). In the activated sludge process, microorganisms break down sludge by using it as a food source in an aeration tank. Oxygen and nutrients are required by microorganisms to break down the sludge. The conventional activated sludge process - plug flow - is where fluid particles pass through the aeration tanks and are discharged in the same order they enter.

At Tallman Island WPCP, New York City sanitary engineer Richard H. Gould developed the step aeration process to overcome some of the problems inherent in the conventional activated sludge process and conserve aeration tank capacity. Gould's design is based on a system of multi-pass aeration tanks with four channels (such as Aeration Tank Nos. 1-2). The first pass is reserved for reaeration of returned sludge to regenerate its absorptive properties. Sewage is then added in incremental steps to the aeration tanks along the course of flow of the returned sludge to keep the oxygen demand at uniform levels. Step aeration capitalizes on the absorptive power of rejuvenated activated sludge to remove organic pollutants, with stabilization occurring in the sludge reaeration tank. The primary advantages of step aeration are that it allows for more flexibility in operation, produces well-settled sludge and saves tank volume (Sawyer, 1965).

Plant Upgrades, 1950s-90s

From the 1950s to the 1990s, the Tallman Island WPCP was upgraded multiple times. In 1959, the South Sludge Thickeners were placed in service, and in the early 1960s, chlorination facilities were constructed at the northern tip of the complex to disinfect the treated effluent during bathing season. In 1964, the West Battery was placed in service. The battery consisted of two preliminary, one aeration, and two final settling final tanks. Other major work included revising the flow pattern for the East Battery and upgrading the plant to allow it to treat sewage via modified aeration during emergencies (NYCDEP, 1978).

In 1969, Tallman Island underwent a second major upgrade (NYCDEP, 1978). Completed in 1970, the upgrade increased the capacity of the plant to 80 MGD, capable of treating sewage of 17,400 acres of the northeast section of Queens. The upgrade consisted of constructing additions to the Pump and Blower Building and Storage Building; building a grit facility, North Sludge Thickeners, pumping station and sludge storage tank in the East Battery; and preliminary settling, aeration, final settling, and chlorine tanks in the West Battery. During this improvement campaign, major changes were made to the Pump and Blower Building and Storage Building that compromised their historic character, including installation of modern glazing and additions. Within the past twenty years, the original Grit Tank House in the East Battery has also been altered by the conversion of the facility into Collections Systems North.

Upgrade plans indicate that the park on the west side of the island, documented on the 1943 Sanborn map, was also slated for improvement as part of construction campaign. According to landscape plans, the park would be reduced in size to accommodate new West Battery structures that were to be built west of those constructed in the early 1960s. Asphalt-paved paths were constructed for pedestrians. In addition, a concrete bulkhead was constructed along the northwest portion of Tallman Island that eliminated some of the irregular coastline on the west side of the island. A jetty that extended from the northwest corner of the island was compromised, but remained slightly intact outside, or west of, the newly bulkheaded area. A small portion of the park's coastline was unimproved and retained its irregular shape. A paved path that extended northwest from northernmost tip of the figure-eight-shaped park path provided access to the bulkheaded north and west perimeter of the island (CDM, August 1970).

According to plans and construction photos, topography within the reconfigured park was formed from excavated construction spoils. (Affiliated Photo Services, March 20, 1974; NYCDEP, February 1976). Upon completion, the northern portion of the park received more fill than the southern portion, resulting in a gently undulating landscape. In addition, electrical systems and water pipes were laid in the park area, resulting in the installation of lampposts and hydrants in the park. Furthermore, rip-rap and chunks of concrete remained in the unimproved portion of the park along the cove.

In 1991, a large concrete-panel and glass Dewatering Building was added to the facility, southwest of the pier in the West Battery. At that time, the pier was deactivated and dewatered sludge, or sludge cake, began to be transported from the site via truck. Chlorinated effluent continues to be discharged into the East River.

During the mid-1990s, the NYCDEP began to retrofit many of its water pollution control plants for biological nutrient removal (BNR) in an effort to mitigate degradation of surface waters and protect aquatic resources in compliance with federal water pollution control standards. In NYC, Tallman Island was one of the first plants to be retrofitted for step feed BNR. At that time, baffles, mixers and a froth control system was installed in Aeration Tank Nos. 3 and 4 with minor upgrades to Aeration Tank Nos. 1 and 2 (NYCDEP, 1998).

Currently, the Tallman Island WPCP is one of fourteen water pollution control plants in New York City constructed between 1935-87. Of the 14 plants, Tallman Island was the first to incorporate the step aeration process for treating wastewater. With the exception of Newtown Creek, which is currently being upgraded for step aeration, the remaining 13, including Tallman Island, process wastewater via step aeration (Olivieri, June 19, 2000).

As noted in Chapters 1 and 2, the purpose of the project is to provide more efficient and reliable wastewater treatment for this area of New York City. The proposed action would remedy major plant deficiencies to allow the plant to continue to meet its SPDES permit, to improve operations, and to maximize treatment plant flow rates. Equally important, the program would identify and remedy safety and health issues, and evaluate and upgrade the plant's infrastructure to support all systems and functions. Therefore, although the proposed Project would have effects on architectural resources, these actions are essential to meet the project's critical objectives.

Historic Resources

Portions of the 1939 East Battery at the Tallman Island WPCP appear to be New York City Landmark and National Register-eligible resources under Criteria A and C for their historic and engineering importance. As previously noted, Tallman Island was the first plant in the US designed by New York City sanitary engineer Richard H. Gould to treat sewage using the step aeration process.

Nine of the ten structures originally within the East Battery survived from 1939 and are over 50 years old. The Sludge Thickening Tanks have been removed and were replaced by the Mixed Flow Pumping Station in 1970. Five of the nine surviving structures have been upgraded but retain adequate architectural integrity to contribute to the significance of the Tallman Island WPCP:

- Preliminary Settling Tank Nos. 1-3.
- Aeration Tank Nos. 1 and 2.
- Final Settling Tank Nos. 1-4.
- Four Digester Tanks.
- Two Sludge Storage Tanks.

Together, these resources were integral to the original operation of the Tallman Island WPCP, the first plant in New York City and the US to process sewage via the step feed aeration process.

Four resources constructed in 1938-39 have been altered and no longer retain adequate integrity to qualify for listing in the National Register of Historic Places:

- Preliminary Sludge Pumping Station.
- Pump and Blower Building.
- Pier.
- Former Grit Tank House.

All the remaining structures at the facility, constructed between 1957 and 1991, are less than fifty years old, and with one exception (the South Sludge Thickeners) do not possess exceptional significance to qualify for listing in the National Register. Although some of these structures are over 30 years old (New York City Landmarks Law criterion), they do not appear to be New York City Landmark-eligible because they are commonplace structures, representing the expansion of the Tallman Island facility over time.

The South Sludge Thickeners, constructed in 1957, appear to be New York City Landmark and National Register-eligible resources because of their Modern design as expressed through the brick and glass-block enclosed spiral staircase leading from the ground to the top of the four sludge thickening tanks. Figure 9 - New York City Landmark and National Register-Eligible Resources (Attachment B), shows the location of these on-site resources.

Archaeological Resources

A review of the site files of the NYCLPC and NYSHPO reveals that a number of previously identified archaeological resources are located in the vicinity of Tallman Island, one of which is located on Tallman Island. These sites are described below and indicated by site numbers corresponding to Boesch (1997) on Figure 10 (Attachment B), Known Archaeological Sites in Study Area Vicinity.

- Boesch Site No. 67 (NYSM Site No. 128) is known as the Tallman's Island Site. Reported by Schneider (1961), the exact location of the excavation on Tallman Island is not known. Material recovered from the site dated to the Archaic through Woodland periods.
- Boesch Site No. 68, also known the Powell's Cove Site, and filed with the Nassau County Museum (NCM) as Site No. 101, is located on the high ground near the western shore of Powell's Cove in the vicinity of 130th Street between 7th and 9th Avenues. The shoreline in this location consisted of marshland until it was filled in the 20th century. The site is categorized as a Contact-Period site in the NCM files.
- Boesch Site No. 31 (NCM Site No. 100, NYSHPO Site No. A08101.007355), also known as the Wilkins Site, is located in the vicinity of 142nd Street and 14th Avenue. Harrington (1909) noted a shell heap in this location. The Flushing Historical Society first excavated the site in 1939-40. During a 1950 excavation human burials and refuse pits were identified. The site dates to the Archaic through Woodland periods.
- Boesch Site No. 1 (NYSM Site No. 4527), known as the College Point Site, was described by Parker (1922) as "village and burial site at College Point on the E. Platt Stratton estate." Human skeletons were reportedly found at this location in 1861 when excavating for the foundations of Knickerbocker Hall (Panamerican Consultants, Inc., 2003).
- Boesch Site No. 30 (NCM Site No. 79, NYSHPO Site No. A081-01-0133), known as the Grantville Site, was excavated by M.C. Schreiner in the 1930s and later by Ralph Solecki. The site yielded more than 300 projectile points and other material. Solecki excavated at least one refuse pit containing Archaic and Woodland-period material. In the 1950s, artifacts were recovered on the beach below the Grantville bluffs, including stone tools and possibly a human skull (Panamerican Consultants, Inc., 2003).
- Boesch Site No. 18 (NYSM Site No. 4541) was noted by Parker in 1922 as containing "traces of occupation." Also noted by Beauchamp (1900) and Bolton (1934) as containing "frequent shell heaps and fishing camps" (Boesch, 1997).

A review of the site files also revealed that four archaeological studies have been conducted on or in the vicinity of Tallman Island. The earliest of these excavations was conducted by Ralph Solecki somewhere on Tallman Island in the late 1930s or early 1940s. Although the report has not been found and the location of the excavation is not known, a number of prehistoric artifacts were recovered that are now in the collections of the Poppenhusen Institute in College Point (Susan Brustman, pers. comm., January 12, 2005). In 1994, a study was completed entitled Supplemental Phase 1A Archaeological Documentary Research in Advance of Dockwork at Six NYC Water Pollution Control Plants. This assessment found that there were no archaeological concerns within the Tallman Island study area for the project due to extensive ground disturbance and landfill in the project location (Stone, 1994). Greenhouse Consultants completed an archaeological survey in the central and northern portions of Tallman Island in 1990 in

connection with water pollution control plant expansions. The excavation yielded no significant archaeological remains (Greenhouse Consultants, Inc., 1990).

In February 2003, Panamerican Consultants, under subcontract to the US Army Corps of Engineers, prepared Cultural Resources Baseline Study: Flushing Bay Ecosystem Restoration Project, Queens County, New York. This survey reviews previously identified archaeological sites and known site disturbances to create a sensitivity assessment for several locations in Queens County. The “Tallman’s Island/Powell’s Cove” area was found to have moderate subsurface potential for yielding prehistoric materials, and high potential for yielding historic materials. The report also notes that in addition to the archaeological sites catalogued in the area, Hecht characterized College Point as being sensitive for prehistoric remains, and reported generally that much prehistoric material had been recovered along the shoreline in the vicinity, including burial mounds found on Tallmans Island (Panamerican Consultants, Inc., 2003).

Although the Tallman Island WPCP site was clearly the location of extensive prehistoric and historic activity, intensive construction and earth moving activities since the 1930s have significantly impacted any archaeological remains once present at the site. These disturbances are documented in a series of aerial photographs taken both prior to and during the site’s two major upgrades and expansions, in 1964 and 1979. These disturbances include construction of the many aboveground tanks, buildings, roadways, and parking lots, land grading and filling, construction of a bulkhead along the coastline, and the construction of numerous underground utility lines and storage tanks. These photographs and a review of detailed infrastructure maps indicate that currently undeveloped portions of the site such as the parkland located on the southwest portion of the site have also been extensively disturbed. Underground utilities crossing this parkland area include electrical lines, gas lines, and water lines ranging from eight to 36 inches in diameter. The previous cultural resource investigation involving subsurface testing conducted on Tallman Island also documented extensive subsurface disturbance (Greenhouse Consultants, Inc., 1990).

F.2 Future Without the Proposed Action

CEQR provides specific criteria for assessing the effects of undertakings on historic properties and identifying significant adverse impacts. The effects of an undertaking on New York City Landmark and National Register-listed/eligible resources are predicted by evaluating the significant characteristics of the resource and the anticipated consequences of the undertaking on the resource, as described in Chapter 3, Section F of the *CEQR Technical Manual* (October 2001).

The future no action condition would have no impact on the six New York City Landmark and National Register-eligible historic resources at Tallman Island WPCP. New construction would not take place at the facility, and the historic feeling and character of these components of the complex would remain intact.

F.3 Future With the Proposed Action

Historic Resources

Under the proposed action, the facility would be altered by construction or reconstruction of the following elements, described in Subsection 2:

- Stage I and II Pumping Systems.
- Two 1.6 MW Diesel Generators (as part of the Pumping Systems Improvements).

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- Mixed Flow Pumping Station Upgrade.
 - Return Activated Sludge (RAS) Pump Station (New Facility).
 - Blower Building appended to RAS Pump Station (New Facility).
 - 27 kV Electrical Substation (New Facility).
 - Relocation of the two 1.6 MW Diesel Generators (from the EMS Pumping System) and addition of a third Plant Standby Power.
 - Three Electrical Buildings (New Facility).
 - Aeration System Improvements/Tank Modifications.
 - Main Sewage Pump Replacement.
 - Sludge Digesters Improvements.
 - Sludge Thickeners Improvements.
 - Process Control System.
 - Temporary Field Office Complex.
 - New Centrate Pumping Station.
 - Demolition and Replacement of Waste Gas Burner Tank (Flare).
 - Two new Supplemental Boilers.
 - Secondary Bypass System Improvement
 - Powell's Cove Pumping Station Modifications.

Indirect and direct effects would result from implementation of some of the above actions as described below.

Indirect Effects

The following actions would result in permanent indirect visual effects to New York City Landmark and National Register-eligible resources in the East Battery.

