Executive Summary

Executive Summary

MWRA Organization and History

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.

Created by the Massachusetts legislature in 1985, MWRA assumed control of the water and sewer systems, including facilities, properties, and the right to utilize water withdrawn from system reservoirs that had formerly been the Sewerage and Waterworks Divisions of the Commonwealth of Massachusetts Metropolitan District Commission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 1987, the legislature also transferred responsibility to operate and maintain the Clinton Wastewater Treatment Plant from the Commonwealth to the MWRA.

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.

Since 1985, the MWRA has invested over $8.2 billion to modernize and improve the wastewater and waterworks systems serving its 61 member communities. In Fiscal Year 2017, the system serves approximately 2.9 million people and more than 5,500 businesses.

MWRA Goals and Performance Measures

MWRA's five-year Strategic Business Plan 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 capital and operating 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 the budget and provides

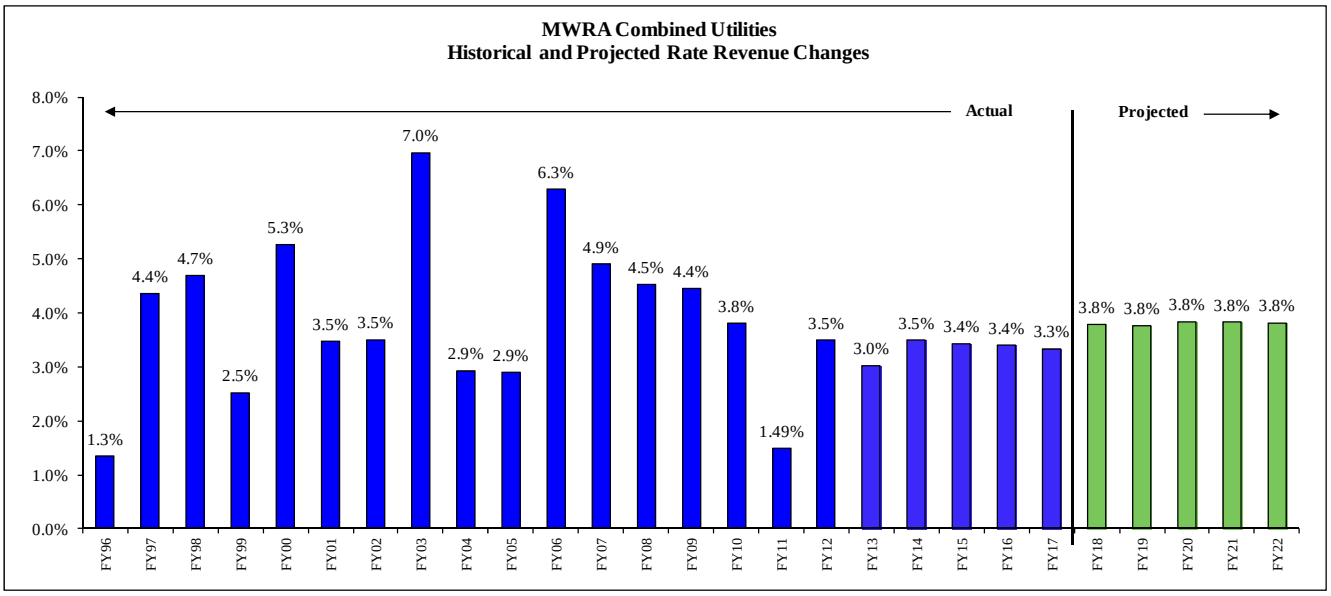
summary explanations of the variances at the line item level. At least twice a year staff prepares projections for the fiscal year-end with a similar level of explanations. The performance indicator reports (published by MWRA as the Orange and Yellow Notebooks) capture a variety of parameters regarding performance of each major functional area, on a monthly and quarterly basis.

Current Expense Budget Process Overview

Each year, MWRA prepares a Current Expense Budget that reflects the best available information for anticipated expenditures and revenues. MWRA transmits a proposed budget to the Advisory Board in February, with the anticipated assessment increase. The Advisory Board then 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. In June, MWRA's Board of Directors holds hearings on the budget to review recommendations by the Advisory Board and new information available since the budget was developed. Staff incorporates Board decisions from the hearings and presents a final budget and final assessments for approval in late June.

Proposed FY18 Budget Summary

The Proposed FY18 Current Expense Budget (Budget) has a combined utilities assessment increase of 3.79% with Rate Revenues totaling $721.2 million. Rate Revenues account for nearly 96.3% of projected FY18 revenues. The graph below represents historical and projected assessment changes based on the Proposed FY18 Budget. The next four-year planning estimates, through FY22 (the most challenging year facing the Authority) also project assessment increases at 3.8%.



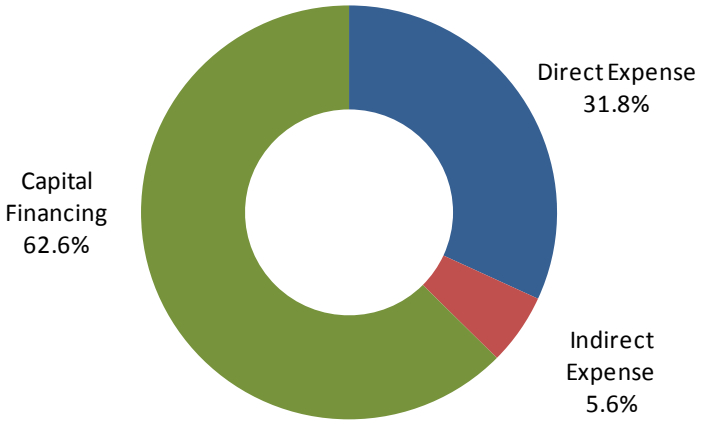
Measures taken by the Authority to achieve the 3.79% rate increase include:

- Continued practice of targeted defeasances;
- Budgeted 1,150 Full-Time Equivalent (FTE's) positions, the same as in FY17;
- Budgeted a $10.9 million Debt Prepayment;
- Direct Expenses increased 5.2% versus FY17 budget, including preliminary cost estimates for the Deer Island cross harbor cable project;
- Indirect Expenses increased 9.5% versus FY17 budget due to increases in Addition to Reserves, Watershed Management, Additional Pension Deposit, Postemployment Benefits, Retirement Fund, and Insurance.

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.

Total expenses are $749.1 million, an increase of $29.5 million or 4.1% over the FY17 budget. Capital financing costs remain the largest component of the CEB and account for 62.6% of total expenses.

