New York City Water Board

Report on the Cost of Supplying Water to Upstate Customers for the 2013 Rate Year

Draft – May 7, 2012

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To the Members of the New York City Water Board:

The Amawalk Consulting Group LLC is pleased to submit its Report on the cost of supplying water to upstate customers of the City of New York's water system. The Report presents our findings on the cost of service and identifies the unit rate for Fiscal Year 2013 that is necessary to recover the anticipated cost of water supply service.

The Report presents the actual cost of water supply service for Fiscal Years 2009 through 2011. The methodology used to develop the cost of service for these years is consistent with that used in previous years. In addition, the anticipated cost of service is presented for Fiscal Years 2012 through 2016 (the "Projection Period").

The Report shows that the cost of water supply service will increase in each year of the Projection Period. The increases are primarily attributable to rising operating expenses, particularly in the property taxes levied on watershed properties, together with capital investments in water supply infrastructure. Significant investments have been made in the Water System in recent years to protect the quality of the water supply, to enhance the integrity of the system and to achieve other water supply objectives. Additional capital investments will be made during the Projection Period. In addition to the projected increases in the cost of service, the unit rate for water supply service is impacted by historical declines in both upstate and in-City consumption and the expectation that system-wide water consumption will continue to decline over the long-term.

We appreciate the opportunity to be of assistance to the Board and would be pleased to answer any questions you may have regarding the study methodology or findings. We also wish to acknowledge the assistance provided by representatives of the Office of Management and Budget, the Department of Environmental Protection, the New York City Law Department, the Board, and the New York City Municipal Water Finance Authority in the preparation of this Report.

Should you have any questions or comments, please do not hesitate to contact the undersigned at (212) 361-0050.

Very truly yours,

Edward J. Markus
Amawalk Consulting Group LLC

Table of Contents

List of Figures and Tables

1.0 Introduction

1.1 Purpose

The purpose of this Report is to summarize the results of the study performed by the Amawalk Consulting Group LLC ("ACG") of the cost of providing water supply service to communities north of New York City (hereinafter, "the City"). The Report presents the proposed regulated rate for Fiscal Year 2013 to recover the cost of service. The Report also presents the calculated cost of service and rates for Fiscal Years 2009 through 2011; the anticipated cost of service and rate for 2012, the current year; and the projected cost of service and rates for 2014 through 2016. The proposed regulated rate for Fiscal Year 2013 is $1,332.30 per MG, which represents an increase of $118.46 per MG from the current 2012 unit rate of $1,213.84, or a 9.8% increase.

1.2 Scope

The Report presents the findings of ACG regarding the revenue requirements for water supply service as well as water consumption by customers and a unit rate for calculating charges to upstate customers. The revenue requirements take into consideration the operation and maintenance expenses, principal and interest on bonds, and other financial needs related to facilities north of the City. The Fiscal Year 2013 cost of service and unit rate are based, in part, on the calculated cost of service for the current fiscal year and prior years, which is presented herein. All years referred to in the Report reflect the fiscal year of the City that begins July 1 and ends June 30.

ACG has reviewed, to the extent practicable, the books, records, financial reports, and statistical data of the City, the New York City Water Board (the "Board") and the New York City Municipal Water Finance Authority (the "Authority"), and it has conducted such other investigations and analyses as deemed necessary to assemble and analyze the cost of water supply service and rates. We have performed various financial tests and analyses necessary to support our findings and conclusions.

In analyzing the projection of future operations summarized in this Report, ACG has reviewed certain assumptions with respect to conditions, events and circumstances, which may occur in the future. We believe that these assumptions are reasonable and attainable, although actual results may differ from those in the forecast as influenced by the conditions, events and circumstances, which actually occur.

1.3 Background

The City, through its Department of Environmental Protection ("DEP"), is responsible for developing and maintaining dependable sources of water supply and providing drinking water to communities north of the City and to in-City consumers. DEP operates and maintains the water supply system (the "Water System" or the "System") and is responsible for planning, designing and constructing capital improvements to the System. The Capital Improvement Program (the

"CIP") of DEP identifies planned commitments for design, construction and construction-related work for the System by category of project in each year of the ten-year planning period of 2012 through 2021.

The information presented in this report is as of April 1, 2012. Additional information, changes in the System or events occurring after this date are not reflected in the report. Section 1 of the report is intended to provide background information for the reader.

1.3.1 The Water System

Water for the System is derived from three upstate reservoir systems (Croton, Catskill and Delaware) and a system of wells in Queens that were acquired as part of the City's acquisition of the Jamaica Water Supply Company. The three reservoir systems, which benefit customers north of the City and are described herein, include 18 reservoirs and 3 controlled lakes with a storage capacity of approximately 550 billion gallons. The water collection systems in each region were designed and built with various interconnections to permit the exchange of water from one system to another, which helps mitigate the effects of localized droughts and takes advantage of excess water in any of the three watersheds.

Figure 1 Map of the Water System

1.3.1.1 The Croton System

The Croton System consists of 12 reservoirs and 3 controlled lakes that are located on the Croton River, its 3 branches and 3 other tributaries. The watershed is divided into three subsystems: the West Branch, Croton Falls, and Muscoot. The watershed that supplies the Croton System has an area of 375 square miles. It lies almost entirely within the State of New York (the "State"), approximately 45 miles north of lower Manhattan. A small portion of the watershed is located in the State of Connecticut. When operational, the Croton System provides approximately 10% of the City's daily water supply and can provide substantially more of the daily water supply during drought conditions. The City's daily water supply is defined, for purposes of this report, as the total quantity of water needed to supply both the City and customers north of the City. Due to the abundance of higher quality water from the Catskill and Delaware Systems, the Croton System has not been operated consistently for several years. In 2005 and 2006, the Croton System provided less than 2% of the City's daily water supply due to repairs that were being made to the Croton Aqueduct. It was shut down entirely from the summer of 2007 to the fall of 2008 when it was briefly placed in service during planned maintenance of the Delaware System. It may be used intermittently and for short periods until the operation of the Croton filtration plant which is anticipated in August 2013. The completion of the Croton filtration plant is expected to eliminate the water quality problems of the Croton System water. With the completion of the Croton filtration plant, the Croton System will be able to operate at full capacity. The costs of the Croton filtration plant are not included in the cost of service calculation.

1.3.1.2 The Catskill System

The Catskill System occupies sparsely populated areas in the central and eastern portions of the Catskill Mountains and normally provides approximately 40% of the City's daily water supply. Water in the Catskill System comes from the Esopus and Schoharie Creek watersheds, located approximately 100 miles north of lower Manhattan and 35 miles west of the Hudson River. The Catskill System is comprised of the Schoharie Reservoir (formed by the Gilboa Dam across Schoharie Creek) and Ashokan Reservoir (formed by the Olivebridge Dam across Esopus Creek) and the Catskill Aqueduct. Schoharie Reservoir water is delivered to the Esopus Creek via the Shandaken Tunnel, from which it then travels to the Ashokan Reservoir.

1.3.1.3 The Delaware System

The Delaware System is located approximately 125 miles north of lower Manhattan and typically provides about 50% of the City's daily water supply. Three Delaware System reservoirs collect water from a sparsely populated region on the branches of the Delaware River: Cannonsville Reservoir (formed by the Cannonsville dam on the West Branch of the Delaware River); Pepacton Reservoir (formed by the Downsville Dam across the East Branch of the Delaware River); and Neversink Reservoir (formed by the Neversink Dam across the Neversink River, a tributary to the Delaware River).

The conditions under which the System's Pepacton, Neversink and Cannonsville Reservoirs may be operated are set forth under the terms of a 1954 decree of the Supreme Court of the United States (the "1954 Decree"). It allows the System to divert 800 mgd of water from the Delaware

River Basin for use by the Water System. At the same time, an October 2007 agreement with the Delaware River Basin Commission requires the System, under certain circumstances, to release water from the three reservoirs into the tributaries of the Delaware River, when the reservoirs are full in accordance with the Flexible Flow Management Program. Enforcement of the 1954 Decree is under the jurisdiction of a River Master appointed by the Supreme Court of the United States. The City and State and the governments of New Jersey, Pennsylvania and Delaware are named parties to the 1954 Decree.

1.3.1.4 The Catskill Aqueduct

The Catskill Aqueduct, which conveys water by gravity, is 92 miles long and extends from the Ashokan Reservoir to the Kensico and Hillview Reservoirs. The delivery capacity of the Catskill Aqueduct from the Ashokan Reservoir to the Kensico Reservoir is about 610 mgd. From Kensico Reservoir to the Hillview Reservoir, the Aqueduct has a capacity of approximately 800 mgd. The Catskill Aqueduct passes under the New Croton Reservoir. At this point it is possible to transfer water from Ashokan Reservoir to New Croton Reservoir.

1.3.1.5 The Delaware Aqueduct

The Delaware Aqueduct is 85 miles long and similarly carries water by gravity from Rondout Reservoir to West Branch Reservoir, in the Croton System, and from West Branch Reservoir to Kensico Reservoir and then on to Hillview Reservoir. Water entering the Aqueduct can be taken from the Rondout, Neversink, Pepacton, and Cannonsville Reservoirs. The capacity of the section that delivers water from Rondout Reservoir to West Branch Reservoir is about 890 mgd. The delivery capacity of the Delaware Aqueduct from West Branch Reservoir to Kensico Reservoir is about 1,045 mgd. The Aqueduct has a capacity of approximately 1,450 mgd from Kensico Reservoir to the Hillview Reservoir.

1.3.1.6 Long-Term System Capacity

Current demand and flow projections show that if conservation programs, including metering, toilet replacement, hydrant locking, leak detection and public information, remain effective there will be no immediate need for the City to find additional long-term water supply sources to meet normal demand under routine System operating conditions. However, with the construction of the Rondout-West Branch bypass tunnel, there will be a short-term need to adopt conservation measures and find additional water supply sources.

1.3.1.7 System Security

In recent years, DEP has taken a number of steps to enhance and augment its security arrangements to protect the System, including water supply structures and facilities. These steps include, among others, increasing the size of the DEP police force to approximately 200 officers; obtaining legislation authorizing the DEP police to function as police officers within the City, as well as in the upstate watersheds; purchasing additional police vehicles and surveillance equipment; installing a watershed-wide radio communication system; and further securing facilities through additional locks, fences and other physical barriers to prevent access by unauthorized persons. In addition, DEP has been consulting with other governmental agencies,

including the Federal Bureau of Investigation and the U.S. Army Corps of Engineers, on longer-term plans to modernize and improve security systems. Increased security requirements have resulted in additional labor costs and related expenses in the System.

1.3.2 Condition of the Water System

The System has reliably served the City since 1842. Many additions and improvements have been made over the years to develop the system that exists today. On an overall basis, the condition of the water and wastewater system of the City has been rated "Adequate", the highest rating of three categories, by AECOM USA, Inc., the consulting engineer to the Authority. Nonetheless, given the age of the system, circumstances that are specific to certain components of the system, and modern perspectives on reliability, security and other matters, DEP is pursuing a number of initiatives in the Water System to enhance the long-term integrity of the system. An overview of several of these initiatives is presented in this part of the Report.

1.3.2.1 Rondout-West Branch Tunnel – *Water for the Future*

The System has evolved over a period of more than 150 years since the Croton supply was first put on line in the 1840s. That evolution had been driven in the past by the need to expand the System to provide more water for the growth of the City. The evolution of the System is now about to enter the next phase; however, this time it will be driven by the need for long-term rehabilitation and enhancement of the System's existing facilities.

The Rondout-West Branch Tunnel carries water 45 miles from the Delaware System under the Hudson River and into West Branch Reservoir. It has a capacity of 890 mgd and normally conveys 50% of the City's water supply. It has the highest pressures and the highest velocities in the Water System. In addition, a portion of the tunnel crosses a fractured rock formation, which is potentially subject to greater stress than the deep rock tunnels located in the City.

DEP regularly assesses the condition and integrity of the System's tunnels and aqueducts to determine the extent and effect of water loss. In particular, since the early 1990s, DEP has monitored the condition of the Rondout-West Branch Tunnel portion of the Delaware Aqueduct.

As a result of DEP's flow tests, visual observations and other analyses, it has been determined that approximately 15 mgd to 36 mgd of water is being lost from the tunnel and is surfacing in the form of springs or seeps in the area. The losses amount to approximately 4% of the daily volume of water provided by the tunnel under peak flow conditions. DEP has initiated the engineering work to determine the nature and extent of the repairs, which may be necessary to remedy the water loss. DEP has also determined that the situation in the tunnel and the amount of water loss is stable. In the opinion of the professional engineering firm retained by DEP in conjunction with that investigation, there is very little immediate risk of failure of the tunnel.

To address the leaks in the tunnel and ensure future supply dependability, in 2011, DEP unveiled the *Water for the Future* program. After a 10-year investigation of the leak and evaluation of

mitigation alternatives, DEP has elected to construct an approximately three-mile-long bypass tunnel. As part of *Water for the Future*, DEP is currently designing the bypass for the section of the Delaware Aqueduct under the Hudson River (between Shafts 5 and 6 of the Aqueduct) and internal repairs for a tunnel section in Wawarsing. While studies are still ongoing, connection of the bypass to the existing tunnel could require anywhere from 6 to 24 months of construction, starting in late 2020, during which period supply augmentation is expected to be needed. Within *Water for the Future*, DEP is working on projects to supplement the City's drinking water supply as described below. Additionally, DEP will implement conservation measures in-City and will need the cooperation of upstate communities in conserving water during the shutdown period.

The estimated cost to complete the design and construction of the shafts and tunnel bypass, as well as implementation of water supply augmentation projects and water conservation measures, is currently estimated to be $2.1 billion, $1.59 billion of which is included in the CIP. An additional $500 million in funding for this project is expected to be needed in the years beyond the current CIP and is therefore not included in the CIP. However it is anticipated that such funding will be included in the next update of the Ten Year CIP when it is released in 2013.

The existing System provides some amount of flexibility to take more water from one component part and less from others when reservoir levels or water quality so warrant; or even to take the smallest part of the System (the Croton System) out of service for extended periods of time. Nevertheless, there are some parts of the System that can only be taken out of service for brief periods of time. Although the City's water supply planners purposely built durability into many of the City's facilities, some of these critical, yet aging, parts of the System will have to be taken out of service for rehabilitation and/or upgrading to modern design standards. In order to take such facilities out of service without jeopardizing the DEP's ability to deliver water, alternative sources of water supply must be found.

Within *Water for the Future*, DEP has begun to evaluate additional strategies and projects for improving the dependability of water supplies, which could entail the development of additional or interim supplies to meet demands during periods of extended facility outages due to planned or unplanned inspection, repair or rehabilitation, such as during the Rondout-West Branch Tunnel shutdown. DEP has retained a consultant to develop a long-term dependability plan. DEP intends to evaluate various alternative projects that, when combined, could allow for any portion of the System to be taken out of service for an extended period of time. Elements of that plan may include: interconnections with other neighboring jurisdictions; increased use of groundwater supplies; storage and recovery of existing supplies within underground aquifers; increased storage at existing reservoirs; withdrawals and treatment from other surface waters; hydraulic improvements to existing aqueducts; and additional tunnels, such as City Water Tunnel No. 3/Kensico-City Tunnel.

1.3.2.2 The Gilboa Dam

Gilboa Dam, part of the Catskill Water System, is comprised of an earthen dam and a concrete gravity dam, with the concrete portion also acting as the spillway. The dam impounds the waters

of Schoharie Creek, creating Schoharie Reservoir. In 2005, an engineering analysis of the dam showed that the spillway had lost some mass over time and that the dam did not meet New York State Department of Environmental Conservation ("NYSDEC") safety guidelines applicable to the reconstruction of existing dams. In December 2006, DEP completed a series of interim steps to bring the dam into compliance with NYSDEC safety guidelines for the reconstruction of existing dams.

Although there is no evidence that the dam is facing imminent risk of failure, DEP has determined that the rehabilitation of the dam should be advanced. Work on the crest gates, which increased DEP's ability to manage the Schoharie Reservoir and maintain it at proper levels, was completed by July 2011. Site preparation work for the full reconstruction of the dam to bring the dam up to compliance with NYSDEC safety guidelines for new dams began in September 2009 and was completed in Fiscal Year 2011. Damage caused by Hurricane Irene in August 2011 destroyed the site preparation work. Such work will have to be redone. The estimated cost of completing the site preparation is $21 million, which is not included in the CIP. The estimated cost to complete the rehabilitation of the dam once site preparation is completed is $169 million, which is fully funded in the CIP.

1.3.2.3 The Dam Safety Program

Engineering reports sponsored by the U.S. Army Corps of Engineers indicated that the dams and reservoirs in service in the Catskill, Croton and Delaware Systems are safe but in need of rehabilitation and reconstruction. An ongoing dam reconstruction program has been established for rehabilitation of dams within the Catskill, Croton and Delaware watersheds and the Kenisco Dam.

1.3.3 Water Quality and Treatment

Pursuant to the Safe Drinking Water Act (the "SDWA"), the United States Environmental Protection Agency ("USEPA") has promulgated nationwide drinking water regulations, which specify the maximum level of harmful contaminants allowed in drinking water and govern the construction, operation, and maintenance of the System. USEPA has also promulgated filtration treatment regulations, known as the federal Surface Water Treatment Rule ("SWTR"), that prescribe guidelines concerning studies to be performed, programs to be implemented, timetables to be met and any other actions necessary to insure compliance with the regulations' terms. Enforcement of SDWA and its related regulations, including SWTR, was delegated by USEPA to the New York State Department of Health ("NYSDOH"). With respect to the Catskill and Delaware systems, the City believes that under the SWTR promulgated by the USEPA it will continue to be able to meet the criteria for non-filtered supplies.

1.3.3.1 Filtration in the Croton System

Because of the quality of the System's water and the long periods of retention in the reservoirs, it has not been necessary to filter water from the System. However, more stringent federal standards for surface water treatment in the 1980s and 1990s led to a 1992 stipulation with

NYSDOH, which has been superseded by a 1998 federal court consent decree, as supplemented in 2002 and 2005 (the "Croton Filter Consent Decree") to filter water from the Croton System. The Croton Filter Consent Decree mandates the construction of a full scale water treatment facility to filter Croton System water.

After an extensive study, DEP identified the Mosholu Golf Course in the Bronx as its preferred site for the treatment facility and began work at the site in late 2004. DEP now estimates that it can commence operation of the facility in August 2013.

1.3.3.2 Watershed Protection/Filtration Avoidance in the Catskill and Delaware Systems

New York City embarked on an aggressive source water protection program for its Catskill and Delaware systems in the early 1990s. Since 1993, USEPA has been issuing Filtration Avoidance Determinations ("FADs") pursuant to which the City is not required to filter water from the Catskill and Delaware Systems. To further the City's ability to comply with the FAD, on January 21, 1997, the City entered into the Watershed Memorandum of Agreement (the "MOA") with the State, watershed communities, USEPA, and several environmental groups. The MOA supplemented the City's existing watershed protection program with approximately $400 million in additional funding for economic-environmental partnership programs with upstate communities. As provided under the MOA, the NYSDEC issued a land acquisition permit to the City to acquire water quality-sensitive land in the watershed until January 2012. In December 2010, the State issued a new land acquisition permit that authorizes the land acquisition program through 2025. The new permit incorporates certain refinements to the land acquisition program to further ensure that the program garners community acceptance and targets the most appropriate lands for acquisition. In addition, as part of the permit, the City committed to continue to fund certain FAD-required core watershed protection programs for the duration of the permit.

In July 2007, USEPA issued a new FAD (the "2007 FAD"), which supersedes previous determinations and has a term of 10 years, divided into two five-year periods. The 2007 FAD requires the City to take certain actions to protect the Catskill and Delaware water supplies. These actions include the continuation of certain environmental and economic partnership programs established under the MOA, with additional enhancements to several programs and the creation of new programs. Prior to commencement of the second five years of the 2007 FAD, the City will need to reach agreement with NYSDOH and USEPA on which of such programs should be continued into the second five-year period, whether and how any such programs to be continued should be modified, and/or whether additional programs are needed to justify continuation of the 2007 FAD into the second five years of its term. To assist in making these decisions and reaching an agreement, DEP prepared a Revised Long Term Watershed Protection Plan which was submitted to NYSDOH and USEPA on December 15, 2011. Additional funding will be required in the CIP for Fiscal Year 2013 through 2017 to support the FAD program for the second five years once the program is negotiated.

Since 1997, the FAD has required that the City solicit property from owners of land in the watershed and acquire (with certain limited exceptions) title to or conservation easements on any solicited land if the owner accepts the City's purchase price. The 2007 FAD requires the City to allocate a total of $300 million for land acquisition during its ten year term, including approximately $59 million of unspent funds remaining from moneys set aside for land acquisition under the MOA and the previous FAD and $241 million of new funding. As of February 23, 2012, title to or conservation easements on approximately 124,000 acres of land in the Catskill and Delaware watersheds at a cost of approximately $424 million have either been acquired or are under contract for acquisition.

