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March 2, 2009

Mr. Thomas Paolicelli
Executive Director
New York City Municipal Water Finance Authority
75 Park Place
New York, NY 10007

Re: New York City Municipal Water
Finance Authority
Fiscal Year 2009 Consulting Engineer's Report

Dear Mr. Paolicelli:

We herewith submit the Fiscal Year 2009 Consulting Engineer's Report on the operation of the Water and Sewer System of the City of New York. This Report addresses the condition and operation of the System as it presently stands, as well as the adequacy of capital and operating programs for Fiscal Years 2009 and 2010.

It is our opinion that the System continues to be managed in a professional and prudent manner within the available funding. The current budget allocations for Fiscal Year 2009 and Fiscal Year 2010 address all legally mandated projects.

It is important to note that much of the data utilized for the analyses conducted by Metcalf & Eddy (now AECOM) has been generated by the on-going budgetary process. The budgetary planning will continue past the date of this report and revisions may be made. However, it is our opinion that meaningful observations and conclusions can be made at this time, although they are subject to change based on the outcome of the budgetary process. It is these observations and conclusions that are presented hereinafter.

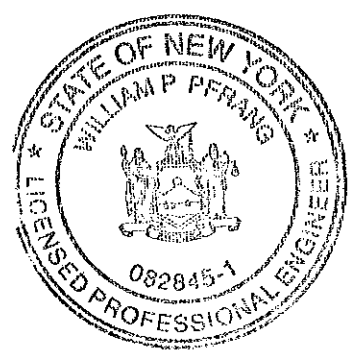
We have no responsibility to update this report for events and circumstances occurring after the date of this Report.

We look forward to continuing to support the New York City Municipal Water Finance Authority as Consulting Engineer. Thank you for this opportunity.

Very truly yours,

William Pfrang, P.E.
Vice President

cc: Marjorie E. Henning, Secretary



THE NEW YORK CITY MUNICIPAL WATER FINANCE AUTHORITY

FISCAL YEAR 2009 CONSULTING ENGINEER'S REPORT

PREPARED BY

METCALF & EDDY (now AECOM)

March 2, 2009

Document #4081

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PURPOSE AND SCOPE OF THE REPORT

The purpose of this report is to provide engineering information pertinent to the condition of the Water and Sewer System (System) serving the City of New York (City) and the use of the proposed capital improvement program (CIP) funds. Since 1983, Metcalf & Eddy (now AECOM) has provided engineering services related to the New York City Water and Wastewater Operations Evaluation Study (Study) and has provided services to the New York City Municipal Water Finance Authority (Authority) since 1985. During this period Metcalf & Eddy has performed ongoing evaluations of the condition of the System, independently reviewed the capital and operating programs pertaining to water and wastewater, reviewed pertinent studies associated with the long-term development of the system, and interviewed key individuals responsible for managing the activities of the New York City Department of Environmental Protection (NYCDEP).

The report addresses the issues listed below:

- present physical condition of the System
- Fiscal Year 2009 capital budget and Fiscal Year 2010 projected capital budget for the System
- Fiscal Year 2009 expense budget and Fiscal Year 2010 projected expense budget relative to operation and maintenance of the System
- overview of the Preliminary Ten Year Capital Strategy for Fiscal Years 2009 to 2019

METHODOLOGY FOR ANALYSIS

The analyses conducted by Metcalf & Eddy (now AECOM) were accomplished utilizing the following methods:

- discussions with representatives of the Authority and NYCDEP,
- selected confirmation inspections of operating facilities and major on-going construction programs,
- review of documentation relative to the ongoing budgetary process, and
- evaluation of other comparable water and wastewater systems and industries.

The budgetary process is ongoing and has not been concluded by the date of this report's publication. Observations and conclusions presented herein are therefore based on budget data as it presently stands. It is the opinion of Metcalf & Eddy (now AECOM) that these observations and conclusions are meaningful with respect to the System. It should be noted, however, that these observations and conclusions are subject to change based on the outcome of the budgetary process.

THE CONSULTING ENGINEER

Metcalf & Eddy (now AECOM) has served the water and wastewater industry for 100 years and the City as consulting engineer for many decades in the capacities of dealing with water supply, water distribution, sewage collection, and wastewater treatment. Metcalf & Eddy (now AECOM) is one of the largest consulting engineering firms in the United States and is recognized internationally as a leader in providing services to the water and wastewater industry. Metcalf & Eddy has functioned under its parent company, AECOM, for many years; in November 2008, Metcalf & Eddy and its sister companies officially merged operations and are now known as AECOM.

THE CONSULTING ENGINEER'S CONCLUSIONS

- In our opinion, the System continues to be managed in a professional and prudent manner with an appropriate regard for the level of service afforded to the users within the available funding.

- NYCDEP capital and expense budget projections for Fiscal Year (FY) 2009 satisfy the immediate needs for the System including all legally mandated projects, which comprise approximately 48% of the NYCDEP capital budget for FY 2009.

- All legally mandated projects, comprising approximately 62% of the NYCDEP capital budget for FY 2010, are satisfied in the Preliminary Plan. Based upon the results of the planned Risk Assessment update, additional funding may be required in FY10 for the state of good repair (SOGR) projects that have been deferred due to the need to meet mandated projects' milestones.

- The operating bureaus continue to evaluate ways to operate more efficiently with the reduced expense budgets projections for FY2010 without impacting the overall operation and maintenance (O&M) of the System.

- The physical condition of the System receives an adequate rating.

- NYCDEP has implemented organizational changes to improve overall efficiency in staffing utilization to assist in the execution and management of NYCDEP's Capital Improvement Program, to plan for future demands of the system and to deliver high quality projects. These additional organizational changes have been made to provide for proper operation and maintenance of the System, and further changes are currently planned for other operational bureaus. However, a significant increase in staff is required to support and manage the CIP and to operate the new facilities. Furthermore, the operating bureaus will need to maintain the increased staff to have a sustainable environmental, health and safety compliance program. The operating bureaus will also need to increase staff to accommodate new facilities coming on-line that increase operational needs. Depending upon the outcome of operations decisions, the BWSO and BWS may need significantly more staff to operate the new filtration and UV facilities coming on-line in the next few years.

CAPITAL PROGRAM OVERVIEW

Capital Improvement Program (CIP) - Fiscal Year 2009 and the Ten Year Capital Strategy for Fiscal Years 2010 to 2019

Budgeting is a lengthy and comprehensive process, especially for an organization operating such a large and complex system as is under the care of NYCDEP. Throughout the fiscal year, the bureaus of NYCDEP identify projects which are then proposed for inclusion in the CIP. Based upon inputs from the individual bureaus, a long list of projects is considered, prioritized, and presented in a Preliminary Plan. NYCDEP budgeting is an ongoing iterative process that takes into account legal mandates, mayoral initiatives, state of good repair (SOGR) projects to maintain permit compliance, environmental, health, and safety (EH&S) compliance requirements and other project needs. Project schedules, cost estimate updates, technical and legal issues all may impact project prioritization and the overall budgeting exercise.

The NYCDEP CIP consists of the Ten Year Capital Strategy, along with the four year Current Capital Plan, which is updated quarterly. The Preliminary Ten Year Capital Strategy was made available in January 2009 which consisted of the budget for FY09 and the Preliminary Plan for the ten year period from FY 2010 through FY 2019. This review includes the budget for FY 2009 which ends on June 30, 2009 and the budget for FY 2010 which begins on July 1, 2009. The Ten Year Strategy is updated every two years.

