New York City Water Board

Report on the Cost of Supplying Water to Upstate Customers for the 2012 Rate Year

May 9, 2011

Amawalk
Consulting Group LLC

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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 2012 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 2008 through 2010. 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 2011 through 2015 (the "Projection Period"). The Report presents the proposed regulated rate of $1,238.45 for Fiscal Year 2012 to recover the cost of service.

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 supply 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 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 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

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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 2012 to recover the cost of service. The Report also presents the calculated cost of service and rates for Fiscal Years 2008 through 2010; the anticipated cost of service and rate for 2011, the current year; and the projected cost of service and rates for 2013 through 2015.

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 2012 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 (hereinafter, "DEP" or the "Department"), 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. The Department 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.

1.3.1 The Water Supply 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 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. This feature helps mitigate the effects of localized droughts and takes advantage of excess water in any of the three watersheds. An overview of the three watershed systems and the aqueducts is shown in Figure 1 and described herein.

Figure 1 Map of the Water Supply 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, approximately 45 miles north of lower Manhattan. A small portion of the watershed is located in the State of Connecticut. When operating at full capacity, 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 operating at full capacity 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 has not been used since 2008. It may be used intermittently and for short periods over the next few years. 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.

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. 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 Well System

Wells in the Borough of Queens are capable of providing approximately 1% of the City's daily water supply. The wells have been off line since 2007 due to the availability of higher quality water from the Catskill and Delaware Systems. The wells could be used to supply more water during drought conditions. Unlike the rest of the City's water supply, which is a surface and gravity-supplied system originating in the network of reservoirs north of the City, well water is pumped from extensive underground aquifers. The acquisition of wells in Queens from Jamaica Water in 1996 represented the first new water supply source for the City since the 1960s when the Delaware surface water system initially came on line. DEP is currently planning

improvements to the groundwater system, which will augment the supply of water from underground aquifers.

1.3.1.5 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.

1.3.1.6 The Delaware Aqueduct

The Delaware Aqueduct 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.

1.3.1.7 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, as described herein, the water supply system currently requires and will continue to require capital improvements to maintain and enhance the long-term quality and reliability of the System. These improvements will require the City in future years to seek additional reductions in total water use by customers in the City and north of the City and/or to acquire alternative sources of water.

1.3.2 Condition of the Water Supply 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. (formerly Metcalf & Eddy of New York, 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 supply 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 The Rondout-West Branch Tunnel

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. DEP has recently completed an evaluation of various alternatives to mitigate the leak and has elected to construct an approximately three-mile-long bypass tunnel. While studies are still ongoing, connection of the bypass to the existing tunnel could require anywhere from 6 to 24 months of construction during which period supply augmentation is expected to be needed. The cost to complete the bypass tunnel is currently estimated at just over $2 billion and includes design and construction of the shafts and tunnel bypass as well as implementation of approximately 200 mgd in water supply augmentation projects. Funding for this project is currently included in the CIP.

1.3.2.2 The Gilboa Dam

Gilboa Dam, part of the Catskill water supply 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 will increase DEP's ability to manage the Schoharie Reservoir and maintain it at proper levels, is scheduled to be completed by May 2011. Site preparation work began in September 2009, with full reconstruction, which is anticipated to bring the dam up to compliance with

NYSDEC safety guidelines for new dams, scheduled to begin in Fiscal Year 2011. The estimated cost to complete the rehabilitation is $305 million, which is included 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 The Dependability Program

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 next phase is termed the Dependability Program.

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 Department's ability to deliver water, alternative sources of water supply must be found.

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. 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 a period of up to four years. 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. One project is the Kensico-City Tunnel.

Kensico-City Tunnel. The Kensico-City Tunnel will be a 16-mile-long tunnel from the Kensico Reservoir to the Van Cortlandt Park Valve Chamber of City Tunnel No. 3, Stage I, bypassing the Hillview Reservoir. This tunnel will provide redundancy for the sections of the Catskill and

Delaware Aqueducts that run from the Kensico Reservoir to the City. The design work for the tunnel is estimated to cost $119 million. The estimated cost to design and construct the tunnel is expected to be between $4 billion and $6 billion, most of which would be incurred in the years beyond the CIP. The amount currently included in the CIP for this project is $75 million.

1.3.4 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.

1.3.4.1 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. The only treatment procedures routinely employed by DEP are screening, detention, disinfection, flouridation, and the addition of caustic soda and phosphoric acid for corrosion control. Additions of copper sulfate for algae control and alum for turbidity control are made only when needed. Historically, this level of treatment proved to be more than sufficient to maintain water quality standards throughout the entire Water 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''). 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. The treatment facility is currently under construction.

1.3.4.2 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 State issued a land acquisition permit to the City to acquire water quality-sensitive land in the watershed.

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, including the Community Wastewater Management Program and the Stream Management Program, 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 has prepared a Watershed Protection Program Summary and Assessment which was submitted to NYSDOH and USEPA on March 31, 2011. After consulting with NYSDOH and USEPA, DEP will submit a Long Term Watershed Protection Plan by December 15, 2011.

Since 1997, land acquisition has been an important component of the City's source water protection efforts. The MOA and FADs have required that the City solicit owners of certain lands 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 offer. To date, the City has allocated a total of $541 million for acquisition of lands in the Catskill and Delaware systems. That includes $241 million that was required pursuant to the 2007 FAD. As of February 11, 2011, title to or conservation easements on approximately 117,000 acres of land in the Catskill and Delaware watersheds have either been acquired or are under contract for acquisition at a cost of approximately $400 million.

On December 24, 2010, NYSDEC issued a new, 15-year land acquisition permit to DEP, allowing the City to continue its watershed land acquisition program. The new permit, which is in effect, allows the City to continue to purchase sensitive watershed lands without interruption 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. Additional funding will be required in the CIP for Fiscal Years 2013 through 2017 to support the FAD Program for the second five years once the program is negotiated as discussed above. If the City was not in receipt of a FAD and was to have to filter water from the Catskill and Delaware Systems, the current estimate of the construction costs to provide for such filtration is between $6 billion to $8 billion.

There has been increased interest in natural gas drilling in southeastern New York State, including the watershed. DEP 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. On December 23, 2009, DEP released its final impact assessment of natural gas drilling within the watershed and submitted detailed comments on the dSGEIS. The City believes the dSGEIS is seriously flawed in many respects and requested that NYSDEC withdraw the document. The City also 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. USEPA also submitted comments on the dSGEIS in which it expressed concerns about the failure of the analysis to fully consider the impacts of natural gas drilling and that such concerns be addressed prior to the completion of the environmental review process. In April 2010, NYSDEC announced that the Supplemental Generic Environmental Impact Statement would not apply to gas drilling activities in the watershed of unfiltered water supplies, including the City's watershed. To date, no permits have been filed to drill for natural gas in the watershed and a revised dSGEIS has not been released by NYSDEC.

1.3.4.3 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 water supply systems, 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 USEPA, which mandates that the City begin work on a cover by December 31, 2018. DEP is already a party to an Administrative Order with NYSDOH (the "State Hillview Administrative Order"). In March 1996, DEP entered into the State Hillview

Administrative Order, which, as modified in 1997 and 1999, required, among other things, the City to cover the Hillview Reservoir by December 31, 2005 to reduce the possibility of E. coli bacteria entering the Water System.

The City has not commenced construction of a cover for the Hillview Reservoir and therefore did not meet the December 31, 2005 milestone date set out in the State Hillview Administrative Order. 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, 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 State Hillview Administrative Order 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"). The City expects to negotiate a revised order with USDOJ. 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 CIP. 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.

1.3.5 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.

The SDWA requires that utilities prepare and distribute to their consumers a brief annual water quality report, referred to as the Consumer Confidence Report (the "CCR"). The CCR covering calendar year 2009, the most recent such report, demonstrates that the quality of New York City's drinking water remains high.

1.3.6 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 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 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.

1.3.7 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 May 2, 2011, the System's reservoirs were filled to 100.5% of capacity. Normal levels at this time of year are approximately 100.0% 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.

1.3.8 Pending Litigation

The following paragraphs describe certain legal proceedings and claims against the Water 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 waste channel. The City will seek to resolve the issues raised in the complaint through negotiations. DEP is leading a working group of stakeholders, which includes Ulster County, NYSDEC, and USEPA among other entities, to evaluate potential resolutions to a variety of concerns, including those raised by Ulster County. If the City were required to stop using the waste 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. Plaintiffs have filed a notice of appeal.

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.

The Department 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 being monitored in many of these accounts through meters that have been installed in such properties. The Department 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 Supply 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 supply 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 $9.8 billion in principal outstanding for its First Resolution revenue bonds and $16.8 billion in principal outstanding for its Second Resolution revenue bonds for the water and sewer system of the City. 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 the New York State Environmental Facilities Corporation ("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 supply system. Under the CIP, additional capital improvements are ongoing and planned for the future to preserve the water supply system for all customers.

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 northern counties 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 2010 inclusive, the City provided an average of 43,687 million gallons per year of water to upstate customers, or 119.6 mgd. This represented approximately 8.77% 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 is now relatively stable in recent years, averaging 9.80% in 2008 through 2010.

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 Board implemented rate increases for upstate customers starting in 1993. Prior to that increase, the upstate water rates had not been changed since 1973. The historical water rates charged to upstate customers for the period 1973 through 2010 are provided in the table on the following page. The rates shown as billed to upstate customers in 2010 and in 2011 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. Section 4.7 of this report provides information concerning the calculation of the reconciliation. The final NYSDEC determination and approval has been made for the rates for fiscal years 1993 through 1995. In response to a request for a review of the regulated rate for water service by upstate petitioners led by the Village of Scarsdale, the NYSDEC ruled that it

will consider the petitioners' request for a review only of the 2005 regulated rate, and not for any other previous years.

Historical Billing Rates and Computed Unit Costs

	Rate per Million Gallons (MG)	
Fiscal Year	Billed to Upstate Customers	Computed Cost to the Board (Excludes the effects of reconciliation)
1973-1992 (a)	76.87 or 103.72	
1993 (b)	143.84	198.33
1994 (b)	165.23	211.60
1995 (b)	174.18	229.87
1996	174.18	247.28
1997	227.95	309.55
1998	274.93	338.79
1999	342.97	348.31
2000	383.78	385.25
2001	414.37	414.88
2002	448.83	462.24
2003	485.71	522.99 (c)
2004	542.36	529.85 (c)
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 (Current)	1,149.72	N/A

(a) From 1973 to 1992, customers using Croton water were charged $76.87 per million gallons and customers using Catskill/Delaware water were charged $103.72 per million gallons. Prior to the 1993 rate increase, communities using water from the Croton System were billed at a different regulated rate than communities using water from the Catskill/Delaware System. Since 1993, a uniform rate has been used for all upstate customers.

(b) The rates as revised and approved by NYSDEC were: $137.73 per million gallons for 1993, $158.31 for 1994 and $175.69 for 1995.

(c) 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 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.

(d) 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.

(e) 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.

As illustrated above, the unit rates in Fiscal Years 1997 and 1998 significantly understated the unit cost to the Board of supplying water to customers. This occurred because the unit rates for 1997 and 1998 were based on historical costs and did not reflect the increasing actual cost of service. In order to develop a rate that more appropriately reflected the cost of water supply, the 2000 through 2011 unit rates were developed based on the anticipated cost of service in the upcoming fiscal years.

The actual unit rate for 2010, prior to the reconciliation, is higher than the calculated unit rate that was adopted by the Board effective July 1, 2009 based on estimated cost of service at the time. After applying the 2008 reconciliation amount as a credit to the cost of service, the actual unit rate for 2010 net of the reconciliation is lower than the calculated unit rate that was implemented by the Board.

The actual cost of service in 2010 was lower than the projected cost of service that was used in setting the unit rate in June 2009. The principal reasons for the decline are lower than expected debt service and no capital cash payments by the Authority resulting in a decrease in the cost of service, which serves to reduce the unit rate. Actual labor costs were also lower than anticipated. Water consumption was lower than projected, which served to increase the unit rate although the effects of the decline in usage were outweighed by the reduction in costs. This report proposes that a credit or "true-up" be applied towards the cost of service in 2012 to reflect the calculated difference between the 2010 actual cost of service and the actual costs recovered, which are computed by multiplying the unit rate charged by the Board in 2010 times system-wide water consumption. The calculation of this proposed credit is presented in Section 4.7 of the report.

