III. SUMMARY OF POTENTIAL ENVIRONMENTAL IMPACTS OF THE PROPOSED ACTION

III.1 INTRODUCTION

This section summarizes the potential environmental proposed project related incremental impacts that would require mitigation. Impacts which cannot be fully mitigated are also described. Details of these potential impacts, and the explanations of why there are no significant impacts for some impact categories, are provided in the Final EIS.

It should be noted that as the conceptual design evolved, many features have been incorporated based on engineering judgement and public input. For example, the proposed project at the Mosholu Golf Course Site would be built substantially below existing grade and fully covered allowing the replacement and enhancement of existing park uses. The costs of burying the proposed facilities, reconstructing the existing golf club house, replacing the existing driving range, rebuilding and enhancing the existing golf course, and landscaping are all included in the project design. A vibration prevention/monitoring program would also be implemented during construction. Similarly, to the extent possible, noise barriers and paving of interior construction roadways and dust suppression techniques are incorporated in construction plans to eliminate nuisances to the extent feasible. Finally, some of the planned improvements to traffic conditions would represent mitigation of impacts (see Section III.2.3, below), but planned improvements to the entrance to the Mosholu Golf Course and improvements to the 233rd Street/Jerome Avenue/Major Deegan interchange would be incorporated into the project plan despite the lack of predicted impacts based on the traffic analysis. Without certain of these design features, additional significant impacts may have occurred. The estimated costs of mitigation and impact avoidance efforts are itemized in Table 4 below.

III.2 POTENTIAL ENVIRONMENTAL IMPACTS AT THE MOSHOLU GOLF COURSE SITE

The Final EIS analyses demonstrate that there would be no significant adverse impacts associated with the proposed project at the Mosholu Golf Course Site for land use, visual character, community facilities, open space, growth inducement, air quality, Electric and Magnetic Fields / Extremely Low Frequency Fields (EMF/ELF), hazardous materials, infrastructure and energy, and solid waste.

Below is a listing of potential significant impacts which may occur, despite the design considerations discussed above. Where feasible, mitigation is proposed. It should be noted that construction-related impacts are not classified as significant because of their temporary nature. They are, however, identified below along with mitigation measures where impacts are determined to be severe.

TABLE 4. COSTS OF MITIGATION AND IMPACT AVOIDANCE EFFORTS AT THE MOSHOLU GOLF COURSE SITE

Mosholu Golf Course Site	Basis	Amount
Natural Resources 268 trees directly impacted 101 trees threatened 16 pines in 233rd ramp widening	Forestry Management Program	$13,400,000
	Forested wetland-monitoring/ stormwater/groundwater plan	$3,000,000
Lost Golf Course Revenues (Parks)	Projected through 2007	$1,160,650
Lost Golf Course Revenues (Concessionaire)	Projected through 2007 (adjusted by Parks)	$2,700,000
Improvements to Van Cortlandt & Pelham Split Rock	Irrigation, lighting, enlarged tees, cart paths, drainage, turf	$4,480,000
Mosholu Reconstruction	Golf Course, Driving Range, Clubhouse	$8,000,000
Parks Maintenance Space	1,500 sq. feet & 6 parking spaces	$720,000
Improvements to intersections at 233rd St., the exit ramp of the Major Deegan Expressway, and the site entrance, plus repaving Jerome Avenue	Conceptual Design of improvements	$2,000,000
Noise and dust suppression during construction	Fixed berm, moveable barriers, sprayers, paving of haul roads	$1,000,000
Totals		**$36,460,650**

III.2.1 Open Space

No significant impacts are expected when construction is completed. The golf course areas would be restored when the proposed WTP begins operation. All facilities and functions would be replaced and enhanced. Measures to compensate for the temporary loss of the driving range and golf course are proposed. The concessionaire and the Parks Department would be compensated for lost revenues during the construction period (see Section III.2.2, Socioeconomic Impacts, below). Both the Van Cortlandt Golf and the Pelham/ Split Rock Golf Courses would be improved in order to accommodate additional users. Likely improvements may include installation of irrigation systems, expanded tee areas, lighting systems, refurbished golf cart paths, improved drainage, and turf maintenance. The replacement/restoration of the Mosholu Golf Course and the replacement of the driving range would be undertaken. Detailed plans would be developed in consultation with

the New York City Department of Parks and Recreation (NYCDPR). In addition, the construction parking/staging areas have been rearranged between the Draft EIS and Final EIS in order to limit natural resource damages and minimize the use of fairways. As a result, the NYCDPR is considering opening the portion of the golf course not required for construction purposes for public passive recreational uses.

III.2.2 Socioeconomic Impacts

The analysis of socioeconomic conditions in the study area indicated that no significant adverse impacts would occur. However, the loss of revenues from the Mosholu Golf Course for the 5 ½ year construction period is a potential adverse impact. This impact would be avoided by compensating the NYCDPR for the lost income. Similarly, the concessionaire would also lose profits during the construction period. A fair compensation amount would be determined in conjunction with NYCDPR and awarded to the concessionaire to avoid this impact.

