



Massachusetts Water Resources Authority

Presentation to the

Wastewater Advisory Committee
&
Water Supply Citizens Advisory Committee

Fiscal Year 2018
Proposed

***Capital Improvement and Current Expense Budget
Overviews***

April 18, 2017



Massachusetts Water Resources Authority

***FY18 Proposed
Capital Improvement Budget***



FY18 Proposed CIP

- Last year of five-year capital spending Cap
- FY18 Proposed CIP complies with the Cap requirements
- Focus on Asset Protection and Long-Term Redundancy
- Metropolitan Tunnel Redundancy
- MWRA continues to reduce debt levels



FY18 Proposed CIP - FY14-18 Base-Line Cap

FY14-18 Base-Line Cap		FY14	FY15	FY16	FY17	FY18	Total FY14-18
	Projected Expenditures	\$142.5	\$147.6	\$149.3	\$141.8	\$136.8	\$718.0
Contingency	7.6	9.5	10.1	9.8	9.3	46.1	
Inflation on Unawarded Construction	0.8	4.2	8.4	11.1	13.5	37.9	
Less: Chicopee Valley Aqueduct Projects	(5.0)	(2.2)	(1.4)	(1.3)	(0.4)	(10.3)	
FY14-18 Base-Line Cap	\$145.8	\$159.1	\$166.4	\$161.3	\$159.1	\$791.7	

FY18 Proposed		FY14	FY15	FY16	FY17	FY18	Total FY14-18
	Projected Expenditures	\$102.2	\$103.6	\$95.1	\$142.9	\$169.5	\$613.3
Contingency	0.0	0.0	0.0	7.6	9.8	17.4	
Inflation on Unawarded Construction	0.0	0.0	0.0	0.0	0.0	0.0	
Less: I/I Program	0.0	(17.5)	(13.6)	(18.8)	(19.0)	(69.0)	
Less: Water Loan Program	0.0	1.4	5.3	(3.3)	(7.5)	(4.0)	
Less: Chicopee Valley Aqueduct Projects	(5.6)	(1.2)	(0.4)	(0.1)	(0.7)	(8.0)	
FY18 Proposed FY14-18 Spending	\$96.6	\$86.3	\$86.4	\$128.2	\$152.2	\$549.7	

FY18 Proposed vs. FY14-18 Base-Line Cap		FY14	FY15	FY16	FY17	FY18	Total FY14-18
	Projected Expenditures	(\$40.3)	(\$43.9)	(\$54.2)	\$1.1	\$32.7	(\$104.7)
Contingency	(7.6)	(9.5)	(10.1)	(2.2)	0.6	(28.7)	
Inflation on Unawarded Construction	(0.8)	(4.2)	(8.4)	(11.1)	(13.5)	(37.9)	
Less: I/I Program	0.0	(17.5)	(13.6)	(18.8)	(19.0)	(69.0)	
Less: Water Loan Program	0.0	1.4	5.3	(3.3)	(7.5)	(4.0)	
Less: Chicopee Valley Aqueduct Projects	(0.6)	0.9	1.0	1.2	(0.2)	2.3	
FY14-18 Cap (\$ Change)	(\$49.2)	(\$72.7)	(\$80.0)	(\$33.1)	(\$7.0)	(\$242.0)	



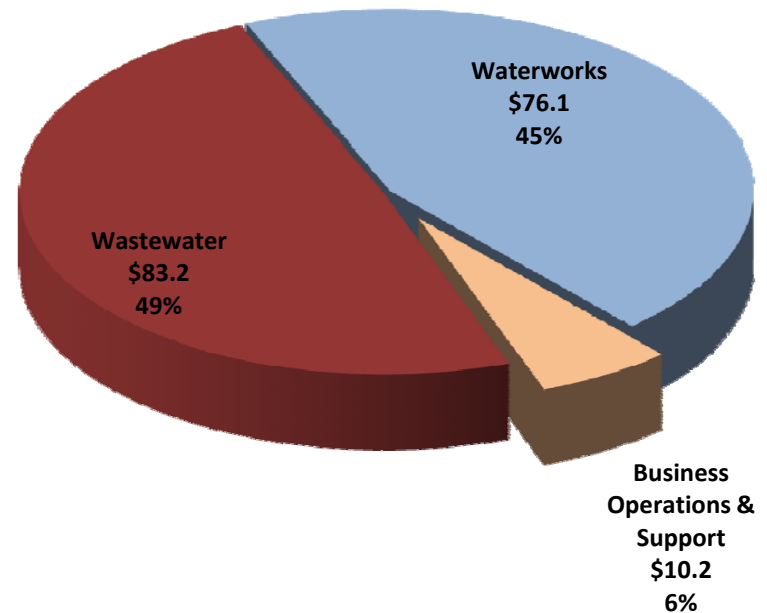
FY18 Proposed CIP

- Proposed Expenditures: \$169.5M
- Proposed Contract Awards: \$203M



FY18 Proposed CIP – Proposed FY18 Expenditures

- Total Proposed FY18 Expenditures: \$169.5 million
 - Wastewater: \$83.2 million
 - Waterworks: \$76.1 million
 - Business and Operations: \$10.2 million





FY18 Proposed CIP – Future CIP Spending and Planning Projections

	FY17 Final Remaining Balance	FY18 Proposed Remaining Balance	\$ Change	% Change
Total Wastewater	\$ 1,216.6	\$ 1,241.2	\$ 24.6	2.0%
Total Waterworks	\$ 1,867.9	\$ 2,027.5	\$ 159.6	8.5%
Business & Operations Support	\$ 45.6	\$ 38.8	\$ (6.8)	-14.9%
Total MWRA	\$ 3,130.2	\$ 3,307.4	\$ 177.2	5.7%

- \$3.3 billion in future CIP spending beginning in FY17
- \$122.5 million in new projects in FY18 Proposed CIP
- \$54.8 million for schedule changes and revised cost estimates



FY18 Proposed CIP – New Projects

Total New Projects Added in FY18: \$122.5 million

- Waterworks: \$85.1 million
- Wastewater: \$37.4 million



FY18 Proposed CIP – Top New Projects

- Section 57 Water Pipeline and Sections 21/20/19 Sewer Rehabilitation: \$22.3 million
- Chestnut Hill Emergency Pump Station Improvements: \$18.3 million
- Quabbin Administration Building Rehabilitation: \$15 million
- Nut Island Headworks Odor Control and HVAC Improvements: \$10 million
- Tops of Shafts Interim Improvements Construction: \$6.1 million



FY18 Proposed CIP – Top New Projects

- Section 57 Water Pipeline and Sections 21/20/19 Sewer Rehabilitation: \$22.3 million





FY18 Proposed CIP – Top New Projects

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FY18 Proposed CIP – Top New Projects

- Quabbin Administration Building Rehabilitation: \$15 million





FY18 Proposed CIP – Top New Projects

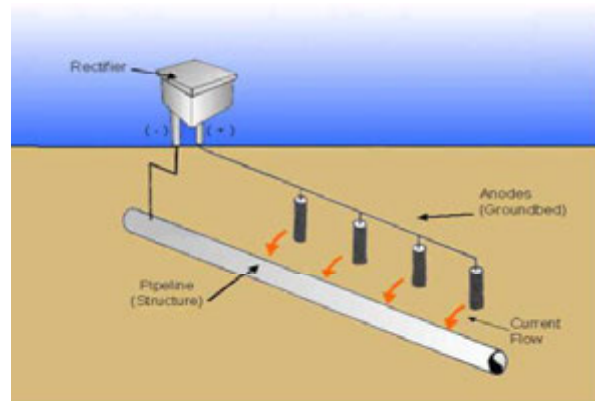
- Nut Island Headworks Odor Control and HVAC Improvements: \$10 million





FY18 Proposed CIP – Top New Projects

- Tops of Shafts Interim Improvements Construction: \$6.1 million





FY18 Proposed CIP – Change from Court-Ordered Mandates to Asset Protection and Water Redundancy

CIP Category	FY09-13	FY14-18	FY19-23
Asset Protection	30.1%	51.2%	62.5%
Carroll WTP	4.7%	2.0%	0.4%
Water Redundancy	16.3%	20.1%	28.1%
CSO	38.2%	10.8%	0.4%
Other	10.7%	15.9%	8.6%
Total	100.0%	100.0%	100.0%

- Substantial completion of court-ordered CSO program
- Asset Protection and Redundancy are the principal drivers of future capital expenditures



Asset Protection and Water Redundancy

- Preserve the condition of assets
 - Asset Protection in CIP
 - Day to Day Maintenance in CEB



FY18 Proposed CIP – Top Construction Projects (\$ in 000s)

Project	Subphase	FY18 Proposed Spending
Facility Asset Protection	Chelsea Creek Headworks Upgrades	\$18,215
Cosgrove Tunnel Redundancy	Wachusett Aqueduct Pump Station	\$15,896
NIH Redundancy & Storage	Section 89 & 29 Redundancy Phase 1C and Phase 2.	\$15,448
SEH Redundancy & Storage	Redundancy Pipeline Section 111 Phase 1, 2 and 3	\$13,146
Facility Asset Protection	Alewife Brook Pump Stn Rehab	\$5,795
DI Treatment Plant Asset Protection	HVAC Equipment Replacement	\$4,978
DI Treatment Plant Asset Protection	NMPS & WTF Butterfly Valve Replacement	\$3,499
DI Treatment Plant Asset Protection	WTF VFD Replacement	\$3,085
Total		\$80,062
% of Total FY 18 proposed MWRA Spending		47.2%



