



Executive Summary

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MISSION

The Massachusetts Water Resources Authority (MWRA) is an independent public authority of the Commonwealth of Massachusetts that provides wholesale water and sewer services to its member communities and funds its operations primarily through member community assessments and charges. MWRA's mission is to provide reliable, cost-effective, high-quality water and sewer services that protect public health, promote environmental stewardship, maintain customer confidence, and support a prosperous economy.

HISTORY

Created by the Massachusetts legislature in 1985 (Chapter 372 of the Acts of 1984), MWRA assumed possession and control of the water and sewer systems, including facilities, properties, and the right to utilize water withdrawn from system reservoirs that had formerly been the Sewerage and Waterworks Divisions of the Commonwealth of Massachusetts Metropolitan District Commission (MDC). The Commonwealth, under the management of the MDC Watershed Management Division (now the Department of Conservation and Recreation – Division of Watershed Management), retained ownership of real property, including the reservoirs and watersheds, the maintenance of which are included in MWRA's operating budget.

In 1985, responsibility for water distribution for 46 municipalities and sewage collection and treatment for 43 municipalities was transferred to the MWRA. In 1987, the legislature also transferred responsibility to operate and maintain the Clinton Wastewater Treatment Plant from the Commonwealth to the MWRA. New communities have the opportunity to join the MWRA water and sewer systems, and, over the years, the number of member communities has increased. Since 1985, the MWRA has invested over \$8.2 billion to modernize and improve the wastewater and waterworks systems serving its 61 member communities. MWRA's facilities span from the Quabbin Reservoir in western Massachusetts to the Deer Island Treatment Plant in Boston Harbor. In Fiscal Year 2017, the system serves approximately 2.9 million people and more than 5,500 businesses.

The Enabling Act also established the MWRA Advisory Board to represent the cities and towns in the service area. The Advisory Board appoints three members of the MWRA Board of Directors, approves the extension of water and sewer services to additional communities, and reviews and makes recommendations on MWRA's annual Current Expense Budget and Capital Improvement Program.

MWRA ORGANIZATION

The MWRA has five separate divisions and the Affirmative Action and Compliance Unit Department (AACU). Each division provides operations or support services to carry out MWRA's activities under the direction of the Executive Office. MWRA's organizational structure is included in the document immediately preceding this page.

The **Executive Office** provides centralized MWRA management, direction, and policy development. The budget includes funds for the Office of the Executive Director, the Board of Directors, the Advisory Board, and other advisory committees. It includes the following departments: Office of Emergency Preparedness; Public Affairs; and Internal Audit.

The **Operations Division** operates the water and wastewater treatment systems; the water transmission and distribution system; the wastewater collection, transport, and combined sewer overflow (CSO) systems; and the residuals processing facility. It also provides laboratory and engineering and construction services; enforces sewer use regulations and seeks to limit the discharges of toxic materials; manages environmental studies of Boston Harbor and Massachusetts Bay; monitors water quality; and includes the Planning and Coordination Department.

The **Administration Division** is responsible for managing the support services functions of the Authority. The Administration is comprised of seven departments: Director's Office; Facilities; Fleet Services; Human Resources; Management Information Systems (MIS); Procurement; and Real Property and Environmental Management. The Administration Division performs a multitude of functions that support the daily operations and ensure the implementation of the Authority's long term goals and strategies.

The **Finance Division** is responsible for managing the finance functions of the Authority. Finance Division is comprised of five departments: Director's Office; Rates and Budget; Treasury; Controller; and Risk Management. The Finance Division ensures that a variety of fiscal management systems are in place to monitor and control the Current Expense Budget (CEB) and Capital Improvement Program (CIP).

The **Law Division** provides legal counsel to all divisions on compliance with federal and state law, real estate matters, labor and employment law, litigation, and construction issues. Division attorneys provide or supervise through outside counsel the representation of MWRA in all litigation.

The **Affirmative Action and Compliance Unit (AACU) Department** develops, administers and monitors compliance of Affirmative Action Plan programs and policies by ensuring equal opportunity and non-discrimination in employment and equitable access of Minority/Women Business Enterprises (MBE/WBE) in Authority procurement activities.

GOALS AND PERFORMANCE MEASURES

The MWRA Business Plan was first implemented in 1997 as a strategic road map to present specific steps for the organization to undertake to improve customer service, upgrade operations and maintenance and pursue aggressive rates management. In 2000, MWRA adopted a five-year Strategic Business Plan. Since then, some of the goals have been completed, and new ones have been added. MWRA's five-year Strategic Business Plan FY2016-2020 emphasizes improvements in service and systems and includes performance targets for operating the water and wastewater systems and maintaining new and existing facilities. MWRA's Water System Master Plan and Wastewater System Master Plan present to long-term vision of the capital development needs of the water and wastewater systems and the actions planned to meet those needs. Parallel to MWRA's goal of carrying out its operating programs and capital projects is its goal of providing sustainable, predictable and reasonable assessments to its customer communities. To that end, the MWRA applies a multi-year rates management strategy to provide sustainable and

predictable assessment increases to its member communities. The need to achieve and maintain a balance between these two goals is a critical issue in the development of both MWRA's operating and capital budgets.

During the year, MWRA measures actual performance on a monthly basis using various reporting tools. The monthly Financial Staff Summary reports on actual spending versus both the operating and capital budgets and provides summary explanations of the variances at the line item level. At least twice a year staff prepares projections for the fiscal year-end with a similar level of explanations. The performance indicator reports (published by MWRA as the Orange and Yellow Notebooks) capture a variety of parameters regarding performance of each major functional area of the Authority, on a monthly and quarterly basis.

BUDGET PROCESS OVERVIEW

Each year, MWRA prepares a Current Expense Budget (CEB) that reflects the best available information for anticipated expenditures and revenues. In parallel, MWRA prepares a Capital Improvement Program (CIP) Budget.

The MWRA operates on a fiscal year that runs from July 1 through June 30. The budget process for both budgets begins in the fall with formal kick-off meetings in September where MWRA staff are given guidelines and targets for their budget requests. After review by the Budget Department and MWRA senior staff, a Proposed CIP Budget is presented to the Board of Directors in December. The Capital Financing portion of the Current Expense Budget is determined based on the CIP Budget. In February, after further review with MWRA senior staff, the Budget Department presents the Proposed CEB to the Board of Directors, after which the Proposed CEB is then transmitted to the Advisory Board, with the anticipated assessment increase Authority-wide and for each customer community. The Advisory Board then has sixty days to review, comment, and provide recommendations on both budgets. MWRA also hosts a public hearing to solicit comments on the budgets and community assessments from citizens in its service area. In May, the Advisory Board transmits its comments to the MWRA to which written response are provided.

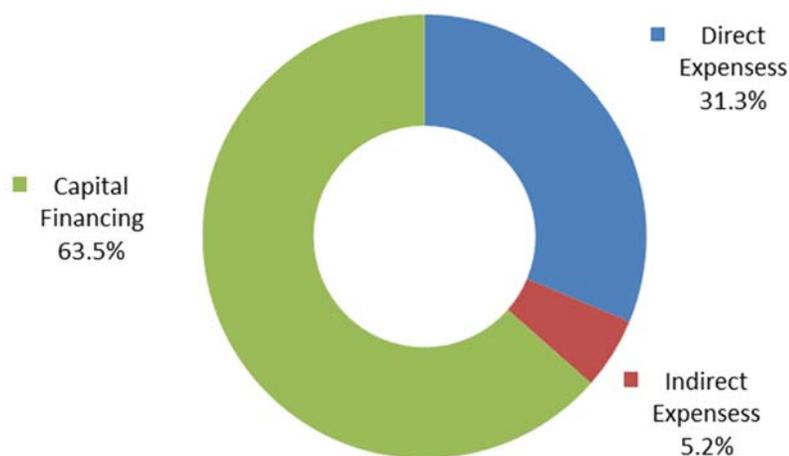
In early June, MWRA's Board of Directors holds hearings on the budget to review recommendations by the Advisory Board and new information available since the budget was developed. Staff incorporates Board decisions from the hearings and presents a final budget and final assessments for approval in late June.

FINAL FY18 BUDGET SUMMARY

Total Expenses in the Final FY18 Current Expense Budget (Budget) are \$743.6 million, an increase of \$24.0 million or 3.3% over the FY17 Budget. The Final FY18 Budget assumes an offset of \$391,580 for the Debt Service Assistance (DSA) received from the Commonwealth of Massachusetts in May 2017.

Total expenses include \$472.2 million for Capital Financing costs and \$271.4 million for operating expenses, of which \$232.6 million is for Direct Expenses and \$38.9 million is for Indirect Expenses. The \$24.0 million increase over FY17 budget is due to higher Capital Financing expenses of \$17.1 million which is mainly due to a higher debt service requirement of \$9.0 million and inclusion of a HEEC Cable Capacity Reserve Fund to offset the anticipated increases in capacity charges for FY21 and FY22 resulting from construction of a new cross harbor electrical cable to serve the Deer Island Wastewater Treatment Plant; higher Direct Expenses of \$6.0 million due to Cost of Living Adjustments (COLA) for staff, higher chemical costs, higher healthcare costs and higher projected maintenance expenses; and higher Indirect Expenses of \$904,000 for Additions to Reserves, and Watershed Management costs.

