



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possession and control of the water and sewer systems, including facilities, properties, and the right to utilize water withdrawn from system reservoirs that had formerly been the Sewerage and Waterworks Divisions of the Commonwealth of Massachusetts Metropolitan District Commission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 2018, the system serves approximately 3.0 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.

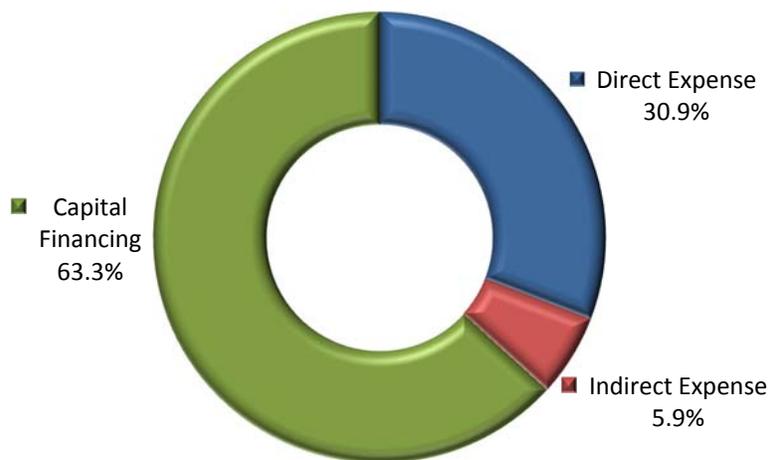
At its May meeting, MWRA's Board of Directors holds hearings on the budget to review recommendations by the Advisory Board and new information available since the budget was developed. Staff incorporates Board decisions from the hearings and presents a final budget and final assessments for approval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

PROPOSED FY19 BUDGET SUMMARY

Total Expenses in the Proposed FY19 Current Expense Budget (Budget) are \$773.2 million, an increase of \$29.6 million or 4.0% over the FY18 Budget. There are no offsets from Debt Service Assistance (DSA) assumed for FY20 or in any future years.

Total expenses include \$489.2 million for Capital Financing costs and \$284.0 million for operating expenses, of which \$238.6 million is for Direct Expenses and \$45.4 million is for Indirect Expenses. Total expenses increased mainly due to higher Capital Financing costs of \$17.0 million, higher Direct Expenses of \$6.0 million due to higher chemical costs including three months of cost associated with enterococcus removal, higher healthcare costs, and higher expenses for replacing desktop computers. Indirect Expenses increased by \$6.6 million due to higher required pension contribution, higher Watershed Management operating expenses, higher OPEB contribution, higher additions to reserves, and higher operations and maintenance costs for the cross-harbor electrical cable.

Proposed FY19 Budget



MWRA continues to pursue a rate management strategy which promotes sustainable and predictable assessments. The Proposed FY19 Budget has a combined utilities assessment increase of 3.91% with Rate Revenues totaling \$745.1 million. Rate Revenues account for 96.4% of projected FY19 revenues.

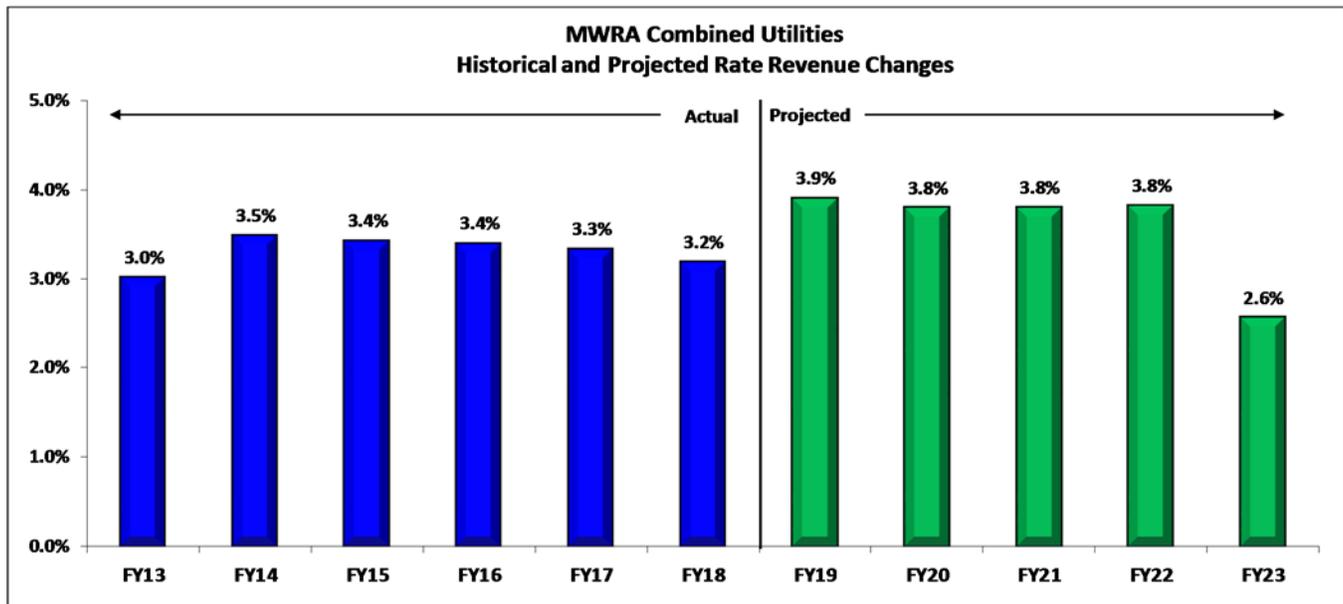
Measures taken by the Authority to achieve the 3.91% rate increase include:

- Continued practice of targeted defeasances;
- Budgeted 1,150 Full-Time Equivalent (FTE's) positions, plus 5 FTE's for supporting the water redundancy program;
- Budgeted a \$12.5 million Debt Prepayment;
- Direct Expenses increased 2.6% versus FY18 budget;
- Capital Financing increased 3.6% versus FY18 budget.

The table on the next page shows MWRA's Proposed FY19 Budget for revenue and expenses compared with the FY18 Budget and FY17 Actuals. Changes from FY18 to FY19 are described in the Revenue and Expense section of the Executive Summary.