FY18 Proposed CIP – FY18 Top Spenders – Asset Protection

Alewife Brook Pump Station Rehabilitation

FY18 Budget: \$5.8M

Total Contract: \$12.6M

NTP: January 2016

SC: May 2018





FY18 Proposed CIP – FY18 Top Spenders – Asset Protection

Chelsea Creek Headworks Upgrades



FY 18 Budget: \$18.2M
Total Contract: \$72.9M
NTP: November 2016
SC: November 2020



FY18 Proposed CIP – FY18 Top Spenders – Asset Protection

Deer Island Treatment Plant: Top 3 Spenders FY 18 Budget: \$12.6M

- HVAC Equipment Replacement
FY 18 Budget: \$5.0M
 - Total Contract: \$29.5M
 - NTP: April 2017
 - SC: August 2020
- North Main Pump Station and Winthrop Terminal
Butterfly Valve Replacement
FY 18 Budget: \$3.5M
 - Total Contract: \$17.5M
 - NTP: June 2014
 - SC: June 2017
- Winthrop Terminal VFD Replacement
FY 18 Budget: \$3.1M
 - Total Contract: \$11.9M
 - NTP: June 2016
 - SC: March 2020





FY18 CIP – FY18 Top Spenders - Redundancy

Wachusett Aqueduct Pump Station:

FY 18 Budget : \$15.9M

Total Contract: \$53.0M

NTP: March 2016

SC: February 2019





FY18 CIP – FY18 Top Spenders - Redundancy

- Northern Intermediate High
Section 89 & 29 Redundancy:

FY 18 Budget: \$15.5M

NTP: December 2016

SC: December 2019





FY18 CIP – FY18 Top Spenders - Redundancy

- Southern Extra High
Section 111 Redundancy:

FY 18 Budget: \$13.1M

NTP: July 2016

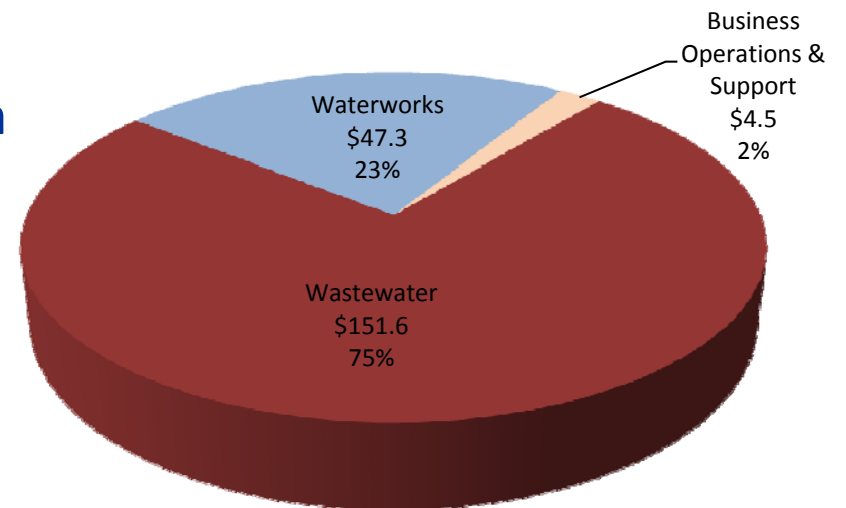
SC: November 2019





FY18 Proposed CIP – Proposed FY18 Contract Awards

- 49 FY18 Contract Awards
- Total Contract Value: \$203.5 million
 - Wastewater: \$151.7 million
 - Waterworks: \$47.3 million
 - Business and Operations: \$4.5 million



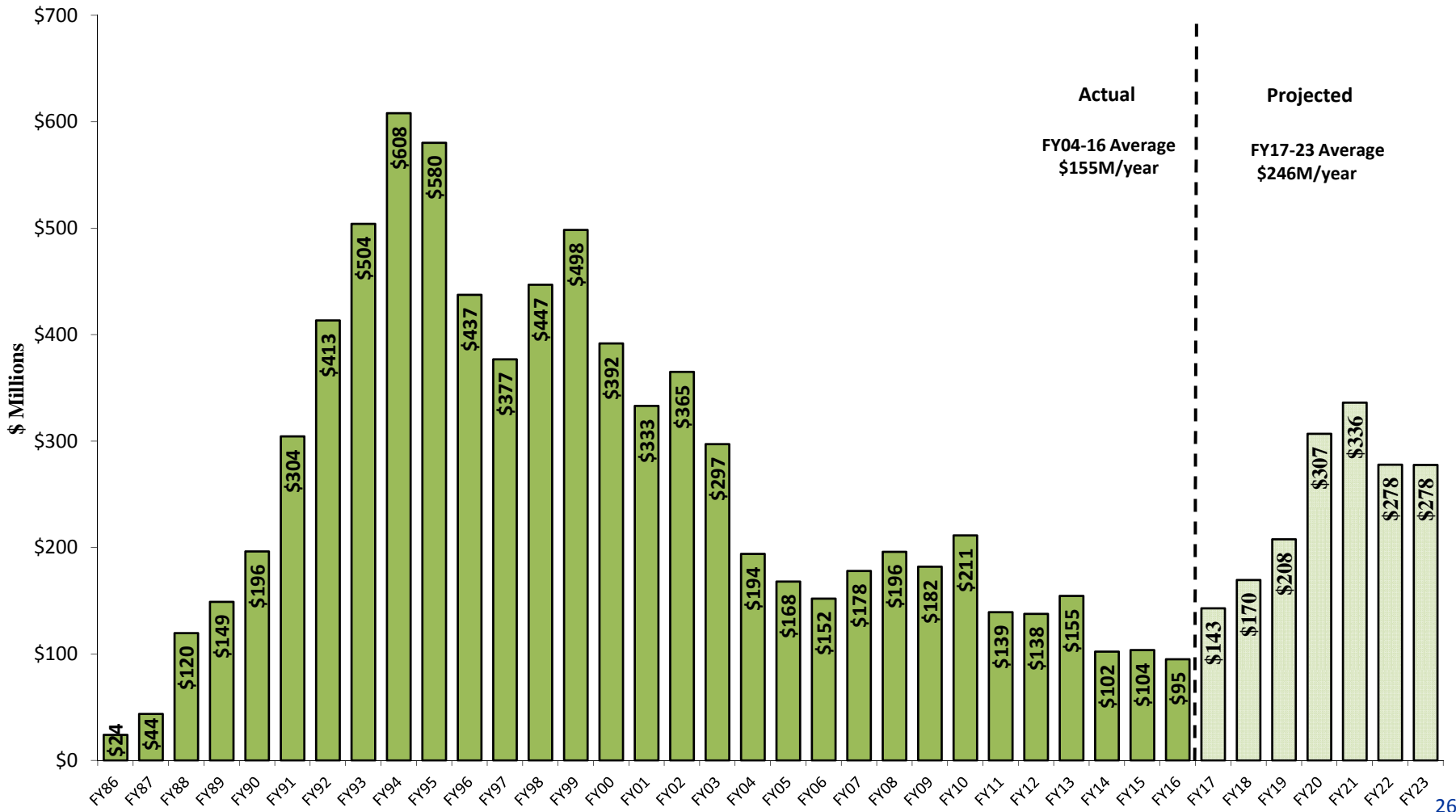


FY18 Proposed CIP - Projected Contract Awards (\$'s in millions)

Project	Subphase	Anticipated Contract Amount
DI Treatment Plant Asset Protection	Clarifier Rehabilitation Phase 2 - Construction	\$80.0
DI Treatment Plant Asset Protection	Gravity Thickener Rehabilitation	\$14.5
Metropolitan Redundancy Interim Improvements	Metropolitan Redundancy Interim Design Construction Administration/Resident Inspection	\$10.4
DI Treatment Plant Asset Protection	Switchgear Replacement - Construction	\$8.0
Metropolitan Tunnel Redundancy	Conceptual Design Environmental Impact Report	\$7.5
Wastewater Central Monitoring	Wastewater Supervisory Control and Data Acquisition System (SCADA)/Program Logic Controller (PLC) Upgrades	\$7.0
Northern Low Service Rehab Section 8	Sec 57 Water & 21/20/19 Sewer Design/Engineering Services During Construction/Resident Inspection	\$4.8
DI Treatment Plant Asset Protection	Future South System Pump Station Variable Frequency Drives Replacements - Design	\$4.8
Application Improvements Program	Enterprise Content Management	\$4.0
Winsor Station Pipeline Improvements	Winsor Power Station Final Design/Construction Administration/Resident Inspection	\$3.6
Top Ten Awards for FY18		\$144.6
49 Contract Awards Planned for FY18		\$203.5