There has been increased interest in natural gas drilling in southeastern New York State, including the watershed. The Water Board hired a consultant and has been monitoring the situation to understand what impact such exploration may have on the System, including any potential impact on water quality. NYSDEC issued a Draft Supplemental Generic Environmental Impact Statement ("dSGEIS") relating to natural gas drilling on September 30, 2009. The City called for a prohibition on drilling in the watershed due to the potential for natural gas drilling as currently practiced to harm water quality and jeopardize the City's FAD and damage the City's water supply infrastructure. After many stakeholders, including DEP and USEPA identified flaws in its dSGEIS, NYSDEC issued a significantly revised dSGEIS in September 2011, which supports a ban against high volume drilling in the watershed. Low volume drilling would not be banned under the revised dSGEIS. Low volume drilling is currently allowed in the watershed, although NYSDEC believes that it is not economically viable and that it will not take place in the watershed for the foreseeable future. The public comment period for the revised dSGEIS ended January 12, 2012. DEP has submitted comments, which propose an exclusionary zone around certain DEP infrastructure which would extend outside the watershed. DEP has proposed that DEP, in addition to NYSDEC, would have to review and have approval authority over requested permits in these exclusionary zones. Additionally, if low volume drilling is proposed in the watershed, DEP comments ask that NYSDEC consider whether further environmental review of low volume drilling is required. To date, no permits have been filed to drill for natural gas in the watershed.

1.3.3.3 Disinfection Requirements

In January, 2006, USEPA issued final versions of two drinking water supply regulations, developed pursuant to the SDWA: the Long Term 2 Surface Water Treatment Rule ("LT2") and the Stage 2 Disinfection/Disinfectant-Byproducts Rule ("DBP2").

The purpose of LT2 is to reduce the incidence of waterborne disease by mandating certain levels of inactivation and/or the removal of certain microorganisms from the Water System, including the Catskill and Delaware Systems. DEP anticipates achieving compliance with such levels through the construction and operation of its planned ultraviolet treatment facility (the "UV Facility"). The UV Facility will provide treatment for Catskill and Delaware water by achieving certain levels of inactivation of cryptosporidium. The 2002 FAD, as initially issued, called for the UV Facility to be operable by September 2009. There have since been a number of delays

attributable to design changes and permitting issues. In January 2007, DEP entered into an Administrative Order on Consent ("UV Order"), with USEPA, pursuant to USEPA's authority under LT2. The UV Order establishes a revised schedule of milestones for the construction of the UV Facility including a final completion date of October 29, 2012. The milestones in the UV Order have been incorporated into the 2007 FAD. The cost to complete the UV Facility is fully funded in the CIP.

LT2 also mandates that uncovered finished water storage facilities, which include the Hillview Reservoir, be covered or that water from such facilities be treated. DEP has entered into an Administrative Order with NYSDOH and a Consent Order with USEPA which mandate that the City begin work on a cover by December 31, 2018. In late August 2011, USEPA announced that, as part of a periodic review of existing regulations, it would review LT2 and its requirement to cover uncovered finished storage reservoirs such as Hillview Reservoir.

Pursuant to an Administrative Order with USEPA to cover the Hillview Reservoir (the "Federal Hillview Administrative Order") the City's deadline to begin constructing the cover has been extended to December 31, 2018 as noted above, with a construction completion date of May 31, 2028. The Federal Hillview Administrative Order also allows the City to seek a schedule modification based on DEP's on-going assessment of water supply facility construction priorities; although there is no assurance that any such modification would be granted. The Hillview Administrative Order issued by NYSDOH has been modified to mirror the Federal Hillview Administrative Order schedule. DEP has requested that NYSDOH and USEPA extend the deadline to begin construction of the cover for an additional six years beyond the existing December 31, 2018 deadline. On February 9, 2011, the City was informed that USEPA referred the Hillview Administrative Consent Order to the U.S. Department of Justice ("USDOJ"). In light of USEPA's announcement that it is reviewing LT2 and its requirement to cover uncovered finished water storage reservoirs such as Hillview Reservoir, USDOJ and the City have agreed to defer negotiations over revised dates until USEPA completes its review. Currently, the cost of constructing a concrete cover over the Hillview Reservoir, as DEP originally proposed, is expected to be approximately $1.6 billion. Under the schedule set forth in the Federal Hillview Administrative Order, most of the costs related to the cover would be incurred in the years beyond the current CIP, which does not include funding to construct a cover. DEP is continuing to investigate less costly alternatives to a concrete cover, including a floating cover, which would require the consent of NYSDOH and USEPA.

1.3.4 Water Quality Monitoring

DEP has historically monitored key locations in its distribution system for over 40 individual water quality parameters, including lead. The monitoring program meets or exceeds federal and State requirements and has the capability to meet potentially more stringent requirements. The System has multiple laboratories employing bacteriologists, engineers, chemists, hydrologists and limnologists to monitor water quality. In addition to the monitoring program, DEP watershed inspectors maintain surveillance of the watersheds.

1.3.5 Governmental Regulation

The System is subject to federal, State, interstate and municipal regulation. At the federal level regulatory jurisdiction is vested in USEPA; at the State level in NYSDEC and NYSDOH; at the interstate level in the Delaware River Basin Commission ("DRBC") and the Interstate Environmental Commission and at the municipal level in DEP, the New York City Department of Health and Mental Hygiene ("NYCDOH"), Department of Buildings ("DOB") and the Department of Small Business Services, and to a limited degree, in municipalities and districts located in eight counties directly north of the City. Water quality standards are enforced within the watershed areas north of the City through a network of overlapping governmental jurisdictions. Participating in that network, among others, are NYSDEC and NYSDOH, county, municipal and district police, engineers and inspectors; and City personnel from DEP. The various jurisdictions maintain physical security, take water samples, monitor construction activities and wastewater treatment in the watershed, and generally oversee the physical condition of, activity on and the operation of water supply lands and facilities. Portions of the overall legislative and regulatory framework governing the watersheds may be found in the City's Administrative Code, Health Code and Water Supply Regulations. Regulatory enforcement within City limits is almost exclusively accomplished through City personnel. Provisions incorporating and augmenting the substance of the SDWA, related regulations and the State Sanitary Code, are contained in the Health Code, Water Supply Regulations and the City's Building and Building Construction Codes. These provisions are enforced by personnel from DEP, NYCDOH and DOB.

Water Pollution Control Plants

The System includes six City-owned upstate surface discharging water pollution control plants to prevent untreated sewage from being released into the watersheds. To enhance watershed protection, DEP completed upgrades to these facilities. The system also includes one subsurface discharging water pollution control plant that has not been upgraded. The CIP includes funds to upgrade the facility. DEP also provides some financial assistance to privately-owned water pollution control plants in the watershed.

Shandaken Tunnel SPDES Permit

As a result of federal litigation resulting in a determination that a State Pollution Discharge Elimination System ("SPDES") permit is required for water transfers such as the City's transfer of water through the Shandaken Tunnel, DEP applied for and obtained a SPDES permit for the Shandaken Tunnel. As a result of State court litigation challenging the terms of the SPDES permit, DEP has applied for variances under that permit. This could impact the type of work, and the costs of such work, DEP is required to do to achieve compliance with the permit's temperature and turbidity limits.

1.3.6 Drought Management

From time to time the Water System experiences drought conditions caused by significantly below-normal precipitation in the watershed areas. The most recent drought was in 2002. As of April 13, 2012, the System's reservoirs were filled to 90.9% of capacity. Normal levels at this time of year are approximately 97.1% of capacity.

The Water System relies upon a surface water supply and is sensitive to major fluctuations in precipitation. Throughout even the worst droughts, the Water System has continued to supply sufficient amounts of water to the City and its water supply customers north of the City. To ensure adequate water supply during drought conditions, DEP, in conjunction with other City, State and interstate agencies, maintains a Drought Management Plan. The Drought Management Plan defines various drought phases that trigger specific management and operational action. Three defined phases are: "Drought Watch", "Drought Warning", and "Drought Emergency". A Drought Emergency is further subdivided in four stages based on the projected severity of the drought and provides increasingly stringent and restrictive measures.

A Drought Watch is declared when there is less than a 50% probability, based on the existing record since 1927, that either the Catskill or Delaware reservoir system will be filled by the following June 1. This phase initiates the pumping of water from the Croton System. In addition, during this phase, a public awareness program begins, and users, including upstate communities taking water from the System, are requested to initiate conservation measures. NYSDOH, NYSDEC, and the DRBC are advised of the Water System's status, and discussions are held with City agencies concerning their prospective participation in the event of a declaration of a Drought Warning.

A Drought Warning is declared when there is less than a 33% probability that either the Catskill or Delaware reservoir system will fill by June 1. All previous efforts are continued or expanded and additional programs are initiated, including the coordination of specific water saving measures by other City agencies.

A Drought Emergency is declared when it becomes necessary to reduce consumption by imposing even more stringent measures. In addition to the imposition of restrictions, DEP may enhance existing System management and public awareness programs, expand its inspection force and perform additional leak and waste surveys in public and private buildings. DEP may also require communities outside of the City that are served by the System to adopt similar conservation measures.

1.3.7 Pending Litigation

The following paragraphs describe certain legal proceedings and claims against the Water System. No assurances are provided that the following information is complete or identifies all of the potential litigation against the System. The ultimate outcome of these proceedings and

other claims is unpredictable and could result in substantial judgments that would have to be borne by all customers of the System.

DEP releases water from the Ashokan Reservoir through a waste channel in order to leave capacity in the west basin of the Ashokan Reservoir to capture inflow of turbid water from the upper Esopus Creek. This release of water from the west basin of Ashokan Reservoir helps prevent the transfer of turbid water to the east basin but can result in the flow of turbid water into the lower Esopus Creek. In January 2011, Ulster County sent DEP a 60-day notice letter pursuant to the Clean Water Act, notifying DEP, as well as NYSDEC and USEPA, that it intends to sue the City, challenging certain transfers of water out of the Ashokan Reservoir without a SPDES permit. The City does not believe a SPDES permit is required for the releases through the waste channel because the lower Esopus Creek would receive flows from the upper Esopus Creek had the Ashokan Reservoir not been built. NYSDEC served the City with an administrative complaint in February 2011, alleging a number of violations of DEP's SPDES permit that authorizes the use of alum in the Catskill Aqueduct upstream of Kensico Reservoir. The complaint seeks relief in the amount of $2.6 million relating to the operation of the Ashokan waste channel. The issues are related because the Catskill Alum SPDES permit requires DEP to take measures to reduce reliance on alum, and one such measure is use of the release channel. The City has engaged in extensive negotiations with NYSDEC and other stakeholders. DEP is now operating the release channel in accordance with an October 2011 interim protocol that was developed by NYSDEC and DEP, with input from other stakeholders. In December 2011, Riverkeeper and Ulster County both submitted comments on the interim protocol to NYSDEC and also petitioned NYSDEC to issue a SPDES permit governing the release channel. If the City were required to stop using the release channel, or to reduce the turbidity in the releases, the City could incur substantial costs.

A complaint representing approximately 178 plaintiffs has been filed against the City due to flooding allegedly caused by the City's operation of the Neversink Dam in April 2005. The complaint seeks compensation of approximately $9 million associated with alleged property damage. In April 2007, the plaintiffs filed an amended complaint in the United States District Court for the Southern District of New York. The amended complaint adds claims under the Endangered Species Act and the Clean Water Act. The City's motion for summary judgment was granted in November 2010 and the complaint was dismissed in its entirety. The plaintiffs have appealed to the Second Circuit Court of Appeals. In addition, notices of claim seeking a minimum of $20 million have been filed on behalf of over 100 claimants relating to flooding near the Gilboa Dam in connection with Hurricane Irene, which occurred in August 2011.

1.3.8 Hurricane Irene

On August 27 and 28, 2011, Hurricane Irene moved through the City and upstate watershed. The impact to in-City DEP facilities was relatively minor. In the watershed, facilities lost power, the Margaretville wastewater treatment plant experienced heavy flooding, the collection system in Tannersville experienced two breaks and the loss of the access road to the facility, large

quantities of debris were deposited into the reservoirs, the site preparations for the reconstruction of the Gilboa Dam were destroyed and there was damage to roads and bridges. DEP immediately took steps to inspect and repair the damage. The capital costs associated with Hurricane Irene, including the costs of the Gilboa Dam site preparation, are estimated to be $40 million. It is anticipated that the majority of the expenses incurred by DEP to return to normal operations will be reimbursable with federal emergency management agency funds in these counties. However, the timing of the federal reimbursement is not certain, and there will still be some impact on System expenses in 2012 as well as capital costs that will not be reimbursed.

1.4 Water Conservation

Drought situations have necessitated measures to reduce water use by all customers and, at times, have required the use of the Hudson River as an alternative source of supply. DEP has initiated programs to reduce water use to achieve several goals, including the avoidance of the cost and implementation considerations associated with developing new sources of water supply.

DEP initiated a universal metering program in 1988; presently approximately 94% of customer accounts in the City are billed on a metered basis. Certain other accounts are billed on the basis of a series of flat rate charges, but water consumption is metered and monitored in most of these accounts. DEP also promotes water audits with the objective of identifying opportunities to reduce water consumption. DEP completed a program in the 1990s to replace older toilets in the City using 5 to 7 gallons per flush with low-flow toilets using 1.6 gallons per flush. DEP committed $310 million to this program to reimburse homeowners up to $240 for each toilet they replaced. Over 1.3 million toilets were replaced. Significant long-term reductions in water use have been achieved due to both the metering and toilet retrofit programs.

As indicated previously, the Dependability Program will be examining additional long-term water supply sources as well as further measures to enhance water conservation. Additional information concerning water conservation initiatives is provided in 4.8.2 of this Report.

1.5 The Roles of the Authority, the Board and the City in the Water System

Through mid-1985, capital improvements to the water and sewer system of the City were financed through general obligation bonds of the City. In 1984, State law authorized the creation of the Authority and the Board. The Authority's function is to issue revenue bonds, the proceeds of which are used to finance capital improvements to the water and sewer system, including the Water System. The Board sets rates and charges to meet the annual revenue requirements of the water and sewer system. The revenue requirements include debt service (principal and interest) on outstanding bonds of the City and the Authority as well as the operation and maintenance expenses of the City. Under an agreement between the Authority, the Board and the City, the City continues to operate and maintain the water and sewer system and is responsible for implementing capital improvements to the system.

The Authority issued its first revenue bonds in December 1985. As of the date of this Report, the Authority has over $8.8 billion in principal outstanding for its First Resolution revenue bonds and $19.4 billion in principal outstanding for its Second Resolution revenue bonds for the water and sewer system of the City, including $93.6 million in Bond Anticipation Notes issued to the New York State Environmental Facilities Corporation ("NYSEFC"). In addition, the Authority currently has an $800 million commercial paper program. Included within the Second Resolution debt are loans obtained by the Authority at below market interest rates from the state revolving fund ("SRF"). The SRF program is administered by NYSEFC. Tables 5B and 5C in the Appendix to this report show the original amounts of debt issued by the Authority and NYSEFC, which differ from the amounts noted above as being outstanding.

A portion of the proceeds of the Authority's bonds and the SRF loans has been used to finance capital improvements for water supply projects in upstate regions. Section 4.2.2 of the Report provides information concerning previous capital investments in the Water System. Under the CIP, additional capital improvements are ongoing and planned for the future to preserve the Water System for all customers.

1.6 Additional Information on the Water System, the Board and the Authority

Information on the System and its operations and maintenance is available on DEP's website:
http://www.nyc.gov/dep

Information on the Board and past rate reports are available on the Board's website:
http://www.nyc.gov/nycwaterboard

Information on the Authority and the outstanding debt of the System can be found in the Authority's Bond Official Statements, which are available on the Authority's website:
http://www.nyc.gov/nyw

2.0 The Sale of Water to Customers North of the City

2.1 Background

The New York State Water Supply Act of 1905 ("The Act") and subsequent amendments granted the City permission to develop the Catskill and Delaware watershed systems. In return for these development rights, the City was required, upon request, to furnish supplies of fresh water to municipalities and water districts in eight counties directly north of the City in which City water supply facilities and watersheds are located. The Act limits the quantity of water that may be taken or received to the quantity calculated by multiplying the number of inhabitants in the municipality or water district as shown by the last United States, State or official municipal census by the daily per capita consumption in the City.

Water is supplied to customers north of the City (hereinafter, "upstate customers") on a wholesale basis, i.e., the City delivers water to one or more central locations, and the customers (typically municipalities or water districts) are responsible for distributing the water to individual users such as residential buildings and commercial properties. For the period of 1985 through 2011 inclusive, the City provided an average of 43,649 million gallons per year of water to upstate customers, or 119.6 mgd. This represented approximately 8.81% of all water supplied to both in-City and upstate customers. The percentage of the water supply being used by upstate customers increased over the long-term and in recent years, increasing from 9.64% in 2008 to 10.15% in 2011.

Upstate consumption is affected by the continuing expansion of the areas served by City water as well as other changes occurring within the service area.

2.2 Rates and Charges for Upstate Customers

The regulated rate for water service to upstate municipalities and water districts is determined on the basis of the actual total cost of water to the City after deducting the capital and operating costs incurred within the City limits in connection with the distribution and delivery of water within the City. In no event may the regulated rate exceed the rate charged to customers within the City. The historical water rates charged to upstate customers for the period 2002 through 2012 are provided in the table on the following page. The rates shown as billed to upstate customers in 2010 through 2012 include the effects of the reconciliation of revenues and costs from prior years. The reconciliation was used by the Board for the first time in setting the 2010 rate based on the actual revenues and costs for 2008. In addition, the rate billed to upstate customers in 2012 includes the effects of the $10 million stipulation credit. Section 4.7 of this report provides information concerning the calculation of the reconciliation and the stipulation credit.

Historical Billing Rates and Computed Unit Costs

Fiscal Year	Rate per Million Gallons (MG) Billed to Upstate Customers	Computed Cost to the Board (Excludes the effects of reconciliation)
2002	448.83	462.24
2003	485.71	522.99
2004	542.36	529.85
2005	591.21	591.91
2006	617.79	623.47
2007	691.91	691.83
2008	798.62	703.73
2009	900.31	882.91
2010	922.23	973.86
2011	1,149.72	1,142.84
2012 (Current)	1,213.84	N/A

(a) The computed cost to the Board as shown above for 2003 and 2004 does not take into consideration the upstate share of the costs of defeasance of certain Authority bonds. The costs of defeasance were not included in the projected cost of service and regulated rate at the time of rate-setting. Including the effects of the cost of defeasance, the rate per million gallons is $549.32 in 2003 and $560.58 in 2004. The basis for these costs is explained in Section 4 of the Report.

(b) The rates shown above for 2005, 2006, and 2011 include the costs of defeasance in those years. There were no costs for defeasance in 2007 through 2010.

(c) The computed rate in 2010 does not include the effects of the cost reconciliation from 2008. After taking into account the effects of the reconciliation, the computed cost to the Board is $869.62 per million gallons.

(d) The computed rate in 2011 does not include the effects of the cost reconciliation from 2009. After taking into account the effects of the reconciliation, the computed cost to the Board is $1,125.45 per million gallons.

Prior to 2000, unit rates were based on historical costs and did not reflect the increasing actual cost of service. However, in order to develop a rate that more appropriately reflected the cost of water supply, unit rates since 2000 have been developed based on the anticipated cost of service in the upcoming fiscal years.

The actual unit rate for 2011, prior to the reconciliation, is slightly lower than the calculated unit rate that was adopted by the Board effective July 1, 2010 based on the estimated cost of service at the time. The reconciliation amount for 2009 is applied as a credit to the cost of service, further lowering the actual unit rate for 2011 compared to the calculated unit rate that was implemented by the Board.

The actual cost of service in 2011 (prior to a reconciliation credit) was comparable to the projected cost of service that was used in setting the unit rate in May 2010 although the components of cost varied: operating expenses and debt service were lower, offset by cash used

to defease debt. The principal reason for the decrease in the unit rate is that water consumption was higher than projected, which served to decrease the unit rate.

As of the date of this Report, it is estimated that the 2012 unit cost per million gallons may be lower than the unit rate that was adopted by the Board and is currently in effect. Among the factors affecting the estimated costs for 2012 are: debt service that is lower than previously projected, Authority expenses to defease debt that were not anticipated at the time of the previous report, miscellaneous revenue that is higher than previously projected, and higher than anticipated expenses for other than personnel services. The Authority has successfully sold bonds and commercial paper in 2012 at average interest rates that are lower than those previously assumed, which serves to reduce the projected debt service.

The estimated unit rate is also affected by projections of total water use. The current estimate of the cost per million gallons for 2012 is based the estimated annual costs divided by the full-year water consumption estimate that is derived from a 10-year regression analysis. Based on year-to-date water consumption through February 29, 2012, it is anticipated that the actual full-year water demand will be similar to the projected usage based on the 10-year regression. If the water demand for the full year is lower than projected, the unit cost per million gallons will increase. The actual cost of service and the actual unit rate for the supply of water for 2012 will not be known until after the fall of 2012.