TOTAL MWRA	FY17 Actuals	FY18 Approved Budget	FY19 Proposed Budget	Change FY19 Proposed Budget vs FY18 Approved Budget	
				\$	%
EXPENSES					
WAGES AND SALARIES	\$ 98,494,291	\$ 104,286,370	\$ 107,118,716	\$ 2,832,346	2.7%
OVERTIME	4,951,621	4,110,637	4,247,554	136,917	3.3%
FRINGE BENEFITS	19,623,635	20,997,975	21,774,617	776,642	3.7%
WORKERS' COMPENSATION	2,565,336	2,322,980	2,322,609	(371)	0.0%
CHEMICALS	9,262,849	9,836,933	10,855,856	1,018,923	10.4%
ENERGY AND UTILITIES	20,249,594	21,735,222	22,041,919	306,697	1.4%
MAINTENANCE	30,798,709	32,200,786	31,637,582	(563,204)	-1.7%
TRAINING AND MEETINGS	360,115	406,269	455,770	49,501	12.2%
PROFESSIONAL SERVICES	6,698,861	7,221,622	7,617,117	395,495	5.5%
OTHER MATERIALS	5,851,449	6,692,659	7,381,098	688,439	10.3%
OTHER SERVICES	21,865,445	22,764,526	23,150,693	386,167	1.7%
TOTAL DIRECT EXPENSES	\$ 220,721,905	\$ 232,575,979	\$ 238,603,532	\$ 6,027,553	2.6%
INSURANCE	\$ 1,739,542	\$ 2,013,452	\$ 2,099,064	85,612	4.3%
WATERSHED/PILOT	23,911,694	25,164,006	25,906,427	742,421	3.0%
HEEC PAYMENT	789,258	957,445	1,386,832	429,387	44.8%
MITIGATION	1,542,800	1,596,950	1,614,262	17,312	1.1%
ADDITIONS TO RESERVES	(167,742)	821,116	1,732,193	911,077	111.0%
RETIREMENT FUND	4,632,624	3,277,369	7,110,663	3,833,294	117.0%
ADDITIONAL PENSION DEPOSIT	-	-	-	-	
POST EMPLOYMENT BENEFITS	4,876,050	5,035,422	5,574,152	538,730	10.7%
TOTAL INDIRECT EXPENSES	\$ 37,324,226	\$ 38,865,760	\$ 45,423,594	\$ 6,557,834	16.9%
STATE REVOLVING FUND	\$ 80,459,851	\$ 84,931,906	\$ 89,380,358	4,448,452	5.2%
SENIOR DEBT	287,931,637	264,560,267	273,126,129	8,565,862	3.2%
SUBORDINATE DEBT	69,997,992	85,443,447	92,032,294	6,588,847	7.7%
LOCAL WATER PIPELINE CP	858,685	3,794,944	4,750,393	955,449	25.2%
CURRENT REVENUE/CAPITAL	3,217,060	13,200,000	14,200,000	1,000,000	7.6%
CAPITAL LEASE	12,200,000	3,217,060	3,217,060	-	0.0%
DEBT PREPAYMENT	10,994,960	10,900,000	12,500,000	1,600,000	14.7%
BOND REDEMPTION	-	-	-	-	
VARIABLE RATE SAVINGS	(11,027,773)	-	-	-	
DEBT SERVICE ASSISTANCE	(1,265,384)	(391,580)	-	391,580	-100.0%
HEEC CABLE CAPACITY RESERVE FUND	-	6,532,146	-	(6,532,146)	
TOTAL CAPITAL FINANCING	\$ 453,367,028	\$ 472,188,190	\$ 489,206,234	\$ 17,018,044	3.6%
TOTAL EXPENSES	\$ 711,413,158	\$ 743,629,929	\$ 773,233,360	\$ 29,603,431	4.0%
REVENUE & INCOME					
RATE REVENUE	\$ 694,878,500	\$ 717,054,000	\$ 745,080,300	28,026,300	3.91%
OTHER USER CHARGES	8,809,434	9,011,070	9,469,933	458,863	5.1%
OTHER REVENUE	13,087,910	7,359,078	6,225,719	(1,133,359)	-15.4%
RATE STABILIZATION	-	-	-	-	
INVESTMENT INCOME	9,758,480	10,205,781	12,457,408	2,251,627	22.1%
TOTAL REVENUE & INCOME	\$ 726,534,324	\$ 743,629,929	\$ 773,233,360	\$ 29,603,431	4.0%

The graph below represents historical and projected assessment changes based on the Proposed FY19 Budget. The planning estimates project assessment increases at 3.8% from FY20 through FY22, the most challenging year facing the Authority. Rates at the combined utilities level are projected to increase at a slower pace beginning in FY23.



The Proposed FY19 Budget revenues, excluding rate revenue, total \$28.2 million, an increase of \$1.6 million or 5.9% above the FY18 budget. The Proposed FY19 Budget non-rate revenue budget includes \$15.7 million in Other User Charges and Other Revenue and \$12.5 million for Investment Income.

FY19 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

- Begin Metro Tunnels Redundancy project to ensure delivery of reliable and cost-effective water services to customer communities.
- Continue to support core operations to ensure compliance with regulatory requirements.

II. Wastewater Management and System Performance

- Implement 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 to prepare for severe weather and other critical events that could affect the water and wastewater delivery systems.

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.
- 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.
- Continue to monitor climate change, research and move forward with plans to reduce impacts of sea level rise and storm surge events on MWRA infrastructure.

FY18 MID-YEAR ACCOMPLISHMENTS

I. Drinking Water Quality and System Performance

- Met all water quality and treatment standards in the drinking water system during the first half of FY18, and maintained maximum turbidity results at Quabbin and Wachusett Reservoirs within MassDEP standards.
- Contaminant Monitoring System – Rolled out use of the Mobile Water Quality Trailer and made progress on upgrading two sites (John J. Carroll Water Treatment Plant raw tap and Shaft 9A).
- Distributed \$16.7 million in interest-free loans to member water communities including \$1.5 million for lead service line replacement.

II. Wastewater Management and System Performance

- During the first six months of FY18, the Department of Laboratory Services performed 138,000 tests (including data entry of field tests) including the Massachusetts Bay water column testing for the Harbor and Outfall Monitoring program.
- 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 7 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.
- Distributed \$18.4 million in grants and interest-free loans to member communities to rehabilitate their wastewater collection systems with the goal of structurally reducing infiltration and inflow.

III. Infrastructure Management and Resilience

- Procured and implemented HVAC insulation replacement in the pump and blower area at the Nut Island Headworks in the aftermath of the January 2016 fire in the lower part of the facility.
- Expanded MWRA's primary security system and participated in the planning and execution of a week-long cyber security table top drill for management and senior staff defending critical infrastructure.

IV. Finance and Management

- Executed a \$9.6 million defeasance of outstanding senior principal in October 2017. This defeasance reduced the debt service requirement between FY19 and FY21 by a total of \$10.6 million reducing the rate of increase to the Rate Revenue Requirement in those years.
- Procured direct purchase agreements to replace the 2008 Series F and 2012 Series F bonds. \$50.6 million in Multimodal Subordinated General Revenue Refunding Bonds were awarded to TD Bank N.A. and \$50.0 million to U.S. Bank N.A.

V. Environmental Sustainability

- Received a total of \$600,000 in revenue for energy generated at numerous facilities including the following: hydroelectric \$290,000 from Oakdale Station, \$77,000 from Cosgrove Station, and \$9,000 from the Loring Road Pump Station; wind of \$162,000 from Charlestown Pump Station; and solar of \$59,000 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 \$1.9 million in revenue for the first six months of FY18. 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).
- Deer Island generated 28.5% of the Plant's total requirement during the first six months of FY18.
- Operate new phosphorus treatment system and natural gas lines at the Clinton Wastewater Treatment Plant; both are in their first year of operation.

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 Proposed FY19 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 Proposed FY19 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,

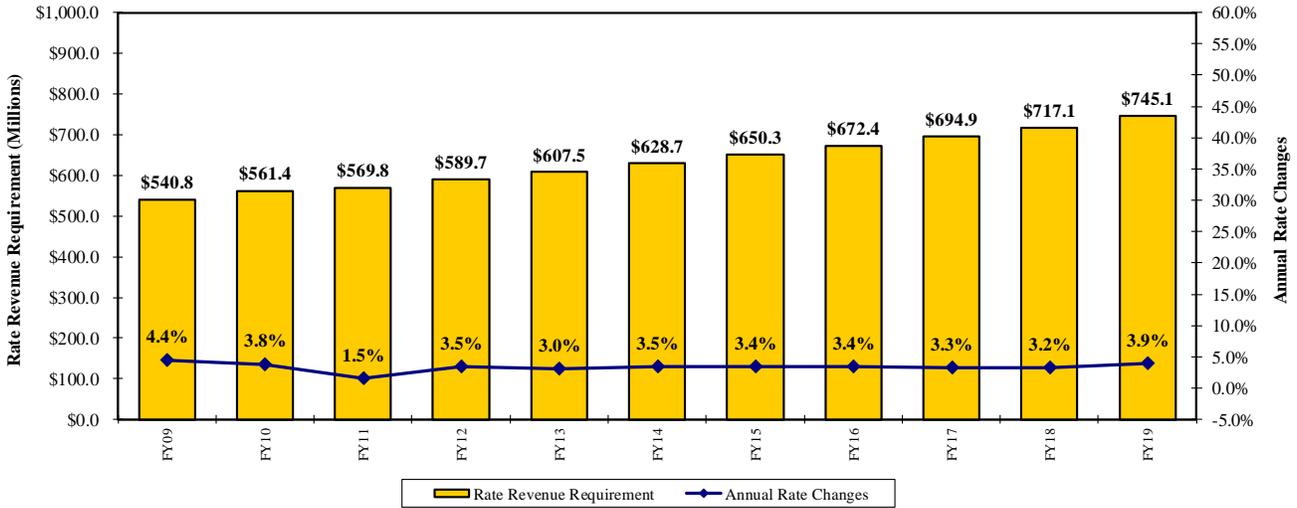
annual charges to sewer system users with permits issued by MWRA's Toxic Reduction and Control Department (TRAC), penalties assessed to holders of sewer use permits, and other miscellaneous sources.

