NEW YORK CITY WATER BOARD

PUBLIC INFORMATION REGARDING WATER AND WASTEWATER RATES

NEW YORK CITY WATER BOARD Information Booklet

Table of Contents

INTRODUCTION

Introductory Statement	1
DEP Program Overview	
Schedule for Water Board Rate Adoption	
Program Summary	8
Water and Wastewater Rate History	9
FY2008 Rate Projection (Change Over Time)	10
Residential Water & Sewer Charges as a Percentage of Median Household Income	11
Annual Water & Wastewater Charges (Residential) - FY2008	12
Annual Water & Wastewater Charges (Commercial) - FY2008	13
Annual Water & Wastewater Charges (Industrial) - FY2008	14
Typical NYC Water/Wastewater Charges	15
Five-Year Water and Wastewater System Capital Program	17
Five-Year CIP (Investment Allocation by Project Category)	18
Five-Year CIP (Total Investment by Program)	19
Ten-Year Water and Wastewater System Capital Program	21
Ten-Year CIP (Investment Allocation by Project Category)	22
Ten-Year CIP (Total Investment by Program)	23
2008-2009 FINANCIAL DETAIL	
Anticipated Water and Wastewater System Expenditures	25
Water/Wastewater System Costs: FY2007-FY2008	26
Rate Advisor's Conclusions	27
GENERAL INFORMATION Process for Water Board Rate Adoption	28
Important Objectives of the Water Board in Establishing Rates and Charges	29
Operating Relationships	30
Description of the Water System and the Wastewater System	31

The New York City Water Board ("the Board") has prepared this information booklet to acquaint the public with its rate and billing policy and regulatory proposals for Fiscal Year 2008 ("FY2008") and with the financial condition of the water and wastewater system (the "System") and its budget for the upcoming year.

Public hearings concerning the proposals set forth herein will be held in each borough of the City. The schedule of the dates, times and locations for these hearings, the purpose of which is to present and explain the Board's proposals and provide an opportunity for public comment is included in this information booklet.

The Board's FY2008 rate proposal is to increase water rates by 11.5% percent. The current published forecast of System rates, developed almost one year ago, anticipated that a 9.9% increase would be required for FY2008. Accordingly, this proposal represents a modest increase over prior projections.

Several factors have impacted the development of the proposed rate for FY2008. These factors include System operations and maintenance (O&M) costs that are increasing, water consumption that is decreasing and a capital improvement program that has been expanded.

System O&M costs will increase approximately \$105 million from the FY2007 base to FY2008. Approximately \$72 million or just less than 70% of this increase is composed of non-discretionary items including the following:

- collective bargaining increases on employee wages (\$31 million);
- an increase in the fringe benefit rate for personal services from 28.5% to 35% (\$27 million);
- wastewater treatment increases in the costs of chemicals and sludge disposal (\$14 million).

The remaining O&M cost increases are related to discretionary, but nevertheless important, DEP initiatives including Environmental Health and Safety Programs, the extension of the Filtration Avoidance Determination, Water and Sewer Operations maintenance contracts and revenue enhancement programs.

The FY2008 rate forecast also takes account of water consumption that is declining. Historical and ongoing water conservation programs initiated by the City have produced a substantial long term reduction of water consumption in the City. Current water consumption is approximately 25% below the System's 1988 peak and, although the rate of decline had slowed, a continuing trend of reduced water consumption is evident. Through the first half of FY2007 water consumption has declined by more than 2% as compared with the prior year. With respect to future rate projections, lower water consumption of 2.3% is assumed for FY2007, compounded by an additional 1% decline in consumption per year for the FY2008-2011 period. Reduced water consumption puts upward pressure on rate levels and the rate forecast.