FY18 Current Expense Budget



Total expenses include $469.1 million for Capital Financing costs and $280.0 million for operating expenses, of which $238.4 million is for Direct Expenses and $41.6 million is for Indirect Expenses. The $29.5 increase million over FY17 budget is due to higher Capital Financing expenses of $14.0 million; higher Direct Expenses of $11.9 million due to inclusion of preliminary cost estimates associated with the Deer Island cross harbor electrical cable project, Cost of Living Adjustments (COLA) for staff, and higher healthcare costs; and higher Indirect Expenses of $39.7 million for Additions to Reserves, Watershed Management costs, and retirement/pension related costs.

The FY18 proposed Rate Revenue Requirement is $721.2 million, an increase of $26.4 million or 3.79% over FY17. The Proposed FY18 Budget revenues, excluding rate revenue, total $27.9 million, an increase of $3.1 million or 12.7% above the FY17 budget. The Proposed FY18 Budget non-rate revenue budget includes $16.6 million in Other User Charges and Other Revenue and $11.3 million for Investment Income. The majority of the increase reflects an increase in the Demand Response revenue generated by Deer Island and anticipated increased interest rates on investment income.

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

Table I-1

TOTAL MWRA	FY16 Actuals	FY17 Approved Budget	FY18 Proposed Budget	Change FY18 Proposed Budget vs FY17 Approved Budget	
				$	%
EXPENSES					
WAGES AND SALARIES	$ 96,118,427	$ 101,858,897	$104,781,848	$ 2,922,951	2.9%
OVERTIME	4,355,586	4,192,676	4,507,278	314,602	7.5%
FRINGE BENEFITS	19,131,139	20,242,324	21,515,134	1,272,810	6.3%
WORKERS' COMPENSATION	2,350,369	2,344,190	2,322,980	(21,210)	-0.9%
CHEMICALS	9,297,550	9,110,407	10,414,788	1,304,381	14.3%
ENERGY AND UTILITIES	18,744,867	21,541,078	25,750,207	4,209,129	19.5%
MAINTENANCE	30,978,045	31,080,642	32,496,381	1,415,739	4.6%
TRAINING AND MEETINGS	370,752	435,481	406,181	(29,300)	-6.7%
PROFESSIONAL SERVICES	5,886,717	6,531,939	6,685,715	153,776	2.4%
OTHER MATERIALS	6,186,216	6,219,630	6,697,290	477,660	7.7%
OTHER SERVICES	22,628,385	22,974,855	22,833,106	(141,749)	-0.6%
TOTAL DIRECT EXPENSES	**$ 216,048,053**	**$ 226,532,117**	**$238,410,908**	**$11,878,791**	**5.2%**
INSURANCE	$ 1,953,053	$ 1,997,898	$ 2,113,452	115,554	5.8%
WATERSHED/PILOT/DEBT	27,469,847	24,291,268	25,024,006	732,738	3.0%
COMMONWEALTH DEBT PREPAYMENT	32,000,000	-	-	-	
HEEC PAYMENT	1,342,141	773,859	670,978	(102,881)	-13.3%
MITIGATION	1,520,000	1,558,000	1,596,950	38,950	2.5%
ADDITIONS TO RESERVES	(34,927)	(167,742)	2,062,526	2,230,268	N/A
RETIREMENT FUND	8,159,521	3,132,624	3,277,369	144,745	4.6%
ADDITIONAL PENSION DEPOSIT	-	1,500,000	1,800,000	300,000	20.0%
POSTEMPLOYMENT BENEFITS	5,224,848	4,876,050	5,035,422	159,372	3.3%
TOTAL INDIRECT EXPENSES	**$ 77,634,483**	**$ 37,961,956**	**$ 41,580,703**	**$ 3,618,746**	**9.5%**
STATE REVOLVING FUND	$ 78,131,559	$ 86,971,915	$ 87,044,610	72,695	0.1%
SENIOR DEBT	275,085,817	268,472,557	263,121,111	(5,351,446)	-2.0%
SUBORDINATE DEBT	49,222,442	69,997,992	87,554,667	17,556,675	25.1%
LOCAL WATER PIPELINE CP	262,498	4,149,242	4,086,863	(62,379)	-1.5%
CURRENT REVENUE/CAPITAL	11,200,000	12,200,000	13,200,000	1,000,000	8.2%
CAPITAL LEASE	3,217,060	3,217,060	3,217,060	-	0.0%
DEBT PREPAYMENT	-	10,994,960	10,900,000	(94,960)	-0.9%
VARIABLE RATE SAVINGS	(12,873,173)	-		-	
DEFEASANCE ACCOUNT	-	-		-	
DEBT SERVICE ASSISTANCE	(873,804)	(873,804)	-	873,804	-100.0%
TOTAL DEBT SERVICE	**$ 403,372,399**	**$ 455,129,922**	**$469,124,311**	**$13,994,389**	**3.1%**
TOTAL EXPENSES	**$ 697,054,934**	**$ 719,623,995**	**$749,115,922**	**$29,491,926**	**4.1%**
REVENUE & INCOME					
RATE REVENUE	$ 672,440,000	$ 694,878,500	$721,238,000	26,359,501	3.79%
OTHER USER CHARGES	8,783,469	8,752,834	8,964,366	211,532	2.4%
OTHER REVENUE	15,749,464	6,519,171	7,658,774	1,139,603	17.5%
RATE STABILIZATION	-	-		-	
INVESTMENT INCOME	10,303,841	9,473,490	11,254,782	1,781,292	18.8%
TOTAL REVENUE & INCOME	**$ 707,276,774**	**$ 719,623,995**	**$749,115,922**	**$29,491,928**	**4.1%**

FY18 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.

- Continue to plan and develop long-term strategies to ensure sustainable and predictable assessments to our communities.

- Continue to invest in asset protection to ensure adequate availability of equipment and facilities to support core operations.

- 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 advocate MWRA interests in new and developing regulatory issues.

FY18 Major Initiatives:

- Plan for implementation of requirements of the new National Pollutant Discharge Elimination System (NPDES) Permits for DITP (assume new permit is issued for half of FY18) and Clinton Wastewater Treatment Plant is in effect for all of FY18.

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

- Develop options for mitigating the significant potential cost impacts for the sewer communities regarding the Eversource cross-harbor cable protection project.

- 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 these initiatives.

FY17 Mid-Year Accomplishments:

- Completed a $104.3 million refunding bond transaction on August 2, 2016. The refunding resulted in $9.8 million or 9.6% present value savings and $13.2 million in gross debt savings over the life of the bonds.

- Executed an $8.5 million defeasance of outstanding senior principal in September 2016. This defeasance reduces the debt service requirement between FY18 and FY20 by a total of $9.7 million thereby reducing the rate of increase to the Rate Revenue Requirement in those years.

- 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 which helps minimize debt service expenses.

- Expanded MWRA's primary security system and participated in the planning and execution of a week-long cyber security drill defending critical infrastructure.