Rate Revenue

Under the Proposed FY19 Budget, the MWRA will raise \$745.1 million of its total revenue requirements from water and sewer assessments to member communities. Of the \$745.1 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.

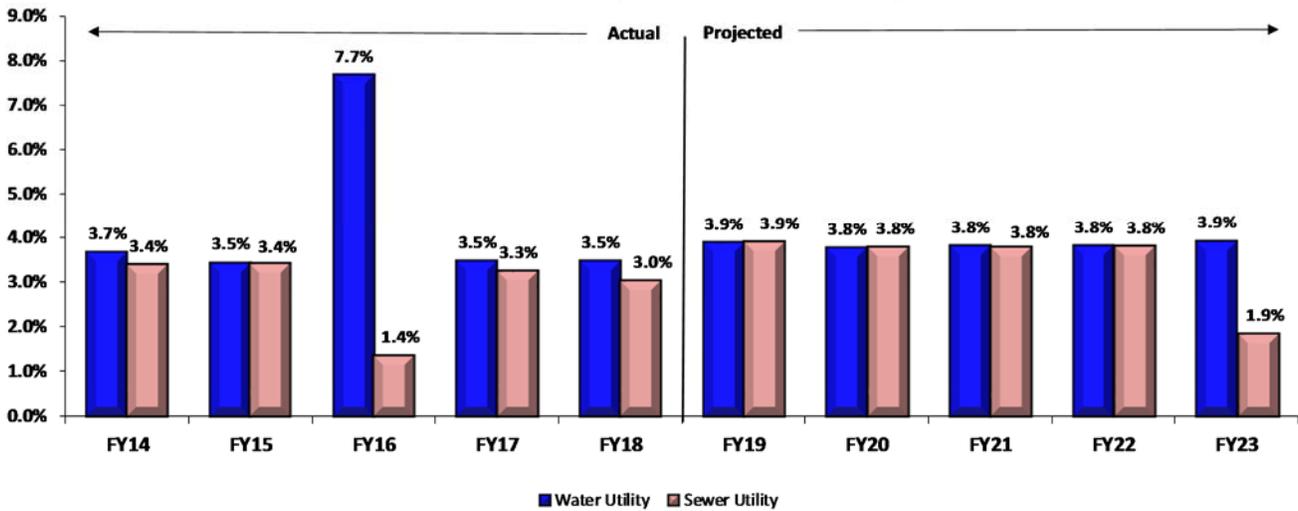
SOURCES & USES OF FUNDS*		
\$ in Millions		
<i>Sources of Funds</i>		
Other User Charges	\$9.5	1.2%
Other Revenue	6.2	0.8%
Investment Income	12.5	1.6%
Rate Revenue	745.1	96.4%
Rate Stabilization	0.0	0.0%
TOTAL REVENUE	\$773.2	100.0%
<i>Uses of Funds</i>		
Total Expenses before Debt		
Service Offsets	\$489.2	
Less:		
Debt Service Assistance	-	
Bond Redemption	-	
Sub-Total Net Expenses	489.2	
Capital Financing	489.2	63.3%
Direct Expenses	238.6	30.9%
Indirect Expenses	45.4	5.9%
TOTAL EXPENSES	\$773.2	100.0%
TOTAL EXPENSES Less Offsets	\$773.2	
*May not add up due to rounding		

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.

MWRA Water & Sewer Utilities
Historical and Projected Rate Revenue Changes



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 Proposed FY19 Budget total \$9.5 million, a 5.1% increase over the FY18 budget and includes \$5.0 million for Chicopee Valley Aqueduct (CVA) communities, \$1.8 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. Additional Other User Charges are \$459,000 or 5.1% more than the FY18 Budget which is mainly due to assessment increases related to increases for Lancaster and Chicopee.

Other Revenue

Other Revenue is budgeted at \$6.2 million, a decrease of \$1.1 million or 15.4% from the FY18 budget. Other Revenue includes \$3.0 million from the sale of the Authority's Renewable Portfolio Credits, sale of generated power to the grid, and revenue from participating in the ISO New England demand response program, which is a \$1.2 million decrease due to a reduction in the payment rate per kilowatt for the demand response program. Other Revenue includes \$2.4 million in permit fees and penalties, an increase of \$25,000 over the FY18 Budget.

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 FY19 Final Budget includes \$12.5 million in investment income, an increase of \$2.3 million or 22.1% over the FY18 budget reflecting higher interest rate assumptions. The short-term interest rate assumption is at 1.50% for FY19 which is 45 basis points above the FY18 Budget level.

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 Proposed FY19 Budget, no Rate Stabilization fund usage is projected.

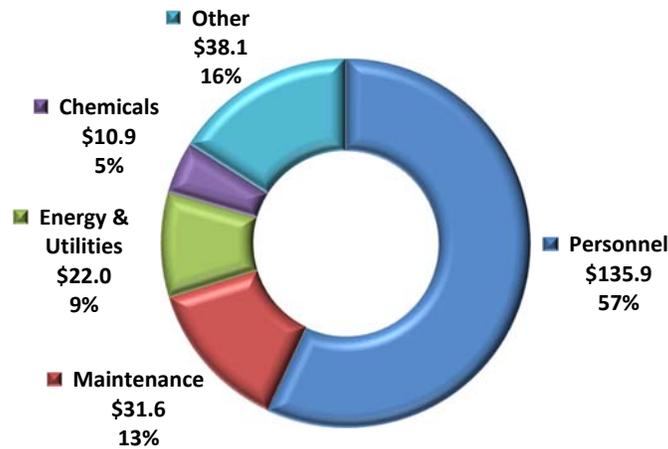
DIRECT EXPENSES

The Proposed FY19 Direct Expense Budget totals \$238.6 million, an increase of \$6.0 million, or 2.6%, over the FY18 Budget. The primary drivers of the Direct Expenses increases are wage increases associated with collective bargaining contracts and cost of living adjustments (COLAs); fringe benefits for projected healthcare cost increases; chemical costs for increased quantities and projected prices of new contracts; and other materials related to the proposed FY19 replacement of all desktop computers following the

implementation of the Microsoft Office 16 suite upgrade that was completed in FY18. 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 self-generation of electricity.

The chart below combines related direct expense line items into general cost categories. Personnel 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 16%, maintenance at 13%, energy & utilities at 9%, and chemicals at 5%.

