

New York City Water Board

**Report on the Cost of Supplying Water to Upstate
Customers for the 2010 Rate Year**

May 2009

**Amawalk
Consulting Group LLC**

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 2010 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 2006 through 2008. 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 2009 through 2013 (the "Projection Period").

The Report shows that the cost of water supply service will increase in each year of the Projection Period. The increases are primarily attributable to rising operating expenses, particularly in the property taxes levied on watershed properties and the cost of labor, 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 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 Office of the Comptroller, 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

Table of Contents

1.0	INTRODUCTION	4
1.1	PURPOSE.....	4
1.2	SCOPE.....	4
1.3	BACKGROUND	4
1.3.1	The Water Supply System.....	5
1.3.1.1	The Croton System	5
1.3.1.2	The Catskill System.....	5
1.3.1.3	The Delaware System	5
1.3.1.4	The Well System.....	7
1.3.1.5	The Catskill Aqueduct	7
1.3.1.6	The Delaware Aqueduct	7
1.3.1.7	Long-Term System Capacity	7
1.3.2	Condition of the Water Supply System.....	8
1.3.2.1	The Rondout-West Branch Tunnel.....	8
1.3.2.2	The Gilboa Dam	9
1.3.3	The Dependability Program.....	9
1.3.4	Water Quality and Treatment.....	10
1.3.4.1	Filtration in the Croton System.....	10
1.3.4.2	Watershed Protection/Filtration Avoidance in the Catskill and Delaware Systems.....	11
1.3.4.3	Disinfection Requirements	13
1.3.5	Water Quality Monitoring.....	15
1.3.6	Governmental Regulation	15
1.3.7	Drought Management	16
1.3.8	Pending Litigation.....	16
1.3.9	Court-Appointed Monitor	18
1.3.9	Hillview Reservoir	19
1.4	WATER CONSERVATION	20
1.5	THE ROLES OF THE AUTHORITY, THE BOARD AND THE CITY IN THE WATER SUPPLY SYSTEM.....	20
2.0	THE SALE OF WATER TO CUSTOMERS NORTH OF THE CITY	22
2.1	BACKGROUND	22
2.2	RATES AND CHARGES FOR UPSTATE CUSTOMERS	22
3.0	COST OF SERVICE METHODOLOGY	25
3.1	OVERVIEW.....	25
3.2	PROCEDURES FOR CALCULATING THE COST OF SERVICE	25
3.2.1	Step A	25
3.2.2	Step B	26
3.2.3	Step C	26
3.2.4	Step D.....	26
3.2.5	Step E.....	27
3.2.6	Step F.....	27
3.2.7	Graphical Overview	27
3.3	COMPUTATION OF THE REGULATED RATE	29
3.4	SOURCES OF DATA AND BASIS OF PRESENTATION	29
4.0	COMPUTATION OF THE COST OF SERVICE AND THE REGULATED RATE.....	30
4.1	INTRODUCTION	30
4.2	BUREAU OF WATER SUPPLY COSTS RELATED TO FACILITIES LOCATED NORTH OF THE CITY - STEP A.....	30
4.2.1	Other Than Personal Services Costs	31
4.2.1.1	Real Estate Taxes.....	34
4.2.1.2	Chemicals	36
	Historical Chemical Use, in Tons.....	36

4.2.1.3	Operating Expenses Associated with Hillview Reservoir	37
4.2.1.4	Contractual Services	38
4.2.1.5	Rate Studies	38
4.2.1.6	Other OTPS Expenses	38
4.2.1.7	UV Facility	38
4.2.2	Debt Service/Capital Improvement Financing	39
4.2.2.1	Historical Investments in the Water System	39
4.2.2.2	Debt Service Related to the Water System	39
4.2.2.3	Cash-Financed Construction.....	41
4.2.2.4	Cash Used for the Defeasance of Bonds.....	41
4.2.2.5	Ongoing and Future Capital Improvements.....	42
4.2.2.6	Capital Cost Summary	42
4.2.3	Judgments and Claims.....	42
4.2.4	Miscellaneous Revenue.....	42
4.2.5	Personal Service Costs	43
4.3	CALCULATION OF ALLOCATION PERCENTAGES - STEP B	44
4.4	ALLOCATION OF DEPARTMENT OF ENVIRONMENTAL PROTECTION COSTS - STEP C	44
4.5	ALLOCATION OF CITY CENTRAL SERVICE COSTS - STEP D	45
4.6	COST OF SERVICE - STEP E	45
4.7	CALCULATION OF THE REGULATED RATE - STEP F	47
4.8	ADDITIONAL ISSUES RELATING TO THE COST OF SERVICE AND THE REGULATED RATE	50
4.8.1	Operating Risks.....	50
4.8.2	Water Conservation Initiatives.....	50
4.8.3	Upstate Wastewater Treatment Plants.....	51
5.0	IMPACTS ON CUSTOMERS OF THE PROPOSED REGULATED RATE	52
5.1	CUSTOMER IMPACTS	52

List of Figures and Tables

Figure 1	Map of the Water Supply System.....	6
Figure 2	Diagram of Calculation.....	28
Figure 3	Projected Fiscal Year 2010 Other Than Personal Services Costs	33
Figure 4	Real Estate Taxes	35
Figure 5	Projected Fiscal Year 2010 Cost of Service Components	46
Figure 6	Comparison of Water System Consumption	49
Figure 7	Impact of Cost of Service and Consumption on Unit Rate	53
Table 1A	Historical Cost of Service	55
Table 1B	Cost of Service Projections.....	56
Table 2A	Current Water Rates for Upstate New York Communities	57
Table 2B	Current Water Rates for Upstate New York Communities	58
Table 3	Summary of Impacts on Upstate Customers	59
Table 4A	Historical Upstate Other Than Personal Services Costs	60
Table 4B	Projected Upstate Other Than Personal Services Costs.....	61
Table 5A	Debt Service Summary	62
Table 5B	Debt Service/Capital Costs	63
Table 5C	Authority Bond Proceeds.....	64
Table 5D	NYSEFC Bond Proceeds.....	65
Table 5E	Fiscal Year 2005 and 2006 - 1980's G.O. Debt Service.....	66
Table 5F	Fiscal Year 2007 and 2008 - 1980's G.O. Debt Service.....	67
Table 5G	2006 - 2008 Defeasance of Bonds	68
Table 6	Judgments and Claims	69
Table 7	Miscellaneous Revenue.....	70
Table 8A	Historical Upstate Direct Personal Services Costs.....	71
Table 8B	Projected Upstate Direct Personal Services Costs	72
Table 9A	Historical Upstate Indirect Personal Services Costs	73
Table 9B	Projected Upstate Indirect Personal Services Costs.....	74
Table 10	Development of Allocation Factors	75
Table 11A	Historical Allocation of DEP Personal Services Costs	76
Table 11B	Projected Allocation of DEP Personal Services Costs.....	77
Table 12A	Historical Allocation of DEP Other Than Personal Services Costs	78
Table 12B	Projected Allocation of DEP Other Than Personal Services Costs.....	79
Table 13	Annual Water Consumption	80
Table 14	Projected Net Revenues From Hydroelectric Facilities	81
Table 15	Comparison of Upstate Customer Billings vs. Cost of Service.....	82

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 2010 to recover the cost of service. The Report also presents the calculated cost of service and rates for Fiscal Years 2006 through 2008; the anticipated cost of service and rate for 2009, the current year; and the projected cost of service and rates for 2011 through 2013.

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 2010 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 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 for 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 regions 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.

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. The Croton System typically provides 10% of the water supplied by the City's Water System. 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. The Croton System can provide a substantially higher percentage of the daily supply during normal operating conditions and drought conditions.

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 Esopus Creek flows naturally into the Hudson River and drains an area of about 257 square miles. The Schoharie Creek flows into the Mohawk River and drains an area of 314 square miles. The greater part of the water from these two watershed areas is stored in the Ashokan Reservoir and the balance in the Schoharie 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, Pepacton Reservoir, and Neversink Reservoir. Water from these reservoirs is conveyed eastward through separate rock tunnels: West Delaware, East Delaware, and Neversink; to Rondout Reservoir where the Delaware Aqueduct begins.

Figure 1 Map of the Water Supply System



The Delaware System may be augmented by a standby pump station at Chelsea, New York (the "Chelsea Pump Station") that draws from the Hudson River. The Chelsea Pump Station has a

capacity of 100 million gallons per day (mgd) and is connected to the Delaware Aqueduct. The Station pumped approximately 82 mgd of water from the River for almost five months during the 1985 drought and approximately 90 mgd in May of 1989.

1.3.1.4 The Well System

Wells in the Borough of Queens typically provide less than 1% of the City's daily water supply. 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.

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 (formerly Metcalf & Eddy of New York, Inc.), the consulting engineer to the New York City Municipal Water Finance Authority (“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 two of these initiatives is presented in this part of the Report.

1.3.2.1 The Rondout-West Branch Tunnel

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. The Rondout-West Branch Tunnel is 44.7 miles long and conveys water under the Hudson River and into the West Branch Reservoir. It normally conveys about 50% of the City’s water supply. It is unique in that it has the highest pressures and the highest velocities in the 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.

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 intends to make the necessary repairs. The costs to perform such repairs could be substantial depending on the nature of the required repair. To perform the repair work, the tunnel will probably have to be shut down and de-watered. During any such period, it will be necessary for the City and its water supply customers north of the City to increase their reliance on other water supplies and to implement more stringent measures to encourage conservation and decrease demand. Under an extended shutdown of this tunnel, water quality in the remaining reservoirs could potentially suffer as storage volumes are drawn down. In general, the Delaware System continues to demonstrate a high degree of reliability after 55 years of continuous service. Nevertheless, DEP considers it prudent to conduct regular tunnel and aqueduct inspections and surveys to detect problems that might arise so that corrective actions can be taken if needed.

On August 15, 2007, the Office of the State Comptroller issued a report detailing its audit of DEP’s plans and preparation for the repair and monitoring of the Rondout-West Branch Tunnel. The audit report contained seven recommendations which are largely reflected in current DEP policy. DEP commented that three assertions made in the audit should be corrected: (i) that the

leak causes lost revenue; (ii) the leak has increased over time; and (iii) DEP has not upgraded its emergency plan. DEP submitted the following corrections to the three assertions: (i) the leak does not result in lost revenue; (ii) tests and monitoring have established that the tunnel structure and the leakage rate are stable; and (iii) although the leak is stable, DEP is upgrading its emergency plan. Although the final report appended these comments, the text of the report was not adjusted to correct these inaccuracies.

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 has been initiated on the crest gates, which will increase DEP’s ability to monitor the Schoharie Reservoir and maintain it at proper levels. Site preparation work is scheduled to begin in Fiscal Year (“FY”) 2010, and full reconstruction, which is anticipated to bring the dam up to compliance with NYSDEC safety guidelines for new dams, is expected to begin in FY 2011. The estimated cost to complete the rehabilitation is \$616 million, all of which is currently included in the CIP.

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 which, when combined, could allow for any portion of the System to be taken out of service for a period of up to one year. 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 portion of the potential future tunnels is the Kensico-City Tunnel as outlined below.

The Kensico-City Tunnel will extend from the Kensico Reservoir to the interconnecting chamber of City Tunnel 3, Stage I, south of Hillview Reservoir. 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 which 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, except for the SWTR, was delegated by USEPA to the New York State Department of Health (“NYSDOH”). USEPA has delegated primary enforcement responsibility for the SWTR to NYSDOH for all systems in the State of New York (the “State”) other than the Catskill and Delaware Systems. 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 to reduce the bacterial content and the turbidity. 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 Croton Filter Consent Decree sets forth milestones, including commencement of operations of the facility on October 31, 2011 which, if not met by the City, require the payment of penalties to the State and federal governments.

From time to time, the Croton System has failed to meet the water quality standard for haloacetic acids, a disinfection by-product regulated by USEPA. Pursuant to a USEPA Administrative Order issued in June 2003, DEP has evaluated feasible and cost-effective interim measures that could be taken to reduce haloacetic acid levels in Croton water until the Croton filtration plant is completed. It is anticipated that the Croton System will be used only intermittently and for short periods over the next few years. As such, DEP has determined that implementation of such interim measures is not needed at present due to the very limited use of the Croton system.

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

On January 21, 1997, the City and the State executed a Watershed Memorandum of Agreement with the communities in the Catskill, Delaware, and Croton watersheds, USEPA, and several environmental groups. The Watershed Memorandum of Agreement supplemented the City’s existing watershed protection program with approximately \$400 million in additional funding for economic-environmental partnership programs with upstate communities. Most of this funding has been provided through the issuance of Authority bonds. As provided under the Watershed Memorandum of Agreement, the State has issued a land acquisition permit to the City to acquire water quality sensitive land in the watershed until January 2012, and has approved the City’s revised rules and regulations governing certain aspects of land use in the watershed.

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. If the City were 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. 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 that the City to take certain actions to protect the Catskill and Delaware water supplies. These actions include the continuation and enhancement of certain environmental and economic partnership programs established under the Watershed Memorandum of Agreement, and the creation of new programs.

Since 1997, the FAD has required that the City solicit property from owners of land in the watershed and actually acquire (with certain limited exceptions) title to or conservation

easements on any solicited land if the owner accepts the City's purchase price. The 2007 FAD requires the City to allocate a total of \$300 million for land acquisition during its ten year term, including approximately \$59 million of unspent funds remaining from moneys set aside for land acquisition under the Watershed Memorandum of Agreement and the previous FAD and \$241 million in new funding. In addition, the City is obligated to develop and implement a strategy to augment its land acquisition efforts through increased participation of land trusts and other non-governmental organizations in identifying and helping the City acquire eligible lands. As of January 5, 2009, title to or conservation easements on approximately 93,400 acres of land in the Catskill and Delaware watersheds at a cost of approximately \$306 million have either been acquired or are under contract for acquisition. The current NYSDEC land acquisition permit allowing the City to continue its watershed land acquisition program expires in early 2012. It will be necessary for DEP to obtain a new permit in order to continue acquiring watershed land during the second five years of the 2007 FAD. Under the 2007 FAD DEP must apply for the new permit in early 2010. Other stakeholders will have the opportunity, as part of the permitting process, to oppose the issuance of the permit or to request the inclusion of conditions or limitations on such permit. A failure to obtain such a permit will impact DEP's ability to comply with the 2007 FAD.

The 2007 FAD also calls for the continuation, during its first five years, of many of the City's other successful watershed protection programs that were part of the previous FAD, with additional enhancements to several programs including the Community Wastewater Management Program and the Stream Management Program. Prior to commencement of the second five years of the 2007 FAD, the City will need to reach agreement with USEPA and NYSDOH on which of such programs should be further continued into the second five-year period, whether and how any such programs to be further 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 will prepare a Revised Long Term Watershed Protection Program, to be submitted to USEPA/ NYSDOH by December 15, 2011.