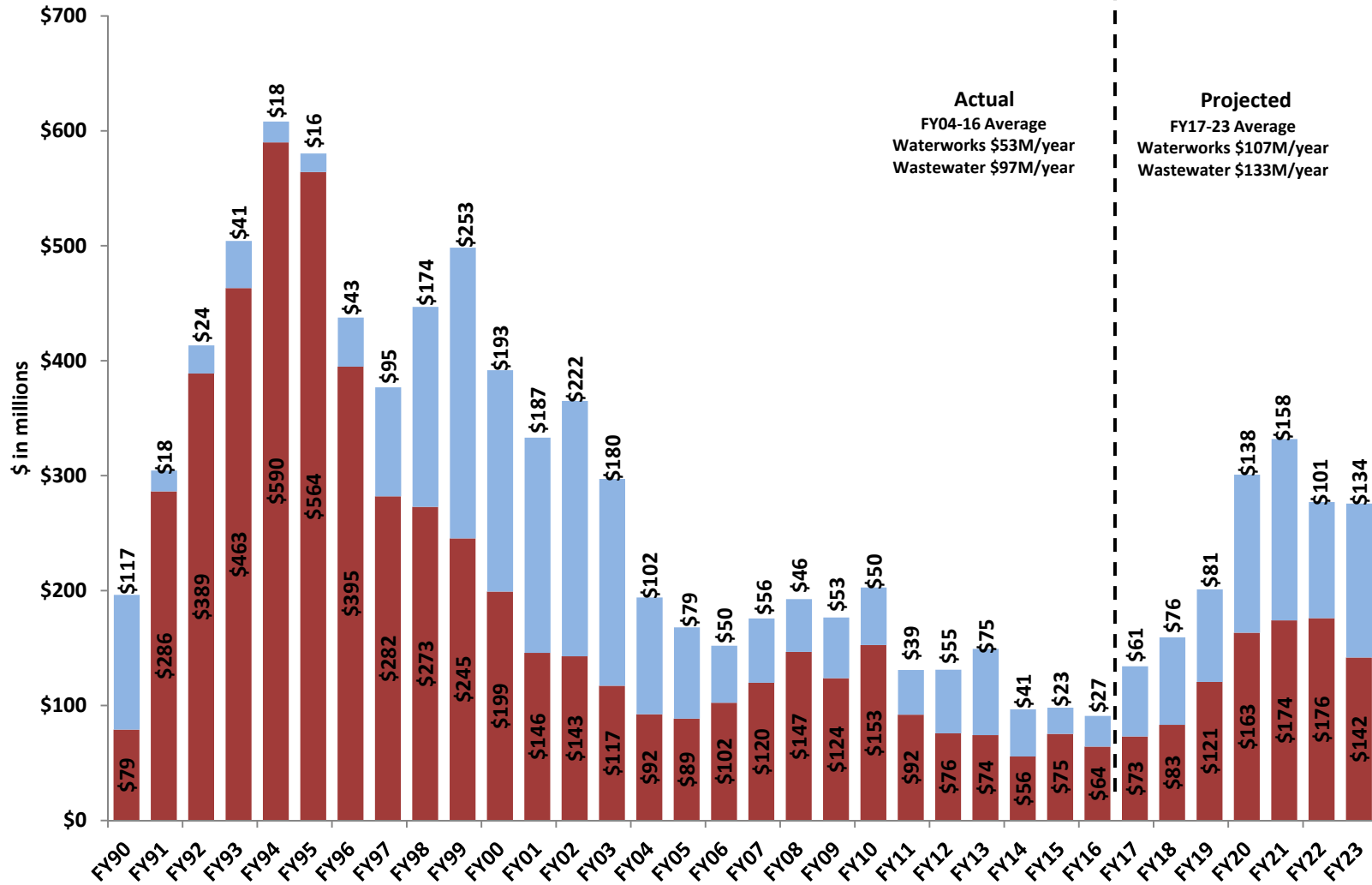


Historic and Projected Capital Improvement Spending



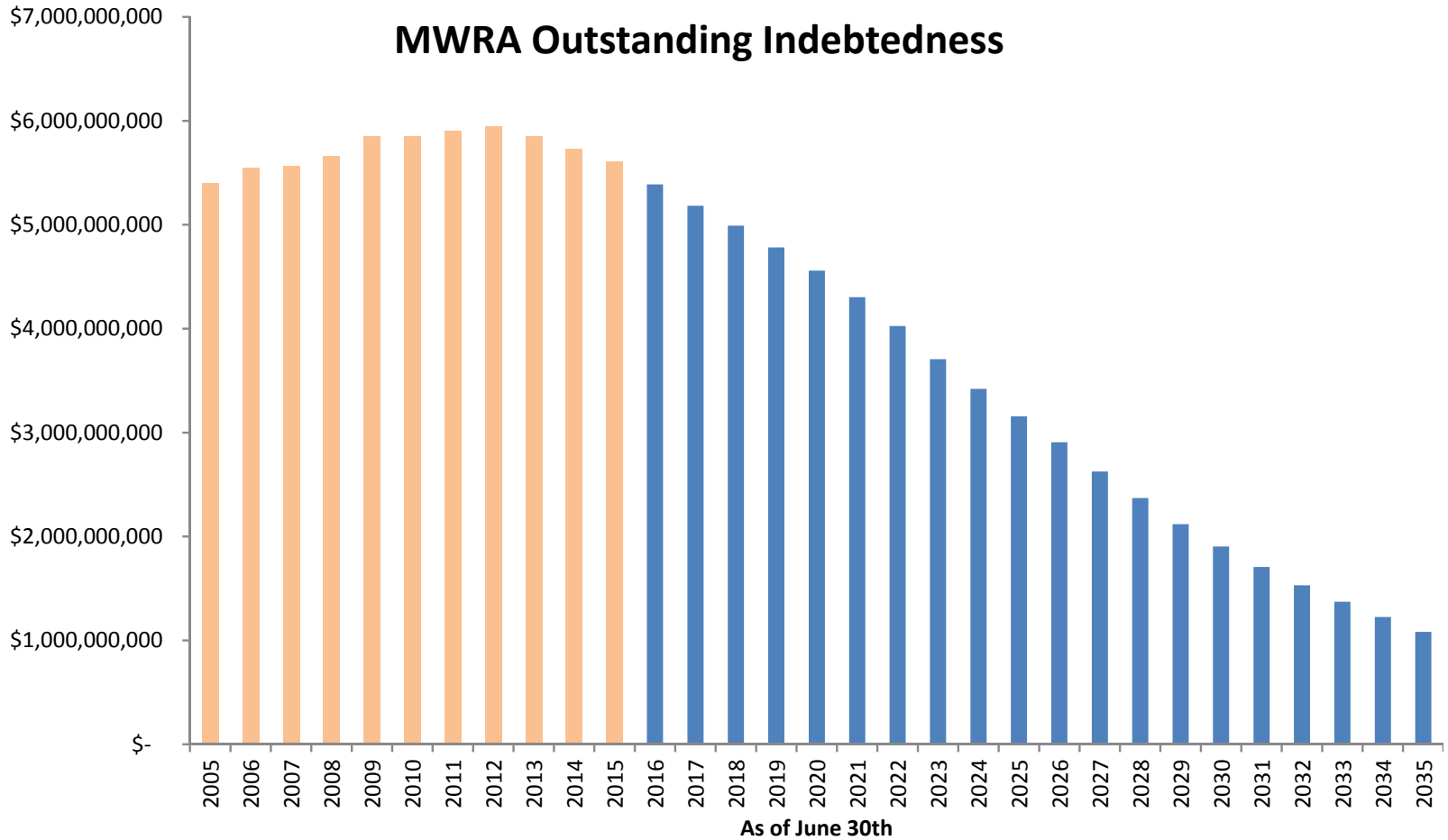


Historic and Projected Capital Improvement Spending by Utility



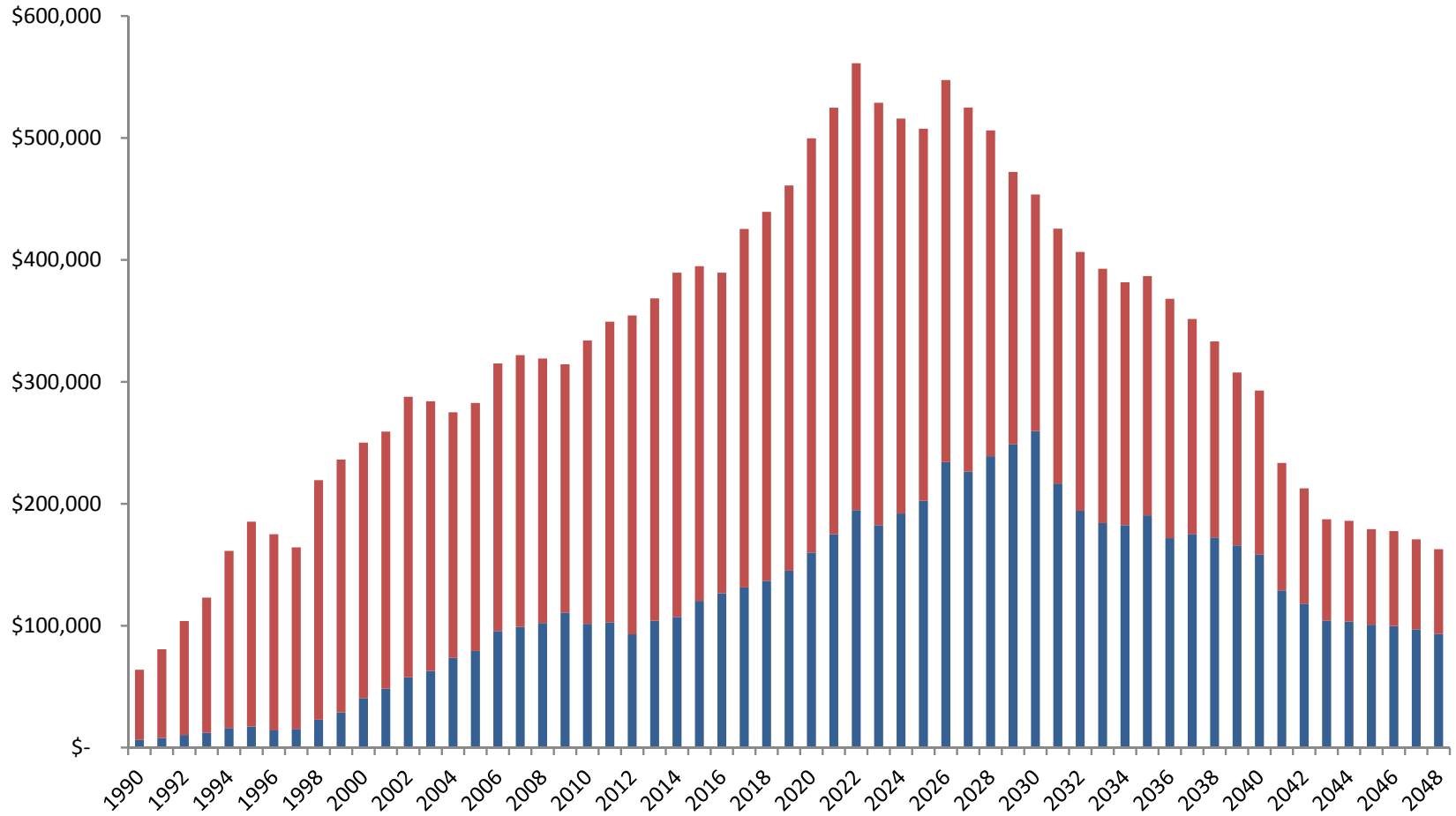


Level of MWRA Indebtedness





Debt Service by Utility





Looking Ahead – FY19 CIP

- FY 19-23 is the next five-year CIP Cap period
- Master Plan Development
- Metropolitan Tunnel Redundancy



Next Steps

- Work with the Advisory Board
- Finalize FY18 CIP
- Submit FY18 Final CIP to Board of Directors for approval in June 2017



Massachusetts Water Resources Authority

**MWRA Fiscal Year 2018
Proposed
Current Expense Budget**