FY18 Final Budget



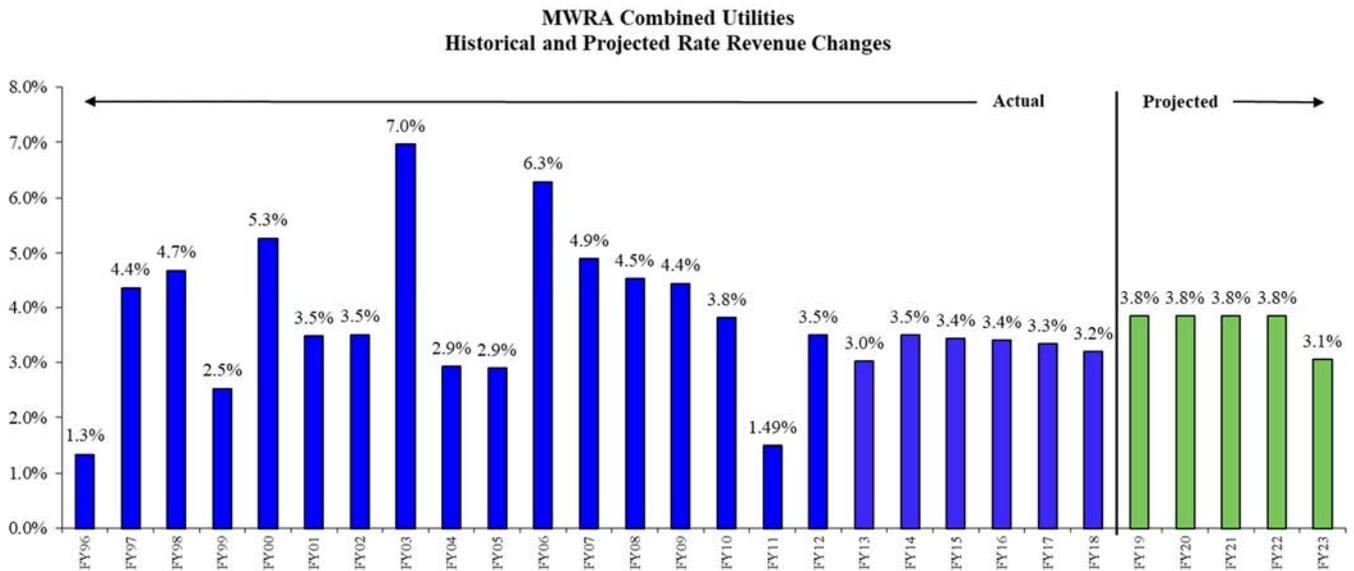
MWRA continues to pursue a rate management strategy which promotes sustainable and predictable assessments. The Final FY18 Budget has a combined utilities assessment increase of 3.19% with Rate Revenues totaling \$717.1 million. Rate Revenues account for nearly 96.4% of projected FY18 revenues. Measures taken by the Authority to achieve the 3.19% rate increase include:

- Continued practice of targeted defeasances;
- Budgeted 1,150 Full-Time Equivalent (FTE's) positions, the same as in FY17;
- Budgeted a \$10.9 million Debt Prepayment;
- Direct Expenses increased 2.7% versus FY17 budget;
- Indirect Expenses increased 2.4% versus FY17 budget.

The table below shows MWRA's Final FY18 Budget for revenue and expenses compared with the FY17 Budget and FY16 Actuals. Changes from FY17 to FY18 are described in the Revenue and Expense section of the Executive Summary.

TOTAL MWRA	FY16 Actuals	FY17 Approved Budget	FY18 Final Budget	Change	
				FY18 Final Budget vs FY17 Approved Budget	
				\$	%
EXPENSES					
WAGES AND SALARIES	\$ 96,118,427	\$ 101,858,897	\$ 104,286,370	\$ 2,427,473	2.4%
OVERTIME	4,355,586	4,192,676	4,110,637	(82,039)	-2.0%
FRINGE BENEFITS	19,131,139	20,242,324	20,997,975	755,651	3.7%
WORKERS' COMPENSATION	2,350,369	2,344,190	2,322,980	(21,210)	-0.9%
CHEMICALS	9,297,550	9,110,407	9,836,933	726,526	8.0%
ENERGY AND UTILITIES	18,744,867	21,541,078	21,735,222	194,144	0.9%
MAINTENANCE	30,978,045	31,080,642	32,200,786	1,120,144	3.6%
TRAINING AND MEETINGS	370,752	435,481	406,269	(29,212)	-6.7%
PROFESSIONAL SERVICES	5,886,717	6,531,939	7,221,622	689,683	10.6%
OTHER MATERIALS	6,186,216	6,219,630	6,692,659	473,029	7.6%
OTHER SERVICES	22,628,385	22,974,855	22,764,526	(210,329)	-0.9%
TOTAL DIRECT EXPENSES	\$ 216,048,053	\$ 226,532,117	\$ 232,575,979	\$ 6,043,862	2.7%
INSURANCE	\$ 1,953,053	\$ 1,997,898	\$ 2,013,452	15,554	0.8%
WATERSHED/PILOT/DEBT	27,469,847	24,291,268	25,164,006	872,738	3.6%
COMMONWEALTH DEBT PREPAYMENT	32,000,000	-	-	-	
HEEC PAYMENT	1,342,141	773,859	957,445	183,586	23.7%
MITIGATION	1,520,000	1,558,000	1,596,950	38,950	2.5%
ADDITIONS TO RESERVES	(34,927)	(167,742)	821,116	988,858	N/A
RETIREMENT FUND	8,159,521	3,132,624	3,277,369	144,745	4.6%
ADDITIONAL PENSION DEPOSIT	-	1,500,000	-	(1,500,000)	-100.0%
POSTEMPLOYMENT BENEFITS	5,224,848	4,876,050	5,035,422	159,372	3.3%
TOTAL INDIRECT EXPENSES	\$ 77,634,483	\$ 37,961,956	\$ 38,865,760	\$ 903,803	2.4%
STATE REVOLVING FUND	\$ 78,131,559	\$ 86,971,915	\$ 84,931,906	(2,040,009)	-2.3%
SENIOR DEBT	275,085,817	268,472,557	264,560,267	(3,912,290)	-1.5%
SUBORDINATE DEBT	49,222,442	69,997,992	85,443,447	15,445,455	22.1%
LOCAL WATER PIPELINE CP	262,498	4,149,242	3,794,944	(354,298)	-8.5%
CURRENT REVENUE/CAPITAL	11,200,000	12,200,000	13,200,000	1,000,000	8.2%
CAPITAL LEASE	3,217,060	3,217,060	3,217,060	-	0.0%
DEBT PREPAYMENT	-	10,994,960	10,900,000	(94,960)	-0.9%
VARIABLE RATE SAVINGS	(12,873,173)	-	-	-	
DEFEASANCE ACCOUNT	-	-	-	-	
DEBT SERVICE ASSISTANCE	(873,804)	(873,804)	(391,580)	482,224	-55.2%
HEEC CABLE CAPACITY RESERVE FUND	-	-	6,532,146	6,532,146	
TOTAL CAPITAL FINANCING	\$ 403,372,399	\$ 455,129,922	\$ 472,188,190	\$ 17,058,268	3.7%
TOTAL EXPENSES	\$ 697,054,934	\$ 719,623,995	\$ 743,629,929	\$ 24,005,933	3.3%
REVENUE & INCOME					
RATE REVENUE	\$ 672,440,000	\$ 694,878,500	\$ 717,054,000	22,175,500	3.19%
OTHER USER CHARGES	8,783,469	8,752,834	9,011,070	258,236	3.0%
OTHER REVENUE	15,749,464	6,519,171	7,359,078	839,907	12.9%
RATE STABILIZATION	-	-	-	-	
INVESTMENT INCOME	10,303,841	9,473,490	10,205,781	732,291	7.7%
TOTAL REVENUE & INCOME	\$ 707,276,774	\$ 719,623,995	\$ 743,629,929	\$ 24,005,934	3.3%

The graph below represents historical and projected assessment changes based on the FY18 Final Budget. The next four-year planning estimates, through FY22 (the most challenging year facing the Authority) project assessment increases at 3.8%.



The Final FY18 Budget revenues, excluding rate revenue, total \$26.6 million, an increase of \$1.8 million or 7.4% above the FY17 budget. The Final FY18 Budget non-rate revenue budget includes \$16.4 million in Other User Charges and Other Revenue and \$10.2 million for Investment Income.

FY18 GOALS AND MAJOR INITIATIVES

Ensuring a safe and reliable source of drinking water to MWRA customers, and wastewater discharges that meet all applicable regulations drives both capital and current expense budget costs. The MWRA has identified Authority-wide major initiatives to support the five strategic priorities integral to MWRA’s mission that were identified for action in MWRA’s Five-Year Strategic Business Plan FY2016-2020. At the Division and Department-level, additional and more specific goals and initiatives are identified.

I. Drinking Water Quality and System Performance

- Continue to provide technical assistance and laboratory analysis to help communities identify and reduce lead service lines, primarily in schools.
- Continue to support core operations to ensure compliance with regulatory requirements.

II. Wastewater Management and System Performance

- Plan for implementation of requirements of the new National Pollutant Discharge Elimination System (NPDES) Permits for the Clinton Wastewater Treatment Plant.

- Continue to meet or surpass environmental compliance standards for the Deer Island Treatment Plant as required by the National Pollutant Discharge Elimination System (NPDES) permit and air quality permits.

III. Infrastructure Management and Resilience

- Continue to invest in asset protection to ensure adequate availability of equipment and facilities to support core operations.
- Continue the development of long-term water service redundancy.

IV. Finance and Management

- Continue to plan and develop long-term strategies to ensure sustainable and predictable assessments to MWRA communities at the combined and the utility level.
- Develop options for mitigating the significant potential cost impacts for the sewer communities of the new Eversource cross-harbor electrical cable project.
- Secure favorable financing terms to support both the capital and current expense budgets and preserve the Authority's credit rating.
- Invest in cyber security protection.
- Continue to focus on succession planning with emphasis on training for current employees.

V. Environmental Sustainability

- Continue to aggressively pursue renewable and sustainable energy resources to reduce the environmental impacts of daily operations, increase energy efficiencies, and reduce overall operating costs.
- Continue to identify, assess, and implement initiatives to reduce energy demand and increase energy self-generation in MWRA's system.
- Enter into a new Memorandum of Understanding with Eversource for payment of energy reduction incentives.
- Pursue grant-funding and cost-sharing arrangements to defray costs of implementing new energy reduction and energy self-generation projects.

FY17 ACCOMPLISHMENTS

I. Drinking Water Quality and System Performance

- Provided water to Massachusetts communities during the summer drought providing these communities with relief from the drought and generating additional revenues of \$4.8 million, which will be used to finance a portion of the lead lines removal program.
- The Laboratory Services Department performed 20,000 tests since the beginning of 2016 in support of community efforts to identify and reduce lead service lines in schools.
- Met all water quality and treatment standards in the drinking water system during FY17, and maintained maximum turbidity results at Quabbin and Wachusett Reservoirs within MassDEP standards.

- Contaminant Monitoring System - Replaced and enhanced monitoring capabilities on the Wachusett Reservoir with new equipment and technology; installed a continuous monitoring shed over the Wachusett Reservoir to provide both routine water quality information and contaminant detection; and implemented a 24/7 monitoring and response program for CMS alarms.

II. Wastewater Management and System Performance

- The Deer Island Wastewater Treatment Plant received the Platinum Peak Performance Award for 2017 from the National Association of Clean Water Agencies (NACWA) for the 10th continuous year. The award recognizes facilities for outstanding compliance of their National Pollutant Discharge Elimination System (NPDES) permit limits. DITP has had no permit violations for ten years.
- The Environmental Quality Department carried out permit-required environmental monitoring of Boston Harbor and Massachusetts Bay water column, sediments, fish and shellfish and CSO receiving water quality. The department finalized 20 technical reports, made monitoring results available on its website, and sent reports to government regulators, the Outfall Monitoring Science Advisory Panel and interested members of the public.