III.2.3 Traffic

III.2.3.1 Construction Traffic

No significant traffic impacts are expected during the operation of the proposed facilities. However, the construction phase of the proposed project is expected to result in traffic impacts at the intersection of Jerome Avenue and Van Cortlandt Park East during the peak concrete delivery period. In addition, many comments received on the Draft EIS asked that improvements be developed to alleviate, to the extent possible, existing congestion problems at key intersections at 233rd Street and Jerome Avenue and Jerome Avenue and Mosholu Golf Course entrance. In order to accomplish this task, a scheme has been developed that would require the majority of the construction related truck traffic to use the Major Deegan Expressway 233rd Street exit, and travel south along Jerome Avenue to enter the site. Construction truck traffic exiting the site would be required to travel north along Jerome Avenue to 233rd Street. Combined with improvements proposed at 233rd Street/Jerome Avenue and the 233rd off-ramp of the Major Deegan, this designated truck route scheme is projected to significantly improve current congested conditions and significantly reduce the potential noise impacts previously disclosed in the Draft EIS. These improvements are summarized below.

East 233rd St/Van Cortlandt Park East Intersection Improvements. Table 5 shows the impacted intersection at E. 233rd Street and Van Cortlandt Park East during the peak concrete delivery period and the traffic mitigation planned for this location. The mitigation measure consists of operational improvements to the signal during the construction period. Table 6 shows the operating conditions at the location with the proposed mitigation plan in place, and a comparison with the Future Without the Project and construction conditions.

At the intersection of E. 233rd Street and Van Cortlandt Park East, the impact can be mitigated by transferring 2 seconds of green light time from E. 233rd Street to Van Cortlandt Park East during the AM peak hour. The effect of this mitigation would be a decrease in the southbound right-turn delay from 57.8 seconds (LOS E) to 47.2 seconds (LOS E).

TABLE 5. PROPOSED SIGNAL TIMING CHANGE

INTERSECTION	PEAK HOUR	APPROACH	EXISTING SIGNAL TIMINGS (sec)*	MITIGATION SIGNAL TIMINGS (sec)*	MITIGATION ACTION
East 233rd Street/Van Cortlandt Park East	AM	EB (leading)	15	15	Green time reallocation.
		EB/WB	75	73	
		SB	30	32	

* - Signal timings shown include Green plus Yellow (including All Red) for a phase.

East 233rd Street/Jerome Avenue Intersection Improvements. The analyses of construction traffic with the designated truck traffic route in operation, showed that there would be no traffic impacts at the E.233rd Street/Jerome Avenue intersection with the I-87 ramps. However, these analyses, as well as field inspections, show that there is severe existing traffic congestion at this location that would worsen with or without the proposed project. Although there is a right-turn channel at Jerome Avenue, queuing prevents vehicles from utilizing the channel because it is located too close to the intersection. This problem can be resolved by temporarily widening the ramp, to provide an exclusive, temporary right-turn lane leading into the existing channel. This would allow right-turning vehicles to clear the ramp quickly and also improve the overall queuing condition on this ramp. The widening of the Major Deegan exit ramp would require the use of park land and, therefore, would be a temporary measure during the construction phase of the project. If the NYCDPR, the community, and the Department of Transportation request the NYCDEP to make this improvement permanent, the NYCDEP would seek the appropriate approvals to do so. Figure 9a shows the proposed widening concept at this intersection. Approximately 16 white pine trees, less than 14 ft. in height, would be threatened by the proposed widening. These trees would be replaced with similar sized trees and the costs of this replacement are included in Table 4 above.

The southbound left-turn from the Major Deegan Expressway at this intersection has restricted capacity due to the high opposing volume. The introduction of a left-turn signal would be beneficial to this condition and is, therefore, incorporated as part of the improvement.

Another problematic approach at this intersection is the westbound left-turn movement on E. 233rd Street. As there is a limited number of east-west roadways in this area, many vehicles heading south use westbound E. 233rd Street and then make a left-turn at Jerome Avenue. The high number of vehicles and limited green signal time result in delays during rush hours. To address this problem, it is proposed to widen E. 233rd Street to add a second left-turn travel lane on the westbound approach (see Figure 9a).

After the physical changes, signal timing would be adjusted to make the intersection more efficient. Table 7 shows the new signal timing plan during the AM and PM peak hours. Using the new configuration, capacity analysis was performed and results of the proposed improvements are shown in Table 8. As shown in the table, all approaches would operate at a satisfactory level. During the AM peak hour, the westbound right-turn movement would improve from a delay of 41.7 seconds (LOS E) to a delay of 20.7 seconds (LOS C). The southbound left-turn movement would improve from a delay of 68.5 seconds (LOS F) to a delay of 22.1

seconds (LOS C). During the PM peak hour, the southbound left-turn movement would improve from a delay of 79.9 seconds (LOS F) to a delay of 27.3 seconds (LOS D). This improvement would remain in place after construction.