***Managing Uncertainties to Achieve
Sustainable and Predictable Rates***



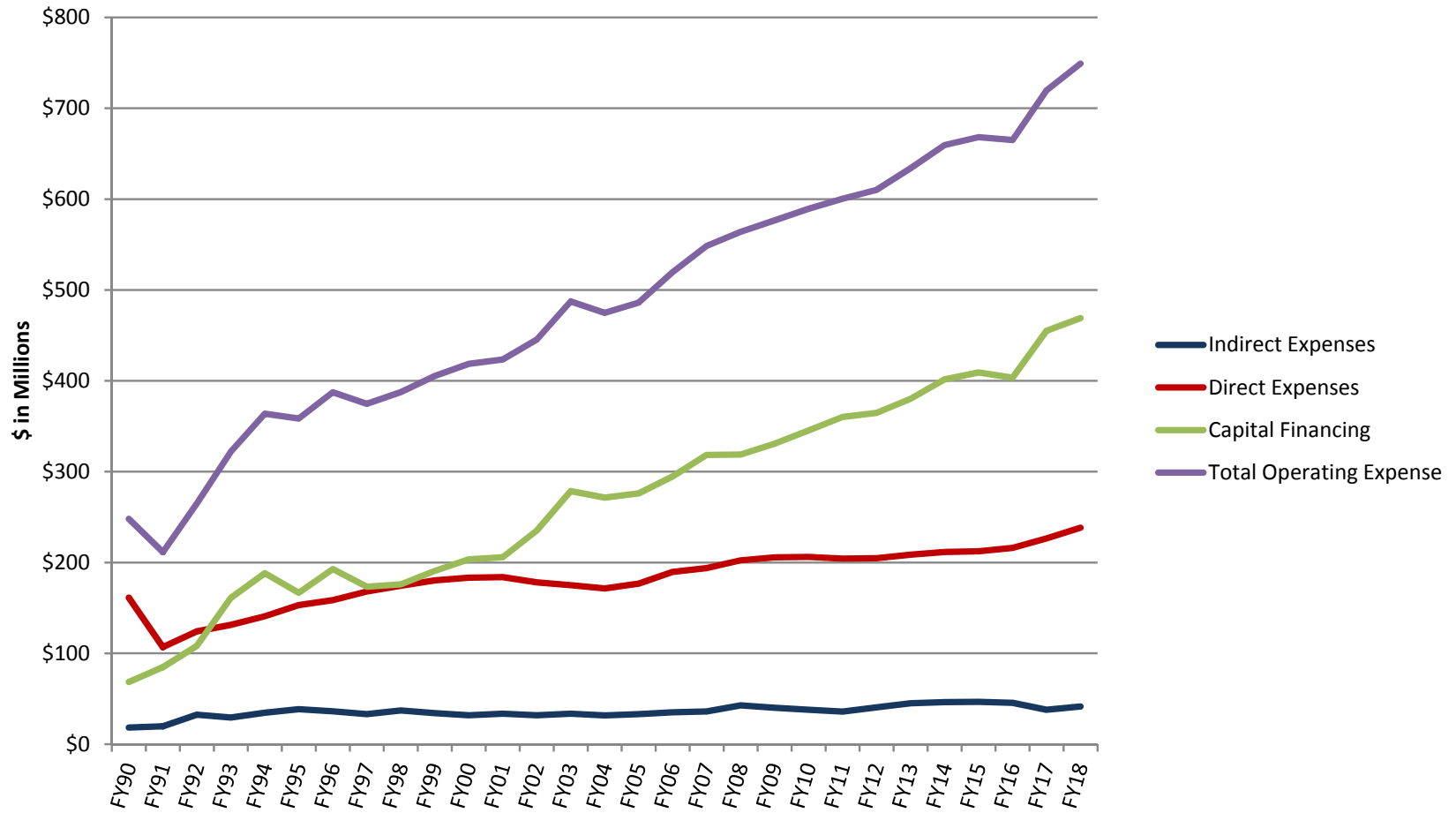
Goals

- Deliver sustainable and predictable rates
- Achieve progress toward long-term goals
- Manage uncertainty



Historical Spending Chart

Major Budget Elements





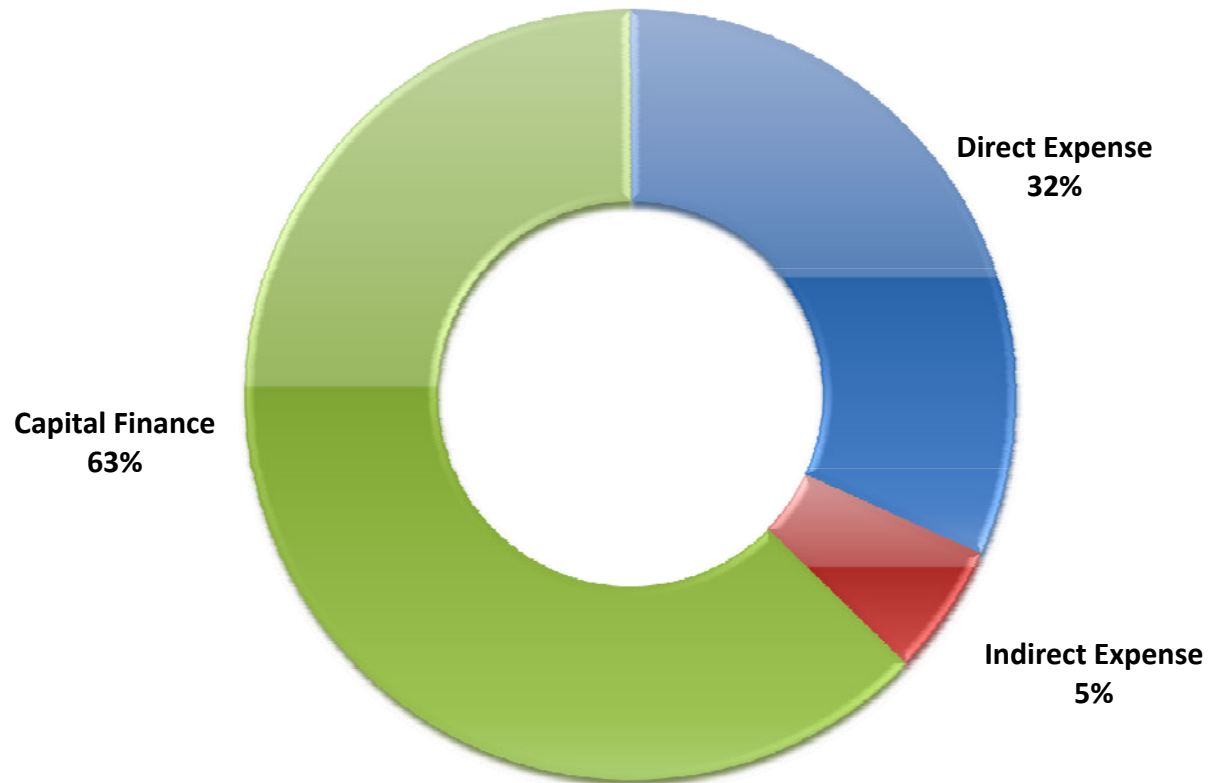
FY18 Proposed CEB – Areas of Uncertainty

- Debt
- Investments
- Utility and Chemical Prices
- Construction Costs
 - Materials
 - Labor
- Consumer Price Index
- Tax Code Changes
- Environmental Regulations



FY18 Proposed Current Expense Budget (CEB)

FY18 Current Expense Budget





CEB Budget Structure

- Direct Expenses
- Indirect Expenses
- Capital Finance Expenses
- Non-Rate Revenue
- Rate Revenue

