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March 1, 2010

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 2010 Consulting Engineer's Report

Dear Mr. Paolicelli:

We herewith submit the Fiscal Year 2010 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 2010 and 2011.

It is our opinion that the System condition is adequate and that it continues to be managed by NYCDEP in a professional and prudent manner. The current budget allocations for Fiscal Year 2010 and Fiscal Year 2011 are adequate for the immediate needs of the System and address all legally mandated projects.

It is important to note that much of the data utilized for the analyses conducted by 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.

Very truly yours,


William Pfrang, P.E.
Vice President

cc: Marjorie E. Henning, Secretary



**THE NEW YORK CITY MUNICIPAL WATER FINANCE AUTHORITY
FISCAL YEAR 2010 CONSULTING ENGINEER'S REPORT**

PREPARED BY

AECOM

March 1, 2010

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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 New York City (NYC) and the use of the proposed capital improvement program (CIP) funds. Since 1983, AECOM (formerly Metcalf & Eddy) has provided engineering services related to the NYC Water and Wastewater Operations Evaluation Study (Study) and has provided services to the NYC Municipal Water Finance Authority (Authority) since 1985. Certain studies and analysis were performed in anticipation of the creation of the Authority and were used in developing the information included in the Municipal Water Finance Authority Official Statements under the captions: "CAPITAL IMPROVEMENT AND FINANCING PROGRAM — Ten Year Capital Strategy, Current Capital Plan and the Capital Improvement Program," "THE SYSTEM — The Water System," and "THE SYSTEM — The Sewer System." AECOM 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 NYC Department of Environmental Protection (NYCDEP).

The report addresses the issues listed below:

- present physical condition of the System
- Fiscal Year 2010 capital budget and Fiscal Year 2011 projected capital budget for the System
- Fiscal Year 2010 expense budget and Fiscal Year 2011 projected expense budget relative to operation and maintenance of the System
- overview of the Current Capital Plan for Fiscal Years 2010 to 2014
- management of the System

METHODOLOGY FOR ANALYSIS

The analyses conducted by 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 had 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 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

AECOM has served the water and wastewater industry for over 100 years and NYC as a consulting engineer for many decades dealing with water supply, water distribution, sewage collection, and wastewater treatment. 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. AECOM is a global leader in all the markets for which it provides professional technical and management support services including water/wastewater, facilities, environment, energy, government and transportation. AECOM has approximately 45,000 employees worldwide and serves clients in approximately 100 countries. In 2009 Engineering News Record (ENR) magazine has ranked AECOM #2 in the top 500 Design firms category.

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) 2010 satisfy the immediate needs for the System including all legally mandated projects, which comprise approximately 45% of the NYCDEP capital budget for FY 2010.
- NYCDEP capital and expense budget projections for FY 2011 satisfy the immediate needs for the System including all legally mandated projects, which comprise approximately 14% of the NYCDEP capital budget for FY 2011.
- The physical condition of the System receives an adequate rating.
- Staffing levels are high at approximately 95% of current allocations. NYCDEP continues to study improvements to maximize the efficient use of its staff through re-allocation of current positions and new hires. The key staffing goals are to provide adequate staffing for the future operation of the Croton Water Filtration plant by BWSO, provide adequate staffing for the future operation of the CAT/DEL UV Disinfection Facility by BWS, and to provide succession planning for key operational staff at the wastewater treatment facilities (BWT), and to strengthen management of the capital improvement program (BEDC).
- NYCDEP's new organizational structure was based upon the outcome of a strategic review by NYC and is based upon four core functions of NYCDEP. The new organization allows for improved efficiencies due to enhanced coordination and leveraging capabilities.

MANAGEMENT OF THE SYSTEM

Organizational Updates

Mayor Bloomberg appointed Caswell F. Holloway as the Commissioner of the New York City Department of Environmental Protection (NYCDEP) in November 2009 and his appointment became effective January 1, 2010. Prior to his appointment, Mr. Holloway served as Chief of Staff to the Deputy Mayor for Operations Edward Skyler and as Special Advisor to Mayor Bloomberg. During his time in the Mayor's office, Mr. Holloway was involved in many NYCDEP projects and issues. Under Mr. Holloway's direction, NYCDEP is developing a Strategic Plan with rollout anticipated in April 2010. The Commissioner has implemented a new organizational structure, which consists of managing the agency based upon the four core functions of NYCDEP: (1) Utility Service (water and wastewater operations), (2) Capital Program Delivery, (3) Regulatory Compliance (Air, Water, and Environment), and (4) Financial Management:

- The Utility group consists of the three operating Bureaus: Bureau of Wastewater Treatment (BWT), Bureau of Water Supply (BWS) and Bureau of Water and Sewer Operation (BWSO), and a newly created group known as Operations, Management and Planning (OMP). All operating bureaus coordinate activities through the Deputy Commissioner of Operations.
 - BWT is 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.
 - 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.
 - BWSO is 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 improvement program for water distribution and wastewater collection infrastructure program.
 - OMP will develop a series of management and maintenance based metrics for the agency and evaluate further operational efficiencies.
- The Capital Program Delivery function is performed by the Bureau of Engineering Design & Construction (BEDC). BEDC is the bureau responsible for managing the planning, design and construction of major capital projects, including major water transmission facilities, water treatment facilities, wastewater treatment and disposal facilities, wastewater pumping stations stormwater/combined sewage overflow (CSO) facilities. In FY 2009, the NYCDEP had the highest overall procurement volume of all NYC agencies, due to the substantial investments in water and wastewater infrastructure.
- The regulatory compliance function is managed by the newly appointed Deputy Commissioner for Sustainability. Organizationally, the Deputy Commissioner is supported by the Bureau of Environmental Planning and Analysis (BEPA) and Bureau of Environmental Compliance (BEC). 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.
- Financial management is the responsibility of the newly appointed Chief Financial Officer (CFO). The CFO is responsible for budget, Bureau of Customer Services (revenue collection), Capital Projects and Administration.