Metcalf & Eddy (now AECOM) has reviewed the Preliminary Ten Year Capital Strategy, provided in January 2009 and met with key individuals responsible for budgetary planning to provide an independent assessment of its adequacy. It is anticipated that the Mayor will issue the Executive Plan in April 2009. Our findings are summarized in the following paragraphs.

Regarding FY 2009

The Preliminary Plan FY 2009 budget is set at approximately $3.268 billion. Approximately 48% of FY 09 funding supports mandated projects, such as the Newtown Creek Water Pollution Control Plant South Battery Upgrade. NYCDEP believes that all legally mandated projects are fully funded in FY 2009.

Regarding FY 2010

The Preliminary Plan FY 2010 budget is set at approximately $1.932 billion. Approximately 62% of FY 10 funding supports legally mandated projects. NYCDEP believes that all legally mandated projects will be fully funded in FY 2010, such as the Newtown Creek Water Pollution Control Plant Central Residuals Building.

Regarding the Preliminary Ten Year Capital Strategy for FY 2009 to FY 2019

The Preliminary Ten Year Capital Strategy for FY2009-2019 consists of about $17.795 billion in funding. Approximately 30% of the total funding for FY2009-2019 is dedicated to mandated projects. The majority of the funding in the FY2009 and FY2010 covers mandated projects, and in subsequent years the funding is primarily for dependability projects, state of good repair, water, and sewer projects.

The Preliminary Plan focuses on those projects that are improvements to the System that have been legally mandated. They are based on meeting a growing demand for higher levels of public health and environmental protection and for the most part should be considered as betterments to the System. The focus on mandated betterments has resulted in the deferral of projects that are necessary to maintain a "state of good repair" for the System to meet its current level of service.

Many assets of the NYCDEP infrastructure are aging. Therefore, it is necessary to refurbish infrastructure in a planned manner to cost effectively minimize risk of failure. The NYCDEP is updating their Risk Based Prioritization (RBP) Assessment in order to set priorities for the continued refurbishment of all of their assets so that an orderly progression of capital improvements can be carried out. The updated RBP will also provide an opinion of future capital investment requirements. The updated risk assessment will provide a uniform methodology for a comprehensive evaluation of capital assets throughout the System and will allow a systematic approach to maintain their facilities.

Organizational Updates and New Initiatives

The NYCDEP has continued to implement improvements with regard to long term planning, organizational structure and asset management which will, in our opinion, position the NYCDEP to better manage and execute its large Capital Improvement Program. Major initiatives include:

- Last year NYCDEP created a new group, known as the Office of Strategic Projects, to address long-term planning, sustainability issues, and other mayoral initiatives. The Office of Strategic Projects addresses issues that require inter-bureau coordination, which improves communication and sharing of information across the NYCDEP. In addition, this unit works closely with other City agencies to address mayoral initiatives and other long-term planning initiatives. NYCDEP and the Mayor's Office are in the process of updating the NYCDEP Strategic Plan which will identify strengths and weaknesses of the NYCDEP.

- NYCDEP commissioned an independent Blue Ribbon Panel of Experts comprised of representation from the regional contracting community, other city agencies, construction employee organizations and unions, engineering consulting community and independent advisors. The Blue Ribbon Panel focused on four categories, which are (1) Business Practices, (2) City Construction Contract and General Conditions, (3) General Specifications, and (4) Quality Control/ Quality assurance. The panel made recommendations to improve NYCDEP's construction contracts and business practices. NYCDEP has responded to all recommendations and has created an implementation schedule for the accepted recommendations such as reducing change order process duration and changing some contract language.

- The Bureau of Engineering Design & Construction (BEDC) (the bureau responsible for managing the planning, design and construction of major capital projects) is in the implementation phase of a reorganizational structure which adopts the project life cycle approach to project management. BEDC has also made organizational changes to improve overall business practices, increase efficiencies and implement standardization across BEDC. The Program Management engineering support structure consists of a permitting group and a capital planning and budgeting group. The Project Controls Group provides support for schedules and cost estimating. The Engineering Support Group has released BEDC cost estimating manual and project delivery manuals, and has conducted extensive training for employees and consultants.

- The Project Management Information System [PMIS] development continues and full roll out is anticipated in January 2010. The PMIS will be used by BEDC and the operating bureaus to allow

for better monitoring of projects and consequently more timely reaction to critical project issues. This will reduce scheduling risks for the large, complex projects that NYCDEP is undertaking.

- BEDC initiated a Market Conditions Expert Panel last year. The Panel will continue to meet to evaluate market predictability, labor demand and competition as it relates to construction projects and provide opinions as to the impact of market conditions on the CIP.

- The Bureau of Water Supply (BWS) is responsible for managing, operating, maintaining and protecting the City's upstate water supply system to ensure delivery of a sufficient quantity of drinking water. BWS has fully completed its reorganization to a geographic-based organizational structure with greater accountability and a renewed emphasis on commitment to delivery of high quality water and a sustainable culture of compliance with all regulations.

- The Bureau of Water and Sewer Operations (BWSO) (responsible for the operation, maintenance and protection of the City's drinking water distribution and wastewater collection systems, and the execution of NYCDEP's capital water and sewer infrastructure program) is in the process of developing a program to establish performance benchmarks and Best Practices Model, evaluate organizational design to improve efficiencies, and analyze technological and systems capabilities for the Bureau.

- The Bureau of Wastewater Treatment (BWT) (responsible for the operation and maintenance of fourteen Water Pollution Control Plants [WPCPs], the City's pump stations, interceptor regulators, sludge dewatering facilities, fleet of marine vessels and laboratories, and the control of discharges from combined sewer overflows) continues an interceptor inspection program to evaluate the entire Citywide interceptor system. In addition, BWT is spearheading an initiative to make the Owls Head WPCP more energy independent by utilizing all of the digester gas (a renewable resource) that the facility produces and supplementing the flow with natural gas, which is significantly cleaner-burning than diesel fuel. This program will decrease the greenhouse gas emissions footprint of the facility's power system by approximately 40%, make the facility less vulnerable to rolling blackouts caused by the City's electrical grid being overstressed, and save approximately one million dollars per year in utility power costs.

- The Bureau of Environmental Planning and Analysis (BEPA) is responsible for conducting environmental reviews for NYCDEP, providing technical assistance for the preservation of natural resources, conducting long range planning (population/employment, consumption and demand/flow), conducting strategic planning to help ensure appropriate forecasting, trend analysis, regulatory review, scientific modeling, and research. BEPA represents the NYCDEP as a member of the Water Utility Climate Alliance (WUCA), which was formed by NYCDEP along with seven of the other largest water utilities in the U.S. The objective of the coalition is to improve research on the impacts of climate change on water utilities.

Capital Improvement Program Highlights for Water Supply, Treatment, and Conveyance Programs

Catskill/Delaware Water Supply System Filtration Avoidance

NYCDEP continues to operate under the 2007 Filtration Avoidance Determination (FAD) for the Catskill/Delaware systems. The 2007 FAD consists of a watershed protection program for 2007-2017, consisting of two five-year periods. The United States Environmental Protection Agency (USEPA) transferred primacy to the New York State Department of Health (NYSDOH) after the 2007 FAD was issued.