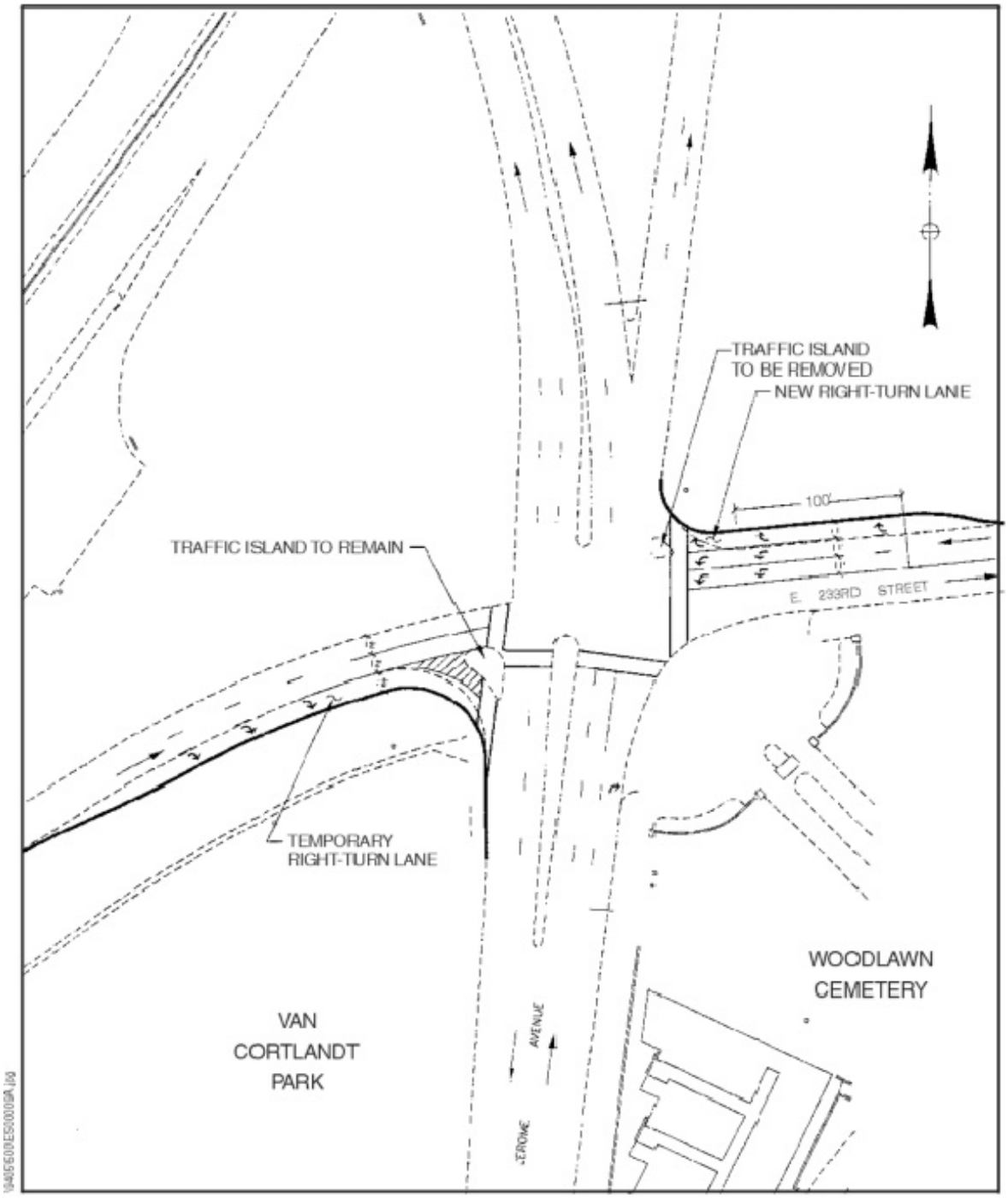
Site Entrance at Jerome Avenue. The existing entrance to Mosholu Golf Course is at a complex intersection where Jerome Avenue and Bainbridge Avenue join at an acute angle. There is limited sight visibility at this intersection because of the columns that support the elevated No. 4 IRT Woodlawn train station. Construction traffic would not likely choose to use Jerome Avenue for access from the south, but several steps would be taken to insure that truck traffic does not use this route or Bainbridge Avenue (see Figure 9b). The existing entrance to Mosholu Golf Course would be converted to a one-way exit. The right turn would be marked "No Trucks." A new entrance would be created approximately 150 ft. north of the existing entrance. The northbound approach to this entrance would be marked "No Trucks." The existing access road would be used only as an exit. The right turn lane of this exit would be marked "No Trucks," which would prevent trucks from exiting southbound. Finally, a Traffic Control person would be placed on duty at this intersection during peak traffic periods to enforce the ban on project-generated truck traffic traveling to and from the south along Jerome Avenue and Bainbridge Avenue. This would also enhance pedestrian safety.