On September 12, 2007, the Coalition of Watershed Towns and three individual towns in the watershed filed a petition for review in the U.S. Court of Appeals for the Second Circuit, challenging the USEPA's issuance of the 2007 FAD. The petitioners claim: first, that based on language in the Watershed Memorandum of Agreement, and correspondence between USEPA and NYSDOH in 1997, primary responsibility for administering the SWTR for the Catskill and Delaware water supplies should have been transferred to NYSDOH in May 2007 and, therefore, USEPA lacked authority in July 2007 to issue the 2007 FAD for Catskill and Delaware systems; and, second, that the Watershed Control Program embodied in the 2007 FAD does not conform to the SWTR requirement that the water supplier demonstrate "through ownership and/or written agreements with landowners within the watershed that it can control all human activities which may have an adverse impact on the microbiological quality of the source water." On December 29, 2008, the Second Circuit denied the petition, finding that petitioners lacked constitutional standing to assert these claims. On January 12, 2009, petitioners filed a petition for rehearing en

banc. An adverse determination on the first claim could invalidate the 2007 FAD and require that a new FAD be issued by NYSDOH. An adverse determination on the second claim could invalidate the 2007 FAD and prevent either USEPA or NYSDOH from issuing a new FAD. USEPA and the other respondents are actively defending the 2007 FAD.

There has been increased interest in natural gas drilling in southeastern New York State, including the watershed. DEP has hired a geological consultant and is monitoring the situation to understand what impact, if any, such exploration may have on the System, including any potential impact on water quality. DEP is working closely with State and federal agencies on this effort, and will endeavor to ensure that any exploration or drilling activities are conducted in an appropriate manner that is protective of the watershed and water quality. NYSDEC is preparing a draft supplemental generic environmental impact statement relating to natural gas drilling, which is expected to be released for comment in Spring 2009. To date, no permits have been filed to drill for natural gas in the watershed.

In addition, the City is pursuing other approaches to protect Kensico water quality including investigating whether local governments in the basin can provide assistance in acquiring and preserving open space for watershed protection and whether, in cooperation with USEPA and local property owners, a non-regulatory program can be developed to encourage additional actions to protect water quality beyond the requirements of the City's watershed regulations. The City has already devoted substantial efforts aimed at protecting the Kensico Reservoir, including the installation of stormwater best management practices on numerous parcels of land adjacent to the reservoir.

The City believes that its regulatory efforts to protect its water supply will preserve the high quality of the water in the Catskill and Delaware watersheds and, together with the other elements of the City's watershed protection program, will avoid the need for filtration of these water systems. Current and future calculations of the cost of water supply service and water rates will reflect investments made in the watershed through increasing operating expenses and debt service on bonds of the Authority, the proceeds of which will be used to pay for land acquisition and other capital improvements in the watershed. The resulting costs and impacts on water rates will be significantly less than what would be required if the City were directed to provide filtration for the Catskill and Delaware Systems.

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"). Compliance with these regulations may require additional capital costs, not all of which are currently included in the CIP.

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”). 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 is already a party to an Administrative Order with NYSDOH (“Hillview Administrative Order”) which requires, among other things, that the City install or construct a cover for the Hillview Reservoir. DEP is seeking a variance from the LT2 requirement that Hillview Reservoir be covered as a finished water storage facility, which, if granted, would also exempt DEP from the requirement to cover the reservoir under the Hillview Administrative Order. There can be no assurance that such variance will be obtained. The cost of covering the Hillview Reservoir is expected to be approximately \$1.6 billion, \$500 million of which is included in the CIP.

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. At DEP’s request, USEPA extended the milestone in the UV Order for issuance of a notice to proceed on such contract from October 31 to December 31, 2007. In December 2007, DEP notified USEPA that it would miss the December 31, 2007 milestone for issuance of the notice to proceed. The notice to proceed was issued on January 31, 2008. While the UV Order does not provide for stipulated penalties, DEP can be assessed penalties of up to \$37,500 per day for each missed milestone under the SDWA. Violations of the UV Order could also affect DEP’s standing under the terms of the FAD. The cost to complete the UV Facility is fully funded in the CIP.

The purpose of DBP2 is to reduce the potential health risks associated with disinfection byproducts, which are chemical compounds formed when disinfectants such as chlorine are added to drinking water. Based on preliminary assessments, DEP believes that the mandated level of disinfection byproducts set forth by DBP2 may be exceeded in certain parts of the System. DEP hired a consultant to study the matter and issue a report recommending steps to be taken by DEP. The final report was issued in October 2008. The report does not suggest switching to chloramination (an alternative form of disinfectant) at this time, but does recommend that DEP leave space available at its facilities to accommodate the use of chloramination in the event that a change in disinfection is necessary in the future. The report also makes certain recommendations regarding DEP’s operation of the water supply system, which will improve DEP’s ability to achieve compliance with DBP2. There are no significant capital improvement issues related to the recommendations set forth in the report.

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 six laboratories employing approximately 250 bacteriologists, engineers, chemists, hydrologists and limnologists to monitor water quality. In 2007, DEP collected more than 30,600 samples from the City's distribution system and performed more than 426,800 analyses. Routine checks are made for more than 60 different substances, including heavy metals and trace organics. In addition to the monitoring program, DEP watershed inspectors run sanitary surveys and 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 City's 2007 CCR covering the calendar year 2007, the most recent such report, demonstrates that the quality of the City's drinking water remains high. The CCR noted several exceedences of standards of naturally-occurring elements iron and manganese, as well as a treatment technique violation, violation of State monitoring requirements in the Groundwater System and pH exceedences in the Catskill and Delaware Systems. None of these exceedences are considered by DEP to be harmful to public health. DEP issued a public notification about the treatment technique violation and has taken steps to address the cause of the violation.

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 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 federal Safe Drinking Water Act ("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.

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 13, 2009, the System's reservoirs were filled to 96% of capacity. Normal levels at this time of year are approximately 100% 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. New York State Department of Health ("NYSDOH"), NYSDEC, and the Delaware River Basin Commission (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 Supply 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.

As a result of federal litigation resulting in a determination that a 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. The SPDES permit issued by NYSDEC requires, among other things, that DEP submit a report for approval indicating what short-term and long-term structural measures it intends to undertake to achieve compliance with the permit's temperature and turbidity limits. DEP submitted its report in December 2006, which analyzed several alternatives including construction of a multiple level intake (with an estimated cost of between \$74 million and \$360 million depending on location), and modification of existing operations at Schoharie Reservoir (from which water is diverted into the Shandaken Tunnel), using a highly sophisticated water simulation tool (with an estimated cost of \$6.2 million). The report recommends that DEP implement the latter alternative.

On September 22, 2006, the plaintiffs in the federal litigation commenced a proceeding against NYSDEC and DEP under Article 78 of the Civil Practice Law and Rules, in State Supreme Court in Ulster County, seeking to overturn the SPDES permit issued by NYSDEC on September 1, 2006. After the matter was briefed and argued, but before a decision was issued, USEPA adopted the Water Transfers Rule, which clarifies that, contrary to the holdings in the federal litigation describe above, water transfers such as the Shandaken Tunnel are not subject to the Clean Water Act NPDES program. On July 25, 2008, the City filed a motion, based on the new rule, for leave to amend its answer to include both an additional defense against petitioners' challenges to the content of the permit, and also a cross-claim against NYSDEC requesting that the court void the permit entirely. On August 5, 2008, before that motion was fully briefed or decided, the court issued a decision essentially granting the underlying Article 78 petition, finding that the "exemptions" in the permit are not authorized under the Clean Water Act and directing the City to apply for variances. The court allowed the current permit to remain in effect during that regulatory process. Because, however, the City believes, based on the Water Transfers Rule, that the Clean Water Act NPDES program does not apply to the Shandaken Tunnel at all, the City is appealing, arguing that the City should not be required to submit to NYSDEC jurisdiction for variance proceedings unless, at a minimum, an appellate court determines that NYSDEC in fact has jurisdiction.

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 is vigorously defending all of these claims.

On September 12, 2007, the Coalition of Watershed Towns and three individual towns in the watershed filed a petition for review in the Federal Circuit Court of Appeals for the Second Circuit, challenging the USEPA's issuance of the 2007 FAD on both procedural and substantive grounds. On December 29, 2008, the Second Circuit denied the petition, finding that petitioners

lacked constitutional standing to assert these claims. On January 12, 2009, petitioners filed a petition for rehearing en banc. An adverse determination on the procedural claim could invalidate the 2007 FAD and require that a new FAD be issued by NYSDOH. An adverse determination on the substantive claim could invalidate the 2007 FAD and prevent either USEPA or NYSDOH from issuing a new FAD. The same petitioners also filed a proceeding in State Court against the City and the State challenging the environmental review of the 2007 FAD. That litigation has been suspended pending settlement discussion.

On September 26, 2007, the Delaware County Supreme Court ruled in Worcester Creameries Corp. v. City of New York that the City is responsible for all costs associated with equipment required solely by the City's Watershed Regulations and not otherwise required under State or federal law at certain private wastewater treatment plants in the watershed. The court also held that Section 1105 of the Public Health Law entitles "any property owner to recover damages caused by the City's enforcement of its Watershed Regulations." The City believes that this broad reading of Section 1105 conflicts with three recent Second Department decisions. The City is appealing the Worcester Creameries decision. The City's appeal of the Worcester Creameries decision will be argued on May 28, 2008. On November 7, 2007, the Greene County Supreme Court issued a decision in Amy's Take Away, Inc. v. City of New York, another case involving the scope of the City's obligations under Section 1105 of the Public Health Law. In contrast to the court in Worcester Creameries, the Greene County court agreed with the City's and the Second Department's narrow interpretation of Section 1105. Greene County and Delaware County are both in the Third Department. If the Worcester Creameries decision is ultimately affirmed upon appeal, the City could incur substantial costs in connection with the administration and enforcement of the City's Watershed Regulations.

1.3.9 Court-Appointed Monitor

In August 2001, DEP pled guilty to a criminal violation of the Clean Water Act and a criminal violation of the Toxic Substances Control Act in connection with the operation of the water supply system. The Clean Water Act violation is based on the discharge of water containing low levels of mercury from a DEP facility in Sullivan County. The Toxic Substances Control Act violation is based on DEP's use of flow control equipment that contains PCBs in other than a totally enclosed manner in Westchester County. The federal government, NYSDOH and DEP have all indicated that the water supply remains safe with regard to mercury, PCBs and lead. DEP has been and continues to be engaged in programs to remediate mercury, PCBs, lead and other constituents of concern from the affected facilities. In addition, pursuant to the plea agreement, DEP is developing a comprehensive environmental, health and safety ("EH&S") compliance program with respect to the water supply system and its upstate wastewater treatment plants, aimed at detecting and preventing violations of environmental health and safety laws. A federal monitor has been appointed to oversee DEP's compliance with the plea agreement, including the development and implementation of the aforementioned EH&S compliance program. DEP's operation and management of the System will not materially change as a result of the plea.

On August 14, 2003, the City (along with major portions of the northeastern United States) experienced a massive power blackout. With the loss of electrical power during the blackout, DEP's North River and Red Hook water pollution control plants were unable to treat wastewater being conveyed to those facilities, resulting in the outflow of untreated wastewater into the waters of New York Harbor. The United States Attorney's Office for the Southern District of New York conducted an investigation into operations at the two plants in connection with the blackout. On January 13, 2006, DEP entered into an agreement with the United States Attorney's Office, whereby DEP admitted that it had violated the terms of probation by failing to properly maintain emergency back-up generators at the Red Hook plant, in violation of its SPDES permit for the plant. It further agreed to an extension of probation for three years, ending February 6, 2009, with a possible further extension until December 31, 2009 upon motion by the United States Attorney's Office. Finally, DEP agreed to expand its environmental, health and safety compliance program to the balance of the agency's operations, and to extend the monitor's oversight to include DEP's in-City wastewater treatment operations.

In recognition of progress made by DEP in developing and implementing its compliance program, and based on an agreement reached among DEP, the United States Attorney's Office and the federal monitor, the court issued orders releasing DEP's Bureau of Water and Sewer Operations, Bureau of Water Supply ("BWS"), and DEP's risk management and process safety management programs at the four DEP facilities where drinking water is chlorinated for disinfection, from the monitor's day-to-day supervision. On February 4, 2009, DEP consented to an entry of an order extending supervision until December 31, 2009. However, DEP retains the right to ask the court to release DEP from the monitor's supervision at an earlier date.

From time to time, the United States Attorney's Office requests additional information from DEP concerning the System, and issues subpoenas for additional documents. DEP cooperates with the office and provides information and documents in response to such requests and subpoenas.

1.3.9 Hillview Reservoir

In March 1996, DEP entered into the Hillview Administrative Order with NYSDOH 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 Hillview Administrative Order. On February 22, 2008, DEP entered into a revised Hillview Administrative Order which requires the City to cover the Hillview Reservoir by October 31, 2016 while also allowing the City to pursue an evaluation of other strategies to protect the reservoir. Currently, the cost of constructing a concrete cover over the Hillview Reservoir, as DEP originally proposed, is expected to be approximately \$1.6 billion, \$500 million of which is included in 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. Installation of a floating cover would require additional design work and may cause DEP to miss the October 31, 2016 construction completion date mandated under the Hillview Administrative Order.

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 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. A new toilet rebate program is currently being considered by DEP; however, no funds are included in the projected cost of service for such a program or other new conservation initiatives that may be developed under the Dependability Program. 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 New York City Water Board (“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 \$11 billion in principal outstanding for its First Resolution revenue bonds and \$9.9 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 a \$1 billion 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”).

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 2008 inclusive, the City provided an average of 43,899 million gallons per year of water to upstate customers, or 120.2 mgd. This represented approximately 8.69% of all water supplied to both in-City and upstate customers. The percentage of the water supply being used by upstate customers has generally been increasing in recent years, averaging 9.86% in 2006 through 2008.

Upstate consumption is affected by the continuing expansion of the areas served by City water as other changes occurring within the service area. Among the changes are the increases in water consumption in the vicinity of Stewart International Airport to accommodate commercial development at the Airport.

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 2008 are provided in the table on the following page. 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 Administrative Law Judge stated that he will consider the petitioners' request for a review only of the 2005 regulated rate, and not for any other years.

Fiscal Year	Rate per Million Gallons (MG) (a)	
	Billed to Upstate Customers ¹	Computed Cost to the Board
1973-1992	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 (current)	900.31	834.66

- (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 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 and 2006 include the costs of defeasance in those years. There were no costs for defeasance in 2007 and 2008.