As of the date of this Report, it is estimated that the 2011 unit cost per million gallons may be relatively close to the unit rate that was adopted by the Board and is currently in effect. Among the factors affecting the estimated costs for 2011 are: debt service that is lower than previously projected, Authority expenses to defease debt and lower than anticipated other than personal services ("OTPS") expenses. The Authority has successfully sold bonds and commercial paper in the current fiscal year at average interest rates that are lower than those previously assumed. The estimated unit rate is also affected by slightly higher projections of total water use in 2011.

The current estimate of the cost per million gallons for 2011 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 28, 2011, it is anticipated that the actual full-year water demand will be somewhat higher than the projected usage based on the 10-year regression. If the water demand for the full year is greater than projected, the unit cost per million gallons will decrease. The actual cost of service and the actual unit rate for the supply of water for 2011 will not be known until after the fall of 2011.

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 2011. 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 2008 through 2010. The sixth step includes the development of the projected cost of service and regulated rates for 2011 (the current year) and 2012. In addition, this Report includes a preliminary projection of the regulated rate for water supply service for the years 2013 through 2015. 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 2012 projection and the preliminary projections for 2013 through 2015. The water supply 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 of $137.73 and $158.31 per million gallons for 1993 and 1994, respectively.

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 (PS)
2. Other Than Personal Services (OTPS)

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 Services provide services and benefits to the water supply 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.

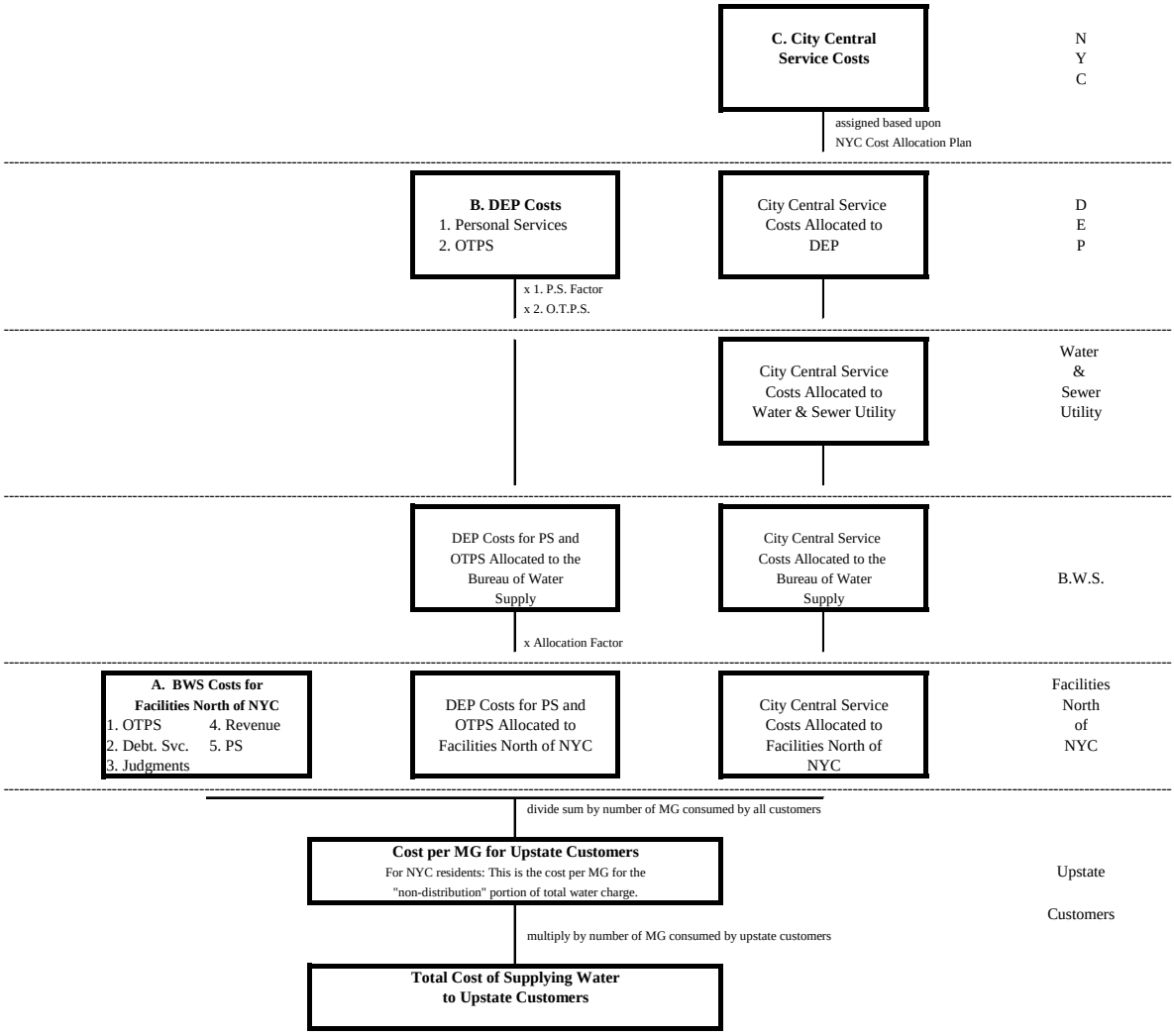
3.2.6 Step F

Steps A through E are primarily used to develop the actual cash basis cost of service for 2008 through 2010. To develop the projected cost of service for 2011 (the current year) and 2012, 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 2011 and 2012. 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 use 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 2008 through 2010. The 2010 Fiscal Year is the most recent year for which complete information is available. The anticipated cost of service for 2011 and 2012 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 2011 and 2012, the proceeds of which will be used, in part, to fund capital improvements in the water supply system. The projected debt service reflects the expected portion of the bond proceeds that will be used for the water supply 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 2011 and 2012 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 (the "Bureau" or "BWS") of DEP has the responsibility to operate and maintain the water supply 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.

The Bureau carries out its water supply responsibilities through personnel and equipment located at facilities throughout the watershed. Bureau 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 Department and City costs will be allocated to facilities located north of the City.

The individual categories of costs that relate solely to facilities located north of the City are listed below:

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

Each of the above categories is discussed further in the paragraphs that follow in this section of the report.

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. With the exception of 2004 when expenses relating to the Watershed MOA declined significantly and 2010 when chemical costs for Hillview Reservoir declined substantially from 2009, direct OTPS costs have steadily increased over the years, as illustrated in the table shown on the next page.

Historical OTPS Expenses

Fiscal Year	OTPS Expense ($)	Annual Increase (%)
1992	54,391,121	
1993	57,132,786	5.0%
1994	59,533,840	4.2%
1995	64,767,041	8.8%
1996	69,176,240	6.8%
1997	81,763,877	18.2%
1998	83,248,590	1.8%
1999	85,308,061	2.5%
2000	96,400,404	13.0%
2001	100,559,467	4.3%
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%

The average annual increase from 1992 to 2010 is 6.5%. 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. In 1997, OTPS costs increased due to the beginning of the enhancements to the watershed protection program. Such enhancements were required pursuant to the Watershed MOA between the City and upstate communities to protect water quality throughout the watershed. As noted previously, the decline in expenses in 2004 was primarily due to the completion of certain expenses related to the Watershed 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.

Property taxes, including for existing properties and the UV Facility, have increased steadily each year and constituted about 74% of total OTPS costs allocable to the cost of water supply and the unit rate in 2010. 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. The annual increase in OTPS expenses is expected to continue in the future due to rising property taxes and increases in other costs.

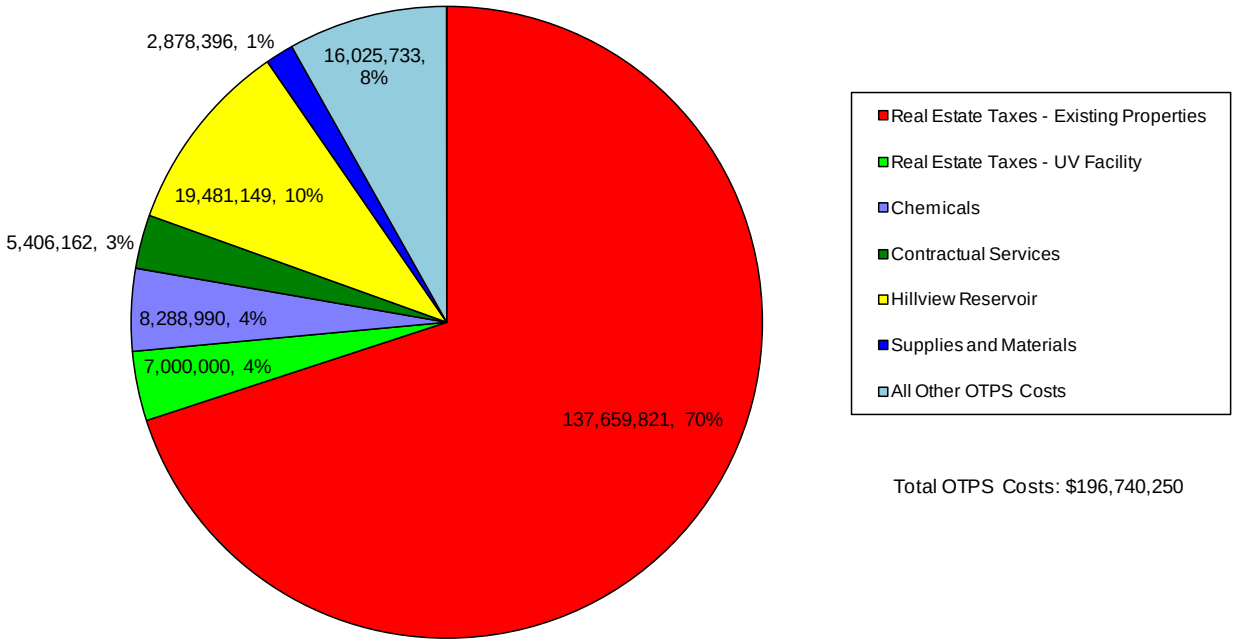
It is important to note that property taxes associated with the UV Facility in 2011 and future years are currently included in the line item for real estate taxes. Section 4.2.1.7 provides additional information concerning the UV Facility.

Recent expenses and current and ongoing programs were considered in estimating the anticipated 2010 and 2011 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. Other OTPS Expenses
7. UV Facility

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. The expected 2012 components of OTPS costs are summarized in Figure 3 on the following page. 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.

Figure 3 Projected Fiscal Year 2012 Other Than Personal Services Costs



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 5.8% from 1992 to 2010. The rate of increase from 2003 to 2010 is higher, averaging 7.2% per year. Historical property tax payments are shown in the table below.