TABLE 6. MITIGATION TRAFFIC CONDITIONS FOR MOSHOLU GOLF COURSE SITE DURING CONSTRUCTION

SIGNALIZED INTERSECTIONS	LANE GROUP	AM PEAK HOUR								
		FUTURE WITHOUT THE PROJECT			FUTURE WITH THE PROJECT			MITIGATION		
		V/C RATIO	DELAY (SEC/VEH)	LOS	V/C RATIO	DELAY (SEC/VEH)	LOS	V/C RATIO	DELAY (SEC/VEH)	LOS
East 233rd St. (E-W)/ Van Cortlandt Park East (SB)	EB-LT	0.727	8.4	B	0.750	8.9	B	0.768	10.1	B
	WB-TR	0.585	11.6	B	0.596	11.7	B	0.613	12.7	B
	SB-LR	0.630	34.7	D	0.652	35.3	D	0.607	32.9	D
	SB-R	0.882	52.7	E	0.914	57.8	E*	0.851	47.2	E

ABBREVIATION:

EB-Eastbound, WB-Westbound, NB-Northbound, SB-Southbound
L-Left, T-Through, R-Right, E-W: East-West Roadway, N-S: North-South Roadway
V/C Ratio - Volume to Capacity Ratio
SEC/VEH - Seconds per Vehicle
LOS - Level of Service
* -Denotes significantly impacted location.



Mosholu Golf Course Site
Proposed Roadway Widening

FIGURE 9A

TABLE 7. PROPOSED SIGNAL CHANGE AT E. 233RD STREET/JEROME AVENUE

INTERSECTION	PEAK HOUR	EXISTING SIGNAL TIMINGS (seconds)*		PROPOSED SIGNAL TIMINGS (seconds)		ACTION
East 233rd Street/ I-87 Entrance/Exit Ramps/ Jerome Avenue	AM	EB / WB -R	40	EB / WB-R	35	Green time reallocation and introduction of SB leading green phase
		WB (lagging) / NB-R	35	WB (lagging) / NB-R	30	
		NB/SB	45	SB (leading) / WB-R	25	
				SB/NB	30	
	PM	EB / WB-R	40	EB / WB-R	42	Green time reallocation and introduction of SB leading green phase
		WB (lagging) / NB-R	35	WB (lagging) / NB-R	27	
		NB/SB	45	SB (leading) / WB-R	19	
				SB/NB	32	

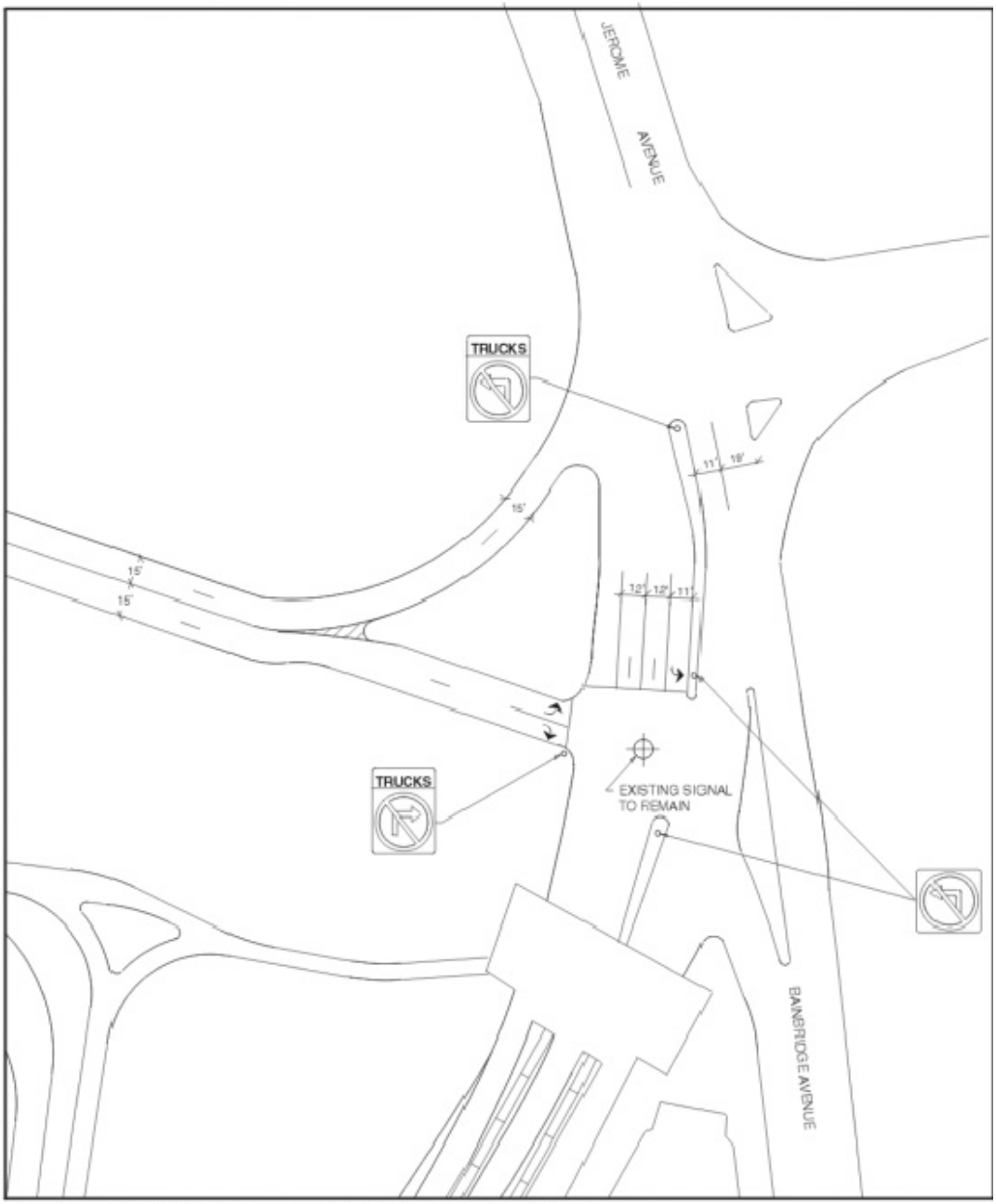
* - Signal timings shown include Green plus Yellow (including All Red) for a phase.