CAPITAL PROGRAM OVERVIEW

Capital Improvement Program (CIP)

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. NYCDEP budgeting is an ongoing iterative process that takes into account legal mandates, mayoral initiatives, other commitments, state of good repair (SOGR) projects to maintain permit compliance, capacity issues, environmental, health, and safety (EH&S) compliance requirements, community drivers, and other project needs. Project schedules, cost estimate updates, technical issues and legal issues 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 Current Capital Plan was made available in January 2010, which consists of the budget for FY 2010 and the Preliminary Plan for the four-year period from FY 2011 through FY 2014. This review includes the budget for FY 2010, which ends on June 30, 2010 and the budget for FY 2011, which begins on July 1, 2010. The Ten Year Strategy is updated every two years. The next update for the Ten Year Capital Strategy is planned for January 2011.

AECOM has reviewed the Preliminary Current Capital Plan, provided in January 2010 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 Budget in April 2010. Our findings are summarized in the following paragraphs.

Regarding FY 2010

The Preliminary Plan FY 2010 budget is set at approximately \$3.22 billion. Approximately 45% of FY 2010 funding supports mandated projects, such as the Newtown Creek Water Pollution Control Plant Central Residuals Building. NYCDEP has indicated that all legally mandated projects are fully funded in FY 2010.

Regarding FY 2011

The Preliminary Plan FY 2011 budget is set at approximately \$1.67 billion. Approximately 14% of FY 2011 funding supports legally mandated projects. NYCDEP believes that all legally mandated projects will be fully funded in FY 2011. Funding for the Hillview cover is not in the current four-year plan with the expectation that ongoing negotiations between NYCDEP and the regulators to defer implementation will be successful.

Regarding the Current Capital Plan for FY 2010 to FY 2014

The updated Current Capital Plan for FY 2010-2014 consists of about \$8.8 billion in funding. Approximately 23% of the total funding for FY 2010-2014 is dedicated to mandated projects. A major part of the funding in FY 2010 is for mandated projects, and in subsequent years, the funding is primarily for dependability projects for the water supply system, state of good repair, and water and sewer pipe rehabilitation projects.

As in most US cities, the NYCDEP infrastructure is aging. Therefore, it is necessary to refurbish or replace infrastructure in a planned manner to cost effectively minimize risk of failure. The NYCDEP is currently refining their Asset Management program (previously implemented under the designation of Risk Based Prioritization) in order to set priorities for the continued refurbishment and eventual replacement of its system-wide assets so that capital improvements can progress in an orderly manner. The Asset Management program provides a uniform methodology for a comprehensive evaluation of capital assets throughout the System and allows a systematic approach to maintain and upgrade physical assets.

New Initiatives

NYC and 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:

- NYC recently negotiated a Project Labor Agreement (PLA) that is anticipated to have significant cost savings for NYCDEP capital construction projects over the next four years due to the exemption of the Wick's law requirement. The agreement allows upgrade projects to be implemented under a single construction contract rather than the four separate construction contracts required under Wick's Law (Plumbing, HVAC, Electrical and General).
- BEDC continues to implement improvements to overall business practices, increase efficiencies and implement standardization across BEDC in cost estimating, project scheduling, project delivery, contract structure and change order procedures.

System-wide Programs

Asset Management

Building on the experience gained in the risk based prioritization program, NYCDEP has made further efforts to refine their asset management program and expanded it to include the entire water and wastewater infrastructure. This ongoing effort is based upon a collaborative approach between the primary implementing bureau (BEDC), and the operating bureaus (BWT, BWS, and BWSO) so that all stakeholders have input throughout the process. A series of workshops have been held and will continue throughout the year. The status of the physical condition assessments is as follows: 50% complete for BWT assets, 75% complete for BWS assets and 5% complete for BWSO assets. The future upgrading of these assets will be developed into projects using established and consistent business rules. Meaningful results are anticipated in the Fall 2010 which will then be used in the development of the funding needs to be presented in the next Ten Year Capital Strategy. It is also expected that functional asset management program tools will be in place for continuous real time updating of the status of the many NYCDEP physical assets. The principles of asset management have been effectively applied to many water and wastewater utilities worldwide and asset management is considered to be a positive development for NYCDEP.

Sustainability, Climate Change and Greenhouse Gas Emissions

In 2009, Mayor Bloomberg released a PlaNYC Progress Report 2009: A Greener, Greater New York, an update on the 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 NYCDEP's perspective, two major initiatives have moved to the forefront and are currently being incorporated into NYCDEP'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. Following release of the Climate Change Program Assessment and Action Plan in 2008, NYCDEP has been implementing several of the next steps identified in the report, including studying 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. In Fall 2009, BEDC started a project that will develop a strategic plan to meet the 30% reduction. This

work will include a review of PlaNYC emissions inventories, development of design guidance to incorporate energy savings and emissions reductions in future contracts, and site visits to select NYCDEP 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.

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 Residuals Building, NC-41 at Newtown Creek WPCP were awarded and construction commenced in FY 2010.

Parallel Tunnel Facility Planning. A facility planning contract commenced which will evaluate a tunnel parallel to the Round-out West Branch Tunnel, part of the Delaware Aqueduct.