Historical Property Tax Payments

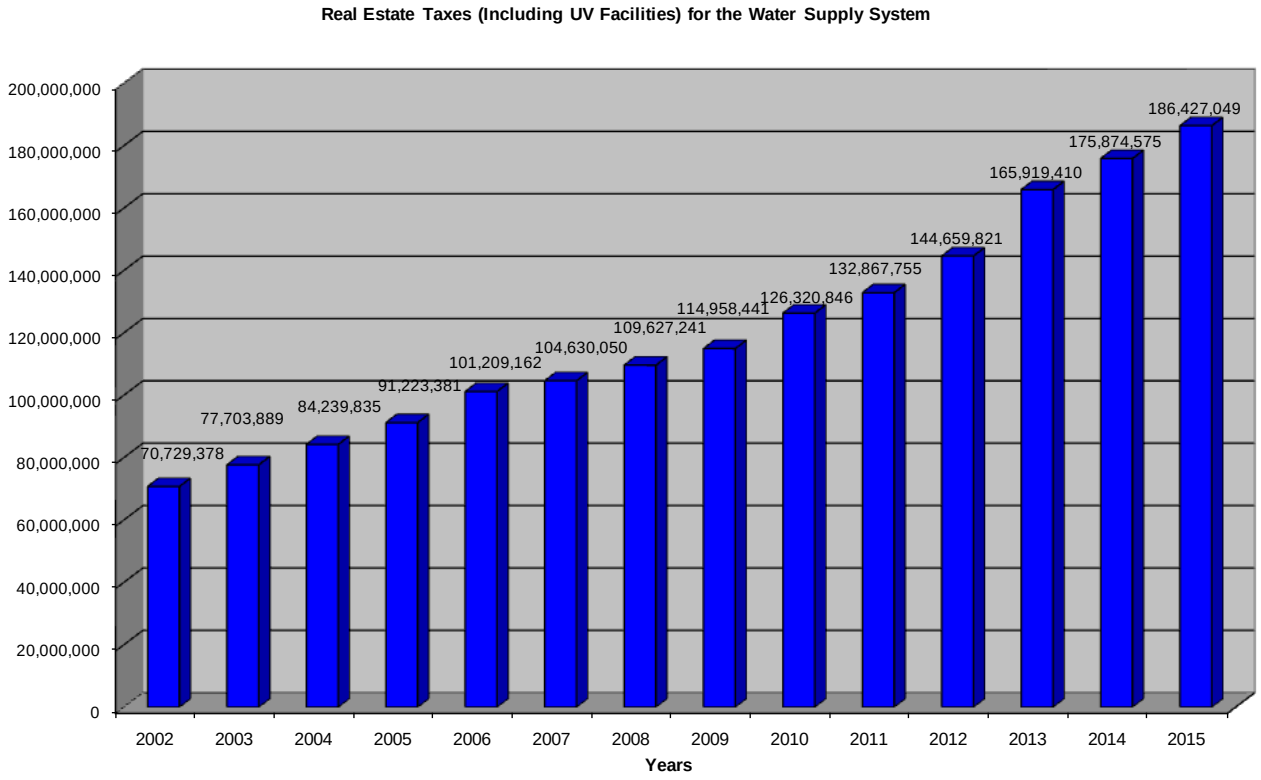
Fiscal Year	Property Tax Expense ($)	Annual Increase (%)
1992	45,523,172	
1993	47,168,247	3.6%
1994	49,778,593	5.5%
1995	52,415,756	5.3%
1996	53,669,656	2.4%
1997	54,995,223	2.5%
1998	57,165,589	3.9%
1999	60,277,681	5.4%
2000	63,127,985	4.7%
2001	66,579,445	5.5%
2002	70,729,378	6.2%
2003	77,703,889	9.9%
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%

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 2011 and 2012 are $132.9 million and $144.7 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. A 6.0% annual rate of increase in the property taxes is assumed for 2013 through 2015 for all taxes except those for the UV Facility. Property taxes related to the UV Facility are assumed to be $7 million in 2012 and $20 million in 2013. It is assumed that property taxes on the UV Facility will then increase at the rate of 6% per year in 2014 and 2015. While the current rate adoption by the Board will only address 2012, projections for 2013 through 2015 are shown for illustrative purposes. The actual

and estimated real estate taxes payable to upstate communities for watershed properties are summarized in Figure 4.

Figure 4 Real Estate Taxes



Real Estate Taxes for the years 2011 through 2015 are projected using assumed increases in tax rates and taxes on newly-purchased properties.

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 that are used in the watershed except for the chemicals used at the Hillview Reservoir, which are presented separately in 4.2.1.3. As illustrated by the following summary table, the total cost of chemicals can vary from year to year.

Historical Chemical Costs

Fiscal Year	Chemical Costs ($)	Annual Rate of Change (%)	Chemical Costs as a % of Total OTPS
1992	2,625,000		
1993	2,351,440	-10.4%	4.1%
1994	2,766,850	17.7%	4.6%
1995	2,975,135	7.5%	4.6%
1996	3,463,427	16.4%	5.0%
1997	2,443,920	-29.4%	3.0%
1998	2,246,704	-8.1%	2.7%
1999	1,927,052	-14.2%	2.3%
2000	1,805,752	-6.3%	1.9%
2001	2,160,223	19.6%	2.1%
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%

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. Recognizing that the costs for chemicals at Hillview Reservoir declined in 2010 compared to 2009, there were significant increases in prices for fluoride and other chemicals for the remainder of the System in 2008 through 2010 compared to prior years as reflected in the above table. 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)
1992	3,313	2,741
1993	2,858	2,605
1994	3,192	2,696
1995	3,326	2,642
1996	4,601	2,646
1997	3,960	2,610
1998	3,245	2,516
1999	3,011	2,532
2000	2,847	2,496
2001	2,939	2,331
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

Historical Unit Prices for Chemicals

Fiscal Year	Chlorine ($)/Lb (1)	Fluoride ($)/Ton (2)
1994	176.80, 223.60	797.00
1995	248.20, 327.40	797.00
1996	248.20, 327.40	797.00
1997	278.51	506.14
1998	300.00	506.00
1999	234.00	483.00
2000	233.44	457.25
2001	317.00	457.25
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

(1) Chlorine prices for 1994 through 1996 reflect two different delivery zones within the water supply system. Approximately 80% to 90% of all chlorine that was used each year was within the lower priced delivery zone.

(2) Fluoride prices for 2002 and 2006 reflect two different delivery zones within the water supply system.

The assumed rate of increase in chemical costs in 2012 through 2015 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 2010, the costs for caustic soda and orthophosphate were $3.2 million and $13.7 million, respectively. These costs reflected substantial increases compared to prior years. The competitively bid unit prices for orthophosphate effective June 1 for 2008, 2009, and 2010 were: $13.13 per gallon, $8.29 per gallon, and $3.10 per gallon, respectively. The expenses other than labor that are attributable to Hillview Reservoir in Tables 4A and 4B in the Appendix to this Report are

exclusive of property taxes, which are included in the separate property tax line item (line 18) that covers 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 2010 to 2011. Market conditions and upcoming bid prices will dictate the actual prices for chemical costs. OTPS expenses in 2012 through 2015 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.

Previous reports included information regarding labor costs for Hillview in this section; such information is now included in 4.2.5 of this report.

4.2.1.4 Contractual Services

The City was required by the Watershed 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 Watershed MOA declined as the programs called for in the Agreement ended or were scaled down. The future expenses for Agreement-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 supply 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 $75,000 per year from 2011 to 2015. The actual payments for rate studies and related work for 2010 were $33,286.

4.2.1.6 Other OTPS Expenses

Other categories of expense are assumed to increase at the rate of 3% per year in 2011 through 2015. This rate of increase is consistent with the 3% annual increase in such costs, which is assumed by the Authority and the Board in their forecasts of future expenses other than property taxes.

4.2.1.7 UV Facility

It is currently anticipated that the UV Facility will be completed by October 29, 2012 (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 supply 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 years 2008 through 2010, as well as the projected amounts for 2011 through 2015. The debt service/cash-financed construction amounts are then reflected in Line 2 of Tables 1A and 1B, 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 Supply 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 $3 billion in investments have been made throughout the System 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. A summary of the historical investments by category based on construction and related payments is provided in the following table.

Water Supply Capital Expenditures

1986 thru Dec. 31, 2010 ($000)

	TOTAL
Filtration Avoidance Determination (FAD)	$ 758,601
Land Acquisition in the Watershed	$ 394,225
Wastewater Treatment Plant (WWTP) Upgrades in Watershed Area	$ 448,762
Croton Filtration Plant through 2004	$ 95,750
Hillview Reservoir Cover	$ 84,818
CAT/DEL UV Light Treatment Facilities	$ 1,011,493
All Other Than The Above	$ 947,310
Total	**$ 3,740,959**

4.2.2.2 Debt Service Related to the Water System

Authority Bonds

Debt service on Authority and NYSEFC bonds 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 methodology for computing debt service on outstanding Authority and NYSEFC bonds remains the same as used in prior reports for and subsequent to the 2005 rate year regarding the cost of water supply service and the regulated rate.

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 by 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 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 year-to-date in 2011. For example, the cumulative percentage to be used in 2009 reflects the sum of all bond proceeds used for water supply projects from 1986 through 2008 divided by the sum of all proceeds from bonds issued from 1986 through 2008. The calculated percentages in 2010 are applied in Table 5D to the appropriate debt service, interest earnings, etc. in 2010. The

calculated percentage in 2011 is applied to the appropriate figures for 2011 and is then applied to the figures for 2012 through 2015. The computed percentage for 2011 through 2015 is preliminary and subject to change since not all proceeds of bonds issued in 2011 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 May 1, 2011. 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 2011. Authority debt service is shown as First Resolution and Second Resolution. The Second Resolution debt of the Authority is subordinate to the First Resolution debt of the Authority. 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 by 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.

General Obligation (G.O.) Bonds
Table 5A in the Appendix identifies the principal and interest payments for 2008 on general obligation bonds of the City that were issued from 1981 through 1985 and whose proceeds were used, in part, for upstate facilities.

The methodology for computing debt service on outstanding G.O. bonds of the City issued during the above period remains the same as used in prior reports regarding the cost of water supply service and the regulated rate. No further payments towards G.O. debt service are assumed after 2008.

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 2008 through 2010. No cash-financed construction deposits are expected to be made in 2011. The deposits for cash-financed construction in future years are currently expected to be $125 million in 2012, $150 million in 2013, $175 million in 2014 and $200 million in 2015. 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 2007 through 2010 so there are no costs to be allocated to the upstate water supply system share for these years. At the time of this Report, it is estimated that $260 million will be used in 2011 to defease debt that is due in future years. It is currently anticipated that bonds that are payable in 2012 through 2017 will be defeased, recognizing that this is subject to change. There are no plans for the defeasance of additional debt during the period of 2012 through 2015. 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 2011 through 2015 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 2010 resulted in actual debt service that is much lower than anticipated. There is no assurance that such conditions will continue in the future. The year-to-date experience through March 1, 2011 has been better than previously assumed, and preliminary changes for 2011 have been taken into consideration in the projected debt service for this year.

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 supply system. Payments made in other years have ranged from $1,834 in 1999 to $668,221 in 2010. The payment amounts in 2009 and in 2010 were $26,925 and $668,221, 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 (1996 through 2010) average of $474,759 will provide an allowance for judgments and claims in future years.

4.2.4 Miscellaneous Revenue

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 supply 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 shows the anticipated gross hydropower revenues by source. In 2011 and 2012, it is expected that such revenues will be approximately $5.4 million and $5.5 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 2010. 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 (1996 through 2010) 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 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 supply 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 supply 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 supply system have been implemented. In 2012 through 2015, 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 45% in 2008, 51% in 2009, 51% in 2010 and 30% of direct salary and wages in 2011. Based on recent analyses prepared by the City, the pension and fringe benefit rate for 2012 is expected to be 45%. The assumed rate for 2013 through 2015 is 45% 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	51%
2011	30%
2012-5	45%

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 2011 through 2015 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 the BWS. The DEP cost burden must then be shared by the BWS through the use of an allocation percentage. The allocation factors presented in Table 10 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 of the Appendix.

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 the Department 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 illustrate allocated personal services costs, while Tables 12A and 12B 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 water supply within the 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 2015 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 Department water and sewer functions using head count allocation percentages. The 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 $1,951,178 in 2010. 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 $1,951,178 in 2011 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 2008 through 2010 in Table 1A and for 2011 through 2015 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 $473,680,447 in 2011 and $524,826,989 in 2012. Of the total cost of service amount, $383,114,261 in 2011 and $418,986,701 in 2012, or about 81% and 80% (excluding the effects of the cost reconciliation), 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 expense for the supply of water is real estate taxes paid to upstate communities for watershed properties including the UV Facility. Excluding the proposed reconciliations, upstate taxes (included with OTPS expenses) will represent approximately 28% of all water supply costs in 2011 and in 2012. 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 20% of all costs excluding the proposed reconciliation in 2011 and 21% of costs in 2012. The remaining costs include allocated management, administrative and support services.

The net total cost of water supply as presented in line 20 of Table 1B is $466,363,981 for 2011 and $503,179,269 for 2012. These amounts include the effects of the proposed reconciliation for 2009 of $7,316,465 that is credited to 2011 and the proposed reconciliation of $21,647,720 for 2010 that is credited to 2012.