TABLE 8. TRAFFIC IMPROVEMENT CONDITIONS AT E. 233RD STREET/JEROME AVENUE

SIGNALIZED INTERSECTIONS	LANE GROUP	AM PEAK HOUR						
		FUTURE WITH THE PROJECT WITHOUT IMPROVEMENTS			FUTURE WITH THE PROJECT WITH IMPROVEMENTS			
		V/C RATIO	DELAY (SEC/VEH)	LOS		V/C RATIO	DELAY (SEC/VEH)	LOS
East 233rd St. (E-W)/ I-87 North Exit Ramp (EB)/ Jerome Ave. (N-S)/ I-87 Entrance/Exit Ramp (N-S)	EB-LTR	0.741	30.2	D	EB-LT	0.705	31.9	D
					EB-R	0.428	28.2	D
	WB-L	0.832	40.0	D		0.488	31.2	D
	WB-R	1.008	41.7	E		0.933	20.7	C
	NB-T	0.327	21.8	C		0.576	32.3	D
	NB-R	0.252	7.0	B		0.232	5.5	B
	SB-L	0.988	68.5	F		0.693	22.1	C
	SB-T	0.633	25.3	D		0.503	19.0	C
Overall LOS			33.8	D			27.4	D

SIGNALIZED INTERSECTIONS	LANE GROUP	PM PEAK HOUR						
		FUTURE WITH THE PROJECT WITHOUT IMPROVEMENTS			FUTURE WITH THE PROJECT WITH IMPROVEMENTS			
		V/C RATIO	DELAY (SEC/VEH)	LOS		V/C RATIO	DELAY (SEC/VEH)	LOS
East 233rd St. (E-W)/ I-87 North Exit Ramp (EB)/ Jerome Ave. (N-S)/ I-87 Entrance/Exit Ramp (N-S)	EB-LTR	0.917	38.8	D	EB-LT	0.813	31.3	D
					EB-R	0.111	21.6	C
	WB-L	0.415	27.9	D		0.285	31.0	D
	WB-R	0.806	17.8	C		0.879	25.3	D
	NB-T	0.431	22.8	C		0.622	31.8	D
	NB-R	0.409	8.1	B		0.586	20.2	D
	SB-L	1.008	79.9	F		0.746	27.3	D
	SB-T	0.200	20.7	C		0.175	17.7	C
Overall LOS			33.8	D			27.4	D

ABBREVIATION: EB-Eastbound, WB-Westbound, NB-Northbound, SB-Southbound
L-Left, T-Through, R-Right, E-W: East-West Roadway, N-S: North-South Roadway
V/C Ratio - Volume to Capacity Ratio
SEC/VEH - Seconds per Vehicle
LOS - Level of Service, * -Denotes significantly impacted location.



Note: Truck restriction signage to be implemented in conjunction with routing alternative only.

Mosholu Golf Course
Proposed Site Access

FIGURE 9B

III.2.3.2 Pavement Infrastructure

Due to the high volume of trucks generated during the construction period, pavement performance of selected roadways adjacent to the proposed site, including functional, structural, and safety would be negatively affected. Pavement rehabilitation, including resurfacing, restoration, and reconstruction, can mitigate pavement deterioration. Section II.3.7.4 shows that pavement deterioration is anticipated on Jerome Avenue between E. 233rd Street and the site entrance, a distance of approximately 1,700 feet, and on the ramps leading to/from I-87 for an overall distance of 2,700 feet.

The appropriate mitigation would be to resurface Jerome Avenue, including new binder and wearing courses, between the site entrance and E. 233rd Street. The surfaces would be evaluated during construction, temporarily repaired as required, and full resurfacing would be done at the end of construction of the proposed project. For the Major Deegan northbound exit ramp, the predicted damage can be mitigated through the construction of the new, proposed temporary right-turn lane, the improvement discussed in detail above at the E.233rd Avenue/Jerome Avenue intersection. The exit ramp would be reconstructed to its original condition after construction of the proposed project, as the widening for the construction trucks is only a temporary measure. However, as mentioned above, the NYCDPR, Department of Transportation, and community may request the NYCDEP to seek the appropriate approvals to make this improvement permanent. For the southbound on-ramp for the Major Deegan Expressway, the proposed mitigation would be resurfaced after the site is constructed.