This report proposes that a credit or “true-up” be applied towards the cost of service in 2013 to reflect the calculated difference between the 2011 actual cost of service and the actual costs recovered, which are computed by multiplying the unit rate charged by the Board in 2011 times system-wide water consumption. The calculation of this proposed credit is presented in Section 4.7 of the report.

3.0 Cost of Service Methodology

3.1 Overview

This Section of the Report provides a summary of the steps that were followed to calculate the cost of service for water supply. The cost of service is calculated in accordance with the cash basis methodology used by and approved by the NYSDEC in 1972 and 1995. The methodology is also consistent with that used to calculate the regulated rates, which were adopted for 1993 through 2012. Pursuant to the Act, the cost of service methodology excludes all capital and operating costs incurred for transmission and distribution mains, repair yards, tunnels, shafts, and related facilities within the City in connection with the distribution and delivery of water within the City. The cost of service takes into account offsetting revenues from hydropower and permit fees.

3.2 Procedures for Calculating the Cost of Service

Several steps are required to calculate the total cost of providing water to upstate customers and the regulated rate. These steps account for the many types of costs incurred by the City in establishing and maintaining reliable sources of drinking water. The approach that is used in this Report, as required by the 1905 Act, specifically excludes costs incurred within the City that are associated with the transmission and distribution of water in the City.

The six (6) steps that were followed in developing the cost of service and the proposed regulated rate for upstate water supply are outlined herein. The first five steps relate to the computation of the cost of service and regulated rate for 2009 through 2011. The sixth step includes the development of the projected cost of service and regulated rates for 2012 (the current year) and 2013. In addition, this Report includes a preliminary projection of the regulated rate for water supply service for the years 2014 through 2016. The projections are preliminary and subject to change. Reductions in system-wide water consumption as well as assumptions concerning increased costs for property taxes, watershed protection, required capital improvements and other factors have been taken into consideration in developing the projected cost of service and rates. Nonetheless, rising commodity prices and other factors affecting operating expenses and capital costs as well as changes in consumption may result in a larger increase in the cost of water supply in future years than is currently reflected in the 2013 projection and the preliminary projections for 2014 through 2016. The Water System costs, offsetting revenues and related information corresponding to each of the steps can be found in Section 4.0 and the Appendix of this Report.

3.2.1 Step A

The initial step includes the determination of all direct costs and offsetting revenues that relate solely to facilities located north of the City.

The components of this analysis include the following:

1. Other Than Personal Services ("OTPS")
2. Debt Service
3. Judgments and Claims
4. Miscellaneous Revenue
5. Personal Services ("PS"), which include:
    a. Field Worker Personnel
    b. Executive and Administrative Personnel

3.2.2 Step B

The second step includes the calculation of the allocation percentages to be used in Steps C and D. The allocation percentages are based upon personnel headcount, or total salaries or expenses, depending upon which allocation methodology is most appropriate to the costs being allocated. The methodologies used in the allocation process have previously been accepted by the USEPA and the NYSDEC in connection with the federal and State grant program for wastewater treatment facilities. The methodology was also accepted by NYSDEC in its 1995 decision and upheld by the Appellate Division of the Third Department concerning the regulated rates for 1993 and 1994.

3.2.3 Step C

The next step in the cost of service process is to determine the costs of DEP support services and other essential functions that must be allocated to the cost of supplying water. These costs fall into two categories:

1. Personal Services
2. Other Than Personal Services

The cost of support services and related functions of DEP must be shared by all customers who benefit from its services. Therefore, the costs must be allocated to facilities located north of the City using the appropriate allocation percentage calculated in Step B.

3.2.4 Step D

The fourth step involves the identification of the City's Central Service costs that must be allocated to the cost of water supply. The City's Central Service costs are those related to general City services (e.g., accounting, budgeting, personnel, legal) that are provided to the Water System as well as to DEP as a whole and to other City agencies. Therefore, these costs are allocated first among all City departments. The DEP share (calculated using an allocation percentage developed in Step B) is then allocated to facilities located north of the City.

3.2.5 Step E

The total cost of supplying water to both in-City and upstate customers, exclusive of in-City distribution costs, is determined by adding the cost of service elements, which are calculated in Steps A, C and D. Dividing the total cost of service by total water consumption determines the unit cost per million gallons (MG) related to the supply of water. The upstate water consumption times the unit cost or regulated rate per MG results in the total costs attributable to upstate customers.

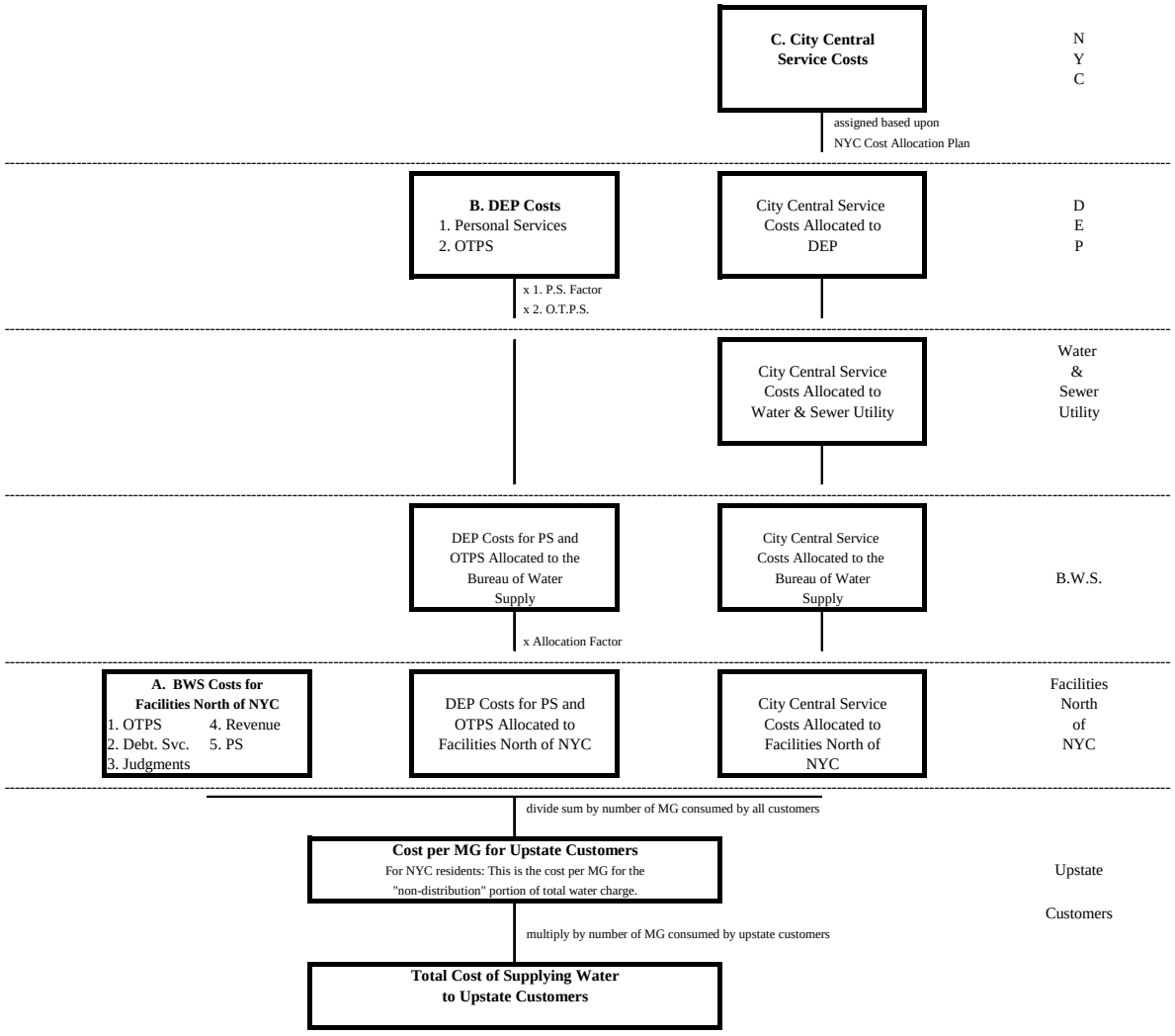
3.2.6 Step F

Steps A through E are primarily used to develop the actual cash basis cost of service for 2009 through 2011. To develop the projected cost of service for 2012 (the current year) and 2013, known debt service costs are added to anticipated future debt service plus anticipated operation and maintenance expenses, less expected offsetting revenues. Projections of future expenses and revenues are based on historical experience as well as known changes in programs and costs that are expected in 2012 and 2013. This is a standard and accepted practice in the industry and is consistent with the methodology used to develop water and sewer rates for in-City customers. The projected cost of service is divided by the estimated water consumption to determine the regulated rate. Step F is carried out simultaneously with the work performed in Steps A through E.

3.2.7 Graphical Overview

Figure 2 on the following page provides a graphical presentation of how various components of the cost of service are allocated in the development of the cost of providing water to upstate customers.

Figure 2 Diagram of Calculation



3.3 Computation of the Regulated Rate

The regulated rate per million gallons of water use is computed on the basis of the total cost of service divided by the total water consumption:

Total Cost of Service *divided by* Total Water Consumption = Unit Cost of Service or Regulated Rate

The costs, and thus the revenue requirements, attributable to upstate customers are computed on the basis of the total annual quantity of water used by upstate customers multiplied by the unit rate per million gallons:

Upstate Consumption *multiplied by* Unit Cost of Service or Regulated Rate = Upstate Cost of Service

The total cost of service for water supply, or revenue requirements, would be allocated between upstate and in-City customers as follows:

Upstate: **Total Cost of Water Supply Service *multiplied by*:** $\frac{\text{Upstate Consumption}}{\text{Total System Consumption}}$

In-City: **Total Cost of Water Supply Service *multiplied by:*** $\frac{\text{In-City Consumption}}{\text{Total System Consumption}}$

3.4 Sources of Data and Basis of Presentation

Information presented in this report was obtained from records of the City. The City utilizes a modified accrual basis of accounting for its costs. Operation and maintenance expense information including cost allocation factors was provided by DEP. Debt service information was obtained from the Authority. Pension and fringe benefit cost factors were provided by the New York City Office of Management and Budget. Water consumption information was provided by DEP.

4.0 Computation of the Cost of Service and the Regulated Rate

4.1 Introduction

This Section of the Report describes the individual elements of the cost of service and presents the computed cost of service and regulated rate for 2009 through 2011. Fiscal Year 2011 is the most recent fiscal year for which complete information is available. The anticipated cost of service for 2012 and 2013 is presented using the following components of cost: scheduled debt service payments on outstanding bonds for these years, the anticipated debt service from additional bonds of the Authority that are expected to be issued, the expected payments for cash-financed construction and projections of operating expenses and all other components of the cost of service. Additional bonds reflect the expected issuance of debt by the Authority in 2012 and 2013, the proceeds of which will be used, in part, to fund capital improvements in the Water System. The projected debt service reflects the expected portion of the bond proceeds that will be used for the Water System. The findings of each significant step of the analysis are presented in this Section and the basis for projecting the cost of service for 2012 and 2013 is also provided. Where appropriate (e.g., chemical expenses, property taxes, and debt service), we have normalized the cost of service to take into consideration one-time or recurring increases or decreases in costs. Supporting tables for each step of the analysis are referenced in this Section and presented in detail in the Appendix to the Report.

4.2 Bureau of Water Supply Costs Related to Facilities Located North of the City - Step A

The Bureau of Water Supply ("BWS") of DEP has the responsibility to operate and maintain the Water System of the City. This responsibility also includes the development and implementation of capital improvements to the system so that a reliable supply of quality water can be maintained for customers both within the City and in upstate communities.

BWS carries out its water supply responsibilities through personnel and equipment located at facilities throughout the watershed. BWS personnel include engineers, laboratory technicians, security personnel, water quality experts, and management and support personnel.

The vast majority of the water supply costs presented in this Report relate solely to facilities located north of the City. In the subsequent parts of this Section, additional DEP and City costs will be allocated to facilities located north of the City.

The following paragraphs in this section discuss the individual categories of costs that relate solely to facilities located north of the City.

4.2.1 Other Than Personal Services Costs

By definition, OTPS costs include all operating expenses other than labor including, but not limited to: supplies, equipment, contracted maintenance and repairs, power, chemicals, real

estate taxes paid to upstate communities and other purchased goods and services. Direct OTPS costs have steadily increased over the years, as illustrated in the table shown below.

OTPS expenses in 2011 include certain costs associated with filtration avoidance and environmental health and safety in the watershed. Additional information concerning these expenses is presented in 4.2.1.6 of this report.

Historical OTPS Expenses

Fiscal Year	OTPS Expense ($)	Annual Increase (%)
2002	105,285,931	4.7%
2003	112,322,431	6.7%
2004	104,373,092	-7.1%
2005	118,531,353	13.6%
2006	133,134,219	12.3%
2007	138,068,007	3.7%
2008	150,982,178	9.4%
2009	171,280,256	13.4%
2010	169,955,116	-0.8%
2011	191,435,944	12.6%

The average annual increase from 2002 to 2011 is 6.9%. The expenses include the estimated costs associated with Hillview Reservoir, which were approved by NYSDEC for inclusion in the cost of service in April 1997. As noted previously, the decline in expenses in 2004 was primarily due to the completion of certain expenses related to the MOA. The increase from 2007 to 2008 was due primarily to increases in property taxes, chemicals, fuels and supplies and materials compared to prior years. The increase in OTPS expenses between 2008 and 2009 was 13.4%, which was attributable to significant increases in chemical prices (for the watershed in general and Hillview Reservoir in particular) as well as increases in property taxes. OTPS expenses in 2010 were slightly lower than 2009 based primarily on a decrease in prices and resulting costs for certain chemicals at Hillview Reservoir. Reductions in chemical costs at Hillview Reservoir offset the increases in costs for property taxes and certain other expenses. The overall increase in 2011 is due to additional OTPS expenses for filtration avoidance and water supply environmental health and safety programs.

Property taxes for existing properties and the UV Facility have increased steadily each year and constituted about 69% of total OTPS costs allocable to the cost of water supply and the unit rate in 2011. Annual increases in property tax rates are the principal cause of increasing property taxes. To protect water quality in the watershed, the City is required to increase significantly the number of acres of land that are either owned by the City or otherwise restricted in terms of land use. Also, it is important to note that property taxes associated with the UV Facility are currently

included in a separate line item for UV real estate taxes. Section 4.2.1.7 provides additional information concerning the UV Facility.

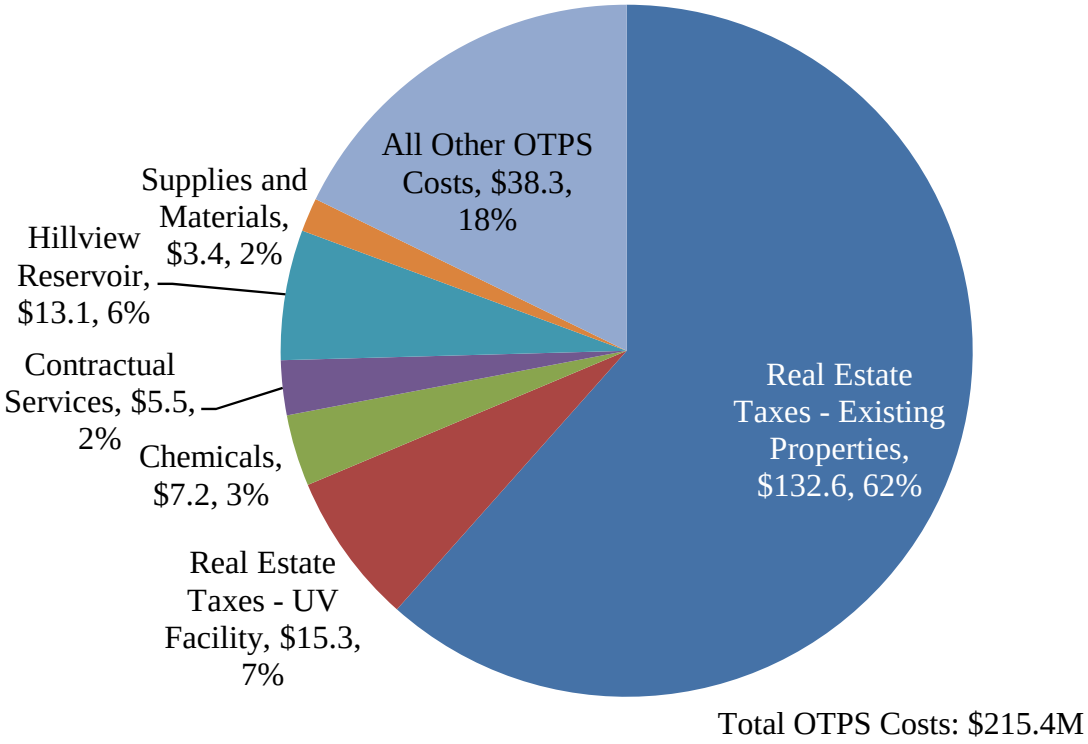
Recent expenses and current and ongoing programs were considered in estimating the anticipated 2012 and 2013 OTPS expenses. The findings of the analysis are presented in the following categories:

1. Real Estate Taxes
2. Chemicals
3. Hillview Reservoir
4. Contractual Services
5. Rate Studies
6. UV Facility
7. Other OTPS Expenses

The analysis considered the historical experience in each of these categories together with current and expected future changes affecting these categories of costs so that such costs would be normalized, where appropriate, to exclude unusual increases or decreases that may have affected recent experience. Overall, the annual increase in OTPS expenses is expected to continue due to rising property taxes and increases in other costs. The expected 2013 components of OTPS costs are summarized in Figure 3 on the following page. Table 4B in the Appendix provides a detailed listing of OTPS expenses.

The cost of chemicals used at Hillview Reservoir is included in the total costs for Hillview and is not included in the cost category for chemicals used at all other water supply facilities. The category of Other OTPS Expenses covers non-personnel expenses that are not included in categories 1. through 6. above; e.g., costs for filtration avoidance and water supply environmental health and safety programs.

Figure 3 Projected Fiscal Year 2013 Other Than Personal Services Costs
($ in millions)



Total OTPS Costs: $215.4M

4.2.1.1 Real Estate Taxes

Real estate taxes, including taxes for existing properties and for the UV Facility, have increased at the average annual rate of about 7.1% from 2002 to 2011. Historical property tax payments are shown in the table below.

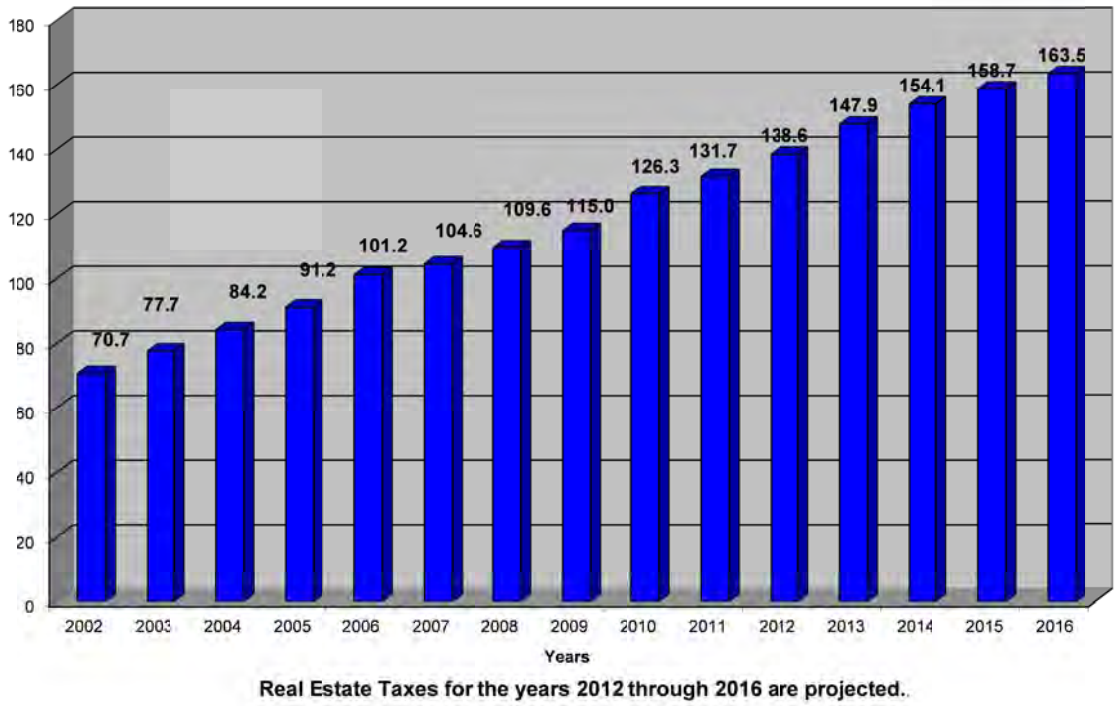
Historical Property Tax Payments

Fiscal Year	Property Tax Expense ($)	Annual Increase (%)
2002	70,729,378	6.2%
2003	77,703,889	9.9%
2004	84,239,835	8.4%
2005	91,223,381	8.3%
2006	101,209,162	10.9%
2007	104,630,050	3.4%
2008	109,627,241	4.8%
2009	114,958,441	4.9%
2010	126,320,846	9.9%
2011	131,663,054	4.2%

The increase in recent years reflects a combination of both increases in the local tax rates applied to water supply properties as well as taxes on newly purchased properties in the watershed and the initial taxes on the UV Facility.