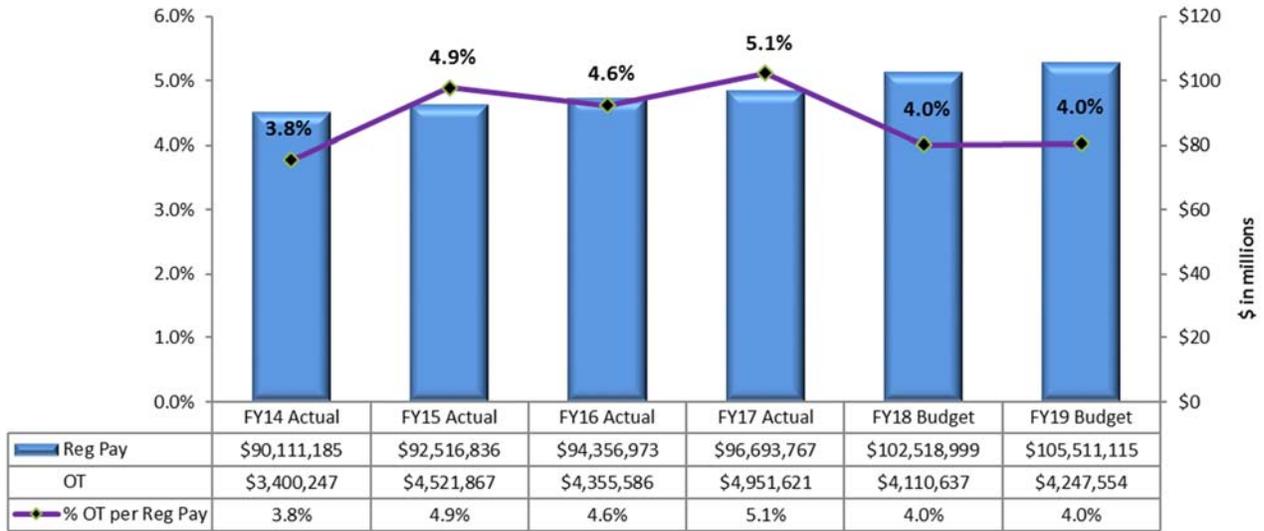
Direct Expenses by Category
\$'s in Millions



Wages and Salaries – The Proposed FY19 budget \$107.1 million for Wages and Salaries as compared to \$104.3 million in the FY18 Budget, an increase of \$2.8 million or 2.7%, primarily for wage increases associated with collective bargaining agreements. Regular Pay which is 98.0% of total Wages and Salaries. On a Full-Time-Equivalent (FTE’s) basis, the Authority has budgeted The FY19 Proposed Budget includes 1,155 FTEs, 5 more than the FY18 Budget. The 5 additional FTEs represent the first year of the hiring of an additional 15 FTEs to support the MetroWest Tunnels Long-Term Water Redundancy capital project. The MWRA currently envisions that 5 FTEs will be added each year over the next three fiscal years.

Division	FY17	FY18	FY19
Executive	5	5	5
Emergency Preparedness	5.8	7.8	8
Affirmative Action	6	6	6
Internal Audit	6.7	6.8	6.7
Public Affairs	12.9	13	12.9
Operations	918.8	918.8	924.3
Law	15.5	15.5	13.5
Administration	141	142	142.6
Finance	38.3	35.5	36
Authority Total	1,150	1,150	1,155

MWRA: % Overtime vs. Regular Pay



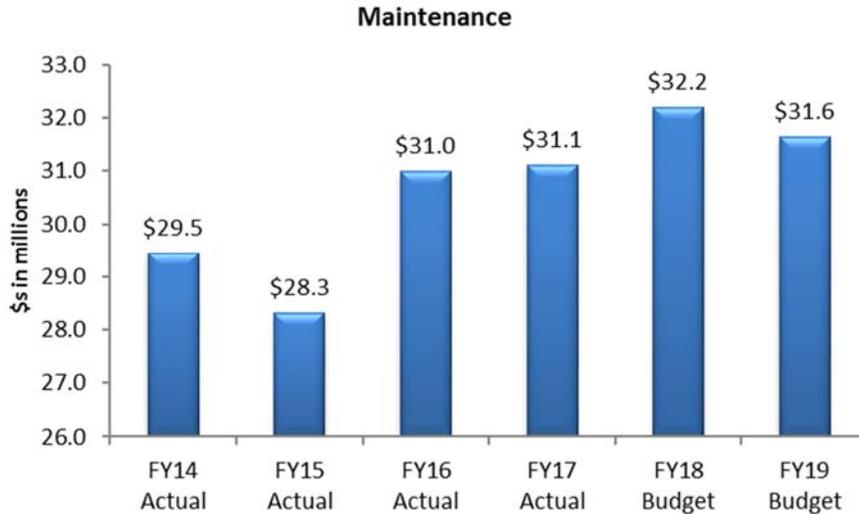
Overtime – The overtime line item is comprised of both emergency overtime and budgeted overtime for maintenance and capital projects. The Proposed FY19 Budget includes \$4.2 million for Overtime, an increase of \$137,000 or 3.3% from the FY18 Budget mostly for wage increases associated with collective bargaining agreements.

Fringe Benefits – The budget includes \$21.8 million for Fringe Benefits, an increase of \$777,000 or 3.7% from the FY18 Budget. Health Insurance premiums total \$18.9 million, an increase of \$739,000 or 4.1% from the FY18 Budget largely due to an anticipated 5% increase in rate structure offset by a change to the number and mix of plans based on FY18 enrollment changes.

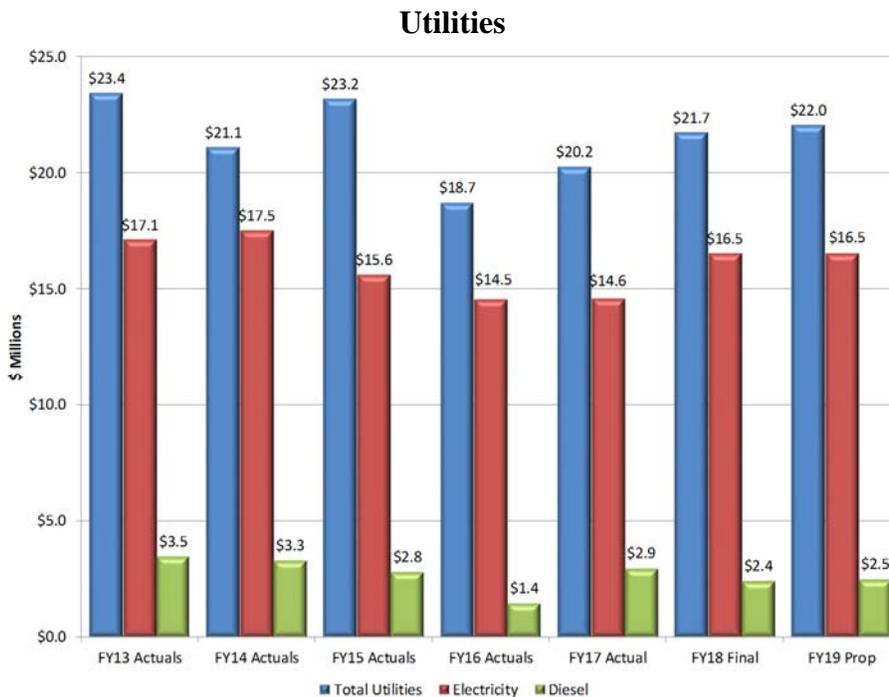
Fringe Benefits

Line Item	FY17 Actual	FY18 Budget	FY19 Budget
Overtime Meals	\$ 107,056	\$ 79,365	\$ 90,147
Health Insurance	16,868,558	18,139,271	18,878,258
Dental Insurance	1,137,659	1,160,985	1,169,828
Unemployment Insurance	111,286	160,744	150,000
Medicare	1,359,681	1,387,610	1,416,384
Tuition Reimbursement	39,394	70,000	70,000
Total Fringe Benefits	\$ 19,623,634	\$ 20,997,975	\$ 21,774,617

Maintenance – The budget includes \$31.6 million for Maintenance projects, a decrease of \$563,000 or 1.8% from the FY18 budget. The decrease in the budget reflects completion of one-time projects in FY18, including a reduction of \$400,000 at Deer Island for the upgrade of the Emerson Ovation Human Machine Interface System for process management, and a reduction of \$150,000 in MIS for the upgrade to AutoCAD.