The continuation of the FAD programs is funded in the CIP at $538.4 million, which reflects the land acquisition program through 2017 and the other FAD programs through 2012. Under the new FAD, the NYCDEP is required to continue a land acquisition program for the ten years covered by the FAD. The land acquisition program is fully funded in the CIP at a level of $260.5 million through 2017. The current New York State Department of Environmental Conservation (NYSDEC) land acquisition permit expires in 2012, therefore NYCDEP must obtain a new permit in order to continue acquiring land in the watershed during the second five years of the FAD. The other FAD programs (such as septic and sewer rehabilitation/replacement program, upstate wastewater treatment upgrade program, stormwater management program, waterfowl management program, land management, watershed agricultural program, and wetlands protection program) will be evaluated after the first five years to determine the continuation of certain programs for the second five year period. The other FAD programs are funded for the first five years (through 2012). For the second five years of the 2007 FAD, discussions are required between NYCDEP, USEPA and NYSDOH to determine the continuation of existing programs or the addition of new programs. NYCDEP will prepare a Revised Long Term Watershed Protection Program Plan to be submitted to USEPA and NYSDOH by December 15, 2011. Additional funding will be required in the CIP for FY 2013 – FY 2017 to support the FAD programs for the second five years once the program is negotiated.

The 2007 FAD also requires implementation of operational modifications for turbidity control in Schoharie Reservoir, and the evaluation of potential modifications at Ashokan Reservoir for turbidity control. USEPA agrees with the operational modifications that NYCDEP has proposed for the Schoharie Reservoir with the implementation of operational support tool (OST). NYCDEP provided recommendations to the regulators in July 2008 for turbidity reduction measures for the Ashokan Reservoir, however the regulators have not yet responded.

In addition to the above, the FAD includes the construction of an ultraviolet (UV) disinfection facility to treat water from the Catskill and Delaware (Cat/Del) watersheds. The notice to proceed (NTP) was issued on January 31, 2008; one month later than the NTP milestone stated in the UV Administrative Consent Order. DEP met the following milestone required which was excavation completion and commencement of installing the underslab steel pipe by October 31, 2008. NYCDEP is on schedule to meet the next milestone by July 1, 2009 which is completion of underslab piping in the first and second quadrants. Operation must commence with completion of the first two quadrants by August 31, 2012, and full operation must commence October 29, 2012 in accordance with the Order. The Cat/Del UV disinfection facility and other required mandated associated work is fully funded in the CIP at a level of $432.7 million.

Another major accomplishment associated with the ongoing FAD program includes that the NYCDEP has either acquired or secured title or conservation easements to about 93,400 acres in the Catskill and Delaware watersheds at a cumulative value of approximately $306 million.

New Drinking Water Regulations

NYCDEP is evaluating the impact of compliance with the Long Term 2 Surface Water Treatment Rule (LT2) and the Stage 2 Disinfection By-Products Rule (DBP2), final versions of drinking water supply regulations issued January 2006. Several major projects, such as the Croton Water Filtration Plant and the Cat/Del UV disinfection facility are part of the compliance with these new regulations. In addition, NYCDEP has evaluated alternate disinfection methods for compliance with mandated levels of disinfection byproducts in the System. DEP is making provisions at their facilities to accommodate the use of an alternate form of disinfection if required in the future.

Delaware Aqueduct

NYCDEP continues to perform assessments on the condition of the Delaware Aqueduct. In particular, since the early 1990s, NYCDEP has continued to closely monitor the Rondout-West Branch (RWB) Tunnel portion of the Delaware Aqueduct that has showed evidence of some water losses. NYCDEP has conducted two series of dives in February 2008 and October/November 2008 to evaluate the integrity of the tunnel and to prepare for tunnel repairs in the future. The next dive is planned for late calendar year 2009 for installation of a gate valve to provide the NYCDEP the ability to dewater the aqueduct in the event of an emergency or a planned shutdown.

NYCDEP has been conducting Emergency Planning for the RWB tunnel involving NYCDEP, City, State and surrounding County agencies. The Contingency Response Plan requires ongoing communication, training, desktop exercises and planned updates. NYCDEP is exercising the Plan with periodic scheduled drills. The long term plan for repair is still under development and additional funding is expected to be added when the full program is determined.

Dependability of Water Supplies

The Dependability Study/Plan focuses on evaluating strategies for improving dependability of water supplies to meet the demands of the system during inspection, repair or rehabilitation, either planned or unplanned. A draft Conceptual Plan is currently under NYCDEP internal review. NYCDEP has evaluated various alternative projects which could allow for a portion of the water supply system to be taken out of service. Based upon a thorough analysis NYCDEP has selected three water supply dependability projects to advance into the Facility Planning phase. A tunnel parallel to the Rondout-West Branch Tunnel is currently funded in the 10 Year Plan at a level of approximately $1.675 billion, which includes facility planning, design funding and a down payment for the construction of this project. Significant additional funding will be required for the full construction of a parallel aqueduct in the outer years of the Ten Year Plan or in a future planning period. Increasing groundwater supply in Jamaica Bay has also been identified as a project to supplement water supplies: Station 6 is funded at $160.1 million and drilling further groundwater wells in Jamaica is funded at $156.9 million. The optimization of the Catskill Aqueduct to increase capacity is currently funded through the Facility Plan. Further investigations are required to determine the feasibility of increasing the capacity of the Catskill Aqueduct to 660 mgd. Water conservation also plays a role in the NYCDEP dependability program to achieve demand reduction, however this project requires further funding.

The NTP for Cross River Pump Station construction contract was issued in FY09. The Croton Falls Pump Station contract is scheduled to be advertised later this calendar year. Both of these projects are funded in the CIP. The upgrade of these pumping stations provides flexibility in conveyance by allowing the NYCDEP to maximize the use of the Croton system yield by increasing the available transmission capacity. These pumping stations divert Croton Supply to the Delaware Aqueduct. Again, additional funding will be required to secure a reliable dependable conveyance system or additional water supply to meet the demands of the system during inspection, repair or rehabilitation.

Dam Safety

The full long-term rehabilitation upgrades for the Gilboa Dam are anticipated to bring the dam into compliance with the NYSDEC safety guidelines for new dams. This rehabilitation is funded at approximately $663 million in the CIP. The crest gates contract was issued a NTP on January 6, 2009, with a contract value of $7,169,000. The bids were received for the Gilboa Dam site preparation contract on February 9, 2009. The apparent low bid was $18,440,706. Main dam reconstruction project is planned for FY 2011.

Some bridge and dam upgrades to maintain a state of good repair have been deferred to later years in the CIP, which may require more maintenance measures to extend the life of the existing infrastructure. NYCDEP BWS has hired a dam safety engineer for East and West of the Hudson, with the objective to strengthen the dam safety program.

Hillview Reservoir

NYCDEP is in the process of finalizing an application for a variance from the LT2 reservoir cover requirement, which is supported by NYC water quality data. However NYCDEP is currently under an Administrative Consent Order for Hillview Reservoir with NYSDOH which includes a schedule for installation of a cover. The construction completion of the East Basin is required by June 30, 2014 and the construction completion of the West Basin is required by October 31, 2016. If a variance from the federal regulations is granted then NYCDEP is not required to cover the reservoir in accordance with the NYSDOH Consent Order. If a cover variance is not obtained, NYCDEP is planning on requesting a deferral of the cover requirement due to ongoing projects in the watershed that require close coordination.

