



Executive Summary

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MWRA Mission

The Massachusetts Water Resources Authority (MWRA) is an independent authority 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. MWRA's long-term plan emphasizes improvements in service and systems and includes performance targets for operating the water and wastewater systems and maintaining new and existing facilities.

Parallel to MWRA's goal of carrying out its capital projects and operating programs is its goal of providing sustainable and predictable assessments by working in partnership with its member communities. The need to achieve and maintain a balance between these two goals continues to be the critical issue facing the MWRA. MWRA has a five-year Strategic Business Plan which articulates the mission statement, values, and goals of the agency, including specific initiatives. To that end, the MWRA applies a multi-year rates management strategy to provide sustainable and predictable assessment increases to its member communities.

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 the budget and provides summary explanations of the variances at the line item level. At least twice a year staff prepares projections for the year-end with a similar level of explanations. The performance indicator reports capture a variety of parameters regarding performance of each major functional area, on a monthly and quarterly basis.

Overview

Each year, MWRA prepares a budget that reflects the best available information for anticipated expenditures and revenues. MWRA transmitted its FY17 Proposed Budget to the Advisory Board in February. The Advisory Board has sixty days to review, comment, and provide recommendations. MWRA also hosts a public hearing to solicit comments on the budget and community assessments from citizens in its service area. During the review period, Advisory Board and MWRA staff will continue to meet and evaluate the impact of changing circumstances as they arise. Following the receipt of the Advisory Board's comments and recommendations, MWRA presents its official responses to the Board of Directors at budget hearings. In June, MWRA's Board of Directors holds a hearing 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 the final budget and final assessments Fiscal Year 2017 to the Board for approval in June 2016.

FY17 Proposed Budget Summary

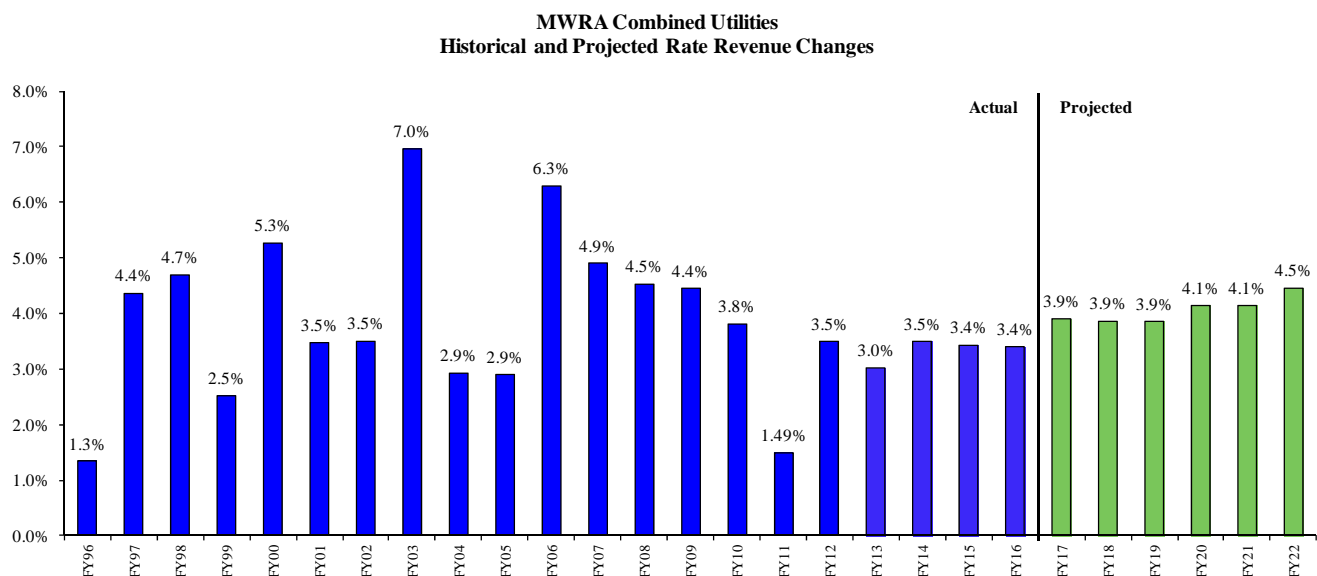
The FY17 Proposed Budget has a combined assessment increase of 3.9%, measures taken by the Authority to achieve the 3.9% rate increase include:

- Continued practice of targeted defeasance; The FY17 Proposed Budget includes a planned defeasance of \$25.0 million which will reduce debt service by approximately \$1.1 in years FY17-19 and \$22.4 million in FY20.
- Direct Expense increase of \$5.8 million or 2.6% mostly for wages, health insurance and maintenance;
- Funding of 1,155 FTE's, 5 fewer than in FY16 Budget;
- Indirect Expense decrease of \$2.8 million or 6.0% for lower pension contributions, the Harbor Electric Energy Corporation for the Deer Island cross harbor cable contract, offset by higher operating expenses for Watershed Management;
- \$5.0 million decrease in Other Revenue due to a one-time revenue for water provided during the community managed CSO project to Cambridge in FY16;
- No use of Rate Stabilization or Bond Redemption; and
- Assumes No Debt Service Assistance*.

*It is important to note that for the first time since 2003, the Governor's 2017 budget includes \$1.1 million for Debt Service Assistance. MWRA and Advisory Board staff will continue to work with the House and Senate to ensure its inclusion in the final FY17 state budget, but this offset to debt service is not include in the FY17 Proposed Budget. Any funds received will go directly to rate relief.

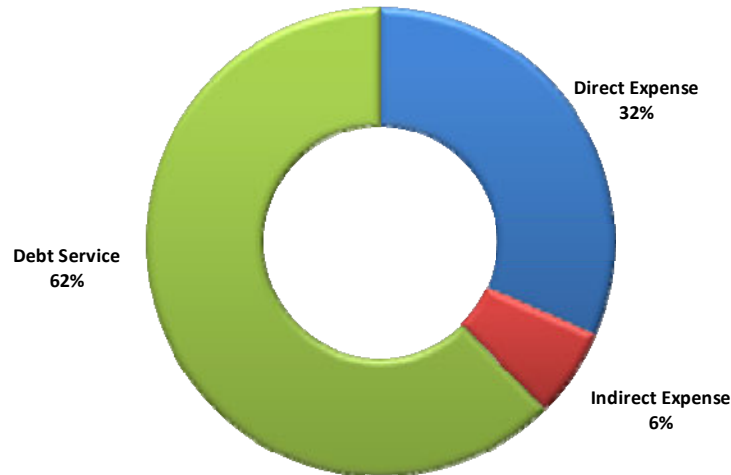
As MWRA continues to pursue a rate management strategy which promotes sustainable and predictable assessments and addresses the Authority's Pension and Other Post Employment Benefits (OPEB) related liabilities.

The graph below represents historical and projected assessment changes based on the FY17 Proposed Budget.



The FY17 Proposed Budget projects total expenses of \$724.2 million, \$21.7 million or 3.1% above the FY16 Budget. Capital financing costs remain the largest component of the CEB and account for 62.3% of total expenses.

FY17 Current Expense Budget



Total expenses include \$451.4 million for Capital Financing costs and \$272.8 million for operating expenses, of which \$228.6 million is for Direct Expenses and \$44.2 million is for Indirect Expenses. Total expenses increased \$21.7 million or 3.1% from the FY16 Budget mainly due to a higher debt service requirement of \$18.7 million, higher Direct Expenses of \$5.8 million due to inclusion of Cost of Living Adjustments (COLA) for staff, higher healthcare costs, and higher projected maintenance expenses. It is important to note that Direct Expenses increased at the 2.6% targeted level.

The FY17 Proposed Budget revenues, excluding rate revenue, total \$25.5 million, a decrease of \$4.6 million or 15.3% from the FY16 Budget. The FY17 Proposed Budget non-rate revenue budget includes \$15.8 million in Other User Charges and Other Revenue and \$9.7 million for Investment Income. The majority of the decrease reflects the impact of a one-time water revenue for the water provided during the Cambridge Combined Sewer Overflow (CSO) project in FY16.

The FY17 Proposed Rate Revenue Requirement is \$698.7 million, an increase of \$26.3 million or 3.91% over the FY16 Budget.

The table on the following page shows MWRA's FY17 Proposed Budget for revenue and expenses compared with the FY16 Budget and FY15 Actual. Changes from FY16 to FY17 are described in the Revenue and Expense section of the Executive Summary.