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

Delaware Aqueduct

NYCDEP continues to perform assessments on the condition of the Delaware Aqueduct. Since the early 1990s, NYCDEP has closely monitored the Rondout-West Branch (RWB) Tunnel portion of the Delaware Aqueduct that has shown evidence of some water losses. NYCDEP has conducted a series of dives and investigations into the condition of Shaft 6, a drainage shaft located along the RWB Tunnel. The overall objective is to renovate the pumping facilities so that NYCDEP can dewater the tunnel in an emergency or for a planned outage. NYCDEP completed two additional dives in November and December 2009 to prepare for and install a new gate valve and test the structural integrity of the bronze access door to the tunnel, which will allow the NYCDEP to dewater the shaft and proceed with the renovation work. This work has been ongoing throughout January and February 2010. NYCDEP has been conducting emergency planning for the RWB tunnel involving NYC, 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 when water supply system components are out of service either planned or unplanned. 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 projects necessary to improve water transmission dependability to advance into the Facility Planning phase. A \$30.4 million facility planning contract for a tunnel parallel to the Rondout-West Branch Tunnel has commenced. Additional design funding of approximately \$81 million for the parallel tunnel is provided in 2014. Significant additional funding will be required for the full construction of the tunnel in years beyond the current four-year Capital Plan. Increasing groundwater supply in Jamaica Bay has also been identified as a project to supplement water supplies: Station 6, which is a 10 mgd centralized treatment facility for six supply wells from the former Jamaica Water Supply Company groundwater system in Queens, is partially funded at \$34.3 million. Drilling further groundwater wells in Jamaica is funded at \$47.3 million in the Current Capital Plan. Another dependability project, which is the interconnection of the Delaware Aqueduct with the Catskill Aqueduct at Shaft 4, is funded at a level of \$38.5 million in the Current Capital Plan.

Construction contracts are ongoing for the Cross River Pump Station. The Croton Falls Pump Station is funded in FY 2011. These pumping stations provide conveyance flexibility to NYCDEP and would permit Croton water to be supplied to the Delaware Aqueduct if required in emergencies.

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 Current Capital Plan at a level of \$221.7 million. The land acquisition program is currently funded through the end of the current FAD in 2017. Under the current FAD, NYCDEP is required to continue a land acquisition program (LAP) for the ten years covered by the FAD. The current New York State Department of Environmental Conservation (NYSDEC) land acquisition permit expires in 2012. The NYCDEP recently applied for a new land acquisition permit. The goal is to have the new permit take effect January 2012 in order to allow NYCDEP to continue acquiring land in the watershed during the second five years of the FAD. Under the current LAP, NYCDEP acquired more land in 2009 than any other year of the program's existence (11,309 acres at a value of \$48.1 million). NYCDEP has either acquired or secured title or conservation easements to about 103,100 acres in the Catskill and Delaware watersheds at a cumulative value of approximately \$345 million since the inception of the LAP.

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. An Assessment Report is due to the regulators in early 2011, which will include accomplishments under the FAD and water quality results. 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 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 and NYSDOH have endorsed the operational modifications that NYCDEP proposed for the Schoharie Reservoir with the implementation of operational support tool (OST). However, the regulators have not yet endorsed utilizing the OST for turbidity reduction measures at Ashokan Reservoir.

In addition to the above, the FAD includes the construction of an ultraviolet (UV) disinfection facility at the Eastview site to treat water from the Catskill and Delaware (CAT/DEL) watersheds. Construction of the UV base slab was completed by December 31, 2009 as required by the UV Administrative Consent Order. NYCDEP is on schedule to meet the next milestone, which is completion of concrete slab at elevation 334 feet on June 1, 2010. 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 Current Capital Plan.

Recent 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. NYCDEP is making provisions at their facilities to accommodate the use of an alternate form of disinfection if required in the future.

Dam Safety

The full long-term rehabilitation upgrades for the Gilboa Dam are anticipated to bring the dam into a state of good repair and in compliance with the NYSDEC dam safety guidelines. This rehabilitation is funded at approximately \$434 million in the Current Capital Plan. The crest gates contract and the Gilboa Dam site preparation contract are on-going. 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.

Based upon the new NYSDEC dam safety guidelines that came into effect in August 2009, NYCDEP is in the process of inspecting the small dams that are located on NYCDEP land upstate and is planning to perform inspections of dams at all in-city reservoirs.

Hillview Reservoir

NYCDEP submitted a request for a time deferral of the Hillview cover due to ongoing projects in the watershed that require close coordination. The Hillview cover is currently required due to federal regulations administered by USEPA and an Administrative Consent Order with NYSDOH, which includes a schedule for installation. According to the current order, the construction completion of the East Basin cover is required by June 30, 2014 and the construction completion of the West Basin cover is required by October 31, 2016. NYCDEP is currently negotiating a potential time deferral for construction of the Hillview cover with USEPA and NYSDOH.

NYCDEP is on schedule for design completion of a concrete cover for the Hillview Reservoir by March 2010, consistent with the design completion milestone in the current Administrative Consent Order. The current engineer's estimate for the construction is approximately \$1.6 billion; however, NYCDEP continues to assess more cost effective solutions. Based upon the current Consent Order, \$825 million will be required in FY 2011 for the East Basin cover and \$783 million will be required in FY 2013 for the West Basin cover. NYCDEP has completed Value Engineering workshops to reduce the capital expenditure for the concrete cover. At this time, funding for a cover is not included in the Current 4-year Capital Plan. Pending the outcome of the deferral negotiations, additional funding may be required in a later planning period.

Funding is included in the Current Capital Plan for upgrades and additional facilities planned at Hillview Reservoir. The project scope includes upgrading and modifying the existing chambers and a new Chlorine Addition Facility. The Chlorine Addition Facility will allow NYC to disinfect the water supply at Hillview with sodium hypochlorite instead of chlorine gas. This is advantageous from health & safety standpoints. Funding of \$74.9 million for the Chlorination Building is included in the CIP. The CIP includes funding of \$81.4 million for the modification of uptake chambers and \$61.7 million for downtake chambers. It should be noted that these projects are not fully funded and that additional funding will be required to complete the construction.

