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New York City Independent Budget Office

Fiscal Brief

May 2008

Water and Sewer Rates: Factors Driving the Increases and Options for Reductions

SUMMARY

On April 11th, the Water Board was presented with a proposed increase in water and sewer rates of 14.5 percent, effective July 1st—the largest increase since 1992. If the rate increase proposal is adopted by the Water Board on May 16th as planned, rates will have increased a cumulative 77 percent since 2001. A further 14.0 percent increase is projected for next year, followed by a 12.0 percent increase in 2011.

Public Advocate Betsy Gotbaum asked IBO to examine what was driving increases in water and sewer rates. Water and sewer rates are set at a level sufficient to fully recover system costs, including operations and maintenance (O&M), debt service, the rental payment made by the Water Board to the City of New York, and other costs allocated to the water and sewer system. IBO's detailed review of recent cost trends shows:

- Operations and maintenance (O&M) costs have risen 41 percent from 2001 through 2007, and are projected to rise 19 percent in 2008 and 5 percent in 2009. Major factors propelling O&M spending growth since 2001 include fringe benefits for system employees, the cost of energy and chemicals, and upstate taxes.
- Debt service on bonds issued to finance the system's extensive capital program is projected to rise at an annual rate of almost 15 percent over the next several years and to overtake O&M as the largest category of system spending.
- The rental payment made by the Board to the City of New York general fund is set to rise at an average rate of more than 13 percent annually. The payment, which had been declining as recently as 2005, is tied to debt service on outstanding Water Authority bonds.
- Water and sewer rates will also cover $93 million in other costs in 2008, including services provided by other city agencies, the operations of the Water Authority and Water Board, and judgments and claims against the system.

The 14.5 percent rate increase proposed for 2009 was higher than the Board had previously projected in large measure because revenues in 2008 were lower than expected. This in turn was due to the implementation of measures such as waiving penalties and allowing installment payments in an effort to collect delinquent funds.

One option to help mitigate the proposed 14.5 percent rate increase would be to limit the Board's rental payment to the city. If the city elected to forego any rental payment in excess of the debt service due on outstanding General Obligation bonds this year, IBO estimates that the 2009 rate increase could be reduced to roughly 11 percent. In contrast, scaling back the system's capital program would provide limited savings in the near-term and have little impact on the proposed rate increase.

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INTRODUCTION

On April 11th, the Water Board was presented with a proposed increase in water and sewer rates of 14.5 percent, effective July 1st—the largest increase since 1992. If the rate increase proposal is adopted by the Water Board on May 16th, as planned, rates will have increased a cumulative 77 percent since fiscal year 2001. A further 14.0 percent increase is projected for next year, followed by a 12.0 percent increase in 2011.

In this Fiscal Brief, we examine the factors behind recent rate increases. Water and sewer charges must cover both the system's operations and maintenance as well as the financing of the capital program. Both have contributed to recent increases. A confluence of circumstances, including rising energy costs, rising costs of fringe benefits for city employees, a number of large, complex capital projects, and rapidly rising construction costs, have combined to put unusual pressure on water and sewer rates. On the operating side, energy costs, the costs of fringe benefits for the system's 5,500 employees, property taxes paid to upstate communities on watershed property and facilities, and the costs of chemicals used for treatment of water and wastewater, have all contributed to rapid growth in operating costs. On the capital side, although the system's cost of borrowing has been relatively low, rising construction costs, and the need to meet mandated construction deadlines have pushed the capital program to unprecedented highs.

We begin with a brief overview of the system and water usage trends. We then review how rate increases are calculated, summarizing the broad financial outlines of the system. In the next section, we review system revenues and expenses in more detail. The latter include operation and maintenance spending, including costs allocated to the system from agencies besides the Department of Environmental Protection (DEP); debt service on bonds issued to finance the capital program; and the rental payment made to the city for the use of the system infrastructure.

Although water and sewer charges are based on usage, most of the costs each year are fixed and difficult to change in the short run. There are, nonetheless, a few options for reducing rate increases in the short term that could be considered, although some of them involve accepting a degree of risk, while others would simply defer increases until later years. Options for reducing rate increases are discussed in the final section of the report.

WATER AND SEWER SYSTEM OVERVIEW

The Water and Sewer System's institutional structure was created in 1984 as a publicly-owned but financially self-sustaining utility. The creation of the system came as New York City was still recovering from the fiscal crisis of a decade earlier, and attempting to meet a backlog of deferred capital needs. Unlike much of the rest of the city's capital plant, which is financed with bonds backed by general tax revenues, the water and sewer system, as a separate utility, could generate revenue from charging for water and sewer usage to pay for both system operation and maintenance and capital financing.

The Water and Sewer System institutional structure consists of three parts:

- The Water Board, consisting of 7 members appointed by the Mayor, which sets rates and policies including rules and regulations for the system. By law, the Board must set water and sewer charges at a level sufficient to provide for system operations, debt service on system bonds, and a rental payment.
- The Municipal Water Finance Authority, which issues bonds to finance the capital program;
- The Department of Environmental Protection, which operates the system.

The governance of the system is spelled out in the legislation which created it, as well as a financing agreement among the Board, the Authority, and the city, and a lease agreement under which the Water Board pays rent to the city for the system infrastructure, which is owned by the city.[1]

Under the lease agreement with the Water Board, the city's Department of Environmental Protection issues bills and collects water and sewer charges. DEP transfers funds to the Water Authority necessary to pay principal and interest on outstanding bonds, and to cover the Authority's operating expenses. The Board reimburses the city's general fund for system costs, including for operation and maintenance of the system, city agency support costs, and payment of legal judgments and claims against the system.[2] The Board's payments are made daily based on budgeted operating expenses, and any adjustments necessary to reflect actual costs are made after the end of the year and reflected in the next year's schedule of payments.

Finally, the Board makes a separate rental payment, equal to the greater of debt service on outstanding city general obligation bonds issued prior to the creation of the system for water and sewer purposes, or 15 percent of debt service on bonds issued by the Authority. Since 2005, the latter has been the basis for the rental payment.