III. Infrastructure Management and Resilience

- Secured MWRA Board of Directors approval for the preferred alternative for providing water service redundancy for the Metropolitan Tunnels System (City Tunnel, City Tunnel Extension and Dorchester Tunnel). The approved approach includes construction of northern and southern deep rock tunnels from the Hultman Aqueduct and MetroWest Water Supply Tunnel to the Weston Aqueduct Supply Main (WASM) 3 and to the Southern Spine water mains. The Board's approval allows staff to proceed with preliminary design, geotechnical investigations and Massachusetts Environmental Policy Act (MEPA) review of this critical project, budgeted at \$1.4 billion in the FY18 CIP. The Authority will continue with interim redundancy measures until completion of the project.
- Expanded MWRA's primary security system and participated in the planning and execution of a week-long cyber security drill defending critical infrastructure.

IV. Finance and Management

- Completed a \$104.3 million refunding bond transaction on August 2, 2016. The refunding resulted in \$9.8 million or 9.6% present value savings and \$13.2 million in gross debt savings over the life of the bonds.
- Completed a \$323.0 million refunding and new money bond transaction on May 18, 2017. The new money portion consisted of \$68.2 million in bonds which were deposited into the Construction Fund to pay for capital projects. The refunding for interest rates savings transaction totaled \$254.7 million. The refunded resulted in \$57.5 million or 20.7% present value savings and \$78.8 million in gross debt service savings over the life of the bonds. This refunding provided the second highest present value savings of any refunding since MWRA started issuing bonds in 1990.
- Executed an \$8.5 million defeasance of outstanding senior principal in September 2016. This defeasance reduces the debt service requirement between FY18 and FY20 by a total of \$9.7 million thereby reducing the rate of increase to the Rate Revenue Requirement in those years.

V. Environmental Sustainability

- Received a total of \$780,000 in revenue for energy generated at numerous facilities including the following: hydroelectric \$220,000 from Oakdale Station, \$78,000 from Cosgrove Station, and \$14,000 from the Loring Road Pump Station; wind of \$381,000 from Charlestown Pump Station; and solar of \$84,000 from Carroll Water Treatment Plant.
- Continue to leverage MWRA's self-generation assets and participation in the competitive energy market to offset operating costs. The combined impact of participation in the Independent System Operators of New England (ISO-NE) load response program, non-rate revenue from the sale of Renewable Portfolio Standards Program (RPS) credits, and receipt of utility rebates for CEB-funded efficiency projects resulted in \$2.2 million in revenue for FY17. MWRA also avoided approximately \$600,000 in capacity charges through operation of self-generation assets during peak load events as called by the regional transmission organization (ISO New England).

SOURCES AND USES OF FUNDS

Funds supporting the Current Expense Budget are not subject to appropriation with the exception of State debt service assistance. The table to the right shows MWRA's sources and uses of funds for The Final FY18 Budget.

Revenue

MWRA is required by its enabling act to balance its budget each year by establishing user assessments for water and sewer services that provide funds sufficient to recover the cost of operations (excluding depreciation), maintenance and improvements, and debt service, as well as meeting required reserve levels.

In the Final FY18 Budget, 96.4% of revenue is raised from rate revenue. The remaining 3.6% of revenue will come from interest on investments, charges to other water and sewer customers (including Chicopee Valley Aqueduct (CVA) communities), non-recurring revenue, annual charges to sewer system users with permits issued by MWRA's Toxic Reduction and Control Department (TRAC), penalties assessed to holders of sewer use permits, and other miscellaneous sources.

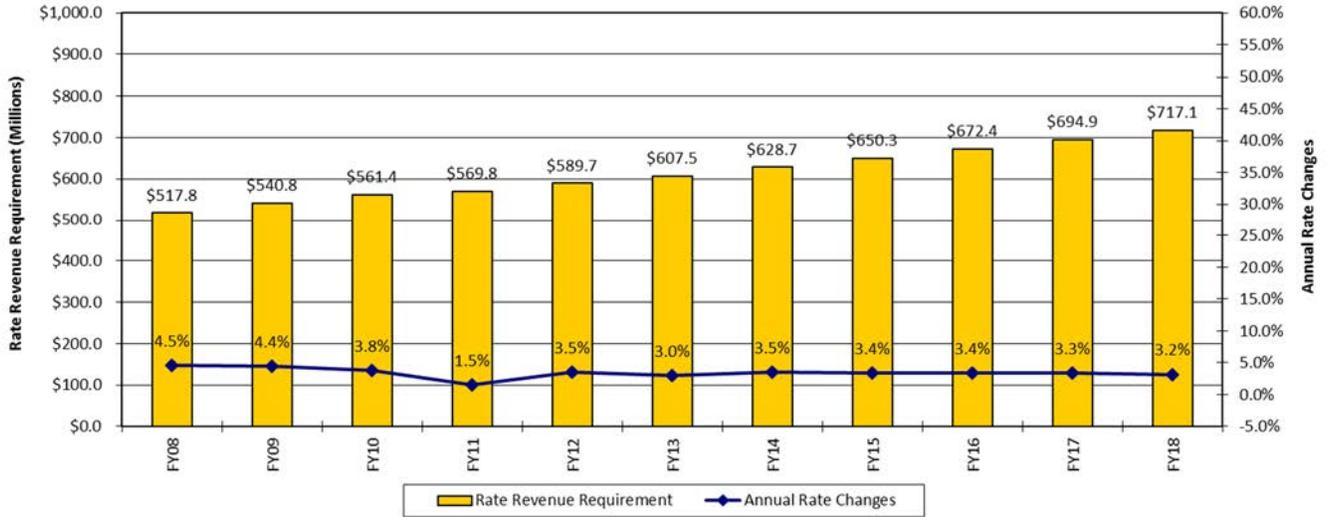
SOURCES & USES OF FUNDS*		
\$ in Millions		
<i>Sources of Funds</i>		
Other User Charges	\$9.0	1.2%
Other Revenue	7.4	1.0%
Investment Income	10.2	1.4%
Rate Revenue	717.1	96.4%
Rate Stabilization	0.0	0.0%
TOTAL REVENUE	\$743.6	100.0%
<i>Uses of Funds</i>		
Total Expenses before Debt		
Service Offsets	\$472.2	
Less:		
Debt Service Assistance	(0.4)	
Bond Redemption	-	
Sub-Total Net Expenses	471.8	
Capital Financing	471.8	63.5%
Direct Expenses	232.6	31.3%
Indirect Expenses	38.9	5.2%
TOTAL EXPENSES	\$743.2	100.0%
TOTAL EXPENSES Less Offsets	\$742.8	
<small>*May not add up due to rounding</small>		

Rate Revenue

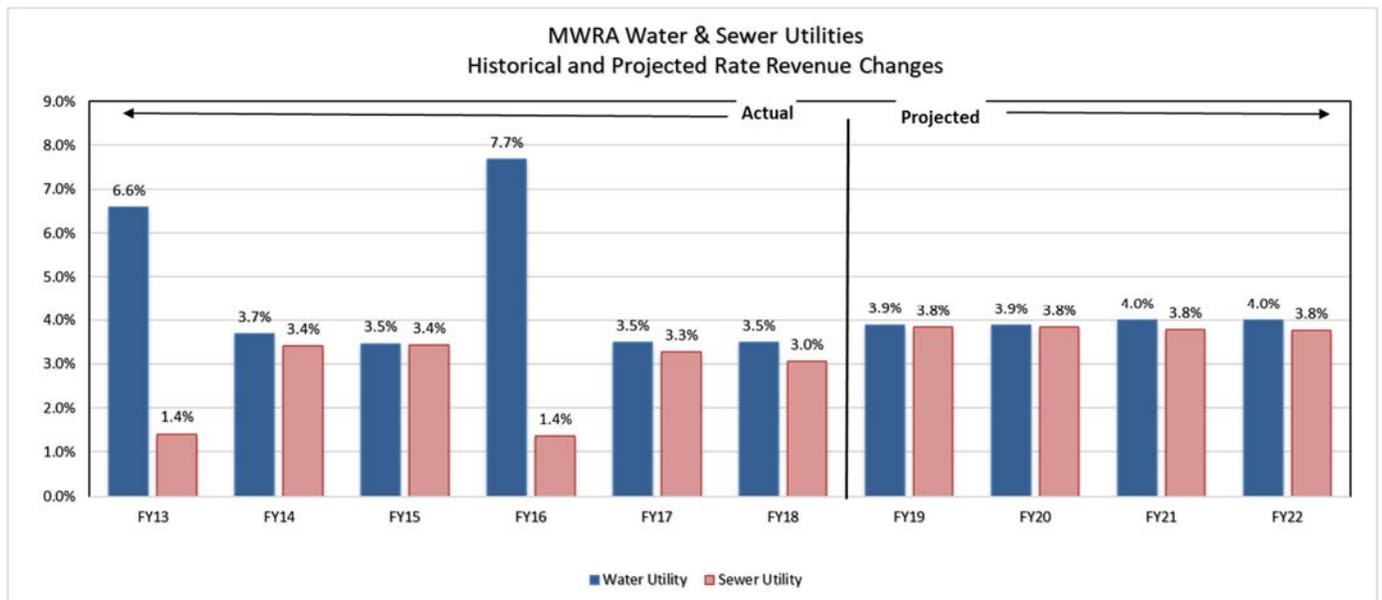
Under the Final FY18 Budget, the MWRA will raise \$717.1 million of its total revenue requirements from water and sewer assessments to member communities. Of the \$717.1 million, \$474.6 million will fund the sewerage system, an increase of 3.0% as compared to FY17; and \$242.4 million will fund the water

system, an increase of 3.5% as compared to FY17. The charts below show the historical rate revenue requirements at the combined utility level for the past ten years.

MWRA: Combined Water & Sewer Assessments



Beginning in FY17, the MWRA successfully implemented a rate increase smoothing mechanism that allows the rate revenue requirement to be smoothed between utilities eliminating annual volatility mostly driven by debt service payments for capital projects. The charts below show the historical percent increase for the last five years and the projected increases for the next five years.



Non-Rate Revenue

Other User Charges

Other User Charges include revenues derived from the provision of water and sewer services to communities and other entities under special agreements. Other User Charges in the FY18 Proposed Budget total \$9.0 million, a 3% increase over the FY17 budget and includes \$4.9 million for Chicopee Valley Aqueduct (CVA) communities, \$1.7 million for Deer Island water usage, \$727,000 for entrance fees from member communities, and \$500,000 for the Commonwealth's partial reimbursement for Clinton Wastewater Treatment Plant expenses. Other User Charges are \$212,000 or 2.4% more than the FY17 Budget which is due in part to increases for Water Treatment Plant Residuals assessments.