Croton Water Filtration Plant

The Croton Water Filtration Plant is scheduled to be operational by May 2012, approximately seven months after the Croton Filter Consent Decree milestone for commencement of operations, due to a seven month delay in the notice to proceed (NTP) for the General (G), Heating, Ventilating and Air Conditioning (HVAC) and Electrical (E) construction contracts. BEDC is monitoring construction scheduling and is working diligently to maintain construction progress. Approximately \$108.2 million is included in the CIP for the remaining facilities associated with the Croton Water Filtration Plant, which includes the residuals forcemain from Croton to Hunts Point WPCP, modifications at Hunts Point WPCP to handle residuals, off-site facilities, Con Ed power charges and related upgrades, and the permanent Mosholu golf club house. Funding of approximately \$103.5 million is included in the CIP for mandated payments to the Parks Department in connection with the Croton Water Filtration Plant. NYCDEP is evaluating alternatives to provide standby power for the Croton Water Filtration Plant to increase dependability if there was a major outage in one of the other power supplies. The additional work is currently not funded in the Croton budget. Standby power is not part of the critical path for completing construction and starting-up the Croton Water Filtration Plant.

The General Contractor for the Croton Water Filtration Plant has placed almost 85% of the concrete for the plant, and the other contract work is progressing to keep pace. Con Edison will have installed the new electrical feeders to the plant by mid 2010. The tunnel contractor is scheduled to complete pipe installation by Summer 2010. Construction of the offsite facilities at Jerome Reservoir and Gate House No. 1-is proceeding. The force main contract has started construction and is anticipated to be completed on schedule.

Rehabilitation of the New Croton Aqueduct (NCA) is ongoing. Because of the shutdown of the Delaware Aqueduct for shaft dives and inspections, access to the NCA has been limited. If the work on Shaft 6 of the Delaware Aqueduct proceeds on schedule, then the NCA contractor should have enough time to complete the rehabilitation work, which needs to be completed in time for the start-up of the Croton Water Filtration Plant.

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. Significant coordination among NYCDEP, Department of Design and Construction (DDC) and Department of Transportation (DOT) is ongoing regarding the challenging issues associated with the connection of shafts and the distribution mains. The activation and completion of the Manhattan segment of Stage 2 is currently scheduled for 2013. At that time, NYCDEP will have redundancy for Tunnel #1 and NYCDEP will have the ability to take it out of service for the first time since it was put into service in 1917. Funding of \$69 million is included in the CIP for the activation of City Tunnel No. 3, Stage 2 Brooklyn-Queens section, and \$95 million in the Current Capital Plan for the design and construction of Shafts 17B and 18B and valve chamber. Construction completion for the Brooklyn-Queens section is anticipated in 2018.

Kensico-City Tunnel (KCT)

A planning level document recommending general routing of the KCT has been completed. The proposed tunnel would extend from the Kensico Reservoir to the interconnecting valve chamber of Tunnel 3, Stage 1, south of Hillview Reservoir. There is currently no funding included in the Current Capital Plan for KCT. Preliminary KCT construction costs are estimated between \$4 and \$6 billion, depending upon specific 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 awarded. The full-scale 25-mgd BNR demonstration project at Wards Island WPCP 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 came on-line in November 2009. The schedules for the BNR upgrades at some of these plants have been delayed for various site-specific reasons. NYCDEP and NYSDEC are currently negotiating revised construction milestones for the WPCPs undergoing BNR upgrades.

In accordance with the Nitrogen Consent Judgment, NYCDEP submitted a Phase II facility plan in December 2009. Carbon addition for Hunts Point WPCP is required by August 2014 and funding of approximately \$15 million for construction is included in the Current Capital Plan. Additional funding will be required for construction of supplemental carbon facilities at Bowery Bay, Tallman Island and Wards Island WPCPs for Phase II BNR by FY 2014.

Regarding Jamaica Bay

NYCDEP and NYSDEC have entered into an agreement to upgrade the Jamaica WPCP to reduce nitrogen discharges. A Stipulation and Order Modifying the Nitrogen Consent Judgment concerning the WPCPs discharging to Jamaica Bay became effective October 2009. NYCDEP has issued a change order to the existing construction contract at the Jamaica WPCP to include biological nitrogen removal upgrades into the existing ongoing construction at the plant. NYCDEP, NYSDEC and Natural Resources Defense Council (NRDC) have negotiated a conceptual agreement regarding nitrogen removal upgrades at Rockaway WPCP and Coney Island WPCP, construction milestones for the Jamaica Bay WPCPs interim nitrogen effluent limits for Jamaica Bay and the funding of an environmental benefits project for the saltwater marsh restoration in Jamaica Bay. NYCDEP anticipates that a modification to the Nitrogen Consent Judgment will be executed for the WPCPs discharging to Jamaica Bay.

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). NYCDEP submitted a report to USEPA last year that evaluated the capital investment cost of upgrading four WPCPs (Owls Head WPCP, Red Hook WPCP, North River WPCP, and Port Richmond WPCP) 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. 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-41, Newtown Creek Central Residuals Building at a value of approximately \$360 million in FY 2010. As new facilities come on-line, they are being turned over to NYCDEP.

NYCDEP and NYSDEC entered into a Newtown Creek Third Modified Consent Judgment effective August 2009, which addresses 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. 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 NYCDEP's in-City wastewater treatment plants and four combined sewer overflow (CSO) facilities, under an agreement that requires NYCDEP to remedy any legal deficiencies uncovered during the audits but protects NYCDEP 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. NYCDEP is required to achieve secondary treatment by May 1, 2013 and complete construction of all Newtown Creek mandated work by July 4, 2014. Although Newtown Creek WPCP is still under construction, the plant has recently started meeting secondary treatment standards.

The Newtown Creek WPCP mandated upgrade projects are funded in the CIP at a level of approximately \$451.7 million. There is an additional funding of approximately \$194.3 million in the Current Capital Plan for upgrades at Newtown Creek WPCP that are not mandated as part of the Consent Judgment.