- Received revenue for energy generated at numerous facilities including the following: hydroelectric $184,000 from Oakdale Station, $39,200 from Cosgrove Station, and $7,500 from the Loring Road Pump Station; wind of $176,000 from Charlestown Pump Station; and solar of $43,000 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 $878,000 in revenue for the first six months of FY17. Deer Island also self-generated 42% of the plant's total required power during that time period.

- Processed 93.7 average tons per day of sludge at the Pelletization Plant and disposed of 2,453 tons of grit and screenings through a contracted vendor. .

- In water system, exercised 405 and replaced nine mainline valves; exercised 212 and replaced five blow-off valves.

- In the wastewater system, inspected 16.94 miles and cleaned 18.28 miles of MWRA pipeline. Inspected 492 structures and rehabilitated 94 manholes. Also inspected 17 and cleaned 36 inverted siphon barrels.

- At DITP, treated 99.9% of flow through secondary and met secondary permit limits at all times. Operated DITP without any NPDES Permit violations for the first six months of FY17.

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 Proposed FY18 Budget.

Revenue

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

In the Proposed FY18 Budget, 96.3% of revenue is derived from rate revenue. The remaining 3.7% 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 FY18 Budget, the MWRA will raise $721.2 million of its total revenue requirements from water and sewer assessments to member communities. Of the $721.2 million, $477.8 million will fund the sewerage system, an increase of 3.7% as compared to FY17; and $243.4 million will fund the water system, an increase of 3.9% as compared to FY17.

SOURCES & USES OF FUNDS* $ in Millions		
Sources of Funds		
Other User Charges	$9.0	1.2%
Other Revenue	7.7	1.0%
Investment Income	11.3	1.5%
Rate Revenue	721.2	96.3%
Rate Stabilization	0.0	0.0%
TOTAL REVENUE	$749.1	100.0%
Uses of Funds		
Total Expenses before Debt Service Offsets	$469.1	
Less:		
Debt Service Assistance	-	
Bond Redemption	-	
Sub-Total Net Expenses	469.1	
Capital Financing	469.1	62.6%
Direct Expenses	238.4	31.8%
Indirect Expenses	41.6	5.6%
TOTAL EXPENSES	$749.1	100.0%
TOTAL EXPENSES Less Offsets	$749.1	
*May not add up due to rounding		

Non-Rate Revenue

Other User Charges

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

Other Revenue

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

Investment Income

MWRA earns interest income by investing funds in both long and short-term investments vehicles governed by Section 522 and 523 of the General Bond Resolution. The FY18 Proposed Budget includes $11.3 million in investment income, an increase of $1.8 million or 18.8% from the FY17

budget due to higher projected interest rates assumptions. FY18 short-term interest rate assumption is 1.25% which is 65 basis points greater than FY17.

Non-Recurring Revenue

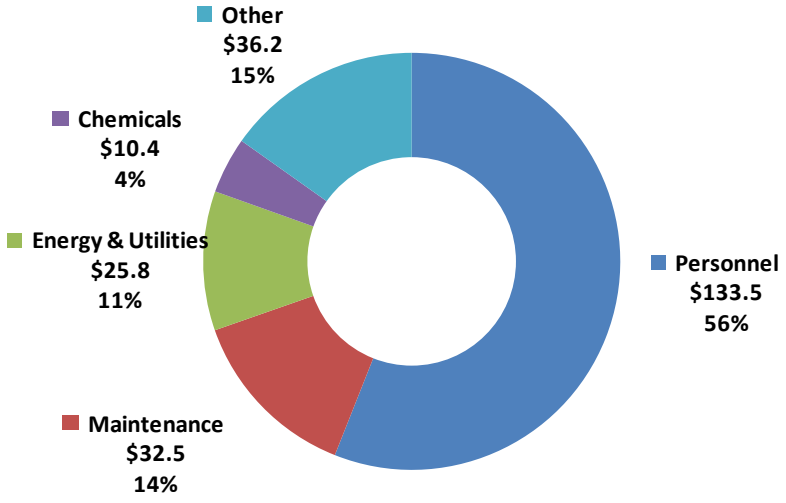
Non-Recurring Revenue is one-time revenue used in a given fiscal year to reduce assessments to member communities. In any fiscal year when annual revenues exceed expenses, MWRA may transfer the unexpended amount to the rate stabilization reserve. Within certain limits, MWRA may use this money to reduce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

Direct Program Expenses

The Proposed FY18 Direct Expense Budget is $238.4 million, $11.9 million or 5.2% above the FY17 budget. The principal drivers for the increase are higher energy costs primarily associated with the cross harbor electrical cable project. Wages and salaries increased due to cost of living adjustments (COLAs); higher maintenance costs; chemical cost for assumed half of year of the new National Pollutant Discharge Elimination System (NPDES) permit and new contracts; and fringe benefits for projected healthcare cost increases. 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.

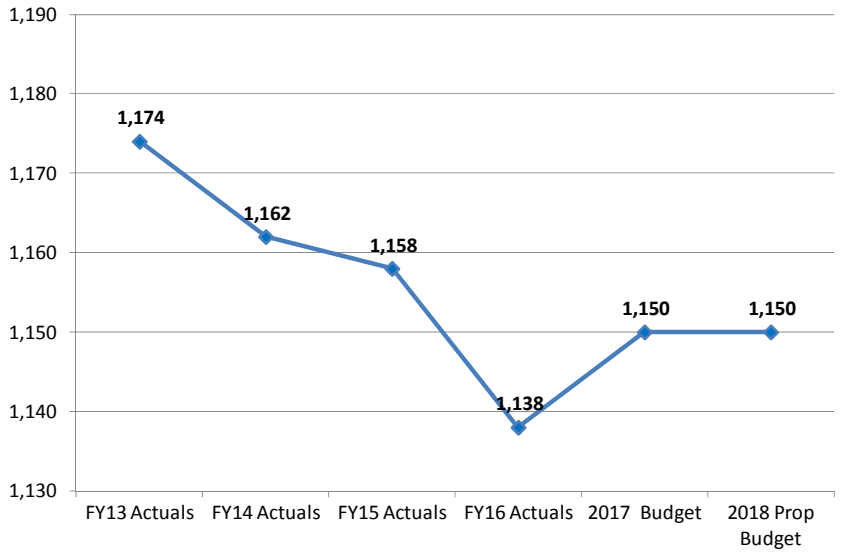
The chart below combines related direct expense line items into general cost categories and shows that labor costs (wages and salaries, overtime, fringe benefits, workers' compensation, and training) are the largest component of the direct expense budget 56%, other (professional services, other materials, and other services) 15%, maintenance 14%, energy & utilities 11%, and chemicals 4%.