- **RAS/Blower Building:** The RAS and Blower Building would be a rectangular plan building capped by a flat roof. It would be constructed of poured-in-place concrete, pre-cast concrete, white metal siding, glass block, and metal panels, range between two and three stories high. The structure, approximately 400 ft long and 40 ft wide, would extend the entire length of the west side of Aeration Tank Nos. 1-2, and occupy a grassy median that flanks the west side of Aeration Tank Nos. 1-2 and Preliminary Settling Tank Nos. 1-3. The RAS and Blower Building would have an indirect visual effect on the Aeration Tank Nos. 1-2 and Preliminary Settling Tank Nos. 1-3 because the layout and setting of the tanks would be compromised by the introduction of new adjacent structures where none previously existed. Within the functional portion of Tallman Island WPCP, the view east toward the tanks would be blocked. However, the view east from the publicly accessible park would not be compromised because trees currently screen the view from the park toward the tanks. Although the RAS and Blower Building may cast new shadows on the aeration tanks and preliminary settling tanks, the significance of the tanks are not related to sunlight, and introduction of shadows would not obscure the tanks. The introduction of the RAS and Blower Building would not be incompatible with other sewage treatment-related structures within the Tallman Island WPCP, including the aeration tanks and preliminary settling tanks.
- **27 kV Electrical Substation:** The 27 kV Electrical Substation would consist of a rounded rectangular form and a V-shaped form that are joined by a hyphen section. Flat roofs cap the rectangular, V, and hyphen forms. The building would be constructed of white metal panels and siding (stem of the T plan) and poured-in-place concrete (cross-bar of the T-plan). The building would be approximately 150 ft long, 70 ft wide and one to two stories (20 ft) high. The substation

may have an indirect visual effect on NYC Landmark and National Register-eligible resources at Tallman Island WPCP because the setting of the plant would be compromised by the introduction of new adjacent structures where none existed before. However, the view toward the eligible resources in the East Battery from the proposed location of the substation would not be severely compromised because the view is currently screened by trees within the park and by sloping topography. Introduction of the substation would not be incompatible with other sewage treatment-related structures within the Tallman Island WPCP, including electrical buildings that are slated for construction as part of this plant upgrade project. While the substation may screen views of the West Battery from Powell's Cove Boulevard and the park, it would provide power to the WPCP, a non-publicly accessible facility. Although the substation may cast new shadows within the open space park, the West Battery and Powell's Cove Boulevard, the shadows would not adversely affect eligible resources that are far-removed from the substation and whose significance is not linked to unobstructed sunlight.

- **Sludge Area Electrical Building:** The Sludge Area Electrical Building (EB-201) would be a rectangular-plan building capped by a flat roof. It would be constructed of metal siding and pre-cast panels, and range between one to three stories high. The structure, approximately 90 ft long and 30 ft wide, would occupy a waterfront area on the east side of Tallman Island WPCP between the South Sludge Thickeners and the North Sludge Thickeners, where no structures previously existed. EB-201, with surface-mounted conduit associated with Process Control System, would have an indirect visual effect on the South Sludge Thickeners because the setting of the structure would be compromised by the introduction of new adjacent structures where none existed before. Nevertheless, introduction of EB-201 would not be incompatible with other sewage treatment-related structures within the Tallman Island WPCP, including the South Sludge Thickeners. Furthermore, the North Sludge Thickeners, located north of the south thickeners, were constructed in 1970 and have already slightly comprised the setting of the South Sludge Thickeners. While EB-201 may screen views of the South Sludge Thickeners from Powell's Cove, EB-201 would form an integral part of the WPCP, a non-public facility. Although EB-201 may cast new shadows on the South Sludge Thickeners, the significance of the thickener tanks are not related to sunlight, and introduction of shadows would not obscure the tanks.

To minimize the indirect visual effects on New York City Landmark and National Register-eligible resources, designers would strive to choose building materials for new structures that conform as much as practicable to the existing materials at the plant, including concrete, buff and painted brick, metal, and glass.

Direct Effects

The following actions would result in a direct effect to New York City Landmark and National Register-eligible resources in the East Battery:

- **Aeration System Improvements/Tank Modifications:** The four aeration tanks at Tallman Island WPCP would be upgraded by the replacement of existing diffusers with submerged fine bubble membrane type diffusers and new air header piping. In addition, the following tank modifications would also be required to accommodate the step-feed BNR process. Modifications include the construction of two wet wells that would be situated above water level, multiple floating weirs that would be situated above water level, multiple submerged baffle walls, eight froth hoods that would span tank passes above water level, and 42 platform mixers. The platform mixers would extend from the sides of tank passes above water level and consist of an electric

motor atop a platform. The motor would provide power to an underwater shaft propeller that would mix the contents of the tank pass. These actions would directly affect New York City Landmark and National Register-eligible Aeration Tank Nos. 1-2 in the East Battery.

- **Sludge Digesters Improvements:** New roofs would replace the roofs of the four Digester Tanks. The four tanks are New York City Landmark and National Register-eligible, and are presently capped by dome-shaped roofs sheathed in rolled asphalt panels that were most likely erected atop the tanks in the 1960s. The roofs are pierced by numerous structures including pipelines and other metal fixtures. Proposed designs for the new roofs consist of geodesic domes that would be clad in milled-finish aluminum panels similar in texture and color to an aircraft fuselage. The aluminum would become darker and duller over time as the panels are exposed to the elements. The roof would retain its spheroid dome shape, but its surface would be faceted in a manner consistent with geodesic domes constructed of triangular fragments. Furthermore, pipes may pierce the roof and walkways adjacent to the domes would provide maintenance access. The proposed action would directly affect the New York City Landmark and National Register-eligible Digester Tanks.

Implementation of the improvement scheme and upgrade of Aeration Tank Nos. 1-2 and Digester Tanks would directly affect these New York City Landmark and National Register-eligible tanks. Since initial construction in the 1930s, these features have been modified over time to keep pace with sewage treatment technology. The significance of these features is related to their historic function, which would be preserved. To avoid significant adverse effects that implementation of the proposed action would have on the physical appearance of these historic resources, the Aeration Tank Nos. 1-2 and Digester Tanks, and surrounding New York City Landmark and National Register-eligible resources, would be documented according to the NYCLPC/NYSHPO documentation standards for historic structures. At a minimum, this would include coordination with a professional photographer hired by the contractor responsible for implementing the project to photo-document Aeration Tank Nos. 1-2 and Digester Tanks prior to project implementation. In addition, preparation of a detailed physical description and historic narrative describing the tanks and how they fit into the overall operation of Tallman Island WPCP from its opening in the 1930s through present time would also be completed. The report would be deposited at the NYCLPC, NYSHPO and NYCDEP and other repositories designated by the lead agency, NYCDEP, and NYCLPC/NYSHPO. NYCDEP will follow NYCLPC's procedures for archaeological and historic resources to ensure that no potential significant adverse impacts would occur to these resources.

While temporary and permanent structures may have effects on the historic resources as indicated, the work is necessary in order to provide more efficient and reliable wastewater treatment and remedy plant deficiencies.

Archaeological Resources

As past development has already adversely affected any archaeological resources once present on Tallman Island, the proposed action would have no effect on archaeological resources meeting the eligibility criteria of the National Register. Therefore, there is no potential for significant adverse archaeological resources impacts.

G. Urban Design/Visual Resources

The purpose of evaluating urban design and visual resources is to assess the impact of the proposed action on the "look" of the neighborhood. Factors such as size and shapes of existing buildings, street and block

arrangement patterns, and noteworthy views that may give a neighborhood a distinctive character are considered.

G.1 Existing Conditions

The Tallman Island WPCP is located on a peninsula extending into the East River on the Queens northern shoreline. The WPCP is partially visible from the residential neighborhood along Powell's Cove Boulevard south of the site, and the publicly accessible DEP-land immediately west of the site. The residential areas along Powell's Cove Boulevard are one- and two-family, one- and two-story, well kept residences. In the immediate vicinity of the Tallman Island WPCP residences are neatly kept, but without consistent or defined architectural styles.

The WPCP is relatively well screened from the vantage points to the south of the site (along Powell's Cove Boulevard) by site grading (including earthen berms and knolls), wrought iron fencing, and vegetation. The primary WPCP structure visible from locations to the west is the Pump and Blower Building, which has a modern glazing-type facade installed in the late 1960s, consistent with architectural treatments employed at New York City WPCPs during that period.

G.2 Future Without the Proposed Action

No significant changes to either off-site residential buildings or WPCP structures are planned under this condition. While contrasting visually, the historical co-existence of the residential neighborhood and the WPCP would continue, with existing grading, fencing, and vegetation along the west and south boundaries of the WPCP screening and differentiating the WPCP from the surrounding residential neighborhood and open space.

G.3 Future With the Proposed Action

Under the proposed action, the following primary above-grade structures would be constructed on the site:

- Three new 1.6 MW diesel generators.
- New RAS/Blower Building.
- New 27 kV substation.
- Three new electric substations.
- Centrate Pumping Station.
- New roofs to the four digesters.

In addition, a temporary field office would be built and occupied during construction, and the existing gas holder and waste gas burner would be demolished. Figure 3A - Components of the Proposed Action (Attachment B) shows the location of these proposed improvements within the WPCP. The RAS/Blower Building would be approximately 23 feet high and be located in the north central area of the existing site. The overall bulk of this structure is consistent with existing site buildings, and is not anticipated to be readily visible from off-site locations or from the water.

The new 27 kV Substation would be a relatively substantial structure: up to 26 feet tall with a building footprint of 70 feet by 150 feet. The building lies immediately to the west of the WPCP main gate with its length parallel to Powell's Cove Boulevard. This structure would be visible from Powell's Cove Boulevard and those residences that front Powell's Cove Boulevard opposite the WPCP. Residences beyond the boulevard frontage would be unlikely to see the structure because of its height and the

obstruction of the other residences along the boulevard. The structure would be in the Modernist Tradition style and reflect its utilitarian function. The structure would also serve, in part, to screen less aesthetically pleasing existing structures, such as the preliminary settling tanks, from off-site observers. A wall would extend north from the substation to help screen the rear of the structure from the public open space to the west. A vegetative screen would be planted within the open space to replace the vegetation removed for the structure.

Three new smaller substations would be located in the eastern, northern and western sections of the WPCP. These structures would have various configurations and designs but would all be relatively low and distant from Powell's Cove Boulevard or the DEP-owned property to the west. The East and West Battery both have a height of 16 feet and the northern electrical substation would have a height of 34 feet. Consequently, they would be hardly visible from publicly accessible areas. Similarly, the new Centrate Pumping Station would be located near the northern end of the plant; its above ground element would have a height of 7 feet and dimensions of 20 by 23 feet. Thus, it too would have minimal visual effects from any publicly accessible locations. The two new diesel generators would have a height of 15 feet. Given the small bulk and low heights of the new diesel engines, they would not be readily visible from off-site locations or from the water.

The temporary field office for construction personnel would be on an existing undeveloped area on the east side of the plant, well away from any publicly accessible locations. The demolition of the waste gas burner, also on the east side of the plant, would not significantly or adversely alter the visual appearance of the plant from those areas on the east side of Powell's Cove, which view this side of the plant from about 0.5 miles away.

The architectural style of the new substations and blower building would be modern interpretations of the art deco/industrial aesthetic. The volume of the substation has been scaled to make it appropriate to the residential character of the surrounding neighborhood. It is the intent of the NYCDEP to select architectural styles for these structures that are aesthetically pleasing from their primary off-site vantage points: Powell's Cove Boulevard and the open space west of the WPCP. It is anticipated that these structures could also visually screen less aesthetically pleasing existing structures from off-site observers. Therefore, there is no potential for significant adverse urban design/visual resources impacts.

H. Neighborhood Character

Neighborhood character, according to the *CEQR Technical Manual*, "is an amalgam of the various elements that give neighborhoods their distinct personality. These can include land use, urban design, visual resources, historic resources, socioeconomic, traffic, and noise." CEQR requires the consideration of how these elements combine to create the context and feeling of a neighborhood, and how an action could affect that neighborhood. As details on existing conditions for most of the defining components of neighborhood character are described elsewhere in this EAS (e.g., land use/zoning, socioeconomic, etc), they are not repeated here.

The study area used to evaluate potential impacts on neighborhood character is a one-quarter mile radius, conforming to the study area used to evaluate potential impacts on land use, zoning and public policy, and on community facilities and services.

H.1 Existing Conditions

The project site, on the Queens northern shore, is in a primarily residential neighborhood. This reflects the area's historical usage and zoning, which is predominantly residential except for the Tallman Island

WPCP site which is zoned M2-1. Most of the residential area is zoned R3-2 with an area of R4 on the waterfront to the west of the site. Most structures are one and two stories, and the area has an overall low-density character. The College Point area of Queens is relatively distinct geographically due to the presence of the natural and man-made barriers, including the Whitestone Expressway to the east and the East River and Flushing Bay to the north and west.

The Tallman Island WPCP site is the sole land use on a peninsula extending into the East River and isolating it substantially from the adjacent residential community to the south. The site is accessed by vehicle from Powell's Cove Boulevard. Graded and planted open space at the waterfront largely removes the facility from public view on the west; the complexes of buildings on the site screen the aeration tanks from public view along Powell's Cove Boulevard (see Attachment D for photographs of selected on-site structures). Powell's Cove Boulevard ends at the southwest corner of the site where NYCDPR is enhancing the waterfront as a natural park area.

Offsite to the west, a mostly undeveloped area extends between Lax Avenue and the waterfront, occupied in part by the College Point Yacht Club. Further to the west, is the multi-story Riverview condominium complex at 121st Street in the R4 district. To the south of the Tallman Island WPCP, is a low density residential neighborhood comprised of mostly single-family detached homes, but with some two-family, attached, and walk-up multiple-family dwellings; the latter includes the gated Silverpointe development immediately across Powell's Cove Boulevard from the WPCP. The street pattern here is primarily a gridiron with avenues running east-west, and streets north-south. As the roadways approach the waterfront, the pattern is modified, with Powell's Cove Boulevard and Lax Avenue paralleling the curving waterfront. The only community facility in the study area is the Patricia A. Larkin elementary school (PS 129), occupying a city block about three blocks south of the site and one block east of 127th Street, which serves as the primary transportation route to the site.