Other Revenue

Other Revenue is budgeted at \$7.7 million, an increase of \$1.1 million or 17.5% from the FY17 budget, due to projected revenue from the ISO New England demand response program. On an increase in the payment rate per kilowatt. Other Revenue includes \$2.2 million in permit fees and penalties, \$4.4 million for the sale of Renewable Energy Portfolio Credits, sale of generated power, and revenues for demand response programs.

Investment Income

MWRA earns interest income by investing funds in both long and short-term investments vehicles governed by Section 522 and 523 of the General Bond Resolution. The FY18 Final Budget includes \$10.2 million in investment income, an increase of \$732,000 million or 7.7% from the FY17 budget due to higher projected interest rates assumptions. The FY18 short-term interest rate assumption is 1.05% which is 45 basis points greater than FY17.

Non-Recurring Revenue

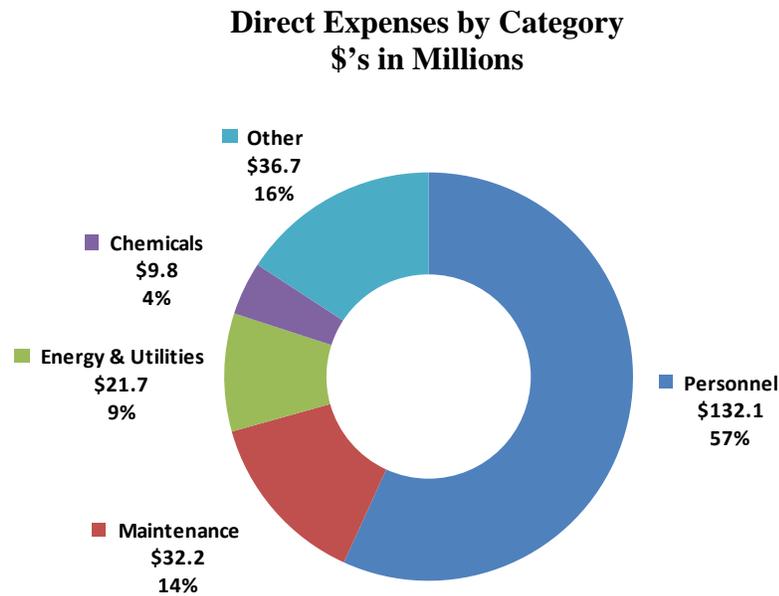
Non-Recurring Revenue is one-time revenue used in a given fiscal year to reduce assessments to member communities. In any fiscal year when annual revenues exceed expenses, MWRA may transfer the unexpended amount to the rate stabilization reserve. Within certain limits, MWRA may use this money to reduce the Rate Revenue Requirement in any subsequent year. Consistent with the requirements of its enabling act and its general bond resolution, MWRA treats transfers from the rate stabilization reserve as revenue in that fiscal year. For the Final FY18 Budget, no Rate Stabilization fund usage is projected.

DIRECT EXPENSES

The Final FY18 Direct Expense Budget is \$232.6 million, \$6.0 million or 2.7% above the FY17 budget. The primary drivers of the Direct Expenses increases are wages and salaries for cost of living adjustments (COLAs); fringe benefits for projected healthcare cost increases; chemical costs for projected prices of new contracts; and professional services for increased professional services and legal fees related to potential HEEC cable questions and potential Deer Island NPDES permit issues. MWRA continues to manage direct expenses through implementing cost improvement initiatives, such as cross-training staff,

competitive purchase of energy and chemicals, lease space reductions, and increased self-generation of electricity.

The chart below combines related direct expense line items into general cost categories. Labor costs (wages and salaries, overtime, fringe benefits, workers’ compensation, and training) are the largest component of the direct expense budget accounting for 57%, followed by other expenses (professional services, other materials, and other services) at 15%, maintenance at 14%, energy & utilities at 11%, and chemicals at 4%.

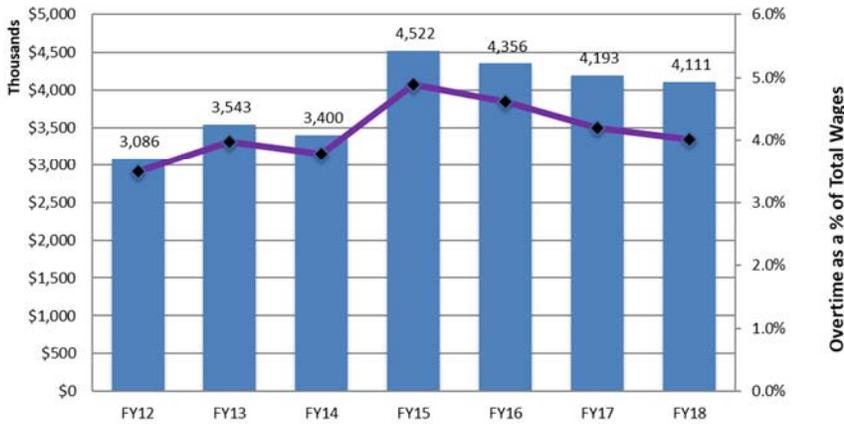


Wages and Salaries – The Final FY18 budget includes \$104.3 million for Wages and Salaries as compared to \$101.9 million in the FY17 budget, an increase of \$2.4 million or 2.4%, primarily for COLA increases. Regular Pay is 98.3% of total Wages and Salaries. On a Full-Time-Equivalent (FTE’s) basis, the Authority has budgeted 1,150 positions, the same as FY17. This position count is also consistent with the goal recommended to be achieved within a five-year time frame by Amawalk consultants in a 2012 staffing study. As always, new hires and backfilling of vacant positions will be managed at the agency level and addressed on a case-by-case basis by senior management.

**Prior to fiscal year 2017, personnel were budgeted based on position counts by division, regardless of whether they were full-time or part-time employees. Beginning in FY17, the budget is based on FTEs. Personnel who work less than full-time result in fractional counts within divisions.*

Division	FY16*	FY17	FY18
Executive	5	5	5
Emergency Preparedness	6	5.8	7.8
Affirmative Action	6	6	6
Internal Audit	8	6.7	6.8
Public Affairs	13	12.9	13
Operations	934	918.8	918.8
Law	17	15.5	15.5
Administration	142	141	142
Finance	39	38.3	35.5
Authority Total	1170	1150	1150.4

**MWRA Overtime
FY12-FY18**



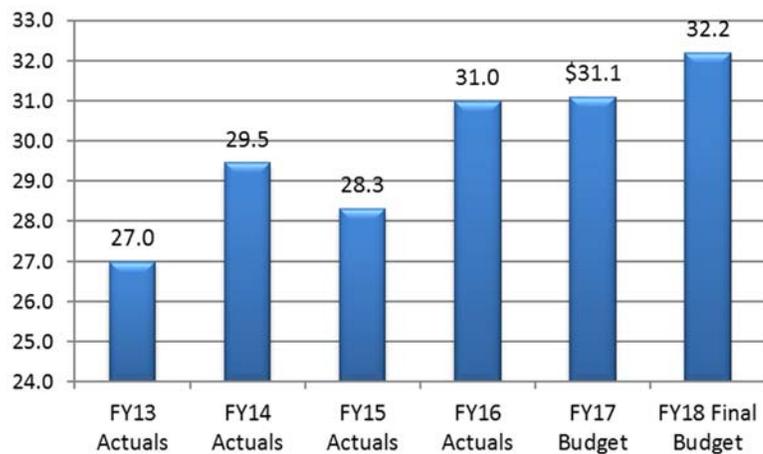
Overtime – The overtime line item is comprised of both emergency overtime and budgeted overtime for maintenance and capital projects. The Final FY18 Budget includes \$4.1 million for Overtime, a decrease of \$82,000 or 2.0% as compared to the FY17 Budget mainly for the removal of overtime in FY18 associated with the North Main Pump Station and Winthrop Terminal Facility Butterfly Valve Replacement project at Deer Island which was completed in FY17.

Fringe Benefits – The budget includes \$20.8 million for Fringe Benefits, an increase of \$755,000 or 3.7% from the FY17 budget. Every line item within the Fringe Benefits Expense category was increased by 3.7% in anticipation of cost increases, with the exception of unemployment which was level funded.

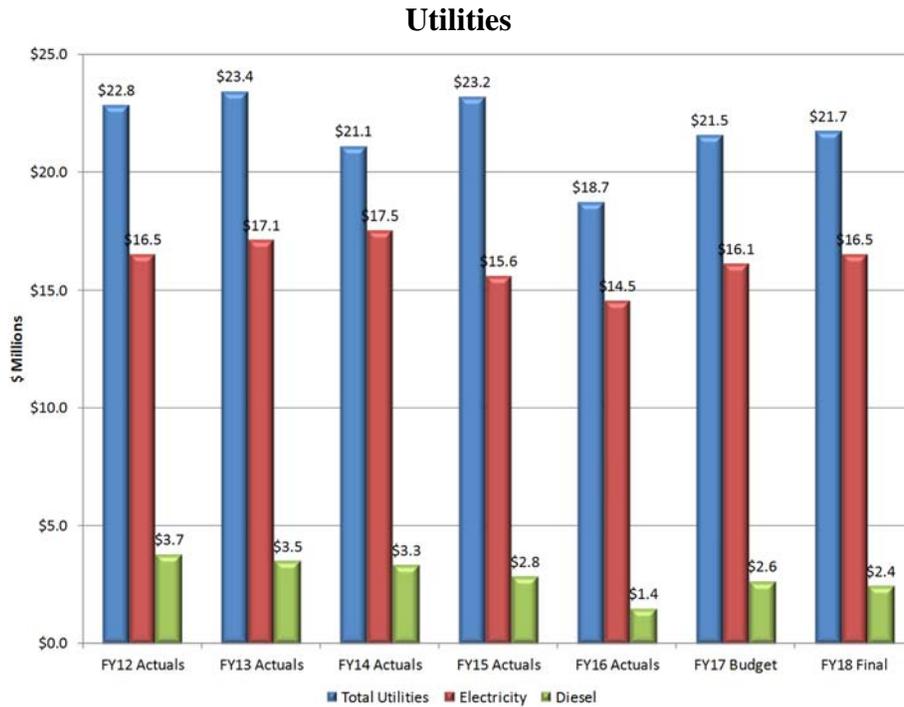
Fringe Benefits		
Line Item	FY17 Budget	Final FY18 Budget
Health Insurance	\$17,499,190	\$18,139,271
Dental Insurance	\$1,121,933	\$1,160,985
Unemployment	\$160,744	\$160,744
Medicare	\$1,344,699	\$1,387,610
Total	\$20,126,566	\$20,848,610

Maintenance – The budget includes \$32.2 million for Maintenance projects, an increase of \$1.1 million or 3.6% over the FY17 budget. The FY18 Maintenance increase is associated with project specific maintenance work. Over the past 5 years, the general trend in maintenance spending has been increasing, consistent with the Authority’s goal to adequately fund core operations and protect the Authority’s capital assets. Asset protection is a growing priority in both the current expense and capital improvement budgets.