NYCDEP is proceeding on the design of a concrete cover for the Hillview Reservoir. The design work is currently 60% complete. The engineer's estimate for the construction is approximately $1.6 billion. Based upon the current Consent Order, $825 million will be required in FY2011 for the East Basin and $783 million will be required in FY2013 for the West Basin. NYCDEP is conducting value engineering workshops to reduce the capital expenditure of a concrete cover. At this time, $500 million is included in the CIP. Pending the outcome of the variance application and the request for a deferral of construction of a cover, additional funding may be required within the next few years of the CIP. In addition, NYCDEP continues to evaluate alternate cost-effective means to cover the reservoir. If an alternative cover is determined feasible, a Consent Order modification is necessary for the additional time required.

Funding is included in the CIP for upgrades and additional facilities currently planned at Hillview Reservoir. Funding is provided for upgrade and modifications to the existing chambers, the New Chlorination Addition Facility and a new Central Monitoring Building. The Chlorination Addition Facility will allow the City to disinfect the water supply at Hillview with sodium hypochlorite instead of chlorine gas. This is advantageous from health & safety standpoint, as well as consistent with recent concerns from Homeland Security. Funding of $74.9 million for the Chlorination Building is included in the CIP. Funding of $39.2 million is included in the CIP for the Monitoring Building. Funding of $81.4 million is included in the CIP for the Modification of Chambers (uptakes) and $61.7 million is included for the Modification of Chambers (downtakes). It should be noted that these projects are not fully funded and that additional funding will be required for these projects to be constructed.

Croton Water Filtration Plant

Due to a six month delay in the NTP for the General (G), Heating, Ventilating and Air Conditioning (HVAC) and Electrical (E) construction contracts, the Croton Water Treatment Plant (WTP) is scheduled for completion in April 2012, six months behind the Croton Filter Consent Decree milestone for commencement of operations. Approximately $314.7 million is included in the CIP for the remaining facilities associated with the Croton Water Treatment Plant, which includes the residuals forcemain from Croton to Hunts Point WPCP, Hunts Point modifications, off-site facilities, Con Ed power charges and related upgrades, and the permanent Mosholu golf club house. Additional funding may be required for the golf house once the costs are fully known. Funding of approximately $130.9 million is included in the CIP for mandated parks associated with the Croton Filter Plant.

The General Contractor for the Croton WTP has placed over 40% of the concrete for the WTP, and the other contract work is progressing to keep pace. The tunnel contractor has completed excavation of the Croton tunnels. The raw water connection to New Croton Aqueduct (NCA) was completed and lining of

the raw water tunnel is approximately 50% complete. The treated water tunnel connection to NCA will be completed in the first half of 2009. The Notice to Proceed for construction of the offsite facilities at Jerome Reservoir and Gate House No. 1, except the plumbing contract, was issued in February 2009. The off-site plumbing contract was rebid and the contract should be awarded to the apparent low bidder later in 2009. The force main contract was successfully bid in January 2009.

Rehabilitation of the NCA needs to be completed at the time of start-up of the Croton Water Treatment Plant. Funding of approximately $92.6 million for the second phase of the rehabilitation of the New Croton Aqueduct is included in the CIP. Notice to Proceed was given for the NCA contract in January 2009.

City Tunnel No. 3, Stage 2

City Tunnel No. 3, Stage 2 Manhattan leg is currently under construction and is funded at $51.6 million in the CIP for activation of the Manhattan segment. The activation and completion of the Manhattan segment of Stage 2 is currently scheduled for 2013.

Funding of $69 million is included in the CIP for the activation of City Tunnel No. 3, Stage 2 Brooklyn-Queens section, and $197.5 million for the design and construction of Shafts 17B and 18B and valve chamber. Construction completion for the Brooklyn-Queens section is anticipated in 2015.

Kensico City Tunnel (KCT)

A planning level document recommending routing of the KCT was completed this year. Additional funding for design and construction will be required in the later years of the Capital Strategy or in a future planning period. Funding of approximately $74.6 million for design is included in the CIP. Preliminary KCT construction costs are estimated between $4 and $6 billion, depending upon routing, shaft locations and connections.

Capital Improvement Program Highlights for Wastewater Treatment

Citywide Nitrogen Removal Program

Regarding the Upper East River and 26th Ward WPCPs

Construction contracts to upgrade the Upper East River WPCPs (Hunts Point, Bowery Bay, Tallman Island, and Wards Island WPCPs) and the 26th Ward WPCP for the Phase I facility plan for Biological Nitrogen Removal (BNR) upgrades as required by the Nitrogen Consent Judgment have all been let. The full-scale 25-mgd BNR demonstration project came on-line in December 2008; this demonstration project will serve as a testing facility for various operational control and optimization strategies that the City can implement at its other BNR installations. The SHARON (Single reactor system for High activity Ammonium Removal Over Nitrite) demonstration facility is expected to come on-line in March 2009. The schedules for the BNR upgrades at some of these plants have been delayed for various site-specific reasons. NYCDEP has requested significant *force majeure* relief from milestone attainment and associated penalties for some of the delays. NYCDEP have notified NYSDEC regarding the *force majeure* and other schedule delays. NYCDEP organized an expert panel for constructability review and held a series of workshops in 2008 which resulted in the establishment of time recovery plans for the delayed BNR upgrades to mitigate risks. Negotiations are ongoing between NYCDEP and NYSDEC. Penalties due to missed milestones and final schedules have not yet been determined.

In accordance with the Nitrogen Consent Judgment, NYCDEP is required to submit a Phase II facility plan by December 2009. Costs associated with a Phase II facility plan have not yet been determined however additional funding may be required in the current Ten Year Plan.

Regarding Jamaica Bay

NYCDEP and NYSDEC are currently negotiating a phased approach to the BNR upgrades required at the Jamaica and 26th Ward WPCPs in the Jamaica Bay, based upon the submittal of the Comprehensive Jamaica Bay Plan Report. The BNR upgrades at the Jamaica WPCP are currently funded at a level of approximately $53.2 million. Additional upgrades at the 26th Ward WPCP will follow the recommendations of the Phase II facility plan (to be submitted December 2009).

Regarding the Harbor Estuary

The New York/New Jersey Harbor Estuary Program (HEP) is a National Estuary Program that has been sanctioned by the USEPA to restore the waters of the Lower Harbor Estuary and the tidally influenced portions of all rivers and streams that empty into the Estuary. The HEP was convened as a partnership of federal, state, and local governments; scientists; civic and environmental advocates; the fishing community; business and labor leaders; and educators (called the Management Conference). It involves WPCPs in New Jersey and four NYCDEP WPCPs (Owls Head WPCP, Red Hook WPCP, North River WPCP, and Port Richmond WPCP). NYCDEP submitted a report to USEPA last year that evaluated the capital investment cost of upgrading of the Water Pollution Control Plants to provide nitrogen and carbon removal at four different levels of treatment. The water quality impacts on the Harbor Estuary are now being evaluated by USEPA for the various levels of treatment. Through this methodology, it is expected that USEPA and the Management Conference will determine which treatment upgrades, if any, will be required for NYC WPCPs. Funding is currently not in the Capital Plan for HEP-related upgrades. Upon completion of the HEP studies and based upon negotiations with USEPA, funding may be required in a later planning period.

Newtown Creek Water Pollution Control Plant (WPCP) Upgrade Program

NYCDEP awarded NC-47, Upgrade of Newtown Creek South Batteries at a value of $710.4 million. NC-47 is fully funded in FY09 of the CIP. The contractors received NTP on September 2, 2008. NC-41, Newtown Creek Central Residuals Building is funded at approximately $571 million in FY10 in the CIP. NC-41 was advertised for bids on February 23, 2009. As new facilities are coming on-line at Newtown Creek WPCP, they are being turned over to NYCDEP.