With the exception of the open space alongside the Tallman Island WPCP and some vistas from the end of streets towards the water in Powell's Cove, the study area's visual resources are generally of modest quality. Little exists in the way of public views of the boat basin given the configuration of the street network; moreover, the boat storage area of the yacht club further limits potential views of the water. The redevelopment of Powell's Cove Park by NYCDPR was completed in October 2000 and promotes a high visual quality element on the waterfront.

Much of the residential area is comprised of neatly kept homes, but for the most part the study area is lacking in any consistent or definable architectural style.

H.2 Future Without the Proposed Action

In general, there would be little difference in neighborhood character between the existing conditions in the study area and the future without the proposed action. The redeveloped Powell's Cove Park would be completed, providing a natural area waterfront, as well as more upland recreational amenities. The NYCDP zoning study may result in some zoning changes in the broader College Point area, but for the most part proposed changes are likely to enhance existing character and provide for more contextual infilling on the few remaining vacant parcels. Thus, there would be no significant changes to neighborhood character under the future without the proposed action.

H.3 Future With the Proposed Action

The proposed action would have no significant impact on the neighborhood character of the study area for the following reasons:

- Land Use/Zoning/Public Policy – The proposed action would have no effect on, and is compatible with, the industrial zoning for the site. The site is relatively removed from public view by its location and configuration. The use of the site’s waterfront potential for a WPCP is consistent with coastal zone policy and NYC’s Local Waterfront Revitalization Program. Refer to Subsection A of this EAS for additional details on land use, zoning, and public policy.
- Socioeconomics – Operations under the proposed action would remain essentially unchanged and thus would not affect existing socioeconomic conditions in the study area. See Subsection B for additional details on socioeconomics.
- Historic Resources – The EMS Pumping Systems are to be installed adjacent to and in the existing screening channels located in the Pump & Blower Building, and would not cause physical change to any historic resources or its setting. Implementation of the other elements of the proposed action would result in direct effects on New York City Landmark and National Register-eligible Aeration Tanks Nos. 1-2 and Digester Tanks. To avoid significant adverse impacts, a NYCLPC/NYSHPO historic structure documentation would be undertaken to record the eligible tanks and surrounding features prior to project implementation. The project would have no impacts on archaeological resources because Tallman Island WPCP has been highly disturbed over time. (See Subsection F for additional details on historic resources).
- Urban Design/Visual Resources – The proposed action would introduce new, functionally designed structures that are in keeping with the utilitarian character of the site. The new RAS/Blower Building, to be located in the center of the plant, would reach an elevation for its main roof of about 23 feet (with three small mechanical structures on the roof reaching 33 feet). Three new electrical structures ranging in height from 34 feet (Electrical Building) to 15 feet (East and West Battery Electrical Buildings) and two new 1.6 MW diesel generators (15 feet) would be located within the existing plant. Their location within the existing WPCP would be obscured to viewers off-site by existing structures and vegetation, although the new Electrical Building on the east side of the plant’s waterfront would be visible from the east side of Powell’s Cove and Whitestone Bridge. This would have a minor visual impact. The new 27 kV Substation, to be located west of the existing main gate of the WPCP and parallel to Powell’s Cove Boulevard, would eliminate approximately 0.25 acres of the 2.75 acres of DEP-owned, publicly-accessible open space to the west of the WPCP. This substation is still to be fully designed and has been preliminarily approved by the NYC Arts Commission, pending the development of an associated landscaping plan. Preliminary designs show the structure would reach a height of about 26 feet on its eastern end, and about 23 feet on its western end, which is immediately adjacent to the open space area. This new structure would be visible from Powell’s Cove Boulevard and those several residences that front the boulevard for two blocks east of 127th Street. As noted in Subsection E (Shadows), this new structure would introduce morning shadows into the portion of this open space area east of 127th Street (extended). This grassy area of the park would be minimally affected by the shadows, while the remaining more significant areas of the park that provide waterfront access and a high point for viewing, would be unaffected. Thus, the construction of the substation would not create significant adverse impacts on the existing built environment, and visual resources within the study area would remain relatively unchanged

compared to the future without the proposed action. (See Subsection E for a discussion of shadow impacts and G for additional details on urban design and visual resources).

- **Transportation** – The proposed action is not anticipated to increase daily automobile or truck trips after construction. Consequently, the proposed action would have no adverse impacts on the existing traffic network or transit and pedestrian flows. See Subsection O and P for additional details on traffic, parking, transit and pedestrians.
- **Noise** – There would be no increases of noise greater than the CEQR threshold of 3 dBA from either off-site mobile sources or on-site stationary sources after construction. See Subsection R for additional details on noise.

In summary, there is no potential for significant adverse neighborhood character impacts.

I. Natural Resources

I.1 Existing Conditions

Aquatic Environment

The Tallman Island WPCP is bordered to the north by the East River and to the east by Powell's Cove. Powell's Cove is a small bay that measures approximately 0.4 mi (0.6 km) in width and opens to meet the East River. A review of the National Oceanic and Atmospheric Administration (NOAA) nautical chart for the project area shows that immediately waterward of Tallman Island's bulkheads there are tidal mudflats exposed during lower portions of the tidal cycle. Tidal mudflats are also present in Powell's Cove during lower portions of the tidal cycle (NOAA, 2000). Based on data obtained from the National Ocean Service's tidal benchmark, located in Willets Point (NOS, 2003), and the NOAA nautical chart, the mean tidal range for this area of the East River is approximately 7.1 ft (2.2 m). Depths within Powell's Cove range between 0-5 ft. The East River and Powell Cove shorelines adjacent to the WPCP have previously been extensively filled, with man-made bulkheads existing along these shorelines adjacent to the WPCP (New York City, Winter 1993).

Adjoining shorelines along Powell's Cove have natural shorelines, with small pockets of tidal wetlands. Review of the United States Fish and Wildlife's (USFWS) Wetland Mapping Website shows that a mapped wetland is located at the southern end of Powell's Cove, approximately 0.3 mi (0.5 km) south of the WPCP (USFWS, 2005). The wetland is labeled as E2FLN (Estuarine, Intertidal, Flat, Regular). NYCDPR indicated that Powell's Cove Park contains 17.3 ac (7 ha) of submerged marshlands (NYCDPR, 2005). The waters of the East River around Tallman Island and within Powell's Cove are classified as E1UBL (Estuarine, Subtidal, Unconsolidated, Subtidal) (USFWS, 2005).

The NYCDEP performs bi-annual sampling of the water quality within New York Harbor. The NYCDEP identified the portion of the East River from Roosevelt Island to the Throgs Neck Bridge as the Upper East River. As per the information presented in the 2002 New York Harbor Water Quality Report, the Upper East River is classified as "I". Waters classified as I are suitable for boating and fishing, but not swimming and shellfishing (NYCDEP, 2003).

The NYCDEP also monitors the waters from the Throgs Neck Bridge east to Hart Island. These waters are identified as the western Long Island Sound and are classified as suitable for swimming and primary contact (NYCDEP, 2003).

Water quality in the Upper East River and Western Long Island Sound has been improving over the last 30 years, with a dramatic decrease in fecal coliform levels (NYSDEC, 2003). The 2002 New York Harbor Water Quality Report identified “low dissolved oxygen levels as the most significant water quality issues in the region (Western Long Island Sound)”. Nitrogen has been identified as the primary cause of low DO levels; however, nitrogen has been declining from both point and non-point sources since 1992 (NYCDEP, 2003).

Terrestrial Environment

Within the WPCP, terrestrial natural resources are limited and consist of maintained lawns with ornamental trees and shrubs. These areas are often located along interior roadways and around buildings.

West of the plant, there is a NYCDEP-owned open space area that is approximately 2.75-acres. The open space area is also comprised of maintained lawns, with a line of planted evergreen and deciduous trees along the western fence line of the WPCP. The terrestrial habitats of the WPCP are of limited ecological value. These habitats would be utilized by fauna typically found in urban environments (e.g. crows and squirrels).

Review of the USFWS’ Wetland Mapping Website indicated that no mapped freshwater wetlands are located within and/or immediately adjacent to the WPCP (USFWS, 2005).

Threatened and Endangered Species

In 2000, as part of the initial investigations for this project, federal and state agencies were contacted and requested to provide information on the known occurrence(s) of threatened or endangered species or habitats of concern at or near the Tallman Island WPCP.

In order to update these findings, in January 2005, letters requesting information on the presence of threatened and endangered species or habitats of concern were sent to the USFWS, NYSDEC, and NOAA – Fisheries. The responses indicate that there are no threatened and endangered species within proximity of the project site (See response letters in Attachment E).

The National Marine Fisheries Service indicated that the waters around the site are designated as Essential Fish Habitat. This project will not require disturbance to aquatic habitat, nor cause an increase in the water volume discharge, nor a decline in water quality; in fact, the BNR process improvements are intended to improve the quality of the water discharged into the East River.

The shoreline adjacent to the WPCP and within Powell’s Cove is included within the New York City Comprehensive Waterfront Revitalization Program’s Special Natural Waterfront Area. Refer to Subsection K for additional details.

I.2 Future Without the Proposed Action

The continued operation of the Tallman Island WPCP facilities in its present state could inhibit the ability of the facility to meet its water-quality based SPDES discharge limitations for sewage pollutants treated. Thus, implementation of this alternative could lead to a decrease in the quality of wastewater discharge and have a negative affect on local water quality and natural resources.

I.3 Future With the Proposed Action

The key objective of the proposed action is the improvement of the Tallman Island WPCP facilities to ensure continued compliance with current water-quality based, SPDES, permit limitations. The installation of the EMS Pumping System Project would ensure continued functioning of the WPCP in times of a main sewage pump and/or engine unit failure, and in turn, ensure no degradation to water quality. The BNR would not change the effluent's temperature discharged to the East River. The BNR process is designed to remove nitrogen from the wastewater only. The current nitrogen levels in the western Long Island Sound are attributed to the cause low dissolved oxygen (DO) readings. Thus, the implementation of the project would be expected to indirectly improve the quality of the East River and Long Island Sound.

Total residual chlorine (TRC) is discharged in the effluent leaving a WPCP as the result of a disinfection process prior to discharge. For the last two years, NYCDEP has been making various operation changes at all fourteen WPCPs to lower TRC in their discharge effluent in anticipation of forthcoming TRC limits being lowered in the future. The average TRC level at Tallman Island WPCP for the last year has been 0.77 milligram per liter (mg/L). The proposed action when completed would increase the level of TRC currently found in the effluent at Tallman Island WPCP as that the BNR process would lower the concentration of ammonia available in the effluent being sent to the disinfection process. It is estimated that with the proposed action TRC levels at Tallman Island would increase to approximately 1.0 mg/L. However, this increase in TRC would not exceed its historic levels that were discharged prior to the last two years which were 1.5 mg/L. Therefore, there would be no potential for significant adverse impacts to water quality.

Prior to beginning construction all necessary approvals and plans (e.g., Erosion and Sediment Control Plan, etc.) would be obtained. During construction best management practices (BMPs) would be implemented to reduce the potential for impacts to natural resources. No construction activities are planned to occur waterward and/or along the bulkhead line. Thus, it is anticipated that no physical direct or indirect impacts would occur to the marine environment and/or tidal wetlands.

The terrestrial resources that would be lost through the proposed upgrades would consist of vegetated areas (trees, grass, shrubs, etc.) of limited ecological value. Based on historical photographs of the Tallman Island Water Pollution Control Plant it is believed that none of the trees on site pre-date the major expansion of the plant that was done in 1965. This construction included the construction of the West Battery and included the creation of the current form of the green space west of the plant and the construction of the west fence line. During this construction almost all of the plant area was either under construction or used for construction staging.

A landscaping plan, currently under development, would replace the lost trees; shrubs would also be planted to replace the ones lost from construction of the proposed action. Grass would be established where necessary. The plan will be reviewed with NYCDEP to insure that it adequately replaces the trees and shrubs lost from construction of the proposed action. Details of the plan are provided in the following discussion:

New trees will be a mixture of evergreen and deciduous material. Trees will be installed in sizes ranging from 5-8 foot height for the evergreens and 2-3 inch caliper for deciduous. Species may include but not limited to the following: birch, hawthorn, ash, honeylocust, pine, and elms. A total of approximately 110 new trees will be planted on site.

Shrub plantings shall include; cotoneaster, sweet-fern, scotch broom, junipers, bayberry, and shrubby rose. Shrub plantings shall be used chiefly as dense ground cover and will be planted 3-5 feet on center according to species and growth rates. Plant containers shall be a mixture of 15-18” and 18-24” sizes.

Additional plantings of perennials and ornamental grasses will also be installed providing seasonal interest and masses of color and texture. These plants will be installed as mostly quart and 2-3 gallon size.

In general, all plants shall be tolerant of seaside and windy locations.

- 27KV Substation
 - Six mature deciduous trees will be removed along the existing fence line.
 - Two evergreen trees will be removed along the existing fence line.
 - An additional eight wild scrub trees will be removed along the fence line. These trees appear to be of secondary succession and are growing wild in an uncontrolled manner.
 - Approximately 25 new trees and low woody and non-woody ground covers will be planted around the new Substation building.
- Central Area of Plant:
 - Three mature deciduous trees will be removed in the area of the RAS/Blower building.
 - Three additional deciduous trees will be removed in the central area as part of the utility work and construction staging.
 - Approximately 25 new trees, shrubs, low woody and non-woody ground covers will be planted in this area.
- Field Office Complex:
 - Four mature evergreen trees and three small deciduous trees will be removed to allow for the construction of the Field Office Complex.
 - At the end of the construction period a similar number of trees will be installed to replace the original vegetation.
- Electrical Building at East Side of Property:
 - Two mature pine trees and three small deciduous trees will be removed in this area.
 - Five new trees will be planted in this area.
- Existing Substation Building
 - Eight unhealthy wild scrub trees will be removed to allow for the construction of the new aboveground fuel storage area.
 - 8-9 new trees and low woody and non-woody ground covers will be planted in this area.
- Landscaping in NYCDEP-owned Open Space west of plant:
 - All of the existing wild scrub trees that are currently growing along the fence line and through the fence will be removed.
 - Low wild shrubs will also be removed.
 - Approximately twelve existing evergreen trees in this location will remain and will be pruned to shape.
 - Grassed areas that are damaged by construction will be restored.
 - 35 new trees will be planted along a new fence. Low native woody and non-woody ground covers will be planted under the trees.