Direct Expenses by Category
$'s in Millions



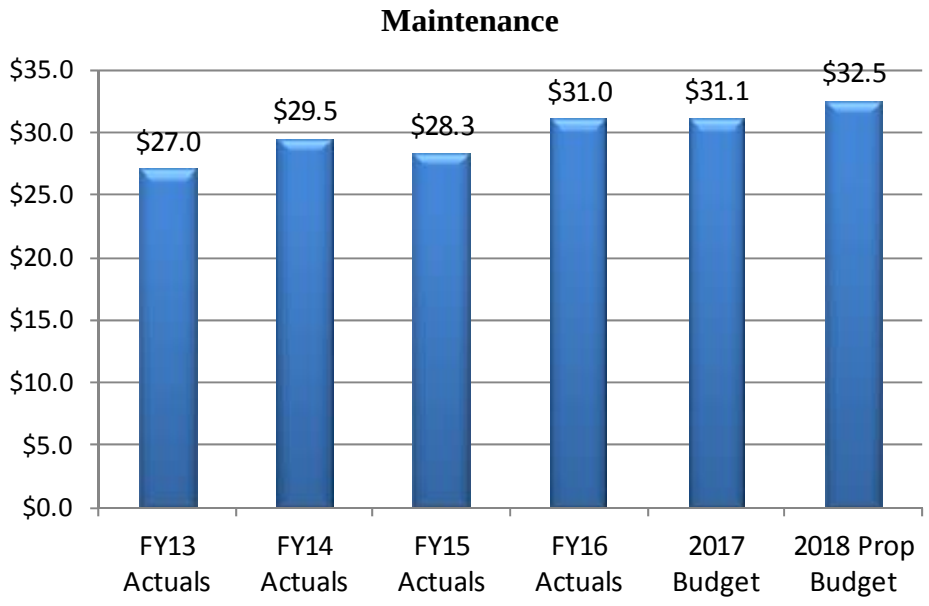
***Wages and Salaries* –** The budget includes $104.8 million for Wages and Salaries as compared to $101.9 million in the FY17 budget, an increase of $2.9 million or 2.9%. Regular Pay is 98.3% of total Wages and Salaries and increased by $3.0 million over the FY17 budget. On a Full-Time-Equivalent (FTE's) basis, the Authority has budgeted 1,150 FTE, the goal recommended to be achieved with a five-year time frame by Amawalk consultants in a 2012 staffing study. New hires and backfills of vacant positions continue to be managed at the agency level and addressed on a case-by-case basis by senior management.

Average Full-Time Equivalents

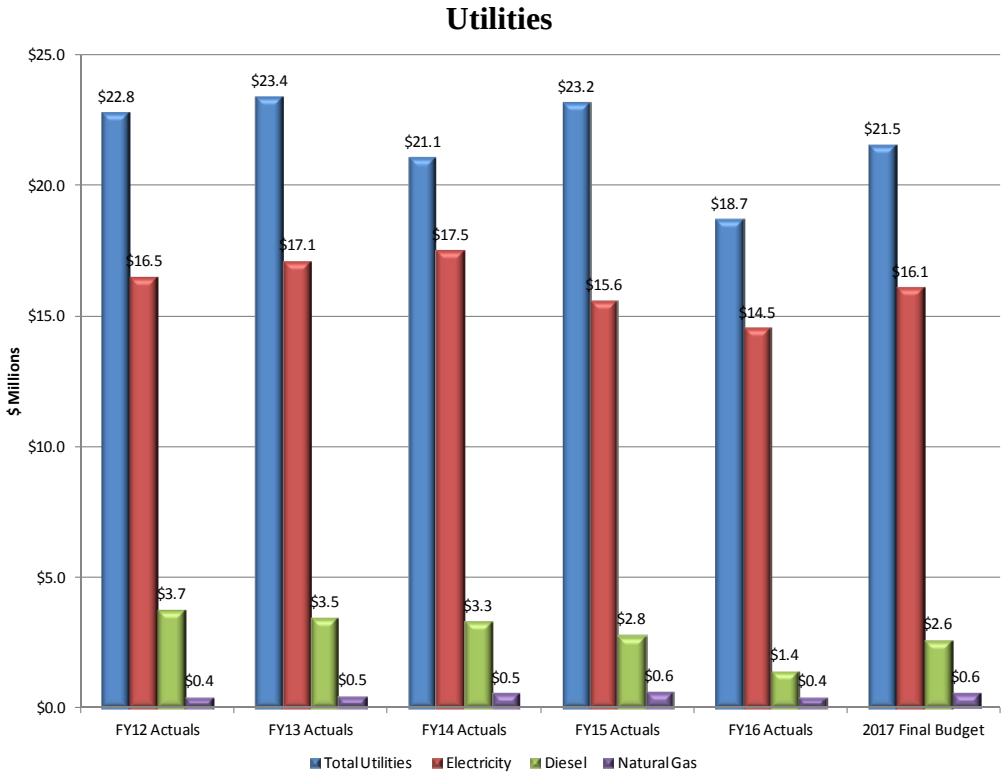


***Fringe Benefits* –** The budget includes $21.5 million for Fringe Benefits, an increase of $1.3 million or 6.3% from the FY17 budget. Health Insurance premiums total $18.6 million, an increase of $1.1 million or 6.3% from the FY17 budget largely due to anticipated cost increases.

***Maintenance* –** The budget includes $32.5 million for Maintenance projects, an increase of $1.4 million or 4.6% from the FY17 budget. The FY18 Maintenance increase is associated with project specific maintenance work. Over the past 5 years, the general trend in maintenance spending has been increasing, consistent with an organization goal to adequately fund core operations and protect the Authority's assets. Asset protection is a growing priority on both the current expense and capital improvement budgets.



Utilities **–** The budget includes $25.8 million for Utilities, which is an increase of $4.2 million or 19.6% from the FY17 Budget. The increase is for diesel fuel of $6.2 million to run the CTG's during work associated with the cross harbor electrical cable project. This is offset by a reduction of electricity of $2.5 million. The budget funds $14.2 million for Electricity, $8.7 million for Diesel Fuel, $2.2 million for Water, and $590,000 for Natural Gas. Without the anticipated cable project, utilities in total are $500,000 or 2.3% higher than FY17.



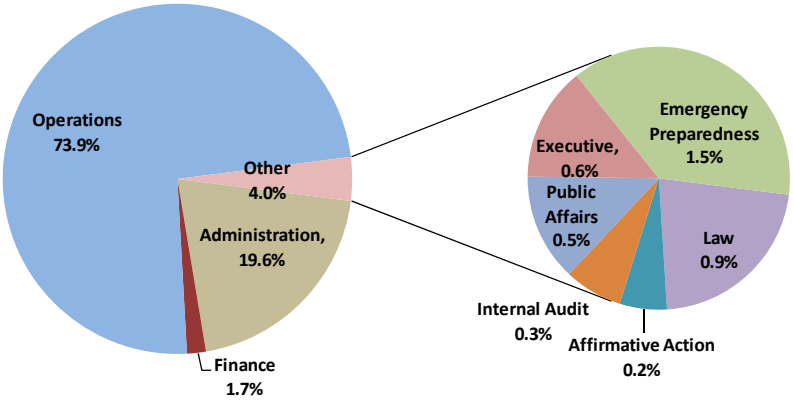
Chemicals – The budget includes $10.4 million for Chemicals, an increase of $1.3 million or 14.3% from FY17 budget, mainly due to assuming half a year of the new NPDES permit for Deer Island; price increases for Sodium Hypochlorite, Soda Ash, and Ferric Chloride, as well as updated assumptions for usage and pricing based on the most recent information on the other chemicals. The new NPDES permit for Deer Island is projected to have more stringent requirements for enterococcus treatment compliance.