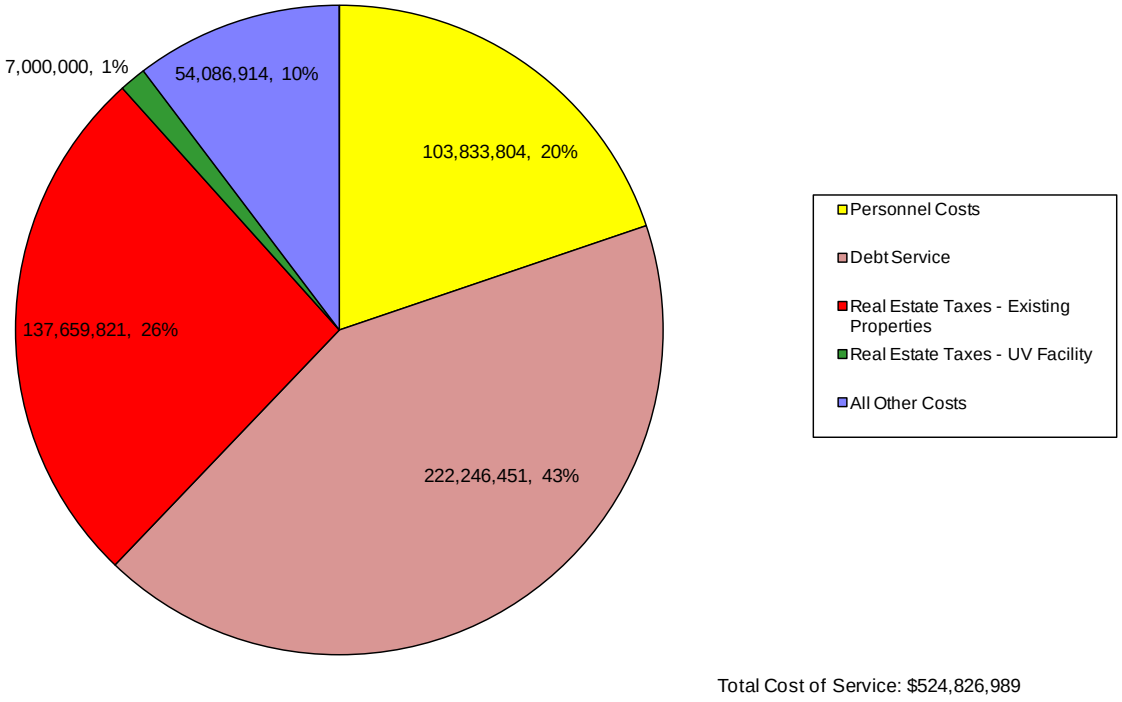
The three major factors influencing the increase in the cost of service between 2011 and 2012 and from 2012 to 2013 are the following:

- The increase in the pension and fringe benefit rate from 30% of direct salary and wages to 45%;
- The increase in debt service and related capital costs; and
- The initial operation and maintenance expenses and higher assumed 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 2012 rate year excluding the effects of the reconciliation of prior year costs.

Figure 5 Projected Fiscal Year 2012 Cost of Service Components



Total Cost of Service: $524,826,989

4.7 Calculation of the Regulated Rate - Step F

At the direction of the Board, the calculation of the 2011 cost of service included a credit, which reflected the difference between the cost of service actually recovered in 2009 based on the rate in effect and the quantity of water consumed and the actual 2009 cost of service based on final actual costs and actual consumption. A reconciliation of the prior year projected and actual costs of service, consumption and rates is again proposed with the resulting credit or additional charge for the recently completed year (2010) being applied towards the cost of service for the upcoming rate year (2012). Given the recent variations in financing and commodities costs as well as significant 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 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 2010 credit is shown in Table 1A. The actual cost of service for 2010 was $400,726,931; the calculated credit is $21,647,720. The credit amount is computed by adding the credit of $42,893,777 resulting from the reconciliation in 2008 to the cost of service of $400,726,931 and comparing the resulting net cost of service of $357,833,154 with the revenues raised (the unit rate times System Usage) of $379,480,873. An excerpt from Table 1A is provided below to show the calculation of the proposed credit.

Calculation of the Proposed 2010 Credit

13	Total Costs Related to Facilities North of the City	$	400,726,931
14	System Usage	MG	411,482
15	***Unit Rate to Recover the Total Costs (line 13 divided by 14)***	$/MG	973.86
16	Unit Rate Charged	$	922.23
17	Revenue Raised (line 14 times 16)	$	379,480,873
18	Difference: Cost of Service Less Revenue (line 13 minus 17)	$	21,246,057
19	Cost Reconciliation for Prior Years	$	(42,893,777)
20	Net Total Costs for Facilities North of the City (line 13+19)	$	357,833,154
21	Difference: Net Total Costs Less Revenue (line 17 minus 20)	$	21,647,720

It is proposed that this credit be applied to the calculated cost of service for 2012, resulting in a lower unit rate than would otherwise be necessary if the rate were based solely on the estimated 2012 cost of service.

Table 1B presents the calculation of the projected 2012 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 2012 Rate

13	Total Costs Related to Facilities North of the City	$	524,826,989
14	System Usage	MG	406,298
15	***Unit Rate to Recover the Total Costs (line 13 divided by 14)***	$/MG	1,291.73
16	Unit Rate Charged	$	
17	Revenue Raised (line 14 times 16)	$	
18	Difference: Cost of Service Less Revenue (line 13 minus 17)	$	
19	Cost Reconciliation for Prior Years	$	(21,647,720)
20	Net Total Costs for Facilities North of the City (line 13+19)	$	503,179,269
21	Difference: Net Total Costs Less Revenue (line 17 minus 20)	$	
22	Unit Rate Net of the Reconciliation (line 20 divided by 14)	$	1,238.45

After taking into account the reconciliation, the resulting unit rate, shown on Line 22, is $1,238.45 per MG in 2012.

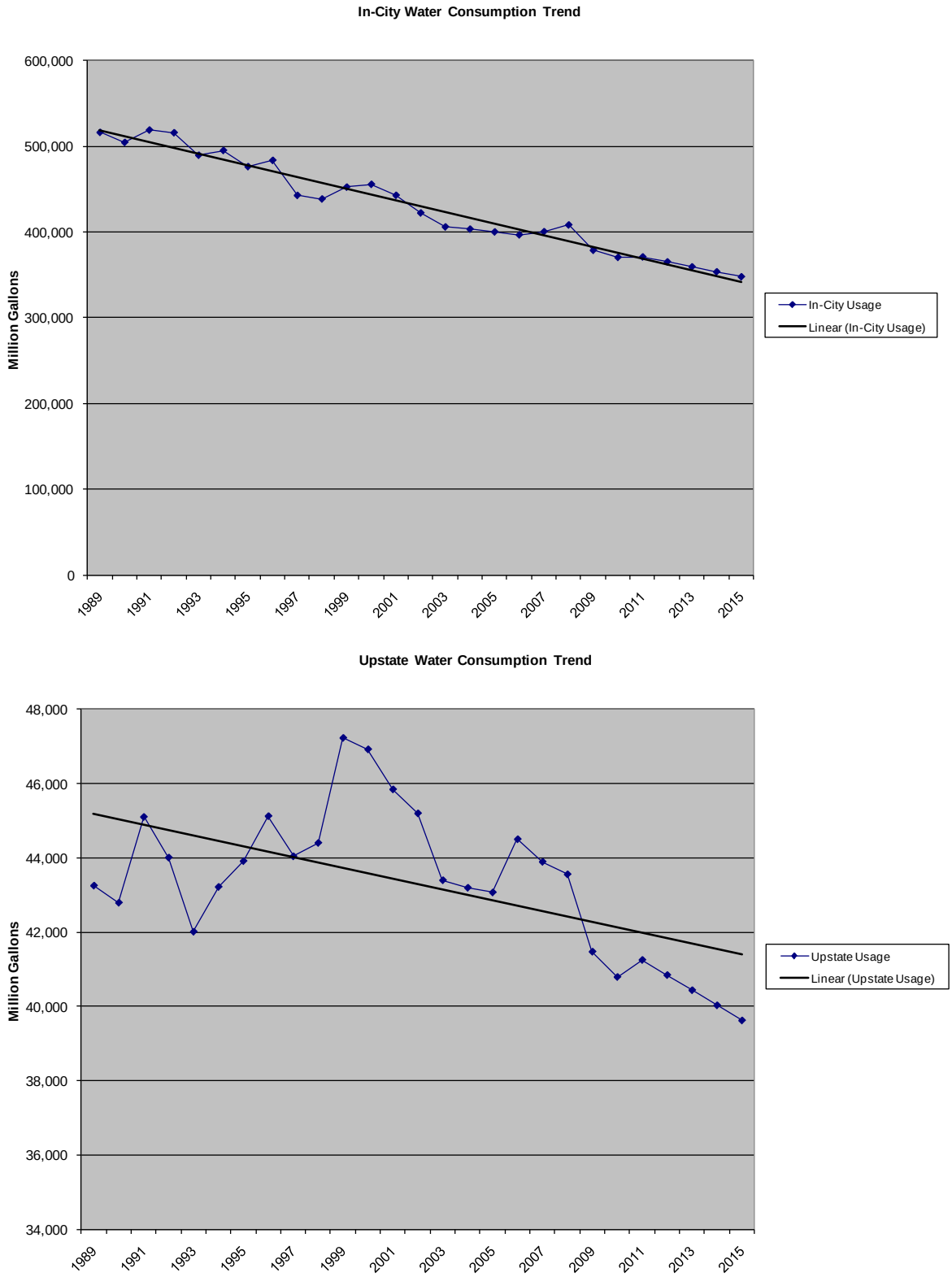
The cost of service attributable to upstate customers is calculated by multiplying the unit rate of $1,238.45 by the annual upstate water consumption shown on Line 24 of Table 1B. The resulting upstate cost is approximately $52.8 million for fiscal year 2012. The remaining cost of water supply, approximately $450.4 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 412,506 MG in 2011 and 406,298 MG in 2012. The upstate share of total water consumption using the regression analysis is estimated to be 41,256 MG in 2011 and 40,848 MG in 2012. 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 lower than expected in 2010. The 2011 year-to-date in-City consumption through February 28, 2011 has increased about 3.1% from the usage for the same time period in 2010. The vast majority of the increase in use was in the first three months of the 2011 fiscal year (July 2010 – September 2010). The 2011 year-to-date consumption through January 31, 2011 for upstate customers has increased about 13.2% from the usage for the same time period in 2010. Thus, the actual rate for 2011 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 2012. 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 2012 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

The Department has invested and continues to invest substantial amounts of money in water conservation initiatives. Through the toilet rebate program, DEP assisted customers in the removal of old toilets and the installation of new low-flow toilets that require significantly less water. This program, while not unique, went beyond standard practice. DEP is also undertaking a universal metering program that will bring the City into conformance with accepted industry practice. 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 350,000 meters have been replaced in conjunction with this installation. DEP also continues to install new meters in previously unmetered properties. Both the meter installation and the toilet retrofit programs have produced savings in water use and 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
- Water Conservation Classes for Building Managers
- School Programs on Water Conservation
- Large meter management initiative (beginning in 2012)

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 or the incentives to encourage reuse.

The conservation investments by the City will help to reduce the need to develop new supplies of water in the future (see the Dependability Program discussion in 1.3.3 of the report regarding alternative supplies).

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

5.1 Customer Impacts

The proposed regulated rate for 2012 is $1,238.45 per MG. The current estimate of the unit cost of service for 2011 is $1,148.30, which is relatively close to the rate of $1,149.72 per MG that was calculated approximately one year ago based on information available at that time. After the effects of the reconciliation, the calculated net unit cost of service for 2011 at the time of this report is $1,130.56. The current estimate of the unit cost of service for 2011 will change by the end of the fiscal year, based on actual costs incurred and actual water consumption by customers. As mentioned earlier, actual water consumption in 2011 may be higher than the projected consumption based on year-to-date results. 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 proposed regulated rate for Fiscal Year 2012 represents an increase of $88.73 per MG from the current unit rate of $1,149.72, or a 7.7% increase in the current rate. Without the benefit of the reconciliation from 2010, the unit rate for the cost of service is $1,291.73. 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 100,000 gallons of water per year would be $8.87 for the entire year or less than three cents per day. Typical water use for a single family household in the City has declined to about 80,000 gallons per year. The increase in charges attributable to a single family residence using 80,000 gallons of water per year in the upstate region would be $7.10 for the entire year or about two cents per day.