**Maintenance
(\$s in millions)**



Utilities – The budget includes \$21.7 million for Utilities, which is an increase of \$.2 million or 0.9% from the FY17 Budget. The increase is for electricity of \$400,000 based upon a projected small increase in transmission and distribution charge for electricity to MWRA sites other than DITP. This is offset by a reduction of \$200,000 in diesel reflecting a 10 cent per gallon reduction in the budgeted cost of diesel fuel from FY17. The major utilities that the budget funds are \$16.5 million for Electricity, \$2.4 million for Diesel Fuel, \$2.1 million for Water, and \$590,000 for Natural Gas.



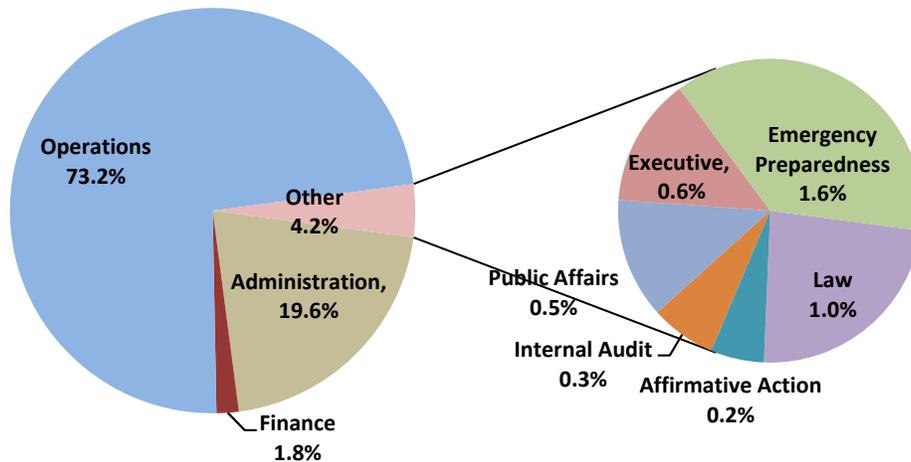
Chemicals – The budget includes \$9.8 million for Chemicals, an increase of \$727,000 or 8.0% from the FY17 Budget mainly due to increased pricing primarily for Sodium Hypochlorite and to increased quantities primarily for Soda Ash.

Other Services – The budget includes \$22.8 million for Other Services, a decrease of \$142,000 or 0.6% from the FY17 Budget. The budget includes funding of \$12.8 million for Sludge Pelletization, \$3.7 million for Space/Lease Rentals and related expenses for the Charlestown Navy Yard, and Chelsea facilities, \$2.0 million for Voice and Data costs, \$1.4 million for Other Services, and \$1.2 million for Grit & Screenings removal. The largest decrease is for Sludge Pelletization of \$298,000 due to deflation. This is offset by increases in Membership/Dues/Subscriptions, Printing & Duplicating, Space/Lease Rentals, and Other Services.

Functional Area Budget Summary

The chart below shows the breakdown of the MWRA's direct expense budget by division.

MWRA Direct Expense Budget By Division



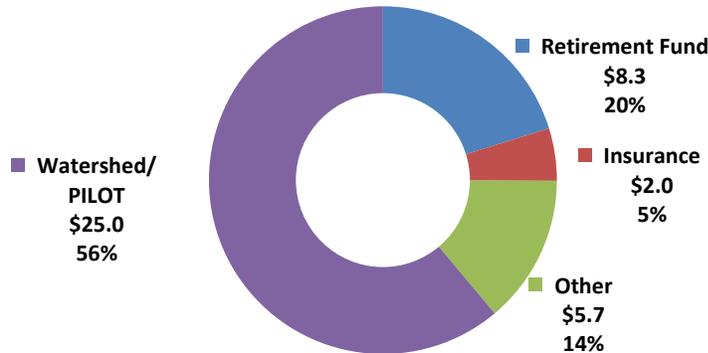
Detailed summaries for each Division budget are provided following the Executive Summary.

INDIRECT EXPENSES

The FY18 Indirect Expense Budget is \$38.9 million, \$904,000 or 2.4% above the FY17 Budget.

The following graph combines related indirect expense line items into the general cost categories and shows that Water Supply Protection Program expenses are the largest component of the indirect expense budget at 56% followed by Retirement Fund at 23%, Other (for items such as HEEC, Mitigation, and Addition to Reserves) at 16%, and Insurance at 5%.

Indirect Expenses by Category
\$s in Millions



Insurance

MWRA purchases property and casualty insurance from external insurance carriers with a self-insured retention of \$2.5 million dollars and Worker’s Compensation Excess insurance with a self-insured retention of \$500,000 per claim. The budget includes \$2.0 million for Insurance, an increase of \$16,000 or 0.8% from the FY17 Budget. The FY18 Budget was based on actual average spending for claims for the past five years, FY12-16, and favorable bids received for the premiums. MWRA mitigates the budgetary risk of self-insurance by maintaining an Insurance Reserve. The reserve, which was established as part of the Bond Resolution, requires that an independent insurance consultant review the funding level every three years and provide recommendations as to its adequacy. The Insurance Reserve Fund is currently funded at \$14.0 million which was within the acceptable range as identified in the insurance consultant review as of February 2017.

Watershed Reimbursement/PILOT

The Enabling Act directs MWRA to pay the Commonwealth of Massachusetts for several statutory obligations: Payment in Lieu of Taxes (PILOT) for Commonwealth-owned land in the watersheds and operating expenses of the Division of Water Supply Protection. The budget includes \$25.2 million for the Watershed Management budget, an increase of \$873,000 or 3.6% over the FY17 Budget. The budget includes \$16.7 million for reimbursement of operating expenses net of revenues, and \$8.4 million for Payment in Lieu of Taxes (PILOT). The largest increases are for operating expenses net of revenues of \$805,000 mainly for healthcare costs and contractual increases. In addition, there is an increase of \$68,000 for PILOT payments. The FY18 operating capital budget of the Watershed Management line item includes the Clinton crew headquarters construction, purchase of large equipment and an expansion of the Wachusett maintenance garage.

Division of Watershed Management

	FY17 Budget	FY18 Final	FY18 Final vs. FY17	%
Operating Expenses	16,024,268	16,664,006	639,738	4.0%
Phase I Projects	910,000	1,050,000	140,000	15.4%
Revenue	(1,015,000)	(990,000)	25,000	-2.5%
Net	15,919,268	16,724,006	804,738	5.1%
PILOT	8,372,000	8,440,000	68,000	0.8%
Total	24,291,268	25,164,006	872,738	3.6%

Harbor Electric Energy Company (HEEC)

The budget includes \$957,000 for the Harbor Energy Electric Company (HEEC), an increase of \$184,000 or 23.7% from the FY17 Budget to reflect updated calculations for the Operations and Maintenance component of the HEEC payment obligations for the existing cross-harbor cable.

Mitigation

MWRA disburses mitigation funds to communities affected by MWRA projects or facilities pursuant to MWRA's Statement of Mitigation Principles and/or specific agreements with communities. MWRA mitigation may include relieving the direct impacts of construction, meeting environmental and regulatory requirements, long-term operating agreements, or community compensation for impacts over and above those addressed by other mitigation. In rare situations, where the extent and duration of the impact of a project or facility on a community is such that restoring the area to its pre-project state is insufficient to relieve the stress of MWRA's presence during the project, MWRA funds or contributes to improvements to affected areas.

Mitigation expenses are funded in the capital budget and in the current expense budget. The FY18 Final Budget includes funding of \$1.6 million in community compensation for the City of Quincy and the Town of Winthrop. Both mitigation agreements expire in FY25.

Operating Reserves

Funding for the Operating Reserve for FY18 is \$821,000. The Operating Reserve balance is in compliance with MWRA General Bond Resolution which requires a balance of one-sixth of annual operating expenses. Based on the Final FY18 Budget the required balance is \$40.1 million versus the \$39.2 million required in FY17.

Retirement System Contribution

The budget includes \$3.3 million for the Retirement Fund, an increase of \$145,000 million or 4.6% over the FY17 budget. The minimum required contribution for FY18 is \$3.3 million based on the January 1, 2015 actuarial report.

GASB 45 – Accounting and Reporting by Employers for Postemployment Benefits Other than Pensions

In the Final FY18 Budget the Authority funds its OPEB liability at \$5.0 million, continuing the Authority's long-term commitment to address its liabilities. The Authority has complied with the GASB 45, *Accounting and Financial Reporting by Employers for Postemployment Benefits Other than Pensions (OPEB)*, by disclosing this liability in the year-end Financial Statements. As part of the multi-year strategy to address its unfunded liabilities for OPEB and pension holistically, the Board approved a plan to pay down the pension liability and upon reaching full funding, move to address the OPEB obligation. To maximize the benefits in terms of returns and accounting treatment, an irrevocable OPEB Trust was established after Board approval and funding started on April 23rd, 2015. The current Trust balance is \$17.5 million which represent approximately a 12% funding level. The \$5.0 million contribution is 50% of the Annual Required Contribution (ARC) after the reduction of the pay-as-you-go portion budgeted under the Fringe line item, based on the January 1, 2014 actuarial report.

CAPITAL FINANCING

The Final FY18 Budget capital financing costs increased by \$17.0 million or 3.7% compared to the FY17 Budget. This increase in the MWRA's debt service is the result of projected FY18 borrowings and the structure of the existing debt, the addition of the HEEC cable capacity reserve fund, and increased current revenue for capital partially offset by the impact of the defeasance. The FY18 capital financing budget includes:

- \$264.6 million in principal and interest payments on MWRA's senior fixed rate bonds. This amount includes \$3.5 million to support issuance of \$100 million in May 2018 and a reduction of \$1,847,500 for the effect of the FY17 defeasance;
- \$85.4 million in principal and interest payments on subordinate bonds;
- \$84.9 million in principal and interest payments on SRF loans. This amount includes \$4.3 million to support issuances of \$50.0 million of replacement loans during 2018;
- \$13.2 million to fund ongoing capital projects with current revenue;
- \$6.5 million for the new HEEC cable capacity reserve fund. As stated earlier, MWRA has agreed with Eversource to construct a new long-term submarine electric cable to replace the existing cable instead of protecting the existing cable with an expensive short-term fix. Based on current estimates of costs and timing for commissioning of the new cable, MWRA anticipates that payments for the capacity charges for the new HEEC cable will begin in FY20. By agreement with the Advisory Board, the \$4.4 million of avoided expenses in FY18, as a result of building a new cable instead of protecting the existing cable, are being added to a new HEEC cable capacity reserve fund totaling \$6.5 million to use in FY21 and FY22 to absorb and level the increase in costs beginning that year.