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

Functional Area Budget Summary

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

MWRA Direct Expense Budget
By Division

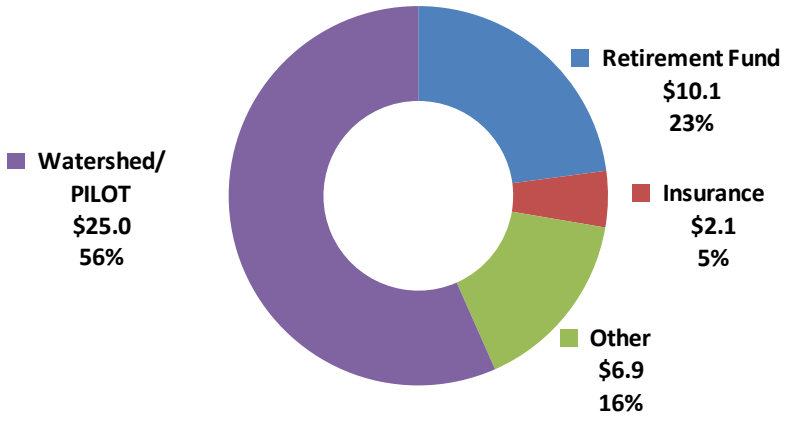


Indirect Program Expenses

The FY18 Proposed Indirect Expense Budget is $41.6 million, $3.6 million or 9.5%, above the FY17 Budget.

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

Indirect Expenses by Category
$'s in Millions



Insurance

MWRA purchases property and casualty insurance from external insurance carriers with a self-insured retention of $2.5 million dollars and Worker's Compensation Excess insurance with a self-insured retention of $500,000 per claim. The budget includes $2.1 million for Insurance, an increase of $116,000 or 5.8% as compared to the FY17 Budget. The FY18 Budget for premiums was based on existing premiums adjusted for inflation and market conditions and the claims budget was based on the five year average of Actuals. The budget includes $1.7 million for premiums and fees and $404,000 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 indentified in the insurance consultant review as of February 2014. The next insurance consultant review is due in 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 $25.0 million for the Division of Water Supply Protection, an increase of $733,000 or 3.0% versus the FY17 Budget. The increase is primarily due to higher operating expenses and PILOT payments in FY18.

Watershed Management FY18 Proposed vs. FY17 Budget

	FY17 Budget	FY18 Budget	Variance
Operating	$ 15,919,268	$ 16,424,006	$ 504,738
Pilot	$ 8,372,000	$ 8,600,000	$ 228,000
	$ 24,291,268	$ 25,024,006	$ 732,738

Harbor Electric Energy Company (HEEC)

The budget includes $671,000 for the Harbor Energy Electric Company (HEEC), a decrease of $103,000 or 13.3% from the FY17 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 decrease is due to the expiration of the contractual obligations in May 2015, ending the amortization of the cable financing component of the capital investment.

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 Proposed 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

The FY18 Proposed Budget includes an increase of $2.1 million for the Operating Reserve from the FY17 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 FY18 Proposed Budget, the required balance is $41.3 million versus the $39.2 million required in FY17.

Retirement System Contribution

The budget includes $5.1 million for the Retirement Fund, an increase of $445,000 million or 9.6% over the FY17 budget. The minimum required contribution for FY18 is $3.3 million based on the January 1, 2015 actuarial report. An additional pension deposit of $1.8 million was also included in the Proposed FY18 Budget in recognition of lower than assumed returns on pension investments in CY 16. The Pension Fund achieved virtual full funding as of January 1, 2015.

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

In the FY18 Proposed Budget the Authority proposes funding its OPEB liability at $5.0 million, continuing the Authority's long-term commitment to address its liabilities. The Authority has complied with the GASB 45, *Accounting and Financial Reporting by Employers for Postemployment Benefits Other than Pensions (OPEB)*, by disclosing this liability in the year-end Financial Statements. As part of the multi-year strategy to address its unfunded liabilities for OPEB and pension holistically, the Board approved a plan to pay down the pension liability and upon reaching full funding, move to address the OPEB obligation. Based on the latest actuarial evaluation, MWRA's pension fund is at

98.3% funding level. In the FY18 Budget the Authority is proposing to fund its OPEB liability at $5.0 million. 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 $16.5 million. The $5.0 million contribution is 50% of the Annual Required Contribution (ARC) after the reduction of the pay-as-you-go portion budgeted under the Fringe line item, based on the January 1, 2014 actuarial report.

Capital Financing

Outstanding Debt and Debt Management

The $8.2 billion spent on MWRA's modernization efforts since the Authority was established in 1986, has relied heavily on debt financing. Total debt as of June 30, 2016 was $5.2 billion consisting of senior and subordinated debt, as well as Tax-Exempt Commercial Paper. The MWRA enjoys strong unenhanced senior debt ratings of Aa1, AA+, and AA+ from Moody's, Standard & Poor, and Fitch, respectively.