Declining Consumption, Rising Costs. Since the system was created in 1985, and despite a growing population and economy, water consumption has trended downward, falling by 23 percent from the peak level in 1988 to 2006. Most recently, water consumption (measured by gallons flowing through the Hillview Reservoir) declined by 4 percent annually in 2002 and 2003. The rate of decline has slowed since then, and consumption actually rose slightly in 2007. While lower water consumption may reduce individual bills in the short term, the delivery of water and the treatment of wastewater involve high fixed costs and only a very small variable cost component. Thus, despite declining consumption, total costs continue to rise. As DEP noted in its 2007 rate increase proposal, “Reduced water consumption puts upward pressure on rate levels …”[3]

Projected System Revenues and Spending, 2008 & 2009

Dollars in millions

	2008	2009	Change	
EXPENSES				
Operating Expenses				
Water & Wastewater Operations	$1,083.5	$1,135.9	$52.4	4.8%
Authority/Board Operations	48.6	48.3	(0.3)	-0.6%
Indirect Expense	18.3	18.3	-	0.0%
Judgments & Claims	11.3	8.0	(3.3)	-29.2%
Subtotal, Operating Expenses	**$1,161.7**	**$1,210.5**	**$48.8**	**4.2%**
Debt Service				
First Resolution Debt Service	$545.4	$590.4	$44.9	8.2%
Second Resolution Debt Service	501.0	659.3	158.3	31.6%
Interest on Commercial Notes	27.0	42.5	15.5	57.4%
Less: Environmental Facilities Corp Subsidy	(102.1)	(113.4)	(11.3)	11.1%
Subtotal, Debt Service	**$971.3**	**$1,178.8**	**$207.5**	**21.4%**
Rental Payment to City of New York	$146.6	$177.6	$31.0	
Pay-As-You-Go Capital Construction	-	90.0	90.0	
Less: Credit for Prior Year Excess O&M Paymen	(15.7)	-	15.7	
Less: Trust Account Withdrawals	-	(66.0)	(66.0)	
Less: Surplus ("Carryforward Revenues")	(173.6)	(153.5)	20.1	
Total Expenses, Net	**$2,090.3**	**$2,437.6**	**$347.3**	**16.6%**
REVENUES				
User Payments	$2,126.5	$2,412.8	$286.3	13.5%
Upstate Revenues	39.4	42.5	3.1	7.9%
Miscellaneous Revenues	6.8	7.1	0.3	4.4%
Subtotal Operating Revenue	**$2,172.7**	**$2,462.4**	**$289.7**	**13.3%**
Interest on System Funds	71.1	76.6	5.5	7.7%
Total Current Revenues	**$2,243.8**	**$2,539.0**	**$295.2**	**13.2%**
Net Surplus Carryforward	**$153.5**	**$101.4**	**($52.1)**	**-33.9%**

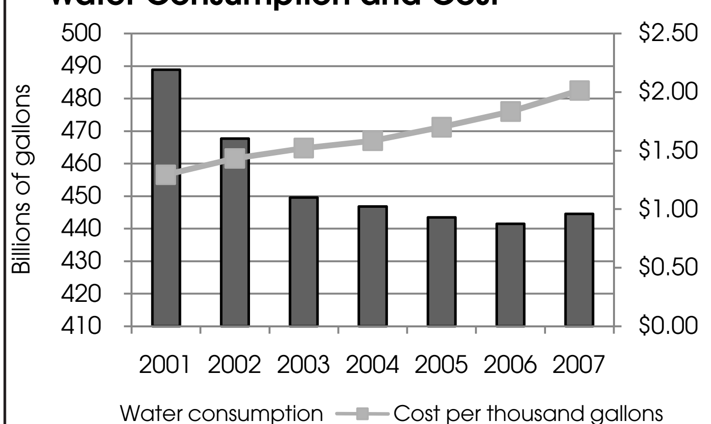
SOURCES: IBO; April 2008 Blue Book.
NOTE: Numbers may not add due to rounding.

SETTING RATES

By law, the Water Board must set water and sewer rates at a level sufficient to pay principal and interest on Authority debt and to provide for maintenance and operation of the system, and make the rental payment to the city.

The rate proposal is presented by the Water Board staff each spring. In support of the rate proposal, the staff presents related information in the so-called “Blue Book,” which documents and justifies the proposal. For metered customers, the water rate is set based on the amount consumed, and the sewer rate is then set as a percentage of the water rate. Thus, for 2008, the water rate is $2.02 per hundred cubic feet (ccf or the equivalent of 748 gallons), and the sewer rate is set at 159 percent of the water rate—or in effect, $3.21 per ccf, or a combined charge of $5.23 per ccf.[4] The sewer rate ratio is based on the long-term relationship between the cost of the wastewater system and that of the water supply and delivery system. The rate has been constant at 159 percent since 1993, although the precise cost ratio fluctuates marginally from year to year.

Water Consumption and Cost



SOURCES: IBO; Water Board.
NOTE: Costs are IBO estimate of average cost per thousand gallons.

For 2009, the projected rate increase is 14.5 percent. The following reviews how the rate increase was calculated and presented to the Water Board.

Total net system expenses are projected to increase by $347.3 million, or 16.6 percent. Operations and maintenance expenses are projected to increase by $48.8 million, or 4.2 percent, to $1.21 billion. Debt service before use of the prior-year surplus is set to rise to $1.179 billion—an increase of 21.4 percent over

WHY THE BIGGER-THAN-EXPECTED INCREASE IN 2009 RATES?

The proposed increase in water and sewer rates for 2009 presented to the Water Board on April 11th is 14.5 percent—substantially greater than the previously forecast 11.5 percent increase, which would have matched the fiscal year 2008 increase. Why the need for such a large increase?

The answer lies not so much in 2009 as in 2008. Total spending for 2009 is now projected to be just slightly less than the previous projection: $2,437.6 million, versus $2,439.0 million forecast a year ago. But 2008 is projected to be disappointing in terms of revenues, with the Water Board now expecting to collect $52.2 million less than projected. As a result, rates will have to go up enough to cover the shortfall from 2008.

The principal reason for the shortfall in revenues this year lies in the effort to collect delinquent amounts. The Mayor and City Council agreed last December to grant DEP the authority to sell stand-alone liens on all but single family delinquent water and sewer accounts. DEP also initiated two programs to collect amounts owed from both single-family homes and multi-family residential properties. However, the programs included waivers of interest and penalties on delinquent amounts, and as a result, the amount expected to be collected is 69 percent of what is owed: $151 million out of $220 million. Moreover, since many customers elected to pay their delinquent balances in installments stretching over as much as 5 years, the full amount will not be collected this year. DEP has collected about $38 million thus far this year, and although it expects to collect more as the date of the lien sale approaches on May 19th, much of the balance will be collected in future years under the payment agreements.

Changes in Projected Water and Sewer User Payments

Dollars in millions

	2008	2009	Year-over-year Increase
Previous projection	$2,178.7	$2,391.6	$212.9
Current projection	$2,126.5	$2,412.8	$286.3
Change from previous projection	($52.2)	$21.2	$73.4

SOURCES: IBO; Water Authority.
NOTE: The current projection for 2009 includes funds to cover the 2008 shortfall.

2008. In addition, the rental payment will increase by $31.0 million, to $177.6 million. DEP also envisions using $90.0 million in 2009 for pay-as-you-go capital spending.