The proposed action would be directly beneficial to East River water quality, and, in turn, indirectly beneficial to the biota of the surrounding waters. It is the intent of the NYCDEP to continue coordination with state and federal agencies regarding the protection of identified natural resources to the extent possible. Continued coordination with the agencies regarding the peregrine falcon may identify specific mitigation measures to be implemented. Therefore, there is no potential for significant adverse natural resources impacts.

J. Hazardous Materials

For hazardous materials, the objective of CEQR review is to determine whether the proposed action could lead to increased exposure of people or the environment to hazardous materials. A hazardous material is any substance that poses a threat to human (public) health or the environment. Substances of concern could, but are not limited to, include heavy metals; volatile and semi volatile organic compounds; methane; polychlorinated biphenyls (PCBs); and chemical reactive, ignitable, corrosive, or toxic substances.

J.1 Existing Conditions

As part of standard operations, relatively large quantities of hazardous materials are utilized on a regular basis at the Tallman Island WPCP. The Hazardous Material Investigation and Preliminary Site Assessment (BBL/TAMS, March 2000) included a tabulation of existing materials at the site. Materials handled, stored, and/or utilized include a variety of petroleum products (fuel oils, lubricant oils, hydraulic oils, diesel fuel), solvents (thinners, cleaners), ferric chloride (used in sludge dewatering processes), and sodium hypochlorite (used for wastewater disinfection and control of wastewater foaming). The more substantial storage facilities include the following:

Petroleum Products

- Three (3) 25,000-gallon fuel oil underground storage tanks (UST).
- Two (2) 900-gallon, two (2) 800-gallon, and one (1) 50-gallon waste oil aboveground storage tanks (AST).
- One (1) 775-gallon and one (1) 550-gallon hydraulic oil systems.
- Eleven (11) 250-gallon engine oil totes.
- Approximately 300 (300) 55-gallon containers.
- Numerous miscellaneous containers smaller than 10 gallons.

Solvents

- Ten (10) to twenty (20) 55-gallon containers.
- Numerous miscellaneous containers smaller than 10 gallons.

Ferric chloride

- One (1) 6,200-gallon Aboveground Storage Tank (AST).

Sodium hypochlorite

- Three (3) 6,800-gallon AST.
- One (1) 1,500-gallon AST.
- One (1) 4,000-gallon Sodium Hydroxide AST.

Also present at the site are various other materials including welding gas cylinders, non-incandescent lighting fixtures, batteries, and construction materials. In general, the types and quantities of materials

stored, handled, and used at the Tallman Island WPCP are appropriate for the size and type of mechanical equipment and facilities operated and maintained for wastewater treatment processes. No significant impacts due to the presence of these materials are anticipated since appropriate measures would be employed to handle potential hazardous material issues.

Based on the results of a Preliminary Site Assessment, lead-based paints and asbestos or presumed asbestos-containing materials were found to exist on or within existing building structures and equipment at most buildings on the site.

J.2 Future Without the Proposed Action

Under the future without the proposed action, the amount of petroleum hazardous materials stored, handled, or used at the Tallman Island WPCP would remain the same or decrease due to increased waste minimization practices and the conversion to electric motors. Use and handling practices for other chemicals would be anticipated to remain the same as existing conditions.

Lead-based paint and asbestos or presumed asbestos-containing materials would continue to exist on or within existing building structures and equipment. If undisturbed and intact, such materials would not present a significant public health hazard. However, if disturbed, or otherwise provided a pathway for human exposure, such materials are generally considered to be hazardous. Further, constituents of concern in site soils would continue to exist.

J.3 Future With the Proposed Action

The proposed action would not result in significant new, increased influx or generation of any hazardous materials to the site or surrounding neighborhood. All soil removed from the site would be properly disposed of in accordance with all applicable regulations. Excavated soils would be temporarily stockpiled and covered with polyethylene prior to disposal. Stockpiled soils from the EMS Pumping System Project would be used as fill to restore that area of the site. During grading activities, dust suppression would be maintained.

The use of fuel oils would decline significantly with the conversion of the main engine drive units from oil burning/digester gas to electric motors.

The proposed action is not anticipated to result in any additional hazardous material and public health-related adverse impacts. However, the hazardous material survey identified miscellaneous debris, containerized chemicals, lead-containing paint, and ACM associated with site structures. These materials have the potential to impact construction workers, and would be removed from the work area prior to start of construction or effectively managed to protect site workers and avoid adverse impact to the environment. Lead based paints and/or ACM removal/disposal activities undertaken at this site would be completed in accordance with all applicable federal, state and local regulations.

During September/October 1998 field investigations, a total of 8 test pits (depths from 7 to 15 vertical feet below grade) and 20 soil borings (depths ranging from 5 to 25 vertical feet below grade) were completed in areas of proposed construction. Composite soil samples were collected and analyzed for Resource Conservation and Recovery Act (RCRA) hazardous waste characteristics and total petroleum hydrocarbons (TPH) by the United States Environmental Protection Agency's (USEPA) Method 418.1. Individual soil samples collected from each test pit were analyzed for Target Compound List/Target Analyte List (TCL/TAL) organics and inorganic constituents, PCBs, and pesticides. In addition, nine monitoring wells were installed in the site, with groundwater from five of the wells sampled for TCL/TAP parameters and NYCDEP sewer discharge criteria. No groundwater sampling was conducted

for the remaining groundwater wells due to low groundwater yields at these locations. Key results of this testing are as follows:

- Soil samples from soil boring CB-1 (0 to 5 feet below grade) indicated lead amounts in excess of the NYSDEC Hazardous Waste Level. The soil in this area would be excavated six (6) feet radially and six (6) feet deep, and properly disposed of at a facility permitted to accept hazardous waste.
- Elevated levels of Semi-Volatile Organic Compounds (SVOCs) and heavy metals exceeding NYSDEC Technical and Administrative Guidance Memorandum (TAGM 4046) Guidance Levels were detected in the soil samples. A site specific HASP would be prepared on the basis of worker exposure to these contaminants during construction of the plant upgrade.

Two test boring samples evaluated in the April 2000 report were obtained in the vicinity of the Stage I pump pit, CR-1, within 50 feet of the pit and S-3, within 90 feet of the pit. Neither sample exhibited characteristics of hazardous waste as defined by RCRA or New York State. As such, the tested materials may meet the chemical criteria for use as daily landfill cover under New York City Department of Sanitation Inter-Agency Cover Program (IACP).

Additional environmental work has been proposed at the Tallman Island WPCP in areas where soils had not previously been investigated to establish disposal and/or occupational safety characteristics. There are four areas of additional work to be performed under the proposed action. These areas are located:

- Along the bulkhead adjacent to the south sludge thickeners (Proposed Sludge Area Electrical Building).
- North of the chlorine contact tank (Proposed Centrate Pumping Station).
- Along the sewer line west of the thickener splitting structure (Proposed Blower Building).
- Between the new storage building and Powell's Cove Boulevard (Proposed 27 kV Substation).

This program will use similar protocols and procedures as the prior studies documented in the year 2000 at the Tallman Island WPCP site, modified per the October 2005 addendum. The October 2005 addendum, which includes a sampling protocol and sample location plan, was reviewed and approved by BEPA with the addition of the following provisions:

- Prior to starting the subsurface investigation, the Contractor shall mark-out the utilities for both overhead and subsurface structures in the area..
- For the four boring samples indicated on Figure 1 of the Boring Plan, two samples will be taken: one sample at the surface and one at the highest PID reading or groundwater interface. Borings shall be completed using the hollow-stem auger per Technical Provision T-06 c. with the procedures per Technical Provision T-10 to a depth of about 35 feet. In addition, for the TI-2 excavated soil, two soil samples (hand augured to collect composite samples) will be taken from the interior portion of the stockpile as shown in Figure 1. Sampling shall be performed per Technical Provision T-06 with the procedures per Technical Provision T-11.
- Soil and groundwater samples shall be submitted to a NYSDOH ELAP-certified laboratory for a full analysis of volatile organic compounds (VOCs) by Method 8260, (SVOCs) (base neutrals and acid extractable) by Method 8270, Pesticides/PCBs by Method 8081/8082, and TAL metals.

Upon completion of sampling, NYCDEP will review the results report and implement a Remedial Action Plan and Construction Health and Safety Plan. NYCDEP will conduct an additional Phase II Environmental Site Assessment prior to construction activities. With the implementation of a NYCDEP Phase II Environmental Site Assessment, Remediation Action Plan, and Construction Health and Safety Plan prior to the commencement of construction, and the proper handling of materials related to plant operations, there will be no potential for significant hazardous materials impacts as a result of the proposed action.

K. Waterfront Revitalization Program

K.1 Existing Conditions

The Tallman Island WPCP is located within the coastal zone boundary of New York City. New York City's Local Waterfront Revitalization Program (LWRP) aims to establish coastal zone boundaries and provide for consistency review with city, state, and federal policies. The LWRP includes a set of policy statements that address the waterfront's important resources.

In the NYCDP study entitled New York City Comprehensive Waterfront Plan, Reclaiming the Water's Edge (1993) the location of the Tallman Island WPCP is designated under the public waterfront category in the map accompanying the plan. It is shown as an area providing public access, namely the bulkhead walkway area and the existing pier.

In the Plan for the Queens Waterfront published by NYCDP in 1994 the Tallman Island WPCP is located in Reach 10 (Queens North Shore). The plan identifies the site as a municipal WPCP, an industrial facility. The plan notes the facility's design capacity of 80 million gallons per day (mgd) and average treatment capacity of 67 mgd. The plan recommends that NYCDEP pursue the removal of dewatered sludge by barge, rather than by truck. The Plan also notes the significance of this reach as a "natural waterfront" and notes plans for Powell's Cove Park, that would include an existing two-acre mapped park plus a 31.7ac "Powell's Cove Site", private property to be acquired, and a number of unbuilt streets to be demapped. Attachment B, Figure 11 - Coastal Zone shows a reproduction of the plan's Figure 10.8, Reach 10/Queens North Shore Recommendations: Powell's Cove (NYC, 1994).

The City's Waterfront Revitalization Program was revised in 1999 and the new map for the East River - Long Island Sound shows Powell's Cove as being designated as a "Special Natural Waterfront Area" (Figure 14 of Attachment B).

K.2 Future Without The Proposed Action

The continued operation of the Tallman Island WPCP could inhibit the ability of the facility to meet its water-quality based SPDES discharge limitations. This could lead to a decrease in the quality of wastewater discharge and have a negative affect on local water quality. In turn, this could hinder the intentions of certain policies of the Waterfront Revitalization Program.

K.3 Future With the Proposed Action

The continued use of the site's waterfront potential for water pollution control purposes is consistent with and would advance the NYS and NYC Waterfront Revitalization Policies. The Tallman Island WPCP is well situated for its continuing operation. It is located along the East River allowing for the effective and economical discharge of its treated wastewaters, and has been in operation since 1939. The proposed action is an upgrade to the existing facilities and to ensure continuous functioning of the WPCP in event

of breakdowns of main sewage pumps and/or engine units. This would improve the facility's operations, ensuring reliable and effective treatment of wastewater. This would improve East River water quality and, in turn, protect and restore East River ecology as well as indirectly promotes waterway for commercial and recreational uses. Therefore, there is no anticipated significant adverse impact with regard to the policies outlined in the city's Waterfront Revitalization Program. Attachment C presents the detailed New York City Waterfront Revitalization Program Consistency Assessment Form.

L. Infrastructure

The purpose of the CEQR water-related infrastructure review is to identify the potential for the action to directly or indirectly eliminate, alter, or overstress existing infrastructure facilities including wastewater treatment, water supply, and stormwater management systems.

L.1 Existing Conditions

Wastewater Treatment

The Tallman Island WPCP provides wastewater treatment for a service area encompassing the northeast portion of the Borough of Queens, including approximately 17,400 acres of land with nearly 400,000 residents. The existing facility is designed to provide wastewater treatment for up to 80 mgd and 160 mgd during wet weather.

Sanitary sewage generated at the Tallman Island WPCP itself by staff or visitors (typically a total of 60 to 80 persons per day) is treated in conjunction with the significantly larger volume of sewage from the WPCP's tributary service area.

Water Supply

Potable water service to the Tallman Island WPCP is provided by the New York City Water Supply System via a 24-inch diameter service main from Powell's Cove Boulevard. Existing valving on this main allows the isolation and shutoff of this supply to the WPCP without interruption to neighboring properties. Typical water usage for the facility is approximately 450,000 gallons per day, which was obtained from actual plant city water billing records since flows of these sources are not metered. Uses of City water at the facility currently include pump ring flush, pump seal water systems, once through engine cooling water, odor control scrubber system, compressor cooling, miscellaneous process uses; as well as employee/visitor sanitary facilities (toilets, washbasins, and showers), potable water for employee/visitor kitchen and drinking, and fire protection systems.

Stormwater Control

No regional stormwater control facilities are known to be located on or in the immediate vicinity of the Tallman Island WPCP. Local stormwater facilities on the Tallman Island WPCP site consist of on-site permitted catch basins and storm sewers discharging directly to the East River.