The third factor influencing the rate projection for FY2008 is the expansion of DEP's tenyear capital improvement program. Projected capital needs for the City's water and wastewater utility systems have increased to \$23 billion over the eleven-year FY2007-2017 period as compared to \$18 billion over the previous eleven-year period. As shown herein, it is noted that federal and State environmental mandates continue to drive the capital investment needs of the system. Mandated capital infrastructure investments under the Clean Water and Safe Drinking Water Acts, as well as negotiated consent decrees, account for nearly 50% of the System's capital budget over the next five years. The resulting debt service incurred on bonds issued to finance these investments continues to be an important factor in the need for rate increases. Net debt service payable on bonds issued to finance capital expenditures is anticipated to increase \$162 million from FY2007 to FY2008.

New York City Water/Sewer Rates Remain Competitive

Although rates and charges for water and wastewater service in the City have increased in recent years, the information presented herein demonstrates that charges in the City are competitive with charges levied in other jurisdictions. In absolute dollars and as a percentage of median income, NYC charges for single-family residential customers rank in the lower half of the twenty-four large cities surveyed and are below the average of all of these cities. The fact that water and sewer rates and charges in many other cities are higher than in New York illustrates that water and wastewater utilities across the country are facing the same mandates and challenges that are driving rate increases in the City.

A typical single-family homeowner in the City is currently paying about \$627 per year or \$157 per quarter for water and sewer services. The proposed increase will add about \$72 per year or about \$18 per quarter to the average bill. The new bill for combined water and wastewater services will amount to \$699 per year or about \$175 per quarter and is likely to be less than the average charges for electric service and heating and probably less than most telephone and cable TV services as well. Even after implementation of the proposed rate increase, New York's water-and-sewer rates will continue to be below the average for the 24 large cities.

Water and Wastewater Capital Improvement Program

For more than 150 years, New Yorkers have invested in the infrastructure that provides residents and businesses with clean drinking water and the means to dispose of wastewater properly. DEP is continuing that tradition by taking meaningful steps to protect and improve this valuable legacy for generations to come.

In FY2007, with the support of the Mayor, DEP increased its water and wastewater infrastructure capital program. The new current capital program covers the eleven year period extending from the current FY2007 plus ten projected future years from FY2008 – FY2017, and anticipates environmental infrastructure investments amounting to \$23.3 billion. The capital program allocates substantial resources to ensure the delivery of high quality drinking water throughout the City and for collecting and treating wastewater to ensure the quality of New York City's harbor waters. The capital program will provide adequate resources for DEP to meet its commitments mandated under the Safe Drinking Water Act, the Clean Water Act and various consent orders. Increased resources will provide adequate funding for the protection of drinking water quality, the completion of work on the in-City portion of the Third Water Tunnel, for sustaining the integrity of the water main and sewer collection networks in the City and for improving wastewater treatment plants serving the City.

Capital investments to be made under this program include the following.

\$5.8 Billion to Upgrade Water Pollution Control Plants in the City

The water in New York Harbor is the cleanest it has been in over 90 years. To continue that progress and to meet the requirements of federal government mandates, the City must upgrade its older water pollution control plants. In previous years the City committed substantial funds for improvements at its East River Plants to reduce nitrogen in plant effluent and improve water quality in Long Island Sound, thereby improving the environment for the fish and shellfish native to these waters. The majority of funds in the current plan are necessary to maintain aging facilities in a state of good repair, maintain compliance with water quality standards and environmental health and safety regulations.

\$3.0 Billion to Protect Upstate Watersheds

The City is supporting a number of watershed protection programs in its Catskill and Delaware watersheds. These include various programs from rehabilitating upstate septic systems to buying land surrounding our system of reservoirs and rehabilitating existing dams help to ensure that the high quality of New York City's source waters remains that way for years to come. Under the Catskill/Delaware watershed protection program DEP has acquired more than 77,000 acres.

2

\$1.6 Billion to Build a Filtration Plant for the Croton Water System

Ten percent of the City's water comes from the Croton Reservoir system, which is located in the more populated counties of Westchester and Putnam, where pollution is more common and more difficult to control. The Croton filtration plant will ensure that water from the Croton system continues to meet New York City's high standards for quality. Site preparation is underway at the Mosholu Golf Course site of the plant in Van Cortlandt Park in the Bronx, with facility construction expected to begin in the summer of 2007.