NYCDEP and NYSDEC have agreed to a revised construction schedule for the attainment of secondary treatment and completion of all construction at Newtown Creek WPCP, and resolution of penalties for missed milestones. This resolution is contained in the Newtown Creek Third Modified Consent Judgment. The key elements of the resolution are:

(1) Placement of $29 million in escrow, which can be recovered if NYCDEP meets certain future milestone dates

(2) Establishment of a $10 million fund for environmental benefits projects (EBP)

(3) Performing environmental audits of NYDEP's in-City wastewater treatment plants and four combined sewer overflow (CSO) facilities, under an agreement that requires DEP to remedy any legal deficiencies uncovered during the audits but protects DEP from penalties for any such deficiencies

(4) The continued implementation of improvements to NYCDEP's business practices related to certain elements of its capital construction program.

The Newtown Creek WPCP upgrade projects are funded in the CIP at a level of approximately $1.59 billion, however additional funding is required for design fees, final site work, Main Building, community amenities, DSNY warehouse and additional funds for the sludge loading docks.

Combined Sewer Overflow (CSO) Program

NYCDEP and NYSDEC executed a Consent Order modification effective April 2008 which settled two Notice of Violations (NOVs) and penalties. Approximately $1.3 billion is funded in the CIP; however, additional funding may be required in the outer years of the CIP or in future planning periods depending upon the outcome of some of the unresolved issues such as the NYCDEP proposal to eliminate Hutchinson River CSO tank, NC English Kills CSO tank, and to eliminate or defer the wet weather expansion at Jamaica WPCP, among others. NYCDEP is currently in negotiations with the NYSDEC to modify the CSO Consent Order, and to resolve two remaining NOVs. NYCDEP continues to explore cost-effective alternative solutions to combined sewer overflow issues that achieve water quality protection through the use of Best Management Practices (BMPs) rather than major infrastructure projects.

Risk Based Prioritization (RBP) Assessment

NYCDEP completed a risk based prioritization (RBP) assessment for water and wastewater facilities. The RBP was conducted at all 14 NYC water pollution control plants (WPCPs) in 2005. The program was extended to include all BWS and BWSO facilities in 2006 and further extended to include all wastewater pump stations in 2007. Individual assessments were conducted compiling a list of over 20,000 assets needing improvements throughout NYCDEP. NYCDEP is planning to update the risk assessment within the next few months for all NYCDEP facilities. The updated risk assessment will improve upon the initial study by conducting more detailed analysis. NYCDEP plans on making updates to this analysis every two years. The results of the updated risk assessment will be used as a useful tool to determine which high priority projects need to be included in the budget and can form the initiation of asset management programs.

The objective of this assessment is to evaluate the condition of all assets and establish priorities for facility refurbishment using a programmatic uniform methodology. The RBP assessment included assessment of all major facilities. The status of major equipment and unit processes were evaluated. A system of prioritization was established that sets a numerical index referred to as the Asset Risk Index (ARI) and three risk category codes; high, medium, and low. The ARI for each asset is assessed based on the probability and severity of a potential failure.

Based on the ARI, asset refurbishment is prioritized as follows:

ARI	Priority	Color Code
1 to 5	Low	Green
6 to 10	Medium	Yellow
11 to 100	High	Red

The RBP assessment provides a means for prioritizing refurbishment of NYCDEP assets and can be a meaningful tool for programming future CIP requirements. Some points about the prioritization system include the following.

- The ARI comprises both severity and probability components. The severity component is based on the impact of an asset failure. The failure of a critical asset may result in a failure to meet SPDES permit requirements or endangerment to the environment or personnel. The probability component is based on the likelihood that an asset will fail. An asset that is reaching the end of its useful will have a high probability of failure while a new asset is less likely to fail.

- It should further be noted that the ARI will change with time as facilities age. Consequently, each asset will progress in priority.

- Currently, there are a proportionally high number of assets that are in the high priority range. This suggests that the focus of the short-term CIP on legally mandated projects has resulted in the deferral of asset refurbishment necessary to maintain a "state of good repair".

- Preliminary construction costs for refurbishing assets have been provided. However, these construction cost estimates, in some instances, are order of magnitude estimates for comparative purposes that are not based on in-depth engineering studies.

Currently, there are many assets that are in the high priority range which should be addressed in an orderly fashion. It would be prudent to conduct engineering studies for the highest priority projects to identify the most cost effective way to complete the work. The engineering studies should include construction cost estimates that are sufficient for CIP budgeting.

The RBP assessment is an excellent tool in maintaining the long-term operability of the water and wastewater systems. By focusing on the highest priority projects, the CIP requirements can be introduced into the 10 Year Strategy in an orderly and cost-effective manner.

Capital Program Accomplishments

There are a number of capital program accomplishments during the past year that are noteworthy. These items play an essential role in advancing the CIP, and providing for prudent and professional management of the System.

Newtown Creek WPCP. The construction contracts for the South Battery upgrades at Newtown Creek WPCP were awarded and construction commenced in September 2008.

Del-185 (Shaft 6). The first stage of RWB Tunnel repairs have initiated with the completion of two critical inspection dives in February 2008 and October/November 2008. An additional dive for the installment of a gate valve is planned for later this calendar year. Installation of this gate valve is a first step towards securing one of two key pressure boundaries between the tunnel and Shaft 6. Securing these pressure boundaries will allow Shaft 6 to be dewatered and a pumping station to be installed; the future pumping station will, in turn, be instrumental in either a planned or emergency repair of the RWB Tunnel.

PERFORMANCE INDICATORS

Water Conservation

Figure 1 presents the annual water demand for the last 17 years. Water conservation measures taken by NYCDEP in the 1990s have resulted in a steady reduction in the overall water demand.