L.2 Future Without the Proposed Action

In the event of main sewage pump/engine drive units failure, effective wastewater treatment for the service area could be at risk if the EMS Pumping Systems were not installed. The ability of the Tallman Island WPCP to provide treatment to levels required by the current SPDES and water quality goals for the

East River could also be jeopardized without the proposed action due to increased potential for improper treatment due to mechanical and process failures associated with older equipment and facilities.

L.3 Future With the Proposed Action

Sewage Treatment

The proposed action is an upgrade to the existing facilities and would improve the facility's operations, ensuring a reliable and effective treatment of wastewater for the Tallman Island WPCP's service area. Upgrades include providing EMS Pumping Systems to pump the dry-weather and wet-weather flows (up to 120 mgd); step-feed BNR process; and upgrades and replacements of various facilities and infrastructure such as sewage pumps, piping and valves. Based on these improvements and no discernible increase in wastewater generation at the facility with the proposed action, no significant, adverse infrastructure impacts would occur.

Water Supply

The plumbing modifications and improvements included in the proposed project are intended to update facility water plumbing to current codes and would result in beneficial reductions in water loss and overall usage at the facility.

Stormwater Management

In general, the proposed project is not anticipated to result in discernible increases in stormwater runoff from the site, as a majority of the site affected by the proposed project is currently paved or otherwise impervious. Most of the plant's storm water system is currently directed to the headworks of the facility where it is treated in conjunction with influent sewage, thereby providing increased protection for the East River from stormwater-transported pollutants generated at the Tallman Island WPCP site.

Two catch basins would be re-directed as part of the proposed action. These catch basins are located in the area of the mixed flow pump station and the proposed RAS/Blower Building. The new catch basins would be connected to the plant drain and would not affect the existing wastewater operations due to the small contributing impervious area. The proposed redirection of stormwater for treatment through the plant processes would not be a significant increase in volume and no modifications to the SPDES permit would be necessary for this work.

Adequate infrastructure exists to support the proposed action. In the event that severely deteriorated existing infrastructure facilities, such as water mains and/or sewage and drainage piping are encountered or discovered during project construction, such facilities would be repaired, rehabilitated, or replaced as appropriate to ensure their continued long-term operation.

M. Solid Waste and Sanitation Services

M.1 Existing Conditions

Under current operations, the largest amount of solid waste at the Tallman Island WPCP is screenings (debris) removed from the wastewater at the Powell's Cove Boulevard and the Main Influent Screens. Screenings are generally stored in plastic-wrapped six-cubic yard containers and removed weekly from these two locations. The typical volume of screenings disposed is approximately 15-25 cubic yards per day, depending on the volume of sewage flows processed through the WPCP.

NYCDEP policy requires that screenings removed from its wastewater treatment facilities be stored in 30-cubic yard containers prior to off-site disposal for efficiency purposes. Under current operations, the Tallman Island WPCP does not have facilities to accommodate the requirements.

Additional solid waste is generated by employees and visitors at the facility (typically a total of 60 to 80 persons per day). These solid wastes are collected from various receptacles around the WPCP and consolidated for NYCDOS collection and disposal. Recycling and waste management/prevention policies, in conformity with the City's Comprehensive Solid Waste Management Plan, are practiced by WPCP employees and visitors. The volumes produced by WPCP employees and visitors are assumed to be typical for commercial office employees (less than 60 pounds per week per person) and do not burden existing NYCDOS services.

M.2 Future Without the Proposed Action

Future conditions without proposed action would remain similar to the existing conditions. Volumes of solid wastes produced from screening processes would remain constant, with modest fluctuations based on sewage flow received and processed. Solid waste generated by employees and visitors would also remain the same without the proposed action.

M.3 Future With the Proposed Action

The overall volume of screenings removed from the wastewater at the Tallman Island WPCP would not increase or decrease as a result of the proposed action. There would be no increase of staff at the WPCP, and therefore no change in solid waste volumes generated on the site.

There would be no adverse impacts associated with the proposed action on solid waste and sanitation services. It is anticipated that the WPCP staff, in conformance with NYCDEP policy, would continue to employ sound recycling, waste minimization, and proper solid waste disposal practices in daily operations at the facility.

N. Energy

N.1 Existing Conditions

Energy usage at the plant consists of electricity, and fuel oil serving engines and boilers; digester gas and natural gas can also be used, as economically appropriate. Consolidated Edison supplies power supply to the Tallman Island WPCP through two 4 kilovolt (kV), three-phase four-wire, and 60 Hertz (Hz) service feeders. Two (2) 500 kilovolt-amperes (kVA) transformers in vaults in the Pump and Blower Building distribute 208 volt service throughout the WPCP.

N.2 Future Without the Proposed Action

If the proposed action is not implemented, power and energy usage at the facility would continue at existing levels.

N.3 Future With the Proposed Action

The proposed project would include additional buildings, facilities, equipment replacement, modification, and/or upgrade of equipment and processes.

Power for the EMS Pumping System would be provided by the existing Con Ed service to the plant. In the event of a Main Sewage Pump failure and the need to run the EMS Pumping System, existing electrical loads at the facility, such as the dewatering building, would be disconnected (or de-loaded from the existing Con Ed Service) so that sufficient power would be available for the operation of the EMS Pumping System.

Power for the latter part of the EMS Pumping System Project (Stage II) would be provided by two new on-site 1.6 MW diesel generators, located adjacent to the Pump & Blower Building. This Stage II Pumping System would only be used in case of a complete failure of the existing Main Sewage Pumps. In this case, the diesel-fueled electric generators, instead of the dual fuel engines would power the Pumping System.

The operation of the Pumping System can be accommodated by Con Edison with operation adjustments in times of main sewage pump and/or engine drive units failure emergencies. These conditions would not overtax or otherwise disrupt or impact energy supplies in the vicinity of the proposed action.

Other than the operation of EMS Pumping System, a shift from oil- and gas- driven engines to electric motors is proposed, resulting in a decrease in the consumption of oil and gas (and related on-site emissions) but an increased reliance on electrical power provided by Con Edison. Con Edison has indicated that to serve the proposed project, it would have to extend four new 27 kV below ground feeders from its existing service, about one mile from the Tallman Island WPCP along a route yet to be determined. (Chow, Spencer, Customer Project Manager, Con Ed.)

Energy use by the engine-driven pumps and blowers would be replaced by electric-driven pumps and blowers as part of the proposed action. This conversion would result in a more efficient use of energy and a decrease in its use at the site for this purpose. However, loss of reusable recovered heat from the pump and blower engines (that would be removed) would be replaced by two 350-horsepower boilers. These boilers would be gas-fired and would only be used during the heating season.

The shift to electric motors and the other upgrades to equipment and facilities would enhance energy resource conservation. The proposed action would not overtax or otherwise disrupt or impact energy supplies in the vicinity of the proposed action. It is expected that the proposed action would, overall, result in a net decrease in energy use (on- and off-site). Therefore, there would be no significant adverse effects on energy use as a result of the proposed action.

O. Traffic and Parking

O.1 Existing Conditions

Transportation Network

The entrance to the Tallman Island WPCP is located at the intersection of Powell's Cove Boulevard and 127th Street in Queens, NY. Regional access to the facility is provided by the Whitestone Expressway (I-678) which serves as the main travel corridor for the nearby Whitestone Bridge (to the Bronx and New England), Van Wyck Expressway (to JFK International Airport), Grand Central Parkway (to LaGuardia Airport and Triborough Bridge), and Long Island Expressway (I-495). The main local access route from the Whitestone Expressway (I-678) to the site is 20th Avenue, which provides full interchange access to both the eastbound and westbound Whitestone Expressway. From 20th Avenue direct access is provided to the facility via 127th Street. Figure 12 - Transportation Network (Attachment B), shows the existing local transportation network.

The existing local New York City Department of Transportation (NYCDOT) designated truck routes are 14th Avenue, 15th Avenue, and College Point Boulevard. Truck traffic is prohibited east of the Whitestone Expressway along 20th Avenue, but is permitted west of the Whitestone Expressway.

A general description of the local street network is provided below:

- 20th Avenue - 20th Avenue is a four-lane (two in each direction) arterial providing east/west movement between the Whitestone Expressway and 130th Street. Parking is not permitted and the speed limit is posted as 40 mph along this segment (between I-678 and 130th Street). Ingress and egress to a shopping plaza on the north side of 20th Avenue is controlled by traffic signals with exclusive left-turn and right-turn lanes on 20th Avenue. The roadway configuration of 20th Avenue changes west of 130th Street where it narrows to a two-lane roadway with a posted speed limit of 30 mph. Curbside parking is not permitted along 20th Avenue west of 130th Street. Land use along this segment of 20th Street is primarily residential, including walk-up multiple-family, two-family, and single family attached housing.
- 127th Street - From 20th Avenue access to the Tallman Island WPCP is provided via 127th Street. 127th Street is a two-lane local road with curbside parking permitted along its west side between 20th Avenue and 14th Avenue. The area between 20th Avenue and 14th Avenue, and between 126th Street and 132nd Street is predominately industrial with some limited retail/commercial uses. North of 14th Avenue, 127th Street widens to afford parking on both sides. Due to low traffic volumes, intersections north of 14th Avenue are primarily stop-controlled. An elementary school (PS 129) is located on 128th Street between 7th and 9th Avenue.
- Powell's Cove Boulevard - Powell's Cove Boulevard, an east-west road between 7th Avenue and 121st Street, is four lanes wide along most of its length and runs along the waterfront. The Tallman Island WPCP and a marina are located on its north side, and residential uses on the south side. Curbside parking is available along the entire length of the roadway.

Existing Tallman Island WPCP Traffic Characteristics

Employee Trips

Facility operations require three shifts of staff, which extend from: 7 am - 3 pm; 3 pm - 11 pm; and 11 pm - 7 am. The facility employs a maximum of 45 people for the 7 am - 3 pm day shift during the weekdays. Eight people work the evening and overnight shift each on weekdays. All weekend shifts are staffed by eight employees. Due to the timing of the shift changes, employee trips take place at hours outside the typical peak hours in the study area.

Facility Operations Trips

In addition to the employee trips, the facility also generates a small number of truck and automobile trips necessary for its operations. These trips, the types of vehicles and their frequency, are described below:

- Fuel Oil Delivery - Fuel oil delivery trips occur four to eight trips per week (i.e., each round-trip equals two trips) and are made by two-axle, 7,000 gallon capacity trucks. These trips typically take place only on weekdays.

-
- Chemical Delivery - Chemical delivery trips occur with an average of six (6) or fewer trips per week. These trips are usually made by two-axle trucks and occur on both weekdays and weekends. On a monthly basis, the chemical delivery trips usually include:
 - 14 trips (seven trips in and seven trips out) for sodium hypochloride
 - 2 trips for polymer.
 - 2 trips for ferric chloride.
 - 2 trips for lube oil.
 - Residuals Removal - Residuals are carried out daily (six (6) truck trips), including weekends, usually with a two-axle truck.
 - Collection Facilities - The collection facilities trips take place both by trucks and cars and are associated with primarily off-site facilities such as pump stations and sewer lines. These trips, which are limited to weekdays, average 50 car trips and 20 truck trips per day.
 - Contractor Trips - A daily average of two car trips are made by outside contractors.

O.2 Future Without the Proposed Action

If the proposed action is not implemented, facility operations would remain as they presently are. There would be no change in facility-generated traffic.

O.3 Future With the Proposed Action

Construction Trips

Temporary increases in traffic resulting from truck trips and construction workers are expected. Refer to Subsection S for a discussion of construction-related impacts.

Employee Trips

The proposed changes at the Tallman WPCP would not significantly alter operations and traffic conditions in the study area. Under the proposed action, facility operations would continue to require the three shifts of staff working the same hours on weekdays and weekends, generating the same number of trips.

Similar to existing conditions, as a result of the times of the shift changes, employee trips would continue to take place at hours outside the typical peak hours in the study area.

Facility Operations Trips

Besides the employee trips, the number of truck and car trips associated with facility operations would differ only slightly from existing conditions. These trips, the types of vehicles and their frequency, are described below:

- Fuel Oil Delivery Trips: Fuel oil delivery trips would be reduced from four to eight trips per week at present, to two trips per week under the proposed action. This is a result of the conversion from oil-fired engines to electric motors. The remaining trips would continue to be made by two-axle, 7,000 gallon capacity trucks.

- Chemical Delivery Trips: Under the proposed action, chemical delivery trips would increase slightly, from approximately six truck trips per week to approximately seven truck trips per week. Deliveries would continue to be made by two-axle trucks on both weekdays and weekends. Chemical delivery trips, on a monthly basis, would include:
 - 20 trips (10 trips in and 10 trips out) for sodium hypochloride.
 - 4 trips for sodium hydroxide.
 - 2.2 trips for polymer for dewatering*.
 - 2.2 trips for ferric chloride*.
 (* Ferric chloride and polymer usage would increase by approximately 20 percent)
- Residuals Removal Trips: Residual trips would remain unchanged under the proposed action.
- Collection Facilities Trips: The collection facilities trips would not change under the proposed action.
- Contractor Trips: Compared to the future without the proposed action, the number of trips would increase by two.

Table 2-2 compares the number of vehicle trips of the proposed action to the future without the proposed action condition.

Table 2-2
Number of Facility Vehicle Trips

	Future Without the Proposed Action	Proposed Action
Employees	Weekday Daily: 90 automobile trips (7am - 3pm) 16 automobile trips (3pm - 11pm) 16 automobile trips (11pm - 7 am) Weekend Daily: 16 automobile trips (all shifts)	Weekday Daily: 90 automobile trips (7am - 3pm) 16 automobile trips (3pm - 11pm) 16 automobile trips (11pm - 7 am) Weekend Daily: 16 automobile trips (all shifts)
Fuel Oil Delivery	Weekly: four - eight truck trips	Weekly: two truck trips
Chemical Delivery	Weekly: four - six truck trips	Weekly: six to eight truck trips
Residuals Removal (dewatered sludge)	Daily: six truck trips	Daily: six truck trips
Screenings Removal	Weekly: six truck trips	Weekly: six truck trips
Grit Removal	Daily: two truck trips	Daily: two truck trips
Collection Facilities	Daily: 50 automobile trips 20 truck trips	Daily: 50 automobile trips 20 truck trips
Contractors (Includes TI-2 Contract)	Daily: two automobile trips	Daily: four automobile trips
Note: Number of trips represents round trips (into and out of the facility).		