\$1.5 Billion to Decrease the Amount of Raw Sewage Flows into the Harbor from Combined Sewer Overflows

The City is building facilities to capture the overflows from combined sanitary and storm sewers before they can reach the Harbor and damage City beaches. At present, much of the City is serviced by a combined sewer system wherein during wet weather periods sanitary flow combines with storm water and the combined flow may exceed the treatment capacity at the wastewater treatment plants. The City is constructing a variety of facilities to address this problem including large-scale infrastructure such as storage tanks, the creation of in-line storage within sewer pipelines, pump station upgrades, regulator improvements, throttling facilities, floatables controls and the expansion of wet weather capacity at one wastewater treatment plant.

\$828 Million to Build an Ultraviolet Disinfection Facility for Catskill and Delaware Water Supplies

The City is designing an ultraviolet (UV) light disinfection facility for the Catskill and Delaware water supplies. Once operational, this facility will inactivate certain waterborne pathogens. The facility will have the capacity to treat 2 billion gallons of water per day. Site preparation activities at the construction site in Westchester County began in 2006 for this facility.

\$772 Million for Dependability/Alternative Sources Program

The conveyance aqueducts and tunnels that carry drinking water from the Catskill and Delaware watersheds to New York City have been in continuous operation for decades without ever being taken offline in any major way for inspection or repair. While neither of the aqueducts is in danger of immediate failure, at some time in the future, each must be shut down for inspection and the City will lose the ability to transport a large percentage of its supply for a period of time. The Delaware Aqueduct, which has been leaking water, must be repaired. The first major step in repairing the leak, a \$239 million construction contract to rehabilitate and dewater Shaft 6, will begin in the summer of 2007. DEP has initiated a Water Supply Dependability Study in order to determine how water will be supplied to the system's 9 million customers when this infrastructure dependability alternatives in 2007

\$236.8 Million to Build the Staten Island Bluebelt System and the Connecting New Storm Sewers

The Bluebelt eliminates the need for even more expensive storm sewer networks in parts of Staten Island by preserving natural open spaces for stormwater management. In August 2003, Mayor Bloomberg announced an expansion in the program to include the Mid-Island areas of New Creek, South Beach and Oakwood Beach. The land acquisition program for 70 acres in that new Bluebelt has already begun. The Bluebelt system will provide improved drainage for approximately 2,000 acres of surrounding lands and 30,000 residents in the neighborhoods of Midland Beach, Grant City and Todt Hill. Wetland acquisition for the South Beach Bluebelt has also begun while feasibility studies for the Oakwood Beach Bluebelt continue. The Staten Island Bluebelt program provides environmentally sound and economically prudent stormwater management for the borough's South Richmond area. Benefits of the program include improved drainage and flood control, enhancement of the natural environment, wetland restoration and improved stream water quality. The program has expanded to the mid-Island area with the launching of the New Creek Bluebelt in the Midland Beach neighborhood.

\$209 Million to Complete Stage II of the Third Water Tunnel

The City relies on infrastructure that is, for the most part, almost 100 years old to bring water from its upstate reservoirs. The Third Water Tunnel, when complete, will allow the City to inspect and repair its older City Tunnels No. 1 and 2 while providing redundancy in the water conveyance system in case of emergency.

Schedule for Water Board Rate Adoption

Borough	Location	Date/Time
Queens	Department of Environmental Protection Lecture Room, 6 th Floor 59-17 Junction Boulevard Flushing, NY 11373	Tuesday April 24, 2007 1:00 P.M.
Brooklyn	Brooklyn College Student Center-Alumni Lounge, Rm. 409 (Opposite Whitehead Hall) East 27 th Street and Campus Road Brooklyn, NY 11210	Tuesday April 24, 2007 6:00 P.M.
Bronx	Herbert H. Lehman College Carman Hall, Room B-39 250 Bedford Park Boulevard West Bronx, NY 10468	Wednesday April 25, 2007 9:30 A.M.
Staten Island	College of Staten Island Center for the Arts, Recital Hall 2800 Victory Boulevard Staten Island, NY 10314	Wednesday April 25, 2007 6:00 P.M.
Manhattan	St. John's University - Manhattan Auditorium 101 Murray Street New York, NY 10007	Thursday April 26, 2007 5:30 P.M.