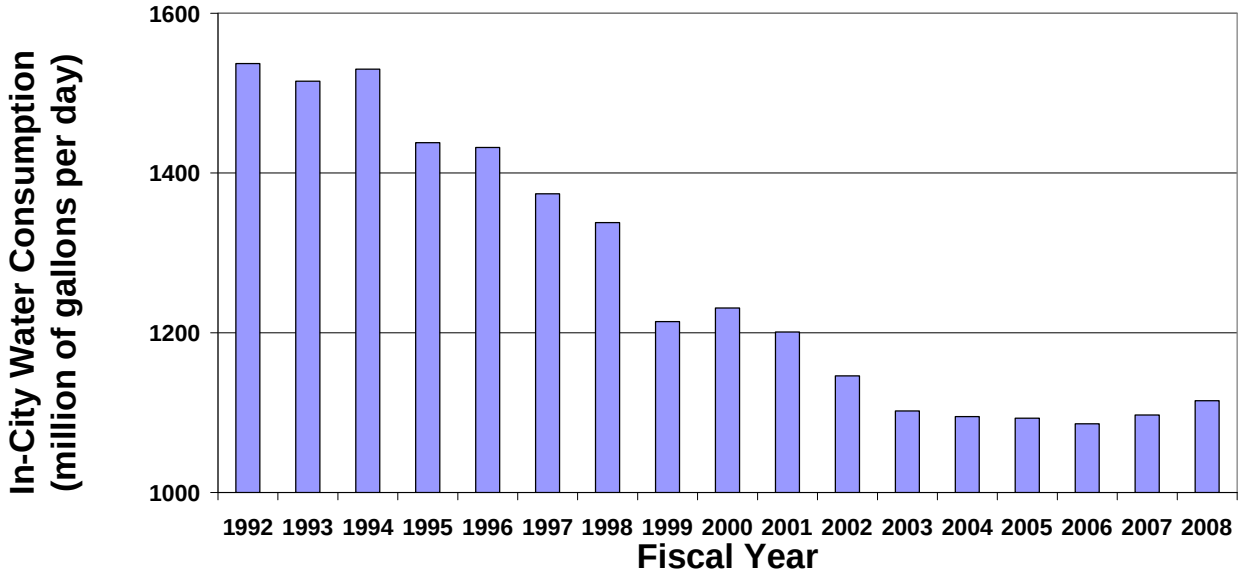
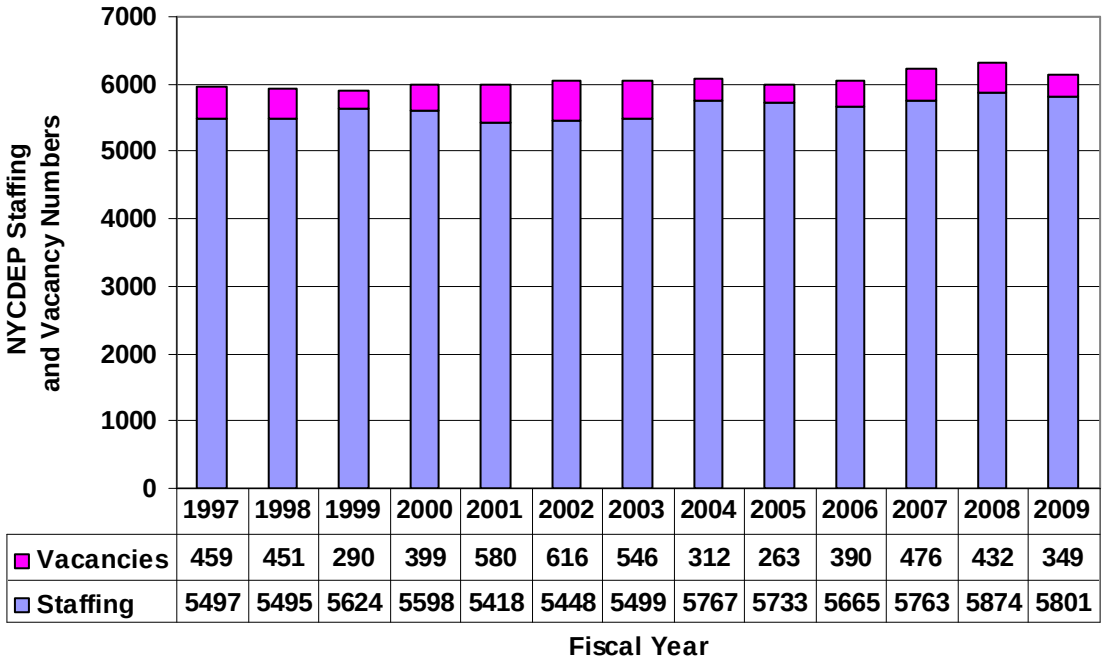


Figure 1: New York City Average Daily Water Demand in Million Gallons per Day (mgd)

System Staffing Levels

Approved positions for the System presently stand at 6,150 for FY 2009. Vacancies currently stand at 349. A positive trend in personnel procurement has been established over the past several years. Figure 2 shows a slight decrease in the NYCDEP staffing numbers due to the transfer of the Environmental Control Board from NYCDEP that occurred this year, which accounts for 142 budgeted headcount. Increased staffing levels are required to support the expanding CIP, to address the needs of the system and to operate new facilities coming on-line. It is anticipated that NYCDEP will maintain the current EH&S staff required to assist demonstrate compliance with a sustainable environmental, health and safety program. In addition, NYCDEP has experienced improvements in the recruitment process.



	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Vacancies	459	451	290	399	580	616	546	312	263	390	476	432	349
Staffing	5497	5495	5624	5598	5418	5448	5499	5767	5733	5665	5763	5874	5801

Figure 2: New York City DEP – Staffing and Vacancy Levels 1997-2009

Operational Performance Indicators

There are many operational parameters that can be reviewed to assess the effectiveness of operating programs. Several of these are summarized below:

The NYCDEP performed leak detection surveys on approximately 57% of the City's water mains. As additional funding becomes available, BWSO is prepared to increase the rate of planned water main replacement. They are currently below their target of 50 miles/year for water main replacement due to deferral of funds. There were 429 water main breaks reported in Fiscal Year 2008, which reflects a ten year low for water main breaks, however additional water main breaks are anticipated in Fiscal Year 2009. On average, NYCDEP restored water to residents within 12.1 hours after identifying the location of the break. The range of water main breaks that NYC has experienced compares well with other municipalities in the United States. Response time for leak repairs continues to remain faster than those experienced seven years ago (see Figure 3). The average backlog of broken and inoperative fire

hydrants decreased from 504 in FY 07 to 421 in FY 08. The average time to repair or replace high priority broken or inoperative hydrants (as determined by the Fire Department) by NYCDEP was 14.9 days in FY08.

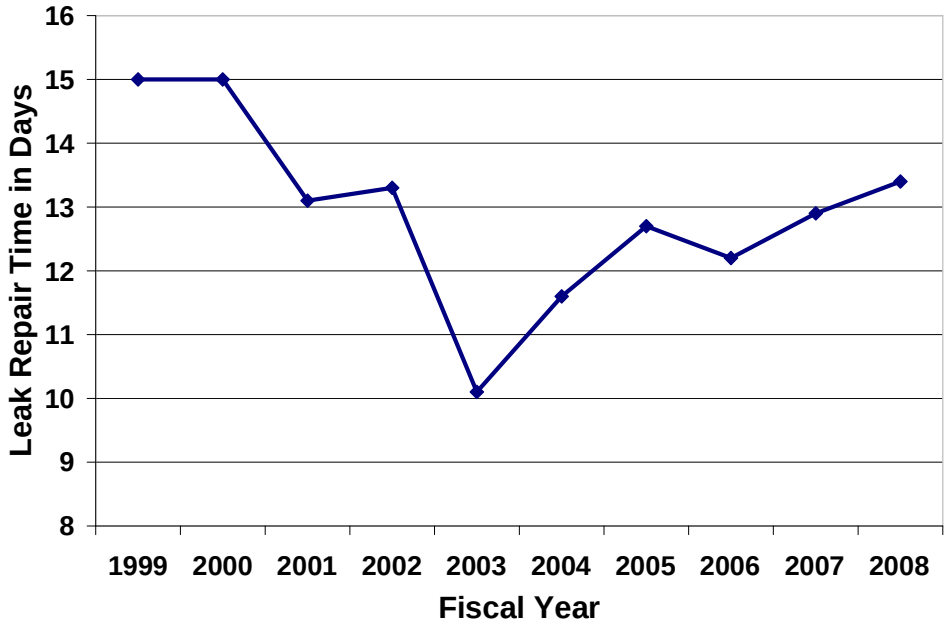


Figure 3: Water Main Leak Repair Time in Days

Operational and Maintenance Program Significant Accomplishments

Water Quality. The City of New York has been collecting and record keeping water quality data for 100 years. The New York Harbor Water Quality Survey currently consists of 62 stations; 35 stations located throughout the open waters of the Harbor, and upwards of 27 stations located in smaller tributaries within the City. The number of water quality parameters measured has also increased from five in 1909 to over 20 at present.