The projected real estate taxes for 2012 and 2013 are $138.6 million and $147.9 million, respectively. Both estimates reflect an allowance for the expected increases in property tax rates, the taxes on newly-purchased land as well as taxes on the UV Facility. Given the recent initiatives in the State to reduce the annual rate of increase in property taxes, a 3.0% annual rate of increase in the property taxes is assumed for 2013 through 2016 for all taxes except those for the UV Facility. This assumption differs from previous years when it was assumed that taxes would increase at the rate of 6.0% annually. Based on analyses performed by DEP, property taxes related to the UV Facility are assumed to be $9.9 million in 2012, $15.3 million in 2013 and $17.6 million in 2014. It is assumed that property taxes on the UV Facility will then increase at the rate of 3% per year in 2015 and 2016. While the current rate adoption by the Board will only address 2013, projections for 2014 through 2016 are shown for illustrative purposes. The actual and estimated real estate taxes payable to upstate communities for watershed properties from 2002 through 2016 including the UV Facility are summarized in Figure 4.

Figure 4 Real Estate Taxes for the Water System
($ in millions)



4.2.1.2 Chemicals

Several chemicals are used by the City to treat the water supply, including chlorine that is used for disinfection and other purposes. This part of the Report addresses the chemicals used in the watershed, except for those used at the Hillview Reservoir, which are presented separately in 4.2.1.3. As illustrated by the following table, the total cost of chemicals varies from year to year.

Historical Chemical Costs

Fiscal Year	Chemical Costs ($)	Annual Rate of Change (%)	Chemical Costs as a % of Total OTPS
2002	2,087,173	-3.4%	2.0%
2003	1,716,477	-17.8%	1.5%
2004	2,047,475	19.3%	2.0%
2005	2,220,258	8.4%	1.9%
2006	3,290,291	48.2%	2.5%
2007	3,462,379	5.2%	2.5%
2008	5,344,146	54.3%	3.5%
2009	8,035,776	50.4%	4.7%
2010	7,813,168	-2.8%	4.6%
2011	6,744,998	-13.7%	3.5%

The cost of chemicals for water supply in a given year is dependent upon both the quantities of chemicals that must be used as well as the unit price per ton. There were significant increases in prices for fluoride and other chemicals for the System, excluding Hillview Reservoir, in 2008 and 2009. The quantities of chemicals used and the applicable unit prices in recent years are summarized in the following tables.

Historical Chemical Use

Fiscal Year	Chlorine (Lbs)	Fluoride (Tons)
2002	3,325	2,178
2003	3,146	1,577
2004	3,109	1,451
2005	2,777	1,892
2006	2,854	1,731
2007	3,149	1,392
2008	3,141	1,940
2009	2,859	2,203
2010	3,170	1,691
2011	3,036	1,393

Historical Unit Prices for Chemicals

Fiscal Year	Chlorine ($)/Lb	Fluoride ($)/Ton (1)
2002	317.00	457.25, 493.76
2003	298.07	493.71
2004	428.07	493.71
2005	448.07	515.81
2006	695.05	796.16, 934.78
2007	686.30	934.78
2008	667.55	1,673.92
2009	620.05	2,934.78
2010	456.68	3,800.00
2011	474.98	3,797.88

(1) Fluoride prices for 2002 and 2006 reflect two different delivery zones within the Water System.

The assumed rate of increase in chemical costs in 2012 through 2016 is 3% per year. As noted previously, certain chemical costs have increased significantly in the northeast U.S. in recent years. It is not certain at this time whether prices will stay the same, increase or decline in future periods. Chemical addition that solely benefits in-City customers is excluded from this cost of service analysis.

4.2.1.3 Operating Expenses Associated with Hillview Reservoir

The principal expenses incurred in the operation of Hillview Reservoir are associated with chemical addition and security. Caustic soda is added for water quality purposes to adjust the pH of the water entering Hillview. Orthophosphate is added for lead and copper control. In 2011, the costs for caustic soda and orthophosphate were $5.2 million and $5.6 million, respectively. These costs fluctuate due to market prices. The competitively bid unit prices for orthophosphate effective June 1st for 2009, 2010, and 2011 were: $8.29 per gallon, $3.10 per gallon, and $3.10 per gallon, respectively. The non-labor expenses attributable to Hillview Reservoir in Tables 4A and 4B in the Appendix are exclusive of property taxes, which are included in the separate property tax line items (line 18 and line 19) that cover all existing water supply properties.

All OTPS expenses, including chemical costs at Hillview, are assumed to increase at the rate of 3% per year from 2011 to 2012. Market conditions and upcoming bid prices will dictate the actual prices for chemical costs. OTPS expenses in 2013 through 2016 are assumed to increase at the rate of 3% per year. Future increases in expenses at Hillview could be significantly affected by fluctuations in the price of chemicals and other factors.

Labor costs for Hillview are included in 4.2.5 of this report.

4.2.1.4 Contractual Services

The City was required by the MOA to fund a number of capital projects and operating programs to support the protection of the watershed. Programs to be paid from operating funds began in 1997, and most of the operating expenses were classified under the Contractual Services line item. Beginning in 2004, the expenses related to the MOA declined as the programs it called for ended or were scaled down. The future expenses for MOA-related programs are reflected in the Contractual Services line item of the projected OTPS expenses. Beginning in 2005, Contractual Services also included certain costs associated with the development and implementation of environmental health and safety programs for the Water System. Contractual Services expenses are assumed to increase at the rate of 3% annually.

4.2.1.5 Rate Studies

The annual costs associated with performing rate studies and related work for establishing the regulated rate for upstate customers, including, but not limited to, the distribution of documents, posting of notices and the rate hearing, are estimated at $61,000 per year from 2012 to 2016. The actual payments for rate studies and related work for 2011 were $52,107.

4.2.1.6 Other OTPS Expenses

OTPS expenses in 2011, 2012 and future years include DEP costs associated with filtration avoidance and environmental health and safety programs in the watershed. These are shown in lines 29 through 31 of Tables 4A and 4B. Included within the costs of filtration avoidance are payments for the operation and maintenance of certain wastewater treatment facilities that are not owned by DEP. The operation and maintenance of such facilities is intended to protect the water quality in the watershed. Payments from DEP to watershed communities under the MOA and the cost of other initiatives that help support the avoidance of filtration are also included within the filtration avoidance line item. In recent years, DEP has undertaken a comprehensive program of environmental health and safety; the water supply-related costs of this program are included in line 31 of Tables 4A and 4B. The expenses associated with filtration avoidance and environmental health and safety programs in the watershed and the costs of other categories of expense are assumed to increase at the rate of 3% per year in 2012 through 2016.

4.2.1.7 UV Facility

It is currently anticipated that the UV Facility will be completed and begin operations in Fiscal Year 2013. DEP began to pay property taxes for the UV Facility in 2010; such taxes are expected to increase substantially when the Facility is complete. When fully operational, property taxes are assumed to be more than 50% of the total annual operating expenses for the UV Facility. OTPS expenses other than property taxes are expected to be incurred beginning in 2012.

4.2.2 Debt Service/Capital Improvement Financing

Capital improvements to the System are financed principally through the proceeds from the sale of bonds. A portion of the capital improvements are financed on a cash basis using funds from revenues of the System. This part of the Report describes the methodology that is used to

develop the annual debt service requirements (i.e., the principal and interest payments on bonds) of the Water System as well as the annual revenues raised for use in the CIP. Table 5A in the Appendix provides a summary of the debt service/cash-financed construction payments for Fiscal Year 2009 through 2011, as well as the projected amounts for 2012 through 2016. The debt service/cash-financed construction amounts are then reflected in Line 2 of Tables 1A and 1B in the Appendix, which summarize the annual cost of water supply service and the regulated rate. Line 3 of Tables 1A and 1B presents the water supply portion of the amounts used (if any) to defease Authority bonds. The costs and benefits of defeasance are described herein.

4.2.2.1 Historical Investments in the Water System

Prior to the formation of the Authority, the development, expansion and upgrading of the Water System was carried out by the City with funds that were typically provided by the proceeds of General Obligation (G.O.) bonds issued by the City. Within the last twenty years, over $4 billion in investments have been made throughout the Water System north of the City principally through the proceeds of bonds issued by the Authority. The capital costs are reflected in debt service on bonds of the Authority and NYSEFC, which is a component of the cost of service and regulated rate.

Investments that are either complete or in progress include improvements to: dams, reservoirs, reservoir roads and bridges, City-owned and non-City wastewater treatment plants, agricultural programs (i.e., pollution prevention for watershed protection), security, the UV Facility, and other capital needs including the Rondout-West Branch Tunnel investigations. Costs for the Croton filtration plant prior to the approval of the in-City site are included in the water supply cost of service and are allocated to all water supply customers; costs incurred following the approval of the site are not included.

Land purchases, improvements to wastewater treatment plants and other capital investments and operating expenses have been instrumental in maintaining the quality and reliability of the System including the avoidance of filtration for the Catskill and Delaware Systems.

4.2.2.2 Debt Service Related to the Water System

Debt service on Authority bonds, including bonds issued to NYSEFC, is computed based on the total net debt service payable for the water and wastewater system of the City in each year times the percentage attributable to the water supply portion of the capital improvements that have been financed with the proceeds of Authority and NYSEFC bonds. This approach incorporates the savings resulting from refundings of previously-issued bonds. It also includes the impacts of the defeasance of certain future debt service obligations of the Authority. The current methodology for computing debt service on outstanding Authority and NYSEFC bonds was first applied in 2005.

The methodology for allocating debt service to the System begins with the calculation of the percentage of the capital investments beginning in 1986 that are attributable to the System versus other components of the water and sewer system of the City. Since improvements have been

financed with the proceeds of both Authority bonds and bonds issued to NYSEFC, Tables 5B and 5C in the Appendix were prepared to illustrate the proceeds of each bond issue and the upstate portion of such proceeds for Authority and NYSEFC bonds, respectively. Since the percentage share for the Water System will change from year to year, a cumulative percentage (beginning with the first bonds issued in 1986) is computed in each year through the current year-to-date (i.e., 2012). For example, the cumulative percentage to be used in 2011 reflects the sum of all bond proceeds used for water supply projects from 1986 through 2010 divided by the sum of all proceeds from bonds issued from 1986 through 2010. The calculated percentages in 2011 are applied in Table 5D in the Appendix to the appropriate debt service, interest earnings, etc. in 2011. The calculated percentage in 2012 is applied to the appropriate figures for 2012 and is then applied to the figures for 2013 through 2016. The computed percentages for 2012 through 2016 are preliminary and subject to change since not all proceeds of bonds issued in 2012 have been spent at the time of this report.

The water supply share of debt service and net offsets are computed by multiplying the System-wide totals for each category times the applicable percentage in each year. The three percentages that are shown reflect: 1) water supply capital costs funded through Authority bond proceeds as a percentage of total capital costs funded through Authority bond proceeds; 2) water supply capital costs funded through NYSEFC bond proceeds as a percentage of total capital costs funded through NYSEFC bond proceeds; and 3) water supply capital costs funded through both NYSEFC and Authority bond proceeds as a percentage of total capital costs funded through NYSEFC and Authority bond proceeds.

Table 5D illustrates the current projections of debt service on outstanding bonds and anticipated future bonds of the Authority and NYSEFC for the Projection Period as of March 1, 2012. The amounts shown are net of all refundings and defeasance of debt that have previously been undertaken by the Authority. The amounts also reflect the anticipated effects of additional defeasance of debt that the Authority expects to complete in 2012. Authority debt service is shown as First Resolution and Second Resolution. The Second Resolution debt is subordinate to the First Resolution debt. Table 5D also presents the estimated interest on Commercial Paper shown as Interest on Short-Term Debt. The Authority initially finances capital improvements through the proceeds of short-term Commercial Paper sales and then redeems the Commercial Paper with the proceeds of long-term bonds. Interest rates on Commercial Paper and the variable rate debt of the Authority have been low in recent periods compared to historical conditions, resulting in actual interest costs that are lower than projections. There is no assurance that such market conditions will continue in future years. As a result, projections of future debt service payments assume that interest rates on Commercial Paper, variable rate debt and future fixed rate debt will be higher than current market rates. Cash-financed construction is discussed in 4.2.2.3 of this report.

The debt service on certain Authority bonds and certain bonds issued to NYSEFC are net of the interest subsidy payments from the U.S. Treasury for those bonds designated as Build America

Bonds ("BABs"). The bonds were issued on a taxable basis and the U.S. Treasury will provide interest subsidy payments in each year equal to 35% of the interest payable.

Interest earnings on available funds (the Debt Service Fund, the Debt Service Reserve Fund, the Construction Fund and the Subordinate Debt Service Fund), together with Authority expenses related to debt, collectively form a net offset to a portion of the debt service. Interest earnings have generally declined in recent years due to conditions in the financial markets that have resulted in relatively low rates of interest earnings on secure investments. Authority expenses related to debt include administrative expenses charged by NYSEFC for the low-interest loan program, liquidity fees and other expenses related to variable rate debt, swap payments, arbitrage rebate payments and other expenses.

4.2.2.3 Cash-Financed Construction

Portions of the capital improvements to the Water System may be financed through available cash in lieu of the proceeds of Authority revenue bonds or NYSEFC bonds. The Authority spent $20 million for cash-financed construction needs in 2007. No cash-financed construction deposits were made in 2009 through 2011, and no cash-financed construction deposits are expected to be made in 2012. The deposits for cash-financed construction in future years are currently expected to be $150 million in 2013, $175 million in 2014, $200 million in 2015 and $225 million in 2016. Line 8 of Table 5D reflects the cash-financed capital assumptions identified above. The projected amounts for each year may increase or decrease in the future. Line 21 of Table 5D shows the upstate water supply share of such costs. The upstate share is based on the total cash-financed construction amount in each year times the Water System capital costs funded through both NYSEFC and Authority bond proceeds as a percentage of total capital costs funded through NYSEFC and Authority bond proceeds. The Board and the Authority may also decide to modify the amount of the cash-financed capital contribution or instead use the cash-financed allowance for the defeasance of outstanding bonds with a resulting reduction in future debt service based on the effects of the defeasance.

4.2.2.4 Cash Used for the Defeasance of Bonds

In 2003, 2004 and 2006, cash from the water and sewer system was used to pay future debt service in advance of the years in which such debt service was payable. The debt service on outstanding bonds of the Authority as illustrated in Table 5E in the Appendix is net of any prepayment amounts. Since all water supply customers share in the benefit of lower future debt service due to the defeasance, all water supply customers should share in the costs of the defeasance. No payments from System cash were made for defeasance in 2009 and 2010, so there are no costs to be allocated to the upstate Water System share for these years. In 2011, $260 million was used to defease debt that was due in 2012 through 2016. The projected debt service of the Authority reflects the impacts of the defeasance of such debt. At the time of this Report, it is estimated that $235 million will be used in 2012 to defease debt that is due in future years. It is currently anticipated that certain bonds that are payable in 2013 through 2018 will be defeased, recognizing that this is subject to change. There are no plans as of the date of this report for the defeasance of additional debt during the period of 2013 through 2016. However, as

noted in 4.2.2.3, the Board and Authority may decide in the future to use part or all of the planned Cash-Financed Construction amounts for the defeasance of debt.

4.2.2.5 Ongoing and Future Capital Improvements

Ongoing capital improvements in the System to be funded through the proceeds of bonds in 2012 through 2016 include: rehabilitation of the Gilboa Dam, the UV Facility, Hillview cover-related work, purchases of land, upgrades to wastewater treatment plants in the watershed, reconstruction of other water supply infrastructure, the Dependability Program, filtration avoidance measures north of the City, and other projects and programs.

4.2.2.6 Capital Cost Summary

Favorable market conditions in 2011 resulted in actual debt service that is much lower than anticipated. The year-to-date experience in the financial markets through April 25, 2012 has also been better than previously assumed, and preliminary changes for 2012 have been taken into consideration in the projected debt service for this year and subsequent years. There is no assurance that such conditions will continue in the future.

There will be an overall net increase in debt service/capital costs in the upcoming years to reflect the debt service for capital improvements being funded through the proceeds of Authority bonds and cash-financed construction. Table 5A summarizes the historical and expected future annual costs attributable to debt service and cash-financed construction.

4.2.3 Judgments and Claims

Judgments and claims represent the amount of judgments rendered against the System or claims paid by the City for water supply-related matters in upstate areas. Actual and projected judgments and claims are illustrated in Table 6 in the Appendix. There are years in which no judgments or claims were paid for the Water System. Payments made in other years have ranged from $1,834 in 1999 to $916,350 in 2011. The payment amounts in 2010 and in 2011 were $668,221 and $916,350, respectively. A payment of about $5.5 million was made in 2007 to settle litigation relating to the Shandaken Tunnel. There may be additional expenses related to this matter. The cost of service analysis assumes that the fifteen-year (1997 through 2011) average of $533,814 will provide an allowance for judgments and claims in future years.

4.2.4 Miscellaneous Revenue

Miscellaneous revenues received from upstate sources are used to offset the total cost of supplying water to both in-City and upstate customers. As indicated in Table 7 in the Appendix, miscellaneous revenues are derived from hydropower generated at upstate dams and from miscellaneous charges for permit use and related services provided in the Water System. In addition, miscellaneous revenues can include tax refunds when such refunds are made.

Hydropower revenues as illustrated in Table 7 represent gross revenues prior to the application of offsetting expenses, which are included in the historical and projected OTPS and personal

services expenses shown in the tables of this report. Table 14 in the Appendix shows the anticipated gross hydropower revenues by source. In 2012 and 2013, it is expected that such revenues will be approximately $8.5 million and $8.7 million, respectively, which, together with other miscellaneous revenues, will be applied as a credit towards the cost of water supply service.

Miscellaneous revenues have been inconsistent over the years, declining in some years and increasing in others. Hydropower revenues are shown for 2004 through 2011. Hydropower revenues in future years may differ from the historical experience. The City took ownership of the Grahamsville and Neversink hydroelectric facilities in October 2006, which resulted in an overall increase in annual revenues (compared to historical experience) as well as increased costs for capital improvements and operation and maintenance expenses including property taxes. The City also receives a relatively small amount of revenues from the operator of the West Delaware hydroelectric facility. No revenues are considered in the calculations for the Ashokan and Kensico facilities because no revenues are actually expected to be received by the City.

For purposes of estimating future miscellaneous revenues during the Projection Period, the fifteen-year average (1997 through 2011) of permit/services revenues has been used. DEP received tax refunds in 2009 but no refunds were received in the previous four years or in 2010 and 2011 as illustrated in Table 7. At this time, the projections assume no refunds in future years. In lieu of tax refunds, DEP has advised that it may instead receive credits against property taxes due in future years. Table 7 summarizes both the historical and projected miscellaneous revenues for the Water System.

4.2.5 Personal Service Costs

Personal services expenses directly allocable to water supply services are shown in Tables 8A, 8B, 9A and 9B of the Appendix. These expenses represent salary, pension, and fringe benefit costs associated with all BWS field personnel working in water supply facilities located north of the City as well as support and administrative personnel. Field personnel, for purposes of this report, are defined as DEP personnel with non-supervisory or non-management titles, working directly with the Water System. Field personnel thus do not include personnel classified as management and/or administrative support. Irrespective of the “field” or “administrative support” designation, these costs are all entirely related to water supply. The methodology for classifying personnel between field personnel and support/administrative categories of cost is consistent with the City's indirect cost plan for federal and State grant programs. Prior indirect cost plans of the City that use this methodology have been approved by the federal government. Personal Services costs in Tables 8A, 8B, 9A and 9B are categorized based on location. The categories vary somewhat from previous year reports as locations have been consolidated or eliminated from a budgetary perspective. This does not necessarily indicate a physical change in location of the associated salaries.

Labor expenses for Hillview Reservoir include day-to-day operations, maintenance, and security. Security costs, in terms of both labor and non-labor expenses, have risen significantly in recent years as initiatives to protect the Water System have been implemented. In 2012 through 2016, salary and wage costs at Hillview are assumed to increase at the rate of 3% annually, consistent with the assumption for other components of the System. Pension and fringe benefit rates that are applied to salaries and wages are expected to change in each year as summarized herein.