Combined Sewer Overflow (CSO) Program

NYCDEP is actively exploring cost-effective alternative solutions to combined sewer overflow issues that achieve water quality protection through the use of green infrastructure and Best Management Practices (BMPs) rather than large capital infrastructure projects. Based upon the Sustainable Stormwater Management Plan, released by the NYC Mayor's Office of Long Term planning and Sustainability in December 2008, NYCDEP is moving forward on stormwater management BMP pilot projects for CSO control. NYCDEP is currently evaluating water quality impacts due to CSO reduction from the proposed green infrastructure.

Approximately \$600 million is funded in the Current Capital Plan for CSO projects. 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 the 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 planning to negotiate with the NYSDEC to modify the CSO Consent Order.

Construction is ongoing at Paerdegat CSO Retention Facility in Brooklyn and Alley Creek CSO Retention Facility in Queens. Spring Creek and Flushing Bay CSO Retention Facilities are operational. NYCDEP and NYSDEC executed a Consent Order modification effective August 2009, which settled the Flushing CSO Notice of Violations (NOVs) and penalties.

PERFORMANCE INDICATORS

Water Conservation

Figure 1 presents the annual water demand for the last 18 years. Water conservation measures taken by NYCDEP in the 1990s have resulted in a steady reduction in the overall water demand. More recent declines in water consumption have been noted most likely due to conservation measures, economic downturn and weather patterns.

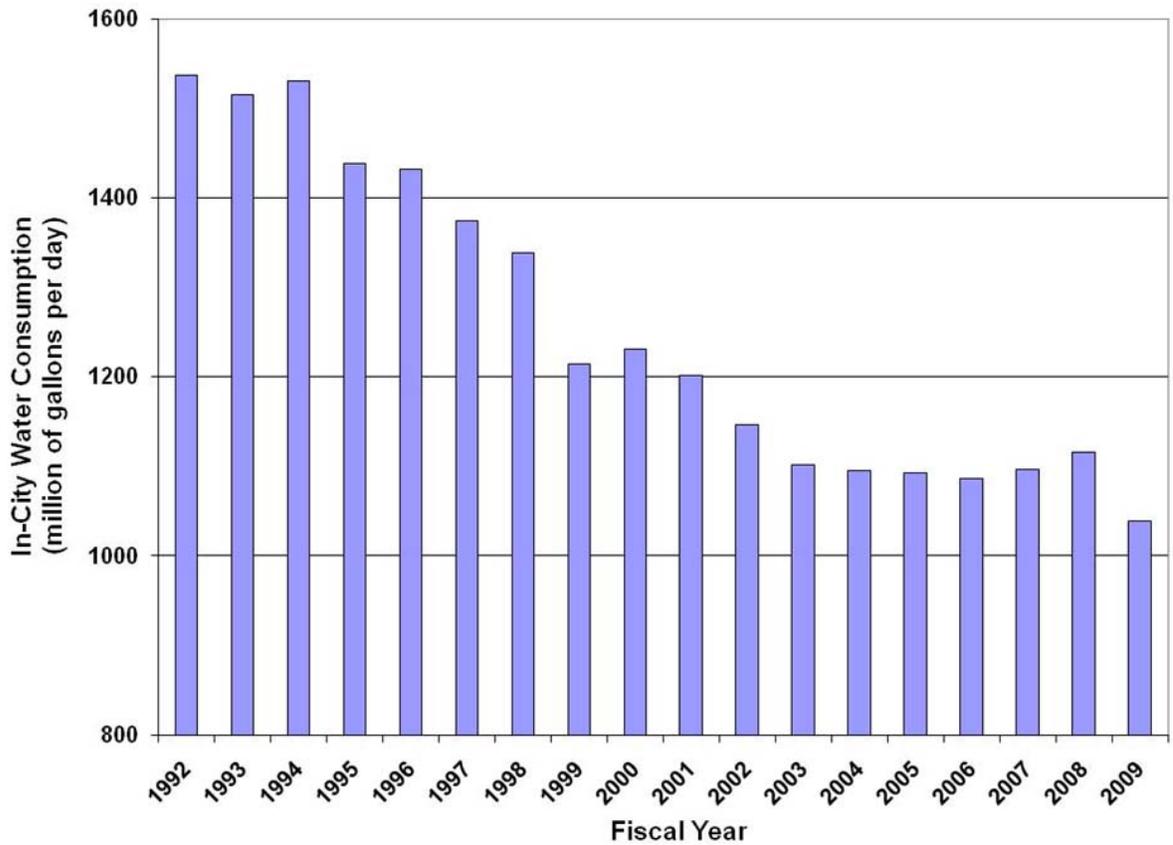


Figure 1: New York City Average Daily Water Demand in Million Gallons per Day (mgd)

System Staffing Levels

Approved positions for the System presently stand at 6,155 for FY 2010 and vacancies currently stand at 326, which reflect a slight increase in headcount and a decrease in vacancies compared to FY 2009. A positive trend in personnel procurement has been established over the past several years. Further improvements are planned for the recruitment and personnel procurement process. Figure 2 shows a slight decrease in the NYCEP staffing numbers due to the transfer of the Environmental Control Board from NYCDEP that occurred in FY 2009, which accounts for 142 budgeted headcount. Increased staffing levels are required to operate new facilities coming on-line and to support management of the Capital Improvement Program.