The sum of operating expenses, debt service, the rental payment, and pay-as-you-go construction will be offset by withdrawal of $66.0 million from a trust account, and by use of $153.5 million in surplus funds from 2008.[5]

To cover expenditures, revenues will increase by $295.2 million, or 13.2 percent. Because user charges constitute 98 percent of operating revenues, the bulk of the increased revenues would come from the proposed rate increase of 14.5 percent. The net impact of the rate increase—taking into account a projected decline in chargeable water consumption of about 0.5 percent—will be a 13.5 percent increase in water and sewer user payments, to $2.413 billion.[6]

SYSTEM REVENUES AND COSTS

Overview

Water and sewer user payments constitute 98 percent of operating revenues, and rates are set so as to fully recover system costs. Two broad cost categories—debt service and operations and maintenance—make up 90 percent of gross expenses and therefore are the principal drivers of water and sewer rates. We briefly review the sources of system revenues and the recent history of rate increases, and look at the impact of delinquencies on revenues. Then we turn to a more detailed examination of recent trends in operations and maintenance expenses, capital spending and debt service, and the rental payment.

System Revenues

Water and sewer charges constitute 98 percent of system operating revenues in any given year. Other operating income is provided by water fees charged to upstate customers, connection fees, and late payment fees. Non-operating revenues come in the form of subsidies provided through the state Environmental Facilities Corporation (EFC; discussed below under Debt Service) and investment income.

There are approximately 830,000 customer accounts within New York City. Roughly 88 percent of accounts and two-thirds of amounts billed each year are residential buildings. Most accounts are billed based on actual (or estimated) water consumption, measured in increments of one hundred cubic feet

Water and Sewer System Revenues

Dollars in millions

	2005	2006	2007
Water & sewer charges	$1,685.0	$1,765.9	$1,819.1
Other operating revenues:			
Upstate water fees	27.3	42.7	42.2
Late payment fees	47.8	45.5	43.3
Connection fees and permits	10.4	12.1	12.6
Total operating revenues	$1,770.5	$1,866.2	$1,917.2
EFC subsidy income	78.8	88.4	90.6
Investment income, net	97.4	105.2	98.1
Total System Revenues	**$1,946.7**	**$2,059.8**	**$2,105.9**

SOURCES: IBO; Municipal Water Finance Authority Offering Statements.

(ccf). Currently fewer than 7 percent of accounts continue to be billed on a flat-rate basis, which is calculated based on a formula that includes building street frontage, number of stories, and number and type of water fixtures. Nonetheless, because flat-rate accounts are almost entirely multi-family residential buildings, they account for over $500 million in annual billings—nearly one-quarter of total water and sewer revenues.

Water and Sewer Rate Growth. After a period of rapid increase in the late 1980s, water and sewer rates grew at a more moderate pace during the 1990s. Most recently, growth in rates has again accelerated, increasing 9.4 percent for 2007 and 11.5 percent in 2008, a proposed increase of 14.5 percent in 2009, and projected increases of 14.0 percent in 2010, 12.0 percent in 2011, and 6.5 percent in 2012.

Delinquencies. Historically the Water Board has collected about 90 percent of billed amounts within 6 months of the due date. The balance due on delinquent accounts has trended downward, from a high of $911 million during 2001, to under $600 million in 2007. In the first half of fiscal year 2008, however, the collection rate fell to about 88 percent. Nearly half of the total owed is from one- to three-family homes, with another 36 percent owed by multi-family apartment buildings—especially smaller, walk-up buildings. Commercial customers represent less than 10 percent of accounts receivable.[7]

Until this year, with the exception of commercial properties, the Board has lacked enforcement mechanisms, such as the authority to shut off water to delinquent accounts, or to sell liens against delinquent accounts unless they were included in property tax lien sales.[8] DEP has also lacked reliable billing mechanisms, however, and the high billing error rate is one reason why the City Council had been reluctant to provide the agency with enforcement tools. The Council reached agreement with the Bloomberg Administration on stand-alone lien sales for all but single family delinquent water and sewer accounts in December 2007. About $180 million in past due accounts were included in the lien sale and a payment incentive program has been developed by DEP in which late fees and interest will be waived for customers who pay their delinquent amounts before April 22 (with the lien sale scheduled for May 19th). Not all this amount will be realized immediately, however, since the majority of customers who received lien sale notices in February and March have entered into payment agreements, with less than half having paid in full. In addition, the amount collected will be reduced to the extent that fees and penalties are waived (see Sidebar: Why the Bigger-than-Expected Rate Increase for 2009?, on p. 4).

DEP has also initiated a program to shut-off service to single family homes with delinquent water and sewer accounts, which has been successful in leading customers to bring their accounts current, although the amounts involved are much smaller.

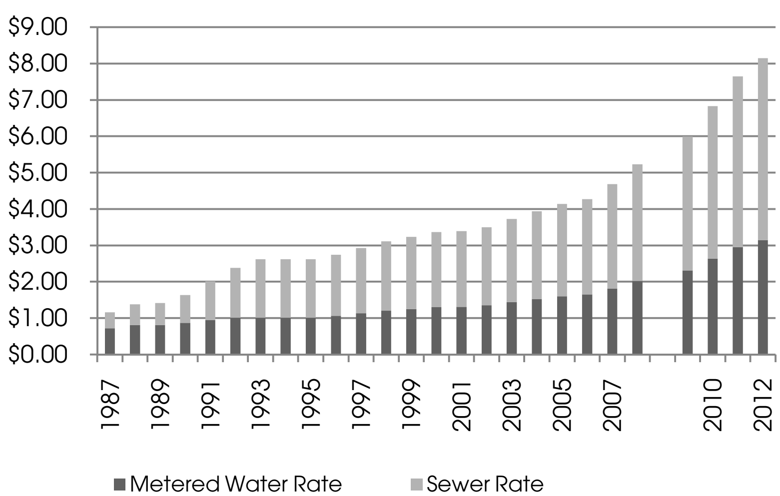
IBO estimates that if the collection rate were closer to 95 percent of the total amount billed, user payments would increase by approximately $134 million—almost half the total increase in user payments expected in 2009.

System Expenditures

Total system expenditures rose 35.9 percent

Water and Sewer Rates

per 100 cubic feet



SOURCES: IBO; Municipal Water Finance Authority; Water Board.
NOTES: Metered water rate per 100 cubic feet as adopted by Water Board. Sewer rate expressed as rate per 100 cubic feet. 2009 as proposed; 2010 through 2012 as projected by Water Board.

between 2001 and 2007—an average annual growth rate of 6.2 percent. There are three major cost components that must be covered by system revenues:

- System operations include costs incurred by DEP to operate and maintain the systems for water supply and distribution and wastewater collection and treatment. Costs include billing and customer service functions, allocated administrative and support expenses of the department, and the cost of fringe benefits for system employees, which are paid from central city accounts. The total also includes other city agency support costs, Water Authority costs, and payment of legal judgments and claims against the system. Total operations costs rose by nearly $300 million, or 43.5 percent, from 2001 through 2007.
- The Water Board makes a payment to the city as rent for system infrastructure based on a formula included in the original financing agreement among the city, the Authority and the Board. Rental payments are projected to rise sharply.
- The final major component is debt service on bonds issued by the Water Authority to finance the system's capital program. Since the Authority took over financing of the system's capital program in 1985, debt outstanding has risen to $18.3 billion as of March 2008. Debt service is projected to be the fastest rising component of total spending in the future, and is about to surpass operations and maintenance as the largest spending category.