The water quality in the harbor has continued to improve as a result of the maintenance and operation of the wastewater treatment plants and the combined sewer overflow floatables program. Figures 4 and 5 below demonstrate the improvements in water quality over the past 30 years as indicated by the increased dissolved oxygen concentrations and reduced Fecal Coliform counts. The current information indicates that the harbor waters have achieved the standard set for fishable and swimmable quality.

Sludge Transportation. The Red Hook sludge vessel was commissioned in January 2009. The Red Hook vessel is the newest addition to the NYCDEP's marine fleet and is the third active vessel dedicated to transporting over two million gallons of sludge per day. Two six-person crews within the Marine Section of BWT will operate the sludge vessel instead of contract operations to haul the sludge. The Red Hook joins the Newtown Creek and the North River in DEP's sludge vessel fleet. In 2007, the Owls Head NYCDEP sludge vessel, was retired after more than 50 years in service.

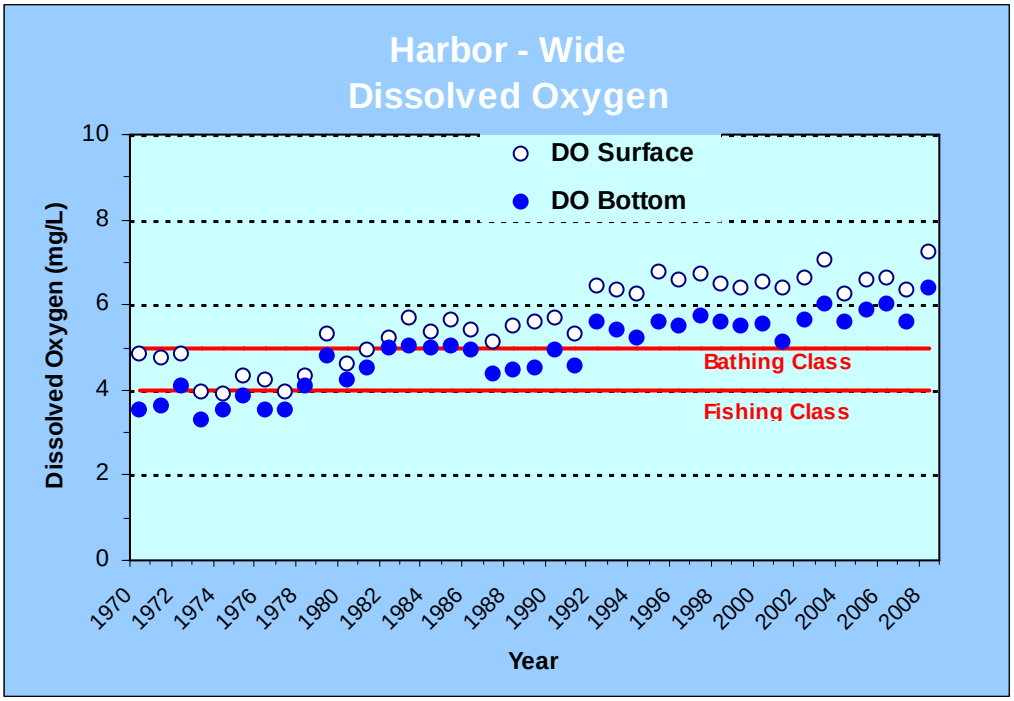


Figure 4: Dissolved Oxygen for Harbor Survey Key Stations (1970-2008)

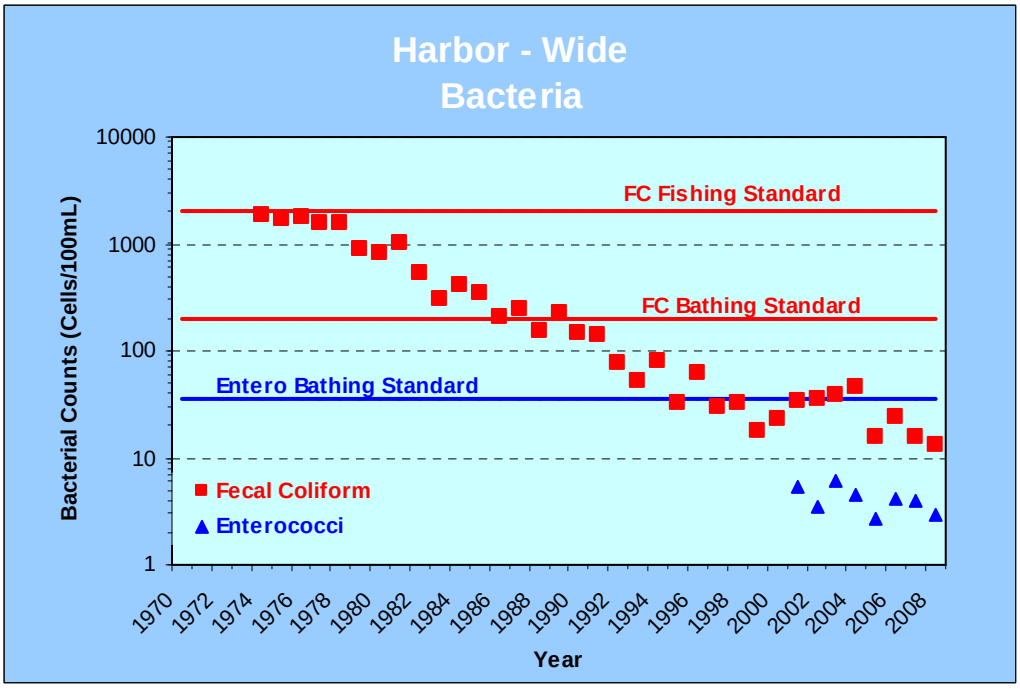


Figure 5: Fecal Coliform Counts for Harbor Survey Key Stations (1970-2008)

Operations and Maintenance Program Summary

Staffing levels for the System, when combined with capital and operating programs, are sufficient to provide for adequate operation of the current System. NYCDEP has secured some additional staff to address Environmental Health and Safety (EH&S) requirements; however, it is important that NYCDEP retain these EH&S staff. BWT has started to phase in additional plant staff at the new upgrade facilities during construction (BNR upgrades, CSO facilities and Newtown Creek WPCP) however additional staff is still required for new facilities. NYCDEP has started to plan for future staffing increases when the Croton and Cat/Del UV treatment facilities are operational. BWSO will manage/operate the Croton treatment facility and BWS will manage/operate the Cat/Del UV facility. NYCDEP is currently evaluating the potential for partial or full contract operations for the new water treatment plants.

OTHER ISSUES AND COMMENTS

Sustainability, Climate Change and Greenhouse Gas Emissions

In April 2008 Mayor Bloomberg released a One Year Progress Report for PlaNYC: A Greener, Greater New York, a comprehensive sustainability plan for New York City's future. This plan focuses on five key target areas of the City's environment – air, land, water, energy and transportation. From DEP's perspective, two major initiatives have moved to the forefront and are currently being incorporated into DEP's planning and design projects:

- Climate Change Adaptation Requirements: Adaptation requirements are those actions that must be taken to allow NYCDEP facilities to meet their intended functions when considering increased sea levels and more intense storm events. The NYC DEP released the Climate Change Program Assessment and Action Plan, A Report Based on the Ongoing Work of the DEP Climate Change Task Force in May 2008. This report provided a preliminary evaluation of the anticipated impacts of climate change on both the water collection and stormwater/wastewater collection systems, including the identification of vulnerabilities and suggestions for next steps to address climate change concerns. Following release of this report, DEP began moving forward with implementing several of the next steps identified in the report, including issuing a procurement to study the effects of climate change on the City's stormwater/wastewater collection system in more detail to determine what level of infrastructure and policy modifications are necessary to mitigate potential damage from larger, more frequent storm events and rising sea levels.