Table I-1

TOTAL MWRA	FY15 Actuals	FY16 Approved Budget	FY17 Proposed Budget	Change	
				FY17 Proposed Budget vs FY16 Approved Budget	
				\$	%
EXPENSES					
WAGES AND SALARIES	\$ 94,350,655	\$ 99,363,168	\$ 102,229,030	\$ 2,865,862	2.9%
OVERTIME	4,521,867	4,219,293	4,192,676	(26,617)	-0.6%
FRINGE BENEFITS	18,325,579	19,326,756	20,592,609	1,265,853	6.5%
WORKERS' COMPENSATION	2,307,123	2,343,000	2,274,190	(68,810)	-2.9%
CHEMICALS	9,749,142	9,790,849	9,985,755	194,906	2.0%
ENERGY AND UTILITIES	21,073,529	23,164,822	22,418,027	(746,795)	-3.2%
MAINTENANCE	28,322,686	28,698,772	30,320,567	1,621,795	5.7%
TRAINING AND MEETINGS	369,657	413,714	435,481	21,767	5.3%
PROFESSIONAL SERVICES	4,950,866	5,819,611	6,316,156	496,545	8.5%
OTHER MATERIALS	6,060,042	6,164,588	6,172,140	7,552	0.1%
OTHER SERVICES	22,378,137	23,529,902	23,651,024	121,122	0.5%
TOTAL DIRECT EXPENSES	\$ 212,409,283	\$ 222,834,475	\$ 228,587,653	\$ 5,753,178	2.6%
INSURANCE	\$ 2,161,628	\$ 2,160,797	\$ 2,123,297	(37,500)	-1.7%
WATERSHED/PILOT	27,167,900	28,096,233	29,996,321	1,900,088	6.8%
HEEC PAYMENT	2,690,026	1,946,157	773,859	(1,172,298)	-60.2%
MITIGATION	1,459,902	1,400,000	1,558,000	158,000	11.3%
ADDITIONS TO RESERVES	482,953	(34,927)	195,747	230,674	-660.4%
RETIREMENT FUND	7,824,155	8,159,521	3,132,624	(5,026,897)	-61.6%
ADDITIONAL PENSION DEPOSIT	-	-	1,500,000	1,500,000	
POSTEMPLOYMENT BENEFITS	4,821,320	5,224,848	4,876,050	(348,798)	-6.7%
TOTAL INDIRECT EXPENSES	\$ 46,607,884	\$ 46,952,628	\$ 44,155,898	\$ (2,796,731)	-6.0%
STATE REVOLVING FUND	\$ 75,066,883	\$ 81,876,276	\$ 86,718,919	4,842,643	5.9%
SENIOR DEBT	240,678,003	283,024,431	269,326,256	(13,698,175)	-4.8%
SUBORDINATE DEBT	99,686,106	49,222,442	69,997,992	20,775,550	42.2%
LOCAL WATER PIPELINE CP	263,758	4,149,242	4,149,242	-	0.0%
CURRENT REVENUE/CAPITAL	10,200,000	11,200,000	18,000,000	6,800,000	60.7%
CAPITAL LEASE	3,217,060	3,217,060	3,217,060	-	0.0%
CORE FUND DEPOSIT	730,421	-	-	-	
BOND REDEMPTION	(6,745,598)	-	-	-	
VARIABLE RATE SAVINGS	(13,016,491)	-	-	-	
DEFEASANCE ACCOUNT	-	-	-	-	
DEBT SERVICE ASSISTANCE	(853,660)	-	-	-	
TOTAL DEBT SERVICE	\$ 409,226,482	\$ 432,689,451	\$ 451,409,469	\$ 18,720,018	4.3%
TOTAL EXPENSES	\$ 668,243,648	\$ 702,476,554	\$ 724,153,020	\$ 21,676,465	3.1%
REVENUE & INCOME					
RATE REVENUE	\$ 650,315,783	\$ 672,440,000	\$ 698,700,000	26,260,000	3.91%
OTHER USER CHARGES	8,274,428	8,683,898	8,795,741	111,843	1.3%
OTHER REVENUE	10,014,309	12,000,066	6,956,430	(5,043,636)	-42.0%
RATE STABILIZATION	-	-	-	-	
INVESTMENT INCOME	9,688,997	9,352,590	9,700,849	348,259	3.7%
TOTAL REVENUE & INCOME	\$ 678,293,517	\$ 702,476,554	\$ 724,153,020	\$ 21,676,466	3.1%

FY17 Goals:

- Ensure delivery of reliable and cost-effective water and sewer services to customer communities.
- Ensure that water supply and wastewater collection and treatment preserve public health and protect natural resources.
- Develop and implement long-term strategies to ensure assessment increases to MWRA's communities are sustainable and predictable.
- Provide overall management of the agency and ensure adherence to all applicable policies and regulations.
- 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.
- Manage MWRA's debt portfolio and long-term expenses.
- Improve the quality and presentation of budget documents and regularly required reports while working to develop new reports that will aid the Authority's Board of Directors, Management, and the MWRA Advisory Board.
- Plan, develop, implement, and operate efficient, reliable, and economical water treatment/delivery and wastewater transport/treatment systems.
- Ensure compliance with state and federal drinking water quality and wastewater discharge regulations including the Safe Drinking Water Act (SDWA), the Clean Water Act, and National Pollutant Discharge Elimination System (NPDES) permits.
- Plan and implement rehabilitation of existing facilities and construction of new facilities including pipelines, pump stations, storage facilities, and treatment facilities on schedules that allow for sufficient system capacity and performance.
- Dispose of wastewater treatment by-products in a cost-effective and environmentally sound manner.
- Continue to implement strategies for workforce succession in preparation for expected retirement of many MWRA employees in the upcoming five to ten years.

FY17 Initiatives:

- Continue assessment and evaluation of sustainable cost savings opportunities throughout the organization.
- Develop options and recommendations to ensure sustainable and predictable assessments and charges to our communities at both the water and wastewater utility level.
- Continue the implementation of the recommendation of the Five-year IT Plan and improve the effectiveness of the staff while maintaining system security and integrity.
- Attract and retain a qualified high-performance workforce.

- Maintain effective relationship with the unions representing the MWRA workforce while protecting and maintaining management flexibility.
- Continue to identify, assess, and implement initiatives to reduce energy demand and increase energy self-generation in MWRA's system, including the projects noted in MWRA's Memorandum of Understanding with Eversource. Pursue grant-funding and cost-sharing arrangements to defray costs of implementing these initiatives.
- Prepare for commencement of pilot, commercial food waste co-digestion project at Deer Island Treatment Plant in January 2017.
- Self-generate ~30% of the Deer Island Treatment Plant's (DITP) required power through optimization of power generation assets, including the wind turbines and the Steam Turbine Generation (STG) back pressure system.
- Continue to optimize new ultraviolet disinfection treatment process for MWRA's potable water system at the Carroll Water Treatment Plant and Brutsch Disinfection Facility.
- Operate new Spot Pond covered storage facility in water system for first full year.
- Plan for implementation of requirements of the new National Pollutant Discharge Elimination System (NPDES) Permits for DITP (assume new permit is issued by January 2017) and Clinton Wastewater Treatment Plant (assume new permit in effect for all of FY17).

FY16 Mid-Year Accomplishments:

- The Long-Term CSO Control Plan was declared to be substantially complete by the Court in December 2015.
- Maintained MWRA's strong credit ratings, Aa1, AA+, AA+ from Moody's, Standard & Poor's and Fitch respectively. MWRA's credit ratings from all three major agencies are only one ratings step below the highest rating of AAA. These high credit ratings enable MWRA to borrow at very advantageous interest rates.
- 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 and the non-rate revenue from the sale of Renewable Portfolio Standards Program (RPS) credits resulted in \$1.2 million in revenue for the first six months of FY16. Deer Island also self-generated ~29% of the plant's total required power during that time period.
- Received revenue for energy generated at numerous facilities including the following: hydroelectric \$321,000 from Oakdale Station, \$71,000 from Cosgrove Station, and \$11,000 from the Loring Road Pump Station; wind of \$121,000 from Charlestown Pump Station; and solar of \$53,000 from Carroll Water Treatment Plant.
- Developed the FY17 Budget consistent with the FY16 planning estimates, for both the Current Expense Budget and the Capital Improvement Program.
- Received \$44,000 in utility rebates for completed CEB-funded energy projects through the second quarter.

- At Deer Island Treatment Plant, treated 99.7% of flow through secondary and met secondary permit limits at all times.
- Operated Deer Island Treatment Plant without any NPDES Permit violations during FY16.
- Processed 99.9 average tons per day of sludge at the Pelletization Plant and disposed of 2,459 of grit and screenings through a contracted vendor.
- In water system, exercised 210 and replaced 7 mainline valves; exercised 111 and replaced 3 blow-off valves.
- In the wastewater system, inspected 17.27 miles and cleaned 19.73 miles of MWRA pipeline. Inspected more than 410 structures and rehabilitated 75 manholes. Also inspected 21, and cleaned 25 inverted siphon barrels.

SOURCES AND USES OF FUNDS

MWRA funds its operations primarily through member community assessments. Funds supporting the current expense budget are not subject to appropriation with the exception of debt service assistance. The table below shows MWRA's sources and uses of funds for the FY17 Proposed Budget.

SOURCES & USES OF FUNDS*		
\$ in Millions		
<i>Sources of Funds</i>		
Other User Charges	\$8.8	1.2%
Other Revenue	7.0	1.0%
Investment Income	9.7	1.3%
Rate Revenue	698.7	96.5%
Rate Stabilization	0.0	0.0%
TOTAL REVENUE	\$724.2	100.0%
<i>Uses of Funds</i>		
Total Expenses before Debt		
Service Offsets	\$451.4	
Less:		
Debt Service Assistance	-	
Bond Redemption	-	
Sub-Total Net Expenses	451.4	
Capital Financing	451.4	62.3%
Direct Expenses	228.6	31.6%
Indirect Expenses	44.2	6.1%
TOTAL EXPENSES	\$724.2	100.0%
TOTAL EXPENSES Less Offsets	\$724.2	
*May not add up due to rounding		

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 FY17 Proposed Budget, 96.5% of revenue is derived from rate revenue. The remaining 3.5% 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

The Rate Revenue Requirement for FY17 is \$698.7 million, an increase \$26.3 million or 3.9% over the FY16 Budget. The Rate Revenue Requirement is the difference between total expenses of \$724.2 million, less non-rate revenue of \$25.5 million. Of the \$698.7 million, \$463.5 million will fund the sewerage system, an increase of 3.9% as compared to FY16; and \$235.2 million will fund the water system, also an increase of 3.9% as compared to FY16.