Each of these components is discussed in more detail below.

CALCULATING THE COST OF BENEFITS: WHICH FRINGE RATE TO USE?

The "fringe rate" is developed by the Office of Management and Budget for purposes of calculating the full cost of service delivery and for reimbursement from federal and state grants. The fringe rate that is applied for purposes of calculating utility reimbursement is the so-called "fixed" rate used for federal and state grant reimbursements, which is currently higher than the "gross" fringe rate that agencies typically use for purposes of calculating administrative fees and other budget estimation purposes. For example, the fixed rate for 2008 is 45 percent, while the gross rate is 39 percent. Although in most years the difference is less, or even negative, in 2008 the large difference adds nearly $20 million to the expense budget.

Operations and Maintenance

Operations and maintenance (O&M) costs have been rising at an accelerating rate since 2003. The principal contributing factors have been the rising cost of fringe benefits for system employees, rapidly rising costs for energy and chemicals (particularly for wastewater treatment), and property taxes paid to upstate communities where water supply lands and facilities are located.

Personal Services. Spending for staffing of system operations has grown from $312.2 million in 2001 to $432.8 million in 2007—an average annual rate of growth of 5.6 percent. The budget for 2008 is currently $473.3 million, a 9.4 percent increase.

Water & Sewer System Expenditures
Millions of dollars

	2001	2007	Percent Change 2001-2007	2008	Percent Change 2007-2008	2009
Operations & Maintenance	$632.4	$894.0	41.4%	$1,063.7	19.0%	$1,115.2
City Agency Support	33.5	57.3	71.0%	56.1	-2.0%	57.0
Water Authority Operations	9.4	18.5	97.1%	30.6	65.6%	30.3
Judgments & Claims	7.7	9.9	29.2%	11.3	13.8%	8.0
Total Operations	**$683.0**	**$979.8**	**43.5%**	**$1,161.7**	**18.6%**	**$1,210.5**
Rental Payment	157.3	132.3	-15.9%	146.6	11.6%	177.6
Debt Service (Net)	625.3	860.6	37.6%	971.3	12.9%	1,178.8
Paid-in Capital	40.0	20.0		-		90.0
Less: Trust Account withdrawal	-	-		-		(66.0)
Less: Credit for prior-year excess O&M payments	(45.7)	(8.5)		(15.7)		-
Less: Carryforward	(129.1)	(176.2)		(173.6)		(153.3)
TOTAL SYSTEM	**$1,330.8**	**$1,808.0**	**35.9%**	**$2,090.3**	**15.6%**	**$2,437.6**

SOURCES: IBO; Department of Environmental Protection; Mayor's Office of Management and Budget.
NOTES: 2008 and 2009 are budgeted. Debt service is shown after EFC subsidy payments . Numbers may not add due to rounding.

Operations and Maintenance Spending *Dollars in millions*						
	2001	2007	Percent Change 2001-2007	2008	Percent Change 2007-2008	2009
Personal Services incl. Fringe Benefits	$312.2	$432.8	38.6%	$473.3	9.4%	$467.2
Other than Personal Services	320.2	461.3	44.0%	549.4	19.1%	540.5
TOTAL	**$632.4**	**$894.0**	**41.4%**	**$1,022.7**	**14.4%**	**$1,007.7**
Fulltime Staffing	5,143	5,515	7.2%	n.a.		n.a.

SOURCE: IBO.

NOTE: Figures include direct utility spending and allocated share of DEP overhead. See footnote 9. Figures for 2008 and 2009 are budgeted. Numbers may not add due to rounding.

Most of the growth has been driven by regular salary increases and, in the last two years in particular, by the rising cost of fringe benefits. Average salaries have grown 20 percent since 2001, to slightly over $66,000 in 2007—an average annual rate of 3.1 percent. The use of overtime has increased at a somewhat faster rate than base salaries, growing from an average 9 percent of base pay in 2001 to 12 percent in 2007.

In contrast to the relatively moderate growth of salaries, the cost of fringe benefits rose nearly 64 percent between 2001 and 2007, to almost $24,000 per full-time employee on average. This is a citywide phenomenon, driven by higher pension contributions and rapidly rising health insurance costs. Fringe benefits for 2008 and 2009 are calculated as 45 percent of wages and salary spending, which we estimate will add approximately $33 million to costs in 2008 compared to the 35 percent rate in effect for 2007.

Total full-time staffing has grown by 372 positions, or 7.2 percent, to 5,515 positions at the end of fiscal year 2007. Wastewater treatment operations is the program area that has seen the largest personnel increases in absolute terms since 2001, due to the implementation of full secondary treatment at most of the city's wastewater treatment plants and an expanded environmental health and safety program. Staffing for the upstate water supply function, which includes laboratory operations, watershed maintenance workers, and DEP police officers, among other titles and functions, has also expanded.

Other than Personal Services. Non-labor spending—called "other than personal services" (OTPS)—includes such spending as energy, property taxes to upstate communities, chemicals used in water supply and wastewater treatment, and sludge disposal contracts. Total OTPS spending has grown 44.0 percent since 2001—faster than personal services spending—from $320.2 million in 2001, to $461.3 million in 2007.

Property taxes paid to upstate communities within the city's watersheds have risen 57.2 percent, from $66.6 million in 2001 to $104.6 million in 2007. This constitutes the single largest element of OTPS spending, and represents 12 percent of total system operations spending.

Energy costs (heat, light & power; fuel oil, and gasoline), which were largely flat from 2001 through 2004, have risen 59 percent just in the last 3 years. Energy is not a major expense of the water supply and distribution system. With the exception of a few areas of the city that rely on groundwater sources that must be pumped, most of the city's water supply relies on gravity. In contrast, energy is a significant cost of wastewater treatment, including operation of wastewater treatment plants, pumping

Operations and Maintenance: Personal Services Costs						
	2001	2007	Percent Change 2001-2007	2008	Percent Change 2007-2008	2009
Wages & Salaries (millions)	$247.8	$320.6	29.4%	$326.4	1.8%	$322.2
Fringe Benefits (millions)	64.4	112.2	74.2%	146.9	30.9%	145
Total	**$312.2**	**$432.8**	**38.6%**	**$473.3**	**9.4%**	**$467.2**
Fulltime Headcount	5,143	5,515	7.2%	n.a.		n.a.
Average Salary	$54,938	$66,134	20.4%			
Average Fringe Benefits	14,620	23,918	63.6%			
Average Salary + Fringe	$69,558	$90,052	29.5%			

SOURCE: IBO.

NOTES: Total wages & salaries and fringe benefits exclude IFA (capital) funding, and include part-time employees, overtime, and additional gross pay such as assignment differentials. Fulltime headcount includes IFA-funded personnel. Average salary and fringe benefits calculations includes wages & salaries for full-time employees, plus overtime and additional gross pay, including IFA funding. Budgeted amounts assume no growth in fulltime staffing. Numbers may not add due to rounding.