- \$3.8 million to fund the interest expense related to the Local Water Pipeline Assistance Program; and
- \$3.2 million for the Chelsea Lease.

The budget also includes \$391,580 offset to Debt Service for the Debt Service Assistance received in FY17.

Outstanding Debt and Debt Management

The \$8.3 billion spent on MWRA’s modernization efforts since the Authority was established in 1986, has relied heavily on debt financing. Total debt as of December 31, 2016 was \$5.2 billion consisting of senior and subordinated debt, as well as Tax-Exempt Commercial Paper. The MWRA enjoys strong unenhanced senior debt ratings of Aa1, AA+, and AA+ from Moody’s, Standard & Poor, and Fitch, respectively.

Type	Principal Outstanding December 31, 2016	% of Total
Senior General Revenue Bonds	\$ 3,181,950,000	61.1%
Massachusetts Clean Water Trust	\$ 980,095,379	18.8%
Subordinate General Revenue Bonds	\$ 895,460,000	17.2%
Tax-Exempt Commercial Paper/Revolving Line of Credit	\$ 149,000,000	2.9%
Total	\$ 5,206,505,379	100.0%

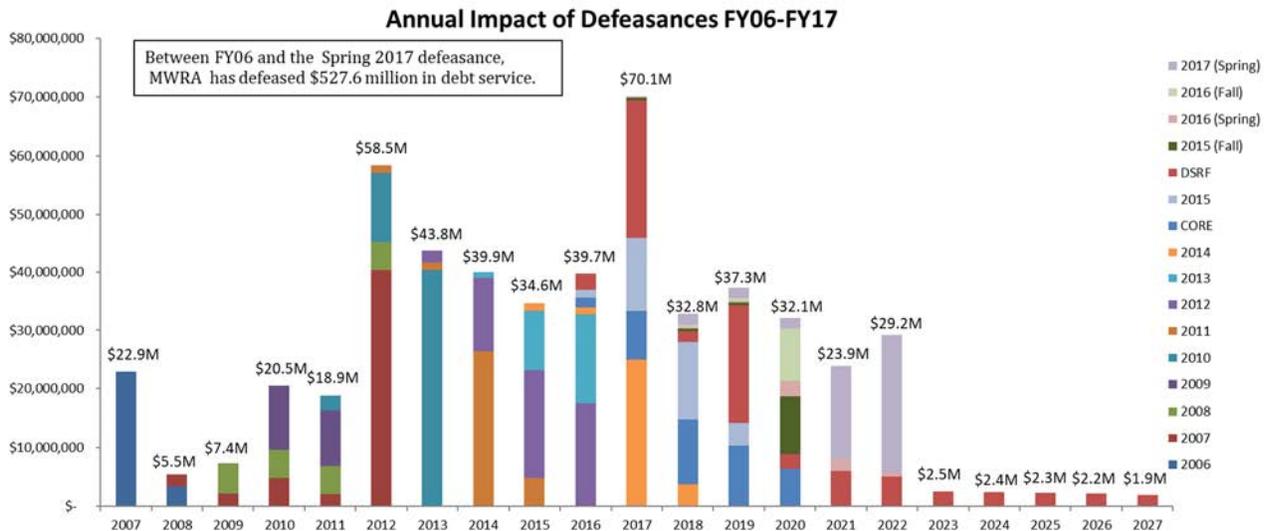

 79.9% of MWRA's Debt is Fixed Rate

As a result of the Authority’s Capital Improvement Program, capital financing as a percent of total expenses (before offsets) has increased steadily from 36% in 1990 to 63.5% in the FY18 Current Expense Budget. Much of this debt service is for completed projects, primarily the Boston Harbor Project and the Integrated Water Supply Improvement Program. The MWRA’s capital spending, from its inception, had been dominated by projects mandated by court ordered or regulatory requirements, which in total have accounted for ~80% of capital spending to date. Going forward, and as the Combined Sewer Overflow (CSO) projects reached substantial completion in December 2015, the majority of spending will be focused on asset protection and water redundancy initiatives. The projected capital spending scheduled for FY18 is less than scheduled principal payments which will contribute to decrease MWRA’s outstanding indebtedness. A summary of the FY18 Capital Improvement Program is included as Attachment G.

The Authority has actively managed its debt structure to take advantage of favorable interest rates. Tools used by the MWRA to lower borrowing costs and manage rates include current and advanced refunding of outstanding debt, maximizing the use of the subsidized State Revolving Fund (SRF) debt, issuance of variable rate debt, swap agreements, and the use of surplus revenues to defease debt. The MWRA also uses tax exempt commercial paper to minimize the financing cost of construction in process.

The FY18 Final Budget capital financing costs total \$472.2 million and remain the largest portion of the MWRA’s budget, accounting for 63.5% of total expenses.

The FY18 Budget includes a defeasance of \$36.2 million which will reduce debt service by \$15.9 million in FY21, \$23.4 million in FY22 and \$1,847,500 in years FY18-20.



The FY18 Budget assumes a 3.25% interest rate for variable rate debt which equal to the rate in FY17. The Authority’s variable rate debt assumption is comprised of three separate elements: the interest rate for the daily and weekly series; liquidity fees for the Standby Bond Purchase Agreement, Letter of Credit, and Direct Purchase providers; and remarketing fees. While MWRA continues to experience unusually low interest rates, they are not reflective of historical averages and there are anticipated increases in the future.

Grant Revenues

In the past, MWRA has been able to finance approximately 20 percent of its capital spending with grant receipts, totaling approximately \$1.1 billion through FY03. However, since FY03, the MWRA has only received \$4.9 million in capital grants. In addition to participating in federal and state grant programs, the MWRA benefitted from the American Recovery and Reinvestment Act of 2009 which is projected to forgive approximately \$33.0 million in State Revolving Fund loan principal. The Authority continues to pursue grant funding and take advantage of any possible program available to maximize grant funding opportunities.

MWRA expects to borrow the majority of funds necessary for future capital spending. Borrowing will include the issuance of fixed and variable rate revenue bonds; borrowing from the Massachusetts Clean Water Trust (also known as the State Revolving Loan Fund or SRF), and a Tax-Exempt Commercial Paper program. The table below details the FY18 budget capital financing line item. It also shows how upgrading the sewerage system has dominated the capital program to date. Current and future borrowings increasingly support improvements to the water system. A complete list of the Authority’s indebtedness by series is presented in Appendix F.

FY18 Final Current Expense Budget - Capital Financing Detail (as of 6/30/17)				
\$ in millions				
	Amount Outstanding	Total FY16 Capital Costs	Sewer	Water
Total SRF ¹ Debt	\$1,007.0	\$84.9	\$65.3	\$19.6
Total Senior Debt	\$3,191.3	264.6	167.9	96.7
Total Subordinate Debt	\$866.7	85.4	58.7	26.7
Total SRF and Debt Service²	\$5,065.0	\$434.9	\$291.9	\$143.0
Water Pipeline Commercial Paper	128.0	3.8	0.0	3.8
Current Revenue/Capital ³		13.2	12.3	0.9
Capital Lease		3.2	1.9	1.3
Debt Prepayment ⁴		10.9	10.6	0.3
Harbor Cable Prepayment		6.5	6.5	0.0
	128.0	\$37.6	\$31.4	\$6.3
Total Capital Financing (before Debt Service Offsets)	5,193.0	\$472.6	\$323.3	\$149.3
Debt Service Offsets:				
Debt Service Assistance		(0.4)	(0.4)	(0.0)
Bond Redemption		0.0	0.0	0.0
Total Capital Financing	5,193.0	\$472.2	\$322.9	\$149.3

¹ SRF debt service payments reflect net MWRA obligations after state and federal subsidies.

² Numbers may not add due to rounding.

³ Current Revenue/Capital is revenue used to fund ongoing capital projects.

⁴ Debt Prepayment will be used defeasance of bonds at end of fiscal year.

CIP Impact on Current Expense Budget

In addition to the annual financing costs included in the Current Expense Budget, the Capital Improvement Program affects the annual operating budget when capital facilities come on-line and require adjustments to operating budgets. In prior years, completion of the Deer Island Treatment Plant, the Carroll Water Treatment Plant, and the residuals processing facility in Quincy resulted in significant increases in operating expenses. Operating costs will be reduced by approximately \$611,000 through FY28, primarily due to Asset Protection projects at the Deer Island Treatment Plant. These reductions will be offset by Information System program related maintenance initiatives that are projected to increase operating costs by \$313,000 by FY18. The following table summarizes the projected CIP impact on the operating budget by project over the next ten years.

Fiscal Year	CEB Impacts (\$ in thousands)										
	FY19	FY20	FY21	FY22	FY23	FY24	FY25	FY26	FY27	FY28	Total
DI Treatment Plant Asset Protection (not including Co-Digestion or Combined Heat and Power Plant)	\$0	\$212	(\$251)	\$0	(\$116)	(\$131)	(\$61)	\$0	\$0	\$0	(\$348)
DI Treatment Plant Asset Protection - Co-Digestion ONLY	0	0	0	0	0	0	0	0	0	0	0
Clinton Phosphorous Removal Project	31	0	0	0	0	0	0	0	0	0	31
Wastewater Alternative Energy Projects	0	0	0	0	0	0	0	0	0	0	0
South Boston CSO Tunnel Inspection/Cleaning and Outfalls Inspection (previously named North Dorchester Bay project)	(361)	0	0	0	869	(896)	0	0	0	0	(387)
Total Wastewater (inflated)	(\$330)	\$212	(\$251)	\$0	\$754	(\$1,027)	(\$61)	\$0	\$0	\$0	(\$704)
Empty	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Empty	0	0	0	0	0	0	0	0	0	0	0
Wachusett Algae Treatment Facility	0	0	0	0	0	0	0	0	46	47	93
Empty	0	0	0	0	0	0	0	0	0	0	0
Water Energy Projects	0	0	0	0	0	0	0	0	0	0	0
Total Water (inflated)	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$46	\$47	\$93
Maximo Upgrades & Lawson Enhancements	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Storage Upgrades	103	0	0	0	0	0	0	0	0	0	103
Telecommunications	26	0	0	0	0	0	0	0	0	0	26
NET 2020 DITP & Southborough	0	0	0	0	0	0	0	0	0	0	0
Information Security Program	0	0	0	0	0	0	0	0	0	0	0
Information Technology Management Program	0	0	0	0	0	0	0	0	0	0	0
Application Improvement Program	0	80	0	0	0	0	0	0	0	0	80
IT Infrastructure Program	104	0	0	0	0	0	0	0	0	0	104
Total Business and Operations Support (inflated)	\$233	\$80	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$313
TOTAL MWRA	(\$97)	\$292	(\$251)	\$0	\$754	(\$1,027)	(\$61)	\$0	\$46	\$47	(\$298)

RATE ASSESSMENT AND METHODOLOGY

Community Profile and Assessments

MWRA provides wholesale water and sewer services to 61 communities or local bodies. Fifty-one local bodies purchase water supply services, and 45 local bodies purchase wastewater transport and treatment services. Thirty-five local bodies purchase both. Approximately 2.8 million people, or 43% of the population of Massachusetts, live and work in the communities that purchase water and/or wastewater services from MWRA.