Non-Rate Revenue

FY17 non-rate revenue totals \$25.5 million, which is a decrease of \$4.5 million or 15.0% versus the FY16 Budget. The FY17 non-rate revenue budget includes:

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 Final FY17 Budget total \$8.8 million, an increase of \$409,000 or 4.9% from the Final FY16 Budget and includes \$4.9 million for Chicopee Valley Aqueduct (CVA) communities, \$1.6 million for Deer Island water usage, \$753,000 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 \$112,000 or 1.3% more than the FY16 Budget which is mainly due to assessment increases related to increases for Deer Island, Chicopee, and Lancaster.

Other Revenue

Other Revenue is budgeted at \$7.0 million, a decrease \$5.0 million or 42.0% from the FY16 Budget mainly for due to one-time revenue for water provided during the community managed CSO project to the City of Cambridge in FY16. Other Revenue includes \$3.6 million from the sale of the Authority's Renewable Portfolio Credits, sale of generated power, and revenue from the demand response program as well as \$2.2 million in permit fees and penalties.

Permit Fees and Penalties

The FY17 Proposed Budget includes \$2.2 million in fees charged to industries that discharge toxic materials into the MWRA sewer system. These permit fees partially offset the annual costs of permitting, inspecting, and monitoring these industries.

Energy Revenue

The FY17 Proposed Budget includes \$3.6 million which pertains to the Authority's energy programs for the sale of Renewable Portfolio Standard credits, participation in the demand response program, and the sale of power including hydro, wind, and solar generated at various MWRA's facilities as well as a large number of miscellaneous revenue items.

Miscellaneous Revenue

The FY17 Proposed Budget includes \$1.2 million in miscellaneous revenue, a \$5.0 million decline reflecting one-time water revenues collected from the City of Cambridge.

Investment Income

MWRA earns income by investing reserves and fund balances in a variety of interest-yielding securities. The FY17 Proposed Budget includes \$9.7 million in investment income, an increase of \$348,000 or 3.7% from the FY16 Budget due to higher projected interest rate assumptions. The FY17 Proposed short-term interest rate is 0.50%, 30 basis points higher than the FY16 Budget.

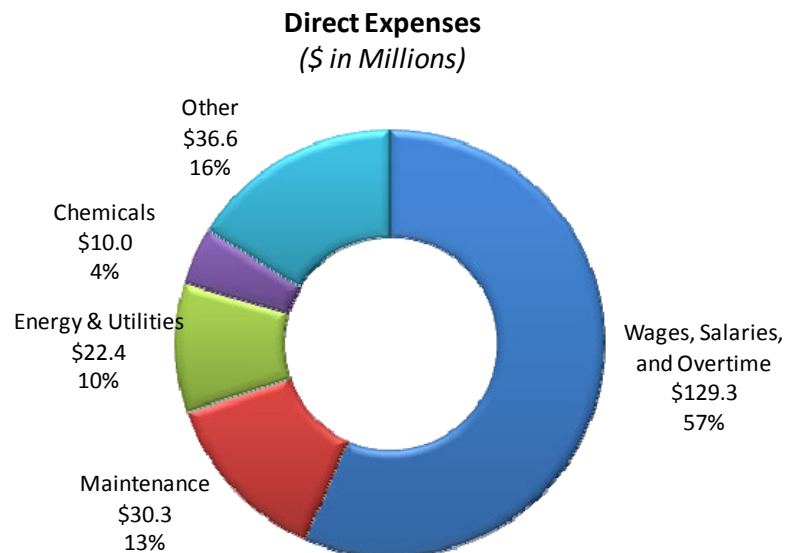
Non-Recurring Revenue

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 FY17 Proposed Budget, no Rate Stabilization fund usage is projected.

Direct Program Expenses

FY17 Proposed Direct Expenses total \$228.6 million, an increase of \$5.8 million, or 2.6%, from the FY16 Budget. The principal drivers for the increase are wages and salaries due to cost of living adjustments (COLAs), lower energy costs mainly for projected electricity pricing, sludge expense reflecting lower contract indices. Offset by higher spending for fringe benefits driven by higher projected healthcare cost increases, and higher maintenance. 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 and shows that labor costs (wages and salaries, overtime, fringe benefits, workers' compensation, and training) are the largest component of the direct expense budget 57%, other (professional services, other materials, and other services) 16%, maintenance 13%, utilities 10%, and chemicals 4%.



Direct Expenses

Wages and Salaries – The FY17 Proposed Budget includes \$102.2 million for Wages and Salaries as compared to \$99.4 million in the FY16 Budget, an increase of \$2.9 million or 2.9%. Regular Pay which is 98.2% of total Wages and Salaries, increased \$2.9 million mostly for COLA increases. The FY17 Proposed Budget funds 1,155 positions, 5 fewer FTE positions than FY16 Budget of 1,160. It is important to note that the Authority is striving to achieve the 1,150 FTE goal recommended by Amawalk consultants based on a staffing study in 2012, to be reached in a five-year timeframe. As always, new hires and backfills of vacant positions will be managed at the agency level and addressed on a case-by-case basis by senior management.

Overtime – The FY17 Proposed Budget includes \$4.2 million for Overtime, basically level funded with FY16 Budget.

Fringe Benefits – The FY17 Proposed Budget includes \$20.6 million for Fringe Benefits, an increase of \$1.3 million or 6.5% from the FY16 Budget. Health Insurance premiums total \$17.8 million, an increase of \$1.0 million or 6.2% from the FY16 Budget largely due to an anticipated 8% increase in rate structure.

Workers' Compensation – The FY17 Proposed Budget includes \$2.3 million for Workers' Compensation, a decrease of \$69,000 or 2.9% from the FY16 Budget and is based on a three-year average of actual and projected spending.

Chemicals – The FY17 Proposed Budget includes \$10.0 million for Chemicals, an increase of \$195,000 or 2.0% from the FY16 Budget mainly due to a half year funding for the Deer Island National Pollutant Discharge Elimination System (NPDES) permit which is projected to have more stringent requirements for enterococcus treatment compliance, offset by favorable pricing.

Utilities – The FY17 Proposed Budget includes \$22.4 million for Utilities, which is a reduction of \$747,000 or 3.2% from the FY16 Budget. The decrease reflects an ongoing decline in energy prices, most notably electricity and diesel fuel. Also, the budget reflects less purchased power at the Deer Island Treatment Plant due to self-generation increases and demand decreases resulting from energy-efficiency projects. The FY17 Proposed Budget funds \$16.7 million for Electricity, \$2.8 million for Diesel Fuel, \$2.1 million for Water, and \$590,000 for Natural Gas.

Maintenance – The FY17 Proposed Budget includes \$30.3 million for Maintenance projects, an increase of \$1.6 million or 5.7% from the FY16 budget. The FY17 Maintenance request is \$2.0 million above FY15 actuals, reflecting a \$1.1 million increase in MIS for software license upgrades, additional funds for energy efficient projects, a new control valve for Weston Aqueduct, maintenance at Caruso Pump Station, and other maintenance initiatives.

Training and Meetings – The FY17 Proposed Budget includes \$436,000 for Training and Meetings, an increase of \$22,000 or 5.3% from the FY16 Budget.

Professional Services – The FY17 Proposed Budget includes \$6.3 million for Professional Services, an increase of \$497,000 or 8.5% from the FY16 Budget. The FY17 Proposed Budget reflects funding of \$1.8 million for Security, \$1.6 million for Regulatory Monitoring, and \$1.6 million for Other Professional Services to support items such as professional staff development, 24/7 monitoring of the MWRA MIS network, and as-needed engineering services.

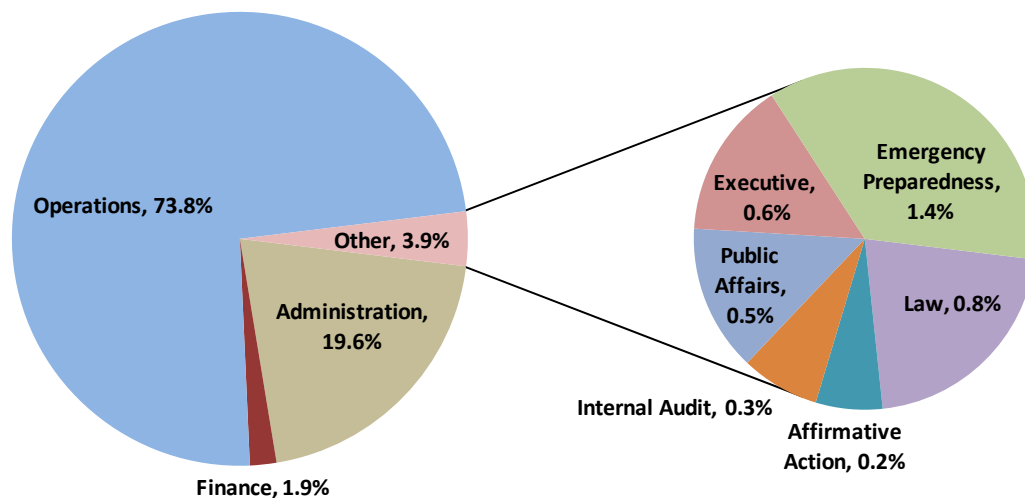
Other Materials – The FY17 Proposed Budget includes \$6.2 million for Other Materials, an increase of \$8,000 or 0.1% from the FY16 Budget. The budget includes funding of \$1.9 million for Vehicle Purchases, \$932,000 for Vehicle Expenses mostly for fuel purchases for the MWRA fleet, \$880,000 for Lab and Testing Supplies, \$478,000 for Computer Hardware needs, \$420,000 for Health and Safety, \$410,000 for Equipment/Furniture, and \$406,000 for Work Clothes.