Therefore, the proposed action would see an increase of two daily automobile trips into and out of the Tallman Island WPCP. Truck trips would be comparable to or less than the future without the proposed action. According to the *CEQR Technical Manual* a detailed traffic and parking analysis is not warranted if the proposed action would generate 50 peak hour trip ends (a round trip is two trip ends). Therefore, the proposed action does not warrant a detailed traffic analysis, and would not create significant traffic impacts.

P. Transit and Pedestrians

P.1 Existing Conditions

Public Transportation and Pedestrians

The Q25 bus provides transportation from Herman A. MacNeil Park on Poppenhausen Avenue to 160th Street/Jamaica Avenue. The bus travels along 127th Street from 7th Avenue to 23rd Avenue in College Point. The Q25 operates between the hours of 4:45 am and 12:45 am with a scheduled frequency of 12 minutes during the morning and evening rush hours. Headways decrease to 20 minutes during the non-peak hours and are 30 minutes at nights on weekdays. On weekends, the bus has a daily headway of 30 minutes. The Q20B bus provides service along 14th Avenue between 123rd Street/14th Avenue and Union Street in Flushing and along Main Street to Jamaica. This bus operates between the hours of 5:00 am and 11:00 pm with headways of 15 minutes in the morning rush hour, 23 minutes during the evening rush hour, and 30 minutes at all other times of the day. The Q76 bus operates from 15th Avenue and 132nd Street in College Point to Jamaica via Francis Lewis Boulevard. This bus operates from 5am to 11pm with headway of 7 minutes in the morning peak, 15 minutes in the evening peak and 20 minutes at other times.

The primary pedestrian activity in the study area is walking in the open space area adjacent to the facility. Although numbers are not available, this space gets regular use from people, primarily residents of the neighborhood, walking their dogs or accessing the waterfront.

P.2 Future Without the Proposed Action

There would be no change in transit and pedestrian flows under the future without the proposed action condition as facility operations would remain as they presently are.

P.3 Future With the Proposed Action

When fully operable, the proposed action would not require additional personnel above the existing total of 60 workers. The proposed changes at the Tallman WPCP would not significantly alter the volume of transit and pedestrian trips in the study area. Under the proposed action, facility operations would continue to require the three shifts of staff working the same hours on weekdays and weekends, generating the same number of trips. Similar to existing conditions, as a result of the times of the shift changes, employee trips would continue to take place at hours outside the typical peak hours in the study area. Therefore, the proposed action does not warrant a detailed transit and pedestrian analysis, and would not create significant impacts.

Q. Air Quality

Q.1 Criteria Pollutants

The USEPA, under the requirements of the 1970 Clean Air Act (CAA) as amended in 1977 and 1990, has established National Ambient Air Quality Standards (NAAQS) for six contaminants, referred to as criteria pollutants (40 CFR 50). These are: ozone (O₃), carbon monoxide (CO), nitrogen dioxide (NO₂), particulate matter (PM₁₀ and PM_{2.5}), lead (Pb), and sulfur dioxide (SO₂). Areas that meet the NAAQS standard for a criteria pollutant are designated as being “in attainment.” Areas where a criteria pollutant level exceeds the NAAQS are designated as being “in non-attainment.” O₃ non-attainment areas are categorized based on the severity of their pollution problem--marginal, moderate, serious, severe, or extreme. CO and PM₁₀ non-attainment areas are categorized as moderate or serious. When a nonattainment area is redesignated as an attainment area, the CAA requires that a maintenance plan be in place to ensure continued compliance of the corresponding NAAQS. Therefore, a former nonattainment area is also defined as a maintenance area. Where insufficient data exist to determine an area’s attainment status, an area is designated unclassifiable (or in attainment).

Existing Conditions

The project study area is located in Queens County, which is currently designated as:

- Moderate nonattainment area for the 8-hour O₃.
- Nonattainment area for PM_{2.5}.
- CO maintenance area.
- Attainment area for all other criteria pollutants.

Future Without The Proposed Action

Under the no action condition, the facility will continue to operate under the conditions specified in the Title V permit. No changes are expected in either mobile or stationary source operations within the facility. Therefore, the future without the proposed action would be similar to the existing condition.

Impacts of The Proposed Action

TI-2 Contract: EMS Pumping System Modification & Replacement

Contract TI-2 consists of Stage I and Stage II. In both stages, the proposed pumping system would operate under emergency conditions or when three or more of the existing pump engines are inoperable. The capacity of the Stage I Pumping System would be 66 MGD. The Stage I Pumping System would be electrically powered by Con Ed through the existing transmission network. Therefore, there would be no new air emissions from the Stage I EMS Pumping System, and no detailed air quality impact analysis is warranted under the Stage I conditions.

Under Contract TI-2 Stage II condition, another pumping system with increased capacity of 120 MGD would be installed. Two temporary generators (one is standby) would be installed to provide power to handle the new Stage II EMS Pumping System. During the “pump-around” when both pump systems from Stage I and II would be operating to provide 160 MGD capacity, the Pumping Systems would be powered by the newly constructed 27 kV Con Ed substation.

A State Facility Permit is required to operate the two new temporary generators until the proposed 27 kV substation is online. An air quality analysis was performed for a reasonable worst case condition (RWCC) to support the State Facility Permit. The RWCC consists of the following:

1. All five existing pump engines failed;
2. The proposed Stage II Pumping System kicks in to provide 120 MGD flow; and,
3. All other existing combustion units are operating at capacity.

The proposed generators would be more efficient than the existing pump engines, and a selective catalytic reduction (SCR) post-combustion treatment system would be installed with the proposed generators. Their emissions would meet the Part 227 RACT requirement for NO_x emissions, and would be much lower than the existing pump engines. Consequently, there would be a net reduction in NO_x emissions and an overall improvement on NO₂ impacts when the proposed generators are operated instead of the existing pump engines.

The results of the dispersion modeling for the criteria pollutants for TI-2 contract are presented in Table 2-3. The total concentrations are below the applicable NAAQS except for the annual NO₂ concentration. As shown in the table, the proposed temporary generators would contribute a maximum of 5.7 ug/m³ to the ambient concentrations of NO₂. The potential exceedance is not attributable to the proposed temporary generators; therefore, the generators do not cause a significant impact.

Table 2-3

Proposed Action Predicted Highest Ambient Concentrations for Criteria Pollutants

Averaging Time	Monitored Background	Highest From Proposed Generators	Highest From Other Combustion Units	Highest Total	NAAQS
PM₁₀					
Annual (ug/m ³)	21	0.36	2.56	24	50
24-hour 2 nd Highest (ug/m ³)	46	7.6	59.9	106	150
CO					
8-hour Highest (ug/m ³)	2,889	155	6,642	9,531	10,000
1-hour Highest (ug/m ³)	4,229	282	13,267	17,496	40,000
SO₂					
Annual (ug/m ³)	18	2.4	5.6	24	80
24-hour 2 nd Highest (ug/m ³)	86	93.2	111.0	197	365
3-hour 2 nd Highest (ug/m ³)	165	216.3	224.9	390	1,300
NO₂					
Annual (ug/m ³)	56	5.7 ¹	79.8	136	100
¹ The proposed generators do not contribute to the total highest concentration of 136 ug/m ³ .					

In order to determine potential PM_{2.5} impacts based on the NYCDEP-established incremental impact thresholds from the proposed action, ambient PM_{2.5} concentration levels under baseline and the future with the proposed action conditions were predicted. The predicted incremental PM_{2.5} concentration levels are summarized in Table 2-4. The PM_{2.5} incremental changes from TI-2 contract would not exceed the NYSDEC and NYCDEP significant microscale impact thresholds compared to the baseline condition. The dispersion modeling analysis is described in detail in Attachment G.

Table 2-4

Proposed Action (TI-2) Predicted Microscale Maximum PM_{2.5} Concentrations and Increments

Averaging Time	Baseline Level	Proposed Action	Proposed Action Increment
Annual (ug/m ³) ¹	3.79	2.55	-1.24
24-hour 1st Highest (ug/m ³)	59.1	59.8	0.7
¹ Since the TI-2 Contract would reduce annual PM ^{2.5} emission and impact concentrations, a comparison to the annual neighborhood scale impact threshold of 0.1 ug/m ³ is not necessary.			

TI-3 Contract: PUP

CEQR provides air quality assessment guidelines and establishes screening criteria in terms of the change in future condition with the proposed action. The proposed Contract TI-3 would not result in any substantive change in mobile travel patterns or volumes (i.e., two additional automobile trips), no mobile source air quality impacts would occur under the proposed TI-3 contract.

The ambient air quality conditions with respect to the criteria pollutant concentration levels were modeled for all the stationary combustion sources under the TI-3 proposed action. The emission rate estimates and dispersion modeling re described in detail in Attachment G. The modeling results are summarized in Table 2-5.

Table 2-5

Proposed Action (TI-3) Predicted Total Ambient Concentrations for Criteria Pollutants

Averaging Time	Monitored Background	Facility Contributions	Total	NAAQS
PM ₁₀				
Annual (ug/m ³)	21	0.31	21	50
24-hour 2 nd Highest (ug/m ³)	46	12.7	59	150
CO				
8-hour Highest (ug/m ³)	2,889	195.1	3,084	10,000
1-hour Highest (ug/m ³)	4,229	340.4	4,569	40,000
SO ₂				
Annual (ug/m ³)	18	0.56	19	80
24-hour 2 nd Highest (ug/m ³)	86	85.9	172	365
3-hour 2 nd Highest (ug/m ³)	165	189.1	354	1,300
NO ₂				
Annual (ug/m ³)	56	4.7	61	100

The modeling results indicate that no exceedances of the NAAQS are predicted for each criteria pollutant with the proposed action (Table 2-5). In order to determine potential PM_{2.5} impacts based on the NYCDEP-established incremental impact thresholds from the proposed action, ambient PM_{2.5} concentration levels under both baseline and the future with the proposed action conditions were predicted. The predicted incremental PM_{2.5} concentration levels are summarized in Table 2-6. The dispersion modeling analysis is described in detail in Attachment G. The modeling results under the proposed action (TI-3) condition shown in Tables 2-5 and 2-6 conclude:

- No exceedances of the NAAQS were predicted for any of the criteria pollutants.
- PM_{2.5} impacts from the Tallman Island WPCP would be reduced substantially under the proposed project. PM_{2.5} incremental changes would not exceed the NYSDEC and NYCDEP significant microscale impact thresholds compared to the baseline condition. Therefore, no significant microscale PM_{2.5} impacts would result from the proposed action.

Table 2-6

Proposed Action (TI-3) Predicted Microscale Maximum PM_{2.5} Concentrations and Increments

Averaging Time	Baseline Level	Proposed Action	Proposed Action Increment
Annual (ug/m ³) ¹	3.79	0.31	-3.5
24-hour 1st Highest (ug/m ³)	59.1	12.7	-46.4
¹ Since the TI-2 Contract would reduce annual PM ^{2.5} emission and impact concentrations, a comparison to the annual neighborhood scale impact threshold of 0.1 ug/m ³ is not necessary.			

Q.2 Non-criteria Pollutants

In addition to the criteria pollutants, there are certain non-criteria pollutants, such as volatile organic compounds (VOCs)-related air toxics, which are considered in this document. NYSDEC has published both Annual and Short-term Guideline Concentrations (AGCs and SGCs) to regulate non-criteria pollutants. Attachment G provides detailed modeling discussions and results.

Facility-wide emissions of air toxics are limited to wastewater process sources and are assessed using the TOXCHEM+ Model. The major-source emissions threshold analysis for hazardous air pollutants (HAP) was performed first. The individual and total annual HAP emissions for the facility are compiled and compared to threshold emission rates for the future without the proposed action and the proposed action conditions. The calculation showed that the facility is not a major source for HAPs. These compiled emission rates associated with each identified air toxic emission source were modeled using the ISCST3 dispersion model to assess both short-term (hourly) and annual average off-site concentrations for each applicable pollutant. A total of 18 compounds are evaluated, as shown in Table H-3 in Attachment H. Dispersion modeling results show that the facility would comply with the applicable SGCs and AGCs except for the following three compounds that exceed their respective AGCs although by less than ten times: Chloroform, 1-4-dichlorobenzene, and Tetrachloroethene. The annual maximum predicted impacts of concentrations for Chloroform, 1-4-dichlorobenzene, and Tetrachloroethene were 7.76, 3.16, and 1.79 times each respective AGC at the WPCP fence line. A best available control technology (BACT) analysis was performed for these three compounds pursuant to NYSDEC AirGuide 1 (DAR-1). The analysis

assessed the economical and technological feasibility of various emission controls for the compounds. Results of this BACT analysis demonstrated the economic infeasibility of the best available control technologies. Attachment H details air toxic pollutants impact analysis and the BACT analysis.

Q.3 Odor

NYSDEC has published a one-hour nuisance standard of 10 parts per billion (ppb) ($14 \mu\text{g}/\text{m}^3$) for hydrogen sulfide (H_2S). Additionally, NYCDEP considers a 1 ppb increase of H_2S an indicator of significant odor impacts from wastewater related processes. This 1 ppb guidance level uses H_2S as a surrogate for malodorous compounds at sensitive receptors (e.g., residences, playgrounds, etc.).

The proposed action would involve a BNR upgrade and modification to the water treatment process. It may affect the emissions of odorous compounds. A modeling analysis on H_2S impacts is underway to predict future odor concentrations with the proposed action.