MWRA's largest single customer is the Boston Water and Sewer Commission (BWSC), which provides retail services in the City of Boston. In the Final FY18 Budget, rate revenue from BWSC will account for 31% of MWRA's total rate revenue. The table on page I-20, lists MWRA communities, the services received, and the MWRA assessments for FY18.

Each year MWRA determines preliminary wholesale water and sewer assessments in February and final assessments in June before the beginning of the new fiscal year. These assessments must satisfy the statutory requirement that MWRA fully recover its budgeted water and sewer costs by apportioning net costs among its wholesale water and sewer customers.

The table on the following page presents the calculation of MWRA's FY18 Rate Revenue Requirement. The table shows that most of MWRA's current expenses are directly attributable to either water or sewer service costs, or to investment in the water or sewer systems. Expenses that support both systems are allocated to water or sewer assessments based on generally accepted cost allocation principles. Investment

Income and Other Revenues offset water and sewer expenses. The resulting net cost of water and sewer services is the amount MWRA recovers through water and sewer assessments.

Calculation of the PFY18 Rate Revenue Requirement
(\$s in thousands)

	Sewer	Water	Total
Allocated Direct Expenses	\$160,412	\$77,999	\$238,411
Allocated Indirect Expenses	\$11,779	\$29,802	\$41,581
PLUS			
Capital Expenses:			
Debt Service (less offsets)	\$294,122	\$143,598	\$437,720
Current Revenue for Capital	\$12,540	\$660	\$13,200
Other Capital Expenses	\$12,328	\$5,875	\$18,204
PLUS			
Non-Rate Revenue:			
Investment Income	-\$6,458	-\$4,797	-\$11,255
Fees and Other Revenue	-\$6,880	-\$9,743	-\$16,623
Rate Stabilization	\$0	\$0	\$0
EQUALS			
Rate Revenue Requirement	\$477,844	\$243,394	\$721,238

Wholesale Assessment Methodology

MWRA calculates separate user assessments for water and sewer services. Budgeted water operating and capital costs are allocated based on each community’s share of total water use for the most recent calendar year. The sewer assessment methodology allocates budgeted operating and maintenance costs based on share of wastewater flow and strength parameters, and capital costs based on proportion of maximum flow, strength, and population. MWRA uses three-year averaging of wastewater flows to calculate the flow-related components of wholesale sewer assessments. Flow averaging moderates the short-term impact of year-to-year changes in community flow, but does not eliminate the long-term impact of changes in each community’s relative contribution to the total flow.

Massachusetts Water Resources Authority
Final FY18 Water and Sewer Assessments

MWRA Fully Served Water and Sewer Customers	Final FY17 Water Assessment	Final FY18 Water Assessment	Percent Change from FY17	Final FY17 Sewer Assessment	Final FY18 Sewer Assessment	Percent Change from FY17	Final FY17 Combined Assessment	Final FY18 Combined Assessment	Dollar Change from FY17	Percent Change from FY17
ARLINGTON	\$4,976,564	\$5,218,727	4.9%	\$7,993,120	\$8,338,483	4.3%	\$12,969,684	\$13,557,210	\$587,526	4.5%
BELMONT	2,828,456	2,906,748	2.8%	4,825,479	4,923,065	2.0%	7,653,935	7,829,813	175,878	2.3%
BOSTON (BWSC)	82,771,709	85,905,357	3.8%	132,271,845	135,974,820	2.8%	215,043,554	221,880,177	6,836,623	3.2%
BROOKLINE	7,046,691	6,806,844	-3.4%	12,894,419	12,978,537	0.7%	19,941,110	19,785,381	(155,729)	-0.8%
CHELSEA	4,215,080	4,277,382	1.5%	7,663,315	7,717,861	0.7%	11,878,395	11,995,243	116,848	1.0%
EVERETT	4,948,191	5,182,465	4.7%	8,124,101	8,378,885	3.1%	13,072,292	13,561,350	489,058	3.7%
FRAMINGHAM	8,159,808	8,003,044	-1.9%	12,824,962	13,063,056	1.9%	20,984,770	21,066,100	81,330	0.4%
LEXINGTON	7,349,661	7,246,531	-1.4%	7,265,870	7,402,979	1.9%	14,615,531	14,649,510	33,979	0.2%
MALDEN	6,950,768	6,762,968	-2.7%	12,941,073	13,307,655	2.8%	19,891,841	20,070,623	178,782	0.9%
MEDFORD	6,432,219	6,383,291	-0.8%	11,878,789	12,118,702	2.0%	18,311,008	18,501,993	190,985	1.0%
MELROSE	2,915,635	2,854,570	-2.1%	6,251,952	6,387,893	2.2%	9,167,587	9,242,463	74,876	0.8%
MILTON	3,360,396	3,495,641	4.0%	5,362,055	5,450,348	1.6%	8,722,451	8,945,989	223,538	2.6%
NEWTON	12,950,552	12,891,560	-0.5%	20,518,241	21,760,724	6.1%	33,468,793	34,652,284	1,183,491	3.5%
NORWOOD	3,652,867	3,703,392	1.4%	7,023,166	7,436,847	5.9%	10,676,033	11,140,239	464,206	4.3%
QUINCY	11,776,311	12,199,555	3.6%	19,971,978	20,574,282	3.0%	31,748,289	32,773,837	1,025,548	3.2%
READING	2,109,549	2,211,234	4.8%	4,769,928	4,939,434	3.6%	6,879,477	7,150,668	271,191	3.9%
REVERE	4,943,964	4,896,715	-1.0%	10,611,549	10,775,969	1.5%	15,555,513	15,672,684	117,171	0.8%
SOMERVILLE	7,658,290	7,928,695	3.5%	15,918,035	16,508,256	3.7%	23,576,325	24,436,951	860,626	3.7%
STONEHAM	3,174,690	3,027,480	-4.6%	4,542,049	4,600,334	1.3%	7,716,739	7,627,814	(88,925)	-1.2%
WALTHAM	9,384,159	9,038,537	-3.7%	13,122,122	13,521,664	3.0%	22,506,281	22,560,201	53,920	0.2%
WATERTOWN	3,290,986	3,388,389	3.0%	5,971,377	6,103,914	2.2%	9,262,363	9,492,303	229,940	2.5%
WINTHROP	1,643,615	1,615,822	-1.7%	3,320,069	3,395,228	2.3%	4,963,684	5,011,050	47,366	1.0%
TOTAL	\$202,540,161	\$205,944,947	1.7%	\$336,065,494	\$345,658,936	2.9%	\$538,605,655	\$551,603,883	\$12,998,228	2.4%

MWRA Sewer and Partial Water Customers	Final FY17 Water Assessment	Final FY18 Water Assessment	Percent Change from FY17	Final FY17 Sewer Assessment	Final FY18 Sewer Assessment	Percent Change from FY17	Final FY17 Combined Assessment	Final FY18 Combined Assessment	Dollar Change from FY17	Percent Change from FY17
CANTON	\$1,673,754	\$2,538,303	51.7%	\$4,137,162	\$4,210,854	1.8%	\$5,810,916	\$6,749,157	\$938,241	16.1%
NEEDHAM	1,039,372	1,109,794	6.8%	5,683,915	5,889,796	3.6%	6,723,287	6,999,590	276,303	4.1%
STOUGHTON	1,144,245	253,810	-77.8%	4,747,341	5,031,822	6.0%	5,891,586	5,285,632	(605,954)	-10.3%
WAKEFIELD	1,852,218	2,169,915	17.2%	5,813,697	6,075,836	4.5%	7,665,915	8,245,751	579,836	7.6%
WELLESLEY	1,056,294	1,742,278	64.9%	5,459,750	5,601,602	2.6%	6,516,044	7,343,880	827,836	12.7%
WILMINGTON	703,075	776,226	10.4%	2,595,601	2,804,912	8.1%	3,298,676	3,581,138	282,462	8.6%
WINCHESTER	1,544,349	2,121,826	37.4%	4,033,770	4,144,555	2.7%	5,578,119	6,266,381	688,262	12.3%
WOBURN	3,355,306	3,636,173	8.4%	9,324,662	9,449,446	1.3%	12,679,968	13,085,619	405,651	3.2%
TOTAL	\$12,368,613	\$14,348,325	16.0%	\$41,795,898	\$43,208,823	3.4%	\$54,164,511	\$57,557,148	\$3,392,637	6.3%

MWRA Sewer-only Customers	Final FY17 Water Assessment	Final FY18 Water Assessment	Percent Change from FY17	Final FY17 Sewer Assessment	Final FY18 Sewer Assessment	Percent Change from FY17	Final FY17 Combined Assessment	Final FY18 Combined Assessment	Dollar Change from FY17	Percent Change from FY17
ASHLAND				\$2,485,174	\$2,592,423	4.3%	\$2,485,174	\$2,592,423	\$107,249	4.3%
BEDFORD				3,368,331	3,546,882	5.3%	3,368,331	3,546,882	178,551	5.3%
BRAINTREE				9,100,270	9,599,185	5.5%	9,100,270	9,599,185	498,915	5.5%
BURLINGTON				5,078,461	5,286,375	4.1%	5,078,461	5,286,375	207,914	4.1%
CAMBRIDGE				23,745,695	24,713,139	4.1%	23,745,695	24,713,139	967,444	4.1%
DEDHAM				5,311,572	5,482,446	3.2%	5,311,572	5,482,446	170,874	3.2%
HINGHAM SEWER DISTRICT				1,798,028	1,846,255	2.7%	1,798,028	1,846,255	48,227	2.7%
HOLBROOK				1,759,996	1,804,666	2.5%	1,759,996	1,804,666	44,670	2.5%
NATICK				5,756,705	5,924,062	2.9%	5,756,705	5,924,062	167,357	2.9%
RANDOLPH				6,272,186	6,339,800	1.1%	6,272,186	6,339,800	67,614	1.1%
WALPOLE				3,713,877	3,821,880	2.9%	3,713,877	3,821,880	108,003	2.9%
WESTWOOD				2,598,265	2,777,442	6.9%	2,598,265	2,777,442	179,177	6.9%
WEYMOUTH				11,765,811	12,036,129	2.3%	11,765,811	12,036,129	270,318	2.3%
TOTAL				\$82,754,371	\$85,770,684	3.6%	\$82,754,371	\$85,770,684	\$3,016,313	3.6%