Utilities – The budget includes \$21.7 million for Utilities, which is an increase of \$200,000 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 16 cent per gallon reduction in the budgeted cost of diesel fuel from FY18. 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 \$10.9 million for Chemicals, an increase of \$1.0 million or 10.4% from the FY18 Budget. \$294,000 of the increase is due to three months funding for the Deer Island National Pollutant Discharge Elimination System (NPDES) permit which is projected to have more stringent requirements for enterococcus treatment compliance. \$476,000 is due to increased pricing for Ferric

Chloride at the Deer Island Treatment Plant. \$308,000 is due to increased use of Hydrogen Peroxide for odor control at DITP and projected price increases. The increases are offset by a decrease of \$125,000 for Hydrofluosilic Acid and \$80,000 for Liquid Oxygen due primarily to lower prices.

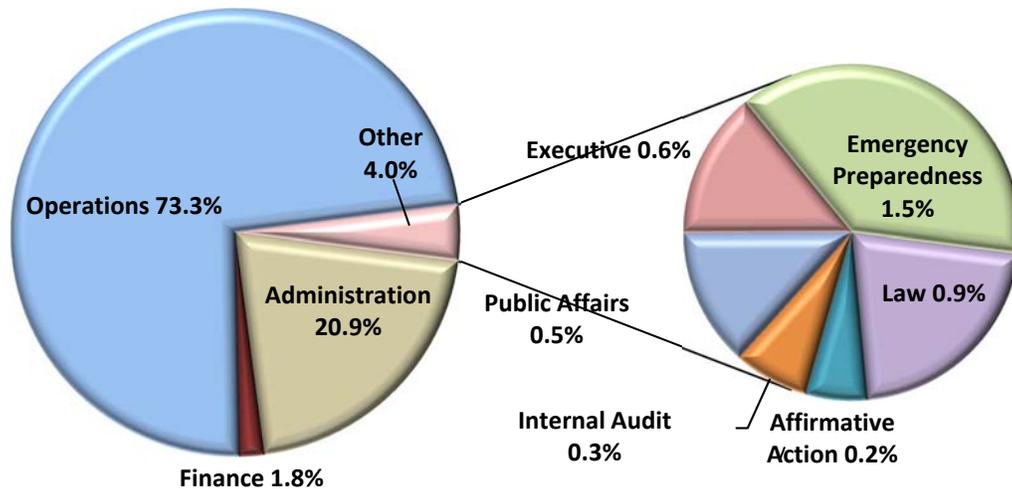
Other Services – The budget includes \$23.2 million for Other Services, an increase of \$386,000 or 1.7% from the FY18 Budget. The primary increase in the budget reflects an increase in the base cost of the sludge pelletization contract, which is budgeted at \$13.3 million for FY19 versus \$12.8 million for FY18. The Other Services budget also includes \$2.0 million for Telephone services, \$3.8 million for Leases/Rentals of which \$1.9 million is for the Chelsea lease and \$1.5 million is for the Charlestown Navy Yard lease, and \$1.2 million for Grit & Screenings Removal.

Functional Area Budget Summary

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

FY19 Proposed Current Expense Budget MWRA Direct Expenses by Division						
DIVISION	FY16 Actuals	FY17 Actuals	FY18 Final Budget	FY19 Proposed Budget	Change FY19 to FY18	
EXECUTIVE	\$ 6,748,473	\$ 6,706,254	\$ 7,481,735	\$ 7,531,085	\$ 49,350	0.7%
OPERATIONS	160,119,301	162,910,111	170,234,435	174,864,931	\$ 4,630,495	2.6%
LAW	2,044,933	2,285,192	2,306,866	2,058,972	\$ (247,894)	-12.0%
ADMINISTRATION	43,217,254	44,967,226	48,426,600	49,883,264	\$ 1,456,664	2.9%
FINANCE	3,918,090	3,853,121	4,126,344	4,265,279	\$ 138,935	3.3%
TOTAL	\$ 216,048,051	\$ 220,721,904	\$ 232,575,980	\$ 238,603,531	\$ 6,027,550	2.6%

**MWRA Direct Expense Budget
By Division**



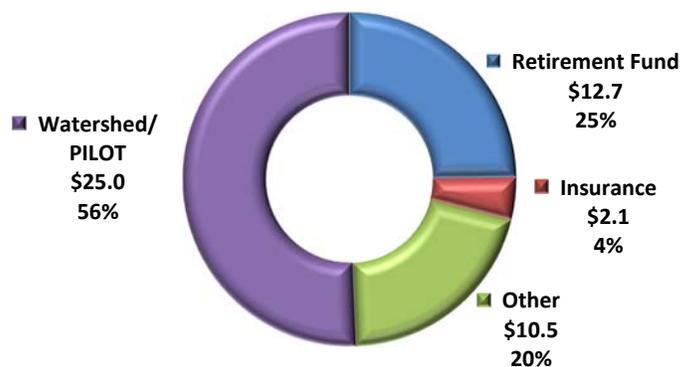
Detailed summaries for each Division budget are provided following the Executive Summary.

INDIRECT EXPENSES

The FY18 Indirect Expense Budget is \$45.4 million, an increase of \$6.6 million or 16.9% over the FY18 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 25%, Other (for items such as HEEC, Mitigation, and Addition to Reserves) at 20%, and Insurance at 4%.

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 \$2.1 million for Insurance, an increase of \$85,000 or 4.3% from the FY19 Budget. The FY19 Budget is based on actual average spending for the past five years, FY13-17, and an allowance for inflation and potential increased costs of insurance as a result of the natural disasters throughout the United States in CY17. 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 triennial 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 \$25.9 million for the Watershed Management budget, an increase of \$747,000 or 3.0% over the FY18 Budget. The budget includes \$17.5 million for reimbursement of operating expenses net of revenues, and \$8.4 million for

Payment in Lieu of Taxes (PILOT). The largest increase is for operating expenses net of revenues of mainly for healthcare costs and contractual increases. The PILOT payments decreased from the FY18 budget based on actual assessments in FY18. The FY19 operating capital budget of the Watershed Management line item includes completion of the Clinton crew headquarters construction, purchase of large equipment and dam repairs.

	FY18 Budget	FY19 Proposed	FY19 Proposed vs. FY18	%
Operating Expenses	16,663,006	17,321,427	658,421	4.0%
Major Projects	1,050,000	1,145,000	95,000	9.0%
Revenue	(990,000)	(960,000)	30,000	-3.0%
Net	16,723,006	17,506,427	783,421	4.7%
Pilot	8,436,715	8,400,000	(36,715)	-0.4%
Total	25,159,721	25,906,427	746,706	3.0%

Harbor Electric Energy Company (HEEC)

The budget includes \$1.4 million for the Harbor Energy Electric Company (HEEC), an increase of \$429,000 or 44.8% over the FY18 Budget to reflect updated calculations for the Operations and Maintenance component of the HEEC payment obligations and capital improvements to the electrical substations providing electricity to the Deer Island Wastewater Treatment Plant.

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 \$1.7 million. 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 FY19 Proposed Budget, the required balance is \$41.8 million versus the \$40.1 million required in FY18.

Retirement System Contribution

The budget includes \$7.1 million for the Retirement Fund, an increase of \$3.8 million or 117.0% over the FY18 budget. The increased pension requirement results from lower than assumed returns on pension investments in CY14-16. Based on the January 1, 2017 actuarial report, the minimum required contribution for FY19 was \$8.0 million. Because pension investment returns were favorable in CY17, the Authority obtained a preliminary interim actuarial valuation, which resulted in a lower minimum required contribution of \$7.1 million. Based on the latest actuarial evaluation, MWRA's pension fund is at a 96.5% funding level.