DEP O&M Fulltime Staff by Program Area

Program Area	2001	2007	Change	
Wastewater Treatment Operations	1,751	1,902	151	8.6%
Water & Sewer Maintenance & Operations	1,215	1,273	58	4.8%
Upstate Water Supply	845	962	117	13.8%
Customer Services & Water Board Support	538	521	(17)	-3.2%
Engineering Design and Construction	357	369	12	3.4%
Agency Administration & Support	437	488	51	11.7%
TOTAL	**5,143**	**5,515**	**372**	**7.2%**

SOURCE: IBO.
NOTE: Includes allocated DEP overhead in Agency Administration and Support.

stations, and other infrastructure. The budget anticipates continuing increases in energy costs in 2008 and 2009.

Another cost related to wastewater are contracts for disposal of sludge, which is a by-product of the treatment process. The contract costs are net of revenue received by the city for its sludge. Since not all of the city's wastewater treatment plants are equipped to process sludge, there are also operating and capital costs associated with transport of sludge to plants, like North River, which have sludge dewatering facilities.

Besides sludge disposal contracts, other contractual services include roughly $20 million per year for maintenance and repair of wastewater treatment plant components, pumping stations, and other elements of both the water and wastewater systems. Other contractual expenses include general administrative overhead items such as computer, security, and other professional services; and specialized consulting such as contracts with the U.S. Geological Survey for hydrological monitoring in the upstate watersheds.

Another category of expenditure that has risen rapidly in the last few years are supplies and materials, which have grown roughly 85 percent from 2001 through 2008. Prices of the chemicals used in both drinking water treatment and in wastewater treatment have risen sharply in recent years.

The category "Other Services and Charges" has risen modestly in the last several years. It includes a wide variety of contract services and other expenses, such as payments to upstate watershed towns for septic system maintenance; other watershed protection projects such as waterfowl management; contracts for removal and disposal of residuals from city wastewater treatment plants and for maintenance of plant components; equipment rentals; and other costs.

About $59.3 million in 2008 and $94.0 million in 2009 are set aside in holding codes, attributed to various functions, but not yet designated for specific costs.[10] Among the budget areas where these funds are reserved are customer service, filtration avoidance determination costs, wastewater treatment, and environmental health and safety programs.

Other Allocated Costs. A number of other city agency costs are reimbursed from water and sewer charges for service provided to the system.

Water Authority. The Water Authority incurs expenses connected with management of the capital financing program. The largest expense consists of fees paid to the state Environmental Facilities Corporation for issuance of bonds on behalf of the system. Other expenses associated with the Authority's borrowing activities include liquidity, remarketing, and line of credit fees, swap payments, and arbitrage rebates to the federal government on interest earned on Authority bond proceeds. Finally, administrative expenses of the system include staff compensation, rent, audit fees, rating agency fees, consultants, insurance, and other costs.

City Agency Support. Two agencies provide services that are

Other than Personal Services Spending by Category

Dollars in millions

Object	2001	2007	Percent Change 2001-2007	2008	Percent Change 2007-2008	2009
Upstate Taxes	$66.6	$104.6	57.2%	$110.4	5.5%	$110.4
Energy	52.7	83.7	58.8%	94.0	12.3%	105.9
Sludge Disposal Contracts	51.2	67.5	31.8%	72.4	7.2%	64.9
Supplies & Materials	41.3	65.8	59.2%	66.3	0.8%	51.1
Contractual Services	31.5	59.1	87.8%	58.4	-1.2%	43.1
Other Services & Charges	48.0	48.4	0.8%	52.3	8.0%	37.7
Rent - Land & Buildings	15.1	20.2	n.a.	22.1	9.2%	21.8
Property & Equipment	12.8	10.5	-18.3%	10.6	0.8%	7.8
Fixed and Misc. Charges	0.9	1.3	41.6%	3.6	171.1%	3.8
Unallocated	-	-	n.a.	59.3	n.a.	94.0
TOTAL	**$320.2**	**$461.3**	**44.0%**	**$549.4**	**19.1%**	**$540.5**

SOURCE: IBO.
NOTE: 2008 and 2009 as budgeted. Numbers may not add due to rounding.

Other Allocated Costs
Dollars in millions

	2001	2007	Percent Change 2001-2007	2008	Percent Change 2007-2008	2009
Water Authority	$9.4	$18.5	97.1%	$30.6	65.6%	n.a.
City Agency Support						
Sanitation	$15.0	$30.0	100.0%	$30.0	0.0%	$30.0
FDNY	4.2	7.4	77.2%	5.7	-24.1%	n.a.
Other Agency Costs	1.9	2.4		2.2		n.a.
Allocated City Overheac	12.4	17.5	45.1%	17.3	-1.1%	n.a.
Subotal, Agency Support	$33.5	$57.3	71.0%	$55.1	-3.8%	n.a.
Judgments & Claims	$7.7	$9.9	29.2%	$11.3	14.1%	$8.0
TOTAL	**$50.6**	**$85.7**	**69.5%**	**$97.1**	**13.2%**	**n.a.**

SOURCE: Water Authority.

NOTES: Water Authority budget for 2008 includes large one-time federal arbitrage rebate payment. Numbers may not add due to rounding.

allocated to utility revenue: the Fire Department (FDNY), for hydrant leakage inspections, and the Department of Sanitation (DSNY) for street sweeping. Both of these functions are reimbursed by utility charges on the grounds that they save money by performing functions that—if not performed—would result in higher operating costs for the systems, and would therefore otherwise have to be performed under contract to DEP. The cost of DSNY street sweeping was set at $15.0 million annually until 2003, when it was increased to $30.0 million. FDNY hydrant inspections have varied from year to year, costing $4.2 million in 2001 and $7.4 million in 2007.

The Department of Transportation (DOT) also provides cleaning of arterial highways. The Department of Information Technology and Telecommunications (DoITT) provides certain services to DEP, notably through the 311 Call Center. Finally, the costs of general government functions, including budgeting, payroll, and similar functions, is allocated based on system operations and maintenance costs. All agencies that charge administrative fees include general government overhead in setting charges for services.

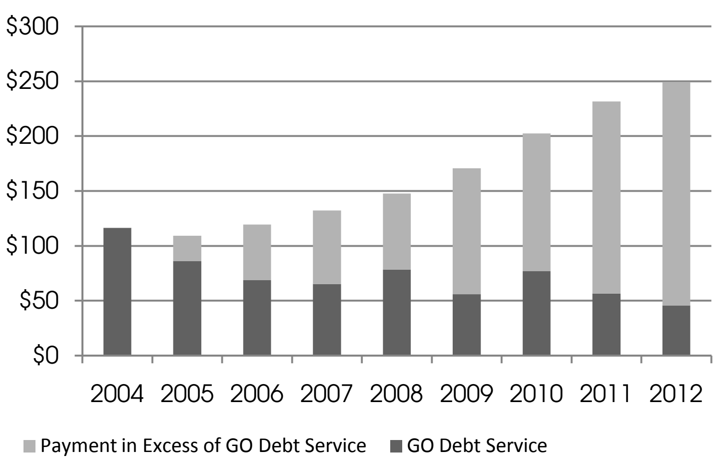
Rental Payment

Under the terms of the agreement, the Water Board makes an annual payment to the city as rent for the system owned by the city and leased to the Board. The rental payment is calculated as the greater of principal and interest on general obligation (GO) bonds issued by the city for water and sewer purposes, or, 15 percent of the debt service on Authority bonds.