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 2009 unit rates were developed based on the anticipated cost of service in the upcoming fiscal years.

¹ NYSDEC revised the rate per million gallons for the years 1993 through 1995 as noted in (b) above

The actual calculated unit rate for 2008 is lower than the unit rate that was implemented by the Board. The principal reasons for the decline are lower than expected debt service and capital cash payments of the Authority resulting in a decrease in the cost of service and an unexpected increase in system-wide water consumption which serves to reduce the unit rate. This report proposes that a credit be applied towards the cost of service in 2010 to reflect the calculated difference between the 2008 actual cost of service and the actual costs recovered which are computed by multiplying the unit rate charged by the Board in 2008 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, the table also shows that the calculated 2009 unit rate is expected to lower than the unit rate currently in effect. Among the reasons for the decline in the calculated unit rate for 2009 are estimated debt service and capital cash payments that are lower than previously projected. Despite the turmoil in the financial markets in the Fall of 2008, 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 actual cost of service for 2009 will not be known until after the Fall of 2009.

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 2009. 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 2006 through 2008. The sixth step includes the development of the projected cost of service and regulated rates for 2009 (the current year) and 2010. In addition, this Report includes a preliminary projection of the regulated rate for water supply service for the years 2011 through 2013. 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 may result in a larger increase in the cost of water supply in future years than is currently reflected in the 2010 projection and the preliminary projections for 2011 through 2013. 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 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 the 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.

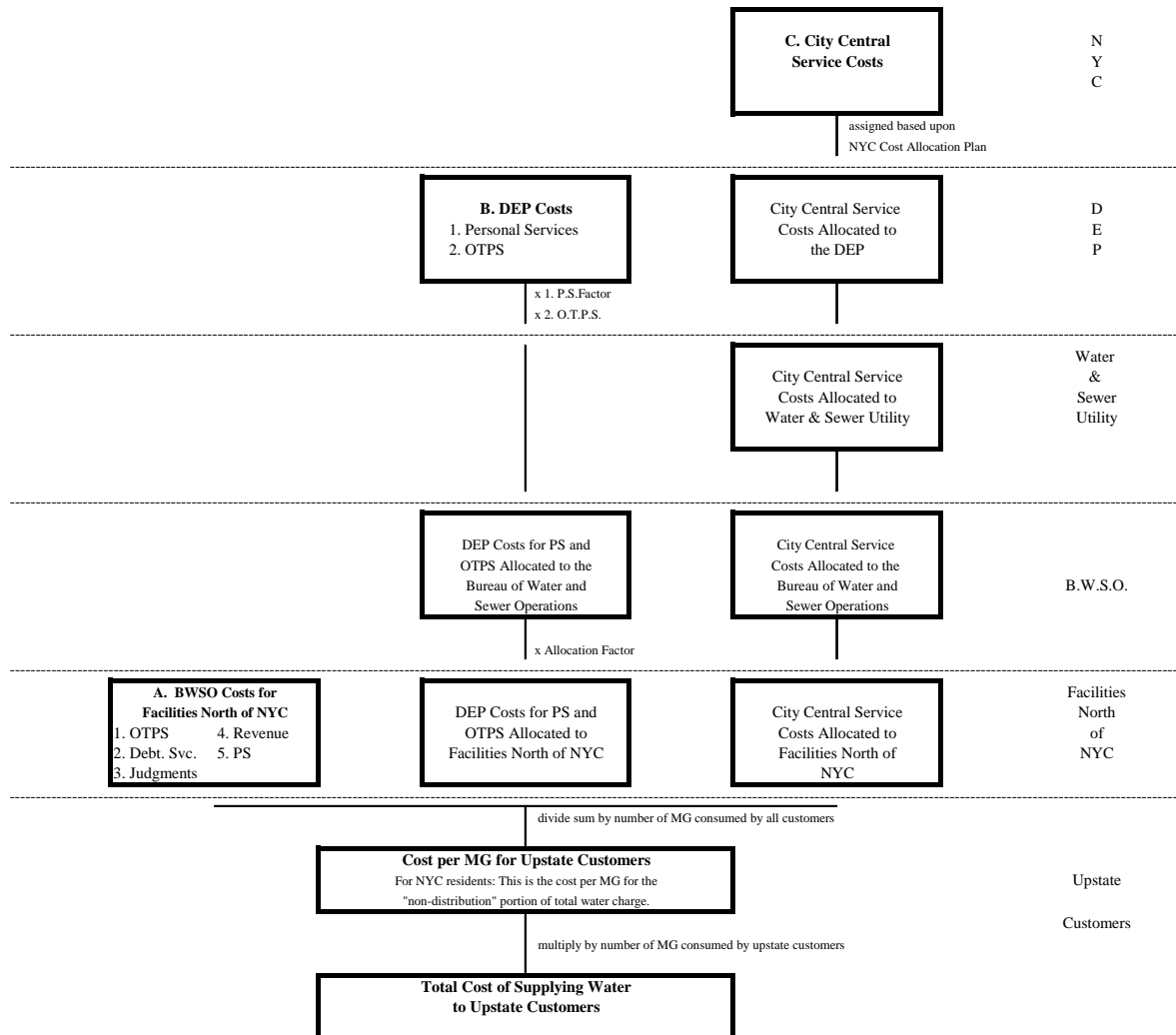
3.2.6 Step F

Steps A through E are primarily used to develop the actual cash basis cost of service for 2006 through 2008. To develop the projected cost of service for 2009 (the current year) and 2010, 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 2009 and 2010. 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:

$$\text{Total Cost of Service divided by Total Water Consumption} = \text{Unit Cost of Service or Regulated Rate}$$

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:

$$\text{Upstate Consumption multiplied by Unit Cost of Service or Regulated Rate} = \text{Upstate Cost of Service}$$

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

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

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

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 the Bureau of Management and Budget of DEP. Debt service information was obtained from the Office of the Comptroller and 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 2006 through 2008. The 2008 Fiscal Year is the most recent year for which complete information is available. The anticipated cost of service for 2009 and 2010 is presented using the following components of cost: actual debt service for these years, the anticipated debt service from additional bonds of the Authority, 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 2009 and 2010, 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 2009 and 2010 is also provided. Where appropriate (e.g., watershed protection 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)
 - 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, Other Than Personal Services (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 Memorandum of Agreement declined significantly, direct OTPS costs have steadily increased over the years, as illustrated below:

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%

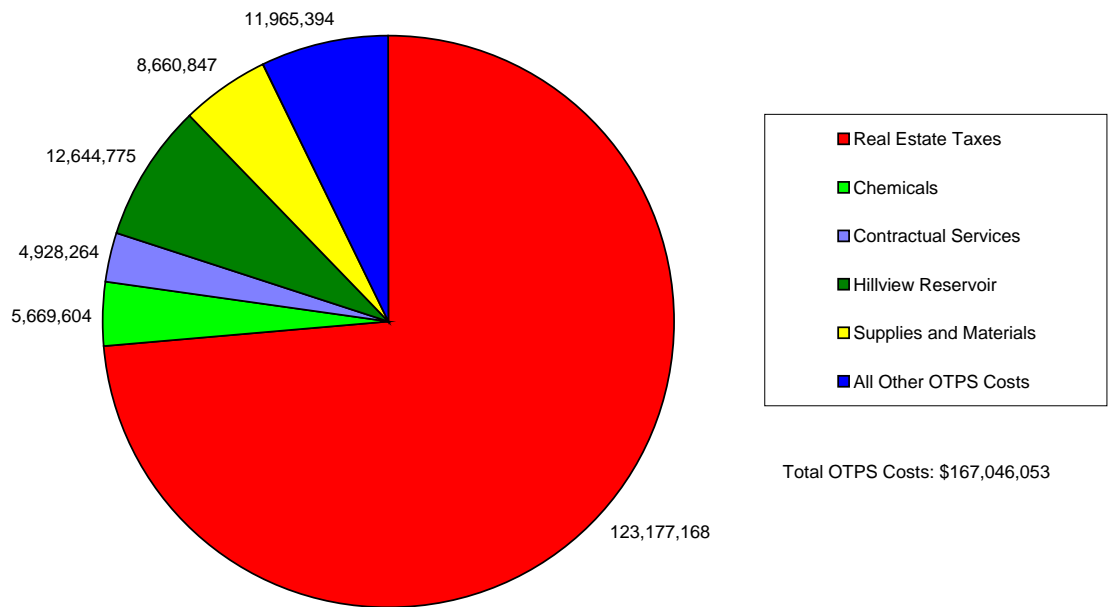
The average annual increase from 1992 to 2008 is 6.59%. The expenses in each of the above years include the estimated costs associated with Hillview Reservoir, which were approved by NYSDEC for inclusion in the cost of service in April 1997. In 1997, OTPS costs increased due to the beginning of the enhancements to the watershed protection program. Such enhancements were required pursuant to the Watershed Memorandum of Agreement 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 expenses related to the Watershed Memorandum of Agreement. The rate of increase from 2007 to 2008 was 9.4% due primarily to increases in property taxes, chemicals, fuels and fuel oil and supplies compared to prior years. Property taxes have increased steadily each year and constituted about 73% of total OTPS costs in 2008. To protect water quality in the watershed, the City is required to significantly increase 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.

Recent expenses and current and ongoing programs were considered in estimating the anticipated 2009 and 2010 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 to exclude unusual increases or decreases that may have affected recent experience. The expected 2010 components of OTPS costs may be found in Figure 3 on the following page.

Figure 3 Projected Fiscal Year 2010 Other Than Personal Services Costs



4.2.1.1 Real Estate Taxes

Real estate taxes have increased at the average annual rate of about 5.65% from 1992 to 2008. The rate of increase from 2003 to 2008 is much higher, averaging 7.1% per year. Historical property tax payments are shown in the table below.

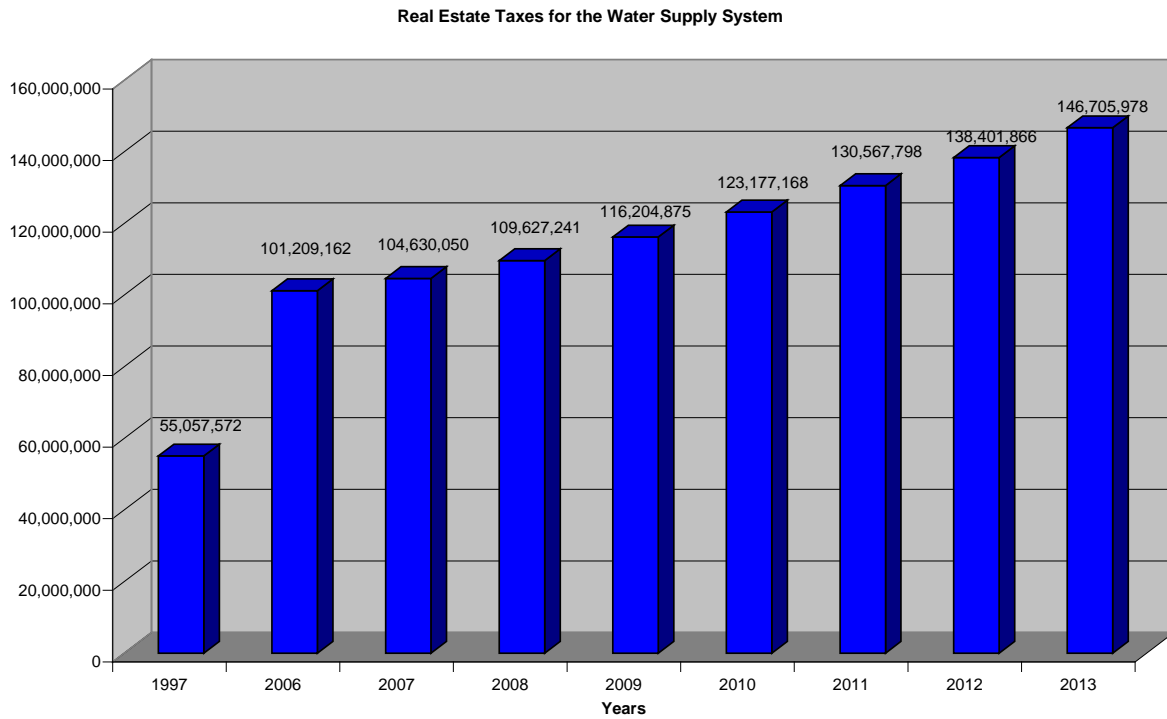
Fiscal Year	Property Tax Expense (\$)	Annual Increase (%)
1992	45,523,172	
1993	47,168,247	3.6%
1994	49,778,593	5.5%
1995	52,415,756	5.3%
1996	53,669,656	2.4%
1997	54,995,223	2.5%
1998	57,165,589	3.9%
1999	60,277,681	5.4%
2000	63,127,985	4.7%
2001	66,579,445	5.5%
2002	70,729,378	6.2%
2003	77,703,889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

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. Data prepared by DEP show that that the annual increases in the real estate tax rates are the primary cause of increasing property taxes.

The projected real estate taxes for 2009 and 2010 are \$116.2 million and \$123.2 million, respectively, based on estimates prepared by DEP. Both estimates reflect an allowance for the expected increases in property tax rates as well as the taxes on newly-purchased land and for newly-acquired hydroelectric facilities. In 2007, DEP began paying property taxes on the hydroelectric facilities at Grahamsville and Neversink. Since the revenues associated with these facilities will be considered in computing the cost of water supply service, the operating expenses, including property taxes, must also be considered in the computations.

A 6.0% annual rate of increase in the property taxes is assumed for 2011 through 2013. While the current rate adoption by the Board will only address 2010, projections for 2011 through 2013 are shown for illustrative purposes. Real estate taxes payable to upstate communities for watershed properties are summarized on the following page.

Figure 4 Real Estate Taxes



Real Estate Taxes for the years 2009 through 2013 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. As illustrated by the following summary table, the total cost of chemicals can vary from year to year.

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%

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. Significant increases in prices for fluoride and other chemicals were experienced in FY 2008. The quantities of chemicals used and the applicable unit prices in recent years are summarized in the following tables.

Historical Chemical Use, in Tons

Fiscal Year	Chlorine	Fluoride
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	3,149	1,940

Historical Unit Prices, per Ton

Fiscal Year	Chlorine (\$) ²	Fluoride (\$) ³
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

The projected rate of increase in chemical costs in 2009 through 2013 is 3% per year. As noted previously, certain chemical costs have increased significantly in the northeast U.S. 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

² 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.