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

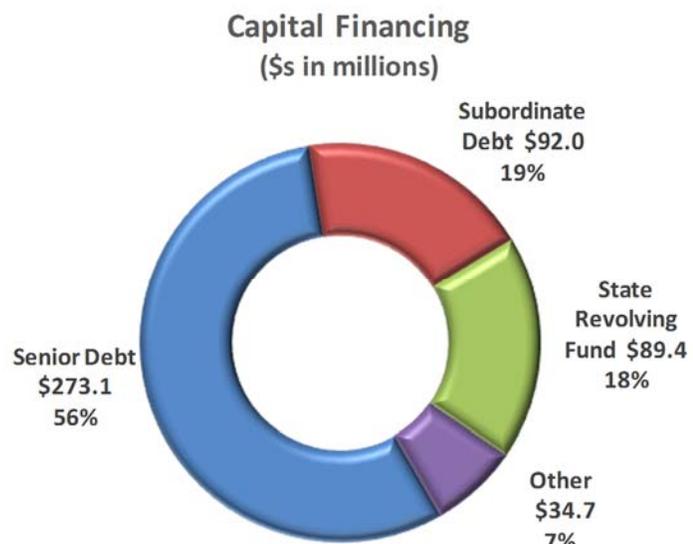
In the Proposed FY19 Budget the Authority funds its OPEB liability at \$5.6 million, continuing the Authority's long-term commitment to address its liabilities. The Authority has complied with the GASB 45, *Accounting and Financial Reporting by Employers for Postemployment Benefits Other than Pensions (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 \$24.4 million which represent approximately a 18% funding level. The proposed \$5.6 million budget is based on 50% of the contribution determined in the January 1, 2016 actuarial report.

CAPITAL FINANCING

The FY19 Proposed capital financing costs total \$489.2 million and remains the largest portion of the MWRA's budget. The FY19 Proposed Budget capital financing costs increased by \$17.2 million or 3.6% compared to the FY18 Budget. This increase is primarily the result of projected FY18 and FY19 borrowings and the structure of the existing debt, and increased current revenue for capital partially offset by the impact of the defeasance.

The FY19 capital financing budget includes:

- \$273.1 million in principal and interest payments on MWRA's senior fixed rate bonds. This amount includes \$6.6 million to support issuances of \$100 million in May 2018 and \$3.5 million to support issuances of \$125 million of new money in February 2019. Also it includes a reduction of \$1.1 for the effect of the planned FY18 defeasance;



- \$92.0 million in principal and interest payments on subordinate bonds;
- \$89.4 million in principal and interest payments on SRF loans. This amount includes \$8.6 million to support issuances of \$50 million of loans during 2018 and \$50 million 2019;
- \$14.2 million to fund ongoing capital projects with current revenue;
- \$12.5 million in debt prepayment;
- \$4.8 million to fund the interest expense related to the Local Water Pipeline Assistance Program; and,
- \$3.2 million for the Chelsea Lease.

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, 2017 was \$5.0 billion consisting of senior and subordinated debt, as well as Tax-Exempt Commercial Paper. The total debt was \$170 million less than the MWRA’s total debt as of June 30, 2017. 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, 2017	% of Total
Senior General Revenue Bonds	\$ 3,087,310,000	61.3%
Massachusetts Clean Water Trust	\$ 942,880,187	18.7%
Subordinate General Revenue Bonds	\$ 781,400,000	15.5%
Tax Exempt Commercial Paper/Revolving Loan	\$ 229,000,000	4.5%
Total	\$ 5,040,590,187	100.0%

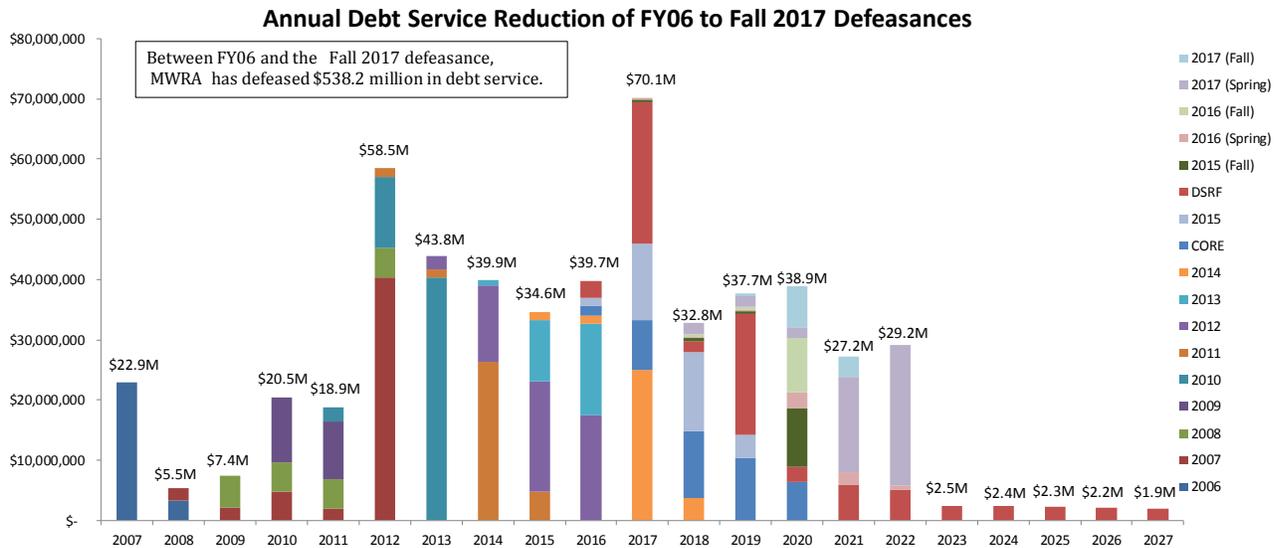
← 80.0% of MWRA's Debt is Fixed Rate

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 63.3% in the FY19 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 FY19 is less than scheduled principal payments which will contribute to decrease MWRA’s outstanding indebtedness.

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 FY19 Proposed Budget includes a planned defeasance of \$25.9 million which will reduce debt service by approximately \$1.1 million in FY19, and \$7.8 million in FY20, \$3.6 million in FY21 and \$15.2 million in FY22.



The FY19 Budget assumes a 3.5% interest rate for variable rate debt which is 0.25% higher than the rate in FY18. 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 projected 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 forgave 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.

	Amount Outstanding	Total FY16 Capital Costs	Sewer	Water
Total SRF ¹ Debt	\$951.0	\$89.4	\$68.3	\$21.0
Total Senior Debt	\$3,087.3	273.1	178.0	95.1
Total Subordinate Debt	\$831.4	92.0	63.9	28.1
Total SRF and Debt Service²	\$4,869.7	\$454.5	\$310.2	\$144.3
Water Pipeline Commercial Paper	128.0	4.8	0.0	4.8
Current Revenue/Capital ³		14.2	13.5	0.7
Capital Lease		3.2	1.9	1.3
Debt Prepayment ⁴		12.5	9.2	3.3
Harbor Cable Prepayment		0.0	0.0	0.0
	128.0	\$34.7	\$24.6	\$10.1
Total Capital Financing (before Debt Service Offsets)	4,997.7	\$489.2	\$334.8	\$154.4
Debt Service Offsets:				
Debt Service Assistance		0.0	0.0	0.0
Bond Redemption		0.0	0.0	0.0
Total Capital Financing	4,997.7	\$489.2	\$334.8	\$154.4

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.

For FY19, the South Boston CSO Tunnel inspection will be performed by in-house staff resulting in a reduction of operating costs of \$350,000. This is the first year of a tunnel inspection program that will be conducted every five years. This reduction will be offset by operating cost increases for natural gas, electricity and chemicals of approximately \$65,000 - \$70,000 due to the newly constructed Phosphorous

Removal building at the Clinton Wastewater Treatment Plant. Additional operating cost increases of \$233,000 in FY19 are the result of Maximo upgrades and Lawson enhancements occurring within the MIS department.

The following table summarizes the projected CIP impact on the operating budget by project over the next ten years.