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 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 and the 100,000 gallon per year allowances. Table 3 illustrates the computed single family charge and the estimated percentage increase in that charge that would occur with the proposed regulated rate for 2012.

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.

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. Since the 2012 percentage change in costs reflects the benefit of the reconciliation, the percentage change in costs in 2013 is much higher than in other years.

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			
	2011	***2012***	***2013***	***2014***	***2015***
Calculated Unit Rate Based on Cost of Service		$ 1,291.73	$ 1,434.47	$ 1,555.26	$ 1,644.37
Percent Change from Current Rate		12.4%			
Adjustment to the Unit Rate for Reconciliation		$ (53.28)			
Unit Rate	$ 1,149.72	$ 1,238.45	$ 1,434.47	$ 1,555.26	$ 1,644.37
Percentage Change in the Unit Rate due to Increase in Cost of Service		11.3%	9.4%	6.7%	4.1%
Percentage Change in the Unit Rate due to Fluctuations in Consumption		1.1%	1.7%	1.7%	1.7%
Percentage Change in the Calculated Unit Rate for Water Supply		12.4%	11.1%	8.4%	5.7%

* Includes the effects of cost reconciliation for FY 2012.
** The percentage changes in FY 2012 reflect differences from the current rate being charged for FY 2011.

Report on the Cost of Supplying Water to Upstate Customers for the 2012 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		FY 2008	FY 2009	FY 2010
	Bureau of Water Supply Direct				
	Costs for Facilities North of the City				
1	Other Than Personal Services	$	150,982,178	171,280,256	169,955,116
2	Debt Service / Capital Costs	$	75,998,106	96,614,323	129,167,819
3	Cash Used for the Defeasance of Debt	$	0	0	0
4	Judgment and Claims	$	3,695	26,925	668,221
5	Less Miscellaneous Revenue	$	(10,017,035)	(8,134,219)	(6,972,405)
	Personal Services				
6	Field Personnel	$	70,628,046	76,840,122	72,743,588
7	Support and Administrative Personnel	$	16,752,400	18,888,597	19,296,392
8	Total Costs Directly Related to Facilities North of the City	$	304,347,390	355,516,004	384,858,731
	Upstate Share of NYC DEP Costs				
9	Personal Services	$	6,879,614	8,314,377	7,917,360
10	Other Than Personal Services	$	5,333,258	5,570,059	5,999,662
11	Total NYC DEP Costs Allocated to Facilities North of the City	$	12,212,872	13,884,437	13,917,022
12	***Upstate Share of City Central Service Costs*** [(1)]	$	1,560,824	1,807,764	1,951,178
13	Total Costs Related to Facilities North of the City	$	318,121,086	371,208,204	400,726,931
14	System Usage	MG	452,048	420,438	411,482
15	***Unit Rate to Recover the Total Costs (line 13 divided by 14)***	$/MG	703.73	882.91	973.86
16	Unit Rate Charged	$	798.62	900.31	922.23
17	Revenue Raised (line 14 times 16)	$	361,014,863	378,524,670	379,480,873
18	Difference: Cost of Service Less Revenue (line 13 minus 17)	$	(42,893,777)	(7,316,465)	21,246,057
19	Cost Reconciliation for Prior Years	$			(42,893,777)
20	Net Total Costs for Facilities North of the City (line 13+19)	$			357,833,154
21	Difference: Net Total Costs Less Revenue (line 17 minus 20)	$			(21,647,720)
22	***Unit Rate Net of the Reconciliation (line 20 divided by 14)***	$			869.62
23	Upstate New York Usage	MG	43,559	41,477	40,797
24	Total Upstate Cost (Ln 15 x Ln 23)	$	30,653,783	36,620,683	39,730,509

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 2011	Projected Years FY 2012	FY 2013	FY 2014	FY 2015
	Bureau of Water Supply Direct						
	Costs for Facilities North of the City						
1	Other Than Personal Services	$	177,851,769	196,740,250	221,825,752	233,539,854	246,075,546
2	Debt Service/Capital Costs	$	170,698,614	222,246,451	243,011,560	266,673,825	275,635,749
3	Cash Used for the Defeasance of Debt	$	34,563,878	0	0	0	0
4	Judgment and Claims	$	474,759	474,759	474,759	474,759	474,759
5	Less Miscellaneous Revenue	$	(6,677,069)	(6,784,494)	(6,894,068)	(7,005,832)	(7,119,833)
	Personal Services						
6	Field Personnel	$	64,505,738	76,109,930	78,438,383	80,791,534	83,215,280
7	Support and Administrative Personnel	$	17,111,171	19,658,103	20,247,846	20,855,282	21,480,940
8	Total Costs Directly Related to Facilities North of the City	$	458,528,859	508,444,998	557,104,232	595,329,421	619,762,441
	Upstate Share of NYC DEP Costs						
9	Personal Services	$	7,020,758	8,065,771	8,307,744	8,556,977	8,813,686
10	Other Than Personal Services	$	6,179,652	6,365,041	6,555,992	6,752,672	6,955,252
11	Total NYC DEP Costs Allocated to Facilities North of the City	$	13,200,410	14,430,813	14,863,737	15,309,649	15,768,938
12	***Upstate Share of City Central Service Costs***	$	1,951,178	1,951,178	1,951,178	1,951,178	1,951,178
13	Total Costs Related to Facilities North of the City	$	473,680,447	524,826,989	573,919,147	612,590,248	637,482,558
14	System Usage	MG	412,506	406,298	400,091	393,883	387,675
15	***Unit Rate to Recover the Total Costs (line 13 divided by 14)***	$/MG	1,148.30	1,291.73	1,434.47	1,555.26	1,644.37
16	Unit Rate Charged	$	1,149.72				
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	$	(7,316,465)	(21,647,720)			
20	Net Total Costs for Facilities North of the City (line 13+19)	$	466,363,981	503,179,269			
21	Difference: Net Total Costs Less Revenue (line 17 minus 20)	$	N/A				
22	***Unit Rate Net of the Reconciliation (line 20 divided by 14)***	$	1,130.56	1,238.45			
23	Upstate New York Usage	MG	41,256	40,848	40,441	40,034	39,627
24	Total Upstate Cost (line 15 x 23)	$	47,373,764	52,765,122	58,012,036	62,263,657	65,161,787

Notes:
* Current rate for FY 2011 is $1149.72 per million gallons

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	$1.37/Ccf - 1st 50 Ccf $1.54/Ccf - Next 100 Ccf $1.73/Ccf - Next 200 Ccf $2.50/Ccf - Next 300 Ccf (Rates are semi-annual; additional blocks for greater consumption) Plus fixed charge of $16.61 for residential meters 1" or less, per 6 mths	$1.65/Ccf - 1st 50 Ccf (qtrly accts) or 500 Ccf (monthly accts); $5.78 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 to 100,000	80,000 to 100,000
Avg. Annual Residential Use (Ccf)	106.95 to 133.69	106.95 to 133.69
Avg. Residential Water Bill	$181 to $222	$206 to $251

	Village of Mamaroneck	**Town of Harrison**
Current Water Rates	$4.41/Ccf - 1st 66 Ccf per Qtr $4.95/Ccf - Next 150 Ccf per Qtr Plus service charge based on meter size: $24.50/qtr for 5/8"; $29.24/qtr for 3/4"; etc.	$2.93/Ccf - 1st 66 Ccf per Qtr $3.53/Ccf - Next 150 Ccf per Qtr Plus service charge based on meter size: $28.08/qtr for 5/8"; $30.57/qtr for 3/4"; etc.
Avg. Annual Residential Use (Gal.)	80,000 to 100,000	80,000 to 100,000
Avg. Annual Residential Use (Ccf)	106.95 to 133.69	106.95 to 133.69
Avg. Residential Water Bill	$579 to $697	$431 to $509

	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 to 100,000	80,000 to 100,000
Avg. Annual Residential Use (Ccf)	106.95 to 133.69	106.95 to 133.69
Avg. Residential Water Bill	$507 to $633	$251 to $314

Notes:
The above rates and charges reflect the rate schedules of each community in February 2011.

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)	$1.54 / Ccf
Avg. Annual Residential Use (Gal.)	80,000 to 100,000	80,000 to 100,000
Avg. Annual Residential Use (Ccf)	106.95 to 133.69	106.95 to 133.69
Avg. Residential Water Bill	$96 - $640 to $120 - $802	$165 to $206

	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 to 100,000	80,000 to 100,000
Avg. Annual Residential Use (Ccf)	106.95 to 133.69	106.95 to 133.69
Avg. Residential Water Bill	$446 to $557	$685 to $856

Notes:
The above rates and charges reflect the rate schedules of each community in February 2011.

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	Increase Attributable to Proposed FY 2012 Regulated Rate	% Change to a Homeowner
City of White Plains	$181 to $222	$7.10 to $8.87	3.9% to 4.0%
Village of Scarsdale	$206 to $251	$7.10 to $8.87	3.4% to 3.5%
City of New Rochelle	$507 to $633	$7.10 to $8.87	1.4% to 1.4%
City of Yonkers	$165 to $206	$7.10 to $8.87	4.3% to 4.3%
Village of Mamaroneck	$579 to $697	$7.10 to $8.87	1.2% to 1.3%
Town of Harrison	$431 to $509	$7.10 to $8.87	1.6% to 1.7%
City of Mount Vernon	$251 to $314	$7.10 to $8.87	2.8% to 2.8%
Town of Carmel	$96 - $640 to $120 - $802	$7.10 to $8.87	7.4% to 1.1%
City of Newburgh	$446 to $557	$7.10 to $8.87	1.6% to 1.6%
Village of Cornwall	$685 to $856	$7.10 to $8.87	1.0% to 1.0%
New York City	$339 to $424	--	--

Notes:
(1) The Typical Single Family Charge for selected communities are based on 80,000 - 100,000 gallons of annual water use and the rate schedules of each community in February 2011.

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 2008 $	FY 2009 $	FY 2010 $
	Budget			
1	Supplies and Materials - General	8,163,679	2,045,828	2,713,164
2	Automotive Supplies and Materials	27,052	23,504	43,645
3	Fuel Oil	2,947,849	2,207,029	2,359,334
4	Equipment - General	673,416	536,081	685,544
5	Telecommunications Equipment	38,886	28,654	32,735
6	Office Equipment	102,304	63,667	65,111
7	Contractual Services - General	4,645,361	5,090,794	5,095,826
8	Telephone and Other Communications	573,531	435,245	392,454
9	Office Services	517,783	439,283	308,473
10	Maintenance and Repairs - Motor Vehicles	146,174	51,743	97,251
11	Maintenance and Repairs - General	1,268,468	1,088,745	1,110,880
12	Rentals - Miscellaneous Equipment	1,571,785	1,702,223	1,983,616
13	Advertising	118,274	206,302	10,937
14	Security Services	174,668	59,810	-
15	Cleaning Services	864,280	568,646	319,342
16	Licenses (1)	0	0	0
17	Chemicals	5,344,146	8,035,776	7,813,168
18	Real Estate Taxes - Existing Properties	109,627,241	114,958,441	122,516,750
19	Real Estate Taxes - UV Facility	0	0	3,804,096
20	NYS DEC Permits (1)	0	0	0
21	Motor Maintenance Supplies (1)	0	0	0
22	Gasoline (1)	0	0	0
23	Lab and Limnology	72,053	63,220	47,829
24	Natural Gas & Electricity	2,111,315	2,474,701	2,158,826
25	Watershed Regulations Consulting	0	0	0
26	Upstate Cost of Service/Rate Studies	75,000	75,000	33,286
27	Hillview Reservoir (2)	11,918,913	31,125,564	18,362,851
28	UV Facility	0	0	0
29	Totals	150,982,178	171,280,256	169,955,116

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 2008 to 2010.