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

79.9% of MWRA's Debt is Fixed Rate

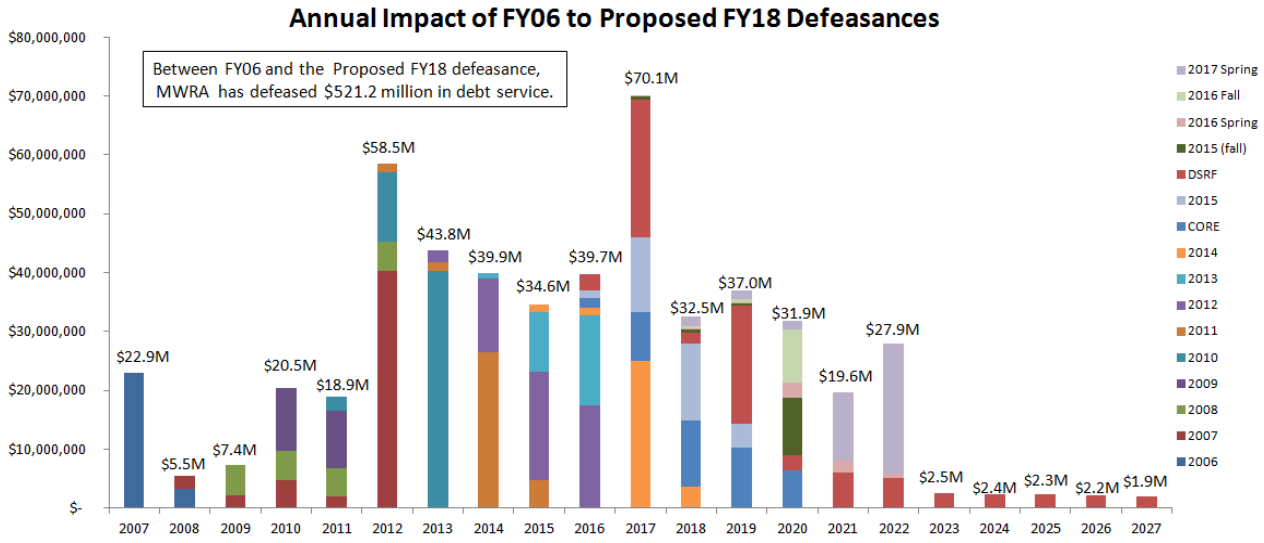
As a result of the Authority's Capital Improvement Program, capital financing as a percent of total expenses (before offsets) has increased steadily from 36% in 1990 to 62.6% in the FY18 Current Expense Budget. Much of this debt service is for completed projects, primarily the Boston Harbor Project and the Integrated Water Supply Improvement Program. The MWRA's capital spending, from its inception, had been dominated by projects mandated by court ordered or regulatory requirements, which in total have accounted for ~80% of capital spending to date. Going forward, and as the Combined Sewer Overflow (CSO) projects reached substantial completion in December 2015, the majority of spending will be focused on asset protection and water redundancy initiatives. The projected capital spending scheduled for fiscal year 2018 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 FY18 Proposed Budget capital financing costs total $469.1 million and remain the largest portion of the MWRA's budget, accounting for 62.6% of total expenses.

The FY18 Proposed Budget includes a planned defeasance of $31 million which is comprised of $20 million from the projected FY17 surplus and $11.0 million from the Debt Prepayment included in the

FY17 CEB. The defeasance will reduce debt service by approximately $1.6 million in years FY18-FY20, $11.6 million in FY21, and $22.1 million in FY22.



The FY18 Budget assumes a 3.5% interest rate for variable rate debt which is 0.25% higher than the rate in FY17. The Authority's variable rate debt assumption is comprised of three separate elements: the interest rate for the daily and weekly series; liquidity fees for the Standby Bond Purchase Agreement, Letter of Credit, and Direct Purchase providers; and remarketing fees. While MWRA continues to experience unusually low interest rates, they are not reflective of historical averages and there are projected increases in the future.

The FY18 Proposed Budget capital financing costs increased by $14.0 million or 3.1% compared to the FY17 Budget. This increase in the MWRA's debt service is the result of projected FY18 borrowings and the structure of the existing debt, partially offset by the impact of the projected defeasance. The FY18 capital financing budget includes:

- $263.1 million in principal and interest payments on MWRA's senior fixed rate bonds. This amount includes $5.7 million to support issuances of $100 million in May 2017 and $3.5 million to support issuances of $100 million of new money in May 2018. Also it includes a reduction of $1,050,000 for the effect of the planned FY17 defeasance;

- $87.6 million in principal and interest payments on subordinate bonds;

- $87.0 million in principal and interest payments on SRF loans. This amount includes $8.8 million to support issuances of $105.0 million of replacement loans during 2017 and 2018;

- $13.2 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.

Capital Financing and Grant Revenues

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

MWRA expects to borrow the majority of funds necessary for future capital spending. Borrowing will include the issuance of fixed and variable rate revenue bonds; borrowing from the Massachusetts Clean Water Trust (also known as the State Revolving Loan Fund or SRF), and a Tax-Exempt Commercial Paper program. The table below details the FY18 Proposed 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.

TABLE I-3
FY17 Final Current Expense Budget - Capital Financing Detail (as of 12/31/16)
$ in Millions

	Amount Outstanding	Total FY16 Capital Costs	Sewer	Water
Total SRF[1] Debt	$980.1	$87.0	$67.4	$19.6
Total Senior Debt	$3,182.0	263.1	166.8	96.3
Total Subordinate Debt	$895.5	87.6	59.8	27.7
Total SRF and Debt Service[2]	**$5,057.5**	**$437.7**	**$294.1**	**$143.6**
Water Pipeline Commercial Paper	149.0	4.1	0.0	4.1
Current Revenue/Capital [3]		13.2	12.5	0.7
Capital Lease		3.2	1.9	1.3
Debt Prepayment [4]		10.9	10.4	0.5
	149.0	**$31.4**	**$24.8**	**$6.6**
Total Capital Financing (before Debt Service Offsets)	**5,206.5**	**$469.1**	**$319.0**	**$150.2**
Debt Service Offsets:				
Debt Service Assistance		0.0	0.0	0.0
Bond Redemption		0.0	0.0	0.0
Total Capital Financing	**5,206.5**	**$469.1**	**$319.0**	**$150.2**

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

[2] Numbers may not add due to rounding.

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

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

CIP Impact on Current Expense Budget

In addition to the annual financing costs included in the Current Expense Budget, the Capital Improvement Program affects the annual operating budget when capital facilities come on-line and require adjustments to operating budgets. In prior years, completion of the Deer Island Treatment Plant, the Carroll Water Treatment Plant, and the residuals processing facility in Quincy resulted in significant increases in operating expenses. Operating costs will be reduced by approximately $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 $559,000 by FY27. The following table summarizes the projected CIP impact on the operating budget by project over the next ten years.

	CEB Impacts ($ in thousands)										
Fiscal Year	**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

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 44% 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 FY18 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 assessments for FY18.

Each year MWRA determines preliminary wholesale water and sewer assessments in February and final assessments in June before the beginning of the new fiscal year. These assessments must satisfy

the statutory requirement that MWRA fully recover its budgeted water and sewer costs by apportioning net costs among its wholesale water and sewer customers.

The table on page I-21 presents the calculation of MWRA's FY18 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.