The source documents for the above referenced costs are DEP records, which identified salary and related costs by employee name and work location. Pension and fringe benefit factors reflect city-wide percentages and were computed at 49% in 2010, 30% in 2011, and 46% of direct salary and wages in 2012. Based on recent analyses prepared by the City, the pension and fringe benefit rate for 2013 is expected to be 48%. The assumed rate for 2014 through 2016 is also 48% of direct salary and wages. Pension and fringe benefit rates (which are applied to salary and wage expenses) are summarized as follows:

Pension/Fringe Benefit Rates (as a % of Salary & Wage $)

Year	Rate
2010	49%
2011	30%
2012	46%
2013-6	48%

The preceding pension and fringe benefit rates are applied to all projected labor costs related to the supply of water. The projected labor costs for 2012 through 2016 incorporate the projected and assumed changes in the pension and fringe benefit rate and a 3% per year increase in salary and wage costs.

There are currently outstanding collective bargaining agreements between DEP and personnel providing direct and indirect upstate services, including agreements related to the watershed police. When the settlement is reached, there may be retroactive payments for salaries and wages plus pension and fringe benefits that will likely be made in the year in which the settlement occurs and an increase in annual salaries and wages beginning in the year of the settlement. No allowance has been included in the projected cost of service for either retroactive payments or an increase in base personal service expenses.

4.3 Calculation of Allocation Percentages - Step B

The remaining elements of the cost of service, i.e., those not directly or fully allocable to facilities north of the City, must undergo one or a series of allocations before an appropriate assignment of costs can be made. Accordingly, allocation percentages are developed for the purpose of apportioning a fair share of costs incurred by one bureau, unit or location to the benefiting entity. For example, DEP incurs many costs in support of BWS. The DEP cost burden must then be shared by BWS through the use of an allocation percentage. The allocation factors presented in Table 10 of the Appendix specifically exclude employees working within the City in the wastewater system or the water distribution system. The computation of the allocation percentages used in this report is presented in Table 10.

4.4 Allocation of Department of Environmental Protection Costs - Step C

Expenses of DEP that are covered by Step C represent personnel and other expenditures of DEP that are allocable to management, administration and support services needed to operate and maintain the water supply facilities located north of the City. Again, City water distribution system costs are specifically excluded.

Tables 11A and 11B in the Appendix illustrates allocated personal services costs, while Tables 12A and 12B in the Appendix present the allocation of a portion of DEP OTPS costs to facilities north of the City. Examples of the services provided include motor vehicles, garage facilities, data processing and personnel recruiting and management. The total costs to be allocated are multiplied by headcount allocation percentages to obtain the amount that may be attributed to BWS. The amounts attributable to water supply are then subject to an allocation percentage to relate the costs to facilities located north of the City.

Allocated DEP personal services costs in 2012 through 2016 reflect the same assumptions identified in 4.2.5. OTPS costs are assumed to increase at an annual rate of 3%.

4.5 Allocation of City Central Service Costs - Step D

The City incurs costs that must be distributed among all of its operating entities. Such costs include planning, budgeting, accounting, purchasing, legal services and other related activities. A cost allocation plan is developed to distribute the City-wide costs. The plan is subject to review by the federal government in connection with federal aid received by the City. After the City-wide allocation process, the DEP portion of the City's costs is divided further between non-utility and water and sewer utility components. The water and sewer utility-related costs are then distributed among the various DEP water and sewer functions using head count allocation percentages. BWS is one of the functions to which costs are allocated. This cost is then further allocated to relate to facilities located north of the City. The allocated Central Service costs were $1,786,731 in 2011. Overall City support service costs to DEP are expected to be relatively constant in future years. Thus, such costs attributable to water supply are assumed to be $1,786,731 in 2012 and each year thereafter.

4.6 Cost of Service - Step E

The calculations of the total cost of water supply and the cost of water supply attributable to upstate customers are presented for 2009 through 2011 in Table 1A and for 2012 through 2016 in Table 1B. Additional tables are referenced to support the various categories of costs and offsetting revenues. These additional tables provide a detailed breakdown of the components of each step of the cost of service analysis and are included in the Appendix.

The total cost of service is estimated to be $519,300,818 in 2012 and $554,536,079 in 2013. Of the total cost of service amount, $388,606,419 in 2012 and $448,987,192 in 2013, or about 75% and 81% (excluding the effects of the reconciliation and stipulation credit), respectively, of the total in each year, is for debt service/capital costs and direct out-of-pocket expenses (OTPS costs) associated with operating and maintaining the water supply facilities located north of the City. As illustrated in Table 4B, the largest item of OTPS expense for the supply of water is real estate taxes paid to upstate communities for watershed properties. Excluding the reconciliations, upstate taxes (included with OTPS expenses) will represent approximately 27% of all water supply costs in 2012 and in 2013. Direct salary, pension costs and fringe benefits for personnel directly and indirectly related to the water supply facilities located north of the City account for about 19% of all costs, excluding the reconciliation, in 2012 and in 2013.

The net total cost of water supply as presented in Table 1B is $487,653,099 for 2012 (line 22) and $544,326,340 for 2013 (line 21). These amounts include the effects of the reconciliation for 2010 of $21,647,720 that is credited to 2012 and the proposed reconciliation of $10,209,738 for 2011 that is credited to 2013. The 2012 net cost of water supply also includes the effects of the $10 million stipulation credit as described in Section 4.7.

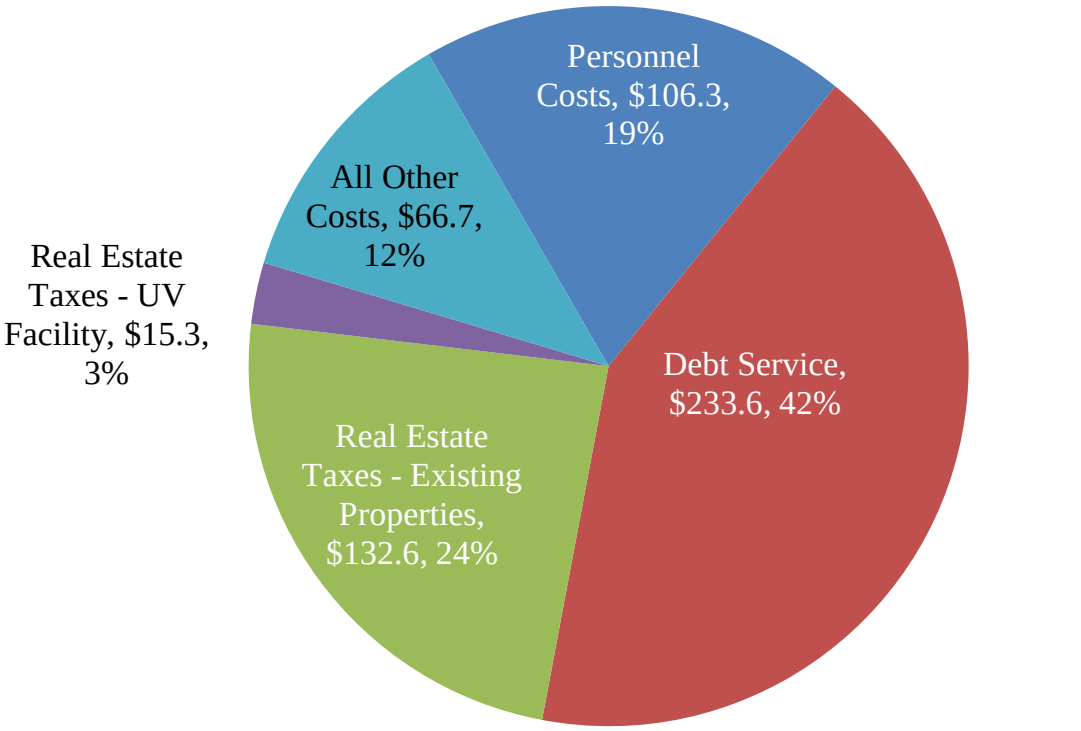
The two major factors influencing the increase in the cost of service between 2012 and 2013 and from 2013 to 2014 are the following:

- The increase in debt service and related capital costs; and
- The initial operation and maintenance expenses and the assumed increase in taxes associated with the UV Facility.

The cost of water supply service as presented herein does not take into consideration the need to maintain an operation and maintenance reserve fund, to provide working capital to pay construction costs before being reimbursed through the proceeds of commercial paper, or to ensure liquidity in operating funds. It also assumes that all upstate customers pay their bills for water service on a timely basis, thus avoiding the need to include an allowance in the cost of service for late payments.

The chart below illustrates the breakdown of the total cost of service for the 2013 rate year excluding the effects of the reconciliation of prior year costs.

Figure 5 Projected Fiscal Year 2013 Cost of Service Components
($ in millions)



Total Cost of Service: $554.5M

4.7 Calculation of the Regulated Rate - Step F

At the direction of the Board, the calculation of the 2012 cost of service included a credit, which reflected the difference between the cost of service actually recovered in 2010 based on the rate in effect and the quantity of water consumed and the actual 2010 cost of service based on final actual costs and actual consumption. The calculation of the 2012 cost of service also included a $10 million one-time stipulation credit as described below.

Based on an order signed by the Commissioner of the NYSDEC dated June 3, 2011, ordering and directing the implementation of a stipulation signed by the Board and the Petitioners Village of Scarsdale, Westchester Joint Water Works, City of White Plains, United Water New Rochelle, and United Water Westchester, the Board agreed to make a one-time adjustment in the form of a $10 million reduction to the cost of water supply service as reflected in the entitlement water rate that was established for the year beginning July 1, 2011 (the Fiscal Year 2012 rate). Including the effects of the $10 million stipulation credit and the cost reconciliation for 2010, the resulting unit rate currently being charged to upstate customers in 2012 is $1,213.84 per MG. The stipulation credit is included in this report in computing the estimated net cost of service and unit rate for 2012.

A reconciliation of a prior year projected and actual costs of service, consumption and rates is again proposed in this report with the resulting credit or additional charge for that year (i.e., 2011) being applied towards the cost of service for the upcoming rate year (2013). Given the recent variations in financing and commodities costs as well as changes in water consumption, this "true-up" approach is intended to ensure that both upstate and in-City customers pay their appropriate shares of the cost of water supply service. In future years, it is possible that such a true-up may show an under-recovery of prior year costs and the report of the rate consultant will propose that the shortfall in prior year cost recovery be added to the cost of service in such an upcoming year.

The calculation of the proposed 2011 credit is shown in Table 1A. The actual cost of service for 2011 was $480,719,412; the calculated credit is $10,209,738. The credit amount is computed by adding the credit of $7,316,465 resulting from the reconciliation in 2009 to the cost of service of $480,719,412 and comparing the resulting net cost of service of $473,402,946 with the revenues raised (the unit rate times System Usage) of $483,612,685. An excerpt from Table 1A is provided below to show the calculation of the proposed credit.

Calculation of the Proposed 2011 Credit

13	Total Costs Related to Facilities North of the City	$	480,719,412
14	System Usage	MG	420,635
15	***Unit Rate to Recover the Total Costs (line 13 divided by 14)***	$/MG	1,142.84
16	Unit Rate Charged	$	1,149.72
17	Revenue Raised (line 14 times 16)	$	483,612,685
18	Difference: Cost of Service Less Revenue (line 13 minus 17)	$	(2,893,273)
19	Cost Reconciliation for Prior Years	$	(7,316,465)
20	Net Total Costs for Facilities North of the City (line 13+19)	$	473,402,946
21	Difference: Net Total Costs Less Revenue (line 17 minus 20)	$	10,209,738

It is proposed that this credit be applied to the calculated cost of service for 2013, resulting in a lower unit rate than would otherwise be necessary if the rate were based solely on the estimated 2013 cost of service.

Table 1B summarizes the calculation of the projected 2013 regulated rate and upstate cost of service. The regulated rate per million gallons of water use is computed by first calculating the total cost of service in Line 13 and then dividing by the total water consumption shown on Line 14. An excerpt from Table 1B is provided below to show the calculation of the proposed rate.

Summary of the Calculation of the Proposed 2013 Rate

13	Total Costs Related to Facilities North of the City	$	554,536,079
14	System Usage	MG	408,561
15	Unit Rate to Recover the Total Costs (line 13 divided by 14)	$/MG	1,357.29
19	Cost Reconciliation for Prior Years	$	(10,209,738)
20	Stipulation Credit	$	N/A
21	Net Total Costs for Facilities North of the City Including Reconciliation (line 13+19) & Excluding Stipulation Credit	$	544,326,340
22	Net Total Costs for Facilities North of the City (line 13+19+20) Including Reconciliation & Stipulation Credit	$	N/A
24	Unit Rate Net of the Reconciliation (line 21 divided by 14) Excluding Stipulation Credit	$	1,332.30
25	Unit Rate Net of the Reconciliation (line 22 divided by 14) Including Stipulation Credit	$	N/A
26	Upstate New York Usage	MG	41,263
27	Total Upstate Cost Excluding Reconciliation & Stipulation	$	56,005,365

After taking into account the reconciliation, the resulting unit rate, shown on Line 24, is $1,332.30 per MG in 2013. Lines 22 and 25 are not applicable because the Stipulation Credit was only for Fiscal Year 2012.

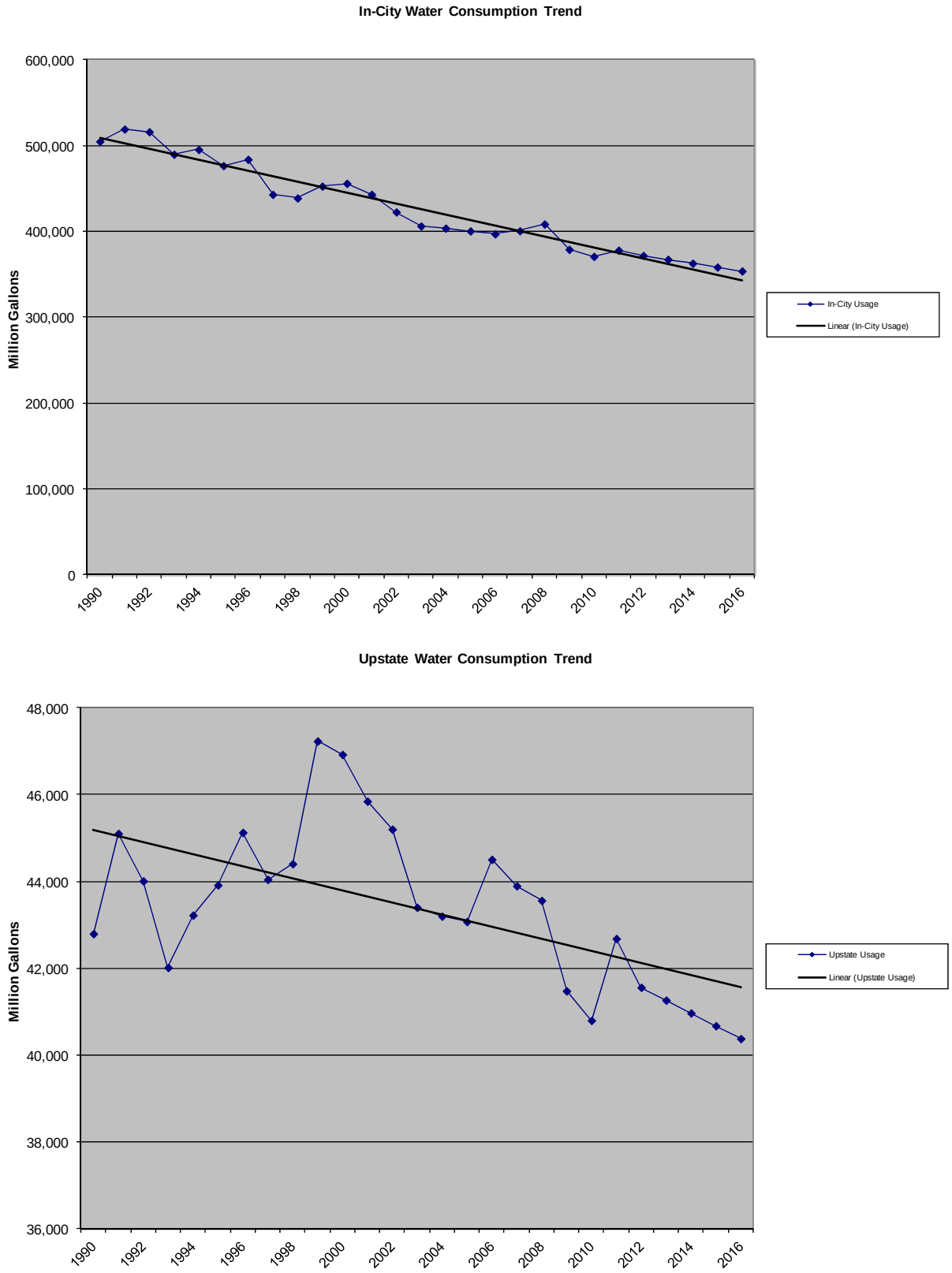
The cost of service attributable to upstate customers (excluding cost reconciliation) is calculated by multiplying the unit rate of $1,357.29 shown on Line 15 of Table 1B by the annual upstate water consumption shown on Line 26 of Table 1B. The resulting upstate cost is approximately $56.0 million for Fiscal Year 2013. The remaining cost of water supply, approximately $498.5 million would be recoverable from in-City water customers through rates and charges.

The water consumption used in calculating the regulated rate reflects a calculated decline in demand based on the results of a regression analysis. Water consumption data is presented in Table 13 of the Appendix. The table presents water consumption data beginning in 1985. However, given the many changes that have occurred due to metering within the City, the availability of water conserving fixtures and other factors, a 10-year regression analysis is used in estimating future water demand by both in-City and upstate customers. The results of the regression analysis show a gradually declining annual consumption by both in-City and upstate customers. The projected system-wide demand is used in developing the projected unit rate.

The results of the analyses provide an anticipated water consumption of 413,370 MG in 2012 and 408,561 MG in 2013. The upstate share of total water consumption using the regression analysis is estimated to be 41,557 MG in 2012 and 41,263 MG in 2013. On the following page, a line graph illustrates the projected consumption for both in-City and upstate customers. Only the total system consumption is used in computing the unit rate.

Water consumption was higher than expected in 2011. The 2012 year-to-date in-City consumption through March 31, 2012 has decreased about 2.7% from the usage for the same time period in 2011. Thus, the actual rate for 2012 may change from the preliminary computation in part because of the changes in water consumption.

Figure 6 Comparison of Water System Consumption



4.8 Additional Issues Relating to the Cost of Service and the Regulated Rate

There are other issues relevant to the Board's deliberations on the establishment of a regulated rate for 2013. These issues are summarized herein.

4.8.1 Operating Risks

The cost of service computations are presented on the cash basis methodology as required by NYSDEC. The cost of service analysis and regulated rate as proposed for 2013 reflect no allowance for the risks being borne by the City as the owner and operator of the water system. Other large water systems are permitted to earn a premium over the cost of service to provide an allowance for such risks. The cost of service also does not consider the factors presented in 4.6 of this report.

4.8.2 Water Conservation Initiatives

DEP has invested and continues to invest substantial amounts of money in water conservation initiatives. As DEP transitions approximately 30,400 Tax Class 2 accounts from the in-City "frontage" system of billing to a Multi-family Conservation Program ("MCP"), it is considering initiating a toilet rebate program for MCP properties. DEP is also continuing its universal metering program. DEP has been installing an automated meter reading system that will provide DEP and all metered customers with access to information on daily water use, and over 427,000 meters have been replaced in conjunction with this installation. DEP also continues to install new meters in previously unmetered properties. These initiatives will likely provide a significant long-term reduction in water use.

Examples of other programs being used by DEP include the following:

- Sonar Leak Detection Program
- Meter Slippage Testing
- Hydrant Locking Devices
- Residential Water Survey Program
- School Programs on Water Conservation
- Large meter management initiative

The Board has also provided incentives for buildings to install comprehensive water reuse systems. The cost of service and regulated rate, as presented herein, do not include the costs of the toilet rebate program, nor do they include the funds invested in metering in-City customers, the incentives to encourage reuse or any of the other programs listed above being used by DEP.

The conservation investments by the City will help to reduce the need to develop new supplies of water in the future. (See the Water for the Future discussion in section 1.3.2.1 of the Report.)

4.8.3 Upstate Wastewater Treatment Plants

In addition to non-City owned plants, the City owns and operates wastewater treatment plants in the watershed and is responsible for capital improvements in those facilities. Given the absence of a mechanism to recover the operating and capital costs of these facilities directly from the users of these systems, such costs are included within the cost of water supply service and the calculation of the regulated rate.

5.0 Impacts on Customers of the Proposed Regulated Rate

The proposed regulated rate for 2013 is $1,332.30 per MG. The proposed regulated rate for Fiscal Year 2013 represents an increase of $118.46 per MG from the current 2012 unit rate of $1,213.84, or a 9.8% increase. Without the benefit of the reconciliation from 2011, the unit rate for the cost of service would be $1,357.29 per MG, representing an 11.8% increase in the current rate. The impact on a typical single family homeowner of the proposed increase in the unit rate would be modest. The increase in charges attributable to a single family residence using 80,000 gallons of water per year would be $9.48 for the entire year or less than three cents per day.