Other Services – The FY17 Proposed Budget includes \$23.7 million for Other Services, an increase of \$121,000 or 0.5% from the FY16 Budget. The budget includes funding of \$13.4 million for Sludge Pelletization, \$4.1 million for Space/Lease Rentals and related expenses for the CNY, Chelsea facilities, and a potential Chelsea satellite location, \$2.1 million for Voice and Data costs, \$1.2 million for Grit & Screenings removal, and \$1.1 million for Other Services. The largest increase is for Telecommunications of \$431,000 for SCADA data lines, and Space/Lease Rentals of \$464,000 for additional space requirements. Increased costs were nearly offset by a \$732,000 decline in Sludge Pelletization cost due to deflation.

Functional Area Budget Summary

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

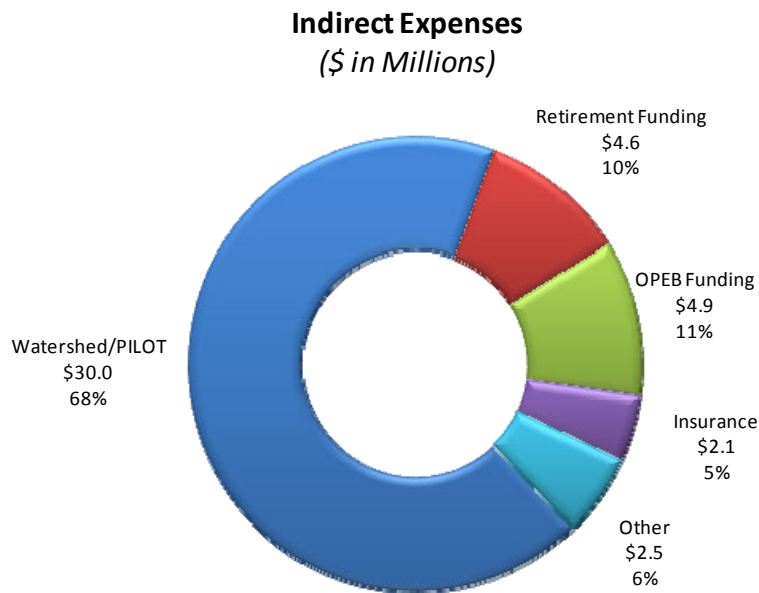
**MWRA Direct Expense Budgets
by Division**



Indirect Program Expenses

The FY17 Proposed Budget Indirect Budget is \$44.2 million, a decrease of \$2.8 million or 6.0% from the FY16 Budget, due primarily to a \$3.6 million reduction the Authority’s pension contribution. The budget includes \$30.0 million for the Division of Water Supply Protection, an increase of \$1.9 million or 6.8% the FY16 Budget. The largest increases are for operating expenses net of revenues of \$1.8 million mainly for additional funding for capital projects, healthcare costs, and contractual increases.

The graph below represents 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 68% followed by OPEB funding at 11%, Retirement funding 10%, Other (for items such as HEEC, Mitigation, and Addition to Reserves) 6%, and Insurance 5%.



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, operating expenses of the Division of Water Supply Protection, and debt service costs for purchases of land around the supply reservoirs to protect the watersheds. The budget includes \$30.0 million for the Watershed Management budget, an increase of \$1.9 million or 6.8% over the FY16 Budget. The budget includes \$16.0 million for reimbursement of operating expenses net of revenues, \$8.4 million for Payment in Lieu of Taxes (PILOT), and \$5.6 million for debt service expenses on prior land purchases financed by the Commonwealth. The largest increases are for operating expenses net of revenues of \$1.8 million mainly for additional funding for capital projects, healthcare costs, and contractual increases.

Retirement System Contribution

The FY17 Proposed Budget includes \$4.6 million for the Retirement Fund, a reduction of \$3.5 million or 61.6% over the FY16 required contribution. The minimum required contribution for FY16 is \$3.1 million based on the January 1, 2015 actuarial report. An additional pension deposit of \$1.5 million was also included in the FY17 Proposed Budget in recognition of lower than assumed returns on pension investments in CY15.

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

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 our pension liability and upon reaching full funding, move to address the OPEB obligation. This strategy was employed in the FY08-16 budgets (although temporarily halted in FY11 to achieve a 1.5% rate increase). Based on the latest actuarial evaluation, MWRA's pension fund is at 98.6% funding level. In the FY17 Proposed Budget the Authority is proposing to fund its OPEB liability at \$4.9 million, continuing the Authority's long-term commitment to address its liabilities. Furthermore, 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 with \$10,800,000 deposit. The source of the deposit is \$10 million cash reserves which became available due to the Amended and Revised Bond Indenture, and \$800,000 from funds appropriated in FY10 for funding OPEB. The \$4.9 million contribution is 50% of the Actuarial 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.

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, a decrease of \$38,000 or 1.7% from the FY16 Budget. The FY17 Proposed Budget was based on actual average spending for the past five years, FY11-15. The budget includes \$1.7 million for premiums and fees and \$440,000 for the projected cost of claims made against the self-insured portion of MWRA coverage. 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 2014.

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 FY17 Proposed Budget includes funding of \$1.6 million in potential community compensation for the City of Quincy and the Town of Winthrop. Both mitigation agreements expire in FY25.

Harbor Electric Energy Company (HEEC)

The budget includes \$774,000 for the Harbor Energy Electric Company (HEEC), a decrease of \$1.2 million or 60.2% from the FY16 Budget. This funding is for the repayment of the capital investment for the Deer Island electric cable and substation which provides electric power to the treatment plant. The significant decrease is due to contractual obligations which expired in May 2015, ending the amortization of the cable financing component of the capital investment.

Operating Reserves

Funding for the Operating Reserve for FY17 is \$195,000 higher than the FY16 Budget. 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 FY17 Proposed Budget the required balance is \$39.61 million versus the \$39.42 million required in FY16.

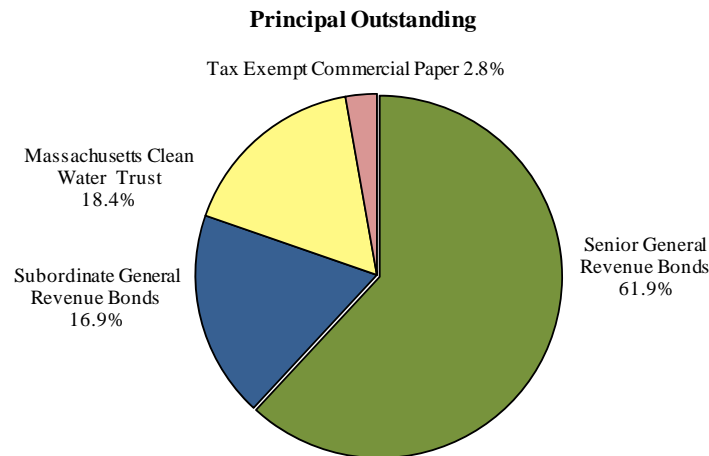
Capital Financing

Outstanding Debt and Debt Management

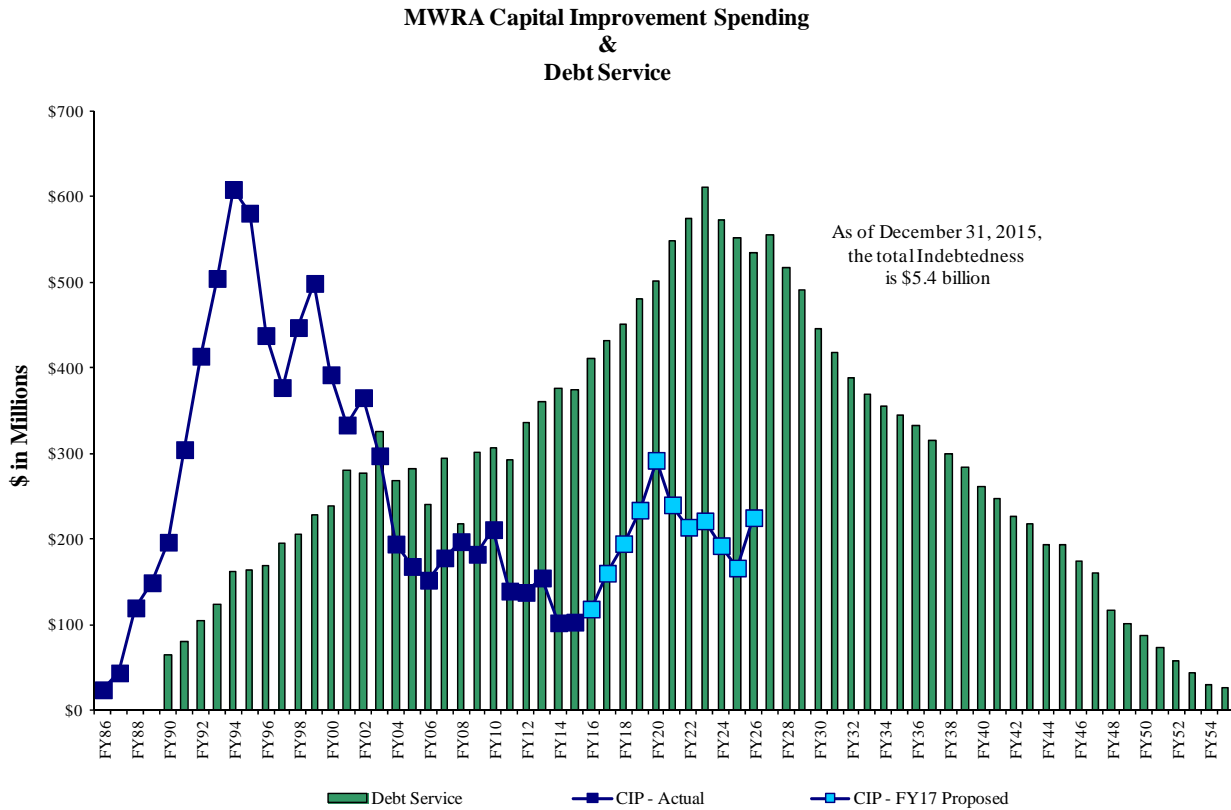
The \$8.0 billion spent on MWRA's modernization efforts to date, has relied heavily on debt financing. Total debt as of December 2015 was \$5.4 billion consisting of long-term senior and subordinated debt, as well as short-term Tax-Exempt Commercial Paper and a Tax-Exempt Revolving Loan. The MWRA enjoys strong unenhanced senior debt ratings of Aa1, AA+, and AA+ from Moody's, Standard & Poor, and Fitch, respectively.