R. Noise

Noise Fundamentals

Noise impacts may occur from numerous sources. Some noise is caused by activities essential to the health, safety, and welfare of a community, such as emergency vehicle sirens, garbage collection operations, and construction and maintenance equipment. Other sources of noise, such as traffic and aircraft, stem from the movement of people and goods, activities essential to the viability of a community as a place to live and do business. Although these and other noise-producing activities are necessary to modern life, the noise they produce is sometimes undesirable and may detract from the quality of the living environment. Noise levels of common sounds are presented in Table 2-7.

Table 2-7

Noise Levels of Common Sources

Noise Source	Level (dBA)
Air Raid Siren at 50 Feet	120
On Platform by Passing Subway	100
On Sidewalk by Passing Heavy Truck or Bus	90
On Sidewalk by Typical Highway	80
On Sidewalk by Passing Automobiles with Mufflers	70
Typical Urban Area	60-70
Typical Suburban Area Background	50-60
Quiet Suburban Area at Night	40-50
Typical Rural Area at Night	30-40
Source: City of New York Environmental Quality Review Technical Manual. October 2001.	

A number of factors affect sound, as it is perceived by the human ear. These include the actual level of the sound (or noise), the frequencies involved, the period of exposure, and changes or fluctuations in the noise levels during exposure. Levels of noise are measured in units called decibels (dB). Since the human

ear cannot perceive all pitches or frequencies equally well, these measures are adjusted or weighted to compensate for the human lack of sensitivity to low-pitched and high-pitched sounds. This adjusted unit is known as the A-weighted decibel, or dBA. The A-weighted network de-emphasizes both very low- and very high-pitched sounds, so the measured levels correlate well with the human perception of loudness.

Human response to changes in noise levels depends on a number of factors, including the quality of the sound, the magnitude of the changes, the time of day at which the changes take place, whether the noise is continuous or intermittent, and the individual's ability to perceive the changes. Human ability to perceive changes in noise levels varies widely with the individual, as does response to the perceived changes. Generally, changes in noise level less than three dBA will barely be perceptible to most listeners, whereas a ten dBA change normally is perceived as a doubling (or halving) of a noise level. These guidelines permit direct estimation of an individual's probable perception of changes in noise levels.

Noise Impact Criteria and Methodology

According to the noise impact assessment guideline provided in the *CEQR Technical Manual*, a three (3) dBA L_{eq} increase over the no action condition, although just noticeable to most listeners, is considered an indicator of noise impact significance when the daytime levels is at or above 62 dBA and for all nighttime levels as well. This is the criterion used in the noise analysis for the proposed action.

The CEQR screening methodology for predicting future noise levels is based on the assumption that existing noise levels are dominated by, and are a function of, existing traffic volumes adjacent to individual receptors, and that future noise levels can be determined based on the proportional increase in hourly traffic associated with a project. For example, if the existing volume on a street is 100 vehicles per hour (vph), and the future volume were increased by 50 vph for a total of 150 vph, the noise levels would increase by approximately 1.8 dBA. If future traffic were increased by 100 vph to a total of 200 vph, noise levels would increase by 3 dBA. However, given different emission levels from different vehicle mix, CEQR recommends using Passenger Car Equivalents (PCEs) to conservatively estimate noise from traffic. The PCEs conversions are summarized below:

- One automobile or one light truck = 1 PCE.
- One medium truck = 13 PCEs.
- One heavy truck = 47 PCEs.

R.1 Existing Conditions

Existing noise levels in the vicinity of the facility are typical of those normally associated with the nearby land uses and the overall level of development in the area, which can be classified as an area somewhat between urbanized and suburban residential area. The primary source of noise near the site is vehicular traffic and on-site stationary sources such as direct drive engine drive units for the Main Sewage Pumps and Process Air Blowers.

For a typical urban area with associated traffic conditions, noise levels are normally about 60 decibels (dBA) of background noise and about 70 dBA near sidewalks adjacent to traffic routes. For a typical suburban area, background noise is between 50 and 60 dBA.

R.2 Future Without The Proposed Action

According to the traffic analysis (Subsection O), traffic conditions would be unchanged under this condition. Therefore, a detailed analysis of mobile source noise is unnecessary and no significant mobile

source noise impacts would result from the proposed action. Furthermore, increased noise levels from the no action condition would not be anticipated from stationary source operations since no change in their operations would occur.

R.3 Future With the Proposed Action

Mobile Sources

According to the traffic analysis (Subsection O), proposed action traffic conditions would not double the PCE values. Therefore, a detailed analysis of mobile source noise is not necessary, and no significant mobile source noise impacts would result.

Stationary Sources

After the construction of the EMS Pumping System Project, increased noise levels would not occur because:

- The existing Main Sewage Pumps and Process Air Blowers engine drive units (e.g., engines and exhaust stacks located within the Pump and Blower building) would be replaced with new electric motors. The new Main Sewage Pump motors would be located in the same locations and would be enclosed within facility buildings. The motors for the new Process Air Blowers would be located in the new RAS/Blower Building. Since electric motors are much quieter than engines, the operation of the new motors is anticipated to result in a noticeable reduction of ambient noise levels.
- The generators that would be installed would only be operated under an emergency condition when all the pump engines fail. These newly installed generators would be located west of the Pump and Blower building at a greater distance from residences compared to the noisier, existing pump engines that are being replaced. Therefore, potential noise effects from the new generators are not considered significant.

Increased noise levels from the operation of the plant upgrades would not be occur due to the following:

- The existing Main Sewage Pumps and Process Air Blowers engine drive units (e.g., engines and exhaust stacks located within the Pump and Blower building) would be replaced with new electric motors (this is the same advantage achieved through EMS Pumping System Project).
- The existing emergency generators currently enclosed in a temporary trailer building would be upgraded and relocated to the new, permanent 27 kV Substation. The new substation building would be designed with: 1) interior acoustical treatments on both wall and roof materials with a Noise Reduction Coefficient of at least 0.90 to dampen generator noise levels; and 2) exhaust fans equipped with silencers (an average of 30 dBA reduction) to be located in the back of the building diverting generator noise away from the residential area (Attachment H provides these noise abatement design backups). These building design considerations would result in a noise reduction of ambient noise levels from the existing generator house, even though the new building would be closer to some noise sensitive sites (such as the adjacent open space area to the west and residences near Powell's Cove Blvd. and 127th Street). It should be further noted that the new generators would be used for emergency purposes (other than for monthly testing of about 8

to 10 hours), with a 500-hour cap on annual operating hours¹. Therefore, they are considered temporary noise sources with minimal ambient noise impacts.

In summary, compared to the future without the proposed action, the ambient noise conditions around the facility would likely be improved under the proposed action (EMS Pumping System Project and PUP). Therefore, no significant noise impacts would result.

S. Construction Impact

S.1 Construction Impacts of the Proposed Action

Socioeconomics

A maximum number of 10-15 construction workers would be employed during construction of the EMS Pumping System (present – August 2006). Up to 160 construction workers would be on-site for 12 months during construction of the PUP. A majority of these jobs are expected to be pre-existing positions within contractor companies selected for the construction contracts. Approximately 40 percent of the jobs could be new or added positions. While these longer duration construction positions are beneficial to the socioeconomic conditions within the local study area, the study area-wide impact of these positions is not significant because the relative impact compared to the Queens and New York City economies would be minimal.

Suppliers of construction materials and equipment within the College Point and Queens areas would realize minor economic benefits from increased supply orders associated with the project construction. Again, this impact is locally beneficial, but not significant because compared to the Queens and New York City economies, the effect would be minimal.

Open Spaces

Construction of the EMS Pumping System would not affect any neighboring open space area including the open space area west of the WPCP, the bulkhead/pier area or any other nearby open space.

Construction of the PUP involves potential short-term/construction-related impacts to existing open spaces including:

- Temporary or short-term restricted use or closure of open space for construction activities, including staging or access.
- Reduced use or enjoyment of open spaces due to construction-related disturbances such as increased noise levels, dust generation, and increased construction-related traffic.

Based on a review of the distances between the Tallman Island WPCP and the identified existing open spaces (Table 2-1), and scope of construction activities associated with the proposed project, the following impacts on open space could occur:

¹ The 500 hours cap is based on the current testing program and DEP's voluntary participation in Con Edison's load sharing program during peak demand periods. The estimated run time hours cap is considered conservative since DEP may no longer participate in the load sharing program.

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1. No discernible impacts on the current use and public enjoyment of Herman A. MacNeil Park, Powell's Cove, or the PS 129 grounds would be expected due to their distance from the WPCP site and construction traffic route.
 2. Temporary minor noise and dust impacts would be expected at the NYCDEP-owned open space area west of the WPCP, bulkhead/pier area, and the private marina west of WPCP site. To minimize the extent and duration of such minor impacts, the following measures would be incorporated into Contract Documents:
 - Restriction of construction traffic routing, and off-site storage of construction materials and equipment.
 - Installation of temporary construction barriers around the work site to reduce fugitive dust, noise, and visual impacts to nearby public open space areas.
 - Dust suppression as necessary.

These short-term, minor impacts would not significantly reduce the opportunity for public use or enjoyment of these open spaces. Construction activities would occur primarily during weekday working hours and cease during evenings and weekends when the greatest use of these areas would typically occur.

As noted in Subsection D.3, the new 27 kV Substation located next to the WPCP Main Gate in this area of open space would permanently remove approximately 0.25 acres of NYCDEP-owned open space.

Urban Design/Visual Resources

The construction of the proposed project would result in the presence of varying construction equipment and materials at varying locations around the site, some of which may be visible from off-site areas. However, the presence of this equipment would be temporary and their height would not be substantially different than the existing site structures. Therefore, no adverse visual impacts are anticipated as a result of the construction of the proposed action.

Shadows

Shadows cast by construction equipment and materials would be temporary and no significant adverse impacts would result.

Traffic

Construction of the proposed action would last about 4 years. Figure 13 presents the manpower requirements over the construction period. There would be a peak of 160 workers for a 12-month period in the middle of the schedule. On either side of that peak, for a total time of about 21 months, there would be 80 – 100 workers (or 37 – 50 percent less than the peak). For the remaining 12 months or so, there would be 30 – 80 workers on site.

It is estimated that a maximum of 10 to 15 contractor personnel would be needed for the EMS Pumping System work. Typically, there would be 7 to 10 construction workers at the site. Several trucks per day would also be expected. The limited number of personnel and the temporary nature of this work would not create adverse transportation impacts during any hour of the day.

The peak number of vehicular trips associated with the proposed action would occur during construction of the PUP. For a period of 12 months during the PUP it is estimated that the following hourly travel and trips would take place:

- 160 construction workers would arrive between the hours of 6 and 7 am; departure would occur between 3:30 – 4:30 pm.
- 15 – 30 heavy trucks daily for earthwork/demolition; none of these vehicles would arrive or depart in the hours of 6 am – 7 am and 3:30 – 4:30 pm; spaced evenly throughout the remainder of the day, there would be a maximum of 5 heavy trucks in any of the hours between 7 am and 3:30 pm. These vehicles would not depart within the same hour as arriving.
- 25 – 50 trucks daily for material delivery (50 percent light trucks; 50 percent heavy trucks); none of these vehicles will arrive and depart between 6 am and 7 am. These trucks will be spaced evenly throughout the day between 7 am and 3:30 pm; there would be a maximum of 6 trucks (3 light and 3 heavy) in any hour of the construction day. Two trucks (one light and one heavy truck) would depart within the same hour as arrival.

For the purpose of traffic assessment, and based on previous studies, a vehicle occupancy rate of 1.5 is assumed for this project. Also since there are two public bus lines (Q25 and Q20) in the study area, it was assumed that only 75 percent of the workers would use private automobiles and 25 percent would use public transportation. (The assumptions are based on similar previous studies and statistical research completed for the Newtown Creek WPCP Environmental Impact Statement (EIS), 2004.) Therefore, the total number of vehicles arriving at the site between the hours of 6 am and 7 am would be 80 cars.

These trips are assumed to approach the site from North and South Whitestone expressway, and East evenly. Arterials such as 20th Avenue, 11th Avenue, and 14th Avenue would provide access to the site connecting to local streets such as 127th Street, 130th Street, etc. which lead to the site. Traffic volumes along these roadways and the general neighborhood are low. Capacities of the local road network are sufficient to handle the induced construction traffic volumes. It should be noted that assigning the 80 auto trips evenly from north, South, and east would be 27 trips which is below the CEQR threshold of 50. Therefore, no detailed traffic analysis is required.

Air Quality

Anticipated construction activities at the site would require operation of fossil-fuel powered equipment. These would result in temporary emissions from the exhausts of the construction-related equipment, primarily on-site. The operation of the equipment would occur primarily during working hours (weekdays, 7 am to 6 pm). All equipment would be operated in accordance with the manufacturer's specifications and be kept in good working condition.

Other potential impacts would include fugitive dust generated by excavation and earth moving activities.

The following measures are proposed to minimize the effect on air quality during the construction of the proposed project:

- Excessive and long-term idling of construction equipment would not be allowed; all delivery/loading trucks will be limited to 3 minutes of idling on-site (except for concrete trucks).
- All construction equipment operated at the site should have properly functioning exhausts and mufflers.

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- Requirement for the watering of on-site construction activities to control fugitive dust, as needed.

All construction equipment would comply with New York City's Local Law 77 which requires the use of ultra low sulfur diesel fuel and best available technology for reducing pollutant emissions of non-road equipment.

Noise

Potential noise impacts that might occur at residences facing the Tallman Island WPCP due to the construction of the proposed work are assessed here. These residences are located in front of the plant's entrance along Powell's Cove Boulevard and are zoned R3-2 and R4.

Stationary Sources

Construction will last 4 years and it will occur from 7 am to 3:30 pm during weekdays. Existing (baseline) noise levels were recorded on February 8th, at 11:00 am on the south side of Powell's Cove Boulevard. A 20 minute measurement showed that baseline noise has an L10 of 65.5 dBA and a Leq of 64.5 dBA.