³ Fluoride prices for 2002 and 2006 reflect two different delivery zones within the water supply system.

of the water entering Hillview. Orthophosphate is added for lead and copper control. In 2008, the costs for caustic soda and orthophosphate were \$5.0 million and \$5.4 million, 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 that covers all water supply properties. Labor expenses 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 2010 through 2013, both labor costs and OTPS expenses at Hillview are assumed to increase 3% annually. Future increases in expenses at Hillview could be significantly affected by fluctuations in the price of chemicals, ongoing discussions regarding the potential covering of the Reservoir and other factors.

4.2.1.4 Contractual Services

The City was required by the Watershed Memorandum of Agreement 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 Memorandum of Agreement declined as the programs called for in the Agreement ended or were scaled down. The continuing level future expenses for Agreement-related programs is 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.

4.2.1.6 Other OTPS Expenses

Other categories of expense are assumed to increase at the rate of 3% per year in 2009 through 2013. 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). The projected costs of the Water System in 2013 include allowances for personal services and OTPS expenses of the UV Facility although it is uncertain at this time whether operating expenses will be incurred beginning in 2012 or 2013.

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 amounts raised in cash for use in the CIP. Table 5A in the Appendix provides a summary of the debt service/cash-financed construction/bond defeasance payments for fiscal years 2006 through 2008, as well as the projected amounts for 2009 through 2013. These 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 to defease Authority bonds. The costs and benefits of defeasance are described herein.

4.2.2.1 Historical Investments in the Water System

Prior to the formation of the Authority, the development, expansion and upgrading of the Water System was carried out by the City with funds that were typically provided by the proceeds of General Obligation (G.O.) bonds issued by the City. The last major reservoir was completed in 1967, nearly 40 years ago. Within the last twenty years, over \$2 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 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 table and are allocated to all water supply customers; costs incurred following the approval of the site are not included. Land purchases, improvements to wastewater treatment plants and other capital investments and operating expenses have been instrumental in maintaining the quality and reliability of the System including the avoidance of filtration for the Catskill and Delaware Systems.

4.2.2.2 Debt Service Related to the Water System

Authority Bonds

Debt service on Authority 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 historically been financed with the proceeds of Authority and NYSEFC bonds. This approach provides benefits to all ratepayers resulting from the refundings of previously-issued bonds that were made to take advantage of the favorable interest rate environment in recent years. It also incorporates the impacts of the defeasance of certain future debt service obligations of the Authority.

The methodology for allocating debt service to the System begins with the calculation of the percentage of the capital investments since 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 5C and 5D in the Appendix were prepared to illustrate the estimated proceeds of each bond issue and the upstate portion of such proceeds for Authority and EFC bonds, respectively. Since the Water Supply System percentage share will change from year to year, a percentage is computed in each year for 2008 through 2010. The computed percentage for 2010 is also used for 2011 through 2013.

Table 5B illustrates the current projections of debt service on outstanding bonds and anticipated future bonds of the Authority and NYSEFC for the Projection Period. 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 5B 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. Cash-financed construction is discussed in 4.2.2.3. 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. Authority expenses related to debt include administrative expenses charged by NYSEFC for the low-interest loan program, swap payments, arbitrage rebate payments and other expenses.

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 to reflect, as applicable: 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.

General Obligation (G.O.) Bonds

Tables 5E and Table 5F in the Appendix illustrate the estimated annual principal and interest payments for 2006 through 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. The debt service figures used in computing the cost of service were based on an analysis of each outstanding G.O. bond issue of the City. Within the total debt service for each G.O. bond issue, there are schedules of maturity sub-divided according

to ‘periods of probable usefulness’ (PPU), which are set by local finance law. These PPU schedules allow bond proceeds to fund projects with differing terms of usefulness in a fair and equitable manner. In this way, projects with longer life spans would have debt repayment schedules over a longer time period that reflected their longer expected life, whereas proceeds used for short-term projects would be repaid in a shorter duration of time. Water supply projects followed the debt service schedule of the longest PPU contained with each series of bonds issued by the City.

To calculate the debt service for G.O. bonds, all expenditures related to facilities north of the City are identified. These expenditures are divided by the total amount of principal contained within the long-term PPU schedule of the bond issue. The resulting ratio is multiplied by the annual debt service for that particular PPU schedule to arrive at debt service attributable to water supply facilities. The impact of the refunding of bonds on annual debt service has not been factored into the calculation of the annual debt service amounts for the City G.O. debt from 1981 to 1985. Since the remaining G.O. debt service is relatively small and refundings of G.O. bonds resulted in both a reduction in debt service and an extension of the term for repaying debt service, the estimated original amortization schedule has been maintained for purposes of calculating the water supply cost of service and 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 deposited \$20 million for cash-financed construction needs in 2007. No cash-financed construction deposits were made or are expected to be made in 2008 and 2009. The deposits for cash-financed construction in future years are currently expected to be \$100 million in 2010, \$100 million in 2011, \$125 million in 2012 and \$150 million in 2013. Line 8 of Table 5B reflects the cash-financed capital assumptions identified above. The projected amounts for each year may increase or decrease in the future. Line 18 of Table 5B 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 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 2006 and 2007, 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 5B in the Appendix is net of the 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. The amounts used for defeasance in 2006 are presented in Table 5J together with the calculation of

the upstate water supply system share of such amounts. At the time of this Report, there were no plans for the defeasance of additional debt in 2009 or during the period of 2010 through 2013. 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 2009 through 2013 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

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 in the upstate area. Payments made in other years (except for 2008) have ranged from \$1,834 in 1999 to \$536,000 in 1997. No payments were identified for 2006 and the payment amount in 2008 was \$3,695. However, 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 fourteen year (1995 through 2008) average of \$459,508 will provide an allowance for judgments and claims in future years.

4.2.4 Miscellaneous Revenue

This category includes revenues received from upstate sources that can be 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.

Miscellaneous revenues have been inconsistent over the years, declining in some years and increasing in others. Hydropower revenues are shown for 2004 through 2008. Hydropower revenues in future years may differ from the historical experience due to the expiration of previous contracts between DEP and hydropower system operators. The City took ownership of the Grahamsville and Neversink hydroelectric facilities in October 2006 which may result in an increase in annual revenues from each facility (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 net revenues are considered in the calculations for the Ashokan and Kensico facilities because no net revenues are actually expected to be received by the City. The estimated net revenues from hydropower facilities are presented in Table 14 of this Report. In 2009 and 2010, it is expected that such net revenues will be about \$8.9 million and \$9.1 million, respectively, which will be applied as a credit towards the cost of water supply service.

For purposes of estimating future miscellaneous revenues during the Projection Period, the fifteen-year average (1994 through 2008) of permit/services revenues has been used. DEP has indicated that there are matters pending regarding potential tax refunds but no imminent payments so the projections assume no refunds in future years at this time.

4.2.5 Personal Service Costs

Personal services expenses directly allocable to water supply services are shown in Tables 8 and 9 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 which use this methodology have been approved by the NYSDEC and the federal government. Personal Services costs in Tables 8 and 9 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.

The source documents for the above referenced costs include the position descriptions for the BWS personnel and the Revenue and Claims Reimbursement Reporting System 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 28.5% in 2006, 35.0% in 2007, and 45.0% of direct salary in 2008. Continuing increases in costs for pension and fringe benefits have resulted

in an increase in the pension and fringe benefit factor to 51% of direct salary in the current year (2009). This represents a significant factor affecting labor costs in 2009 compared to 2008. An allowance for salary and fringe benefit expenses of 51% of direct salary per year is included for 2010 through 2013 together with a 3% per year increase in labor costs.

The projected labor costs also take into consideration the assumption that certain labor contracts will be settled in 2010 resulting in one-time payments in 2010 and a higher base of salaries and wages (but without the one-time payments) in 2011. The timing and potential terms of such settlements are not known at this time.

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. Within the BWS, costs are also shared among water supply and wastewater employees. The allocation factors presented in Table 10 specifically exclude employees working within the City in the wastewater 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.

Table 11 in the Appendix illustrates allocated personal services costs, while Table 12 presents 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 2010 through 2013 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 New York City. Central Service costs were \$1,560,824 in 2008. 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 \$1,560,824 in 2009 and each year thereafter.

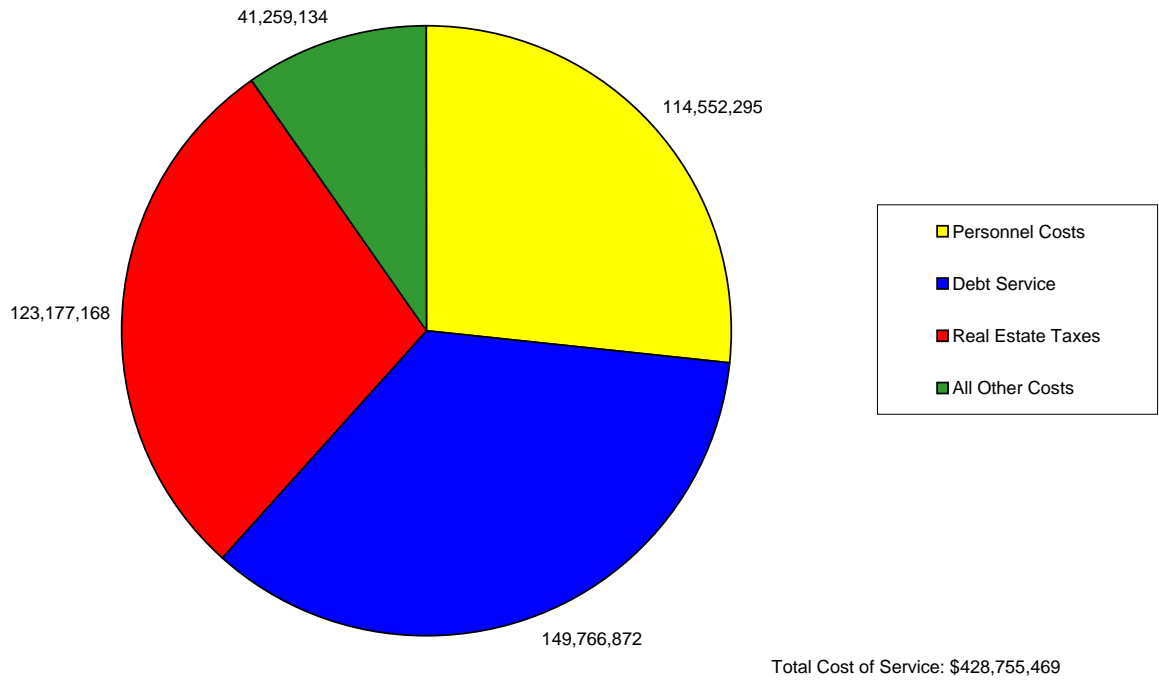
4.6 Cost of Service - Step E

The calculation of the total cost of water supply and the cost of water supply attributable to upstate customers are presented for 2006 through 2008 in Table 1A and for 2008 through 2013 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 water supply as presented in Table 1B is \$355,040,288 for 2009 and \$385,861,692 for 2010, including the effects of the one-time reconciliation for 2008 of \$42,893,777 that is credited to 2010. Of the total cost of service amount, \$256,531,256 in 2009 and \$316,812,925 in 2010, or about 72% and 74% (excluding one-time cost reconciliation), respectively, of the total in each year, is for debt service/capital costs and direct out-of-pocket expenses (other than personal services 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. Excluding the one-time reconciliation, upstate taxes will represent approximately 29% of all water supply costs in 2010. 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 \$112.1 million in anticipated 2010 system expenditures or about 24% of all costs excluding the reconciliation. The remaining costs include allocated management, administrative and support services.

The chart on the following page illustrates the breakdown of the total cost of service for the 2010 rate year.

Figure 5 Projected Fiscal Year 2010 Cost of Service Components



4.7 Calculation of the Regulated Rate - Step F

Table 1B presents the calculation of the projected regulated rate and upstate cost of service. The regulated rate per million gallons of water use is computed by dividing the total cost of service net of the reconciliation for 2008, shown on Line 15 of Table 1B, by total water consumption shown on Line 16.

At the direction of the Board, the calculation of the FY 2010 cost of service includes a credit which reflects the difference between the cost of service actually recovered in 2008 based on the rate in effect and the quantity of water consumed and the actual 2008 cost of service based on final actual costs and actual consumption. The calculation of the credit is shown below.

FY 2008 Unit Rate Billed	\$ 798.62
Actual Consumption	<u>452,048</u>
Rate X Consumption	\$ 361,014,863
Actual Cost of Service	<u>\$ 318,121,086</u>
Difference	\$ 42,893,777

As shown above, the calculated credit is \$42,893,777. It is proposed that this credit be applied to the calculated cost of service for FY 2010 resulting in a lower unit rate than would otherwise be necessary if the rate were based solely on the estimated FY 2010 cost of service.

It is the intent of the Board that a reconciliation of the prior year projected and actual costs of service, consumption and rates be performed in all future reports with the resulting credit or additional charge for the recently completed year being applied towards the cost of service for the upcoming rate year. 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.

After taking into account the reconciliation, the resulting unit rate, shown on Line 17, is \$922.23 per MG in 2010.

The cost of service attributable to upstate customers is calculated by multiplying the unit rate by the average annual upstate water consumption shown on Line 18 of Table 1B. The resulting upstate cost is approximately \$38.75 million for fiscal year 2010. The remaining cost of water supply, approximately \$347.11 million would be recoverable from in-City water customers through rates and charges.