Rate Hearing Dates and Locations

May 14, 2007	Water Board Meeting to Adopt Rates for Fiscal Year 2008 St. John's University – Manhattan
	101 Murray Street, Room 118
	New York, NY 10007
May, 2007	Flat-Rate Bills are Mailed Over the Several Weeks Following
	Rate Adoption

July 1, 2007 Fiscal Year 2008 Rates Become Effective

Program Summary

FY 2008 Rate Proposals

- Increase in-City water rates by 11.5% for all customers, flat-rate and metered, and for billing programs
- Maintain in-City wastewater rates at 159% of water charges
- Modify Terms of Standard Payment Agreements as set forth in the Rate Schedule to reduce the initial down payment requirement from 25% to 10% and lengthen the repayment term from 3 years to 5 years





FY2008 Rate Projection Change Over Time

ΟŢ

Residential Water/Wastewater Charges as Percent of Median Household Income



ΙI

Annual Water/Wastewater Charges 2007 Residential



ΙJ

	Annual
2007	Water/\
Commercial	Nastewater
	Charges



I 3



Annual Water/Wastewater Charges 2007 Industrial

] 1

Typical New York City Charges

FY2008 with Proposed 11.5% Increase in Rates

(Combined Water/Wastewater Charge)

	FY2007 Average	FY2008 Average	Change
Flat-Rate Customers		2	
Single Family Residential	\$705	\$786	\$81
Two-Family Residential	\$1,094	\$1,220	\$126
Walk-Up Apartments Charge per Dwelling Unit	\$3,351 \$504	\$3,736 \$562	\$385 \$58
Elevator Apartments Charge per Dwelling Unit	\$37,710 \$571	\$42,047 \$637	\$4,337 \$66

Metered Customers

	Rates pe	r 100 Cubic Fe	eet
Residential & Commercial			
Water	\$1.81	\$2.02	\$0.21
Wastewater	\$2.88	\$3.21	\$0.33
Combined	\$4.69	\$5.23	\$0.54

Typical Metered Charges	Averag	e Annual Cha	rges
7	FY2007	FY2008	Change
Single Family (100,000 gallons)	\$627	\$699	\$72.07
Per Multifamily Unit (85,000 gallons)	\$533	\$594	\$61.26

by Project Category and Program	Water and Wastewater System Canital Pr
---------------------------------	--

Per January 2007 Commitment Plan (\$'s in Millions)

1							
Project Category	2007	2008	2009	2010	2011	Total	Percent
Mandated Projects	\$2,128.4	\$2,406.5	\$1,192.1	\$471.1	\$834.4	\$7,032.5	47%
Long Term Sustainability Plan	325.7	213.3	231.0	326.5	288.6	1,385.1	%6
Development	411.4	394.7	432.9	433.1	415.4	2,087.5	14%
State of Good Repair	727.9	323.2	1,011.7	774.3	991.6	3,828.7	25%
Other	157.9	166.3	228.2	94.8	59.4	706.6	5%
TOTAL	\$3,751.3	\$3,504.1	\$3,095.9	\$2,099.8	\$2,589.4	\$15,040.4	100%
			,				
Program	2007	2008	2009	2010	2011	Total	Percent
WP Water Pollution Control	\$1 DAA 1	¢1 250 0	¢1 107 8	¢1 021 x	0 000 13	c cac at	/00/

riogram	07	07	8007	6007	0102	1102	lotal	Percent
NP Water Pollution Control	\$	1,066.1	\$1,359.9	\$1,497.8	\$1,031.5	\$1,308.0	\$6,263.3	42%
Nater Supply		60.3	67.6	36.0	289.7	255.4	709.0	5%
Nater Mains Upstate		2,064.7	1,313.9	789.1	138.1	456.5	4,762.3	32%
Nater Mains in City		150.0	147.9	249.2	247.9	222.1	1,017.1	7%
Sewers		234.4	213.3	251.4	278.9	282.6	1,260.6	8%
Equipment		175.8	401.4	272.4	113.7	64.8	1,028.1	7%
TO	TAL \$	3,751.3	\$3,504.1	\$3,095.9	\$2,099.8	\$2,589.4	\$15,040.4	100%