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* F.Y.2010 $	F.Y.2011 $	*Projected Years* F.Y.2012 $	F.Y.2013 $	F.Y.2014 $	F.Y.2015 $
1	Supplies and Materials - General	2,713,164	2,794,559	2,878,396	2,964,747	3,053,690	3,145,301
2	Automotive Supplies and Materials	43,645	44,954	46,303	47,692	49,123	50,597
3	Fuel Oil	2,359,334	2,430,114	2,503,017	2,578,108	2,655,451	2,735,115
4	Equipment - General	685,544	706,110	727,293	749,112	771,585	794,733
5	Telecommunications Equipment	32,735	33,717	34,728	35,770	36,843	37,948
6	Office Equipment	65,111	67,064	69,076	71,148	73,282	75,481
7	Contractual Services - General	5,095,826	5,248,701	5,406,162	5,568,347	5,735,397	5,907,459
8	Telephone and Other Communications	392,454	404,228	416,355	428,845	441,711	454,962
9	Office Services	308,473	317,727	327,259	337,077	347,189	357,605
10	Maintenance and Repairs - Motor Vehicles	97,251	100,168	103,173	106,269	109,457	112,740
11	Maintenance and Repairs - General	1,110,880	1,144,206	1,178,532	1,213,888	1,250,305	1,287,814
12	Rentals - Miscellaneous Equipment	1,983,616	2,043,124	2,104,418	2,167,550	2,232,577	2,299,554
13	Advertising	10,937	11,265	11,603	11,951	12,309	12,679
14	Security Services	0	0	0	0	0	0
15	Cleaning Services	319,342	328,923	338,790	348,954	359,423	370,205
16	Licenses (1)	0	0	0	0	0	0
17	Chemicals	7,813,168	8,047,563	8,288,990	8,537,660	8,793,789	9,057,603
18	Real Estate Taxes - Existing Properties	122,516,750	129,867,755	137,659,821	145,919,410	154,674,575	163,955,049
19	Real Estate Taxes - UV Facility	3,804,096	3,000,000	7,000,000	20,000,000	21,200,000	22,472,000
20	NYS DEC Permits (1)	0	0	0	0	0	0
21	Motor Maintenance Supplies (1)	0	0	0	0	0	0
22	Gasoline (1)	0	0	0	0	0	0
23	Lab and Limnology	47,829	49,264	50,741	52,264	53,832	55,447
24	Natural Gas & Electricity	2,158,826	2,223,591	2,290,299	2,359,007	2,429,778	2,502,671
26	Upstate Cost of Service/Rate Studies	33,286	75,000	75,000	75,000	75,000	75,000
27	Hillview Reservoir	18,362,851	18,913,737	19,481,149	20,065,583	20,667,551	21,287,577
28	UV Facility	0	0	5,749,146	8,187,370	8,516,988	9,028,007
29	Totals	169,955,116	177,851,769	196,740,250	221,825,752	233,539,854	246,075,546

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	G.O. Debt Service	Authority/NYSEFC Debt Service/Cash	Totals
1	2008	764,469	75,233,637	**75,998,106**
2	2009		96,614,323	**96,614,323**
3	2010		129,167,819	**129,167,819**
Projection Years:				
4	2011		170,698,614	**170,698,614**
5	2012		222,246,451	**222,246,451**
6	2013		243,011,560	**243,011,560**
7	2014		266,673,825	**266,673,825**
8	2015		275,635,749	**275,635,749**

Table 5B Authority Bond Proceeds

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	FY 1986 Series A	200,000,000	2.72%	5,442,800
2	FY 1986 Series B	200,000,000	3.74%	7,475,200
3	FY 1987 Series A	388,650,000	2.70%	10,494,327
4	FY 1987 Series B	160,278,232	6.60%	10,578,684
5	FY 1988 Series A	244,915,000	6.93%	16,974,079
6	FY 1988 Series B	240,000,155	12.47%	29,929,699
7	FY 1989 Series A	275,001,170	10.39%	28,559,147
8	FY 1989 Series B	288,057,995	8.10%	23,334,138
9	FY 1990 Series A	281,474,425	6.92%	19,490,978
10	FY 1991 Series A	285,000,004	5.78%	16,469,580
11	FY 1991 Series C	-	-	-
12	FY 1992 Series A	583,155,000	2.86%	16,678,233
13	FY 1992 Series C	200,000,000	4.45%	8,900,000
14	FY 1993 Series B&C	193,000,000	4.75%	9,167,500
15	FY 1994 Series C	200,000,000	5.77%	11,540,000
16	FY 1994 Series F&G	428,150,000	4.89%	20,936,535
17	FY 1995 Series A	216,700,000	5.92%	12,828,640
18	FY 1996 Series A	484,295,000	7.10%	34,384,945
19	FY 1996 Series B	579,670,000	4.40%	25,505,480
20	FY 1997 Series A	365,125,000	7.85%	28,662,313
21	FY 1997 Series B	700,000,000	16.94%	118,580,000
22	FY 1998 Series B	449,525,000	19.59%	88,061,948
23	FY 1999 Series A	301,470,000	11.06%	33,342,582
24	FY 1999 Series B	202,015,000	3.43%	6,929,115
25	FY 2000 Series A	275,735,000	6.80%	18,749,980
26	FY 2000 Series B&C	431,230,000	11.21%	48,345,193
27	FY 2001 Series A	328,225,000	12.72%	41,741,715
28	FY 2001 Series C	112,040,000	15.87%	17,786,151
29	FY 2002 Series A	216,305,000	21.38%	46,244,904
30	FY 2002 Series G	216,375,000	38.79%	83,937,864
31	FY 2003 Series A	330,040,081	20.42%	67,379,252
32	FY 2003 Series B	150,000,000	24.18%	36,272,195
33	FY 2003 Series E	314,798,571	22.66%	71,323,090
34	FY 2003 Series F	201,655,000	28.04%	56,543,643
35	FY 2004 Series A	217,000,000	1.75%	3,805,504
36	FY 2004 Series C	297,549,412	12.96%	38,561,372
37	FY 2005 Series A	150,000,000	23.22%	34,836,356
38	FY 2005 Series B	417,570,000	20.03%	83,634,213
39	FY 2005 Series D	509,553,201	13.98%	71,236,597
40	FY 2006 Series A	202,970,000	15.90%	32,275,185
41	FY 2006 Series AA	400,000,000	9.92%	39,682,422
42	FY 2006 Series B BB C	250,000,000	17.70%	44,248,847
43	FY 2006 Series D	355,519,052	7.45%	26,485,735
44	FY 2007 Series AA	199,910,000	25.51%	51,006,584
45	FY 2007 Series CC	210,500,000	15.89%	33,450,077
46	FY 2007 Series A	310,475,000	13.73%	42,629,128
47	FY 2007 Series DD	395,000,000	8.43%	33,314,037
48	**2008 Total**	13,958,932,298	11.52%	1,607,755,969
49	FY 2008 Series AA	400,000,000	27.49%	109,951,398
50	FY 2008 Series BB	401,000,000	15.39%	61,708,489
51	FY 2008 Series A	446,245,000	14.91%	66,527,108
52	FY 2008 Series DD	504,905,000	12.90%	65,126,012
53	**2009 Total**	15,711,082,298	12.16%	1,911,068,975
54	FY 2009 Series BB	200,870,000	63.93%	128,419,355
55	FY 2009 Series CC	150,100,000	9.17%	13,762,275
56	FY 2009 Series A	536,030,000	21.14%	113,326,719
57	FY 2009 Series DD	325,580,000	13.36%	43,512,270
58	FY 2009 Series EE	645,455,000	31.32%	202,147,362
59	FY 2009 Series FF	270,035,000	15.61%	42,151,165
60	FY 2009 Series GG	500,000,000	17.22%	86,088,040
61	**2010 Total**	18,339,152,298	13.85%	2,540,476,160
62	FY 2010 Series AA	504,240,000	17.34%	87,418,272
63	FY 2010 Series BB	218,820,000	0.00%	-
64	FY 2010 Series CC	200,000,000	30.01%	60,011,205
65	FY 2010 Series DD	400,000,000	22.48%	89,937,160
66	FY 2010 Series EE	500,000,000	22.40%	112,000,345
67	FY 2010 Series FF	359,110,000	0.00%	-
68	FY 2010 Series GG	554,045,000	29.29%	162,259,907
69	**2011 Total**	21,075,367,298	14.48%	3,052,103,049
70	FY 2011 Series AA	750,000,000	19.32%	144,921,326
71	FY 2011 Series BB	210,040,000	0.00%	-
72	FY 2011 Series CC	750,000,000	10.43%	78,193,824
73	FY 2011 Series DD	275,000,000	31.09%	85,501,773
74	**2012-15 Total**	23,060,407,298	14.57%	3,360,719,972

Notes:
(A) The 1991 C Bonds were not included in the calculations used in the report. The total principal was $4,650,000.
(B) Figures for recent bond issues are preliminary; the upstate portion may change after all bond proceeds are spent.

Table 5C NYSEFC Bond Proceeds

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	25.24%	113,168,601
29	**2010 Total**	6,077,614,344	7.94%	482,707,974
30	FY 2010 Series 2,3,4	406,684,607	31.70%	128,915,675
31	**2011 Total**	6,484,298,951	9.43%	611,623,650
32	**2012-15 Total**	6,484,298,951	9.43%	611,623,650

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

Cost of Supplying Water to Upstate Customers
Debt Service

Line No.	Description		Actual F.Y. 2010	F.Y. 2011	F.Y. 2012	Projected F.Y. 2013	F.Y. 2014	F.Y. 2015
	System Totals - Capital-Related Costs							
1	Authority Debt Service - First Resolution	A	493,837,487	551,809,746	541,342,919	505,472,162	519,283,659	525,496,833
2	Anticipated Debt Service - First Resolution	B	-	-	10,548,231	33,105,142	50,778,588	65,249,223
3	Authority Debt Service - Second Resolution	C	255,907,028	389,909,885	510,302,865	542,334,115	571,644,720	521,132,545
4	Anticipated Debt Service - Second Resolution	D	-	-	32,471,753	126,389,493	198,742,360	259,490,844
5	Interest on Short-Term Debt	E	3,058,697	4,000,000	34,000,000	34,000,000	34,000,000	34,000,000
6	EFC Outstanding Debt Service	F	368,446,114	392,820,447	398,648,692	379,282,364	367,051,042	363,585,548
7	EFC Projected Debt Service	G	-	-	48,141,358	66,804,977	84,001,896	101,294,744
8	Cash-Financed Construction	H	-	-	125,000,000	150,000,000	175,000,000	200,000,000
	System Totals - Interest Earnings & Expenses							
9	Debt Service Fund	I	(6,503,237)	(561,000)	(608,000)	(1,465,000)	(1,756,000)	(4,126,000)
10	Debt Service Reserve Fund	J	(42,722,866)	(42,230,000)	(42,230,000)	(42,826,000)	(43,268,000)	(43,647,000)
11	Construction Fund	K	(932,920)	-	-	-	(1,000,000)	(2,000,000)
12	Subordinated Debt Service Fund	L	(525,813)	(6,718,000)	(7,173,000)	(3,246,000)	(3,557,000)	(7,136,000)
13	Miscellaneous Income & Expenses	M	(39,514)	(8,844,464)	(137,248)	1,152,450	1,275,243	1,366,000
14	Less: Authority Debt-Related Expenses	N	21,473,317	36,050,000	47,100,000	51,810,000	56,991,000	62,690,100
	Water Supply - Capital-Related Costs							
15	Authority Debt Service - First Resolution	A x O	68,410,052	79,912,259	78,892,881	73,665,238	75,678,063	76,583,543
16	Anticipated Debt Service - First Resolution	B x O	-	-	1,537,252	4,824,594	7,400,243	9,509,128
17	Authority Debt Service - Second Resolution	C x O	35,450,150	56,466,164	74,369,243	79,037,333	83,308,929	75,947,512
18	Anticipated Debt Service - Second Resolution	D x O	-	-	4,732,287	18,419,436	28,963,817	37,817,028
19	Interest on Short-Term Debt	E x P	378,715	531,752	4,571,367	4,571,367	4,571,367	4,571,367
20	EFC Debt Service	(F + G) x Q	29,263,436	37,052,313	42,142,931	42,076,649	42,545,022	43,849,271
21	Cash-Financed Construction	H x P	-	-	16,806,495	20,167,794	23,529,093	26,890,392
	Water Supply - Interest Earnings							
22	Debt Service Fund	I x O	(900,877)	(81,243)	(88,607)	(213,503)	(255,912)	(601,305)
23	Debt Service Reserve Fund	J x O	(5,918,290)	(6,115,685)	(6,154,410)	(6,241,268)	(6,305,684)	(6,360,917)
24	Construction Fund	K x P	(115,510)	-	-	-	(134,452)	(268,904)
25	Subordinated Debt Service Fund	L x O x Q	(54,500)	(802,648)	(878,858)	(406,280)	(450,850)	(903,034)
26	Miscellaneous Income & Expenses	M x O x Q	(4,096)	(1,056,712)	(16,816)	144,244	161,637	172,862
27	Less: Authority Debt-Related Expenses	N x P	2,658,738	4,792,415	6,332,687	6,965,956	7,662,552	8,428,807
28	Net Water Supply Capital-Related Costs		129,167,819	170,698,614	222,246,451	243,011,560	266,673,825	275,635,749