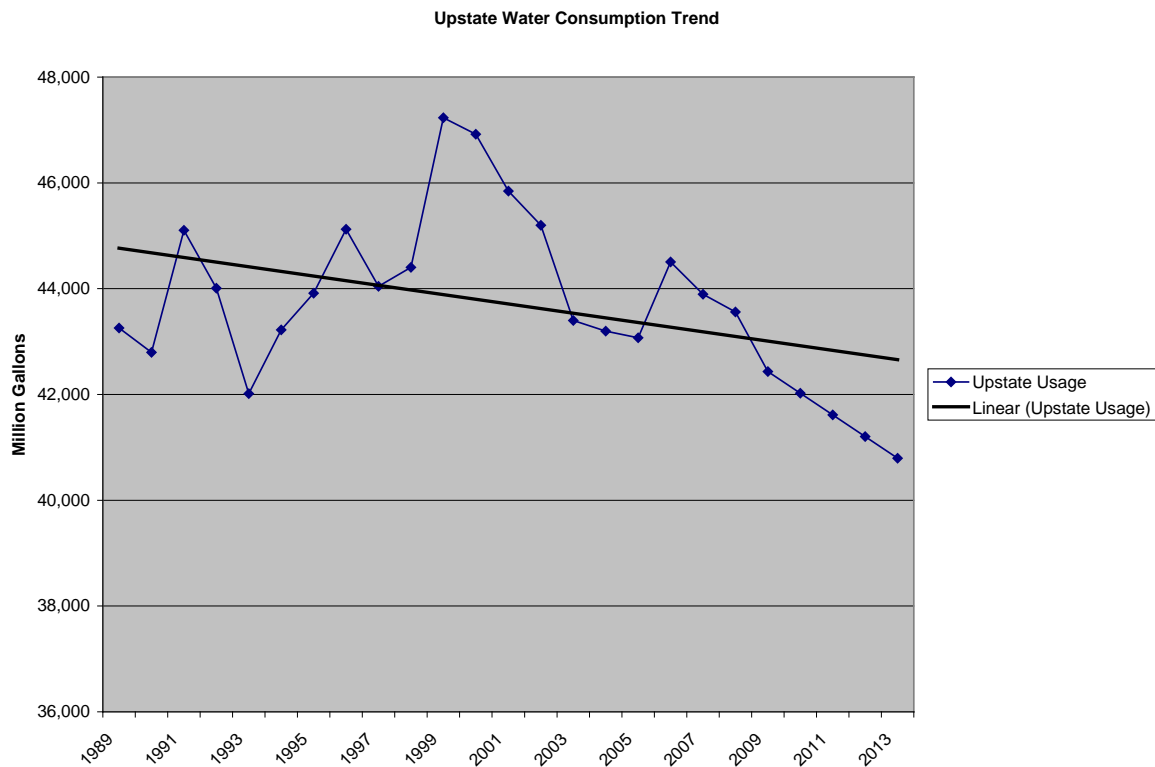
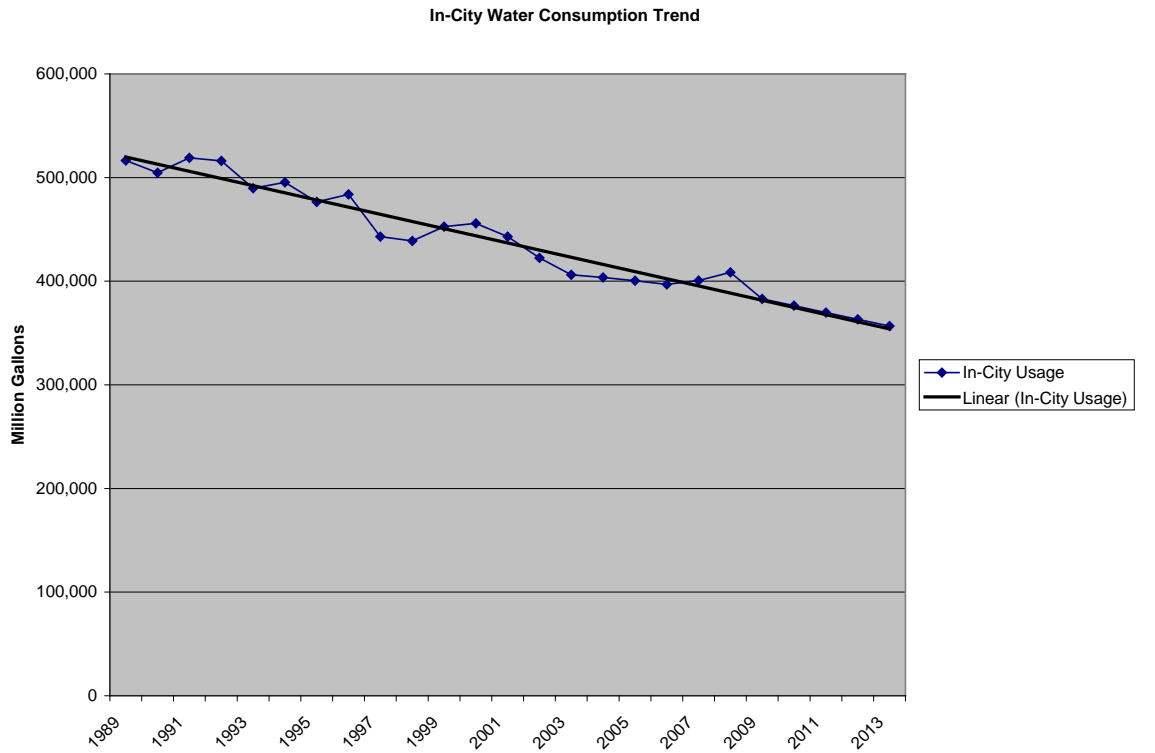
The water consumption used in calculating the regulated rate is based on a calculated decline in demand based on the results of a regression analysis. The regression analysis was requested by upstate customers in the 1990s. Water consumption data is presented in Table 13 of the Appendix. The table presents 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 425,372 MG in 2009 and 418,400 MG in 2010. The upstate share of total water consumption using the regression analysis is estimated to be 42,432 MG in 2009 and 42,023 MG in 2010. On the following page, a line graph illustrates the projected consumption for both in-City and upstate customers.

Although water consumption was higher than expected in 2008 and was one of the factors affecting the actual unit rate in 2008, the 2009 year-to-date consumption (through March 31, 2009) for both in-City and upstate customers has declined about 6% from the usage for the same time period in 2008.

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 2009. 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 2009 reflect no allowance for the risks being borne by the City as the owner and operator of the water system.

4.8.2 Water Conservation Initiatives

The Department has invested and continues to invest substantial amounts of money to meter all properties within the City. Through the toilet rebate program, DEP also assisted customers in the removal of old toilets and the installation of new low-flow toilets that require significantly less water. 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. The universal metering program brings the City into conformance with accepted industry practice. The toilet rebate program, while not unique, went beyond standard practice. Within the next few months, DEP expects to begin replacing a substantial number of meters within the City and to install an automated meter reading system. Examples of other programs currently 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 (listed on the DEP website)
- School Programs on Water Conservation

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 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, 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 2010 is \$922.23 per MG. The current estimate of the unit cost of service for 2009 is \$834.66, which is lower than the rate of \$900.31 per MG that was calculated approximately one year ago based on information available at that time. The current estimate of the unit cost of service for 2009 will change by the end of the fiscal year, based on actual costs incurred and actual water consumption by customers. Figure 7 following this page outlines the anticipated percentage change in the unit cost of water supply, and the portions of the change that are attributable to increases or decreases in the cost of service and water consumption. If consumption continues to decline, 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 2010 represents an increase of \$21.92 per MG from the current unit rate of \$900.31, or a 2.4% increase in the current rate. Additional rate increases are anticipated in future years based on the need to protect the water supply for all customers and to avoid the very costly possibility of having to filter Catskill and Delaware water. Future changes in rates are significantly dependent upon whether or not the ongoing trend in consumption continues as well as debt service for capital improvements and the costs of watershed protection. 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 \$2.19 for the entire year or less than one cent 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, Table 2 presents 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 100,000 gallon per year allowance. 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 2010.

The rates and charges of the Board that have been assessed to upstate customers for water supply service have generally been 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.

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

	<i>2010</i>	<i>2011</i>	<i>2012</i>	<i>2013</i>
Percentage Change in the Unit Rate due to Increase in Cost of Service	20.8%	7.5%	5.9%	11.3%
Percentage Change in the Unit Rate due to Fluctuations in Consumption	-10.3%	14.0%	1.8%	2.0%
Percentage Change in the Calculated Unit Rate for Water Supply	10.5%	21.5%	7.7%	13.3%

* Includes the effects of cost reconciliation for FY 2008.

** The percentage changes in FY 2010 reflect differences from the current estimates for FY 2009.

**Report on the Cost of Supplying Water to Upstate Customers
for the 2010 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

<u>No.</u>	<u>Description</u>		<u>F.Y. 2006</u>	<u>F.Y. 2007</u>	<u>F.Y. 2008</u>
<i>Bureau of Water Supply Direct</i>					
<i>Costs for Facilities North of New York City</i>					
1	Other Than Personal Services	- \$	133,134,219	138,068,007	150,982,178
2	Debt Service / Capital Costs	- \$	62,907,868	79,464,948	75,998,106
3	Cash Used for the Defeasance of Debt	- \$	5,456,942	0	0
4	Judgment and Claims	- \$	0	5,513,361	3,695
5	Less Miscellaneous Revenue	- \$	(3,701,188)	(7,287,556)	(10,017,035)
<i>Personal Services</i>					
6	Field Personnel	- \$	48,351,832	65,303,055	70,628,046
7	Support and Administrative Personnel	- \$	17,096,666	13,915,776	16,752,400
8	Total Costs Directly Related to Facilities North of NYC	- \$	263,246,340	294,977,591	304,347,390
<i>Upstate Share of NYC DEP Costs</i>					
9	Personal Services	- \$	5,790,422	6,840,745	6,879,614
10	Other Than Personal Services	- \$	5,071,099	4,563,977	5,333,258
11	Total NYC DEP Costs Allocated to Facilities North of NYC	- \$	10,861,521	11,404,722	12,212,872
12	<i>Upstate Share of City Central Service Costs ⁽¹⁾</i>		1,139,911	1,173,045	1,560,824
13	Total Costs Related to Facilities North of NYC	- \$	275,247,772	307,555,358	318,121,086
<i>Cost of Service Rate</i>					
14	System Usage	- MG	441,477	444,553	452,048
15	Unit Rate (Ln 13/Ln 14)	- \$/MG	623.47	691.83	703.73
16	Upstate New York Usage	- MG	44,504	43,895	43,559
17	Total Upstate Cost (Ln 15 x Ln 16)	- \$	27,746,832	30,368,104	30,653,783

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

<u>Line No.</u>	<u>Description</u>		<u>Actual</u>		<u>Projected Years</u>			
			<u>F.Y. 2008</u>	<u>F.Y. 2009</u>	<u>F.Y. 2010</u>	<u>F.Y. 2011</u>	<u>F.Y. 2012</u>	<u>F.Y. 2013</u>
<i>Bureau of Water Supply Direct</i>								
<i>Costs for Facilities North of New York City</i>								
1	Other Than Personal Services	- \$	150,982,178	158,798,210	167,046,053	175,750,499	184,937,798	215,735,738
2	Debt Service/Capital Costs	- \$	75,998,106	97,733,046	149,766,872	175,802,466	190,531,151	204,800,696
3	Cash Used for the Defeasance of Debt	- \$	0	0	0	0	0	0
4	Judgment and Claims	- \$	3,695	459,508	459,508	459,508	459,508	459,508
5	Less Miscellaneous Revenue	- \$	(10,017,035)	(10,109,847)	(10,288,136)	(10,469,991)	(10,655,482)	(10,844,684)
<i>Personal Services</i>								
6	Field Personnel	- \$	70,628,046	75,757,104	85,832,798	83,987,393	86,507,015	95,900,225
7	Support and Administrative Personnel	- \$	16,752,400	17,968,971	20,358,844	19,921,129	20,518,763	21,134,326
8	Total Costs Directly Related to Facilities North of NYC	- \$	304,347,390	340,606,992	413,175,940	445,451,005	472,298,753	527,185,810
<i>Upstate Share of NYC DEP Costs</i>								
9	Personal Services	- \$	6,879,614	7,379,217	8,360,652	8,180,898	8,426,325	8,679,115
10	Other Than Personal Services	- \$	5,333,258	5,493,255	5,658,053	5,827,795	6,002,628	6,182,707
11	Total NYC DEP Costs Allocated to Facilities North of NYC	- \$	12,212,872	12,872,472	14,018,705	14,008,693	14,428,954	14,861,822
12	<i>Upstate Share of City Central Service Costs</i>		1,560,824	1,560,824	1,560,824	1,560,824	1,560,824	1,560,824
13	Total Costs Related to Facilities North of NYC	- \$	318,121,086	355,040,288	428,755,469	461,020,522	488,288,531	543,608,456
14	<i>One Time Cost Reconciliation for FY 2008</i>	- \$			(42,893,777)			
15	Net Total Costs Related to Facilities North of NYC	- \$	318,121,086	355,040,288	385,861,692	461,020,522	488,288,531	543,608,456
<i>Cost of Service Rate</i>								
16	System Usage	- MG	452,048	425,372	418,400	411,428	404,456	397,484
17	Unit Rate (Ln 15/Ln 16) *	- \$/MG	703.73	834.66	922.23	1,120.54	1,207.27	1,367.62
18	Upstate New York Usage	- MG	43,559	42,432	42,023	41,613	41,204	40,795
19	Total Upstate Cost (Ln 17 x Ln 18)	- \$	30,653,783	35,416,138	38,754,648	46,629,460	49,744,763	55,792,266

Notes:

* Current rate for FY 2009 is \$900.31 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

	<u>City of White Plains</u>	<u>Village of Scarsdale</u>	<u>New Rochelle United Water Company</u>
Current Water Rates	\$1.27/Ccf - 1st 50 Ccf \$1.43/Ccf - Next 100 Ccf \$1.60/Ccf - Next 200 Ccf \$1.90/Ccf - Next 300 Ccf (Additional blocks for greater consumption) Plus fixed charge of \$15.38 for residential meters, per 6 mths	\$1.65/Ccf - 1st 50 Ccf (qtrly accts) or 700 Ccf (monthly accts); \$5.60 for consumption greater than those amounts. Plus service charge based on meter size: \$5.00/qtr for 5/8"; \$7.00/qtr for 3/4"; etc.	\$3.665/Ccf - 1st 12 Ccf used per qtr \$3.502/Ccf - Next 360 Ccf \$3.000/Ccf - Over 372 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.
Avg. Annual Residential Use (gal.)	100,000	100,000	100,000
Avg. Annual Residential Use (Ccf)	133.69	133.69	133.69
Avg. Residential Water Bill	\$206	\$245	\$476

	<u>Village of Mamaroneck</u>	<u>Town of Harrison</u>	<u>City of Mount Vernon</u>
Current Water Rates	\$2.15/Ccf - 1st 66 Ccf \$2.42/Ccf - Next 150 Ccf Plus service charge based on meter size: \$12.00/qtr for 5/8"; \$14.28/qtr for 3/4"; etc.	\$2.10/Ccf - 1st 66 Ccf \$2.53/Ccf - Next 150 Ccf Service charge based on meter size: \$12.00/qtr for 5/8"; \$14.28/qtr for 3/4"; etc.	\$2.00/Ccf - per quarter Minimum charge based on usage of 15 Ccf/qtr at \$30
Avg. Annual Residential Use (gal.)	100,000	100,000	100,000
Avg. Annual Residential Use (Ccf)	133.69	133.69	133.69
Avg. Residential Water Bill	\$340	\$333	\$267

Notes:

The above rates and charges reflect the rate schedules of each community in March 2009.