During the 48 months of construction, different activities and different equipment will be used. The analysis modeled the peak construction month defined as the month in which the highest pieces of equipment will be present on site. Under these conditions, the peak month will occur on the 4th month of construction of Contract TI-3 when 16 pieces of equipment will be present on site. The equipment considered in the analysis includes: 2 concrete vibrators, 3 concrete mixers, 1 backhoe, 3 concrete pumps, 2 dump trucks, 1 saw, 2 compactors and 2 drills.

Noise levels with the project were determined based upon operations of construction equipment. The following equation was used to calculate noise levels due to operation of a single piece of construction equipment:

$$\text{Leq}(1) = \text{E.L.} + 10 \log (\text{U.F.}) - 20 \log (\text{D}/50) - \text{Shielding}$$

where:

Leq(1) is the noise level at a peak hour time period;

E.L. is the noise emission level of the equipment at a reference distance of 50 feet;

U.F. is a usage factor that accounts for the fraction of time that the equipment is in use over the specified time period.

D is the distance from the receiver to the piece of equipment; and

Shielding is the noise attenuation by structures.

Noise emission levels (E.L.) were obtained from other studies reviewed and approved by OTA. The usage factors were set conservatively at 75 percent for all the equipment. In addition, the equipment was considered to be located at the center of the plant and that no shielding from existing plant's buildings occurred. The distance between the center of the plant and the closest sensitive receptor (residence) is about 660 feet.

Under these conditions the analysis predicted that construction activities will increase the noise levels at the residences by a maximum of 8 dBA during the 8-hour construction shift for the whole duration of the construction activities. This increase in noise is considered to be significant by the *CEQR Technical Manual*. However, this impact will be readily and efficiently reduced by

noise barriers around the construction areas, especially on the plant's side facing Powell's Cove Boulevard. Noise barriers are able to attenuate noise levels by 10 dBA. Therefore, the increase in noise levels at the residences will be 2 dBA with the institution of noise barriers during construction, therefore the increase in noise levels will not result in a potential for significant noise impact during construction.

Mobile Sources

During the peak of construction activities 160 construction workers are expected to arrive at the site between 6 a.m. and 7 a.m. The traffic analysis showed that this number of workers translates into 80 cars which are equivalent to 80 PCEs. As stated in *CEQR Technical Manual*, if PCE values are increased by 100 percent or more due to a proposed action (which would be equivalent to an increase of 3 dBA or more), a detailed analysis is necessary.

Based on the traffic analysis, passenger cars will arrive at the site at a rate of 1.3 cars per minute. This rate will not double the existing PCE in the area, as observed in the field, therefore a detailed analysis is not considered necessary. In addition, this high volume of workers is expected to last only for a year, therefore any potential noise impact can be considered temporary and not significant.

Infrastructure

Sewage Treatment

The construction of the proposed project would result in temporary increases in the construction personnel present at the facility (up to 160 persons for 12 – 18 months at peak). This increased number of working personnel at the site during working hours would not result in significant increases in sewage volume treated at the Tallman Island WPCP in comparison to the overall volume of sewage treated at the facility. Construction contractors would be required to coordinate with Tallman Island WPCP staff to implement maintenance of flow plans.

Water Supply

The following construction activities could reasonably be anticipated to temporarily impact water usage at the site:

- Some construction activities, specifically site excavation in the vicinity of underground facility water services and the installation of new and modified plumbing, would result in short-term disruptions of water service to portions of the Tallman Island WPCP. These disruptions would result in short-term minor inconveniences to WPCP operations and staff, but no impacts to off-site, neighboring properties are anticipated.
- Some construction activities, such as existing structure cleaning (for example, prior to recoating), would require increased water use. The water demand for such activities is anticipated to be minor. If the water requirements for such activities are determined to be excessively large in relation to typical WPCP usage or result in off-site water pressure reductions, the construction contractor would be required to provide alternate water sources, such as tanker trucks.

It is expected that existing water supply facilities could accommodate the personal needs of the on-site construction workers without any adverse impact. There would be early notification and close coordination with New York City Water Supply System officials during construction activities requiring the isolation of water supplies to the Tallman Island WPCP as well as excavation work in the vicinity of existing water supply facilities on Powell's Cove Boulevard.

Stormwater Management

The current scope of the proposed action does not include any modifications to existing storm sewer system, site grading or drainage. Stormwater runoff from the new 27KV Substation would be directed to the existing stormwater system. Therefore, with normal measures employed to protect the existing storm sewer system from increased sedimentation during construction, no impacts to existing stormwater management facilities would occur. Construction contractors would be required to provide appropriate erosion and sediment control measures, including silt fencing or hay bale barriers, to protect and maintain existing on-site and off-site storm-water management systems that could be impacted by construction.

Energy

The construction of the EMS Pumping System is of a relatively small scale and consists of short-term construction activities that do not require substantial amounts of energy. Larger scale or longer-term construction activities associated with the PUP component of the Project have the potential to require increased amounts of energy. The prime energy uses anticipated for the construction of the proposed action would include fossil fuel power consumed by the following:

- Construction equipment and vehicles during construction activities or transport of materials.
- Fossil fuels used in pumping activities such as the removal of groundwater from excavations, dewatering of existing WPCP process tanks, or the pumping around of wastewater flows around equipment or processes to be modified.
- Heating of new structures or facilities prior to and up to project completion.

The power consumed by construction of the proposed action would not have any significant impact on power or fossil fuel supplies. For the plant upgrade construction, the contractor is required to obtain service from Con Edison via a temporary service distribution facility. Should supplemental energy supplies be needed during construction, the contractor would be responsible for their acquisition and approval for use (e.g., registration of generators or boilers).

The air quality related impacts of the proposed action (EMS Pumping System and PUP) are presented in Subsection Q.

Solid Waste and Sanitation Services

Based on the anticipated scope of the proposed project, construction activities would produce construction debris, including, but not limited to, earthwork spoils, concrete, masonry, piping, metallic debris, and decommissioned equipment. This volume, when managed in accordance with the city's Comprehensive Solid Waste Management Plan (including material reuse/recycling) would not be significant in relation to solid waste generation within the city as a whole. In addition, it is anticipated that construction debris would be handled and disposed of by the construction contractors, no impacts to the City Department of Sanitation operations would result.

Archaeological and Historic Resources

As noted in Subsection F, the construction of the proposed action would not be out of character with the current appearance of overall plant because it has been successively altered and upgraded since 1939; moreover, the need for additions, upgrades and alterations were envisioned and provided for in the original plans for the complex. A review of detailed infrastructure maps of the Tallman Island WPCP also show that all proposed construction activities would take place on previously disturbed ground, and therefore, no pre-existing archeological resources are present.

The six eligible resources (Subsection F.1) would be protected from construction impacts such as falling objects, vibrations and dewatering. NYCDEP will follow NYCLPC's procedures for archaeological and historic resources to ensure that no potential significant adverse impacts would occur to these resources during construction.

Natural Resources

The small area of open space that would be eliminated by the proposed 27 kV Substation consists mostly of a grassy area and several trees along the existing facility fence line. This NYCDEP-owned 0.25 acre area provides minimal habitat potential and its ecological loss would not be significant.

To ensure that project construction is completed in a manner that is protective of the East River and Powell's Cove water bodies in the vicinity of the site, it is the intent of the NYCDEP to complete these measures related to the project:

- Completion of a federal consistency assessment form and compliance with conditions and requirements for construction work within areas in a defined Coastal Zone Management Program (Attachment C).
- Requiring construction contractors to provide appropriate erosion and sediment control and all necessary measures to prevent the discharge of construction related sediments and/or materials into the East River or Powell's Cove water bodies. Prior to beginning construction all necessary approvals and plans (e.g., Erosion and Sediment Control Plan, etc.) would be obtained.
- Replacement of vegetative screening material along the fence line of the WPCP where the new 27 kV Substation would eliminate the existing vegetation.
- During construction best management practices would be adhered to reduce the potential for impacts to natural resources.

Hazardous Material/Public Health

Additional environmental work has been proposed at the Tallman Island WPCP in areas where soils had not previously been investigated to establish disposal and/or occupational safety characteristics. There are four areas of additional work to be performed under the proposed action. These areas are located:

- Along the bulkhead adjacent to the south sludge thickeners (Proposed Sludge Area Electrical Building).
- North of the chlorine contact tank (Proposed Centrate Pumping Station).
- Along the sewer line west of the thickener splitting structure (Proposed Blower Building).
- Between the new storage building and Powell's Cove Boulevard (Proposed 27kV Substation).

This program will use similar protocols and procedures as the prior studies documented in the year 2000 at the Tallman Island WPCP site, modified per the October 2005 addendum. The October 2005 addendum, which includes a sampling protocol and sample location plan, was reviewed and approved by BEPA with the addition of the following provisions:

- Prior to starting the subsurface investigation, the Contractor shall mark-out the utilities for both overhead and subsurface structures in the area..
- For the four boring samples indicated on the Boring Plan, two samples will be taken: one sample at the surface and one at the highest PID reading or groundwater interface. Borings shall be completed using the hollow-stem auger per Technical Provision T-06 c. with the procedures per Technical Provision T-10 to a depth of about 35 feet. In addition, for the TI-2 excavated soil, two soil samples (hand augured to collect composite samples) will be taken from the interior portion of the stockpile. Sampling shall be performed per Technical Provision T-06 with the procedures per Technical Provision T-11.
- Soil and groundwater samples shall be submitted to a NYSDOH ELAP-certified laboratory for a full analysis of volatile organic compounds (VOCs) by Method 8260, (SVOCs) (base neutrals and acid extractable) by Method 8270, Pesticides/PCBs by Method 8081/8082, and TAL metals.

Upon completion of sampling, NYCDEP will review the results report and implement a Remedial Action Plan and Construction Health and Safety Plan . NYCDEP will conduct an additional Phase II Environmental Site Assessment prior to construction activities. With the implementation of a NYCDEP Phase II Environmental Site Assessment, Remediation Action Plan, and Construction Health and Safety Plan prior to the commencement of construction, and the proper handling of materials related to plant operations, there will be no potential for significant hazardous materials impacts as a result of the proposed action.

T. Public Health

The purpose of the CEQR assessment of public health is to examine potential impacts citywide or on the health of a community or certain group of individuals. Public health concerns are closely related to air quality, hazardous materials, construction, natural resources and infrastructure. As details on existing conditions for most of the defining components of public health are described elsewhere in this EAS (e.g., air quality, hazardous materials) they are not repeated here.

T.1 Existing Conditions

The Tallman Island WPCP is located in the College Point neighborhood, part of North Queens, together with Auburndale, Bay Terrace, Clearview, Flushing and Whitestone. The Community Health Profiles (2003) published by the New York City Department of Health and Mental Hygiene highlights important health issues facing the residents of North Queens. In general, people living in North Queens are healthier than residents of other New York City neighborhoods, but large numbers of people have poor access to health care and preventive services. Table 2-8 shows selected representative health indicators, comparing North Queens with New York City.

Table 2-8

Public Health Status of North Queens

Health Indicators	North Queens	New York City
Percent Reporting Health as "Good", "Very Good" or "Excellent"	86%	81%
Death Rate (per 100,000 people)	566	736
Hospitalization Admission Rates (per 100,000 people)	9,375	14,140
Infant Mortality Rate (Number of Deaths per 1,000 live births)	4.4	6.2
Asthma Hospitalization Rate for Children 14 Years and Younger, 2001 (Rate per 1,000 children)	2	6
Lead Poisoning Rate for Children 14 Years and Younger, 2001 (Rate per 1,000 children)	6	15
Source: Community Health Profile, New York City Department of Health and Mental Hygiene, 2003		

T.2 Future Without the Proposed Action

The continued operation of the Tallman Island WPCP facilities without the proposed action upgrades could hinder the ability of the facility to treat sewage pollutants. Without building the EMS Pumping System, in the case of a complete main sewage pump and/or engine drive unit failure, the WPCP facilities would not be able to continue its wastewater treatment operations. Thus, implementation of this alternative—future without the proposed action—could lead to a decrease in the quality of wastewater discharge and have a negative effect on local water quality, and thereby negatively affect public health.

Lead-based paint and asbestos or presumed asbestos-containing materials would continue to exist on or within existing building structures and equipment. If undisturbed and intact, such materials would not present a significant health hazard. However, if disturbed, or otherwise provided a pathway for human exposure, such materials are generally considered to be hazardous. Further, constituents of concern in site soils would continue to exist.

Other than the possible deterioration of water quality and continued presence of hazardous materials on site, there would be little difference in public health between the existing conditions and the future without the proposed action.

T.3 Future With the Proposed Action

No significant adverse impacts are anticipated on public health as described in the following text:

Air Quality

Implementation of the proposed action would not result in adverse impacts on air quality (criteria pollutants, non-criteria pollutants, and odors). Air quality conditions would be improved under the proposed action (Subsection Q) and, in turn, influence public health positively.

Hazardous Materials

The proposed action would not result in significant new or increased influx or generation of any hazardous materials to the site or surrounding neighborhood (Subsection J). The proposed action is not anticipated to result in any additional hazardous material and public health-related adverse impacts.

Construction

Construction activities would result in short term disturbances such as increased noise levels, dust generation, increased load on water-related infrastructure and increased construction-related traffic. Details and measures to minimize such impact and in turn reduce the effects on public health are addressed in Subsection S. These impacts are however temporary and with proper measures, adverse impacts are not anticipated in the long term.

Natural Resources

The project would be beneficial to East River water quality, and, in turn, to the flora and fauna inhabiting the surrounding waters (Subsection I). Therefore no adverse impacts would occur.

Infrastructure/Solid Waste and Sanitation Services

The proposed action would provide more effective and reliable wastewater treatment for the Tallman Island WPCP's service area. The plumbing modifications and improvements included in the proposed project are intended to update facility water plumbing to current codes and would result in beneficial reductions in water loss and overall usage at the facility (Subsection L). The amount of solid waste produced at the facility would remain constant (Subsection M).

The proposed action would not overburden the waste treatment infrastructure. Effective sewage treatment and waste disposal would be maintained. Therefore, public health would not be adversely impacted.