Type	Principal Outstanding December 31, 2015	% of Total
Senior General Revenue Bonds	\$ 3,316,310,000	61.9%
Massachusetts Clean Water Trust	\$ 987,656,759	18.4%
Subordinate General Revenue Bonds	\$ 905,490,000	16.9%
Tax Exempt Commercial Paper and Revolving Loan	\$ 149,000,000	2.8%
Total	\$ 5,358,456,759	100.0%

← 80.3% of MWRA's
Debt is Fixed Rate

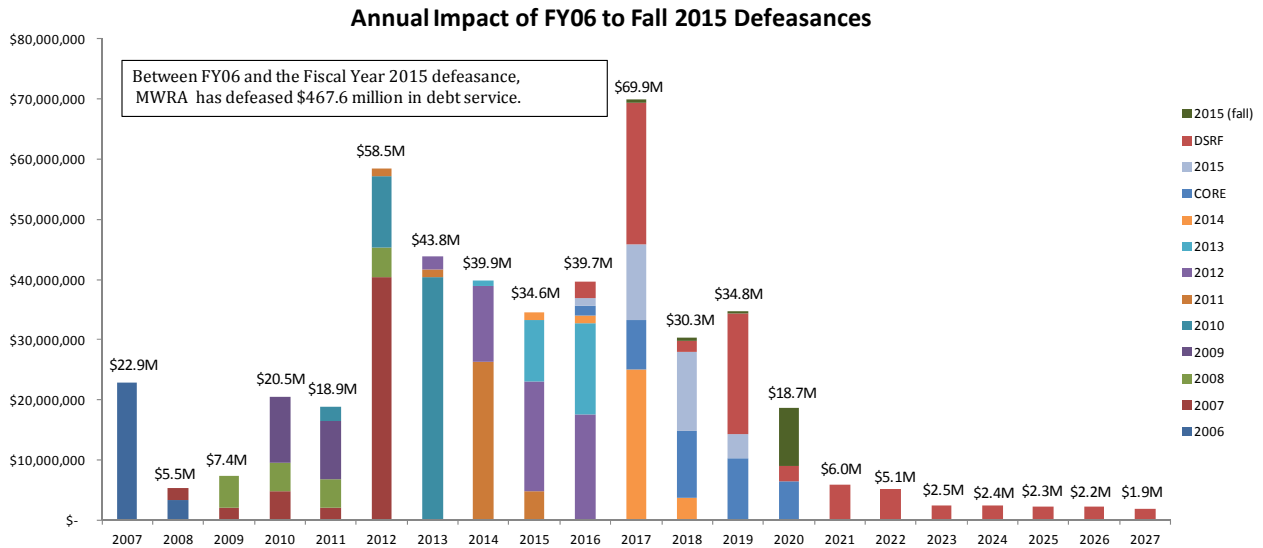


The following graph was updated with FY17 Proposed CIP spending and debt service projections to illustrate the relationship between the MWRA's CIP and debt service.



Over the past 25 years, MWRA has been focused on construction of new water and sewer facilities, many of which had been neglected for years, to bring the system into regulatory compliance. These efforts relied heavily on debt financing. Going forward, the majority of capital spending will be geared towards asset protection and water redundancy initiatives. As indicated above, as of December 31, 2015, MWRA's total debt was \$5.4 billion which relate to the significant increases in debt service obligations in the upcoming years. The Authority's debt service obligation as a percent of total expenses has increased from 36% in 1990 to over 62% in the FY17 Proposed Budget, thus continuing to be the largest challenge for the Authority to manage assessments in future years.

MWRA continues to actively manage 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, and the use of surplus revenues to defease debt. The MWRA also uses a short-term debt program that includes Tax-Exempt Commercial Paper and a Tax-Exempt Revolving Loan to minimize the financing cost of construction. Since 2006, the Authority has defeased over \$467.6 million in debt as illustrated in the following graph.



As a result of the Authority’s Capital Improvement Program, debt service as a percent of total expenses (before offsets) has increased steadily from 36% in 1990 to over 62% in the FY17 Proposed 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 fiscal year 2017 is less than scheduled principal payments which will contribute to decrease MWRA’s outstanding indebtedness.

The FY17 Proposed Budget capital financing costs total \$451.4 million and remain the largest portion of the MWRA’s budget, accounting for 62.3% of total expenses. The budget includes a planned defeasance of \$25.0 million which will reduce debt service by approximately \$22.4 million in FY20, and \$1.1 million in years FY17-19.

The FY17 Proposed Budget assumes a 3.25% interest rate for variable rate debt which is the same level as in FY16 Budget. 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 is no guarantee that rates will remain as low as they are.

The FY17 Proposed Budget capital financing costs increased by \$18.7 million or 4.3% compared to the FY16 Budget. This increase in the MWRA's debt service is the result of projected FY17 borrowings and the structure of the debt, partially offset by the impact of the projected defeasance. The FY17 capital financing budget includes:

- \$269.3 million in principal and interest payments on MWRA's senior fixed rate bonds. This amount includes \$6.5 million to support issuances of \$100 million in April 2016 and \$5.2 million to support issuances of \$125 million of new money in January 2017. Also it includes a reduction of \$1.1 million for the effect of the planned FY16 defeasance;
- \$70.0 million in principal and interest payments on subordinate bonds;
- \$86.7 million in principal and interest payments on SRF loans. This amount includes \$10.4 million to support issuances of \$32.0 million of replacement loans and \$96.5 million in regular loans during 2016 and 2017;
- \$18.0 million to fund ongoing capital projects with current revenue and to meet coverage requirements;
- \$4.1 million to fund the interest expense related to the Local Water Pipeline Assistance Program; and,
- \$3.2 million for the Chelsea Lease.

The table below provides detail on the FY17 Proposed Budget capital financing line item. It further illustrates 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.

TABLE I-3				
FY17 Final Current Expense Budget - Capital Financing Detail (as of 12/31/15)				
\$ in Millions				
	Amount Outstanding	Total FY16 Capital Costs	Sewer	Water
Total SRF ¹ Debt	\$987.7	\$86.7	\$66.9	\$19.9
Total Senior Debt	\$3,316.3	269.3	174.6	94.7
Total Subordinate Debt	\$905.5	70.0	53.1	16.9
Total SRF and Debt Service²	\$5,209.5	\$426.0	\$294.5	\$131.5
Water Pipeline Commercial Paper	149.0	4.1	0.0	4.1
Current Revenue/Capital ³		18.0	18.0	0.0
Capital Lease		3.2	1.9	1.3
	149.0	\$25.4	\$19.9	\$5.4
Total Capital Financing (before Debt Service Offsets)	5,358.5	\$451.4	\$314.5	\$136.9
Debt Service Offsets:				
Debt Service Assistance		0.0	0.0	0.0
Bond Redemption		0.0	0.0	0.0
Total Capital Financing	5,358.5	\$451.4	\$314.5	\$136.9

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.

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 2.9 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 FY17 Proposed 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 preliminary assessments for FY17.

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 page I-21 presents the calculation of MWRA's FY17 Proposed 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.

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.