Fiscal Year	CIP Impacts (\$000s)										
	FY20	FY21	FY22	FY23	FY24	FY25	FY26	FY27	FY28	FY29	Total
DI Treatment Plant Asset Protection (not including Co-Digestion or Combined Heat and Power Plant)	\$ 206	\$ (244)		\$ (56)	\$ (128)	\$ (119)					\$ (341)
DI Treatment Plant Asset Protection - Hydroturbine Replacements				\$ (113)							\$ (113)
South Boston CSO Tunnel Inspection/Cleaning and Outfalls Inspection (previously named North Dorchester Bay project)				\$ 844	\$ (869)				\$ 979	\$ (1,008)	\$ (55)
Total Wastewater (inflated)	\$ 206	\$ (244)		\$ 675	\$ (997)	\$ (119)			\$ 979	\$ (1,008)	\$ (508)
Metro Tunnel Redundancy	\$ 769	\$ 788									\$ 1,557
Wachusett Algae Treatment Facility								\$ 63	\$ 65		\$ 129
Total Water (inflated)	\$ 769	\$ 788						\$ 63	\$ 65		\$ 1,686
Application Improvement Program	\$ 77										\$ 77
Total Business and Operations Support (inflated)	\$ 77										\$ 77

Operating costs are projected to increase in FY20 and FY21 by \$1.6 million primarily due to five additional staff for the Metropolitan Tunnel Redundancy project. This will be offset by Deer Island Treatment Plant Asset Protection initiatives resulting in a reduction of operating costs of \$454,000 through FY29.

The next South Boston CSO Tunnel inspection will be in FY23 and result in an increase to operating costs of approximately \$844,000.

Other increases to operating costs over the next ten years include charges to the Wachusett Algae Treatment Facility for \$63,000 and \$65,000 in utilities during FY27 and FY28 respectively as well as \$77,000 for maintenance for the MIS Application Improvement Program project.

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 3.0 million people, or 45% 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 Proposed FY19 Budget, rate revenue from BWSC will account

for 31% of MWRA’s total rate revenue. The table on page I-24, lists MWRA communities, the services received, and the proposed MWRA assessments for FY19.

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 following table presents the calculation of MWRA's FY19 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 Preliminary FY19 Rate Revenue Requirement
(000's)**

	Sewer	Water	Total
Allocated Direct Expenses	\$158,024	\$80,579	\$238,604
Allocated Indirect Expenses	\$13,536	\$31,888	\$45,424
PLUS			
Capital Expenses:			
Debt Service (less offsets)	\$310,231	\$144,308	\$454,539
Current Revenue for Capital	\$13,490	\$710	\$14,200
Other Capital Expenses	\$11,157	\$9,310	\$20,467
PLUS			
Non-Rate Revenue:			
Investment Income	-\$7,694	-\$4,763	-\$12,457
Fees and Other Revenue	-\$5,548	-\$10,147	-\$15,696
Rate Stabilization	\$0	\$0	\$0
EQUALS			
Rate Revenue Requirement	\$493,195	\$251,885	\$745,080

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
Proposed FY19 Water and Sewer Assessments

14-Feb-18

MWRA Fully Served Water and Sewer Customers	Final FY18 Water Assessment	Proposed FY19 Water Assessment	Percent Change from FY18	Final FY18 Sewer Assessment	Proposed FY19 Sewer Assessment	Percent Change from FY18	Final FY18 Combined Assessment	Proposed FY19 Combined Assessment	Dollar Change from FY18	Percent Change from FY18
ARLINGTON	\$5,218,727	\$5,245,583	0.5%	\$8,338,483	\$8,728,350	4.7%	\$13,557,210	\$13,973,933	\$416,723	3.1%
BELMONT	2,906,748	2,866,066	-1.4%	4,923,065	5,138,442	4.4%	7,829,813	8,004,508	174,695	2.2%
BOSTON (BWSC)	85,905,357	91,610,450	6.6%	135,974,820	142,675,448	4.9%	221,880,177	234,285,898	12,405,721	5.6%
BROOKLINE	6,806,844	7,089,044	4.1%	12,978,537	13,005,380	0.2%	19,785,381	20,094,424	309,043	1.6%
CHELSEA	4,277,382	4,865,379	13.7%	7,717,861	8,370,429	8.5%	11,995,243	13,235,808	1,240,565	10.3%
EVERETT	5,182,465	5,505,694	6.2%	8,378,885	8,952,283	6.8%	13,561,350	14,457,977	896,627	6.6%
FRAMINGHAM	8,003,044	8,264,904	3.3%	13,063,056	13,547,744	3.7%	21,066,100	21,812,648	746,548	3.5%
LEXINGTON	7,246,531	7,179,738	-0.9%	7,402,979	7,634,368	3.1%	14,649,510	14,814,106	164,596	1.1%
MALDEN	6,762,968	7,170,696	6.0%	13,307,655	13,620,845	2.4%	20,070,623	20,791,541	720,918	3.6%
MEDFORD	6,383,291	6,509,227	2.0%	12,118,702	12,459,270	2.8%	18,501,993	18,968,497	466,504	2.5%
MELROSE	2,854,570	2,918,148	2.2%	6,387,893	6,574,047	2.9%	9,242,463	9,492,195	249,732	2.7%
MILTON	3,495,641	3,488,203	-0.2%	5,450,348	5,606,338	2.9%	8,945,989	9,094,541	148,552	1.7%
NEWTON	12,891,560	12,167,888	-5.6%	21,760,724	22,520,341	3.5%	34,652,284	34,688,229	35,945	0.1%
NORWOOD	3,703,392	4,093,988	10.5%	7,436,847	7,684,327	3.3%	11,140,239	11,778,315	638,076	5.7%
QUINCY	12,199,555	12,085,467	-0.9%	20,574,282	20,873,432	1.5%	32,773,837	32,958,899	185,062	0.6%
READING	2,211,234	2,313,593	4.6%	4,939,434	5,135,729	4.0%	7,150,668	7,449,322	298,654	4.2%
REVERE	4,896,715	5,222,979	6.7%	10,775,969	10,850,970	0.7%	15,672,684	16,073,949	401,265	2.6%
SOMERVILLE	7,928,695	8,113,769	2.3%	16,508,256	17,235,538	4.4%	24,436,951	25,349,307	912,356	3.7%
STONEHAM	3,027,480	3,144,316	3.9%	4,600,334	4,658,067	1.3%	7,627,814	7,802,383	174,569	2.3%
WALTHAM	9,038,537	9,378,830	3.8%	13,521,664	13,911,209	2.9%	22,560,201	23,290,039	729,838	3.2%
WATERTOWN	3,388,389	3,723,198	9.9%	6,103,914	6,415,582	5.1%	9,492,303	10,138,780	646,477	6.8%
WINTHROP	1,615,822	1,711,170	5.9%	3,395,228	3,596,041	5.9%	5,011,050	5,307,211	296,161	5.9%
TOTAL	\$205,944,947	\$214,668,330	4.2%	\$345,658,936	\$359,194,180	3.9%	\$551,603,883	\$573,862,510	\$22,258,627	4.0%