		2010	2011	2012-2015
Upstate Authority $ as a % of Total Authority CIP $	O	13.85%	14.48%	14.57%
Upstate Total CIP $ as a % of Total CIP $	P	12.38%	13.29%	13.45%
Upstate EFC $ as a % of Total EFC CIP $	Q	7.94%	9.43%	9.43%

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 $

	2008	2009	2010	2011
Cash Used for the Defeasance of Bonds	0	0	0	260,000,000
Upstate CIP $ as a % of Total Water/Sewer CIP $	9.91%	10.69%	12.38%	13.29%
Upstate Portion of Defeasance Cash	0	0	0	34,563,878

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

Year	Historical Costs ($)
1996	30,516
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
Average (1996-2010)	474,759
Projection Years (2011-2015)	474,759

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

Year	Hydropower	Rents (Permits)	Tax Refunds	Total
1996		810,460	116,415	926,875
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
Average		1,305,822		
Projection Years (2011-2015)				
2011	5,371,247	1,305,822	0	6,677,069
2012	5,478,672	1,305,822	0	6,784,494
2013	5,588,246	1,305,822	0	6,894,068
2014	5,700,011	1,305,822	0	7,005,832
2015	5,814,011	1,305,822	0	7,119,833

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 2008 $	FY 2009 $	FY 2010 $
	Divisional and Sectional Offices			
1	Katonah Resource Protection	95,349	109,469	109,469
2	Carmel Section	4,422,952	4,851,502	4,769,226
3	Prattsville/Schoharie	2,716,891	3,266,547	3,358,557
4	Ashokan	9,497,168	6,772,104	4,593,678
5	Grahamsville	5,160,760	6,083,083	5,989,394
6	Port Jervis	424,312	534,591	535,053
7	E. Division Hudson River P/S	205,846	224,051	843,844
	Laboratories			
8	Kensico	1,860,840	2,130,799	2,114,948
9	Grahamsville	858,944	944,365	1,100,373
	Other Services			
10	Ashokan	2,486,831	0	0
11	Downsville	3,044,880	3,652,338	3,909,858
12	Sutton Park	8,043,694	9,093,957	8,130,281
13	Kingston	1,712,099	8,690,591	9,391,175
14	Watershed Security (1)	11,582,349	10,753,602	11,453,983
15	Mobile Task Force	0	0	324,094
16	Watershed-East of Hudson	6,150,195	7,215,171	7,283,554
17	Upstate DWQC	155,401	0	0
18	Capital Construction	2,342,001	2,760,334	0
19	Water Plan and Protect	347,423	403,326	333,926
20	Mahopac	840,421	866,853	792,857
21	Hillview Reservoir	4,445,110	4,907,613	4,885,057
22	UV Facility	0	0	0
23	Direct Personnel Overtime Costs	4,234,579	3,579,827	2,824,259
24	**Total Personal Services Costs**	**70,628,046**	**76,840,122**	**72,743,588**

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 45% in FY 2008 and 51.0% in FY 2009, and 51.0% in FY 2010.
(3) Hillview Reservoir costs include overtime expenses, which are not included in Line 23.
(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 costs 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 2010 $	FY 2011 $	*Projected Years* FY 2012 $	FY 2013 $	FY 2014 $	FY 2015 $
	Divisional and Sectional Offices						
1	Katonah Resource Protection	109,469	97,072	111,521	114,867	118,313	121,862
2	Carmel Section	4,769,226	4,229,135	4,858,626	5,004,384	5,154,516	5,309,151
3	Prattsville/Schoharie	3,358,557	2,978,217	3,421,513	3,524,159	3,629,884	3,738,780
4	Ashokan	4,593,678	4,073,467	4,679,787	4,820,180	4,964,786	5,113,729
5	Grahamsville	5,989,394	5,311,125	6,101,665	6,284,715	6,473,257	6,667,454
6	Port Jervis	535,053	474,461	545,083	561,435	578,279	595,627
7	E. Division Hudson River P/S	843,844	748,283	859,662	885,452	912,015	939,376
	Laboratories						
8	Kensico	2,114,948	1,875,441	2,154,593	2,219,231	2,285,808	2,354,382
9	Grahamsville	1,100,373	975,761	1,121,000	1,154,630	1,189,269	1,224,947
	Other Services						
10	Ashokan	0	0	0	0	0	0
11	Downsville	3,909,858	3,467,086	3,983,149	4,102,643	4,225,722	4,352,494
12	Sutton Park (1)	8,130,281	7,209,567	8,282,683	8,531,164	8,787,099	9,050,712
13	Kingston	9,391,175	8,327,671	9,567,213	9,854,229	10,149,856	10,454,352
14	Watershed Security (2)	11,453,983	10,156,876	11,668,688	12,018,749	12,379,311	12,750,690
15	Mobile Task Force	324,094	287,392	330,169	340,075	350,277	360,785
16	East of Hudson Fleet	0	0	0	0	0	0
17	Ashokan Fleet Admin.	0	0	0	0	0	0
18	Downsville Fleet Admin.	0	0	0	0	0	0
19	Grahmsville Fleet Admin.	0	0	0	0	0	0
20	Watershed-East of Hudson	7,283,554	6,458,728	7,420,085	7,642,687	7,871,968	8,108,127
21	Upstate DWQC	0	0	0	0	0	0
22	Capital Construction	0	0	0	0	0	0
23	Water Plan and Protect	333,926	296,110	340,185	350,391	360,903	371,730
24	Mahopac	792,857	703,070	807,719	831,951	856,909	882,617
25	Hillview Reservoir	4,885,057	4,331,849	4,976,628	5,125,927	5,279,705	5,438,096
26	UV Facility	0	0	2,002,761	2,107,999	2,171,239	2,236,376
27	Direct Personnel Overtime Costs	2,824,259	2,504,426	2,877,200	2,963,516	3,052,421	3,143,994
28	**Total Personal Services Costs**	**72,743,588**	**64,505,738**	**76,109,930**	**78,438,383**	**80,791,534**	**83,215,280**

Notes:

(1) Sutton Park costs include costs for laboratories.

(2) Hillview, Croton, Ashokan, Schoharie, Kingston, Downsville, Neversink, Beerston & other watershed police locations.

(3) Personal service costs include salary and a fringe rate of 51% for FY 2010, 30% in FY 2011 and 45% in FY 2012-5.

(4) It is assumed that personal services costs will increase 3.0% per annum in FY 2011 - 2015.

(5) 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 2008 $	FY 2009 $	FY 2010 $
	Divisional and Sectional Offices			
1	Katonah Resource Protection	271,852	478,656	510,785
2	Carmel Section	485,479	339,064	568,738
3	Prattsville/Schoharie	0	0	0
4	Ashokan	3,145,601	407,214	281,923
5	Grahamsville	1,127,224	1,191,138	1,253,412
	Laboratories			
6	Kensico	357,663	514,579	532,743
7	Grahamsville	257,126	277,014	291,783
8	Giardia	0	0	0
	Other Services			
9	Ashokan	124,620	0	0
10	Downsville	116,509	129,291	135,494
11	Sutton Park	5,066,844	5,663,802	5,485,021
12	Kingston Office	2,073,143	5,599,005	5,967,691
13	Watershed Security (1)	1,803,001	1,910,026	2,042,598
14	Mobile Task Force	0	314,121	72,047
15	East of Hudson Fleet	424,843	447,635	471,562
16	Shokan Fleet Admin.	503,992	541,774	569,169
17	Downsville Fleet Admin.	93,856	97,739	105,715
18	Grahmsville Fleet Admin.	187,711	195,479	211,430
19	Watershed-East of Hudson	433,563	516,956	547,567
20	Indirect Personnel Overtime Costs	279,374	265,104	248,714
21	**Total Personal Services Costs**	**16,752,400**	**18,888,597**	**19,296,392**

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 45% in FY 2008 and 51.0% in FY 2009, and 51.0% in FY 2010.

(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 2010 $	FY 2011 $	*Projected Years* FY 2012 $	FY 2013 $	FY 2014 $	FY 2015 $
	Divisional and Sectional Offices						
1	Katonah Resource Protection	510,785	452,941	520,359	535,970	552,049	568,611
2	Carmel Section	568,738	504,332	579,400	596,781	614,685	633,125
3	Prattsville/Schoharie	0	0	0	0	0	0
4	Ashokan	281,923	249,997	287,208	295,824	304,699	313,840
5	Grahamsville	1,253,412	1,111,469	1,276,907	1,315,214	1,354,671	1,395,311
	Laboratories						
6	Kensico	532,743	472,413	542,729	559,011	575,782	593,055
7	Grahamsville	291,783	258,740	297,253	306,170	315,356	324,816
8	Giardia	0	0	0	0	0	0
	Other Services						
9	Ashokan	0	0	0	0	0	0
10	Downsville	135,494	120,150	138,034	142,175	146,440	150,833
11	Sutton Park	5,485,021	4,863,869	5,587,838	5,755,473	5,928,137	6,105,981
12	Kingston Office	5,967,691	5,291,879	6,079,555	6,261,942	6,449,800	6,643,294
13	Watershed Security (1)	2,042,598	1,811,284	2,080,887	2,143,313	2,207,613	2,273,841
14	Mobile Task Force	72,047	63,888	73,397	75,599	77,867	80,203
15	East of Hudson Fleet	471,562	418,160	480,402	494,814	509,658	524,948
16	Ashokan Fleet Admin.	569,169	504,713	579,838	597,233	615,150	633,605
17	Downsville Fleet Admin.	105,715	93,743	107,697	110,928	114,255	117,683
18	Grahmsville Fleet Admin.	211,430	187,487	215,393	221,855	228,511	235,366
19	Watershed-East of Hudson	547,567	485,558	557,831	574,566	591,803	609,557
20	Capital Construction	0	0	0	0	0	0
21	Env. Planning & Assess Float	0	0	0	0	0	0
22	Indirect Personnel Overtime Costs	248,714	220,548	253,376	260,977	268,807	276,871
23	**Total Personal Services Costs**	**19,296,392**	**17,111,171**	**19,658,103**	**20,247,846**	**20,855,282**	**21,480,940**

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 51% for FY 2010, 30% in FY 2011 and 45% in FY 2012-5.
(3) It is assumed that personal services costs will increase 3.0% per annum in FY 2011 - 2015.
(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	2008		2009		2010		Projection Years
1	Total Salaries - Employees North of the City	76,574,547		86,976,176		84,081,949		
2		---------- =	49.75%	---------- =	49.72%	---------- =	49.69%	49.69%
3	Total Salaries - All Water Supply Employees	153,906,802		174,918,510		169,224,599		
4	Head Count - Water Supply Employees	1,765		1,792		1,716		
5		---------- =	29.88%	---------- =	30.93%	---------- =	33.79%	33.79%
6	Head Count - All NYC DEP Employees	5,907		5,794		5,079		
7	Number of Vehicles - Water Supply	772		781		804		
8		---------- =	36.02%	---------- =	37.97%	---------- =	38.70%	38.70%
9	Number of Vehicles - All NYC DEP	2,143		2,058		2,079		

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 2008 $	FY 2009 $	FY 2010 $
1	Executive	9,044,130	9,570,413	8,520,749
2	General Counsel	2,418,636	2,755,505	2,862,128
3	Public Affairs	2,049,527	2,379,392	2,283,845
4	Env. Health & Safety	2,671,531	3,460,630	3,438,238
5	Environ. Planning	4,011,386	5,604,903	4,305,375
6	Budget Office	3,169,794	3,617,535	2,673,863
7	Facilities Mgt & Constr	4,822,144	6,495,786	6,159,133
8	Human Res & Labor Rel	12,732,366	14,252,387	14,147,931
9	Chief Contract Office	3,143,316	5,685,078	2,410,945
10	Environ. Coordination	1,268,882	0	0
11	Addt'l Exec & Support	944,705	242,059	360,861
12	Total DEP Executive and Support Personal Services Costs	46,276,417	54,063,688	47,163,068
13	Allocation to Water Supply	29.88%	30.93%	33.79%
14	Personal Services Costs Related to Water Supply	13,827,303	16,721,113	15,934,598
15	Allocation to Facilities North of NYC	49.75%	49.72%	49.69%
16	**Personal Services Costs Related to Facilities North of the City**	**6,879,614**	**8,314,377**	**7,917,360**

Notes:
(1) Personal service costs include salary and a fringe benefit rate of 45% in FY 2008 and 51.0% in FY 2009, and 51.0% in FY 2010.