MWRA Fully Served Water and Sewer Customers	Final FY16 Water Assessment	Preliminary FY17 Water Assessment	Percent Change from FY16	Final FY16 Sewer Assessment	Preliminary FY17 Sewer Assessment	Percent Change from FY16	Final FY16 Combined Assessment	Preliminary FY17 Combined Assessment	Dollar Change from FY16	Percent Change from FY16
ARLINGTON	\$4,724,970	\$4,996,174	5.7%	\$7,099,278	\$8,040,018	4.4%	\$12,424,248	\$13,036,192	\$611,944	4.9%
BELMONT	2,674,576	2,839,601	6.2%	4,624,861	4,854,094	5.0%	7,299,437	7,693,695	394,258	5.4%
BOSTON (BWSC)	80,205,208	83,118,048	3.6%	129,701,392	133,108,935	2.6%	209,906,600	216,224,981	6,318,381	3.0%
BROOKLINE	6,910,863	7,074,458	2.4%	12,639,876	12,974,353	2.6%	19,550,438	20,048,811	498,373	2.5%
CHELSEA	4,155,184	4,231,090	1.8%	7,435,243	7,710,925	3.7%	11,590,427	11,942,015	352,188	3.0%
EVERETT	4,636,654	4,967,690	7.1%	8,056,404	8,173,297	1.5%	12,693,058	13,140,987	447,929	3.5%
FRAMINGHAM	8,243,826	8,191,962	-0.6%	11,893,982	12,901,859	8.5%	20,137,808	21,093,821	956,013	4.7%
LEXINGTON	6,695,144	7,378,622	10.2%	6,970,176	7,311,103	4.9%	13,665,320	14,689,725	1,024,405	7.5%
MALDEN	6,941,616	6,978,157	0.5%	12,439,049	13,022,132	4.7%	19,380,667	20,000,289	619,422	3.2%
MEDFORD	6,432,009	6,487,565	0.4%	11,355,458	11,848,484	5.2%	17,787,467	18,406,049	618,582	3.5%
MELROSE	2,853,930	2,927,124	2.6%	6,054,875	6,291,182	3.9%	8,908,805	9,218,306	309,501	3.5%
MILTON	3,156,824	3,373,637	6.9%	5,018,915	5,305,001	7.5%	8,175,739	8,788,638	612,899	7.5%
NEWTON	12,205,271	13,001,583	6.5%	19,710,607	20,848,755	4.8%	31,915,878	33,850,338	1,734,460	5.4%
NORWOOD	3,755,101	3,667,261	-2.3%	6,718,885	7,068,382	5.2%	10,473,986	10,735,643	261,657	2.5%
QUINCY	11,918,042	11,822,716	-0.8%	19,481,076	20,097,713	3.2%	31,399,118	31,920,428	521,310	1.7%
READING	2,032,760	2,117,862	4.2%	4,624,378	4,799,386	3.8%	6,657,144	6,916,248	259,104	3.9%
REVERE	5,013,281	4,963,446	-1.0%	10,261,623	10,676,230	4.0%	15,274,904	15,639,676	364,772	2.4%
SOMERVILLE	7,060,400	7,888,467	8.9%	15,588,894	16,020,502	2.8%	22,648,294	23,708,969	1,062,675	4.7%
STONEHAM	3,381,301	3,187,200	-5.7%	4,429,220	4,870,084	3.2%	7,810,521	7,767,284	(43,237)	-0.7%
WALTHAM	8,631,171	9,421,137	9.2%	12,680,425	13,203,950	4.1%	21,311,596	22,625,087	1,313,491	6.2%
WATERTOWN	3,392,382	3,303,955	-2.6%	5,760,051	6,006,615	4.3%	9,152,433	9,310,570	158,137	1.7%
WINTHROP	1,629,580	1,680,092	1.3%	3,183,339	3,339,880	4.9%	4,812,889	4,989,972	177,083	3.7%
TOTAL	\$196,650,271	\$203,356,444	3.4%	\$326,324,706	\$338,161,880	3.6%	\$522,974,977	\$541,518,324	\$18,543,347	3.5%

MWRA Sewer and Partial Water Customers	Final FY16 Water Assessment	Preliminary FY17 Water Assessment	Percent Change from FY16	Final FY16 Sewer Assessment	Preliminary FY17 Sewer Assessment	Percent Change from FY16	Final FY16 Combined Assessment	Preliminary FY17 Combined Assessment	Dollar Change from FY16	Percent Change from FY16
CANTON	\$1,268,728	\$1,880,349	30.8%	\$3,933,960	\$4,178,270	6.2%	\$5,202,688	\$6,058,619	\$837,931	12.2%
NEEDHAM	1,012,962	1,043,468	3.0%	5,408,445	5,718,107	5.7%	6,421,407	6,761,575	340,168	5.3%
STOUGHTON	1,106,344	1,148,754	3.8%	4,392,863	4,776,102	8.7%	5,499,207	5,924,856	425,649	7.7%
WAKEFIELD	1,855,071	1,859,516	0.2%	5,563,262	5,849,953	5.2%	7,418,333	7,709,469	291,136	3.9%
WELLESLEY	852,477	1,060,456	24.4%	5,278,300	5,492,441	4.1%	6,130,777	6,552,907	422,130	6.9%
WILMINGTON	353,379	705,846	99.7%	2,476,867	2,612,734	5.5%	2,830,246	3,318,580	488,334	17.3%
WINCHESTER	1,234,222	1,550,435	25.6%	3,868,401	4,057,343	4.9%	5,102,683	5,607,778	505,095	9.9%
WOBURN	3,091,283	3,368,527	9.0%	9,492,994	9,435,302	-0.6%	12,584,277	12,803,829	219,552	1.7%
TOTAL	\$10,792,466	\$12,417,351	15.1%	\$40,415,172	\$42,120,252	4.2%	\$51,207,638	\$54,537,603	\$3,329,965	6.5%

MWRA Sewer-only Customers	Final FY16 Water Assessment	Preliminary FY17 Water Assessment	Percent Change from FY16	Final FY16 Sewer Assessment	Preliminary FY17 Sewer Assessment	Percent Change from FY16	Final FY16 Combined Assessment	Preliminary FY17 Combined Assessment	Dollar Change from FY16	Percent Change from FY16
ASHLAND				\$2,380,635	\$2,499,256	5.0%	\$2,380,635	\$2,499,256	\$118,621	5.0%
BEDFORD				3,199,185	3,390,016	6.0%	3,199,185	3,390,016	190,831	6.0%
BRAINTREE				8,507,387	9,159,033	7.7%	8,507,387	9,159,033	651,646	7.7%
BURLINGTON				4,905,353	5,109,626	4.2%	4,905,353	5,109,626	204,273	4.2%
CAMBRIDGE				23,259,670	23,898,854	2.7%	23,259,670	23,898,854	639,184	2.7%
DEDHAM				5,063,931	5,346,896	5.6%	5,063,931	5,346,896	282,965	5.6%
HINGHAM SEWER DISTRICT				1,695,096	1,809,609	6.8%	1,695,096	1,809,609	114,513	6.8%
HOLBROOK				1,657,660	1,770,134	6.8%	1,657,660	1,770,134	112,474	6.8%
NATICK				5,526,614	5,748,874	4.0%	5,526,614	5,748,874	222,260	4.0%
RANDOLPH				6,011,817	6,309,225	4.9%	6,011,817	6,309,225	297,408	4.9%
WALPOLE				3,559,098	3,735,603	5.0%	3,559,098	3,735,603	176,505	5.0%
WESTWOOD				2,473,298	2,598,290	5.1%	2,473,298	2,598,290	124,994	5.1%
WEYMOUTH				11,087,503	11,838,429	6.8%	11,087,503	11,838,429	750,926	6.8%
TOTAL				\$79,327,245	\$83,213,845	4.9%	\$79,327,245	\$83,213,845	\$3,886,600	4.9%

MWRA Water-only Customers	Final FY16 Water Assessment	Preliminary FY17 Water Assessment	Percent Change from FY16	Final FY16 Sewer Assessment	Preliminary FY17 Sewer Assessment	Percent Change from FY16	Final FY16 Combined Assessment	Preliminary FY17 Combined Assessment	Dollar Change from FY16	Percent Change from FY16
LYNNFIELD WATER DISTRICT	\$614,185	\$645,883	5.2%				\$614,185	\$645,883	\$31,698	5.2%
MARBLEHEAD	2,278,325	2,350,641	3.2%				2,278,325	2,350,641	72,316	3.2%
NAHANT	425,527	478,410	12.4%				425,527	478,410	52,883	12.4%
SAUGUS	3,645,083	3,707,441	1.7%				3,645,083	3,707,441	62,358	1.7%
SOUTHBOROUGH	850,020	952,159	12.0%				850,020	952,159	102,139	12.0%
SWAMPSCOTT	1,827,959	1,841,378	0.7%				1,827,959	1,841,378	13,419	0.7%
WESTON	2,240,675	2,455,608	9.6%				2,240,675	2,455,608	214,933	9.6%
TOTAL	\$11,881,774	\$12,431,520	4.6%				\$11,881,774	\$12,431,520	\$549,746	4.6%

MWRA Partial Water-only Customers	Final FY16 Water Assessment	Preliminary FY17 Water Assessment	Percent Change from FY16	Final FY16 Sewer Assessment	Preliminary FY17 Sewer Assessment	Percent Change from FY16	Final FY16 Combined Assessment	Preliminary FY17 Combined Assessment	Dollar Change from FY16	Percent Change from FY16
DEDHAM-WESTWOOD WATER DISTRICT	\$305,532	\$197,155	-35.5%				\$305,532	\$197,155	(\$108,377)	-35.5%
LYNN (LWSC)	264,873	244,900	-7.5%				264,873	244,900	(19,973)	-7.5%
MARLBOROUGH	3,894,026	3,903,196	0.2%				3,894,026	3,903,196	9,170	0.2%
NORTHBOROUGH	1,103,542	1,140,248	3.3%				1,103,542	1,140,248	36,706	3.3%
PEABODY	1,480,393	1,513,209	2.2%				1,480,393	1,513,209	32,816	2.2%
TOTAL	\$7,048,366	\$6,998,708	-0.7%				\$7,048,366	\$6,998,708	(\$49,658)	-0.7%
SYSTEMS TOTAL	\$226,372,877	\$235,204,023	3.9%	\$446,067,123	\$463,495,977	3.9%	\$672,440,000	\$698,700,000	\$26,260,000	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.