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 <u>Carmel</u>	City of <u>Yonkers</u>
Current Water Rates	\$60.00 per 1,000 cf (Water District #1) \$9.00 per 1,000 cf (Water District #2)	\$1.27 / Ccf
Avg. Annual Residential Use (gal.)	100,000	100,000
Avg. Annual Residential Use (Ccf)	133.69	133.69
Avg. Residential Water Bill	\$120 - \$800	\$170

	City of <u>Newburgh</u>	Village of <u>Cornwall</u>
Current Water Rates	\$3.97 per 1,000 Gal Plus service charge based on meter size: \$35.73/qtr for 5/8" Minimum Charge up to 9,000 gals \$55.58/qtr for 3/4" Minimum Charge up to 14,000 gals	\$7.25 per 1,000 Gal
Avg. Annual Residential Use (gal.)	100,000	100,000
Avg. Annual Residential Use (Ccf)	133.69	133.69
Avg. Residential Water Bill	\$397	\$725

Notes:

The above rates and charges reflect the rate schedules of each community in March 2009.

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

<u>Water System Customer</u>	<u>Typical Single Family Charges</u>	<u>Increase Attributable to Proposed FY 2010 Regulated Rate</u>	<u>% Change to a Homeowner</u>
City of White Plains	\$206	\$2.19	1.1%
Village of Scarsdale	\$245	\$2.19	0.9%
City of New Rochelle	\$476	\$2.19	0.5%
City of Yonkers	\$170	\$2.19	1.3%
Village of Mamaroneck	\$340	\$2.19	0.6%
Town of Harrison	\$333	\$2.19	0.7%
City of Mount Vernon	\$267	\$2.19	0.8%
Town of Carmel	\$120 - \$800	\$2.19	0.3% - 1.8%
City of Newburgh	\$397	\$2.19	0.6%
Village of Cornwall	\$725	\$2.19	0.3%
New York City (proposed FY 2010 rate)	\$352	--	--

Notes:

(1) The Typical Single Family Charge for selected communities are based on 100,000 gallons of annual water use and the rate schedules of each community in March 2009, except the City of New York, as noted.

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

<u>Line</u> <u>No.</u>	<u>Description</u>	<u>F.Y.2006</u> \$	<u>F.Y.2007</u> \$	<u>F.Y.2008</u> \$
<u>Budget</u>				
1	Supplies and Materials - General	6,006,255	6,030,208	8,163,679
2	Automotive Supplies and Materials	21,816	32,688	27,052
3	Fuel Oil	1,899,529	1,962,501	2,947,849
4	Equipment - General	656,690	555,096	673,416
5	Telecommunications Equipment	47,686	51,087	38,886
6	Office Equipment	71,979	102,408	102,304
7	Contractual Services - General	5,029,412	4,645,886	4,645,361
8	Telephone and Other Communications	1,158,397	815,034	573,531
9	Office Services	300,994	473,713	517,783
10	Maintenance and Repairs - Motor Vehicles	114,058	134,640	146,174
11	Maintenance and Repairs - General	895,488	894,976	1,268,468
12	Rentals - Miscellaneous Equipment	1,563,437	2,562,172	1,571,785
13	Advertising	149,180	163,560	118,274
14	Security Services	262,585	663,478	174,668
15	Cleaning Services	678,121	501,890	864,280
16	Licenses (1)	0	0	0
17	Chemicals	3,290,291	3,462,379	5,344,146
18	Real Estate Taxes	101,209,162	104,630,050	109,627,241
19	NYS DEC Permits (1)	0	0	0
20	Motor Maintenance Supplies (1)	379,074	0	0
21	Gasoline (1)	0	0	0
22	Lab and Limnology	191,034	68,154	72,053
23	Natural Gas & Electricity	1,232,110	1,705,204	2,111,315
24	Upstate Cost of Service/Rate Studies	70,000	75,104	75,000
25	Hillview Reservoir (2)	7,906,925	8,537,779	11,918,913
26	UV Facility	0	0	0
27	Totals	133,134,219	138,068,007	150,982,178

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 2006 to 2008.

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

<u>Line No.</u>	<u>Description</u>	<i>Actual</i>	<i>Projected Years</i>				
		<u>F.Y. 2008</u>	<u>F.Y. 2009</u>	<u>F.Y. 2010</u>	<u>F.Y. 2011</u>	<u>F.Y. 2012</u>	<u>F.Y. 2013</u>
		\$	\$	\$	\$	\$	\$
1	Supplies and Materials - General	8,163,679	8,408,589	8,660,847	8,920,673	9,188,293	9,463,941
2	Automotive Supplies and Materials	27,052	27,863	28,699	29,560	30,447	31,360
3	Fuel Oil	2,947,849	3,036,285	3,127,373	3,221,194	3,317,830	3,417,365
4	Equipment - General	673,416	693,618	714,427	735,860	757,935	780,674
5	Telecommunications Equipment	38,886	40,052	41,254	42,491	43,766	45,079
6	Office Equipment	102,304	105,373	108,534	111,790	115,144	118,598
7	Contractual Services - General	4,645,361	4,784,722	4,928,264	5,076,112	5,228,395	5,385,247
8	Telephone and Other Communications	573,531	590,737	608,459	626,713	645,514	664,880
9	Office Services	517,783	533,317	549,316	565,796	582,770	600,253
10	Maintenance and Repairs - Motor Vehicles	146,174	150,559	155,076	159,728	164,520	169,456
11	Maintenance and Repairs - General	1,268,468	1,306,522	1,345,717	1,386,089	1,427,671	1,470,501
12	Rentals - Miscellaneous Equipment	1,571,785	1,618,939	1,667,507	1,717,532	1,769,058	1,822,130
13	Advertising	118,274	121,822	125,477	129,241	133,118	137,112
14	Security Services	174,668	179,908	185,305	190,865	196,591	202,488
15	Cleaning Services	864,280	890,208	916,915	944,422	972,755	1,001,937
16	Licenses (1)	0	0	0	0	0	0
17	Chemicals	5,344,146	5,504,470	5,669,604	5,839,692	6,014,883	6,195,330
18	Real Estate Taxes	109,627,241	116,204,875	123,177,168	130,567,798	138,401,866	146,705,978
19	NYS DEC Permits (1)	0	0	0	0	0	0
20	Motor Maintenance Supplies (1)	0	0	0	0	0	0
21	Gasoline (1)	0	0	0	0	0	0
22	Lab and Limnology	72,053	74,214	76,441	78,734	81,096	83,529
23	Natural Gas & Electricity	2,111,315	2,174,654	2,239,894	2,307,091	2,376,304	2,447,593
24	Upstate Cost of Service/Rate Studies	75,000	75,000	75,000	75,000	75,000	75,000
25	Hillview Reservoir	11,918,913	12,276,481	12,644,775	13,024,118	13,414,842	13,817,287
26	UV Facility	0	0	0	0	0	21,100,000
27	Totals	150,982,178	158,798,210	167,046,053	175,750,499	184,937,798	215,735,738

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

<u>Line No.</u>	<u>Fiscal Year</u>	<u>Pre-80s G.O. Debt Service</u>	<u>80s G.O. Debt Service</u>	<u>Authority Debt Service/Cash</u>	<u>Totals</u>
1	2006	483,907	839,418	61,584,542	62,907,867
2	2007	465,681	801,726	78,197,541	79,464,948
3	2008		764,469	75,233,637	75,998,106
Projection Years:					
4	2009			97,733,046	97,733,046
5	2010			149,766,872	149,766,872
6	2011			175,802,466	175,802,466
7	2012			190,531,151	190,531,151
8	2013			204,800,696	204,800,696

Table 5B Debt Service/Capital Costs

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

<u>Line No.</u>	<u>Description</u>		<u>Actual</u> <u>F.Y. 2008</u>	<u>F.Y. 2009</u>	<u>F.Y. 2010</u>	<u>Projected</u> <u>F.Y. 2011</u>	<u>F.Y. 2012</u>	<u>F.Y. 2013</u>
System Totals - Capital-Related Costs								
1	Authority Debt Service - First Resolution	A	535,736,737	557,532,000	573,108,000	636,642,000	614,468,000	606,384,000
2	Anticipated Debt Service - First Resolution	B	-	-	46,304,000	91,423,000	121,622,000	147,393,000
3	Authority Debt Service - Second Resolution	C	34,015,751	169,647,000	235,405,000	235,060,000	234,687,000	238,062,000
4	Anticipated Debt Service - Second Resolution	D	-	-	25,328,000	106,069,000	183,785,000	252,763,000
5	Interest on Short-Term Debt	E	20,531,262	14,000,000	42,500,000	42,500,000	42,500,000	42,500,000
6	EFC Outstanding Debt Service	F	246,509,470	314,881,000	364,594,000	372,288,000	378,534,000	359,008,000
7	EFC Projected Debt Service	G	-	-	5,444,000	23,399,000	40,319,000	57,245,000
8	Cash-Financed Construction	H	-	-	100,000,000	100,000,000	125,000,000	150,000,000
System Totals - Interest Earnings & Expenses								
9	Debt Service Fund	I	(6,379,081)	(2,108,000)	(721,000)	(851,000)	(1,765,000)	(2,700,000)
10	Debt Service Reserve Fund	J	(43,648,672)	(43,649,000)	(42,965,000)	(42,965,000)	(44,866,000)	(46,530,000)
11	Construction Fund	K	(6,840,499)	(2,500,000)	(1,250,000)	(1,250,000)	(2,500,000)	(3,750,000)
12	Subordinated Debt Service Fund	L	(16,641,174)	(6,251,000)	(6,266,000)	(6,566,000)	(7,659,000)	(3,850,000)
13	Less: Authority Debt-Related Expenses	M	23,658,500	23,749,000	35,846,000	36,921,380	38,029,021	39,169,892
Water Supply - Capital-Related Costs								
14	Authority Debt Service - First Resolution	A x N	60,623,010	63,089,323	74,038,908	82,246,764	79,382,140	78,337,781
15	Anticipated Debt Service - First Resolution	B x N	-	-	5,981,940	11,810,791	15,712,152	19,041,466
	Authority Debt Service - Second Resolution	C x N	3,849,161	19,196,951	30,411,596	30,367,026	30,318,839	30,754,850
	Anticipated Debt Service - Second Resolution	D x N	-	-	3,272,084	13,702,885	23,742,891	32,654,048
16	Interest on Short-Term Debt	E x O	2,004,766	1,367,024	4,747,314	4,747,314	4,747,314	4,747,314
17	EFC Debt Service	(F + G) x P	13,823,959	17,658,154	22,482,121	24,040,459	25,447,938	25,289,972
18	Cash-Financed Construction	H x O	-	-	11,170,152	11,170,152	13,962,690	16,755,228
Water Supply - Interest Earnings								
19	Debt Service Fund	I x N	(721,845)	(238,538)	(93,145)	(109,939)	(228,018)	(348,809)
20	Debt Service Reserve Fund	J x N	(4,939,206)	(4,939,243)	(5,550,580)	(5,550,580)	(5,796,167)	(6,011,136)
21	Construction Fund	K x O	(667,938)	(244,111)	(139,627)	(139,627)	(279,254)	(418,881)
22	Subordinated Debt Service Fund	L x P	(1,048,396)	(475,476)	(557,944)	(606,953)	(727,274)	(376,473)
23	Less: Authority Debt-Related Expenses	M x P	2,310,124	2,318,961	4,004,053	4,124,174	4,247,899	4,375,336
24	Net Water Supply Capital-Related Costs		75,233,637	97,733,046	149,766,872	175,802,466	190,531,151	204,800,696
			2008	2009	2010-2013			
Upstate Authority \$ as a % of Total Authority CIP \$	N		11.32%	11.32%	12.92%			
Upstate Total CIP \$ as a % of Total CIP \$	O		9.76%	9.76%	11.17%			
Upstate EFC \$ as a % of Total EFC CIP \$	P		5.61%	5.61%	6.08%			

Table 5C Authority Bond Proceeds

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

<u>Line</u>	<u>Bond Issue</u>	<u>Total Principal</u>	<u>Total Upstate Allocation</u>	<u>Upstate Principal</u>	<u>Notes</u>
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	-	-	-	(A)
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	
	2003 Total	9,046,391,981	9.30%	841,071,728	
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	367,265,000	19.42%	71,323,090	(B)
34	FY 2003 Series F	201,655,000	28.04%	56,543,643	
	2004 Total	10,095,352,062	10.62%	1,072,589,909	
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	
	2005 Total	10,609,901,474	10.51%	1,114,956,785	
37	FY 2005 Series A	150,000,000	23.22%	34,836,356	
38	FY 2005 Series B	417,570,000	0.53%	2,206,413	
39	FY 2005 Series D	509,553,201	20.02%	101,987,971	
	2006 Total	11,687,024,675	10.73%	1,253,987,526	
40	FY 2006 Series A	202,970,000	18.30%	37,140,246	
41	FY 2006 Series AA	400,000,000	15.81%	63,242,620	
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	
	2007 Total	12,895,513,727	11.05%	1,425,104,974	
45	FY 2007 Series AA	199,910,000	25.51%	51,006,584	
46	FY 2007 Series CC	210,500,000	15.89%	33,450,077	
47	FY 2007 Series A	310,475,000	13.73%	42,629,128	
49	FY 2007 Series DD	395,000,000	8.43%	33,314,037	
50	2008 Total	14,011,398,727	11.32%	1,585,504,800	
51	FY 2008 Series AA	400,000,000	27.49%	109,951,398	
52	FY 2008 Series BB	401,000,000	15.39%	61,708,489	
53	FY 2008 Series A	446,245,000	14.91%	66,527,108	
54	FY 2008 Series DD	504,905,000	12.90%	65,126,012	
55	2009 Total	15,763,548,727	11.98%	1,888,817,806	
56	FY 2009 Series BB	200,870,000	63.93%	128,419,355	
57	FY 2009 Series CC	150,100,000	6.88%	10,321,706	
58	FY 2009 Series A	536,030,000	21.14%	113,326,719	
59	FY 2009 Series DD	325,580,000	12.44%	40,510,610	
60	FY 2009 Series EE	460,000,000	22.79%	104,849,233	
61	FY 2009 Series FF	270,035,000	0.44%	1,185,596	
62	2010-12 Total	17,706,163,727	12.92%	2,287,431,026	