4 ۱



8 I





Capital Improvement Plan: 2007-2011 Total Investment Allocation by Program

by Project Category and Program Per January 2007 Commitment Plan	Water and Wastewater System Capital Program
--	---

(\$'s in Millions)

Program		TOTAL	Other	State of Good Repair	Development	Long Term Sustainability	Mandated Projects	Project Category	
2007		\$3,751.3	157.9	727.9	411.4	325.7	\$2,128.4	2007	
2008		\$3,504.1	166.3	323.2	394.7	213.3	\$2,406.5	2008	
2009		\$3,095.9	228.2	1,011.7	432.9	231.0	\$1,192.1	2009	
2010		\$2,099.8	94.8	774.3	433.1	326.5	\$471.1	2010	
2011		\$2,589.4	59.4	991.6	415.4	288.6	\$834.4	2011	
2012		\$1,559.4	24.6	824.6	384.2	117.7	\$208.3	2012	
2013		\$1,519.0	47.3	935.3	374.4	107.5	\$54.4	2013	
2014		\$1,196.8	48.1	500.4	341.6	151.5	\$155.2	2014	
2015		\$1,451.4	29.5	349.6	343.6	519.4	\$209.3	2015	
2016		\$1,348.5	23.2	229.7	317.3	236.2	\$542.2	2016	
2017	•	\$1,148.0	23.2	233.3	380.2	464.7	\$46.5	2017	
FY07 - FY17	3	\$23,263.5	902.4	6,901.7	4,228.7	2,982.2	\$8,248.6	FY07 - FY17	
%		100%	4%	30%	18%	13%	35%	%	

Program	1007	8002	6002	2010	2011	2012	2013	2014	2015	2016	2017	FY07 - FY17	%
Water Pollution Control	\$1,066.1	\$1,359.9	\$1,497.8	\$1,031.5	\$1,308.0	\$829.1	\$679.4	\$587.3	\$501.1	\$697.3	\$233.4	\$9,791.0	42%
Water Supply	60.3	67.6	36.0	289.7	255.4	24.3	90.3	5.7	155.9	227.0	455.4	1,667.5	. 7%
Water Mains Upstate	2,064.7	1,313.9	789.1	138.1	456.5	145.9	209.8	77.2	268.5	27.0	8.5	5,499.2	24%
Water Mains in City	150.0	147.9	249.2	247.9	222.1	255.5	230.1	234.1	195.3	84.4	129.9	2,146.5	9%
Sewers	234.4	213.3	251.4	278.9	282.6	233.3	242.9	222.7	257.6	245.2	254.3	2,716.6	12%
Equipment	175.8	401.4	272.4	113.7	64.8	71.2	66.4	69.9	73.1	67.6	66.4	1,442.7	6%
TOTAL	- \$3,751.3	\$3,504.1	\$3,095.9	\$2,099.8	\$2,589.4	\$1,559.4	\$1,519.0	\$1,196.8	\$1,451.4	\$1,348.5	\$1,148.0	\$23,263.5	100%