MWRA Sewer and Partial Water Customers	Final FY18 Water Assessment	Proposed FY19 Water Assessment	Percent Change from FY18	Final FY18 Sewer Assessment	Proposed FY19 Sewer Assessment	Percent Change from FY18	Final FY18 Combined Assessment	Proposed FY19 Combined Assessment	Dollar Change from FY18	Percent Change from FY18
CANTON	\$2,538,303	\$1,887,795	-25.6%	\$4,210,854	\$4,433,841	5.3%	\$6,749,157	\$6,321,636	(\$427,521)	-6.3%
NEEDHAM	1,109,794	862,262	-22.3%	5,889,796	6,227,150	5.7%	6,999,590	7,089,412	89,822	1.3%
STOUGHTON	253,810	162,602	-35.9%	5,031,822	5,098,423	1.3%	5,285,632	5,261,025	(24,607)	-0.5%
WAKEFIELD	2,169,915	2,149,037	-1.0%	6,075,836	6,340,929	4.4%	8,245,751	8,489,966	244,215	3.0%
WELLESLEY	1,742,278	1,496,483	-14.1%	5,601,602	5,797,189	3.5%	7,343,880	7,293,672	(50,208)	-0.7%
WILMINGTON	776,226	506,797	-34.7%	2,804,912	2,935,835	4.7%	3,581,138	3,442,632	(138,506)	-3.9%
WINCHESTER	2,121,826	1,854,033	-12.6%	4,144,555	4,359,186	5.2%	6,266,381	6,213,219	(53,162)	-0.8%
WOUBURN	3,636,173	3,200,207	-12.0%	9,449,446	9,545,236	1.0%	13,085,619	12,745,443	(340,176)	-2.6%
TOTAL	\$14,348,325	\$12,119,216	-15.5%	\$43,208,823	\$44,737,789	3.5%	\$57,557,148	\$56,857,005	(\$700,143)	-1.2%

MWRA Sewer-only Customers	Final FY18 Water Assessment	Proposed FY19 Water Assessment	Percent Change from FY18	Final FY18 Sewer Assessment	Proposed FY19 Sewer Assessment	Percent Change from FY18	Final FY18 Combined Assessment	Proposed FY19 Combined Assessment	Dollar Change from FY18	Percent Change from FY18
ASHLAND				\$2,592,423	\$2,719,113	4.9%	\$2,592,423	\$2,719,113	\$126,690	4.9%
BEDFORD				3,546,882	3,682,249	3.8%	3,546,882	3,682,249	135,367	3.8%
BRAINTREE				9,599,185	9,831,348	2.4%	9,599,185	9,831,348	232,163	2.4%
BURLINGTON				5,286,375	5,576,769	5.5%	5,286,375	5,576,769	290,394	5.5%
CAMBRIDGE				24,713,139	25,708,249	4.0%	24,713,139	25,708,249	995,110	4.0%
DEDHAM				5,482,446	5,643,546	2.9%	5,482,446	5,643,546	161,100	2.9%
HINGHAM SEWER DISTRICT				1,846,255	1,916,597	3.8%	1,846,255	1,916,597	70,342	3.8%
HOLBROOK				1,804,666	1,841,814	2.1%	1,804,666	1,841,814	37,148	2.1%
NATICK				5,924,062	6,029,364	1.8%	5,924,062	6,029,364	105,302	1.8%
RANDOLPH				6,339,800	6,589,654	3.9%	6,339,800	6,589,654	249,854	3.9%
WALPOLE				3,821,880	4,025,025	5.3%	3,821,880	4,025,025	203,145	5.3%
WESTWOOD				2,777,442	3,014,020	8.5%	2,777,442	3,014,020	236,578	8.5%
WEYMOUTH				12,036,129	12,685,486	5.4%	12,036,129	12,685,486	649,357	5.4%
TOTAL				\$85,770,684	\$89,263,234	4.1%	\$85,770,684	\$89,263,234	\$3,492,550	4.1%

MWRA Water-only Customers	Final FY18 Water Assessment	Proposed FY19 Water Assessment	Percent Change from FY18	Final FY18 Sewer Assessment	Proposed FY19 Sewer Assessment	Percent Change from FY18	Final FY18 Combined Assessment	Proposed FY19 Combined Assessment	Dollar Change from FY18	Percent Change from FY18
LYNNFIELD WATER DISTRICT	\$748,610	\$766,820	2.4%				\$748,610	\$766,820	\$18,210	2.4%
MARBLEHEAD	2,469,760	2,549,972	3.2%				2,469,760	2,549,972	80,212	3.2%
NAHANT	537,696	499,917	-7.0%				537,696	499,917	(37,779)	-7.0%
SAUGUS	3,953,935	4,046,125	2.3%				3,953,935	4,046,125	92,190	2.3%
SOUTHBOROUGH	997,207	872,861	-12.5%				997,207	872,861	(124,346)	-12.5%
SWAMPSCOTT	1,892,557	2,036,458	7.6%				1,892,557	2,036,458	143,901	7.6%
WESTON	2,818,905	2,511,257	-10.9%				2,818,905	2,511,257	(307,648)	-10.9%
TOTAL	\$13,418,670	\$13,283,410	-1.0%				\$13,418,670	\$13,283,410	(\$135,260)	-1.0%

MWRA Partial Water-only Customers	Final FY18 Water Assessment	Proposed FY19 Water Assessment	Percent Change from FY18	Final FY18 Sewer Assessment	Proposed FY19 Sewer Assessment	Percent Change from FY18	Final FY18 Combined Assessment	Proposed FY19 Combined Assessment	Dollar Change from FY18	Percent Change from FY18
DEDHAM-WESTWOOD WATER DISTRICT	\$295,794	\$155,323	-47.5%				\$295,794	\$155,323	(\$140,471)	-47.5%
LYNN (LWSC)	326,368	322,354	-1.2%				326,368	322,354	(4,014)	-1.2%
MARLBOROUGH	4,902,062	5,863,194	19.6%				4,902,062	5,863,194	961,132	19.6%
NORTHBOROUGH	1,240,294	1,280,283	3.2%				1,240,294	1,280,283	39,989	3.2%
PEABODY	1,939,097	4,192,983	116.2%				1,939,097	4,192,983	2,253,886	116.2%
TOTAL	\$8,703,615	\$11,814,137	35.7%				\$8,703,615	\$11,814,137	\$3,110,522	35.7%
SYSTEMS TOTAL	\$242,415,557	\$251,885,093	3.9%	\$474,638,443	\$493,195,203	3.9%	\$717,054,000	\$745,080,296	\$28,026,296	3.9%

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 FY19, 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 FY19 through FY28. The planning estimates assume no Debt Service Assistance and use of Rate Stabilization and Bond Redemption reserves through FY2028 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										
Proposed FY19 CEB	FY2019	FY2020	FY2021	FY2022	FY2023	FY2024	FY2025	FY2026	FY2027	FY2028
Total Rate Revenue (\$000)	\$745,080	\$773,385	\$802,801	\$833,510	\$854,843	\$846,435	\$843,115	\$859,149	\$875,057	\$898,485
Rate Revenue Change from Prior Year (\$000)	\$ 28,026	\$ 28,305	\$ 29,416	\$ 30,709	\$ 21,333	\$ (8,408)	\$ (3,320)	\$ 16,034	\$ 15,908	\$ 23,428
Rate Revenue Increase	3.9%	3.8%	3.8%	3.8%	2.6%	-1.0%	-0.4%	1.9%	1.9%	2.7%
Use of Reserves (\$000)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 3,905	\$ 2,165	\$ 192
Estimated Household Bill										
Based on annual water usage of 61,000 gal.	\$1,161	\$1,213	\$1,267	\$1,324	\$1,377	\$1,415	\$1,458	\$1,515	\$1,573	\$1,639
Based on annual water usage of 90,000 gal.	\$1,713	\$1,790	\$1,870	\$1,954	\$2,032	\$2,088	\$2,152	\$2,235	\$2,322	\$2,418

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 \$70.7 million increase in direct expenses from FY19 to FY28 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 2.7% for salaries and 3.0% for other direct expenses starting in FY19;
- 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 FY19, 5.25% interest rates in FY20, 5.5% rates in FY21, 5.75% rates in FY22 and 6.0% rates from FY23 and beyond;
- Variable rate interest projected at 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 2028 forecast rate revenue requirement increases of 3.9% in FY19, 3.8% annually from FY20 through FY22, 2.6% in FY23, -1.0% in FY24, -0.4% in FY25, 1.9% in FY26, 1.9% in FY27, and 2.7% in FY28.

The FY19 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, 2018 are available online at www.mwra.com.