Calculation of the Preliminary FY17 Rate Revenue Requirement (000's)

	Sewer	Water	Total
Allocated Direct Expenses	\$152,085	\$76,502	\$228,588
Allocated Indirect Expenses	\$9,453	\$34,703	\$44,156
PLUS			
Capital Expenses:			
Debt Service (less offsets)	\$294,546	\$131,497	\$426,043
Current Revenue for Capital	\$16,812	\$1,188	\$18,000
Other Capital Expenses	\$1,894	\$5,472	\$7,366
PLUS			
Non-Rate Revenue:			
Investment Income	-\$5,206	-\$4,495	-\$9,701
Fees and Other Revenue	-\$6,089	-\$9,664	-\$15,752
Rate Stabilization	\$0	\$0	\$0
EQUALS			
Rate Revenue Requirement	\$463,496	\$235,204	\$698,700

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 FY17, community assessments are projected to represent 96.5% 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 FY17 through FY26. The planning estimates shown below assume no Debt Service Assistance from the Commonwealth and use of Rate Stabilization and Bond Redemption reserves through FY2023 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 FY17 Final CEB	FY2016	FY2017	FY2018	FY2019	FY2020	FY2021	FY2022	FY2023	FY2024	FY2025	FY2026
Total Rate Revenue (\$000)	\$ 672,440	\$ 698,700	\$ 725,693	\$ 753,637	\$ 784,833	\$ 817,291	\$ 853,700	\$ 836,601	\$ 836,694	\$ 834,221	\$ 874,134
Rate Revenue Change from Prior Year (\$000)	\$ 22,124	\$ 26,260	\$ 26,993	\$ 27,943	\$ 31,197	\$ 32,458	\$ 36,409	\$ (17,099)	\$ 93	\$ (2,473)	\$ 39,913
Rate Revenue Increase	3.4%	3.9%	3.9%	3.9%	4.1%	4.1%	4.5%	-2.0%	0.0%	-0.3%	4.8%
Use of Reserves (\$000)	\$ -	\$ -	\$ -	\$ -	\$ 4,273	\$ 24,765	\$ 24,141	\$ 9,441	\$ -	\$ -	\$ -

Estimated Household Bill

Based on annual water usage of 61,000 gallons	\$1,055	\$1,102	\$1,152	\$1,204	\$1,261	\$1,319	\$1,382	\$1,419	\$1,467	\$1,516	\$1,590
Based on annual water usage of 90,000 gallons	\$1,556	\$1,626	\$1,700	\$1,777	\$1,860	\$1,947	\$2,040	\$2,093	\$2,164	\$2,236	\$2,346

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 \$65.4 million increase in direct expenses from FY17 to FY26 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 FY17;
- CIP inflation rate of 2.5%;
- Capital spending based on the latest CIP expenditure forecast for FY17 to FY19, and FY23 to FY26. Capital spending is capped between FY20 to FY22.
- Long-term fixed rate debt issues with 30-year terms and 5.0% interest rates in FY17, 5.25% rates in FY18, 5.5% rates in FY19, 5.75% rates in FY20 and 6.0% rates from FY21 and beyond;
- Variable rate interest projected at 3.25% in FY17, 3.50% in FY18, 3.75% in FY19, and 4.0% thereafter.

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 is an area of increased concern. Many of the savings in prior years through staffing reductions, optimization of operations, and scope revisions to professional services are already reflected in the budget. More importantly, going forward the MWRA is faced with a growing need to maintain its facilities and ensure that adequate funding is available.

As in the past, the peak years on the next ten-year horizon regarding assessments are driven by the current debt structure.

FY17 Proposed Capital Improvement Program

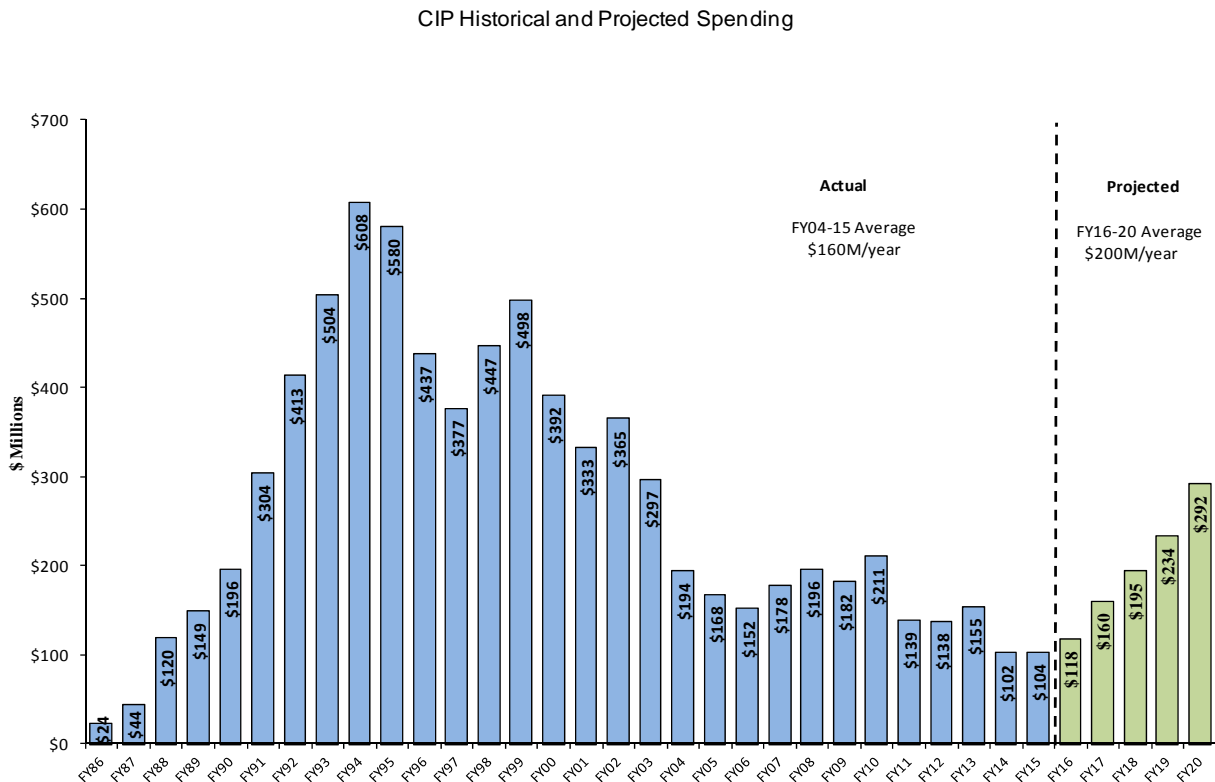
The FY17 Proposed Capital Improvement Program (CIP) totals \$7.0 billion, of which approximately \$3.7 billion has been expended through FY15 with a remaining balance of \$3.1 billion. Of that remaining balance, \$678.7 million is projected to be spent within the FY14-18 timeframe. It is important to note that the totals represented above do not include the Boston Harbor Project and some other smaller projects removed from the CIP upon completion. These projects totaled approximately \$4.1 billion dollars. As such, the overall Authority CIP budget since inception totals more than \$11.1 billion dollars of nearly \$8.0 billion has been spent through FY15.

The FY17 Proposed Capital Improvement Program projects \$160.1 million in spending for FY17, of which \$87.3 million supports Wastewater System Improvements, \$61.0 million supports Waterworks System Improvements, and \$11.9 million is for Business and Operations Support.

In FY16, the Authority has reached another significant milestone as the court mandated Combined Sewer Overflow (CSO) program has been declared substantially complete as of December 2015. Only surface restoration work and system testing will remain to be done over the next two years. Under the CSO program, CSO discharge volume has been reduced from 3.3 billion gallons in 1988 to 0.4 billion gallons, a reduction of 88%. Additionally, 93% of remaining discharge volume is treated at MWRA's four CSO facilities.

Historical Spending

The chart below captures the historical CIP spending through FY15 and projects spending to FY18 based on the FY17 Proposed CIP.



Changing Nature of the Capital Program - Shift from Mandated Projects

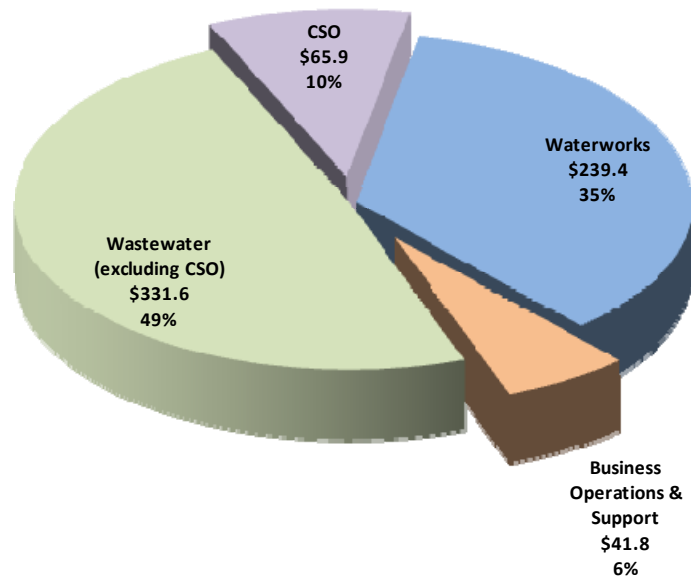
Since 1985, nearly 80% of the Authority’s spending had been on court mandated projects. Going forward, the majority of spending will support Asset Protection, Water System Redundancy, Pipeline Replacement and Rehabilitation, and continued support for Community Assistance programs. Asset Protection and Water System Redundancy spending is projected to rise from past levels and currently accounts for 53.0% and 27.5% of FY14-18 capital expenditures respectively, a total of nearly \$546.3 million of the \$678.7 million projected to be spent over the 5-year period.