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 2010 $	FY 2011 $	*Projected Years* FY 2012 $	FY 2013 $	FY 2014 $	FY 2015 $
1	Executive	8,520,749	7,555,816	8,680,471	8,940,885	9,209,111	9,485,385
2	General Counsel	2,862,128	2,538,006	2,915,779	3,003,252	3,093,350	3,186,150
3	Public Affairs	2,283,845	2,025,211	2,326,656	2,396,455	2,468,349	2,542,399
4	Env. Health & Safety	3,438,238	3,048,875	3,502,688	3,607,769	3,716,002	3,827,482
5	Environ. Planning	4,305,375	3,817,813	4,386,080	4,517,662	4,653,192	4,792,788
6	Budget Office	2,673,863	2,371,061	2,723,984	2,805,704	2,889,875	2,976,571
7	Facilities Mgt & Constr	6,159,133	5,461,642	6,274,586	6,462,824	6,656,708	6,856,410
8	Human Res & Labor Rel	14,147,931	12,545,748	14,413,135	14,845,529	15,290,895	15,749,622
9	Chief Contract Office	2,410,945	2,137,917	2,456,138	2,529,822	2,605,717	2,683,888
10	Environ. Coordination	0	0	0	0	0	0
11	Addt'l Exec & Support	360,861	319,996	367,626	378,654	390,014	401,714
12	Total DEP Personal Services Costs	47,163,068	41,822,085	48,047,141	49,488,556	50,973,212	52,502,409
13	Allocation to Water Supply	33.79%	33.79%	33.79%	33.79%	33.79%	33.79%
14	Personal Services Costs Related to Water Supply	15,934,598	14,130,084	16,233,293	16,720,292	17,221,900	17,738,557
15	Allocation to Facilities North of NYC	49.69%	49.69%	49.69%	49.69%	49.69%	49.69%
16	**Personal Services Costs - Facilities North of the City**	**7,917,360**	**7,020,758**	**8,065,771**	**8,307,744**	**8,556,977**	**8,813,686**

Notes:
(1) Personal service costs include salary and a fringe rate of 51% for FY 2010, 30% in FY 2011 and 45% in FY 2012-5.
(2) It is assumed that personal services costs will increase 3.0% per annum in FY 2011 - 2015.
(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. 2008 $	F.Y. 2009 $	FY 2010 $
1	Accounting	106,591	111,711	142,037
2	Executive and Support	37,660	39,441	75,764
3	Fleet Administration	6,313,067	4,685,760	5,139,528
4	Public Affairs	1,157,179	417,327	256,373
5	Facilities Management and Construction	1,072,530	1,119,587	1,038,827
6	Management and Budget	3,308,213	6,763,722	1,559,049
7	Management Information Systems	5,077,917	3,671,431	4,787,527
8	Chief Engineer	62,413	68,601	79,206
9	Legal	82,932	99,869	93,403
10	Environmental Assessment	275,308	155,061	45,794
11	Telephone	3,639,384	3,232,268	5,050,848
12	Lefrak Administration Rents	4,188,629	4,276,646	4,260,549
13	Facility Management Rents	468,992	469,681	374,440
14	Management and Budget Environmental Health/Safety	808,689	1,144,326	437,117
15	Security Services	0	0	1,696,492
16	Contractual Services	0	0	62,477
17	Total OTPS to be Allocated	26,599,504	26,255,430	25,099,431
18	Allocation	29.88%	30.93%	33.79%
19	OTPS Allocation (line 15 X line 16)	7,947,880	8,120,423	8,480,138
20	Rents Other Than Lefrak	1,341,940	1,548,183	1,516,245
21	Lefrak Water Supply Rents	857,581	887,561	1,533,458
22	Total Rents (line 18 + line 19)	2,199,521	2,435,744	3,049,703
23	Motor Vehicle Operating Rents	1,337,650	1,410,137	1,110,653
24	Allocation	36.02%	37.97%	38.70%
25	Total Motor Vehicle Operating Rents (line 21 X line 22)	481,879	535,360	429,778
26	Motor Vehicle Parking	300,000	345,000	345,000
27	Allocation	16.82%	18.38%	19.81%
28	Total Motor Vehicle Parking (line 24 X line 25)	50,462	63,423	68,361
29	Cafeteria	316,234	323,905	324,963
30	Allocation	12.51%	14.52%	14.47%
31	Total Cafeteria (line 27 X line 28)	39,547	47,041	47,030
32	Total OTPS Costs Allocated to Water Supply at DEP (1)	10,719,288	11,201,992	12,075,010
33	Allocation to Facilities North of NYC	49.75%	49.72%	49.69%
34	OTPS Costs Related to Facilities North of the City	5,333,258	5,570,059	5,999,662

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 2010 $	FY 2011 $	*Projected Years* FY 2012 $	FY 2013 $	FY 2014 $	FY 2015 $
1	Accounting	142,037	146,298	150,687	155,208	159,864	164,660
2	Executive and Support	75,764	78,037	80,378	82,789	85,273	87,831
3	Fleet Administration	5,139,528	5,293,714	5,452,525	5,616,101	5,784,584	5,958,121
4	Public Affairs	256,373	264,064	271,986	280,146	288,550	297,206
5	Facilities Management and Construction	1,038,827	1,069,992	1,102,091	1,135,154	1,169,209	1,204,285
6	Management and Budget	1,559,049	1,605,821	1,653,995	1,703,615	1,754,724	1,807,365
7	Management Information Systems	4,787,527	4,931,153	5,079,088	5,231,460	5,388,404	5,550,056
8	Chief Engineer	79,206	81,582	84,030	86,551	89,147	91,822
9	Legal	93,403	96,205	99,091	102,064	105,126	108,280
10	Environmental Assessment	45,794	47,168	48,583	50,041	51,542	53,088
11	Telephone	5,050,848	5,202,373	5,358,444	5,519,197	5,684,773	5,855,317
12	Lefrak Administration Rents	4,260,549	4,388,365	4,520,016	4,655,617	4,795,285	4,939,144
13	Facility Management Rents	374,440	385,673	397,243	409,161	421,435	434,079
14	Management and Budget Environmental Health/Safety	437,117	450,231	463,738	477,650	491,979	506,739
15	Security Services	1,696,492	1,747,387	1,799,808	1,853,803	1,909,417	1,966,699
16	Contractual Services	62,477	64,352	66,282	68,271	70,319	72,428
17	Total OTPS to be Allocated	25,099,431	25,852,414	26,627,986	27,426,826	28,249,630	29,097,119
18	Allocation	33.79%	33.79%	33.79%	33.79%	33.79%	33.79%
19	OTPS Allocation (line 16 X line 17)	8,480,138	8,734,543	8,996,579	9,266,476	9,544,470	9,830,805
20	Rents Other Than Lefrak	1,516,245	1,561,733	1,608,585	1,656,842	1,706,548	1,757,744
21	Lefrak Water Supply Rents	1,533,458	1,579,461	1,626,845	1,675,651	1,725,920	1,777,698
22	Total Rents (line 19 + line 20)	3,049,703	3,141,194	3,235,430	3,332,493	3,432,468	3,535,442
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	38.70%	38.70%	38.70%	38.70%	38.70%	38.70%
25	Total Motor Vehicle Operating Rents (line 22 X line 23)	429,778	442,671	455,951	469,630	483,719	498,230
26	Motor Vehicle Parking	345,000	355,350	366,011	376,991	388,301	399,950
27	Allocation	19.81%	19.81%	19.81%	19.81%	19.81%	19.81%
28	Total Motor Vehicle Parking (line 25 X line 26)	68,361	70,411	72,524	74,700	76,941	79,249
29	Cafeteria	324,963	334,712	344,753	355,096	365,749	376,721
30	Allocation	14.47%	14.47%	14.47%	14.47%	14.47%	14.47%
31	Total Cafeteria (line 26 X line 27)	47,030	48,441	49,894	51,391	52,933	54,521
32	Total OTPS Costs Allocated to Water Supply at DEP [(1)]	12,075,010	12,437,260	12,810,378	13,194,689	13,590,530	13,998,246
33	Allocation to Facilities North of NYC	49.69%	49.69%	49.69%	49.69%	49.69%	49.69%
34	**OTPS Costs Related to Facilities North of the City**	**5,999,662**	**6,179,652**	**6,365,041**	**6,555,992**	**6,752,672**	**6,955,252**

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%
Projections:				
27	2011	412,506	41,256	10.00%
28	2012	406,298	40,848	10.05%
29	2013	400,091	40,441	10.11%
30	2014	393,883	40,034	10.16%
31	2015	387,675	39,627	10.22%

Notes:

(1) Consumption projections are based on a regression analysis beginning in 2001.

(2) Equation used to calculate System-wide Consumption:
y=m(t)+b. Where (t) is a given year.
m= -6207.749097
b= 12896289

(3) Equation used to calculate Upstate Consumption:
y=m(t)+b. Where (t) is a given year.
m= -407.12
b= 859,965.63

Table 14 Projected Revenues from Hydroelectric Facilities

Table 14

NYC Department of Environmental Protection
Gross Revenue Estimates for Upstate Hydro-Electric Facilities (2)

Revenues	Year 2011	2012	2013	2014	2015
Ashokan & Kensico	$ -	$ -	$ -	$ -	$ -
Neversink	$ 1,962,779	$ 2,002,034	$ 2,042,075	$ 2,082,917	$ 2,124,575
West Delaware	$ 97,920	$ 99,878	$ 101,876	$ 103,914	$ 105,992
East Delaware	$ 3,310,549	$ 3,376,759	$ 3,444,295	$ 3,513,181	$ 3,583,444
Summary	$ 5,371,247	$ 5,478,672	$ 5,588,246	$ 5,700,011	$ 5,814,011

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 (e)
New York City Water Board
Cost of Supplying Water to Upstate Customers
Cost-of-Service Reconciliation

Fiscal Year	Rate per Million Gallons (MG) (a) Billed to Upstate Customers	Computed Cost to the Board	Upstate Consumption	Total Billed	Actual Cost	Underpayment
1994 (b)	165.23	211.6	43,221	7,141,373	9,145,521	2,004,148
1995 (b)	174.18	229.87	43,915	7,649,115	10,094,741	2,445,626
1996 (b)	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 (c)	43,400	21,079,814	22,697,766	1,617,952
2004	542.36	529.85 (c)	43,198	23,428,650	22,888,248	-540,402
2005	591.21	591.91 (d)	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
			Total Underpayment 1994-2010			13,737,235
			Total Underpayment 2001-2010			-785,399

(a) From 1973 to 1992, customers using Croton water were charged $76.87 per million gallons and customers using Catskill/Delaware water were charged $103.72 per million gallons. Prior to the 1993 rate increase, communities using water from the Croton System were billed at a different regulated rate than communities using water from the Catskill/Delaware System. Since 1993, a uniform rate has been used for all upstate customers.

(b) The rates approved by NYSDEC were: $137.73 per million gallons for 1993, $158.31 for 1994 and $175.69 for both 1995 and 1996.

(c) 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.

(d) The rate shown above for 2005 & 2006 includes the costs of defeasance in those years.

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