The current estimate of the unit cost of service for 2012 is $1,256.26, which is lower than the unit cost of $1,291.73 per MG that was calculated approximately one year ago based on information available at that time. Each of these figures is prior to the effects of the reconciliation and the 2012 Stipulation Credit. After the effects of the reconciliation and stipulation credit are taken into consideration, the calculated net unit cost of service for 2012 at the time of this report is $1,179.70 per MG which is lower than the rate in effect of $1,213.84 per MG. The current estimate of the unit cost of service for 2012 will change by the end of the fiscal year, based on actual costs incurred and actual water consumption by customers.

Figure 7 following this page outlines the anticipated percentage change in the unit cost of water supply, and the portions of the change that are attributable to increases or decreases in the cost of service and water consumption. If consumption continues to decline at a faster than expected pace, the unit rate for water supply will have to increase in order to recover the estimated cost of service.

The potential impact of the proposed revisions to the regulated rate on the actual rate schedules for upstate customers will depend to a large extent on the upstate suppliers' cost of purchased water in relation to the total cost of service experienced by these suppliers. To illustrate the potential effects on the overall charges to customers, Tables 2A and 2B in the Appendix present the rate structures of several upstate communities that purchase water from the City. The annual single family residential water charge is computed for each community using the 80,000 gallon per year allowance. Table 3 in the Appendix illustrates the computed single family charge and the estimated percentage increase in that charge that would occur with the proposed regulated rate for 2013.

Additional rate increases are anticipated in future years based on the need to protect the water supply for all customers and to avoid the costly possibility of having to filter Catskill and Delaware water. Future changes in rates are dependent upon whether or not the ongoing trend in consumption continues as well as changes in debt service for capital improvements and the costs of watershed protection.

Prior to 2008, the rates and charges of the Board that were assessed to upstate customers for water supply service were generally less than the actual cost to the City. Table 15 of the Appendix illustrates the charges to upstate customers versus the computed cost to the City of serving those customers. The figures shown in Table 15 do not consider the effects of the reconciliation of the cost of service from prior years.

For 2014 through 2016, Figure 7 below illustrates the components of the projected increases in the unit rate; i.e., the portion that is related to the change in consumption and the portion that is related to changes in costs.

Figure 7 Impact of Cost of Service and Consumption on Unit Rate

New York City Water Board
Cost of Supplying Water to Upstate Customers

	Projected		
	2014	***2015***	***2016***
Percentage Change in the Unit Rate due to Increase in Cost of Service	9.5%	4.4%	5.5%
Percentage Change in the Unit Rate due to Fluctuations in Consumption	1.3%	1.3%	1.3%
Percentage Change in the Calculated Unit Rate for Water Supply	10.8%	5.7%	6.7%

* Includes the effects of cost reconciliation for FY 2013.

Report on the Cost of Supplying Water to Upstate Customers for the 2013 Rate Year

Appendices

Supporting Calculations for the Cost of Service and the Regulated Rate

Table 1A Historical Cost of Service

TABLE 1A
New York City Water Board
Cost of Supplying Water to Upstate Customers
Historical Cost of Service

No.	Description		F.Y. 2007	FY 2008	FY 2009	FY 2010	FY 2011
	Bureau of Water Supply Direct						
	Costs for Facilities North of the City						
1	Other Than Personal Services	$	138,068,007	150,982,178	171,280,256	169,955,116	191,435,944
2	Debt Service / Capital Costs	$	79,464,948	75,998,106	96,614,323	129,167,819	171,062,552
3	Cash Used for the Defeasance of Debt	$	0	0	0	0	34,091,414
4	Judgment and Claims	$	5,513,361	3,695	26,925	668,221	916,350
5	Less Miscellaneous Revenue	$	(7,287,556)	(10,017,035)	(8,134,219)	(6,972,405)	(9,868,057)
	Personal Services						
6	Field Personnel	$	65,303,055	70,628,046	76,840,122	72,743,588	60,933,763
7	Support and Administrative Personnel	$	13,915,776	16,752,400	18,888,597	19,296,392	16,560,136
8	Total Costs Directly Related to Facilities North of the City	$	294,977,591	304,347,390	355,516,004	384,858,731	465,132,103
	Upstate Share of NYC DEP Costs						
9	Personal Services	$	6,840,745	6,879,614	8,314,377	7,917,360	7,213,436
10	Other Than Personal Services	$	4,563,977	5,333,258	5,570,059	5,999,662	6,587,143
11	Total NYC DEP Costs Allocated to Facilities North of the City	$	11,404,722	12,212,872	13,884,437	13,917,022	13,800,579
12	***Upstate Share of City Central Service Costs*** (1)	$	1,173,045	1,560,824	1,807,764	1,951,178	1,786,731
13	Total Costs Related to Facilities North of the City	$	307,555,358	318,121,086	371,208,204	400,726,931	480,719,412
14	System Usage	MG	444,553	452,048	420,438	411,482	420,635
15	***Unit Rate to Recover the Total Costs (line 13 divided by 14)***	$/MG	691.83	703.73	882.91	973.86	1,142.84
16	Unit Rate Charged	$		798.62	900.31	922.23	1,149.72
17	Revenue Raised (line 14 times 16)	$		361,014,863	378,524,670	379,480,873	483,612,685
18	Difference: Cost of Service Less Revenue (line 13 minus 17)	$		(42,893,777)	(7,316,465)	21,246,057	(2,893,273)
19	Cost Reconciliation for Prior Years	$				(42,893,777)	(7,316,465)
20	Net Total Costs for Facilities North of the City (line 13+19)	$				357,833,154	473,402,946
21	Difference: Net Total Costs Less Revenue (line 17 minus 20)	$				(21,647,720)	(10,209,738)
22	***Unit Rate Net of the Reconciliation (line 20 divided by 14)***	$				869.62	1,125.45
23	Upstate New York Usage	MG	43,895	43,559	41,477	40,797	42,682
24	Total Upstate Cost Excluding Reconciliations (Ln 15 x Ln 23)	$		30,653,783	36,620,683	39,730,509	48,778,979

Notes:
(1) Based on factors allocating a portion of central city service costs.

Table 1B Cost of Service Projections

TABLE 1B
New York City Water Board
Cost of Supplying Water to Upstate Customers
Cost of Service Projections

Line No.	Description		FY 2012	FY 2013	FY 2014	FY 2015	FY 2016
				Projected Years			
	Bureau of Water Supply Direct						
	Costs for Facilities North of the City						
1	Other Than Personal Services	$	200,500,584	215,360,594	223,953,521	230,626,827	237,370,358
2	Debt Service/Capital Costs	$	188,105,834	233,626,598	263,229,765	279,705,411	303,532,904
3	Cash Used for the Defeasance of Debt	$	32,864,653	0	0	0	0
4	Judgment and Claims	$	533,814	533,814	533,814	533,814	533,814
5	Less Miscellaneous Revenue	$	(9,889,297)	(10,059,956)	(10,234,028)	(10,411,582)	(10,592,687)
	Personal Services						
6	Field Personnel	$	71,113,205	76,740,346	79,042,557	81,413,833	83,856,248
7	Support and Administrative Personnel	$	19,156,255	20,847,308	21,472,727	22,116,909	22,780,416
8	Total Costs Directly Related to Facilities North of the City	$	502,385,050	537,048,705	577,998,356	603,985,212	637,481,055
	Upstate Share of NYC DEP Costs						
9	Personal Services	$	8,344,281	8,712,344	8,973,714	9,242,925	9,520,213
10	Other Than Personal Services	$	6,784,757	6,988,300	7,197,949	7,413,887	7,636,304
11	Total NYC DEP Costs Allocated to Facilities North of the City	$	15,129,038	15,700,643	16,171,662	16,656,812	17,156,517
12	***Upstate Share of City Central Service Costs***	$	1,786,731	1,786,731	1,786,731	1,786,731	1,786,731
13	Total Costs Related to Facilities North of the City	$	519,300,818	554,536,079	595,956,750	622,428,755	656,424,302
14	System Usage	MG	413,370	408,561	403,751	398,942	394,133
15	***Unit Rate to Recover the Total Costs (line 13 divided by 14)***	$/MG	1,256.26	1,357.29	1,476.05	1,560.20	1,665.49
16	Unit Rate Charged	$	1,213.84				
17	Revenue Raised (line 14 times 16)	$	N/A				
18	Difference: Cost of Service Less Revenue (line 13 minus 17)	$	N/A				
19	Cost Reconciliation for Prior Years	$	(21,647,720)	(10,209,738)			
20	Stipulation Credit	$	(10,000,000)				
21	Net Total Costs for Facilities North of the City Including Reconciliation (line 13+19) & Excluding Stipulation Credit	$	497,653,099	544,326,340			
22	Net Total Costs for Facilities North of the City (line 13+19+20) Including Reconciliation & Stipulation Credit	$	487,653,099	N/A			
23	Difference: Net Total Costs Less Revenue (line 17 minus 21)	$	N/A				
24	***Unit Rate Net of the Reconciliation (line 21 divided by 14) Excluding Stipulation Credit***	$	1,203.89	1,332.30			
25	***Unit Rate Net of the Reconciliation (line 22 divided by 14) Including Stipulation Credit***	$	1,179.70	N/A			
26	Upstate New York Usage	MG	41,557	41,263	40,968	40,673	40,378
27	Total Upstate Cost Excluding Reconciliation & Stipulation (line 15 x 26)	$	52,206,870	56,005,365	60,470,528	63,458,091	67,249,747

Notes:
* Current rate for FY 2012 is $1213.84 per million gallons including the effects of reconciliation and the stipulation credit of $10 million.

Table 2A Current Water Rates for Upstate New York Communities

TABLE 2A
New York City Water Board
Cost of Supplying Water to Upstate Customers
Current Water Rates for Upstate New York Communities

	City of White Plains	Village of Scarsdale
Current Water Rates	$1.60/Ccf - 1st 50 Ccf $1.79/Ccf - Next 100 Ccf $2.02/Ccf - Next 200 Ccf $2.92/Ccf - Next 300 Ccf (Rates are semi-annual; additional blocks for greater consumption) Plus fixed charge of $20.10 for residential meters 1" or less, per 6 mths	$1.85/Ccf - 1st 50 Ccf (qtrly accts) or 500 Ccf (monthly accts); $6.48 for consumption greater than those amounts. Plus service charge based on meter size: $6.00/qtr for 5/8"; $9.00/qtr for 3/4"; etc.
Avg. Annual Residential Use (Gal.)	80,000	80,000
Avg. Annual Residential Use (Ccf)	106.95	106.95
Avg. Residential Water Bill	$213	$228

	Village of Mamaroneck	Town of Harrison
Current Water Rates	$4.54/Ccf - 1st 66 Ccf per Qtr 6.69/Ccf - Next 150 Ccf per Qtr Plus service charge based on meter size: $25.24/qtr for 5/8"; $30.12/qtr for 3/4"; etc.	$3.21/Ccf - 1st 66 Ccf per Qtr $4.67/Ccf - Next 150 Ccf per Qtr Plus service charge based on meter size: $30.75/qtr for 5/8"; $33.47/qtr for 3/4"; etc.
Avg. Annual Residential Use (Gal.)	80,000	80,000
Avg. Annual Residential Use (Ccf)	106.95	106.95
Avg. Residential Water Bill	$596	$472

	New Rochelle United Water Company	City of Mount Vernon
Current Water Rates	$4.738 / Ccf Minimum based on usage of 1,200 cf/qtr for 1/2" or 5/8" meter; 1,500 cf/qtr for 3/4" meter; 2,700 cf/qtr for 1" and 1 1/4" meter, etc.	$2.35/Ccf - per quarter Minimum charge based on usage of 15 Ccf/qtr at $35.25
Avg. Annual Residential Use (Gal.)	80,000	80,000
Avg. Annual Residential Use (Ccf)	106.95	106.95
Avg. Residential Water Bill	$507	$251

Notes:
The above rates and charges reflect the rate schedules of each community in January 2012.

Table 2B Current Water Rates for Upstate New York Communities

TABLE 2B
New York City Water Board
Cost of Supplying Water to Upstate Customers
Current Water Rates for Upstate New York Communities

	Town of Carmel	City of Yonkers
Current Water Rates	$60.00 per 1,000 cf (Water District #1) $9.00 per 1,000 cf (Water District #2)	$1.89 / Ccf
Avg. Annual Residential Use (Gal.)	80,000	80,000
Avg. Annual Residential Use (Ccf)	106.95	106.95
Avg. Residential Water Bill	$96 - $640	$202

	City of Newburgh	Village of Cornwall
Current Water Rates	$5.57 per 1,000 Gal Plus service charge based on meter size: $33.42/qtr for 5/8" Minimum Charge up to 6,000 gals $77.98/qtr for 3/4" Minimum Charge up to 14,000 gals	$8.56 per 1,000 Gal
Avg. Annual Residential Use (Gal.)	80,000	80,000
Avg. Annual Residential Use (Ccf)	106.95	106.95
Avg. Residential Water Bill	$446	$685

Notes:
The above rates and charges reflect the rate schedules of each community in January 2012.

Table 3 Summary of Impacts on Upstate Customers

TABLE 3
New York City Water Board
Cost of Supplying Water to Upstate Customers
Summary of Impacts on Upstate Customers

Water System Customer	Typical Single Family Charges[1]	Increase Attributable to Proposed FY 2013 Regulated Rate	% Change to a Homeowner
City of White Plains	$213	$9.48	4.5%
Village of Scarsdale	$228	$9.48	4.2%
City of New Rochelle	$507	$9.48	1.9%
City of Yonkers	$202	$9.48	4.7%
Village of Mamaroneck	$596	$9.48	1.6%
Town of Harrison	$472	$9.48	2.0%
City of Mount Vernon	$251	$9.48	3.8%
Town of Carmel	$96 - $640	$9.48	9.9% to 1.5%
City of Newburgh	$446	$9.48	2.1%
Village of Cornwall	$685	$9.48	1.4%
New York City [2]	$339	$9.48	2.8%
including in-City costs		*$23.53*	*7.0%*

Notes:
(1) The Typical Single Family Charge for selected communities are based on 80,000 gallons of annual water use and the rate schedules of each community in January 2012.
(2) The increase in annual water charges for New York City in FY 2013 based on the rate proposal under consideration by the New York City Water Board is $23.53 per year or 7.0%. The change within the City reflects increases in the cost of water supply and increases in water costs within the City.

Table 4A Historical Upstate Other Than Personal Services Costs

TABLE 4A
New York City Water Board
Historical Cost of Supplying Water to Upstate Customers
Upstate New York Other Than Personal Services Costs

Line No.	Description	FY 2009 $	FY 2010 $	FY 2011 $
	Budget			
1	Supplies and Materials - General	2,045,828	2,713,164	3,232,900
2	Automotive Supplies and Materials	23,504	43,645	54,538
3	Fuel Oil	2,207,029	2,359,334	2,863,365
4	Equipment - General	536,081	685,544	435,813
5	Telecommunications Equipment	28,654	32,735	18,866
6	Office Equipment	63,667	65,111	40,618
7	Contractual Services - General	5,090,794	5,095,826	5,194,255
8	Telephone and Other Communications	435,245	392,454	526,331
9	Office Services	439,283	308,473	313,985
10	Maintenance and Repairs - Motor Vehicles	51,743	97,251	91,140
11	Maintenance and Repairs - General	1,088,745	1,110,880	1,167,028
12	Rentals - Miscellaneous Equipment	1,702,223	1,983,616	1,853,681
13	Advertising	206,302	10,937	2,205
14	Security Services	59,810	-	-
15	Cleaning Services	568,646	319,342	597,860
16	Licenses (1)	0	0	-
17	Chemicals	8,035,776	7,813,168	6,744,998
18	Real Estate Taxes - Existing Properties	114,958,441	122,516,750	124,941,240
19	Real Estate Taxes - UV Facility	0	3,804,096	6,721,814
20	NYS DEC Permits (1)	0	0	0
21	Motor Maintenance Supplies (1)	0	0	78,502
22	Gasoline (1)	0	0	0
23	Lab and Limnology	63,220	47,829	53,342
24	Natural Gas & Electricity	2,474,701	2,158,826	1,912,319
25	Watershed Regulations Consulting	0	0	0
26	Upstate Cost of Service/Rate Studies	75,000	33,286	52,107
27	Hillview Reservoir (2)	31,125,564	18,362,851	12,380,818
28	UV Facility	0	0	0
29	Filtration Avoidance - O&M Payments	0	0	10,427,716
30	Filtration Avoidance - Program Funding	0	0	9,776,944
31	Water Supply Environmental Health & Safety	0	0	1,953,558
32	Totals	171,280,256	169,955,116	191,435,944

Notes:
(1) Actual costs were not available at the publishing of this report. The City reserves the right to include such expenses at a future date.
(2) Actual costs are shown for 2009 to 2011.

Table 4B Projected Upstate Other Than Personal Services Costs

TABLE 4B
New York City Water Board
Projected Cost of Supplying Water to Upstate Customers
Upstate New York Other Than Personal Services Costs

Line No.	Description	*Actual* FY 2011 $	*Projected Years* F.Y.2012 $	F.Y.2013 $	F.Y.2014 $	F.Y.2015 $	F.Y.2016 $
1	Supplies and Materials - General	3,232,900	3,329,887	3,429,784	3,532,677	3,638,658	3,747,817
2	Automotive Supplies and Materials	54,538	56,174	57,860	59,595	61,383	63,225
3	Fuel Oil	2,863,365	2,949,266	3,037,744	3,128,877	3,222,743	3,319,425
4	Equipment - General	435,813	448,887	462,354	476,224	490,511	505,227
5	Telecommunications Equipment	18,866	19,432	20,015	20,615	21,233	21,870
6	Office Equipment	40,618	41,836	43,091	44,384	45,715	47,087
7	Contractual Services - General	5,194,255	5,350,083	5,510,586	5,675,903	5,846,180	6,021,566
8	Telephone and Other Communications	526,331	542,121	558,384	575,136	592,390	610,162
9	Office Services	313,985	323,404	333,107	343,100	353,393	363,995
10	Maintenance and Repairs - Motor Vehicles	91,140	93,875	96,691	99,592	102,579	105,657
11	Maintenance and Repairs - General	1,167,028	1,202,039	1,238,100	1,275,243	1,313,500	1,352,905
12	Rentals - Miscellaneous Equipment	1,853,681	1,909,292	1,966,571	2,025,568	2,086,335	2,148,925
13	Advertising	2,205	2,272	2,340	2,410	2,482	2,557
14	Security Services	0	0	0	0	0	0
15	Cleaning Services	597,860	615,796	634,270	653,298	672,897	693,084
16	Licenses (1)	0	0	0	0	0	0
17	Chemicals	6,744,998	6,947,348	7,155,768	7,370,441	7,591,555	7,819,301
18	Real Estate Taxes - Existing Properties	124,941,240	128,689,477	132,550,161	136,526,666	140,622,466	144,841,140
19	Real Estate Taxes - UV Facility	6,721,814	9,896,338	15,315,000	17,574,000	18,101,220	18,644,257
20	NYS DEC Permits (1)	0	0	0	0	0	0
21	Motor Maintenance Supplies (1)	78,502	80,858	83,283	85,782	88,355	91,006
22	Gasoline (1)	0	0	0	0	0	0
23	Lab and Limnology	53,342	54,942	56,590	58,288	60,037	61,838
24	Natural Gas & Electricity	1,912,319	1,969,689	2,028,779	2,089,643	2,152,332	2,216,902
26	Upstate Cost of Service/Rate Studies	52,107	61,000	61,000	61,000	61,000	61,000
27	Hillview Reservoir	12,380,818	12,752,243	13,134,810	13,528,854	13,934,720	14,352,761
28	UV Facility	0	341,363	4,076,654	4,533,343	4,625,873	4,591,206
29	Filtration Avoidance - O&M Payments	10,427,716	10,740,548	11,062,764	11,394,647	11,736,486	12,088,581
30	Filtration Avoidance - Program Funding	9,776,944	10,070,252	10,372,360	10,683,531	11,004,037	11,334,158
31	Water Supply Environmental Health & Safety	1,953,558	2,012,164	2,072,529	2,134,705	2,198,746	2,264,709
32	Totals	191,435,944	200,500,584	215,360,594	223,953,521	230,626,827	237,370,358

Notes:
(1) Actual costs were not available at the publishing of this report. The City reserves the right to include such expenses at a future date.