ATTACHMENT A
FY18 Proposed Budget vs FY17 Approved Budget

TOTAL NWRA	FY16 Actual	FY17 Approved Budget	FY18 Proposed Budget	FY18 Proposed Budget vs FY17 Approved Budget	Change %
EXPENSES					
WAGES AND SALARIES	\$ 96,118,427	\$ 100,886,807	\$ 104,811,888	\$ 2,922,081	2.9%
CONTRIBUTIONS	4,393,984	4,192,676	4,507,278	314,602	7.5%
PROFESSORIAL	10,131,189	10,242,324	10,511,174	268,850	2.6%
PROFESSORIAL COMPENSATION	2,350,589	2,344,100	2,372,280	28,180	1.2%
CHEMICALS	2,297,550	2,154,078	2,154,788	710	0.0%
PROPERTY AND UTILITIES	10,741,007	10,741,007	10,741,007	-	0.0%
MAINTENANCE	8,978,045	8,978,045	8,978,045	-	0.0%
TRAINING AND MEETINGS	370,732	370,732	370,732	-	0.0%
OFFICE MATERIALS	5,186,716	5,186,716	5,186,716	-	0.0%
OTHER SERVICES	25,623,305	25,623,305	25,623,305	-	0.0%
TOTAL DIRECT EXPENSES	\$ 246,944,001	\$ 252,521,117	\$ 258,410,908	\$ 5,889,791	2.3%
INSURANCE	1,983,053	1,997,808	2,113,452	115,644	5.8%
WATERSHED DEVELOPMENT	27,469,847	24,291,268	25,024,006	732,738	3.0%
CAPITAL FINANCE DEBT PREPAYMENT	32,000,000	-	-	-	-
REPAYMENT	1,342,141	773,859	670,978	(102,881)	-13.3%
ADDITIONS TO RESERVES	1,520,000	1,520,000	1,520,000	-	0.0%
RETIREMENT FUND	(34,927)	(167,742)	2,082,526	2,250,268	N/A
ADDITIONAL PENSION DEPOSIT	8,159,521	1,801,000	1,801,000	144,745	8.0%
POSTEMPLOYMENT BENEFITS	-	4,876,000	5,038,421	162,421	3.3%
TOTAL INDIRECT EXPENSES	\$ 77,614,488	\$ 37,961,066	\$ 42,998,904	\$ 4,937,838	13.0%
STATE REVOLVING FUND	78,131,550	80,971,915	87,044,610	6,072,695	7.5%
SENIOR DEBT	270,000,000	268,472,557	263,121,111	(5,351,446)	-2.0%
SUBORDINATE DEBT	92,222,442	69,997,992	87,551,667	17,553,675	25.1%
LOCAL WATER REVENUE	262,698	41,949,242	4,086,863	(37,862,379)	-90.3%
CURRENT REVENUE/CAPITAL	11,291,000	12,291,000	13,291,000	1,000,000	8.2%
CAPITAL LEASE	3,217,000	3,217,000	3,217,000	-	0.0%
DEBT PREPAYMENT	-	10,994,969	10,994,969	-	-
VARIABLE RATE SAVINGS	-	-	-	-	-
DEFAUCANCE ACCOUNT	-	-	-	-	-
DEBT SERVICE ASSISTANCE	(12,873,173)	-	-	-	-
TOTAL DEBT SERVICE	(8,380,414)	(8,380,414)	(8,380,414)	-	0.0%
TOTAL EXPENSES	\$ 401,172,999	\$ 458,128,992	\$ 469,124,311	\$ 11,995,319	2.6%
REVENUE & INCOME	\$ 697,084,034	\$ 719,623,995	\$ 749,115,923	\$ 29,491,928	4.1%
RATE REVENUE	672,440,000	694,878,500	721,238,000	26,359,500	3.8%
OTHER USER CHARGES	8,783,469	8,752,854	8,964,366	211,512	2.4%
OTHER REVENUE	15,740,464	6,591,171	7,698,774	1,107,603	17.5%
RATE STABILIZATION	10,303,841	9,473,499	11,254,782	1,781,283	18.8%
INVESTMENT INCOME	-	-	-	-	-
TOTAL REVENUE & INCOME	\$ 707,277,774	\$ 730,623,995	\$ 749,115,923	\$ 18,491,928	2.5%



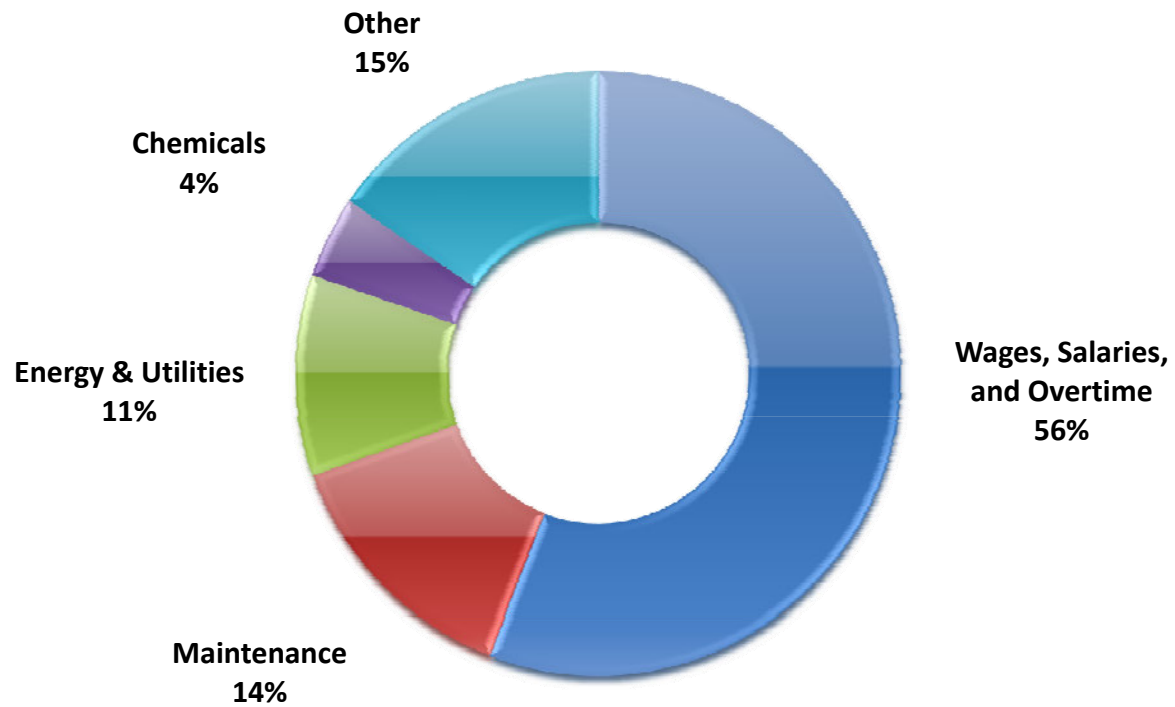
FY18 Proposed CEB vs FY 17

CATEGORY	FY17 Approved Budget		FY18 Proposed Budget		Change FY18 Proposed Budget vs FY17 Approved Budget		
					\$	%	
TOTAL DIRECT EXPENSES	\$	226,532	\$	238,411	\$	11,879	5.2%
TOTAL INDIRECT EXPENSES	\$	37,962	\$	41,581	\$	3,619	9.5%
TOTAL CAPITAL FINANCE	\$	455,130	\$	469,124	\$	13,994	3.1%
TOTAL EXPENSES	\$	719,624	\$	749,116	\$	29,492	4.1%