III.2.4 Noise

No significant adverse mobile source or stationary source noise impacts are expected during the operation of the proposed facilities. In addition, the construction related noise impacts predicted in the Draft EIS were re-analyzed based on the incorporation of the decision to employ a dedicated truck route and a refined construction schedule. With these changes in place, no mobile source impacts, peak or off-peak, are expected during construction.

However, trucks transporting concrete during the peak concrete delivery period may take a different route if a concrete plant east of the project site serves as a principal source of materials. An analysis of the worst case, which assumed that 100% of the concrete trucks arrived from the east, was conducted. These trucks would pass by sensitive receptors along East 233rd Street but for this truck route as well, no mobile source impacts, peak or off-peak, are expected during construction.

Stationary noise sources on site during construction would include drilling and earth moving equipment. An early activity at the project site would include the removal of the topsoil and creation of an approximately 15 foot high berm above existing grade, along the eastern and southern perimeters of the project site. As the excavation proceeds, the equipment would be further sheltered from the surrounding neighborhood by the depth of the excavation. This would result in a noise barrier approximately 30 feet high before drilling or blasting would proceed at the eastern side of the proposed site. In addition, to further reduce sound levels due to the rock drilling and hydraulic hammer activities, a portable barrier immediately surrounding the drills and hammers would be used. The combination of the berm, lowering of the equipment into a hole, the

portable drill and hydraulic hammer barriers and the acoustic construction fencing which would be erected around the periphery of the project site, would prevent any adverse noise impacts from stationary equipment or mobile sources from within the construction site emanating beyond the construction site boundaries.

However, in order to address any unforeseen construction related impacts, NYCDEP would establish a monitoring program and dedicated complaint response system. The complaints would be investigated promptly. If complaints are verified and noise levels at sensitive receptors exceed the guidelines discussed in this document, mitigation measures would be developed and offered to the impacted residences or commercial establishments. Such measures could include the installation of double pane windows and alternate means of ventilation or the construction of temporary strategically placed sound attenuation barriers. The specific details of the complaint system would be developed in conjunction with the affected community.

III.2.5 Historic Resources

Removal of the existing Mosholu Golf Course Clubhouse, although not a landmarked structure, is considered a potential significant loss. In order to mitigate this impact, a black and white photographic record of the exterior elevations would be made and copies reposited with the Municipal Archives. This recordation would be undertaken to the specific standards of the Historic American Engineering Record. These standards stipulate the types of views to be shot, large format film, acid free film, archivally stable developing chemicals, and acid free storage sleeves.

III.2.6 Natural Resources

III.2.6.1 Vegetation and Trees

A refined, surveyed tree count has been conducted in consultation with the NYCDPR since the Draft EIS was issued. The necessary clearing and grading for the proposed WTP facilities would result in the direct loss of 268 trees.

In addition, trees adjacent to the proposed limit of construction line or close to the proposed infiltration trench (part of the stormwater/groundwater management plan described below) could be adversely affected by compaction of soils over their roots, changes in surface or groundwater drainage patterns, or accidental damage, if special care is not taken to protect them. There are 101 trees that would fall into this category. Even though the NYCDEP plans to protect these trees by placing Jersey barriers at least twenty feet from their canopies and by other means described below, for the purpose of this EIS analysis, the trees are considered potentially lost.

Finally, a group of 16 trees, mostly white pines (*Pinus alba*), would be threatened by the proposed temporary widening of the Major Deegan off-ramp at 233rd Street proposed a temporary traffic improvement measure.

Trees of this nature and associated vegetation in a preserved park environment are rare in New York City, therefore their loss would represent a potential significant adverse impact.

In order to mitigate this impact and the potential adverse impact to the five acre forested wetland area discussed below, a comprehensive reforestation/monitoring program has been developed in conjunction with the NYCDPR valued at $13.4 million along with a stormwater/groundwater management plan valued at $3 million

(The stormwater/groundwater plan is outlined below in the wetlands discussion.). The NYCDPR reforestation/monitoring program would consist of the planting of trees to replace the trees that would be lost during the construction of the proposed water treatment plant, to preserve the forested wetlands area discussed below, and to restore and preserve other natural resources of Van Cortlandt Park. The reforestation/monitoring program would start prior to construction and extend for at least three years after the proposed WTP operations commence, this represents a ten-year effort.

III.2.6.2 Wetlands

There would be a potential change in the stormwater and groundwater hydrology of the site area which could adversely affect the five acre forested wetland north of the site entrance roadway in the Shandler recreation area. The change to this forested wetland would represent a potential significant adverse impact.