Table 5A Debt Service Summary

TABLE 5A
New York City Water Board
Cost of Supplying Water to Upstate Customers
Debt Service/Capital Cost Summary

Line No.	Fiscal Year	Authority/NYSEFC Debt Service/Cash	Totals
1	2009	96,614,323	**96,614,323**
2	2010	129,167,819	**129,167,819**
3	2011	171,062,552	**171,062,552**
Projection Years:			
4	2012	188,105,834	**188,105,834**
5	2013	233,626,598	**233,626,598**
6	2014	263,229,765	**263,229,765**
7	2015	279,705,411	**279,705,411**
8	2016	303,532,904	**303,532,904**

Table 5B Authority Bond Proceeds

Table 5B
New York City Water Board
Cost of Supplying Water to Upstate Customers
Proceeds of Authority Bonds Used for Upstate Projects

Line	Bond Issue	Total Principal	Total Upstate Allocation	Upstate Principal
1	1986 through 2001	8,613,711,981		710,888,961
2	FY 2002 Series A	216,305,000	21.38%	46,244,904
3	FY 2002 Series G	216,375,000	38.79%	83,937,864
4	FY 2003 Series A	330,040,081	20.42%	67,379,252
5	FY 2003 Series B	150,000,000	24.18%	36,272,195
6	FY 2003 Series E	314,798,571	22.66%	71,323,090
7	FY 2003 Series F	201,655,000	28.04%	56,543,643
8	FY 2004 Series A	217,000,000	1.75%	3,805,504
9	FY 2004 Series C	297,549,412	12.51%	37,233,002
10	FY 2005 Series A	150,000,000	23.22%	34,836,356
11	FY 2005 Series B	417,570,000	19.77%	82,566,605
12	FY 2005 Series D	509,553,201	13.98%	71,236,597
13	FY 2006 Series A	202,970,000	15.90%	32,275,185
14	FY 2006 Series AA	400,000,000	9.92%	39,682,422
15	FY 2006 Series B BB C	250,000,000	17.70%	44,248,847
16	FY 2006 Series D	355,519,052	7.45%	26,485,735
17	FY 2007 Series AA	199,910,000	25.51%	51,006,584
18	FY 2007 Series CC	210,500,000	15.89%	33,450,077
19	FY 2007 Series A	310,475,000	13.73%	42,629,128
20	FY 2007 Series DD	395,000,000	8.43%	33,314,037
21	**2008 Total**	13,958,932,298	11.50%	1,605,359,990
22	FY 2008 Series AA	400,000,000	27.49%	109,951,398
23	FY 2008 Series BB	401,000,000	15.39%	61,708,489
24	FY 2008 Series A	446,245,000	14.91%	66,527,108
25	FY 2008 Series DD	504,905,000	12.90%	65,126,012
26	**2009 Total**	15,711,082,298	12.15%	1,908,672,996
27	FY 2009 Series BB	200,870,000	63.93%	128,419,355
28	FY 2009 Series CC	150,100,000	9.17%	13,762,275
29	FY 2009 Series A	536,030,000	21.14%	113,326,719
30	FY 2009 Series DD	325,580,000	13.36%	43,512,270
31	FY 2009 Series EE	645,455,000	31.32%	202,147,362
32	FY 2009 Series FF	270,035,000	0.44%	1,185,596
33	FY 2009 Series GG	500,000,000	32.79%	163,938,186
34	**2010 Total**	18,339,152,298	14.04%	2,574,964,758
35	FY 2010 Series AA	504,240,000	17.49%	88,192,237
36	FY 2010 Series BB	218,820,000	0.00%	-
37	FY 2010 Series CC	200,000,000	0.53%	1,060,388
38	FY 2010 Series DD	400,000,000	22.50%	89,999,107
39	FY 2010 Series EE	500,000,000	19.32%	96,596,999
40	FY 2010 Series FF	359,110,000	0.00%	-
41	FY 2010 Series GG	554,045,000	29.31%	162,377,029
42	**2011 Total**	21,075,367,298	14.30%	3,013,190,518
43	FY 2011 Series AA	750,000,000	18.95%	142,146,432
44	FY 2011 Series BB	210,040,000	0.00%	-
45	FY 2011 Series CC	750,000,000	15.81%	118,583,159
46	FY 2011 Series DD	275,000,000	37.22%	102,354,522
47	FY 2011 Series EE	450,000,000	27.17%	122,256,236
48	FY 2011 Series FF	200,000,000	28.57%	57,143,640
49	FY 2011 Series GG	250,000,000	32.00%	80,006,683
51	**2012 Total**	23,960,407,298	15.17%	3,635,681,190
52	FY 2012 Series A-1, A-2	200,000,000	23.42%	46,847,238
53	FY 2012 Series AA	250,000,000	20.54%	51,349,880
54	FY 2012 Series BB	450,000,000	15.44%	69,458,481
55	**2013-16 Total**	24,860,407,298	15.30%	3,803,336,789

Table 5C NYSEFC Bond Proceeds

Table 5C
New York City Water Board
Cost of Supplying Water to Upstate Customers
Proceeds of NYSEFC Bonds Used for Upstate Projects

Line No.	Bond Issue	Total Principal	Upstate Allocation	Upstate Principal
1	FY 1995 Series 1	112,733,019	1.26%	1,420,436
2	FY 1996 Series 1	113,085,000	1.28%	1,447,488
3	FY 1996 Series 2	28,775,000	39.38%	11,331,595
4	FY 1996 Series 3	40,285,000	8.93%	3,597,451
5	FY 1998 Series 1	44,635,000	28.51%	12,725,439
6	FY 1998 Series 2	113,784,841	9.71%	11,048,508
7	FY 1998 Series 4	15,749,040	12.22%	1,924,533
8	FY 1998 Series 5	87,872,535	15.02%	13,198,455
9	FY 1999 Series 1	121,435,485	7.88%	9,569,116
10	FY 1999 Series 2	269,985,000	0.54%	1,462,597
11	FY 2000 Series 1	285,855,884	18.10%	51,746,780
12	FY 2002 Series 1	204,131,705	1.70%	3,478,818
13	FY 2002 Series 2	72,082,983	2.77%	1,999,381
14	FY 2002 Series 3	519,405,711	3.01%	15,624,990
15	FY 2002 Series 5	371,757,628	2.85%	10,609,799
16	FY 2003 Series 1	148,040,809	1.65%	2,438,893
17	FY 2003 Series 5	295,157,120	1.70%	5,003,460
18	FY 2004 Series 1	301,008,574	0.07%	208,972
19	FY 2004 Series 2	257,400,299	1.09%	2,806,140
20	FY 2005 Series 1	230,408,946	4.02%	9,264,567
21	FY 2005 Series 2	390,624,553	0.61%	2,369,434
22	FY 2006 Series 1	229,018,261	3.83%	8,773,410
23	FY 2006 Series 2,3	457,828,498	13.50%	61,821,784
24	FY 2007 Series 1,2	518,427,784	9.58%	49,677,805
25	**2008 Total**	5,229,488,675	5.61%	293,549,848
26	FY 2008 Series 1,2	399,690,401	19.01%	75,989,525
27	**2009 Total**	5,629,179,076	6.56%	369,539,373
28	FY 2009 Series 1,2	448,435,268	27.23%	122,116,226
29	**2010 Total**	6,077,614,344	8.09%	491,655,599
30	FY 2010 Series 2,3,4	406,684,607	26.75%	108,800,028
31	**2011 Total**	6,484,298,951	9.26%	600,455,626
32	FY 2011 Series 1	478,881,733	18.48%	88,514,224
	2012 Total	6,963,180,684	9.89%	688,969,851
32	**2013-16 Total**	6,963,180,684	9.89%	688,969,851

Notes:
(A) Figures for recent bond issues are preliminary; the upstate portion may change after all bond proceeds are spent.

Table 5D Debt Service/Capital Costs

Table 5D
New York City Water Board
Cost of Supplying Water to Upstate Customers
Debt Service

Line No.	Description		Actual F.Y. 2011	F.Y. 2012	F.Y. 2013	Projected F.Y. 2014	F.Y. 2015	F.Y. 2016
	System Totals - Capital-Related Costs							
1	Authority Debt Service - First Resolution	A	526,890,574	447,176,000	381,828,000	404,553,000	457,634,000	394,338,000
2	Anticipated Debt Service - First Resolution	B	-	-	12,000,000	34,000,000	53,000,000	70,000,000
3	Authority Debt Service - Second Resolution	C	433,783,223	522,554,000	639,148,000	687,051,000	636,539,000	760,408,000
4	Anticipated Debt Service - Second Resolution	D	-	4,000,000	47,000,000	108,000,000	161,000,000	205,000,000
5	Interest on Short-Term Debt	E	2,051,415	4,000,000	24,000,000	34,000,000	34,000,000	34,000,000
6	EFC Outstanding Debt Service	F	393,468,156	420,889,752	403,370,450	391,267,243	387,928,000	388,847,000
7	EFC Projected Debt Service	G	-	-	31,000,000	49,000,000	67,000,000	83,000,000
8	Cash-Financed Construction	H	-	-	150,000,000	175,000,000	200,000,000	225,000,000
	System Totals - Interest Earnings & Expenses							
9	Debt Service Fund	I	(6,086,543)	(1,000,000)	-	-	(1,000,000)	(1,000,000)
10	Debt Service Reserve Fund	J	(41,611,933)	(42,000,000)	(42,000,000)	(43,000,000)	(44,000,000)	(46,000,000)
11	Construction Fund	K	(266,984)	-	-	-	(1,000,000)	(2,000,000)
12	Subordinated Debt Service Fund	L	(494,230)	(6,000,000)	-	-	(2,000,000)	(5,000,000)
13	Miscellaneous Income & Expenses	M	(42,417)	-	-	-	-	-
14	Less: Authority Debt-Related Expenses	N	29,946,975	38,935,550	51,628,650	56,791,515	62,470,667	68,717,733
	Water Supply - Capital-Related Costs							
15	Authority Debt Service - First Resolution	A x O	75,330,677	67,853,161	58,414,991	61,891,637	70,012,378	60,328,868
16	Anticipated Debt Service - First Resolution	B x O	-	-	1,835,853	5,201,582	8,108,349	10,709,140
17	Authority Debt Service - Second Resolution	C x O	62,018,919	79,290,795	97,781,789	105,110,359	97,382,644	116,333,079
18	Anticipated Debt Service - Second Resolution	D x O	-	606,948	7,190,422	16,522,673	24,631,021	31,362,481
19	Interest on Short-Term Debt	E x P	268,983	559,398	3,387,907	4,799,535	4,799,535	4,799,535
20	EFC Debt Service	(F+G)xQ	36,435,730	41,644,812	42,978,656	43,562,112	45,012,716	46,686,762
21	Cash-Financed Construction	H x P	-	-	21,174,419	24,703,489	28,232,559	31,761,629
	Water Supply - Interest Earnings							
22	Debt Service Fund	I x O	(870,206)	(151,737)	-	-	(152,988)	(152,988)
23	Debt Service Reserve Fund	J x O	(5,949,347)	(6,372,956)	(6,425,484)	(6,578,472)	(6,731,459)	(7,037,435)
24	Construction Fund	K x P	(35,007)	-	-	-	(141,163)	(282,326)
25	Subordinated Debt Service Fund	LxOxQ	(58,820)	(769,708)	-	-	(266,716)	(676,228)
26	Miscellaneous Income & Expenses	MxOxQ	(5,048)	-	-	-	-	-
27	Less: Authority Debt-Related Expenses	N x P	3,926,672	5,445,121	7,288,045	8,016,849	8,818,534	9,700,387
28	Net Water Supply Capital-Related Costs		171,062,552	188,105,834	233,626,598	263,229,765	279,705,411	303,532,904

		2011	2012	2013-2016
Upstate Authority $ as a % of Total Authority CIP $	O	14.30%	15.17%	15.30%
Upstate Total CIP $ as a % of Total CIP $	P	13.11%	13.98%	14.12%
Upstate EFC $ as a % of Total EFC CIP $	Q	9.26%	9.89%	9.89%

Table 5E Cash Used for Defeasance of Debt

TABLE 5E
New York City Water Board
Cost of Supplying Water to Upstate Customers
Cash Used for Defeasance of Debt
All Amounts in $

	2009	2010	2011	2012
Cash Used for the Defeasance of Bonds	0	0	260,000,000	235,000,000
Upstate CIP $ as a % of Total Water/Sewer CIP $	10.68%	12.56%	13.11%	13.98%
Upstate Portion of Defeasance Cash	0	0	34,091,414	32,864,653

Table 6 Judgments and Claims

TABLE 6
New York City Water Board
Cost of Supplying Water to Upstate Customers
Judgments and Claims

Year	Historical Costs ($)
1997	536,000
1998	151,220
1999	1,834
2000	109,969
2001	75,160
2002	4,480
2003	0
2004	0
2005	0
2006	0
2007	5,513,361
2008	3,695
2009	26,925
2010	668,221
2011	916,350
Average (1997-2011)	533,814
Projection Years (2012-2016)	533,814

Table 7 Miscellaneous Revenue

TABLE 7
New York City Water Board
Cost of Supplying Water to Upstate Customers
Miscellaneous Revenue

Year	Hydropower	Rents (Permits)	Tax Refunds	Total
1997		949,483	332,370	1,281,853
1998		753,766	264,560	1,018,326
1999		1,208,738	354,942	1,563,680
2000		944,043	283,436	1,227,479
2001		795,290	189,518	984,808
2002		935,023	50,686	985,709
2003		723,939	0	723,939
2004	1,105,639	1,348,358	50,686	2,504,683
2005	1,396,145	1,788,012	0	3,184,157
2006	1,321,881	2,379,307	0	3,701,188
2007	4,987,041	2,300,515	0	7,287,556
2008	7,239,859	995,209	0	10,017,035
2009	6,086,074	1,800,000	248,145	8,134,219
2010	5,117,222	1,855,183	0	6,972,405
2011	8,299,784	1,568,273	0	9,868,057
Average		1,356,343		
Projection Years (2012-2016)				
2012	8,532,954	1,356,343	0	9,889,297
2013	8,703,613	1,356,343	0	10,059,956
2014	8,877,686	1,356,343	0	10,234,028
2015	9,055,239	1,356,343	0	10,411,582
2016	9,236,344	1,356,343	0	10,592,687

Notes:
(1) Certain historical revenues for hydropower and rents have changed from prior reports based on updated information from the City.

Table 8A Historical Upstate Direct Personal Services Costs

TABLE 8A
New York City Water Board
Historical Cost of Supplying Water to Upstate Customers
Upstate New York Field Personnel Costs

Line No.	Description	FY 2009 $	FY 2010 $	FY 2011 $
	Divisional and Sectional Offices			
1	Katonah Resource Protection	109,469	109,469	94,245
2	Carmel Section	4,851,502	4,769,226	3,709,433
3	Prattsville/Schoharie	3,266,547	3,358,557	2,727,998
4	Ashokan	6,772,104	4,593,678	4,052,819
5	Grahamsville	6,083,083	5,989,394	4,867,786
6	Port Jervis	534,591	535,053	476,442
7	E. Division Hudson River P/S	224,051	843,844	248,992
	Laboratories			
8	Kensico	2,130,799	2,114,948	1,892,911
9	Grahamsville	944,365	1,100,373	1,096,719
	Other Services			
10	Downsville	3,652,338	3,909,858	3,396,284
11	Sutton Park	9,093,957	8,130,281	6,537,506
12	Kingston	8,690,591	9,391,175	8,005,514
13	Watershed Security (1)	10,753,602	11,453,983	9,733,711
14	Mobile Task Force	0	324,094	0
15	Watershed-East of Hudson	7,215,171	7,283,554	5,538,107
16	Capital Construction	2,760,334	0	0
17	Water Plan and Protect	403,326	333,926	293,669
18	Mahopac	866,853	792,857	836,300
19	Hillview Reservoir	4,907,613	4,885,057	4,201,692
20	UV Facility	0	0	1,207,057
21	Direct Personnel Overtime Costs	3,579,827	2,824,259	2,016,580
22	**Total Personal Services Costs**	**76,840,122**	**72,743,588**	**60,933,763**

Notes:
(1) Hillview, Croton, Ashokan, Schoharie, Kingston, Downsville, Neversink, Beerston & other watershed locations.
(2) Personal service costs include salary and a fringe benefit rate of 51.0% in FY 2009, 49.0% in FY 2010, and 30.0% in FY 2011.
(3) Hillview Reservoir costs include overtime expenses, which are not included in Line 21.
(4) Upward or downward changes from year to year in a particular category of costs may reflect shifts in classifications for accounting purposes as opposed to changes in personal functions or responsibilities.
(5) Sutton Park expenses include costs for laboratories.

Table 8B Projected Upstate Direct Personal Services Costs

TABLE 8B
New York City Water Board
Cost of Supplying Water to Upstate Customers
Upstate New York Field Personnel Costs

Line No.	Description	Actual FY 2011 $	FY 2012 $	FY 2013 $	Projected Years FY 2014 $	FY 2015 $	FY 2016 $
	Divisional and Sectional Offices						
1	Katonah Resource Protection	94,245	109,019	113,828	117,243	120,760	124,383
2	Carmel Section	3,709,433	4,290,958	4,480,230	4,614,637	4,753,076	4,895,669
3	Prattsville/Schoharie	2,727,998	3,155,664	3,294,859	3,393,705	3,495,516	3,600,382
4	Ashokan	4,052,819	4,688,176	4,894,970	5,041,819	5,193,073	5,348,866
5	Grahamsville	4,867,786	5,630,905	5,879,282	6,055,661	6,237,331	6,424,451
6	Port Jervis	476,442	551,134	575,444	592,707	610,488	628,803
7	E. Division Hudson River P/S	248,992	288,026	300,731	309,752	319,045	328,616
	Laboratories						
8	Kensico	1,892,911	2,189,661	2,286,246	2,354,833	2,425,478	2,498,242
9	Grahamsville	1,096,719	1,268,651	1,324,610	1,364,349	1,405,279	1,447,438
	Other Services						
10	Downsville	3,396,284	3,928,717	4,102,011	4,225,071	4,351,823	4,482,378
11	Sutton Park (1)	6,537,506	7,562,386	7,895,960	8,132,839	8,376,824	8,628,129
12	Kingston	8,005,514	9,260,533	9,669,011	9,959,081	10,257,854	10,565,589
13	Watershed Security (2)	9,733,711	11,259,657	11,756,316	12,109,006	12,472,276	12,846,444
14	Mobile Task Force	0	0	0	0	0	0
15	Watershed-East of Hudson	5,538,107	6,406,311	6,688,891	6,889,558	7,096,245	7,309,132
16	Capital Construction	0	0	0	0	0	0
17	Water Plan and Protect	293,669	339,707	354,691	365,332	376,292	387,581
18	Mahopac	836,300	967,407	1,010,078	1,040,381	1,071,592	1,103,740
19	Hillview Reservoir	4,201,692	4,860,388	5,074,777	5,227,021	5,383,831	5,545,346
20	UV Facility (3)	1,207,057	2,023,188	4,602,797	4,740,881	4,883,108	5,029,601
21	Direct Personnel Overtime Costs	2,016,580	2,332,717	2,435,612	2,508,681	2,583,941	2,661,459
22	**Total Personal Services Costs**	**60,933,763**	**71,113,205**	**76,740,346**	**79,042,557**	**81,413,833**	**83,856,248**

Notes:

(1) Sutton Park expenses include costs for laboratories.
(2) Hillview, Croton, Ashokan, Schoharie, Kingston, Downsville, Neversink, Beerston & other watershed police locations.
(3) Personnel costs will increase in FY 2013 with the start-up of the UV Facility.
(4) Personal service costs include salary and a fringe rate of 30% for FY 2011, 46% in FY 2012 and 48% in FY 2013-6.
(5) It is assumed that personal services costs will increase 3.0% per annum in FY 2012 - 2016.
(6) Upward or downward changes from year to year in a particular category of costs may reflect shifts in classifications for accounting purposes as opposed to changes in personal functions or responsibilities.

Table 9A Historical Upstate Indirect Personal Services Costs

TABLE 9A
New York City Water Board
Historical Cost of Supplying Water to Upstate Customers
Upstate New York Support & Administrative Personnel Costs

Line No.	Description	FY 2009 $	FY 2010 $	FY 2011 $
	Divisional and Sectional Offices			
1	Katonah Resource Protection	478,656	510,785	536,565
2	Carmel Section	339,064	568,738	350,266
3	Prattsville/Schoharie	0	0	130,828
4	Ashokan	407,214	281,923	239,438
5	Grahamsville	1,191,138	1,253,412	1,132,728
	Laboratories			
6	Kensico	514,579	532,743	357,826
7	Grahamsville	277,014	291,783	251,204
	Other Services			
8	Downsville	129,291	135,494	116,650
9	Sutton Park	5,663,802	5,485,021	4,190,610
10	Kingston Office	5,599,005	5,967,691	5,454,159
11	Watershed Security (1)	1,910,026	2,042,598	1,771,648
12	Mobile Task Force	314,121	72,047	281,366
13	East of Hudson Fleet	447,635	471,562	273,039
14	Shokan Fleet Admin.	541,774	569,169	350,636
15	Downsville Fleet Admin.	97,739	105,715	91,013
16	Grahmsville Fleet Admin.	195,479	211,430	182,026
17	Watershed-East of Hudson	516,956	547,567	263,808
18	UV Facility	0	0	370,365
19	Indirect Personnel Overtime Costs	265,104	248,714	215,962
20	**Total Personal Services Costs**	**18,888,597**	**19,296,392**	**16,560,136**

Notes:
(1) Hillview, Croton, Ashokan, Schoharie, Kingston, Downsville, Neversink, Beerston & other watershed locations.
(2) Personal service costs include salary and a fringe benefit rate of 51.0% in FY 2009, 49.0% in FY 2010, and 30.0% in FY 2011.
(3) Upward or downward changes from year to year in a particular category of costs may reflect shifts in classifications for accounting purposes as opposed to changes in personal functions or responsibilities.