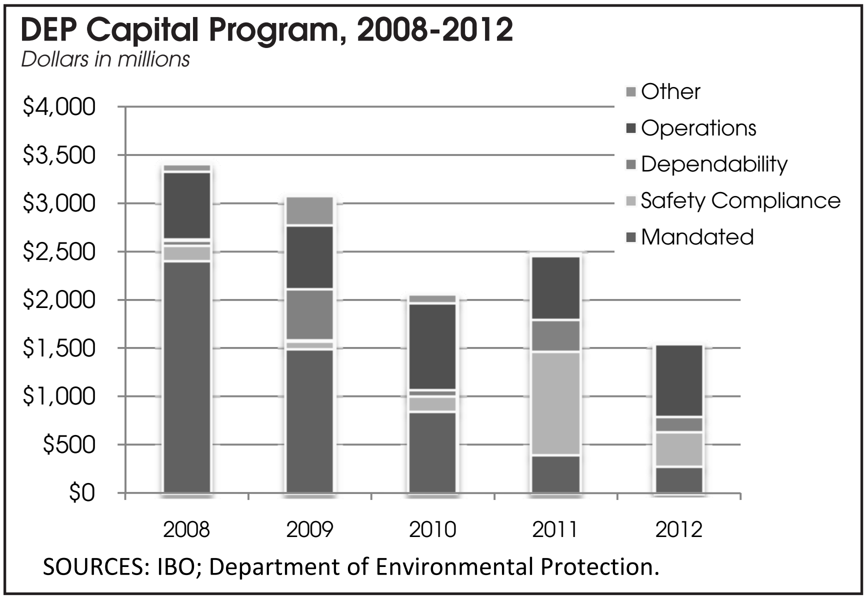
Since GO bonds for water and sewer projects were last issued by the city in 1984, the amount of principal and interest due on those bonds has declined as they have been retired, and the debt service on outstanding Authority bonds has grown. In 2005, for the first time, the rental payment was calculated on the basis of 15 percent of Authority debt service. The chart (below left) shows actual and projected rental payments. The upper part of each bar indicates the difference between GO debt service and the projected rental payment based on the 15 percent calculation. This amount grows over time, from $23 million in 2005, to a projected $68 million this year. For 2009, the Water Authority projects that the 15 percent calculation will exceed the amount due for GO debt service by $122 million, or about 41 percent of the projected $295 million increase in water and sewer user payments. By 2011, the amount by which the 15 percent calculation exceeds GO debt service will approach $180 million.

Under the terms of the agreement, the rental payment is paid by the Board "only to the extent requested by the city." The city justifies the rental payment in part as the equivalent of a payment in lieu of taxes, since water and sewer property is otherwise tax-exempt. Note that the Board is required, as part of the financing agreement with the Authority and under its bond resolutions, to collect revenues sufficient to provide for actual debt service due in a given year plus a reserve equal to 15 percent of the highest annual debt service due on outstanding Authority bonds. In the event that the city did not request the rental payment in a given year, the Board would still have

Rental Payment
Dollars in millions



SOURCES: IBO; Water Authority; City Comptroller.



to collect sufficient revenues to provide the 15 percent reserve, but would not have to turn it over to the city. Instead, the funds could be treated as surplus in that year, and used to partially offset the subsequent year's rate increase.

Debt Service

Although the costs of operating and maintaining the system have grown rapidly in recent years, the fastest rising expense is debt service on bonds issued to finance the system's capital program. We begin this section with a brief overview of the capital program, followed by a summary of the financing program, and finally turn to the cost of debt service.

Capital Program. The system's capital needs are extensive. Much of the capital program consists of mandated expenditures; that is, expenditures that are required to meet federal or state laws and regulations, as well as consent decrees and other legal agreements between the system and other parties. The table above summarizes planned capital commitments by program area.

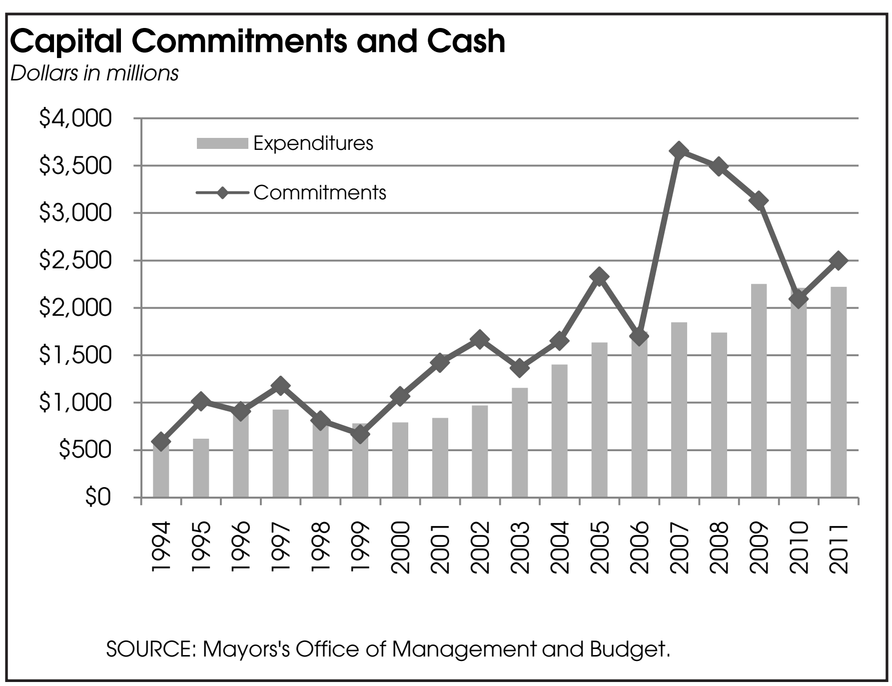
Of the agency's $12.8 billion capital program for 2008 through 2012, somewhat less than half of projected commitments, or $5.4 billion, will be dedicated to projects necessary to meet legal and regulatory mandates. This includes several major construction projects, including the Catskill/Delaware ultraviolet (UV) disinfection facility ($1.5 billion), upgrades to the Newtown Creek wastewater treatment plant ($2.1 billion), construction of the Croton Filtration Plant ($504 million), and measures to protect the upstate watershed under an agreement with the US Environmental Protection Agency ($590 million).