Massachusetts Water Resources Authority
Preliminary FY18 Water and Sewer Assessments

8-Feb-17

MWRA Fully Served Water and Sewer Customers	Final FY17 Water Assessment	Preliminary FY18 Water Assessment	Percent Change from FY17	Final FY17 Sewer Assessment	Preliminary FY18 Sewer Assessment	Percent Change from FY17	Final FY17 Combined Assessment	Preliminary FY18 Combined Assessment	Dollar Change from FY17	Percent Change from FY17
ARLINGTON	$4,976,564	$5,239,376	5.3%	$7,993,120	$8,368,475	4.7%	$12,969,684	$13,607,851	**$638,167**	**4.9%**
BELMONT	2,828,456	2,918,249	3.2%	4,825,479	4,942,787	2.4%	7,653,935	7,861,036	**207,101**	**2.7%**
BOSTON (BWSC)	82,771,709	86,245,262	4.2%	132,271,845	136,988,619	3.6%	215,043,554	223,233,881	**8,190,327**	**3.8%**
BROOKLINE	7,046,691	6,833,777	-3.0%	12,894,419	13,070,164	1.4%	19,941,110	19,903,941	**(37,169)**	**-0.2%**
CHELSEA	4,215,080	4,310,799	2.3%	7,663,315	7,774,066	1.4%	11,878,395	12,084,865	**206,470**	**1.7%**
EVERETT	4,948,191	5,202,970	5.1%	8,124,101	8,425,809	3.7%	13,072,292	13,628,779	**556,487**	**4.3%**
FRAMINGHAM	8,159,808	8,034,710	-1.5%	12,824,962	13,125,770	2.3%	20,984,770	21,160,480	**175,710**	**0.8%**
LEXINGTON	7,349,661	7,275,204	-1.0%	7,265,870	7,453,886	2.6%	14,615,531	14,729,090	**113,559**	**0.8%**
MALDEN	6,950,768	6,789,727	-2.3%	12,941,073	13,414,561	3.7%	19,891,841	20,204,288	**312,447**	**1.6%**
MEDFORD	6,432,219	6,408,548	-0.4%	11,878,789	12,202,584	2.7%	18,311,008	18,611,132	**300,124**	**1.6%**
MELROSE	2,915,635	2,865,865	-1.7%	6,251,952	6,438,677	3.0%	9,167,587	9,304,542	**136,955**	**1.5%**
MILTON	3,360,396	3,509,472	4.4%	5,362,055	5,473,036	2.1%	8,722,451	8,982,508	**260,057**	**3.0%**
NEWTON	12,950,552	12,942,568	-0.1%	20,518,241	21,949,686	7.0%	33,468,793	34,892,254	**1,423,461**	**4.3%**
NORWOOD	3,652,867	3,718,045	1.8%	7,023,166	7,507,430	6.9%	10,676,033	11,225,475	**549,442**	**5.1%**
QUINCY	11,776,311	12,247,825	4.0%	19,971,978	20,724,145	3.8%	31,748,289	32,971,970	**1,223,681**	**3.9%**
READING	2,109,549	2,219,983	5.2%	4,769,928	4,962,610	4.0%	6,879,477	7,182,593	**303,116**	**4.4%**
REVERE	4,943,964	4,916,091	-0.6%	10,611,549	10,845,129	2.2%	15,555,513	15,761,220	**205,707**	**1.3%**
SOMERVILLE	7,658,290	7,960,067	3.9%	15,918,035	16,624,447	4.4%	23,576,325	24,584,514	**1,008,189**	**4.3%**
STONEHAM	3,174,690	3,039,459	-4.3%	4,542,049	4,628,916	1.9%	7,716,739	7,668,375	**(48,364)**	**-0.6%**
WALTHAM	9,384,159	9,074,300	-3.3%	13,122,122	13,622,399	3.8%	22,506,281	22,696,699	**190,418**	**0.8%**
WATERTOWN	3,290,986	3,401,796	3.4%	5,971,377	6,126,647	2.6%	9,262,363	9,528,443	**266,080**	**2.9%**
WINTHROP	1,643,615	1,622,216	-1.3%	3,320,069	3,412,713	2.8%	4,963,684	5,034,929	**71,245**	**1.4%**
TOTAL	**$202,540,161**	**$206,776,309**	**2.1%**	**$336,065,494**	**$348,082,556**	**3.6%**	**$538,605,655**	**$554,858,865**	**$16,253,210**	**3.0%**

MWRA Sewer and Partial Water Customers	Final FY17 Water Assessment	Preliminary FY18 Water Assessment	Percent Change from FY17	Final FY17 Sewer Assessment	Preliminary FY18 Sewer Assessment	Percent Change from FY17	Final FY17 Combined Assessment	Preliminary FY18 Combined Assessment	Dollar Change from FY17	Percent Change from FY17
CANTON	$1,673,754	$2,548,346	52.3%	$4,137,162	$4,244,707	2.6%	$5,810,916	$6,793,053	**$982,137**	**16.9%**
NEEDHAM	1,039,372	1,114,185	7.2%	5,683,915	5,918,642	4.1%	6,723,287	7,032,827	**309,540**	**4.6%**
STOUGHTON	1,144,245	254,814	-77.7%	4,747,341	5,059,137	6.6%	5,891,586	5,313,951	**(577,635)**	**-9.8%**
WAKEFIELD	1,852,218	2,181,150	17.8%	5,813,697	6,122,307	5.3%	7,665,915	8,303,457	**637,542**	**8.3%**
WELLESLEY	1,056,294	1,749,172	65.6%	5,459,750	5,625,596	3.0%	6,516,044	7,374,768	**858,724**	**13.2%**
WILMINGTON	703,075	779,298	10.8%	2,595,601	2,830,863	9.1%	3,298,676	3,610,161	**311,485**	**9.4%**
WINCHESTER	1,544,349	2,130,222	37.9%	4,033,770	4,157,512	3.1%	5,578,119	6,287,734	**709,615**	**12.7%**
WOBURN	3,355,306	3,650,561	8.8%	9,324,662	9,427,691	1.1%	12,679,968	13,078,252	**398,284**	**3.1%**
TOTAL	**$12,368,613**	**$14,407,748**	**16.5%**	**$41,795,898**	**$43,386,455**	**3.8%**	**$54,164,511**	**$57,794,203**	**$3,629,692**	**6.7%**

MWRA Sewer-only Customers	Final FY17 Water Assessment	Preliminary FY18 Water Assessment	Percent Change from FY17	Final FY17 Sewer Assessment	Preliminary FY18 Sewer Assessment	Percent Change from FY17	Final FY17 Combined Assessment	Preliminary FY18 Combined Assessment	Dollar Change from FY17	Percent Change from FY17
ASHLAND				$2,485,174	$2,594,722	4.4%	$2,485,174	$2,594,722	**$109,548**	**4.4%**
BEDFORD				3,368,331	3,580,904	6.3%	3,368,331	3,580,904	**212,573**	**6.3%**
BRAINTREE				9,100,270	9,692,938	6.5%	9,100,270	9,692,938	**592,668**	**6.5%**
BURLINGTON				5,078,461	5,319,835	4.8%	5,078,461	5,319,835	**241,374**	**4.8%**
CAMBRIDGE				23,745,695	24,952,536	5.1%	23,745,695	24,952,536	**1,206,841**	**5.1%**
DEDHAM				5,311,572	5,518,993	3.9%	5,311,572	5,518,993	**207,421**	**3.9%**
HINGHAM SEWER DISTRICT				1,798,028	1,863,727	3.7%	1,798,028	1,863,727	**65,699**	**3.7%**
HOLBROOK				1,759,996	1,809,042	2.8%	1,759,996	1,809,042	**49,046**	**2.8%**
NATICK				5,756,705	5,940,655	3.2%	5,756,705	5,940,655	**183,950**	**3.2%**
RANDOLPH				6,272,186	6,361,335	1.4%	6,272,186	6,361,335	**89,149**	**1.4%**
WALPOLE				3,713,877	3,831,925	3.2%	3,713,877	3,831,925	**118,048**	**3.2%**
WESTWOOD				2,598,265	2,789,172	7.3%	2,598,265	2,789,172	**190,907**	**7.3%**
WEYMOUTH				11,765,811	12,119,331	3.0%	11,765,811	12,119,331	**353,520**	**3.0%**
TOTAL				**$82,754,371**	**$86,375,115**	**4.4%**	**$82,754,371**	**$86,375,115**	**$3,620,744**	**4.4%**