	Total Contract	FY09-13	FY14-18
Asset Protection	\$2,335.7	\$248.0	\$359.8
Carroll WTP	438.1	38.5	15.0
Water Redundancy	2,772.3	134.7	186.5
CSO	881.9	315.5	65.9
Other	559.5	88.4	51.5
Total	\$6,987.5	\$825.1	\$678.7
Asset Protection	33.4%	30.1%	53.0%
Carroll WTP	6.3%	4.7%	2.2%
Water Redundancy	39.7%	16.3%	27.5%
CSO	12.6%	38.2%	9.7%
Other	8.0%	10.7%	7.6%
Total	100.0%	100.0%	100.0%

Spending during the FY14-18 timeframe is projected to be \$678.7 million. Yearly cash-flows for the proposed Cap period are shown below:

(000s)	FY14	FY15	FY16	FY17	FY18	Total FY14-18
Wastewater System Improvements	\$55.7	\$75.4	\$79.4	\$87.3	\$99.8	\$397.5
Interception & Pumping	6.9	8.6	10.7	29.3	31.2	86.8
Treatment	29.1	25.7	30.3	31.1	46.9	163.1
Residuals	0.1	-	-	2.9	1.6	4.6
CSO	15.6	23.6	19.0	5.0	2.8	65.9
Other Wastewater	4.0	17.5	19.4	19.0	17.3	77.2
Waterworks System Improvements	\$41.0	\$22.7	\$30.6	\$61.0	\$84.1	\$239.4
Drinking Water Quality Improvements	30.2	12.4	8.4	3.6	3.9	58.5
Transmission	4.5	2.5	7.5	23.2	36.3	73.9
Distribution & Pumping	4.8	8.9	14.1	31.5	40.6	100.0
Other Waterworks	1.5	(1.1)	0.6	2.7	3.4	6.9
Business & Operations Support	5.5	5.5	8.3	11.9	10.6	41.8
Total MWRA	\$102.2	\$103.6	\$118.3	\$160.1	\$194.6	\$678.7

The graph below illustrates a breakdown of the major program spending for the FY14-18 timeframe.



Going forward the largest decision that MWRA will have to make is pertaining to the Long-Term Redundancy project specifically the Metrowest Tunnel System alternative plans. That decision will have a significant impact on the capital program for more than 17 years, the estimated duration of this contract.

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 \$539,000 through FY27, primarily due to Asset Protection projects at the Deer Island Treatment Plant. These reductions will be offset by IS program related maintenance initiatives that are projected to increase operating costs by nearly \$559,000 by FY27. The following table summarizes the projected CIP impact on the operating budget by project over the next ten years, beginning in FY18.

Fiscal Year	CEB Impacts (000)										
	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25	FY26	FY27	Total
DI Treatment Plant Asset Protection (not including Co-Digestion or Combined Heat and Power Plant)	(\$966)	\$983	(\$219)	(\$248)	\$0	(\$143)	\$0	\$0	\$0	\$0	(\$592)
DI Treatment Plant Asset Protection - Co-Digestion ONLY	0	0	0	0	0	0	0	0	0	0	0
Clinton Phosphorous Removal Project	29	30	0	0	0	0	0	0	0	0	60
Wastewater Alternative Energy Projects	0	0	0	0	0	0	0	0	0	0	0
North Dorchester Bay	361	(371)	0	0	0	418	(430)	0	0	0	(23)
Total Wastewater (inflated)	(\$576)	\$642	(\$219)	(\$248)	\$0	\$275	(\$430)	\$0	\$0	\$0	(\$556)
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	39	41	0	0	0	0	0	80
Empty	0	0	0	0	0	0	0	0	0	0	0
Water Energy Projects	(31)	(32)	0	0	0	0	0	0	0	0	(63)
Total Water (inflated)	(\$31)	(\$32)	\$0	\$39	\$41	\$0	\$0	\$0	\$0	\$0	\$17
Maximo Upgrades & Lawson Enhancements	\$103	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$103
Storage Upgrades	103	106	0	0	0	0	0	0	0	0	209
Telecommunications	0	27	0	0	0	0	0	0	0	0	27
NET 2020 DITP & Southborough	0	0	0	0	0	0	0	0	0	0	0
Information Security Program	31	0	0	0	0	0	0	0	0	0	31
Information Technology Management Program	0	0	0	0	0	0	0	0	0	0	0
Application Improvement Program	0	0	82	0	0	0	0	0	0	0	82
IT Infrastructure Program	0	107	0	0	0	0	0	0	0	0	107
Total Business and Operations Support (inflated)	\$237	\$240	\$82	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$559
TOTAL MWRA	(\$370)	\$850	(\$137)	(\$208)	\$41	\$275	(\$430)	\$0	\$0	\$0	\$20

MWRA Organization and History

The MWRA Enabling Act

MWRA was created by legislative act in 1984, and inherited the Sewerage and Waterworks Divisions of the Commonwealth of Massachusetts Metropolitan District Commission (MDC). In July 1985, MWRA assumed control of the water and sewer systems, including facilities, properties, and the right to utilize water withdrawn from system reservoirs. 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 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.

In 1987, the legislature transferred responsibility to operate and maintain the Clinton Wastewater Treatment Plant from the Commonwealth to the MWRA.

History and Accomplishments

In 1985, the U.S. District Court for Massachusetts found MDC in violation of numerous aspects of the federal Clean Water Act, and the responsibility for those violations passed to MWRA as successor to MDC. The court issued a detailed compliance schedule for actions to be taken by MWRA to achieve and maintain compliance with the Clean Water Act.

MWRA achieved all of the milestones in the schedule related to the construction of treatment facilities on Deer Island, and is working to achieve milestones with respect to implementation of its long-term Combined Sewer Overflow (CSO) control plan. These achievements have made noticeable, measurable improvements in the quality of Boston Harbor and its beaches.

MWRA is also working to achieve compliance with an extensive consent order issued by the Massachusetts Department of Environmental Protection (MassDEP) mandating the steps necessary to achieve required improvements to the MWRA water system.

MWRA Rates Management

Between FY96 and FY02 the MWRA limited rate revenue increases to an average of 3.6% annually as a result of debt service assistance from the Commonwealth, federal grants to support the Boston Harbor Project, lower borrowing costs, use of financing tools that delayed costs to later years, a favorable bid climate for construction projects, and aggressive efforts to control capital and operating costs.

As debt service costs resulting from mandated capital investment have steadily increased, MWRA's dependence on rising debt service assistance (DSA) allocations have similarly increased. DSA reached a high of \$50.2 million in FY02. In FY03, in response to a state-wide recession, debt service assistance was eliminated and as a result, MWRA was forced to have an unprecedented mid-year rate adjustment, increasing the rate increase from 2.9% to 6.9% as part of an overall strategy in response to cover the loss. Additionally, the Authority made substantial cuts to both its capital improvement program and current expense budgets. Reductions in debt service assistance result in greater reliance on reserves, budget cuts or a combination of the two. In response to a strengthening local economy, debt service assistance was restored in FY04 at the level of \$4.1 million. In the following four years, the debt service allocation increased to \$8.0 million in FY05, \$9.6 million in FY06, \$19.0 million in FY07, and \$17.0 million in FY08. In light of the economic downturn in the ensuing years, no Debt Service Assistance was received in FY09-11. In FY12, it was once again restored at a reduced level of \$384,000 but was once again eliminated in FY13 through 9C cuts. For the FY14 and FY15 budgets, no Debt Service Assistance was assumed but the Authority received \$854,000 of Debt Service Assistance in March 2014.

Planning estimates for 2017 through 2026 forecast rate revenue requirement increases of 3.9% annually from FY17 through FY19, 4.1% in FY20 and FY21, and 4.5% in FY22.

In FY06, the MWRA formed a Rates Management Committee to evaluate the Authority's debt portfolio and credit structure to propose recommendations that deliver responsible short-term solutions for mitigating imminent rate spikes and long-term strategies for achieving sustainable and predictable rates. In line with the Board of Directors' strategy to deliver long-term sustainable and predictable rates for our 61 ratepayer communities, the MWRA initially preserved the scheduled use of its reserves for future years when projected rate increases are more significant. The change to the indenture released more than \$113 million in reserves in April 2015 and was applied in future years to mitigate rate increases.

The FY17 Proposed 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; and
- Continues the Authority's multi-year rates management strategy of providing sustainable and predictable assessment increases to our member communities.

MWRA Organization

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 before the Table of Contents.

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.

In FY2015 the **Administration and Finance Division** was separated into two divisions.

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 (A&F) 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.

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, 2015 are available online at www.mwra.com.