The next largest category consists of another $3.7 billion for projects to enhance operational functionality of the system, including $240 million for an automated water meter reading system; $1.2 billion for construction, reconstruction, and replacement of storm and sanitary sewers and development of alternative methods for treatment of storm and waste water.

Projects to ensure system safety and compliance with environmental health and safety requirements will require over $1.8 billion in spending over the five-year period, including $869 million for stabilization and reconstruction of wastewater treatment plants. Another large project in this category is reconstruction of the Gilboa Dam on the Schoharie Reservoir, projected to cost $651 million.

Nearly $1.2 billion will be spent on projects to ensure the dependability of water supply and facilities. Among the projects in this category is a groundwater treatment facility to provide supplemental water supply from the Brooklyn Queens aquifer, and completion and activation of City Water Tunnel no. 3.

Mandated projects predominate in the capital program this year and next, accounting for nearly 60 percent of planned commitments. During the subsequent three years, however,



Water & Sewer System Projected Debt Service
Dollars in millions

	2008	2009	2010	2011	2012	Average Annual Percent Change
Debt Service on Outstanding Bonds:						
First Resolution	$545.4	$561.7	$551.8	$615.4	$593.3	2.1%
Second Resolution	498.5	519.2	541.2	550.0	545.8	2.3%
Subtotal	**$1,043.9**	**$1,080.9**	**$1,093.0**	**$1,165.4**	**$1,139.1**	**2.2%**
Debt Service on Projected Issuance:						
	—	28.7	70.5	109.7	145.3	71.7%
Second Resolution	2.5	140.1	249.9	369.1	481.2	272.5%
Subtotal	**$2.50**	**$168.80**	**$320.40**	**$478.80**	**$626.50**	**297.9%**
Interest on Commercial Paper	27.0	42.5	51.0	51.0	51.0	17.2%
Total Projected Debt Service	**$1,073.4**	**$1,292.2**	**$1,464.4**	**$1,695.2**	**$1,816.6**	**14.1%**
Less: EFC Subsidies	(102.1)	(113.4)	(118.5)	(120.2)	(121.7)	
Net Debt Service	**$971.3**	**$1,178.8**	**$1,345.9**	**$1,575.0**	**$1,694.9**	**14.9%**

SOURCE: Water Authority.
NOTE: Net Debt Service shown before use of "carryforward" (surplus) revenues.

mandated projects account for just 25 percent of planned commitments, and the emphasis shifts to operations and safety compliance projects. One project that is not currently reflected in the capital plan is covering the Hillview Reservoir, which is required by an EPA rule for surface water supply systems. Since DEP feels the risk of run-off contamination into this hilltop holding reservoir is slight, it intends to continue to seek relief from this particular mandate. If it is not successful, the estimated cost is $1.6 billion for a concrete cover, if that alternative is selected.

Construction Cost Increases. The recent increases in capital spending are due not just to a greater number of projects, but also to a tight regional construction market. Costs of construction inputs such as concrete and steel have been rising rapidly, as has specialized construction labor such as construction management services. Moreover, due to the high volume of both private and public sector construction, the number of bidders on major construction projects has fallen. Bidders in this tight market may not feel that they need contracts with DEP, which is often viewed as a difficult client. Several large recent projects have come in considerably over original budget estimates.

Financing the Capital Program. Capital commitments represent contractual agreements. The full amount of the contract price is recognized in the year in which the bid is awarded and the contract is registered with the City Comptroller. Expenditures represent actual payments under the terms of each contract. Because many DEP contracts are multi-year and payments are made over the length of the contract, expenditures tend to lag commitments. Bonds are issued as needed to meet actual expenditures.

Ninety-nine percent of the system's capital spending is financed by the issuance of bonds by the Water Authority. Since 2001, the System has issued $10.5 billion in bonds for capital financing (excluding refunding issues). The Authority projects a rising volume of issuance in the next several years in order to finance the high level of capital commitments made in 2007 and expected in 2008. Debt issuance is projected to exceed $2.2 billion annually each year for the next three years.

The Authority issues two types of debt, referred to as First Resolution and Second Resolution. The key difference between the two resolutions is that First Resolution bondholders are protected by the availability of a debt service reserve fund that is equal to maximum annual debt service. First resolution bonds are sold by the Water Authority directly to the public. The aggregate principal amount outstanding on First Resolution bonds is approximately $10.8 billion. Second resolution bonds are sold by the Water Authority both to the public and directly to the State Environmental Facilities Corporation (EFC), under a revolving loan program known as the State Revolving Fund or SRF. The SRF program is federally authorized to provide financial assistance to local governments in meeting safe drinking water and clean water standards. The New York State SRF program benefits the New York City water and sewer system through the direct sale of Authority bonds to EFC which in turn issues bonds to the public. Debt service on Authority Second Resolution bonds held by EFC is partially offset by an interest subsidy from the EFC. The total principal amount outstanding on Second Resolution bonds is approximately $7.5 billion. All of the Authority's debt receives high ratings from credit rating agencies and interest rates on its bonds are low.[11]

Pay as you go (PAYGO) capital spending is funded to the extent additional surplus funds are available each year, and is generally in the range of $80 million to $90 million.

Debt Service. Debt service is projected to rise at an average annual rate of almost 15 percent over the next four years, from $971 million this year, to nearly $1.7 billion by 2012.

Gross debt service due in any given year is generally offset by the amount of subsidies from EFC as well as capitalized interest on the Authority's Second Resolution bonds. The amount of EFC subsidies, however, is not projected to keep pace with the issuance of Second Resolution debt.

OPTIONS FOR REDUCING THE RATE INCREASE

A number of options are available to help mitigate the 14.5 percent rate increase proposed for the coming year. They fall into three categories corresponding to the three largest components of costs: the rental payment, capital spending, and operating costs.

1. *Limit the rental payment to GO bond debt service.* Although collection through water and sewer charges of the rental payment provides critical debt service coverage for holders of Authority bonds, thereby preserving its credit quality and lowering its cost of capital, the rental payment is due to the city only to the extent the city requests it. City Comptroller William Thompson has proposed that the city forego collection of the rental payment in excess of GO debt service, with the Board using half of the savings to reduce future rate increases and half to provide cash for capital spending on a pay-as-you-go basis. If the city elected to forego any rental payment in excess of the debt service due on its GO bonds this year, IBO estimates the 2009 rate increase could be reduced to approximately 11.2 percent.

Of course, such an action by the city would reduce its own revenues by the amount foregone—$122.5 million in 2009—and would require action by the city to make up the loss, either through additional revenue measures or spending reductions.

Some observers have argued that raising revenues from the city's general tax system is more equitable than charging for water and sewer services. A major component of the city's general tax system is a progressive income tax, under which higher income households pay a higher tax rate. In contrast, water and sewer charges are based on consumption; if a high income household uses the same amount of water as a household whose income is low, both households will pay the same amount. Put another way, water and sewer charges are regressive with respect to income, because they make up a larger share of income for low income households and a smaller share for high income households.