CEB Budget Structure – Direct Expenses

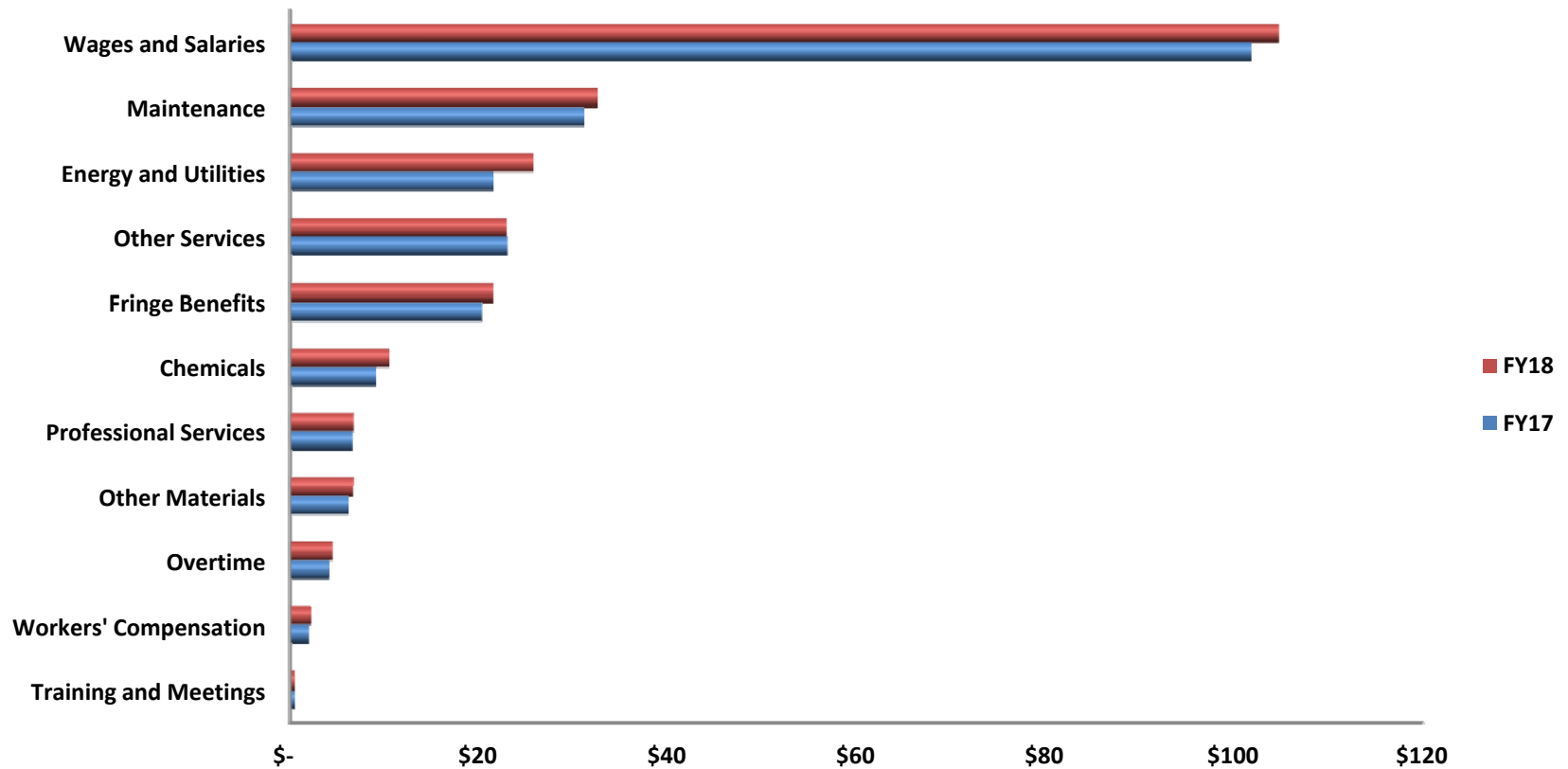
Direct Expenses





Direct Expenses Comparison

Direct Expenses Comparison FY17 -FY18





FY18 Proposed Current Expense Budget (CEB)

Highlights – Direct Expenses

- Wages and Salaries - \$104.8M – Budgeted FTE's: 1,150 same as FY17
- Maintenance - \$32.5M – \$1.4 million above FY17
- Utilities - \$25.8M – \$4.2 million above FY17
- Other Services - \$22.8M – basically level funded to FY17
- Fringe Benefits - \$21.5M – \$1.3 million higher than FY17



Direct Expenses

- HEEC Cable Protection - \$4.4 million placeholder in various budget lines
- Health Insurance – assume 8% increase
- Utility Costs – anticipate volatility
- Chemicals
 - Regulatory Uncertainty - NPDES Enterococcus - \$600k placeholder
 - Contractual Increases



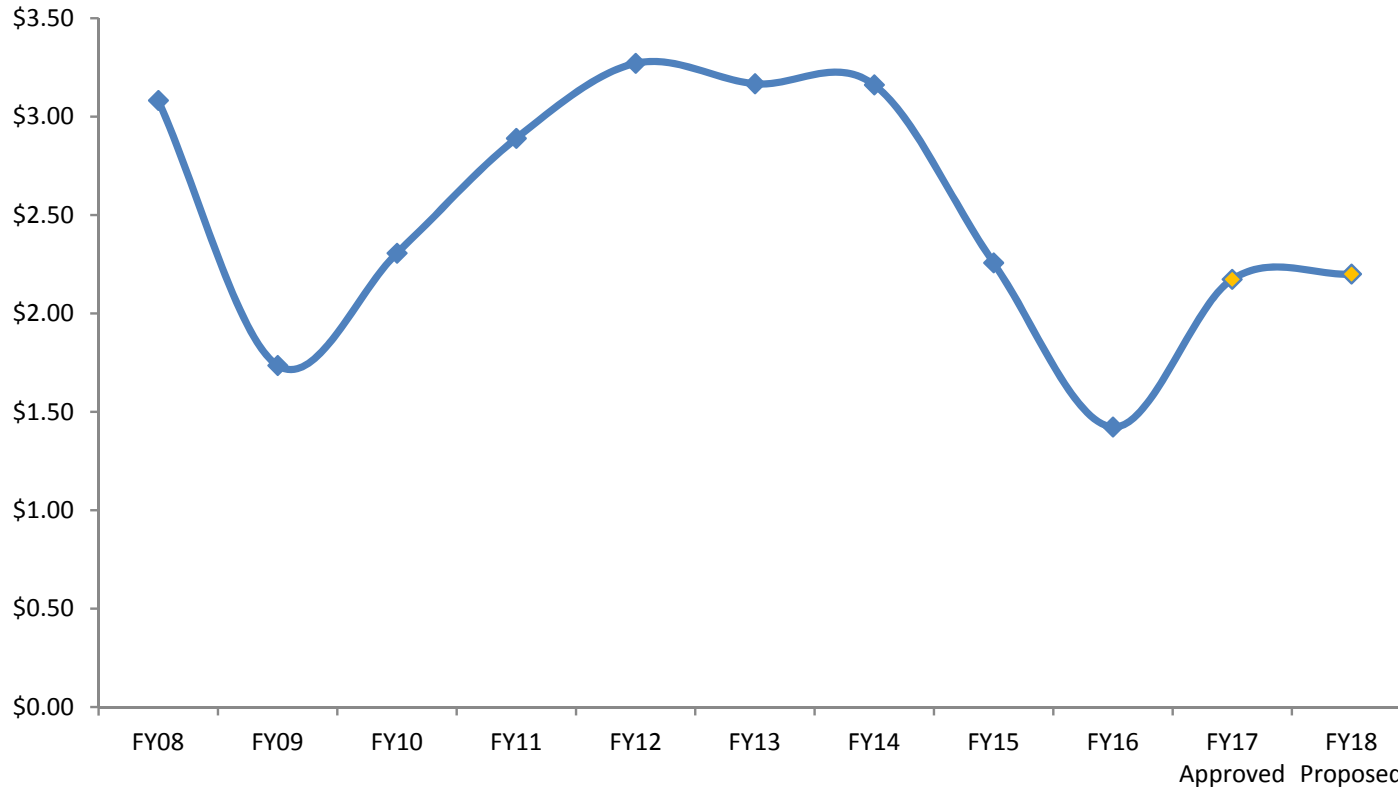
Estimated one-time FY18 CEB Impact Placeholder \$4.4 million

- Diesel Fuel - \$6.2 million (2.9 million gallons)
- Avoided Electricity Charges – (\$2.5 million) – 30.4 million kWh generated by CTG's)
- Labor - \$0.4 million
- Other Charges - \$0.3 million



Diesel Pricing History

Diesel \$/gal



Most recent purchases:

\$1.58/gal Nov 2016

\$1.83/gal Jan 2017

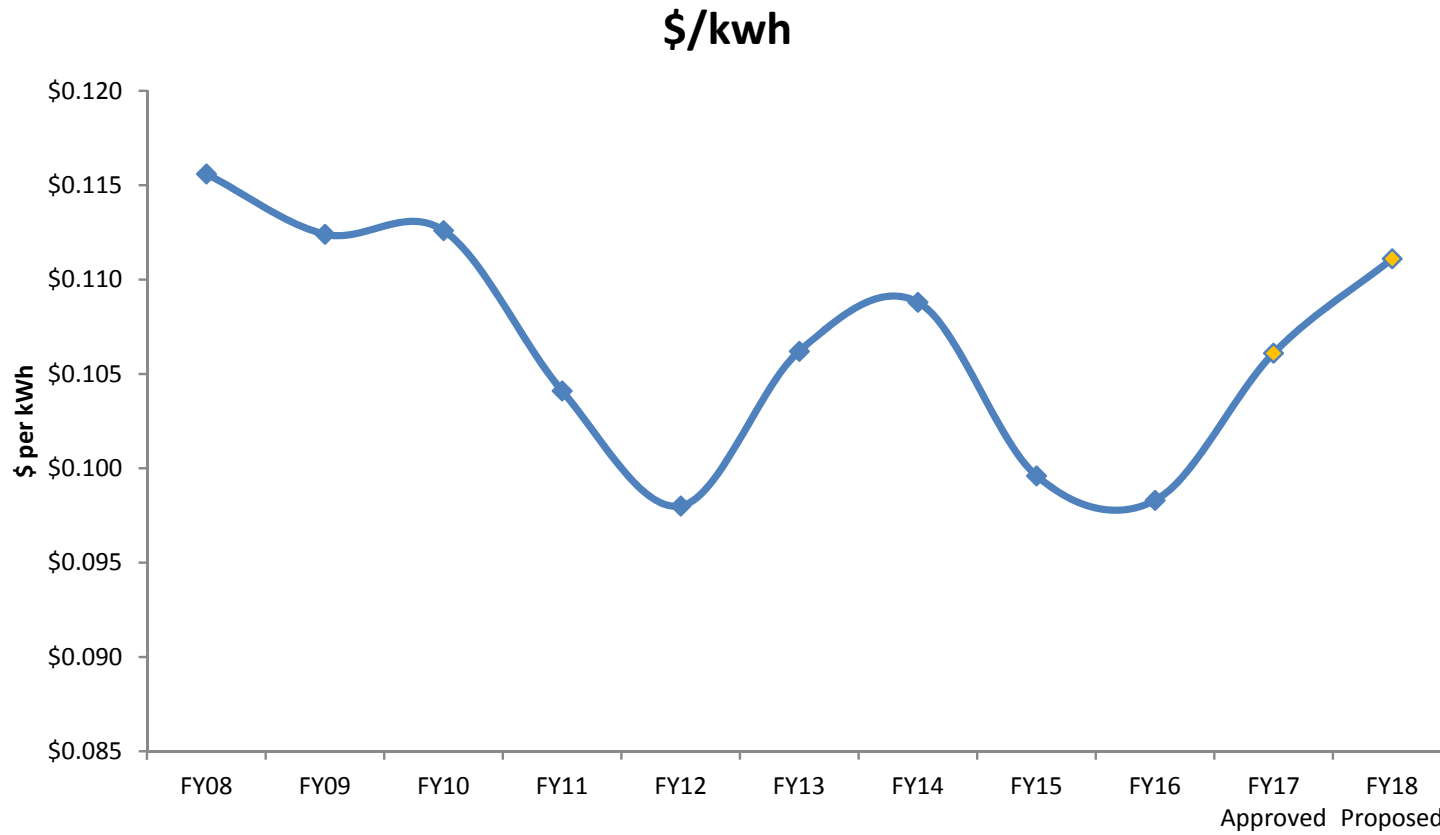
\$0.25 increase

5 -YR Ave. \$2.66/gal

10 -YR Ave. \$2.59/gal



Electricity Pricing History



Mix of fixed and variable rate power blocks

Procurements: Deer Island, Interval Accounts, and Profile Accounts

5 - YR Ave. \$0.102/kWh
10 - YR Ave \$0.106/kWh



Health Insurance

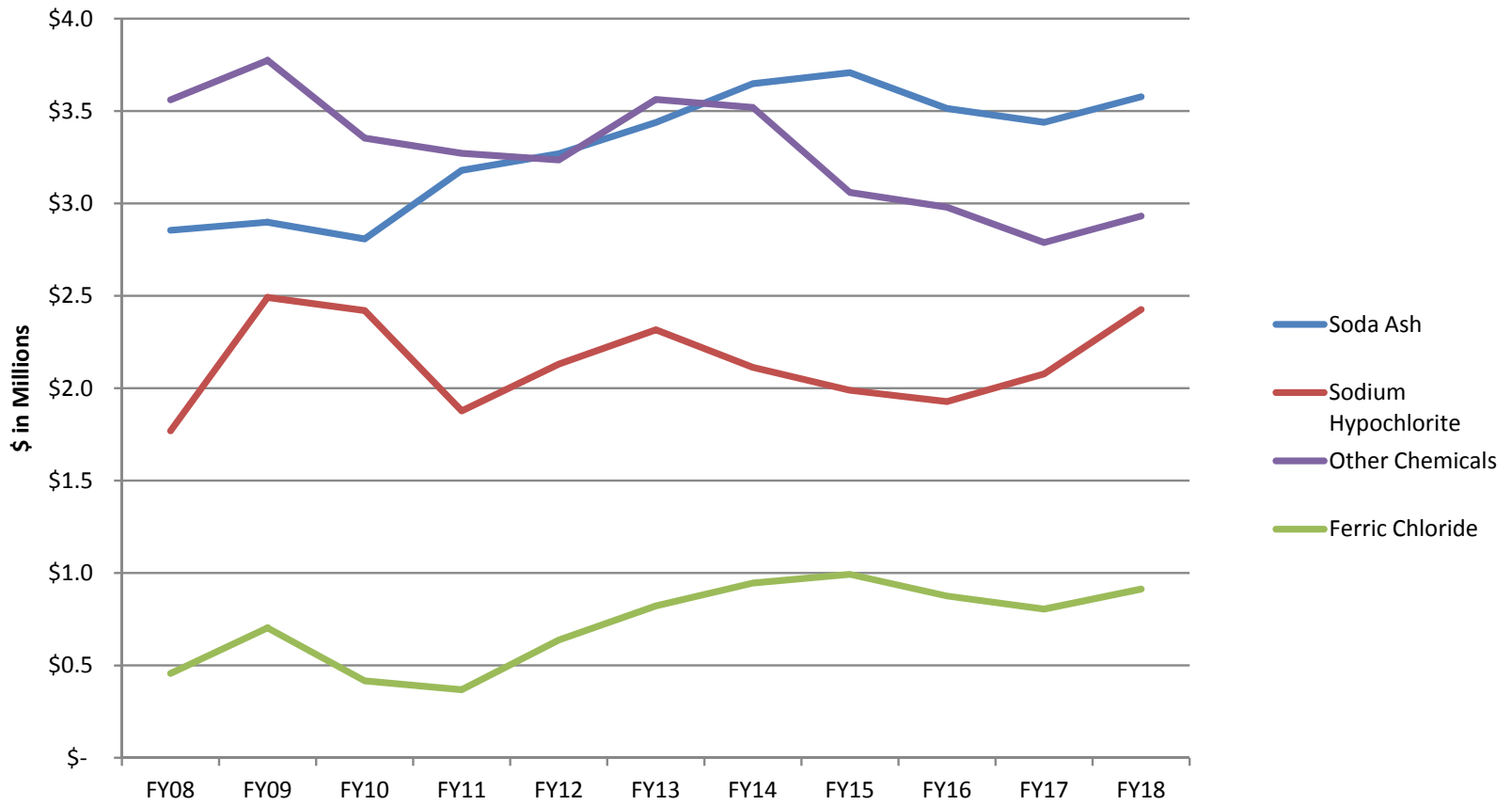
Historical Health Insurance Cost





Chemical Expense History

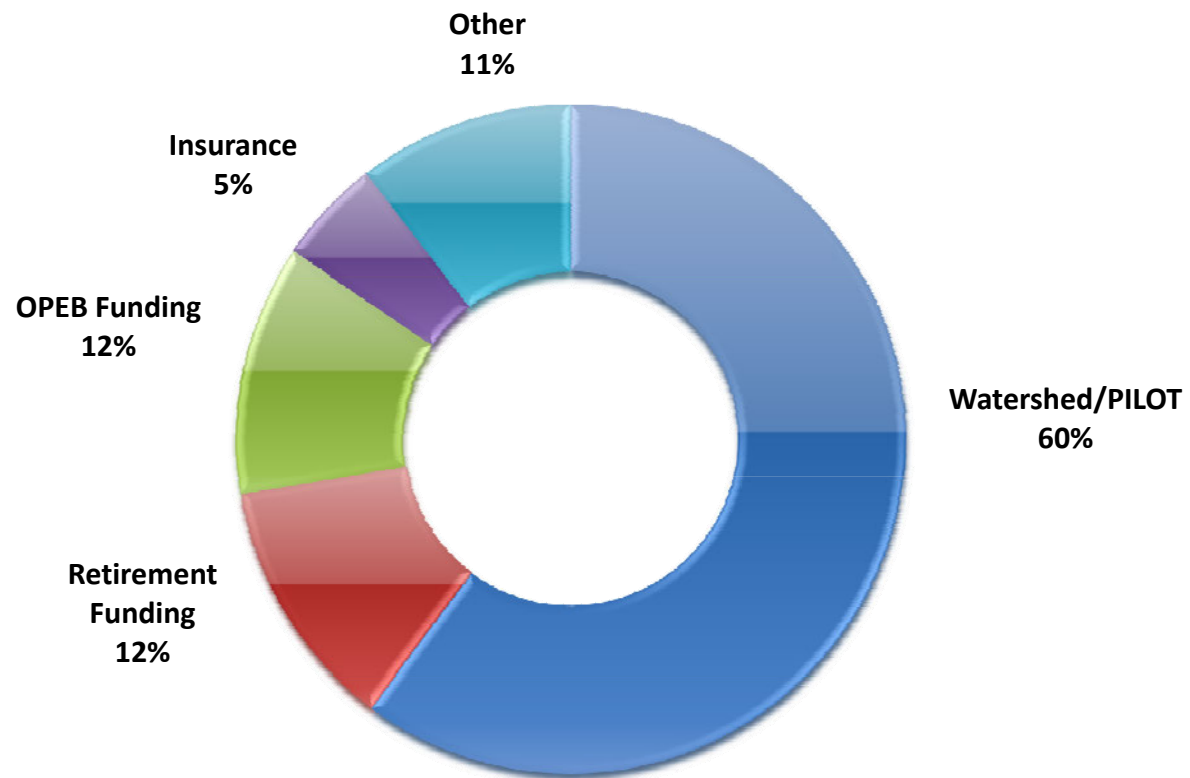
Historical Chemical Cost





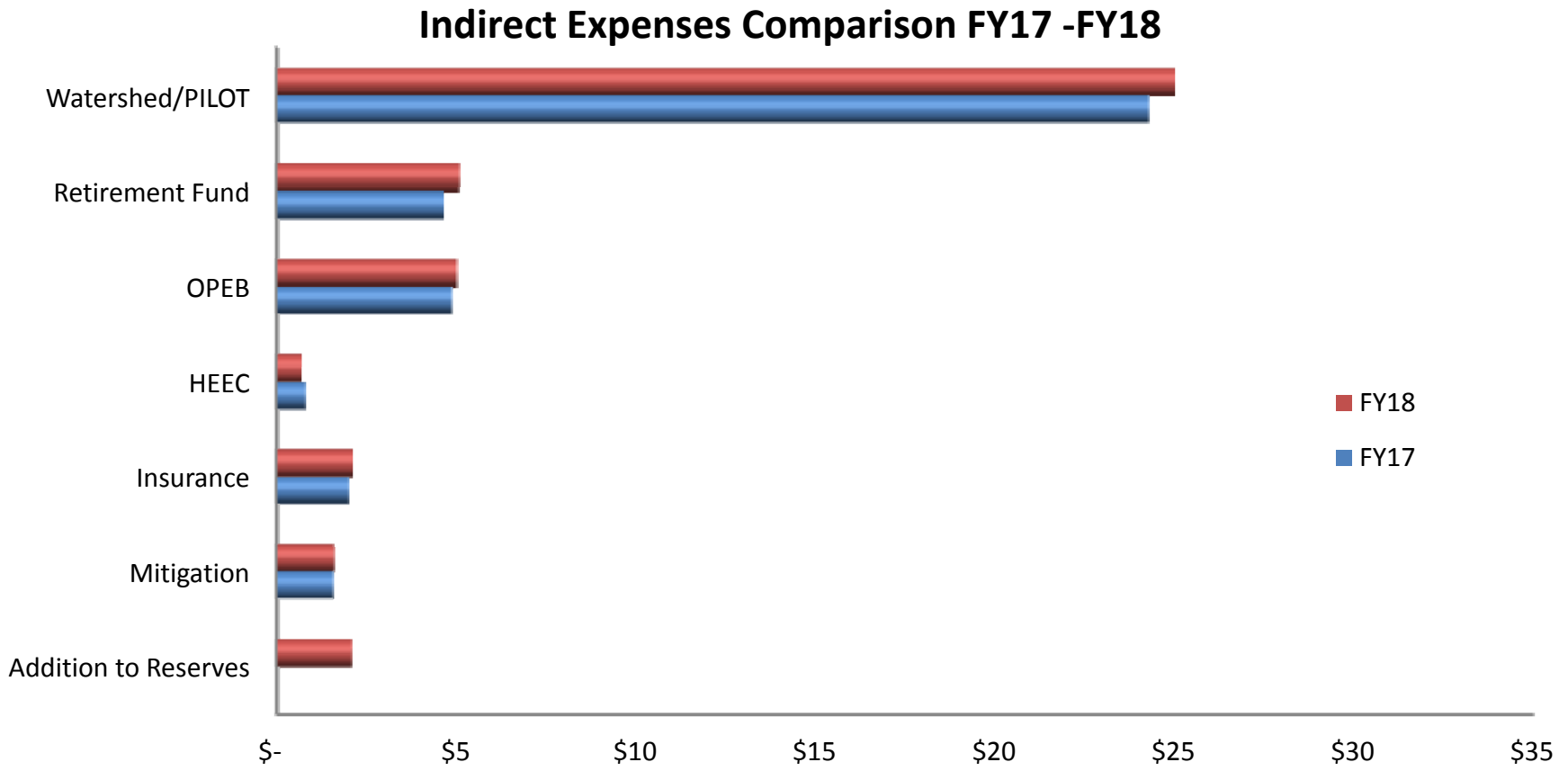
CEB Budget Structure – Indirect Expenses

Indirect Expenses