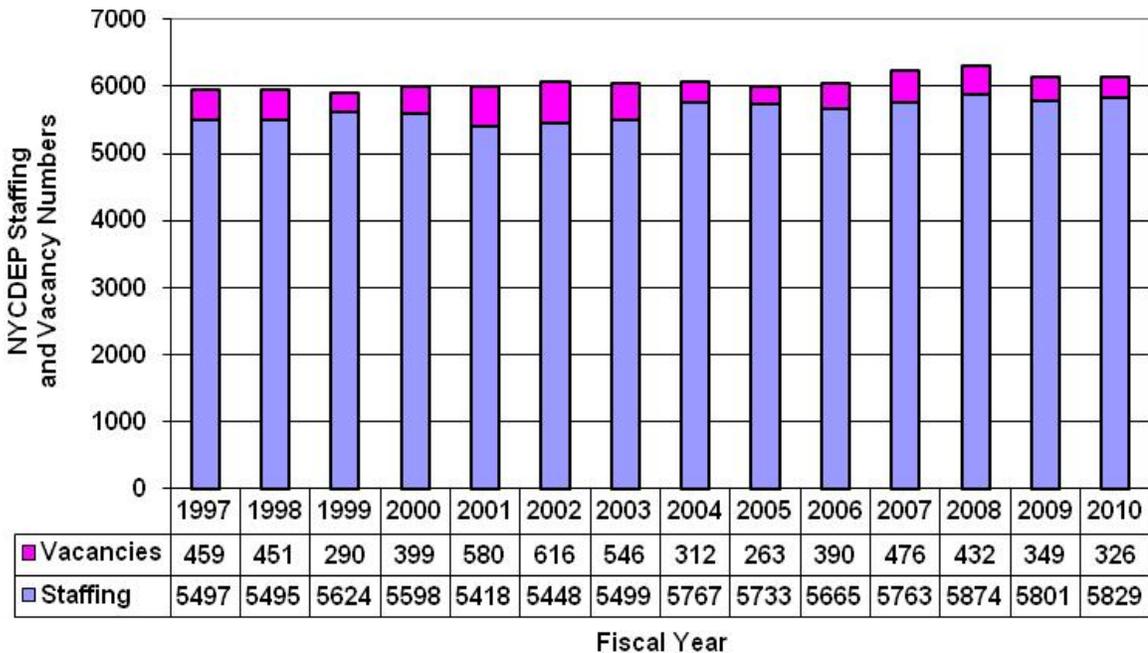


Figure 2: New York City DEP – Staffing and Vacancy Levels 1997-2010

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 almost 60% of the City's water mains in FY 2009. Due to funding limitations within the past few years, BWSO's water main replacement program has been below their target of approximately 60 miles/year. However, BWSO is prepared to increase the rate of water main replacement based upon increased funding for this program. There were 513 water main breaks reported in Fiscal Year 2009, which is slightly less than the average of water main breaks experienced in FY 2005 – FY 2007. FY 2008 was somewhat of an anomaly as it was a ten year low for water main breaks. On average, NYCDEP restored water to residents within 9.1 hours after identifying the location of the break, which is 3 hours less than FY 2008. 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 was 492 hydrants in FY 2009, which is less than the

average of the four previous years. The average time to repair or replace high priority broken or inoperative hydrants (as determined by the Fire Department) by NYCDEP was 15.2 days in FY 2009, which is slightly greater than FY 2008. However, this rate correlates to a slightly greater number of broken or inoperative hydrants compared with FY 2008. Sewer back-up complaints received by NYCDEP dropped to 16,977 in FY 2009, which is a 22.1% decrease from FY 2008. Response time for sewer back-ups improved 1.1 hours, to 5.6 hours on average.

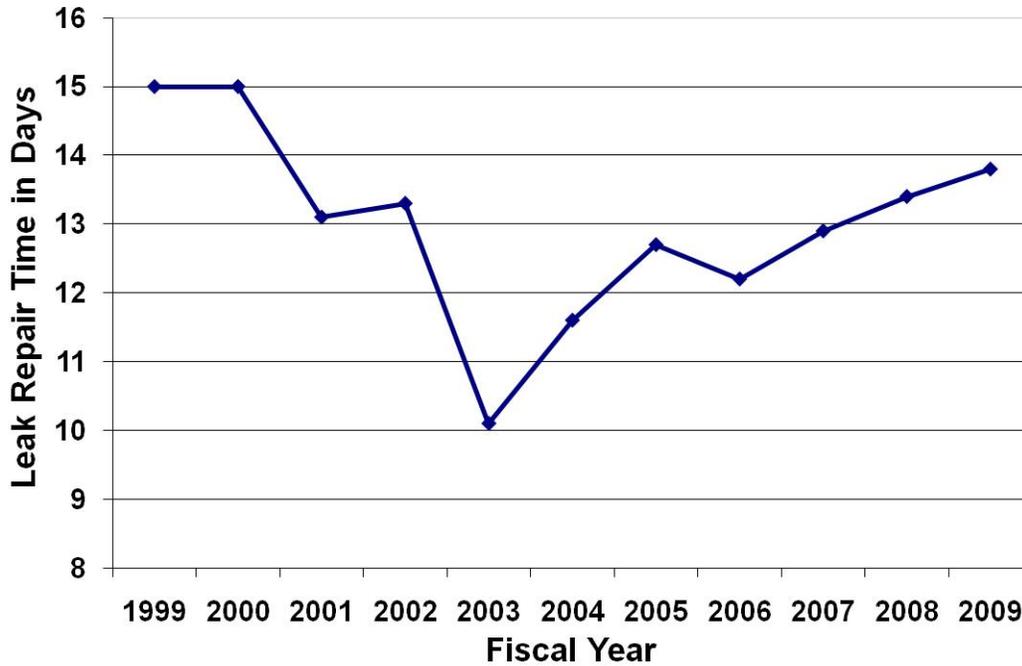


Figure 3: Water Main Leak Repair Time in Days

Operational and Maintenance Program Significant Accomplishments

Drinking Water Quality. NYCDEP conducts significant monitoring of the source water and in-city water quality. In FY 2009, NYCDEP collected 14, 937 drinking water samples and performed a total of 216, 634 water quality analyses, of which 0.06 % exceeded the associated maximum contaminant level (MCL).