- Greenhouse Gas Reduction Requirements: As part of PlaNYC, the City has committed to reducing its municipal greenhouse gas emissions by 30% below 2005 levels by 2017. These are the requirements necessary to reduce greenhouse gas emissions as part of a world wide effort to reduce global warming. DEP plans to move forward with a contract this Spring that will include a development of a comprehensive baseline greenhouse gas emissions inventory for the entire department, site visits to all DEP facilities to identify areas where greenhouse gas emissions can be reduced and energy efficiency measures can be implemented. It is expected that several demonstration projects will result from the study.

Jamaica Bay Watershed Protection Plan

NYCDEP released the Jamaica Bay Watershed Protection Plan One Year Progress Report in October 2008 which provides an update on projects and activities in the six major categories that identify the significant issues that need to be addressed to restore the ecosystem of the Jamaica Bay. These categories include water quality, restoration of the ecology, stormwater management, public education and outreach, public use, and implementation and coordination. The Jamaica Bay Plan is a multi-year, multi-agency, comprehensive long-term plan. The Jamaica Bay Plan includes recommendations for the implementation of hard and soft infrastructure projects, innovative alternatives, pilot studies, regulatory initiatives and public outreach efforts. NYCDEP is moving forward on pilot projects for Best Management Practices (BMPs) for stormwater management for CSO control and for non-point source control in separately sewered areas. The NYCDEP convened a State of the Bay symposium in June and October 2008 highlighting emerging research on issues impacting the ecology of Jamaica Bay.

Cross Connection Prevention Program

The BWSO has continued to improve the Cross Connection Prevention Program by significantly increasing the number of inspections, targeting specific industries, updating hazardous facilities database, coordinating closely with other City agencies and expanding the public education/outreach programs.

Environmental Health & Safety (EH&S)

NYCDEP has made significant progress on the implementation of its environmental health and safety compliance program. A court conference is scheduled for April 2009 at which time the Judge will decide when the Federal Monitor supervision for BWT and NYCDEP probation will terminate. The NYCDEP will need to maintain the increased EH&S staff to demonstrate a sustainable environmental, health and safety compliance program.

Natural Gas Exploration

NYCDEP continues to monitor the potential for natural gas exploration in or near the NYC watersheds in southeastern New York State. NYSDEC has issued a final scope for a draft supplemental generic Environmental Impact Statement (EIS) in February 2009 and is preparing a draft supplemental generic EIS for natural gas drilling, which is planned to be released for comment in the Spring of 2009. NYCDEP has hired a geological consultant to assist NYCDEP evaluating potential water quality impacts of gas exploration in the watersheds.

Hydro-Electric Power

Delaware County Electric Cooperative (DCEC) has filed applications with the Federal Energy Regulatory Commission to install hydro-electric turbines at NYCDEP dams. NYCDEP has filed competing applications to harness hydro power at their dams. NYCDEP's main concerns are dam safety, maintaining operational control over the dams and the ability to meet flow management agreements.

Emerging Contaminants

New York City Council introduced legislation in 2008 regarding the testing by the NYCDEP for the presence of pharmaceuticals and personal care products in the New York City drinking water supply and the effluent from wastewater treatment plants. The Bureau of Water Supply has recently initiated a testing program of 100 emerging constituents at three locations throughout the NYC water supply system.

Awards

The American Council of Engineering Companies of New York (ACEC NY) recognized the Croton Water Treatment Plant Site Preparation and the Newtown Creek WPCP Upgrades Contract 35 for engineering excellence by granting both projects a diamond award in the 2008 awards competition. North River WPCP Managing Risks with Limited Funds won an engineering excellence silver award in the 2008 awards competition.

SUMMARY AND RECOMMENDATIONS

Regarding System Management

In our opinion, the System continues to be managed in a professional and prudent manner with an appropriate regard for the level of service afforded to the users.

Regarding the Capital Improvement Program (CIP)

Additional increases in funding may be necessary in the future, depending upon the outcome of ongoing evaluations. The most notable projects are:

- Hillview Reservoir Cover: The cost of completely covering the Hillview Reservoir using a fixed concrete cover is currently estimated at approximately $1.6 billion; funding of $500 million is included in the CIP and value engineering efforts are being made to reduce the total capital cost. NYCDEP is planning to submit a variance application and secondly a deferral for the Consent Order construction schedule. However additional funding is required by 2011 to initiate construction of the concrete cover to comply with the current Consent Order.

- Risk Based Prioritization (RBP) Assessment: The updated risk assessment will provide a comprehensive assessment of all of NYCDEP's operating facilities and will establish a prioritized list of future projects. It is anticipated that the updated risk assessment will result in a more detailed analysis of the needs that will require funding to be allocated in the budgets. Of the high priority projects, some are considered to be "immediate need" projects. Immediate need projects are those projects that present a substantial risk to the environment, health, safety, or failure to meet regulatory requirements. These projects should be completed within the near term. Other high priority projects are considered "immediate concerns". The immediate concerns are those currently operating adequately but subject to failure due to aging equipment. These projects may require short-term attention while long-term solutions are being put in place. While the RBP assessment is seen to be a good starting point, the information available is insufficient for developing specific scopes of work and budgetary cost estimates. Additional focused studies will be required to establish prioritized projects for future budgeting. In our opinion, the RBP assessment represents a first step toward an asset management program for NYCDEP, which will provide valuable input to future capital planning needs.

- BNR Upgrades: Once the Phase II facility plan is completed and the costs associated with further nitrogen removals at the WPCPs are identified, additional funding may be required in the outer years of the CIP.

- Dependability Study and Repair of Delaware Aqueduct: The Dependability Study, which focuses on evaluating strategies for improving dependability of water supplies, is advancing on three projects. However, additional funding is anticipated to advance some of these projects beyond

10% design and into construction to improve dependability of the City's water supplies. The parallel aqueduct requires additional funding in the later years of the CIP or a later planning period. The long term plan for repair of the Delaware Aqueduct is still under development and additional funding is expected to be added when the full program is identified.

- KCT: KCT facility planning continues; however, additional funding for design and construction will be required in the later years of the Strategy or in a later planning period.

- Climate Change Facility Impacts: The climate change initiative will identify additional upgrading requirements for DEP assets. Until the facility assessments have been made, the budgetary funding requirements cannot be ascertained.

- Harbor Estuary Program (HEP): The studies currently being undertaken will inevitably result in Total Maximum Daily Limits (TMDLs) being established for the Harbor Estuary. This will require additional treatment upgrading to those New York WPCPs discharging into the Lower Harbor Estuary. NYCDEP facilities that may be impacted by the anticipated regulatory action are Owls Head WPCP, Red Hook WPCP, North River WPCP, and Port Richmond WPCP. It is too early in the study phase to quantify the budgetary impact.

Regarding the Physical Condition of the System

In our opinion, the NYCDEP facilities are in adequate condition. As indicated, the RBP assessment will be updated and immediate needs may be further defined in this assessment. These immediate needs will have to be addressed and implemented in the near future. Because of the extensive nature of the NYCDEP facilities, continued diligence and future capital improvements will be necessary to maintain an adequate rating.