To mitigate this impact, a number of actions would be taken. First, during excavation, any fractures that leak water into the excavation would be sealed with grout under pressure. This would seal rock fractures and reduce the potential for water to flow from the wetland to the excavation site. Second, a stormwater /groundwater management plan would be implemented to maintain the existing hydrology, to the extent possible.

The stormwater/groundwater management plan calls for the construction of infiltration structures adjacent to the site access road and to the south of the forested wetland. Water would be collected along the west and northwestern side of the proposed WTP building at an elevation of 180 feet, along the top of the bedrock. This is the flow which currently drains toward the wetland. This flow would be supplemented with Croton raw water to maintain a base flow equal to the volume which would migrate through bedrock toward the bottom of the foundation. This water would be passed to a series of infiltration galleries (horizontal underground diffusion devices) north and northwest of the renovated clubhouse. Overflow from the galleries would be channeled to an infiltration trench adjacent to the site access road. This infiltration trench would also receive storm flows from the parking area after it passes through an oil/water separator. Excess storm flow would pass through a weir to the combined sewer on Jerome Avenue. These devices would replenish groundwater and produce a mound of water which would prevent flows from leaving the forested wetland area to travel toward the proposed WTP facilities. Once built and calibrated, these stormwater/groundwater control devices would require no pumping, active control devices, or extensive maintenance.

During construction of the WTP, water collected in the excavated areas would be pumped to the combined sewer on Jerome Avenue. The infiltration galleries and trench would be constructed and connected to the city water supply system and calibrated to preserve the local hydrologic conditions as described above while construction dewatering operations are taking place.

Initial operation of this system would be monitored by NYCDEP in conjunction with NYCDPR. Additional numerical modeling would be utilized to adjust the rate of flow, if necessary. Once the flow to the infiltration device is shown to be maintaining the existing hydrology, no additional adjustments or maintenance would be required except for periodic cleanout of the infiltration trench.

The efforts described above would minimize impacts to the forested wetland area by providing a base flow that would allow the existing groundwater characteristics to be maintained at the existing average standing water elevation during dry weather. It would also provide storm flow that would replicate stormwater events thereby providing wet weather and seasonal variability.

However, even with these measures in place, the hydrologic regime will change to some extent leading to natural resource changes. It is likely soils near the infiltration trench may become over-saturated leading to the loss of trees unable to adjust to this condition. The number of threatened trees would be approximately thirty-six. (This estimate is included in the total number of 101 threatened trees discussed above under vegetation and tress.) In addition, the understory of the forested wetland would likely change in character because of the changes in hydrology. The understory changes are not expected to be significant. Overall, the potential loss of trees and changes to the forested wetland understory are not expected to be significant if the stormwater/groundwater management plan is properly functioning and the area is monitored and actively managed. The continuous monitoring (see Stormwater/Groundwater Management Plan, Volume E) and management of the forested wetland would be undertaken by the NYCDPR as part of the reforestation/ monitoring program described above.

In summary, the combination of constructing the stormwater/groundwater control devices and the implementation of the NYCDPR reforestation/monitoring program is expected to mitigate any potential significant adverse impacts to natural resources. However, should the monitoring and reforestation programs prove less successful than predicted in this EIS, the NYCDEP would work with the NYCDPR to adjust the mitigation program and would be responsible for replacing any unforeseen natural resource losses.

III.3 POTENTIAL ENVIRONMENTAL IMPACTS OF JEROME PARK RESERVOIR SITE RELATED CONSTRUCTION

The proposed work at the Jerome Park Reservoir site is relatively minor, short-term, and involves no permanent alteration to above-ground structures. The Final EIS analyses demonstrate that there would be no significant adverse impacts associated with the proposed project (i.e., construction of a shaft and underground connections to the Croton distribution system) at the Jerome Park Reservoir, including land use, visual character, community facilities, open space, socioeconomic conditions (including growth inducement), air quality, noise, traffic, historical and archeological resources, Electric and Magnetic Fields / Extremely Low Frequency Fields (EMF/ELF), hazardous materials, natural resources, infrastructure and energy, and solid waste.

The work at this site is described in more detail in the Proposed Project Description, Section III.5.5, Construction Schedules. Potential impacts are described in Proposed Project Description, Section IV.4, Environmental Impacts of Modifications To Existing Water Supply Facilities. The work would involve several short-duration (several days) closures of Goulden Avenue. The drilling and blasting required to dig the 100 ft. deep shaft would be timed to minimize impacts on the nearby schools. Removal of approximately 1,000 cubic yards of excavated material would only involve a total of 50-100 trucks distributed over the three month construction period (one-two trucks/day on average). The construction traffic would be timed to avoid peak traffic periods so no significant traffic impacts would be expected. Noise from the drilling would be muffled because it would occur below grade. The sound of the equipment utilized to remove the spoil wouldbe reduced by mandating muffled exhausts and through the utilization of sound-attenuating construction barriers. The

blasting would utilize blasting blankets to muffle noise and prevent ejection of material from the drilled holes. While shafts are being sunk and tunnels driven, a seismic monitoring program would be conducted. In addition, pre- and post-construction photographs would be taken of all structures in the area to document their condition and the effects of the construction. Since no significant adverse impacts are expected to result from this part of the proposed project, no mitigatory measures are required.