Harbor Water Quality. NYC 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 NYC. 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 35 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.

The percentage of wastewater treatment plant effluent that met federal standards in FY 2009 was 99.9 %.

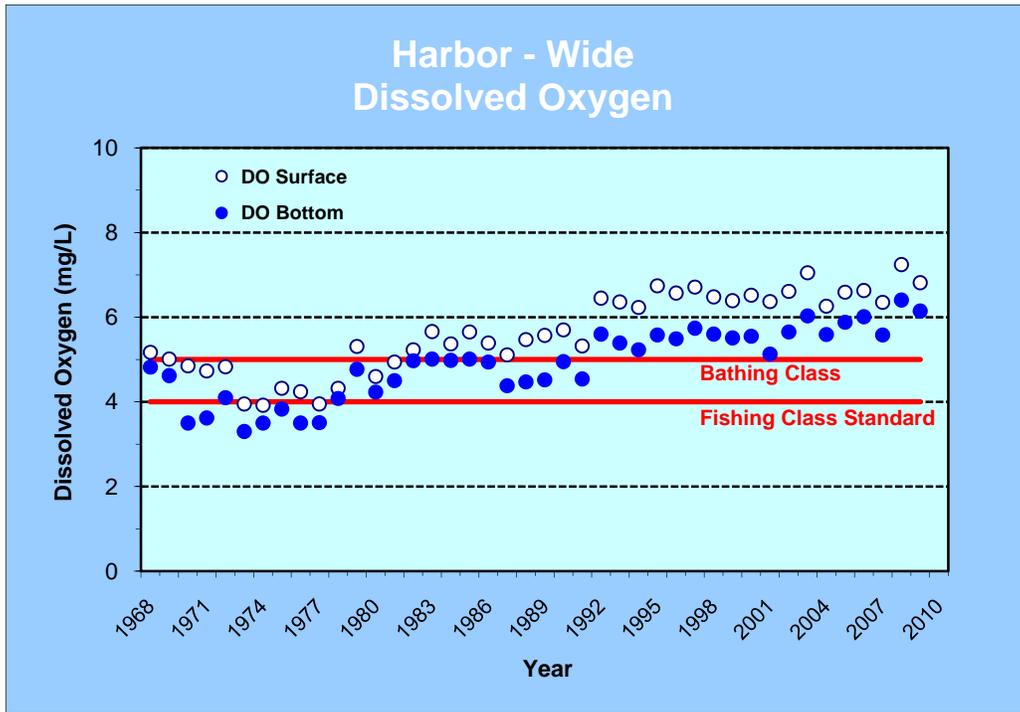


Figure 4: Dissolved Oxygen for Harbor Survey Key Stations (1968-2009)

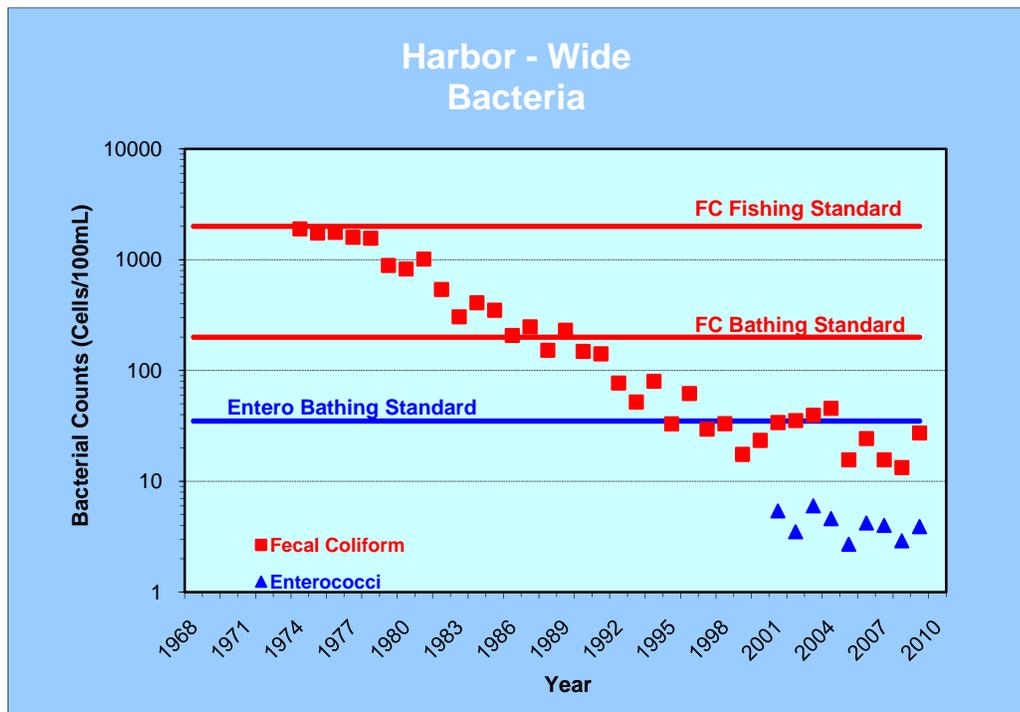


Figure 5: Fecal Coliform Counts for Harbor Survey Key Stations (1974-2009)

Sludge Transportation. The Red Hook sludge vessel was commissioned in January 2009. The Red Hook vessel is the newest addition to the 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 NYCDEP's sludge vessel fleet. In 2007, the Owls Head sludge vessel, was retired after more than 50 years in service.

In November 2009, NYCDEP awarded a contract to build three new motorized sludge barges to navigate Newtown Creek and Whale Creek, which will be funded entirely by federal stimulus funding.