51







5-Year Investment - \$15.0 billion

	FY2007	FY2008	Change
WFA Debt Service			
First Resolution Bonds:		for the state of the	
Outstanding Bonds	\$533.3	\$551.4	\$18.1
Anticipated Future Bonds	0.0	34.7	34.7
Total First Resolution Bonds	\$533.3	\$586.1	\$52.8
Subordinate Obligations:			
Outstanding Second Resolution Authority Bonds	\$47.2	\$55.1	\$7.9
Anticipated Future Second Resolution Authority Bonds	-	26.9	26.9
Interest on Commercial Paper	23.0	34.0	11.0
Outstanding Second Resolution Bonds	395.9	428.0	32.1
Anticipated Future Second Resolution Bonds	-	5.1	5.1
Less: EFC Subsidy and Cap Interest	(101.1)	(109.8)	(8.7)
Actual Debt Service on Subordinated Obligations	365.0	439.4	74.4
Less: Carryforward Revenues	(176.2)	(141.6)	34.6
Net Debt Service on Subordinated Obligations	\$188.8	\$297.8	\$109.0
Debt Service Payable from Current Revenues	\$722.1	\$883.9	\$161.8
Operating Expenses			
Authority/Board Operations	\$26.6	\$31.5	\$4.9
Authority Expense for Defeasance of Debt	-	-	-
Water System	413.9	456.2	42.3
Wastewater System	531.0	573.7	42.7
Indirect Expenses	16.2	16.2	-
Judgments and Claims	8.0	8.0	
Total Operating & Maintenance Expenses	\$995.7	\$1,085.6	\$89.9
Less: Credit for Prior Year Excess O&M Payment	(8.5)	÷	8.5
Less: Trust Account Withdrawals		(45.0)	(45.0)
Rental Payment	135.9	154.8	18.9
Current Capital Contribution	80.0	100.0	20.0
Total Operating Expenses	\$1,203.1	\$1,295.4	\$92.3
Total Expenses	\$1,925.2	\$2,179.3	\$254.1
Operating Revenues			
Water/Sewer User Payments	\$1,952.9	\$2,145.7	\$192.8
Upstate Revenues	36.5	39.4	2.9
Miscellaneous Revenue	6.4	6.8	0.4
Water Finance Authority Investment Income	71.1	77.3	6.2
Total Revenues	\$2,066.9	\$2,269.2	\$202.3
Surplus Carryforward	\$141.7	\$89.9	(\$51.8)



Water/Wastewater System Costs

Rate Advisor's Conclusions

- The 11.5% increase in water rates and charges proposed by the Board will yield anticipated revenues for Fiscal Year 2008 that are sufficient to cover the expected costs of providing water service and wastewater service.
- While the ratio of wastewater system costs to water system costs has declined somewhat in recent years due to ongoing water system investments to protect the quality of the City's water supply, scheduled investments in the capital improvement program for rehabilitation and construction of wastewater treatment facilities and other projects will cause the ratio of wastewater system costs to increase in the future. Accordingly, the long-term ratio of wastewater system costs to water system costs is reasonable compared to the current ratio of wastewater charges to water charges.

Process for Water Board Rate Adoption

- The Board must adopt rates which will satisfy the revenue requirements of the System
- The Water Finance Authority projects revenue bond debt service on bonds issued after 1986 to finance water and wastewater capital projects and certifies the FY2008 amount to the Water Board
- The City Office of Management and Budget projects the Water and Wastewater Systems' operating and maintenance expenses and certifies the FY2008 amount to the Water Board based on the Mayor's Executive Budget
- The system's consulting engineer must certify that expenses are reasonable and appropriate
- The Board must hold a public hearing in each borough of New York City
- At its Annual Meeting in May, the Board adopts an Annual Budget based on the system expenses that have been certified to it and adopts a rate which will produce sufficient revenues to meet those expenses

Important Objectives of the Water Board in Establishing Rates and Charges

- Sufficient revenues must be raised by rates and charges and other sources of revenue in order to satisfy the revenue requirements of the Water System and the Wastewater System
- Rates and charges should be equitable and fair, in the sense that charges levied on different users reflect, as closely as practicable, the costs incurred in providing water and wastewater services.
- The rate structure, both present and long term, should provide a reasonably stable and predictable flow of revenue
- The rate structure should be relatively simple and easy to administer
- The rate structure should be understandable to the customer
- The rate structure should encourage water conservation



The Water System

DEP supplies water to over eight million people in the Boroughs of the Bronx, Brooklyn, Manhattan, Queens and Staten Island, an area of over 300 square miles. The City is also required by law to sell water to communities located in the eight counties where its water supply facilities are located. It currently provides water to approximately one million additional people in portions of four of the eight eligible counties.