Table 9B Projected Upstate Indirect Personal Services Costs

TABLE 9B
New York City Water Board
Cost of Supplying Water to Upstate Customers
Upstate New York Support & Administrative Personnel Costs

Line No.	Description	Actual FY 2011 $	FY 2012 $	FY 2013 $	Projected Years FY 2014 $	FY 2015 $	FY 2016 $
	Divisional and Sectional Offices						
1	Katonah Resource Protection	536,565	620,681	648,059	667,501	687,526	708,152
2	Carmel Section	350,266	405,176	423,049	435,740	448,812	462,277
3	Prattsville/Schoharie	130,828	151,338	158,013	162,754	167,636	172,665
4	Ashokan	239,438	276,974	289,192	297,867	306,803	316,007
5	Grahamsville	1,132,728	1,310,305	1,368,102	1,409,145	1,451,419	1,494,961
	Laboratories						
6	Kensico	357,826	413,922	432,180	445,146	458,500	472,255
7	Grahamsville	251,204	290,585	303,403	312,505	321,880	331,537
	Other Services						
8	Downsville	116,650	134,937	140,890	145,116	149,470	153,954
9	Sutton Park	4,190,610	4,847,568	5,061,393	5,213,235	5,369,632	5,530,720
10	Kingston Office	5,454,159	6,309,203	6,587,500	6,785,125	6,988,679	7,198,339
11	Watershed Security (1)	1,771,648	2,049,388	2,139,785	2,203,979	2,270,098	2,338,201
12	Mobile Task Force	281,366	325,475	339,832	350,026	360,527	371,343
13	East of Hudson Fleet	273,039	315,843	329,775	339,668	349,858	360,354
14	Ashokan Fleet Admin.	350,636	405,605	423,496	436,201	449,287	462,766
15	Downsville Fleet Admin.	91,013	105,281	109,925	113,223	116,619	120,118
16	Grahmsville Fleet Admin.	182,026	210,562	219,850	226,445	233,239	240,236
17	Watershed-East of Hudson	263,808	305,165	318,625	328,184	338,030	348,170
18	UV Facility	370,365	428,427	1,293,402	1,332,204	1,372,170	1,413,336
19	Indirect Personnel Overtime Costs	215,962	249,819	260,838	268,663	276,723	285,025
20	**Total Personal Services Costs**	**16,560,136**	**19,156,255**	**20,847,308**	**21,472,727**	**22,116,909**	**22,780,416**

Notes:
(1) Hillview, Croton, Ashokan, Schoharie, Kingston, Downsville, Neversink, Beerston & other watershed police locations.
(2) Personal service costs include salary and a fringe rate of 30% for FY 2011, 46% in FY 2012 and 48% in FY 2013-6.
(3) It is assumed that personal services costs will increase 3.0% per annum in FY 2012 - 2016.
(4) Upward or downward changes from year to year in a particular category of costs may reflect shifts in classifications for accounting purposes as opposed to changes in personal functions or responsibilities.

Table 10 Development of Allocation Factors

TABLE 10
New York City Water Board
Cost of Supplying Water to Upstate Customers
Development of Allocation Factors

Line No.	Description	2009		2010		2011		Projection Years
1	Total Salaries - Employees North of the City	86,976,176		84,081,949		79,665,743		
2		---------- =	49.72%	---------- =	49.69%	---------- =	55.76%	55.76%
3	Total Salaries - All Water Supply Employees	174,918,510		169,224,599		142,862,078		
4	Head Count - Water Supply Employees	1,792		1,716		1,676		
5		---------- =	30.93%	---------- =	33.79%	---------- =	33.83%	33.83%
6	Head Count - All NYC DEP Employees	5,794		5,079		4,954		
7	Number of Vehicles - Water Supply	781		804		804		
8		---------- =	37.97%	---------- =	38.70%	---------- =	38.60%	38.60%
9	Number of Vehicles - All NYC DEP	2,058		2,079		2,084		

Table 11A Historical Allocation of DEP Personal Services Costs

TABLE 11A
New York City Water Board
Cost of Supplying Water to Upstate Customers
Historical Allocation of DEP Personal Services
Costs to Facilities North of the City

Line No.	Description	FY 2009 $	FY 2010 $	FY 2011 $
1	Executive	9,570,413	8,520,749	6,833,531
2	General Counsel	2,755,505	2,862,128	2,330,625
3	Public Affairs	2,379,392	2,283,845	1,912,122
4	Env. Health & Safety	3,460,630	3,438,238	2,615,141
5	Environ. Planning	5,604,903	4,305,375	3,774,610
6	Budget Office	3,617,535	2,673,863	2,352,155
7	Facilities Mgt & Constr	6,495,786	6,159,133	4,575,188
8	Human Res & Labor Rel	14,252,387	14,147,931	11,593,766
9	Chief Contract Office	5,685,078	2,410,945	1,937,929
10	Addt'l Exec & Support	242,059	360,861	310,675
11	Total DEP Executive and Support Personal Services Costs	54,063,688	47,163,068	38,235,742
12	Allocation to Water Supply	30.93%	33.79%	33.83%
13	Personal Services Costs Related to Water Supply	16,721,113	15,934,598	12,935,629
14	Allocation to Facilities North of NYC	49.72%	49.69%	55.76%
15	**Personal Services Costs Related to Facilities North of the City**	**8,314,377**	**7,917,360**	**7,213,436**

Notes:
(1) Personal service costs include salary and a fringe benefit rate of 51.0% in FY 2009, 49.0% in FY 2010, and 30.0% in FY 2011.

Table 11B Projected Allocation of DEP Personal Services Costs

TABLE 11B
New York City Water Board
Cost of Supplying Water to Upstate Customers
Projected Allocation of DEP Personal Services
Costs to Facilities North of the City

Line No.	Description	Actual FY 2011 $	FY 2012 $	FY 2013 $	Projected Years FY 2014 $	FY 2015 $	FY 2016 $
1	Executive	6,833,531	7,904,818	8,253,497	8,501,102	8,756,135	9,018,819
2	General Counsel	2,330,625	2,695,995	2,814,915	2,899,362	2,986,343	3,075,933
3	Public Affairs	1,912,122	2,211,884	2,309,449	2,378,733	2,450,095	2,523,597
4	Env. Health & Safety	2,615,141	3,025,115	3,158,551	3,253,308	3,350,907	3,451,434
5	Environ. Planning	3,774,610	4,366,353	4,558,951	4,695,719	4,836,591	4,981,689
6	Budget Office	2,352,155	2,720,901	2,840,918	2,926,146	3,013,930	3,104,348
7	Facilities Mgt & Constr	4,575,188	5,292,437	5,525,884	5,691,660	5,862,410	6,038,283
8	Human Res & Labor Rel	11,593,766	13,411,312	14,002,879	14,422,966	14,855,655	15,301,324
9	Chief Contract Office	1,937,929	2,241,737	2,340,619	2,410,837	2,483,162	2,557,657
10	Addt'l Exec & Support	310,675	359,379	375,231	386,488	398,083	410,025
11	Total DEP Personal Services Costs	38,235,742	44,229,930	46,180,894	47,566,321	48,993,310	50,463,110
12	Allocation to Water Supply	33.83%	33.83%	33.83%	33.83%	33.83%	33.83%
13	Personal Services Costs Related to Water Supply	12,935,629	14,963,537	15,623,572	16,092,280	16,575,048	17,072,300
14	Allocation to Facilities North of NYC	55.76%	55.76%	55.76%	55.76%	55.76%	55.76%
15	**Personal Services Costs - Facilities North of the City**	**7,213,436**	**8,344,281**	**8,712,344**	**8,973,714**	**9,242,925**	**9,520,213**

Notes:

(1) Personal service costs include salary and a fringe rate of 30% for FY 2011, 46% in FY 2012 and 48% in FY 2013-6.

(2) It is assumed that personal services costs will increase 3.0% per annum in FY 2012 - 2016.

(3) Upward or downward changes from year to year in a particular category of costs may reflect shifts in classifications for accounting purposes as opposed to changes in personal functions or responsibilities.

Table 12A Historical Allocation of DEP Other Than Personal Services Costs

TABLE 12A
New York City Water Board
Historical Cost of Supplying Water to Upstate Customers
Allocation of DEP Other Than Personal Services
Costs to Facilities North of the City

Line No.	Description	F.Y. 2009 $	FY 2010 $	FY 2011 $
1	Accounting	111,711	142,037	117,991
2	Executive and Support	39,441	75,764	24,878
3	Fleet Administration	4,685,760	5,139,528	5,631,030
4	Public Affairs	417,327	256,373	543,616
5	Facilities Management and Construction	1,119,587	1,038,827	1,645,292
6	Management and Budget	6,763,722	1,559,049	1,628,697
7	Management Information Systems	3,671,431	4,787,527	4,068,221
8	Chief Engineer	68,601	79,206	42,571
9	Legal	99,869	93,403	50,580
10	Environmental Assessment	155,061	45,794	207,759
11	Telephone	3,232,268	5,050,848	5,108,537
12	Lefrak Administration Rents	4,276,646	4,260,549	4,437,394
13	Facility Management Rents	469,681	374,440	374,440
14	Management and Budget Environmental Health/Safety	1,144,326	437,117	234,705
15	Security Services	0	1,696,492	1,078,269
16	Contractual Services	0	62,477	70,314
17	Total OTPS to be Allocated	26,255,430	25,099,431	25,264,292
18	Allocation	30.93%	33.79%	33.83%
19	OTPS Allocation (line 15 X line 16)	8,120,423	8,480,138	8,547,225
20	Rents Other Than Lefrak	1,548,183	1,516,245	1,503,210
21	Lefrak Water Supply Rents	887,561	1,533,458	1,269,981
22	Total Rents (line 18 + line 19)	2,435,744	3,049,703	2,773,191
23	Motor Vehicle Operating Rents	1,410,137	1,110,653	1,110,653
24	Allocation	37.97%	38.70%	38.60%
25	Total Motor Vehicle Operating Rents (line 21 X line 22)	535,360	429,778	428,731
26	Motor Vehicle Parking	345,000	345,000	345,000
27	Allocation	18.38%	19.81%	18.37%
28	Total Motor Vehicle Parking (line 24 X line 25)	63,423	68,361	63,369
29	Cafeteria	323,905	324,963	0
30	Allocation	14.52%	14.47%	0.00%
31	Total Cafeteria (line 27 X line 28)	47,041	47,030	0
32	Total OTPS Costs Allocated to Water Supply at DEP (1)	11,201,992	12,075,010	11,812,516
33	Allocation to Facilities North of NYC	49.72%	49.69%	55.76%
34	OTPS Costs Related to Facilities North of the City	5,570,059	5,999,662	6,587,143

Notes:
(1) Total OTPS costs allocated to DEP is equal to the sum of lines 19, 22, 25, 28, and 31.

Table 12B Projected Allocation of DEP Other Than Personal Services Costs

TABLE 12B
New York City Water Board
Cost of Supplying Water to Upstate Customers
Allocation of DEP Other Than Personal Services
Costs to Facilities North of the City

Line No.	Description	*Actual* FY 2011 $	FY 2012 $	*Projected Years* FY 2013 $	FY 2014 $	FY 2015 $	FY 2016 $
1	Accounting	117,991	121,531	125,177	128,932	132,800	136,784
2	Executive and Support	24,878	25,624	26,393	27,185	28,000	28,840
3	Fleet Administration	5,631,030	5,799,961	5,973,959	6,153,178	6,337,774	6,527,907
4	Public Affairs	543,616	559,924	576,722	594,024	611,844	630,200
5	Facilities Management and Construction	1,645,292	1,694,651	1,745,490	1,797,855	1,851,791	1,907,344
6	Management and Budget	1,628,697	1,677,558	1,727,884	1,779,721	1,833,113	1,888,106
7	Management Information Systems	4,068,221	4,190,268	4,315,976	4,445,455	4,578,819	4,716,183
8	Chief Engineer	42,571	43,848	45,163	46,518	47,914	49,351
9	Legal	50,580	52,097	53,660	55,270	56,928	58,636
10	Environmental Assessment	207,759	213,991	220,411	227,024	233,834	240,849
11	Telephone	5,108,537	5,261,794	5,419,647	5,582,237	5,749,704	5,922,195
12	Lefrak Administration Rents	4,437,394	4,570,516	4,707,631	4,848,860	4,994,326	5,144,156
13	Facility Management Rents	374,440	385,673	397,243	409,161	421,435	434,079
14	Management and Budget Environmental Health/Safety	234,705	241,746	248,998	256,468	264,162	272,087
15	Security Services	1,078,269	1,110,617	1,143,936	1,178,254	1,213,602	1,250,010
16	Contractual Services	70,314	72,423	74,596	76,833	79,138	81,513
17	Total OTPS to be Allocated	25,264,292	26,022,221	26,802,887	27,606,974	28,435,183	29,288,239
18	Allocation	33.83%	33.83%	33.83%	33.83%	33.83%	33.83%
19	OTPS Allocation (line 16 X line 17)	8,547,225	8,803,642	9,067,751	9,339,784	9,619,977	9,908,577
20	Rents Other Than Lefrak	1,503,210	1,548,307	1,594,756	1,642,598	1,691,876	1,742,633
21	Lefrak Water Supply Rents	1,269,981	1,308,080	1,347,322	1,387,742	1,429,374	1,472,256
22	Total Rents (line 19 + line 20)	2,773,191	2,856,387	2,942,078	3,030,341	3,121,251	3,214,888
23	Motor Vehicle Operating Rents	1,110,653	1,143,973	1,178,292	1,213,641	1,250,050	1,287,551
24	Allocation	38.60%	38.60%	38.60%	38.60%	38.60%	38.60%
25	Total Motor Vehicle Operating Rents (line 22 X line 23)	428,731	441,593	454,841	468,486	482,541	497,017
26	Motor Vehicle Parking	345,000	355,350	366,011	376,991	388,301	399,950
27	Allocation	18.37%	18.37%	18.37%	18.37%	18.37%	18.37%
28	Total Motor Vehicle Parking (line 25 X line 26)	63,369	65,270	67,228	69,245	71,322	73,462
29	Cafeteria/Other Space (1)	0	0	0	0	0	0
30	Allocation	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
31	Total Cafeteria (line 26 X line 27)	0	0	0	0	0	0
32	Total OTPS Costs Allocated to Water Supply at DEP [(2)]	11,812,516	12,166,892	12,531,898	12,907,855	13,295,091	13,693,944
33	Allocation to Facilities North of NYC	55.76%	55.76%	55.76%	55.76%	55.76%	55.76%
34	**OTPS Costs Related to Facilities North of the City**	**6,587,143**	**6,784,757**	**6,988,300**	**7,197,949**	**7,413,887**	**7,636,304**

Notes:
(1) Total OTPS costs allocated to DEP is equal to the sum of lines 19, 22, 25, 28, and 31.
(2) It is assumed that OTPS costs will increase 3% per annum.

Table 13 Annual Water Consumption

TABLE 13
New York City Water Board
Cost of Supplying Water to Upstate Customers
Annual Water Consumption

Line No.	Fiscal Year	(A) System-Wide Consumption mg	(B) Upstate Consumption mg	Upstate as a % of Total [B]/[A]
1	1985	544,025	41,661	7.66%
2	1986	501,019	39,397	7.86%
3	1987	542,870	42,853	7.89%
4	1988	573,679	44,956	7.84%
5	1989	559,669	43,255	7.73%
6	1990	547,522	42,795	7.82%
7	1991	564,234	45,103	7.99%
8	1992	560,014	44,010	7.86%
9	1993	531,796	42,015	7.90%
10	1994	538,558	43,221	8.03%
11	1995	520,410	43,915	8.44%
12	1996	528,938	45,125	8.53%
13	1997	487,012	44,044	9.04%
14	1998	483,182	44,404	9.19%
15	1999	499,849	47,230	9.45%
16	2000	502,758	46,922	9.33%
17	2001	488,909	45,845	9.38%
18	2002	467,705	45,200	9.66%
19	2003	449,606	43,400	9.65%
20	2004	446,822	43,198	9.67%
21	2005	443,445	43,072	9.71%
22	2006	441,477	44,504	10.08%
23	2007	444,553	43,895	9.87%
24	2008	452,048	43,559	9.64%
25	2009	420,438	41,477	9.87%
26	2010	411,482	40,797	9.91%
27	2011	420,635	42,682	10.15%
Projections:				
28	2012	413,370	41,557	10.05%
29	2013	408,561	41,263	10.10%
30	2014	403,751	40,968	10.15%
31	2015	398,942	40,673	10.20%
32	2016	394,133	40,378	10.24%

Notes:

(1) Consumption projections are based on a regression analysis beginning in 2002.

(2) Equation used to calculate System-wide Consumption:
y=m(t)+b. Where (t) is a given year.
m= -4809.303556
b= 10089689

(3) Equation used to calculate Upstate Consumption:
y=m(t)+b. Where (t) is a given year.
m= -294.74
b= 634,582.84

Table 14 Projected Revenues From Hydroelectric Facilities

Table 14

NYC Department of Environmental Protection
Gross Revenue Estimates for Upstate Hydro-Electric Facilities

Revenues	Year 2012	2013	2014	2015	2016
Ashokan & Kensico	$ -	$ -	$ -	$ -	$ -
Neversink	$ 2,719,481	$ 2,773,871	$ 2,829,348	$ 2,885,935	$ 2,943,654
West Delaware	$ 60,838	$ 62,055	$ 63,296	$ 64,562	$ 65,853
East Delaware	$ 5,752,635	$ 5,867,688	$ 5,985,042	$ 6,104,742	$ 6,226,837
Summary	$ 8,532,954	$ 8,703,613	$ 8,877,686	$ 9,055,239	$ 9,236,344

Notes:

(1) All figures for Neversink and East Delaware were prepared by the New York City Office of the Comptroller.

(2) Estimated annual increase in revenues is 2% per year, consistent with the assumptions used by the Office of the Comptroller.

(3) Calendar year revenue data is used to calculate the fiscal year revenue when the fiscal year data is not available at the time of this Report.

Table 15 Comparison of Upstate Customer Billings vs. Cost of Service

TABLE 15
New York City Water Board
Cost of Supplying Water to Upstate Customers
Cost-of-Service Reconciliation

Fiscal Year	Rate per Million Gallons (MG) Billed to Upstate Customers	Computed Cost to the Board	Upstate Consumption	Total Billed	Actual Cost	Underpayment
1994 (a)	165.23	211.6	43,221	7,141,373	9,145,521	2,004,148
1995 (a)	174.18	229.87	43,915	7,649,115	10,094,741	2,445,626
1996 (a)	174.18	247.28	45,125	7,859,907	11,158,559	3,298,652
1997	227.95	309.55	44,044	10,039,830	13,633,820	3,593,990
1998	274.93	338.79	44,404	12,208,047	15,043,699	2,835,652
1999	342.97	348.31	47,230	16,198,439	16,450,646	252,208
2000	383.78	385.25	46,922	18,007,764	18,076,739	68,975
2001	414.37	414.88	45,845	18,996,834	19,020,215	23,381
2002	448.83	462.24	45,200	20,287,116	20,893,248	606,132
2003	485.71	522.99 (b)	43,400	21,079,814	22,697,766	1,617,952
2004	542.36	529.85 (b)	43,198	23,428,650	22,888,248	-540,402
2005	591.21	591.91 (c)	43,072	25,464,774	25,494,925	30,151
2006	617.79	623.47	44,504	27,494,064	27,746,847	252,782
2007	691.91	691.83	43,895	30,371,597	30,368,104	-3,493
2008	798.62	703.73	43,559	34,786,978	30,653,783	-4,133,195
2009	900.31	882.91	41,477	37,342,472	36,620,683	-721,789
2010	922.23	973.86	40,797	37,624,046	39,730,509	2,106,464
2011	1,149.72	1,142.84	42,682	49,072,562	48,778,979	-293,583
					Total Underpayment 1994-2011	13,443,652
					Total Underpayment 2002-2011	-1,078,982

(a) The rates approved by NYSDEC were: $158.31 per million gallons for 1994 and $175.69 for both 1995 and 1996.

(b) The computed cost to the Board as shown above for 2003 and 2004 does not take into consideration the upstate share of the costs of defeasance of certain Authority bonds. Including the effects of the cost of defeasance, the rate per million gallons is $549.32 in 2003 and $560.58 in 2004. The City reserves the right to include such costs in the cost of service and the regulated rate. The basis for these costs is explained in Section 4 of the Report.

(c) The rates shown above for 2005, 2006 and 2011 include the costs of defeasance in those years.

(d) The table above does not take into account the application of credits to the cost of service based on prior year reconciliations.