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 5D NYSEFC Bond Proceeds

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

Line No.	Bond Issue	Total Principal	Upstate Allocation	Upstate Principal	Notes
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	2003 Total	2,401,573,831	6.30%	151,185,384	
17	FY 2003 Series 1	148,040,809	1.65%	2,438,893	(A)
18	FY 2003 Series 5	295,157,120	1.70%	5,003,460	(A)
19	2004 Total	2,844,771,760	5.58%	158,627,737	
20	FY 2004 Series 1	301,008,574	0.07%	208,972	
21	FY 2004 Series 2	257,400,299	1.04%	2,683,044	
22	2005 Total	3,403,180,633	4.75%	161,519,754	
23	FY 2005 Series 1	230,408,946	4.02%	9,264,567	
24	FY 2005 Series 2	390,624,553	0.56%	2,206,216	
25	2006 Total	4,024,214,132	4.30%	172,990,536	
26	FY 2006 Series 1	229,018,261	3.83%	8,773,410	
27	FY 2006 Series 2,3	457,828,498	13.50%	61,821,784	
28	2007 Total	4,711,060,891	5.17%	243,585,730	
29	FY 2007 Series 1,2	518,427,784	9.58%	49,677,805	
30	2008 Total	5,229,488,675	5.61%	293,263,535	
31	FY 2008 Series 1,2	399,690,401	19.01%	75,989,525	
32	2009 Total	5,629,179,076	6.56%	369,253,060	
33	FY 2009 Series 1,2	448,435,268	0.00%	-	
34	2010-12 Total	6,077,614,344	6.08%	369,253,060	

Notes:

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

Table 5E Fiscal Year 2005 and 2006 - 1980's G.O. Debt Service

TABLE 5E
New York City Water Board
Cost of Supplying Water to Upstate Customers
1980's G.O. Debt Service

Line No.	Issue Date	2005		2006	
		<u>Principal</u>	<u>Interest</u>	<u>Principal</u>	<u>Interest</u>
1	10/27/1981	0	0	0	0
2	12/15/1981	0	0	0	0
3	2/18/1982	0	0	0	0
4	3/15/1982	61,334	31,127	61,334	22,234
5	9/30/1982	0	0	0	0
6	12/16/1982	127,490	48,569	129,308	34,927
7	1/21/1983	57,967	26,665	57,967	19,999
8	3/1/1983	0	38,074	0	38,074
9	6/1/1983	0	13,726	0	13,726
10	6/16/1983	33,560	13,560	34,042	9,166
11	10/27/1983	0	0	0	0
12	2/15/1984	0	74,402	0	74,402
13	5/15/1984	0	51,303	0	51,303
14	7/12/1984	76,780	27,244	77,975	19,603
15	3/15/1985	0	85,925	0	85,925
16	7/15/1985	0	109,433	0	109,433
17	Subtotals	<u>357,131</u>	<u>520,028</u>	<u>360,626</u>	<u>478,792</u>
18	Total Debt Service		877,159		839,418

Table 5F Fiscal Year 2007 and 2008 - 1980's G.O. Debt Service

TABLE 5F
New York City Water Board
Cost of Supplying Water to Upstate Customers
1980's G.O. Debt Service

Line No.	Issue Date	2007		2008	
		Principal	Interest	Principal	Interest
1	10/27/1981	0	0	0	0
2	12/15/1981	0	0	0	0
3	2/18/1982	0	0	0	0
4	3/15/1982	61,334	13,340	61,334	4,447
5	9/30/1982	0	0	0	0
6	12/16/1982	131,030	21,096	133,040	7,068
7	1/21/1983	57,967	13,332	57,966	6,666
8	3/1/1983	0	38,074	0	38,074
9	6/1/1983	0	13,726	0	13,726
10	6/16/1983	34,525	5,227	35,007	1,750
11	10/27/1983	0	0	0	0
12	2/15/1984	0	74,402	0	74,402
13	5/15/1984	0	51,303	0	51,303
14	7/12/1984	79,168	11,844	80,360	3,968
15	3/15/1985	0	85,925	0	85,925
16	7/15/1985	0	109,433	0	109,433
17	Subtotals	<u>364,024</u>	<u>437,702</u>	<u>367,707</u>	<u>396,762</u>
18	Total Debt Service		801,726		764,469

Table 5G 2006 - 2008 Defeasance of Bonds

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

	2006	2007	2008
Cash Used for the Defeasance of Bonds	60,081,741	0	0
Upstate CIP \$ as a % of Total Water/Sewer CIP \$	9.08%	9.48%	9.76%
Upstate Portion of Defeasance Cash	5,456,942	0	0

Table 6 Judgments and Claims

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

<u>Year</u>	<u>Historical Costs (\$)</u>
1995	6,879
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
Average (1995-2008)	459,508
Projection Years (2009-2013)	459,508

Table 7 Miscellaneous Revenue

BWSWC Miscellaneous Revenue

Year	Hydropower	Rents (Permits)	Tax Refunds	Total
1994		1,173,639	0	1,173,639
1995		825,252	0	825,252
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
Average		1,195,402		
Projection Years (2009-2013)				
2009	8,914,445	1,195,402	0	10,109,847
2010	9,092,734	1,195,402	0	10,288,136
2011	9,274,588	1,195,402	0	10,469,991
2012	9,460,080	1,195,402	0	10,655,482
2013	9,649,282	1,195,402	0	10,844,684

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 Direct Personal Services Costs

<u>Line No.</u>	<u>Description</u>	<u>F.Y.2006</u> \$	<u>F.Y.2007</u> \$	<u>F.Y.2008</u> \$
<i>Divisional and Sectional Offices</i>				
1	Katonah Resource Protection	0	225,281	95,349
2	Carmel Section	3,265,645	4,049,943	4,422,952
3	Prattsville/Schoharie	2,098,927	2,421,747	2,716,891
4	Ashokan	5,801,034	7,451,039	9,497,168
5	Grahamsville	2,686,801	3,936,184	5,160,760
6	Port Jervis	388,754	449,821	424,312
7	E. Division Hudson River P/S	141,620	154,205	205,846
<i>Laboratories</i>				
8	Kensico	1,873,103	1,579,971	1,860,840
9	Grahamsville	1,229,773	1,363,667	858,944
<i>Other Services</i>				
10	Ashokan	2,433,932	2,487,916	2,486,831
11	Downsville	2,168,924	2,997,909	3,044,880
12	Sutton Park	5,123,101	7,630,354	8,043,694
13	Kingston	854,880	1,491,153	1,712,099
14	Watershed Security (1)	8,696,583	12,355,132	11,582,349
15	Watershed-East of Hudson	4,316,570	5,078,007	6,150,195
16	Upstate DWQC	165,342	204,691	155,401
17	Capital Construction	1,151,459	1,823,427	2,342,001
18	Water Plan and Protect	355,119	416,904	347,423
19	Mahopac	615,737	771,821	840,421
20	Hillview Reservoir	1,960,568	3,956,924	4,445,110
21	UV Facility	0	0	0
22	Direct Personnel Overtime Costs	3,023,960	4,456,956	4,234,579
23	Total Personal Services Costs	48,351,832	65,303,055	70,628,046

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 45.0% in FY 2008 and 51.0% in FY 2009.
- (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 8B Projected Upstate Direct Personal Services Costs

TABLE 8B
New York City Water Board
Cost of Supplying Water to Upstate Customers
Upstate New York Direct Personal Services Costs

Line No.	Description	Actual			Projected Years		
		F.Y. 2008	F.Y. 2009	F.Y. 2010	F.Y. 2011	F.Y. 2012	F.Y. 2013
		\$	\$	\$	\$	\$	\$
<i>Divisional and Sectional Offices</i>							
1	Katonah Resource Protection	95,349	102,273	115,876	113,384	116,786	120,290
2	Carmel Section	4,422,952	4,744,150	5,375,122	5,259,557	5,417,344	5,579,864
3	Prattsville/Schoharie	2,716,891	2,914,194	3,301,781	3,230,793	3,327,717	3,427,548
4	Ashokan	9,497,168	10,186,859	11,541,711	11,293,564	11,632,371	11,981,342
5	Grahamsville	5,160,760	5,535,538	6,271,765	6,136,922	6,321,030	6,510,660
6	Port Jervis	424,312	455,126	515,658	504,571	519,708	535,299
7	E. Division Hudson River P/S	205,846	220,795	250,161	244,782	252,126	259,690
<i>Laboratories</i>							
8	Kensico	1,860,840	1,995,976	2,261,440	2,212,819	2,279,204	2,347,580
9	Grahamsville	858,944	921,321	1,043,857	1,021,414	1,052,056	1,083,618
<i>Other Services</i>							
10	Ashokan	2,486,831	2,667,427	3,022,194	2,957,217	3,045,934	3,137,312
11	Downsville	3,044,880	3,266,001	3,700,379	3,620,821	3,729,446	3,841,329
12	Sutton Park	8,043,694	8,627,832	9,775,334	9,565,164	9,852,119	10,147,683
13	Kingston	1,712,099	1,836,433	2,080,678	2,035,944	2,097,022	2,159,933
14	Watershed Security (1)	11,582,349	12,423,467	14,075,788	13,773,159	14,186,354	14,611,944
15	Watershed-East of Hudson	6,150,195	6,596,827	7,474,205	7,313,509	7,532,915	7,758,902
16	Upstate DWQC	155,401	166,686	188,855	184,795	190,339	196,049
17	Capital Construction	2,342,001	2,512,079	2,846,185	2,784,992	2,868,542	2,954,598
18	Water Plan and Protect	347,423	372,653	422,216	413,138	425,532	438,298
19	Mahopac	840,421	901,453	1,021,347	999,388	1,029,369	1,060,251
20	Hillview Reservoir	4,445,110	4,767,916	5,402,049	5,285,905	5,444,482	5,607,817
21	UV Facility	0	0	0	0	0	6,798,000
22	Direct Personnel Overtime Costs	4,234,579	4,542,097	5,146,196	5,035,553	5,186,620	5,342,218
23	Total Personal Services Costs	70,628,046	75,757,104	85,832,798	83,987,393	86,507,015	95,900,225

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 2009-2013.
- (3) It is assumed that personal services costs will increase 3.0% per annum in FY 2010 - 2013.
- (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) FY 2010 amounts include an allowance for collective bargaining settlements with one-time retroactive payments.
- (6) FY 2011 - 2013 amounts exclude one-time payments but include an assumed higher salary base.

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 Indirect Personal Services Costs

<u>Line No.</u>	<u>Description</u>	<u>F.Y.2006</u> \$	<u>F.Y.2007</u> \$	<u>F.Y.2008</u> \$
<i>Divisional and Sectional Offices</i>				
1	Katonah Resource Protection	333,451	106,140	271,852
2	Carmel Section	221,691	272,664	485,479
3	Prattsville/Schoharie	133,937	0	0
4	Ashokan	3,256,221	2,670,918	3,145,601
5	Grahamsville	998,713	799,115	1,127,224
<i>Laboratories</i>				
6	Kensico	479,241	268,340	357,663
7	Grahamsville	242,264	167,331	257,126
8	Giardia	0	349,232	0
<i>Other Services</i>				
9	Ashokan	240,137	106,661	124,620
10	Downsville	162,658	146,854	116,509
11	Sutton Park	6,242,936	4,115,104	5,066,844
12	Kingston Office	1,337,608	1,229,981	2,073,143
13	Watershed Security (1)	1,501,715	1,706,948	1,803,001
14	Mobile Task Force	143,221	0	0
15	East of Hudson Fleet	282,745	496,634	424,843
16	Shokan Fleet Admin.	396,303	464,023	503,992
17	Downsville Fleet Admin.	71,610	87,383	93,856
18	Grahamsville Fleet Admin.	143,221	174,766	187,711
19	Watershed-East of Hudson	360,773	335,907	433,563
20	Capital Construction	239,025	0	0
21	Env. Planning & Assess Float	113,130	126,554	0
22	Indirect Personnel Overtime Costs	196,066	291,222	279,374
23	Total Personal Services Costs	17,096,666	13,915,776	16,752,400

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 45.0% in FY 2008 and 51.0% in FY 2009.
- (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 Indirect Personal Services Costs

Line No.	Description	Actual		Projected Years			
		F.Y. 2008	F.Y. 2009	F.Y. 2010	F.Y. 2011	F.Y. 2012	F.Y. 2013
		\$	\$	\$	\$	\$	\$
<i>Divisional and Sectional Offices</i>							
1	Katonah Resource Protection	271,852	291,594	330,376	323,273	332,971	342,960
2	Carmel Section	485,479	520,735	589,992	577,308	594,627	612,466
3	Prattsville/Schoharie	0	0	0	0	0	0
4	Ashokan	3,145,601	3,374,037	3,822,784	3,740,594	3,852,812	3,968,396
5	Grahamsville	1,127,224	1,209,084	1,369,892	1,340,439	1,380,653	1,422,072
<i>Laboratories</i>							
6	Kensico	357,663	383,637	434,660	425,315	438,074	451,217
7	Grahamsville	257,126	275,798	312,479	305,761	314,934	324,382
8	Giardia	0	0	0	0	0	0
<i>Other Services</i>							
9	Ashokan	124,620	133,670	151,448	148,192	152,638	157,217
10	Downsville	116,509	124,970	141,591	138,547	142,703	146,984
11	Sutton Park	5,066,844	5,434,801	6,157,630	6,025,241	6,205,998	6,392,178
12	Kingston Office	2,073,143	2,223,696	2,519,448	2,465,280	2,539,238	2,615,415
13	Watershed Security (1)	1,803,001	1,933,936	2,191,150	2,144,040	2,208,361	2,274,612
14	Mobile Task Force	0	0	0	0	0	0
15	East of Hudson Fleet	424,843	455,695	516,303	505,202	520,358	535,969
16	Ashokan Fleet Admin.	503,992	540,593	612,492	599,323	617,303	635,822
17	Downsville Fleet Admin.	93,856	100,671	114,061	111,608	114,957	118,405
18	Grahmsville Fleet Admin.	187,711	201,343	228,122	223,217	229,913	236,811
19	Watershed-East of Hudson	433,563	465,049	526,900	515,572	531,039	546,970
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	279,374	299,662	339,517	332,217	342,184	352,449
23	Total Personal Services Costs	16,752,400	17,968,971	20,358,844	19,921,129	20,518,763	21,134,326

Notes:

- (1) Personal service costs include salary and a fringe rate of 51% for FY 2009-2013.
- (2) It is assumed that personal services costs will increase 3.0% per annum in FY 2010 - 2013.
- (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.
- (4) FY 2010 amounts include an allowance for collective bargaining settlements with one-time retroactive payments.
- (5) FY 2011 - 2013 amounts exclude one-time payments but include an assumed higher salary base. 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

<u>Line No.</u>	<u>Description</u>	<u>2006</u>		<u>2007</u>		<u>2008</u>		<u>Projection Years</u>
1	Total Salaries - Employees North of NYC	60,267,903		68,317,722		76,574,547		
2		----- =	49.99%	----- =	48.34%	----- =	49.75%	49.75%
3	Total Salaries - All Water Supply Employees	120,551,873		141,332,147		153,906,802		
4	Head Count - Water Supply Employees	1,767		1,779		1,765		
5		----- =	31.05%	----- =	30.44%	----- =	29.88%	29.88%
6	Head Count - NYC DEP Employees	5,690		5,844		5,907		
7	Number of Vehicles - Water Supply	881		821		772		
8		----- =	42.09%	----- =	37.92%	----- =	36.02%	36.02%
9	Number of Vehicles - NYC DEP	2,093		2,165		2,143		

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 NYC

<u>Line No.</u>	<u>Description</u>	<u>F.Y.2006</u> \$	<u>Updated Description</u>	<u>F.Y.2007</u> \$	<u>F.Y.2008</u> \$
1	Office of Administration	2,966,774	Executive	7,889,756	9,044,130
2	Communication Center	2,753,940	General Counsel	2,472,548	2,418,636
3	Labor Relations	895,696	Public Affairs	1,501,413	2,049,527
4	Legal Services	2,120,434	Env. Health & Safety	2,478,709	2,671,531
5	Public Information	4,646,399	Environ. Planning	3,043,183	4,011,386
6	Office Services	501,179	Budget Office	2,682,906	3,169,794
7	Budget	1,882,538	Facilities Mgt & Constr	4,665,073	4,822,144
8	Audits and Accounts	2,001,553	Human Res & Labor Rel	11,330,271	12,732,366
9	Contracts	1,107,598	Chief Contract Office	4,966,542	3,143,316
10	Procurement	1,619,488	Environ. Coordination	1,058,030	1,268,882
11	Payroll	718,975	Add'l Exec & Support	4,400,040	944,705
12	Personnel	3,090,639			
13	M.I.S.	1,093,412			
14	Motor Vehicle Maintenance	5,298,845			
15	Management Services	1,491,159			
16	Planning	1,790,951			
17	Wetlands	358,647			
18	Building Maintenance	2,958,764			
19	Total DEP Executive and Support Personal Services Costs	37,296,991		46,488,471	46,276,417
20	Allocation to Water Supply	31.05%		30.44%	29.88%
21	Personal Services Costs Related to Water Supply	11,582,387		14,151,778	13,827,303
22	Allocation to Facilities North of NYC	49.99%		48.34%	49.75%
23	Personal Services Costs Related to Facilities North of NYC	5,790,422		6,840,745	6,879,614

Notes:

(1) Personal service costs include salary and fringe benefits.