MWRA Water-only Customers	Final FY17 Water Assessment	Preliminary FY18 Water Assessment	Percent Change from FY17	Final FY17 Sewer Assessment	Preliminary FY18 Sewer Assessment	Percent Change from FY17	Final FY17 Combined Assessment	Preliminary FY18 Combined Assessment	Dollar Change from FY17	Percent Change from FY17
LYNNFIELD WATER DISTRICT	$643,348	$752,424	17.0%				$643,348	$752,424	**$109,076**	**17.0%**
MARBLEHEAD	2,341,415	2,479,532	5.9%				2,341,415	2,479,532	**138,117**	**5.9%**
NAHANT	476,532	539,824	13.3%				476,532	539,824	**63,292**	**13.3%**
SAUGUS	3,692,889	3,969,580	7.5%				3,692,889	3,969,580	**276,691**	**7.5%**
SOUTHBOROUGH	948,422	1,001,153	5.6%				948,422	1,001,153	**52,731**	**5.6%**
SWAMPSCOTT	1,834,151	1,900,046	3.6%				1,834,151	1,900,046	**65,895**	**3.6%**
WESTON	2,445,970	2,830,058	15.7%				2,445,970	2,830,058	**384,088**	**15.7%**
TOTAL	**$12,382,727**	**$13,472,617**	**8.8%**				**$12,382,727**	**$13,472,617**	**$1,089,890**	**8.8%**

MWRA Partial Water-only Customers	Final FY17 Water Assessment	Preliminary FY18 Water Assessment	Percent Change from FY17	Final FY17 Sewer Assessment	Preliminary FY18 Sewer Assessment	Percent Change from FY17	Final FY17 Combined Assessment	Preliminary FY18 Combined Assessment	Dollar Change from FY17	Percent Change from FY17
DEDHAM-WESTWOOD WATER DISTRICT	$196,381	$296,964	51.2%				$196,381	$296,964	**$100,583**	**51.2%**
LYNN (LWSC)	243,938	327,659	34.3%				243,938	327,659	**83,721**	**34.3%**
MARLBOROUGH	3,887,876	4,921,458	26.6%				3,887,876	4,921,458	**1,033,582**	**26.6%**
NORTHBOROUGH	1,135,772	1,245,202	9.6%				1,135,772	1,245,202	**109,430**	**9.6%**
PEABODY	1,507,269	1,945,917	29.1%				1,507,269	1,945,917	**438,648**	**29.1%**
TOTAL	**$6,971,236**	**$8,737,200**	**25.3%**				**$6,971,236**	**$8,737,200**	**$1,765,964**	**25.3%**
SYSTEMS TOTAL	**$234,262,737**	**$243,393,874**	**3.9%**	**$460,615,763**	**$477,844,126**	**3.7%**	**$694,878,500**	**$721,238,000**	**$26,359,500**	**3.8%**

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 PFY18 Rate Revenue Requirement
(000's)

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

Revenue and Expenditure Trends

Because MWRA is required by its enabling act to balance its budget and to establish annual assessments to cover all expenses, revenue must change as expenses are changing each year. The Rate Revenue Requirement in any year is the difference between MWRA expenses and other revenue sources, most notably non-rate revenue, investment income, and debt service assistance from the Commonwealth (which directly reduces debt service expense). For FY18, community assessments are projected to represent 96.3% of total revenue.

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

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

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

Rates & Budget Projections											
Proposed FY18 CEB	**FY2017**	**FY2018**	**FY2019**	**FY2020**	**FY2021**	**FY2022**	**FY2023**	**FY2024**	**FY2025**	**FY2026**	**FY2027**
Total Rate Revenue ($000)	$694,879	$721,238	$748,379	$777,081	$806,851	$837,644	$858,538	$851,261	$853,809	$863,976	$871,071
Rate Revenue Change from Prior Year ($000)	$ 22,438	$ 26,359	$ 27,141	$ 28,701	$ 29,770	$ 30,793	$ 20,894	$ (7,277)	$ 2,549	$ 10,167	$ 7,094
Rate Revenue Increase	3.4%	3.8%	3.8%	3.8%	3.8%	3.8%	2.5%	-0.8%	0.3%	1.2%	0.8%
Use of Reserves ($000)	$ -	$ -	$ -	$ -	$ 4,197	$ 10,910	$ -	$ -	$ -	$ 33,596	$ 13,917
Estimated Household Bill											
Based on annual water usage of 61,000 gallons	$1,095	$1,144	$1,196	$1,250	$1,306	$1,365	$1,420	$1,462	$1,511	$1,567	$1,623
Based on annual water usage of 90,000 gallons	$1,616	$1,689	$1,764	$1,844	$1,927	$2,014	$2,095	$2,157	$2,229	$2,312	$2,395

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

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

the size of the capital program will unavoidably continue to drive increases in community assessments.

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

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

- Direct expense inflation rate of 2.5% for salaries and 3.0% for other direct expenses starting in FY18;
- CIP inflation rate of 2.5%;
- Capital spending based on the latest CIP expenditure forecast for FY18 to FY27.
- Long-term fixed rate debt issues with 30-year terms and 5.0% interest rates in FY18, 5.25% rates in FY19, 5.5% rates in FY20, 5.75% rates in FY21 and 6.0% rates from FY22 and beyond;
- Variable rate interest projected at 3.50% in FY18, 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.

MWRA Rates Management

Planning estimates for 2018 through 2027 forecast rate revenue requirement increases of 3.8% in FY18, 3.8% annually from FY19 through FY22, 2.5% in FY23, -0.8% in FY24, 0.3% in FY25, 1.2%

in FY26, and 0.8% in FY27.

The FY18 Budget:

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

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.

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.

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, 2016 are available online at www.mwra.com.