III.4 POTENTIAL ENVIRONMENTAL IMPACTS OF HYPOLIMNETIC AERATION

The Final EIS analyses demonstrate that with the exception of potentially adverse impacts to archaeological resources at three proposed compressor station sites (see below) there would be no significant adverse impacts associated with the proposed hypolimnetic aeration facilities (i.e., aerators) that would be installed at various locations in the New Croton Reservoir. Specifically, there would be no significant adverse impacts with respect to land use, visual character, community facilities, open space, socioeconomic conditions (including growth inducement), air quality, noise, traffic, Electric and Magnetic Fields/Extremely Low Frequency Fields (EMF/ELF), hazardous materials, natural resources, infrastructure and energy, and solid waste at any of these sites. Since no significant adverse impacts are expected to result from the proposed project, no mitigation measures are required.

Hypolimnetic aeration would improve water quality by minimizing increases in color due to the releases of iron and manganese into the water column and minimizing the mobilization of phosphorous from the sediment into the water column. The increase in oxygen to the water may also be beneficial to the habitat for fish and bottom dwelling organisms.

As described in the Proposed Project Description, Section IV.5, Environmental Impacts of Hypolimnetic Aeration, there is the potential for significant impacts to archaeological resources at compressor station sites 2, 4 and 5 during site grading for the compressor station buildings and associated excavation for burial of the electrical lines and air supply lines. In order to avoid significant adverse archaeological resources impacts, a Phase 1B Archaeology Study (testing) would be undertaken, prior to any earth-moving construction activity at these three sites. If significant remains are found, approved procedures for their recovery and documentation would be undertaken.

III.5 POTENTIAL ENVIRONMENTAL IMPACTS OF THE REHABILITATION OF THE NEW CROTON AQUEDUCT

Rehabilitation work is needed to restore the New Croton Aqueduct's (NCA's) capacity to 290 mgd and to enable the aqueduct to serve City residents for many more years.

Access to the inside of the aqueduct for the rehabilitation work would be gained from Croton Lake Gate House, Shaft 9, Shaft 14, Shaft 18, Gate House No. 1 and Jerome Park Reservoir. The work would be expected to include:

- Contact grouting of about 2,800 linear feet of aqueduct between Shafts 10 and 14.

- Rehabilitating the structures at Shafts 9, 11A, 14 and 18, and at Gate House No. 1 in Van Cortlandt Park.
- Removing sediment and debris from inside the aqueduct.
- Constructing permanent closures and bulkheads at various locations where the aqueduct is currently open to the outside.
- Constructing miscellaneous tunnel improvements.
- Performing any other repairs identified as a result of additional inspections during the rehabilitation work.

The work described above would be accomplished either at existing shaft/gate house sites or completely within the NCA. There is no above-ground activity planned except for minor shaft/gate house equipment/structure rehabilitation and staging of staff and supplies. This surface activity would involve parking for workers and delivery of several truckloads of material a day during some phases of construction. The proposed work within the aqueduct requires that all materials and laborers move through long reaches of the aqueduct in small carts to be deployed at the work site. This type of work can only accommodate a small number of workers at one time (approximately 20), so although the work would extend for several years during aqueduct shutdowns of approximately six months each, the impact of the workers and materials at each of the staging areas would be minimal.

All the shaft and gate house sites which would be used for access have been entered periodically over the past few years for inspections. The proposed work would involve the transport of materials with little impact on local communities beyond that which has occurred in the past few years. No significant environmental impacts would result from these activities.

III.6 DISCRETIONARY PERMITS

The following discretionary permits and approvals would be required for construction of a proposed WTP at the Mosholu Golf Course Site.

TABLE 9. DISCRETIONARY APPROVALS REQUIRED FOR THE WATER TREATMENT PLANT AND RELATED FACILITIES AT THE MOSHOLU SITE(1)

Department	Permit Title
New York State Department of Environmental Conservation	• Water Quality Certification • Permit to Construct and Operate a Combustion Source and Ventilation System
Department of Health	• State Environmental Review Process Certification for State Revolving Fund Program
Department of Transportation	• Permit/Approval for Traffic Enhancement
New York City City of New York	• Project must be reviewed pursuant to the Uniform Land Use Review Procedure (ULURP)
Department of Transportation	• Permit/Approval for Traffic Enhancement

[1] May include various types of review processes including, but not limited to, consultation with relevant entities.

The following Table lists the discretionary approvals required to complete the proposed Hypolimnetic Aeration project at the New Croton Reservoir.

TABLE 10. DISCRETIONARY APPROVALS REQUIRED FOR HYPOLIMNETIC AERATION AT THE NEW CROTON RESERVOIR

Department	Permit Title
New York State Department of Environmental Conservation	• Protection of Water Permit and Water Quality Certification
Department of Health	• State Environmental Review Process Certification for State Revolving Fund Program
Town of Yorktown Town Board	• Zoning Variance • Wetlands Permit