2. *Scale back the capital program.* Although much of the planned capital program spending is required by federal or state law or regulation, some elements of the program are not and could potentially be cut, deferred, or funded from other sources. Because of the lag between capital commitments, bond issuance to cover cash needs, and interest and principal payments on those bonds (which typically do not fully phase in until 24 months after the date of issuance), the near-term savings from these actions is limited, and the impact on the upcoming rate increases would be small.

a. *Reduce/delay non-mandated projects*. Examples of possible projects that could be deferred or reduced in the next two years are the Automated Meter Reading (AMR) program; scheduled work on City Water Tunnel no. 3; preliminary work on the Delaware Aqueduct; sewer and water main construction, reconstruction and replacement projects; non-mandated work on water pollution control plants and pumping stations; and vehicle and equipment purchases.

Because the majority of planned spending this year and next is for mandated projects, there is limited opportunity for relief here, especially since DEP (and its customers) consider many of the projects to be critical, even if not legally mandated. For example, the AMR program is intended to improve water usage measurement accuracy and enhance and improve billing and collections. Reducing or delaying these upgrades could have a negative effect on revenue collections.

If approximately 20 percent of planned spending for non-mandated projects could be deferred in each of the next two years, debt service savings would be roughly $17 million in 2009.

b. *Limit capital funding for ancillary projects.* Under the terms of an agreement between the city and local communities surrounding the site of the Croton Filtration Plant, the city agreed to provide roughly $200 million for parks projects in the Bronx, funded by the Water Authority. The debt service on the full $200 million will ultimately be approximately $15 million annually. Projects such as these could be funded through city general obligation bonds, in effect transferring the debt service from the system (paid by water and sewer charges) to the city expense budget (paid by city tax revenues).

c. *Shift CSO capital projects to GO funding.* Some have argued that the cost of constructing combined sewer overflow tanks should not be paid for by the system, since they are primarily built to address storm water, not wastewater. The reality of the physical infrastructure, however, is that once storm water enters a combined sewer and mixes with wastewater, the responsibility for treatment resides with DEP, as those sewers lead directly to DEP wastewater treatment plants. Although there is a total of $1.5 billion in planned spending over the next ten years for CSO projects, the potential for short-term savings is limited.

3. *Reduce the operating budget.*

a. *PEG program.* Because water and sewer operations are utility-funded, roughly 96 percent of DEP's budget was not subject to the savings required from most other city agencies for the January financial plan (DEP did take cuts to its planned spending levels in the other parts of its budget). Agencies were asked to take 2.5 percent cuts to their budgeted 2008 spending and 5 percent to their planned 2009 spending. This would have been equivalent to roughly $23 million in 2008 and $46 million in the 2009 budget. The Mayor ordered agencies to identify an additional 3 percent in cuts for the 2009 Executive Budget—approximately $28 million.

To what extent the operating costs of the water and sewer system could absorb cuts while still meeting operating and regulatory requirements is unknown. DEP would argue that the majority of its costs are fixed, at least in the short term.

b. *Reduce holding code funds (managed risk).* DEP has allocated approximately $59 million in 2008 and $94 million in 2009 in object code 499, which is typically treated as a holding code for unallocated agency spending. These are often funds that are identified for specific purposes and allocated to holding codes in order to best manage the timing and amount of spending. Reducing these balances could affect Filtration Avoidance projects, environmental health and safety programs, and other areas, and would have to be made up from other program areas. Recognizing that there may be some legitimate new needs that must be funded, reducing this funding by half would reduce the DEP utility budget by $47 million in 2009.

c. *Use the gross fringe rate*. For reimbursement purposes, fringe benefits are allocated to DEP utility personal services spending using the "fixed" fringe rate of 45 percent in 2008 and 2009. Using the 39 percent "gross" fringe rate normally used for budget calculations, including for setting administrative fees and charges, would reduce spending by roughly $19 million.

This report prepared by Preston Niblack.

ENDNOTES

[1]The financing agreement can be found at: http://www.nyc.gov/html/nyw/pdf/nyc_water_board_financing_agreement.pdf; the lease agreement is available at http://www.nyc.gov/html/nyw/pdf/nyc_water_board_lease_agreement.pdf.
[2]Water Board reimbursements for legal judgments and claims paid by the city are limited to tort claims specifically related to the city's liability related to a system construction project or the operation and maintenance of the system. Payments for legal judgments and claims in a fiscal year cannot exceed 5 percent of aggregate revenues of the prior year audited financial statements.
[3]New York City Water Board: Public Information Regarding Water and Wastewater Rates (Blue Book), April 2007, p. 2.
[4]This rate structure applies to the majority of metered customers. There are some exceptions; for example, some industrial users, such as bottlers, who use most of the water they consume without discharging much wastewater, are charged a discounted sewer rate.
[5]The trust account was established pursuant to a 1989 consent decree under which the city agreed to end ocean disposal of sludge. A share of the fees and penalties levied against DEP under the consent decree were deposited into the trust account to be used for development of alternative biosolids management facilities. The balance in the trust account is approximately $92 million.
[6]Revenue projections are also adjusted for slight changes in collection of delinquent accounts.
[7]Booz Allen Hamilton, "NYC DEP Bureau of Customer Services (BCS) Best Practices Customer Service Model Design Project Report," October 22, 2007.
[8]Lien sales are a common method for local governments to collect revenues on delinquent property taxes and other forms of property liens. The liens are bundled and sold at a discount from their face value; the purchasers then are entitled to try to collect the amounts owed, including through property foreclosures. New York City has used lien sales to collect delinquent property taxes, as well as water and sewer charges and other fees and penalties owed, but for the last two years the City Council would not allow water and sewer liens to be included in property tax lien sales.
[9]We calculate system operating costs as follows: DEP units of appropriation 003, 007, and 008 are direct system costs fully reimbursed from water and sewer charges (referred to as "utility-funded"). Units of appropriation 002 and 005 are assigned to non-utility DEP functions and therefore excluded. Units of appropriation 001 and 006 are allocated between utility and non-utility functions based on their respective shares; generally about 96 percent of these shared services are assigned to utility costs. Fringe benefits are included based on the OMB "fixed" rate (see the section on "Personal Services"). Note that expense budget expenditures funded by the capital fund (interfund agreements, or IFA) are not included, because these expenses are capitalized and not subject to direct reimbursement.
[10]In technical terms, the funds are budgeted in object code 499, "Other Services and Charges — Other expenditures, general" within several different budget codes. This object code is typically used as a holding code to budget for anticipated needs or initiatives that have not yet been fully reflected elsewhere in the budget, or for unanticipated needs that might arise, such as higher than expected energy or supply costs.
[11]The Authority's General or First Resolution bonds are rated Aa2 by Moody's, AA+ from Standard & Poor's and AA by Fitch; the Second Resolution Bonds are rated Aa3 by Moody's, AA from Standard & Poor's and AA by Fitch.