MWRA Water-only Customers	Final FY17 Water Assessment	Final FY18 Water Assessment	Percent Change from FY17	Final FY17 Sewer Assessment	Final FY18 Sewer Assessment	Percent Change from FY17	Final FY17 Combined Assessment	Final FY18 Combined Assessment	Dollar Change from FY17	Percent Change from FY17
LYNNFIELD WATER DISTRICT	\$643,348	\$748,610	16.4%				\$643,348	\$748,610	\$105,262	16.4%
MARBLEHEAD	2,341,415	2,469,760	5.5%				2,341,415	2,469,760	128,345	5.5%
NAHANT	476,532	537,696	12.8%				476,532	537,696	61,164	12.8%
SAUGUS	3,692,889	3,953,935	7.1%				3,692,889	3,953,935	261,046	7.1%
SOUTHBOROUGH	948,422	997,207	5.1%				948,422	997,207	48,785	5.1%
SWAMPSCOTT	1,834,151	1,892,557	3.2%				1,834,151	1,892,557	58,406	3.2%
WESTON	2,445,970	2,818,905	15.2%				2,445,970	2,818,905	372,935	15.2%
TOTAL	\$12,382,727	\$13,418,670	8.4%				\$12,382,727	\$13,418,670	\$1,035,943	8.4%

MWRA Partial Water-only Customers	Final FY17 Water Assessment	Final FY18 Water Assessment	Percent Change from FY17	Final FY17 Sewer Assessment	Final FY18 Sewer Assessment	Percent Change from FY17	Final FY17 Combined Assessment	Final FY18 Combined Assessment	Dollar Change from FY17	Percent Change from FY17
DEDHAM-WESTWOOD WATER DISTRICT	\$196,381	\$295,794	50.6%				\$196,381	\$295,794	\$99,413	50.6%
LYNN (LWSC)	243,938	326,368	33.8%				243,938	326,368	82,430	33.8%
MARLBOROUGH	3,887,876	4,902,062	26.1%				3,887,876	4,902,062	1,014,186	26.1%
NORTHBOROUGH	1,135,772	1,240,294	9.2%				1,135,772	1,240,294	104,522	9.2%
PEABODY	1,507,269	1,939,097	28.6%				1,507,269	1,939,097	431,828	28.6%
TOTAL	\$6,971,236	\$8,703,615	24.9%				\$6,971,236	\$8,703,615	\$1,732,379	24.9%
SYSTEMS TOTAL	\$234,262,737	\$242,415,557	3.48%	\$460,615,763	\$474,638,443	3.04%	\$694,878,500	\$717,054,000	\$22,175,500	3.19%

Retail Charges

As noted above, MWRA provides water and sewer services to communities on a wholesale basis. Each community then re-sells services on a retail basis. As a result, household water and sewer charges include each household's share of the community's MWRA water and sewer assessments, plus the community's own charges for the provision of local water and sewer services.

Each community independently establishes retail rates. When establishing local rates, community officials consider issues related to the pricing of services, level of cost recovery, and the local rate structure or methodology. Several factors contribute to a broad range of local rate structures in the MWRA service area:

- Differences in the extent to which water and sewer costs are supported through property taxes and other sources of revenue;
- Differences in the means by which communities finance investments in their own water and sewer systems; and
- Differences in communities' retail rate methodologies.

Some communities have flat unit rates, while others have inclining block rates. Local rates may also provide for differentials among classes of users, such as higher rates for commercial or industrial users, abatements to low-income or elderly residents, and adjusted sewer rates for customers with second meters used for lawn irrigation.

Additional information on rate structure within the member communities is available on the MWRA Advisory Board website as part of its annual retail rate survey.

Revenue and Expenditure Trends

Because MWRA is required by its enabling act to balance its budget and to establish annual assessments to cover all expenses, revenue must change as expenses are changing each year. The Rate Revenue Requirement in any year is the difference between MWRA expenses and other revenue sources, most notably non-rate revenue, investment income, and debt service assistance from the Commonwealth (which directly reduces debt service expense). For FY18, community assessments are projected to represent 96.4% of total revenue.

MWRA's planning estimates are projections based on a series of assumptions about future spending (operating and capital), interest rates, inflation, and other factors. MWRA uses the planning estimates to model and project what future rate increases might be based upon these assumptions, as well as to test the impact of changes to assumptions on future rate increases. The planning estimates are not predictions of what rate increases will be but rather they provide the context and framework for guiding MWRA financial policy and management decision making that ultimately determine the level of actual rate increases on an annual basis. Conservative projections of future rate increases benefit the MWRA by providing assurance to the rating agencies that MWRA anticipates to raise revenues sufficient to pay for its operations and outstanding debt obligations now and over the long-term. Additionally, conservative forecasts of rate revenue increases enable member communities to adequately plan and budget for future payments to MWRA.

MWRA also updates its estimates of anticipated revenues and expenses over a multi-year planning horizon. These estimates provide a context for budget discussions and allow MWRA to consider multiple-year rates management implications and strategies as it evaluates alternative capital and operating budget options, the ultimate goal being sustainable and predictable assessment increases.

The table below and Appendix D (in more detail) present the combined estimated future rate revenue requirements for FY18 through FY27. The planning estimates assume no Debt Service Assistance and use of Rate Stabilization and Bond Redemption reserves through FY2027 to manage the rate increases. These projections also include the release of cash and debt service reserves starting in FY16 as a result of Bond Indenture changes.

Rates & Budget Projections											
Final FY18 CEB	FY2017	FY2018	FY2019	FY2020	FY2021	FY2022	FY2023	FY2024	FY2025	FY2026	FY2027
Total Rate Revenue (\$000)	\$ 694,879	\$ 717,054	\$ 744,621	\$ 773,254	\$ 802,986	\$ 833,780	\$ 859,234	\$ 854,454	\$ 864,779	\$ 878,266	\$ 892,982
Rate Revenue Change from Prior Year (\$000)	\$ 22,438	\$ 22,175	\$ 27,567	\$ 28,633	\$ 29,731	\$ 30,794	\$ 25,454	\$ (4,780)	\$ 10,325	\$ 13,487	\$ 14,716
Rate Revenue Increase	3.4%	3.19%	3.8%	3.8%	3.8%	3.8%	3.1%	-0.6%	1.2%	1.6%	1.7%
Use of Reserves (\$000)	\$ -	\$ -	\$ -	\$ 500	\$ 250	\$ 4,383	\$ -	\$ -	\$ -	\$ 37,235	\$ 20,252

Estimated Household Bill

Based on annual water usage of 61,000 gallons	\$1,093	\$1,140	\$1,191	\$1,245	\$1,301	\$1,360	\$1,418	\$1,460	\$1,514	\$1,572	\$1,632
Based on annual water usage of 90,000 gallons	\$1,613	\$1,682	\$1,757	\$1,837	\$1,920	\$2,007	\$2,092	\$2,155	\$2,234	\$2,319	\$2,409

Increasing debt service to pay down and finance the capital improvement program is the most important factor driving estimates of future budget increases. Over the past several years MWRA’s Tax-Exempt Commercial Paper program, debt refinancing, federal grants, SRF loans, and Commonwealth debt service assistance have mitigated the impact on ratepayers of new capital spending. However, new water system improvements, for which there are fewer non-ratepayer sources of funding, and the impact of new financing will increase MWRA capital financing costs over the next several years.

MWRA employs rates management tools where available (e.g. refunding for savings, extended maturities on future borrowings, variable rate debt, and increased use of Tax-Exempt Commercial Paper) to help cushion and smooth the growth in capital financing expenses. Despite these initiatives, the size of the capital program will unavoidably continue to drive increases in community assessments.

The second largest budget factor is projected growth of base operating costs. The estimated \$61.9 million increase in direct expenses from FY18 to FY27 is primarily the result of an assumed annual inflation rate.

MWRA’s planning estimates are projections based on a series of assumptions about future spending (operating and capital), interest rates, inflation, and other factors. The assumptions include:

- Direct expense inflation rate of 2.5% for salaries and 3.0% for other direct expenses starting in FY18;
- CIP inflation rate of 2.5%;
- Capital spending based on the latest CIP expenditure forecast.
- Long-term fixed rate debt issues with 30-year terms and 5.0% interest rates in FY18, 5.25% rates in FY19, 5.5% rates in FY20, 5.75% rates in FY21 and 6.0% rates from FY22 and beyond;
- Variable rate interest projected at 3.25% in FY18, 3.5% in FY19, 3.75% in FY20, and 4.0% starting in FY21.

The planning estimates generally use conservative assumptions to help communities plan for future payments to MWRA.

There are several areas where differences from planning estimate assumptions may alter projected increases:

- Changes in anticipated borrowing rates or expected investment income rates;
- The planning estimates do not factor in any positive year-end variances which may be used to defease debt or reserved to offset Rate Revenue Requirements in future years;
- Fewer opportunities for SRF borrowing than expected due to Federal Budget cuts; a dollar borrowed through the SRF at 2% replaces the need to borrow a dollar long-term at an assumed 5% rate;
- Overall inflationary pressures;
- Debt refinancing opportunities;
- Capital spending; and
- Growth in direct expenses, greater than current assumptions.

MWRA Rates Management

Planning estimates for 2019 through 2027 forecast rate revenue requirement increases of 3.8% annually from FY19 through FY22, 3.1% in FY23, -0.6% in FY24, 1.2% in FY25, 1.6% in FY26, and 1.7% in FY27.

The FY18 Budget:

- Continues to refine planning estimates assumptions to provide greater predictability of future assessments;
- Judiciously uses reserves to lower rate increases, but maintain adequate balances;
- Continues the Authority's multi-year rates management strategy of providing sustainable and predictable assessment increases to our member communities; and
- For the second year, continues the smoothing strategy to even out the rate revenue requirement and rate changes caused by fluctuations in debt service at the utility level.

STATEMENT OF FINANCIAL POSITION

In accordance with its enabling act, each year MWRA submits annual reports to the Governor, the President of the State Senate, the House of Representatives, the Advisory Board, and the Chairs of the State Senate and House Committees on Ways and Means containing financial statements relating to its operations maintained in accordance with Generally Accepted Accounting Principles in the United States of America (GAAP) and, commencing with the annual reports for 1986, audited by independent certified public accountants. MWRA's audited financial statements at June 30, 2017 are available online at www.mwra.com.