Water for the System is derived from three upstate watershed and reservoir systems (the Croton, Catskill and Delaware watersheds) and a system of wells in Queens. The three upstate water collection systems include 18 reservoirs and three controlled lakes with a storage capacity of 550 billion gallons. They were designed and built with various interconnections to increase flexibility by permitting exchange of water from one system to another. This feature mitigates localized droughts and takes advantage of excess water in any of the three watersheds. The well system has 2.6 billion gallons of storage capacity.

In fiscal year 2007, the Water System provided an average of 1,096 million gallons per day from its upstate surface water systems to in-City and upstate customers as well as an average of 4 million gallons per day from wells located in southeast Queens. On summer days when demand is at its highest, the surface water system has provided over 1,500 million gallons per day. The well system could provide up to 33 million gallons per day. Unlike the City's surface water supply, which is a gravity-supplied system, well water is pumped from extensive underground aquifers.

Water is conveyed to the City through large aqueducts and balancing reservoirs. Within the City, water is distributed through two major tunnels. A third tunnel is now under construction. Tunnel 3 is being built in four stages and the first stage went into operation in July 1998. Stage 2 is currently under construction and is expected to be completed in 2012. Tunnel 3 will provide water delivery if Tunnels 1 or 2 are taken out of service for inspection and/or repair.

The water distribution system consists of a grid network of over 6,200 miles of pipe, as well as valves, fire hydrants, distribution facilities, gatehouses, pump stations and maintenance and repair yards. Various facilities provide storage to meet the hourly fluctuations in demand for water throughout the City, as well as any sudden increase in demand that might arise from fire or other emergencies.

New York City's water system is economical, flexible and reliable. Approximately 95% of the total daily water supply is delivered to the consumer by gravity. Only about 5% of the water is regularly pumped to maintain the desired pressure. As a result, operating costs are relatively insensitive to the cost of power.

The Wastewater System

The Wastewater System is comprised of the wastewater collection system and the water pollution control facilities. The Wastewater System is divided into fourteen drainage areas corresponding to the fourteen in-City wastewater treatment plants. More than 6,600 miles of sewer pipes of varying size convey wastewater to one of the wastewater treatment plants. Sewer pipes are classified as one of three types: sanitary, storm or combined. Sanitary sewers accommodate household and industrial waste. Storm sewers carry rainwater and surface water runoff. Combined sewers carry both types of waste. Approximately 70% of the City's sewers are classified as the combined type. In addition to sewage pipes, the wastewater collection system includes catch basins and seepage basins, which prevent flooding and sewer backups.

The water pollution control facilities have the capacity to treat approximately 1,805 million gallons of wastewater per day. Normally, the City produces 1,300 million gallons per day of dry-weather sewage. During periods of heavy rainfall, a combination of stormwater and sewage might bypass treatment and be released into the surrounding waterways since there may not be sufficient capacity to treat or retain all of the wastewater carried by the system. The facilities related to the treatment of sewage include fourteen wastewater treatment plants, a combined sewer overflow treatment plant, wastewater pump stations, sewer regulators and tide gates, laboratories, sludge dewatering facilities and inner-harbor vessels which transport sludge between facilities. When gravity flow becomes uneconomical or impractical for engineering reasons, wastewater pump stations lift sewer flow so that it can flow again by gravity and sewer regulators and tide gates control the rate of flow in the System. Sludge or "biosolids", a byproduct of the sewage treatment process, is acceptable for land-based beneficial use as fertilizer. DEP has awarded contracts for the use of 100% of its biosolids. Current contracts include thermally drying sludge into fertilizer pellets at a facility in the Bronx, composting in Pennsylvania, direct land application in Colorado and Virginia, and lime stabilization in Colorado.

The Wastewater System also includes eight City-owned wastewater treatment plants located in the watershed region in order to prevent untreated sewage from being released into the waterways. Seven of the eight have been upgraded and the current Capital Improvement Plan includes funds to upgrade the eighth facility.