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. 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 is planning for the future staffing increases when the Croton and CAT/DEL treatment facilities are operational. BWSO will manage/operate the Croton treatment facility and BWS will manage/operate the Cat/Del UV facility. NYCDEP has transferred and hired several key leadership positions for both the Croton and UV plant within the past year. NYCDEP is proceeding on a dual track for full staffing, including full staffing by NYCDEP and augmenting NYCDEP staffing with partial or full contract operations for the new water treatment plants. NYCDEP anticipates making a final decision regarding the operations of these new facilities in mid 2010. BWSO has implemented a new organizational structure for field and distribution operations based upon consolidation by bureau responsibility. The new organization has created an Operational Support Group that provides more efficiencies for pro-active programmatic maintenance scheduling.

The operating bureaus continue to evaluate and find effective means to operate more efficiently with reduced expense budgets projections for FY 2011 without impacting the overall operation and maintenance (O&M) of the System. NYCDEP is evaluating less costly biosolids management options, alternative chemical procurement opportunities and reduction of nonessential expense items without impacting the system-wide water supply, water distribution and wastewater treatment processes.

OTHER ISSUES AND COMMENTS

Natural Gas Exploration

NYSDEC issued a draft supplemental generic environmental impact statement (dSGEIS) on the Oil, Gas and Solution Mining Regulatory Program – Well Permit Issuance for Horizontal Drilling and High Volume Hydraulic Fracturing to Develop the Marcellus Shale and Other Low Permeability Gas Reservoirs on September 30, 2009. NYCDEP's geological consultant has assisted NYCDEP evaluate potential water quality impacts of natural gas exploration in the NYC watersheds. NYCDEP issued a Final Impact Assessment Report on the Natural Gas Exploration in the NYC Watershed in December 2009. NYCDEP issued comments to the dSGEIS on December 22, 2009 identifying the omissions and inadequacies of the dSGEIS. NYCDEP provided strong arguments in opposition to natural gas exploration in the watershed in order to protect water quality, public health, the FAD, and water supply reliability and infrastructure integrity. In addition, USEPA has provided comments to the dSGEIS that support NYCDEP concerns about the water quality, water supply and NYC watershed, among other issues. To date no permits have been filed to drill for natural gas in the NYC watershed. New York City continues to monitor this issue very closely.

Environmental Health & Safety (EH&S)

NYCDEP federal probation and the court appointed monitor oversight of BWT ended on December 31, 2009. The monitor oversight of BWSO and BWS ended in October 2006 and October 2007, respectively. Throughout the eight years of federal oversight, NYCDEP has implemented significant policies to improve safety and operating procedures, invested almost \$160 million in improvements to NYCDEP facilities and revised about 44,000 specific workplace conditions. The NYCDEP continues its commitment to maintaining a sustainable EH&S compliance program. NYCDEP has formed several EH&S compliance continuous improvement subcommittees for auditing, communications, contracts, training review and regulatory review to facilitate efficiencies throughout NYCDEP.

Cross Connection Control Program

BWSO has continued to improve the Cross Connection Prevention Program by initiating a backflow prevention device requirement for several specific industries throughout NYC. The objective of the backflow devices is to prevent contaminated water or chemicals from flowing back into the drinking water supply.

Hydro-Electric Power

NYCDEP received a preliminary permit from the Federal Energy Regulatory Commissioner (FERC) to install hydro-electric turbines at NYCDEP upstate dams to harness hydro power. New York City is currently conducting the required studies within a mandatory three-year time period. 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. NYCDEP continues to work with City Council on the legislation. The Bureau of Water Supply completed a testing program of 100 emerging constituents at three locations throughout the NYC water supply system. NYCDEP plans to do additional monitoring throughout the water supply system. In addition, NYCDEP is participating on an advisory committee with Water Environment Research Foundation (WERF) on this issue of Emerging Contaminants to maintain a national perspective. WERF is a national independent scientific research organization.

Newtown Creek Superfund Designation

On September 23, 2009, the USEPA announced a proposal to make Newtown Creek a Superfund site. New York City provided public comments on December 23, 2009 indicating, among other issues, the concern for the impact on NYCDEP planned work (Newtown Creek CSO and East River sludge dock relocation) and for NYC potential liability under Comprehensive Environmental Response, Compensation and Liability Act (CERCLA).

Awards

The American Council of Engineering Companies of New York (ACEC NY) recognized several DEP projects and programs in the 2009 awards competition. The NYC Disinfection Byproducts Compliance Study was awarded the platinum award for engineering excellence and the NYCDEP concrete inspection program received a gold award for excellence in the category of special projects. North River WPCP received a diamond award for excellence in the category of energy.

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:

- **Asset Management:** In our opinion, the Asset Management work that NYCDEP is undertaking will provide valuable input to future capital planning needs.
- **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 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.
- **Climate Change Facility Impacts:** The climate change initiative will identify additional upgrading requirements for NYCDEP assets. Until the facility assessments have been made, the budgetary funding requirements cannot be ascertained.
- **Hillview Reservoir Cover:** The cost of completely covering the Hillview Reservoir using a fixed concrete cover is currently estimated at approximately \$1.6 billion; there is no funding currently in the Current Capital Plan. NYCDEP has submitted a deferral request for the Consent Order construction schedule.
- **CSO Program:** Additional funding may be required in the outer years of the CIP or in future planning periods depending upon the results of the BMP pilot projects for CSO control and the outcome of the anticipated negotiations with the regulators.

Regarding the Physical Condition of the System

In our opinion, the NYCDEP facilities are in adequate condition and are similar to water and wastewater assets in other urban areas nationwide. As indicated, an Asset Management program is underway that will better identify the needs and costs for upgrading. These needs will have to be addressed and implemented as they are identified. Because of the extensive nature of the NYCDEP facilities, continued diligence and future capital improvements will be necessary to maintain an adequate rating.