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 NYC

<u>Line No.</u>	<u>Description</u>	<u>Actual</u>		<u>Projected Years</u>			
		<u>F.Y. 2008</u>	<u>F.Y. 2009</u>	<u>F.Y. 2010</u>	<u>F.Y. 2011</u>	<u>F.Y. 2012</u>	<u>F.Y. 2013</u>
		\$	\$	\$	\$	\$	\$
1	Executive	9,044,130	9,700,921	10,991,143	10,754,834	11,077,479	11,409,803
2	General Counsel	2,418,636	2,594,279	2,939,318	2,876,123	2,962,407	3,051,279
3	Public Affairs	2,049,527	2,198,365	2,490,748	2,437,197	2,510,313	2,585,622
4	Env. Health & Safety	2,671,531	2,865,539	3,246,656	3,176,853	3,272,158	3,370,323
5	Environ. Planning	4,011,386	4,302,696	4,874,954	4,770,143	4,913,247	5,060,645
6	Budget Office	3,169,794	3,399,987	3,852,185	3,769,363	3,882,444	3,998,917
7	Facilities Mgt & Constr	4,822,144	5,172,331	5,860,251	5,734,256	5,906,284	6,083,472
8	Human Res & Labor Rel	12,732,366	13,656,999	15,473,380	15,140,702	15,594,923	16,062,771
9	Chief Contract Office	3,143,316	3,371,586	3,820,006	3,737,876	3,850,013	3,965,513
10	Environ. Coordination	1,268,882	1,361,029	1,542,046	1,508,892	1,554,159	1,600,783
11	Add'l Exec & Support	944,705	1,013,310	1,148,080	1,123,397	1,157,099	1,191,812
12 Total DEP Personal Services Costs		46,276,417	49,637,043	56,238,769	55,029,636	56,680,525	58,380,940
13 Allocation to Water Supply		29.88%	29.88%	29.88%	29.88%	29.88%	29.88%
14 Personal Services Costs Related to Water Supply		13,827,303	14,831,451	16,804,034	16,442,747	16,936,029	17,444,110
15 Allocation to Facilities North of NYC		49.75%	49.75%	49.75%	49.75%	49.75%	49.75%
16 Personal Services Costs - Facilities North of NYC		6,879,614	7,379,217	8,360,652	8,180,898	8,426,325	8,679,115

Notes:

- (1) Personal service costs include salary and a fringe rate of 51% for FY 2009-2013.
- (2) It is assumed that personal services costs will increase 3.0% per annum in FY 2010 - 2013.
- (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.
- (4) FY 2010 amounts include an allowance for collective bargaining settlements with one-time retroactive payments.
- (5) FY 2011 - 2013 amounts exclude one-time payments but include an assumed higher salary base 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

<u>Line No.</u>	<u>Description</u>	<u>F.Y. 2006</u> \$	<u>F.Y. 2007</u> \$	<u>F.Y. 2008</u> \$
1	Accounting	123,200	123,003	106,591
2	Executive and Support	85,430	57,683	37,660
3	Fleet Administration	5,056,001	5,244,457	6,313,067
4	Public Affairs	327,527	472,937	1,157,179
5	Facilities Management and Construction	1,462,075	1,583,682	1,072,530
6	Management and Budget	2,736,960	2,677,650	3,308,213
7	Management Information Systems	2,876,080	2,024,237	5,077,917
8	Chief Engineer	70,052	61,439	62,413
9	Legal	104,176	133,993	82,932
10	Environmental Assessment	665,703	592,305	275,308
11	Telephone	3,603,779	3,456,205	3,639,384
12	Lefrak Administration Rents	5,652,667	4,750,587	4,188,629
13	Facility Management Rents	466,583	460,863	468,992
14	Management and Budget Environmental Health/Safety	434,866	216,009	808,689
15	Transportation Enhancement	20,000	0	0
16	Total OTPS to be Allocated	23,685,099	21,855,050	26,599,504
17	Allocation	31.05%	29.88%	29.88%
18	OTPS Allocation (line 16 X line 17)	7,355,285	6,530,246	7,947,880
19	Rents Other Than Lefrak	1,379,632	1,421,021	1,341,940
20	Lefrak Water Supply Rents	756,981	779,690	857,581
21	Total Rents (line 19 + line 20)	2,136,613	2,200,711	2,199,521
22	Motor Vehicle Operating Rents	1,276,757	1,255,519	1,337,650
23	Allocation	42.09%	36.02%	36.02%
24	Total Motor Vehicle Operating Rents (line 22 X line 23)	537,421	452,292	481,879
25	Motor Vehicle Parking	300,000	300,000	300,000
26	Allocation	18.62%	19.22%	16.82%
27	Total Motor Vehicle Parking (line 25 X line 26)	55,860	57,649	50,462
28	Cafeteria	405,641	366,228	316,234
29	Allocation	14.39%	14.81%	12.51%
30	Total Cafeteria (line 28 X line 29)	58,372	54,245	39,547
31	Total OTPS Costs Allocated to Water Supply at DEP (1)	10,143,551	9,295,144	10,719,288
32	Allocation to Facilities North of NYC	49.99%	49.75%	49.75%
33	OTPS Costs Related to Facilities North of NYC	5,071,099	4,624,691	5,333,258

Notes:

(1) Total OTPS costs allocated to DEP is equal to the sum of lines 18, 21, 24, 27, and 30.

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 NYC

Line No.	Description	Actual		Projected Years			
		F.Y. 2008	F.Y. 2009	F.Y. 2010	F.Y. 2011	F.Y. 2012	F.Y. 2013
		\$	\$	\$	\$	\$	\$
1	Accounting	106,591	109,789	113,083	116,475	119,969	123,568
2	Executive and Support	37,660	38,790	39,954	41,152	42,387	43,658
3	Fleet Administration	6,313,067	6,502,459	6,697,532	6,898,458	7,105,412	7,318,574
4	Public Affairs	1,157,179	1,191,894	1,227,651	1,264,480	1,302,415	1,341,487
5	Facilities Management and Construction	1,072,530	1,104,705	1,137,847	1,171,982	1,207,142	1,243,356
6	Management and Budget	3,308,213	3,407,459	3,509,683	3,614,973	3,723,422	3,835,125
7	Management Information Systems	5,077,917	5,230,255	5,387,162	5,548,777	5,715,241	5,886,698
8	Chief Engineer	62,413	64,286	66,214	68,201	70,247	72,354
9	Legal	82,932	85,420	87,983	90,623	93,341	96,141
10	Environmental Assessment	275,308	283,567	292,074	300,837	309,862	319,158
11	Telephone	3,639,384	3,748,565	3,861,022	3,976,853	4,096,159	4,219,043
12	Lefrak Administration Rents	4,188,629	4,314,288	4,443,716	4,577,028	4,714,339	4,855,769
13	Facility Management Rents	468,992	483,062	497,554	512,480	527,855	543,690
14	Management and Budget Environmental Health/Safety	808,689	832,950	857,938	883,676	910,187	937,492
15	Transportation Enhancement	0	0	0	0	0	0
16	Total OTPS to be Allocated	26,599,504	27,397,489	28,219,414	29,065,996	29,937,976	30,836,115
17	Allocation	29.88%	29.88%	29.88%	29.88%	29.88%	29.88%
18	OTPS Allocation (line 16 X line 17)	7,947,880	8,186,316	8,431,905	8,684,863	8,945,408	9,213,771
19	Rents Other Than Lefrak	1,341,940	1,382,198	1,423,664	1,466,374	1,510,365	1,555,676
20	Lefrak Water Supply Rents	857,581	883,308	909,807	937,102	965,215	994,171
21	Total Rents (line 19 + line 20)	2,199,521	2,265,506	2,333,471	2,403,476	2,475,580	2,549,847
22	Motor Vehicle Operating Rents	1,337,650	1,377,780	1,419,113	1,461,687	1,505,537	1,550,703
23	Allocation	36.02%	36.02%	36.02%	36.02%	36.02%	36.02%
24	Total Motor Vehicle Operating Rents (line 22 X line 23)	481,879	496,335	511,225	526,562	542,359	558,630
25	Motor Vehicle Parking	300,000	309,000	318,270	327,818	337,653	347,782
26	Allocation	16.82%	16.82%	16.82%	16.82%	16.82%	16.82%
27	Total Motor Vehicle Parking (line 25 X line 26)	50,462	51,976	53,535	55,141	56,796	58,499
28	Cafeteria	316,234	325,721	335,492	345,557	355,924	366,601
29	Allocation	12.51%	12.51%	12.51%	12.51%	12.51%	12.51%
30	Total Cafeteria (line 26 X line 27)	39,547	40,734	41,956	43,214	44,511	45,846
31	Total OTPS Costs Allocated to Water Supply at DEP ⁽¹⁾	10,719,288	11,040,867	11,372,093	11,713,256	12,064,653	12,426,593
32	Allocation to Facilities North of NYC	49.75%	49.75%	49.75%	49.75%	49.75%	49.75%
33	OTPS Costs Related to Facilities North of NYC	5,333,258	5,493,255	5,658,053	5,827,795	6,002,628	6,182,707

Notes:

- (1) Total OTPS costs allocated to DEP is equal to the sum of lines 18, 21, 24, 27, and 30.
(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

<u>Line No.</u>	<u>Fiscal Year</u>	(A) <u>System-Wide Consumption</u> mg	(B) <u>Upstate Consumption</u> mg	<u>Upstate as a % of Total</u> [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%

Projections:

25	2009	425,372	42,432	9.98%
26	2010	418,400	42,023	10.04%
27	2011	411,428	41,613	10.11%
28	2012	404,456	41,204	10.19%
29	2013	397,484	40,795	10.26%

Notes:

(1) Consumption projections are based on a regression analysis beginning in 1999.

(2) Equation used to calculate System-wide Consumption:

$y=m(t)+b$. Where (t) is a given year.

m= -6971.901891

b= 14431923

(3) Equation used to calculate Upstate Consumption:

$y=m(t)+b$. Where (t) is a given year.

m= -409.20

b= 864,520.07

Table 14 Projected Net Revenues From Hydroelectric Facilities

TABLE 14
NYC DEPARTMENT OF ENVIRONMENTAL PROTECTION
NET REVENUE ESTIMATES FOR UPSTATE HYDRO-ELECTRIC FACILITIES (3)

	YEAR				
	2009	2010	2011	2012	2013
<u>ASHOKAN & KENSICO</u>					
NET REVENUE	\$ -	\$ -	\$ -	\$ -	\$ -
<u>NEVERSINK (1)</u>					
REVENUES	\$ 3,087,777	\$ 3,149,533	\$ 3,212,523	\$ 3,276,774	\$ 3,342,309
NYPA EXPENSES (2)	\$ 741,829	\$ 756,665	\$ 771,798	\$ 787,234	\$ 802,979
NET REVENUE	\$ 2,345,949	\$ 2,392,868	\$ 2,440,725	\$ 2,489,539	\$ 2,539,330
<u>WEST DELAWARE,</u>					
NET REVENUE (3)	\$ 114,537	\$ 116,827	\$ 119,164	\$ 121,547	\$ 123,978
<u>EAST DELAWARE (1)</u>					
REVENUES	\$ 7,094,143	\$ 7,236,026	\$ 7,380,747	\$ 7,528,362	\$ 7,678,929
NYPA EXPENSES (2)	\$ 640,184	\$ 652,987	\$ 666,047	\$ 679,368	\$ 692,955
NET REVENUE	\$ 6,453,960	\$ 6,583,039	\$ 6,714,700	\$ 6,848,994	\$ 6,985,973
<u>SUMMARY</u>					
TOTAL REVENUES	\$ 10,296,457	\$ 10,502,386	\$ 10,712,434	\$ 10,926,683	\$ 11,145,216
TOTAL EXPENSES W/O TAXES	\$ 1,382,012	\$ 1,409,652	\$ 1,437,845	\$ 1,466,602	\$ 1,495,934
NET REVENUE	\$ 8,914,445	\$ 9,092,734	\$ 9,274,588	\$ 9,460,080	\$ 9,649,282

NOTES:

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

(2) Expenses include Direct Charges and Overhead for Neversink and East Delaware.

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

Note: Reflects fiscal year revenue if available at the time of the Report.

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

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

Fiscal Year	Rate per Million Gallons (MG) (a)			Total Billed	Actual Cost	Underpayment
	Billed to Upstate Customers	Computed Cost to the Board	Upstate Consumption			
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
Total Underpayment 1994-2008						12,352,560
Total Underpayment 2000-2008						-2,077,717

(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) To date, the Board has neither credited nor billed upstate customers the difference between the amount billed and the actual cost of service.