Indirect Expenses Comparison





FY18 Proposed Current Expense Budget (CEB)

Highlights – Indirect Expenses

- Watershed Program for operating and PILOT: \$25.0M
- Pension Fund required contribution: \$3.3M plus an additional \$1.8M contribution
- OPEB half of actuarial funding schedule: \$5.0M
- Insurance: \$2.1M
- Mitigation: \$1.6M
- HEEC contract: \$0.7M



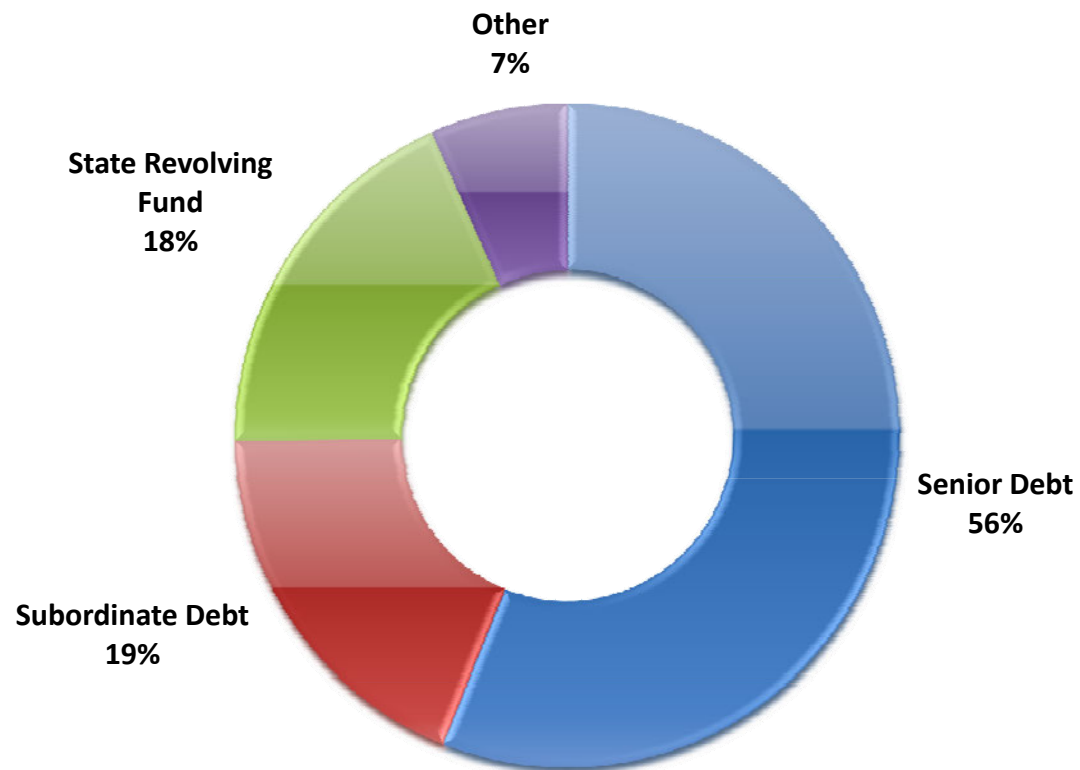
Indirect Expenses

- Pension and OPEB Contributions
 - Actuarial Revaluation
 - Lower Investment Returns



CEB Budget Structure – Capital Finance Expenses

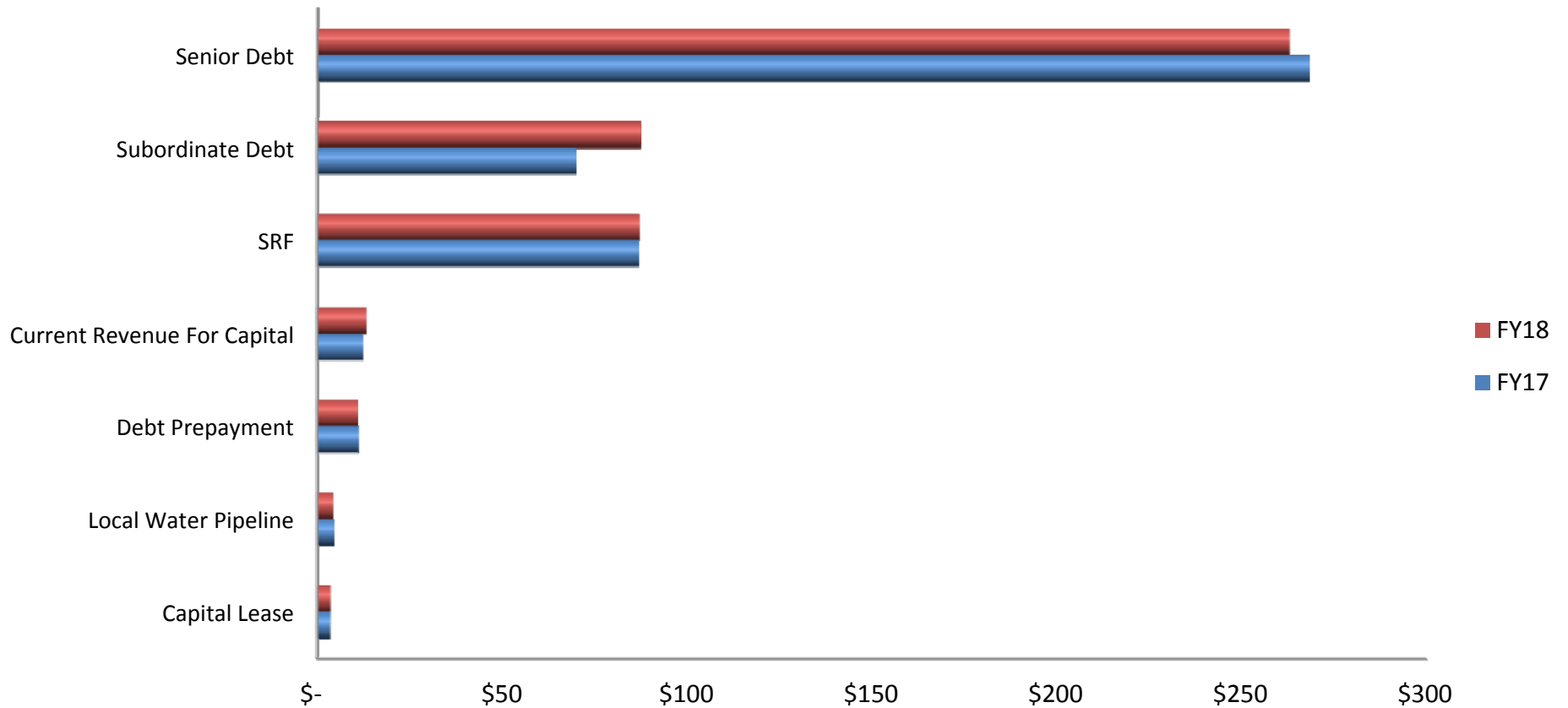
Capital Financing





Capital Finance Expenses Comparison

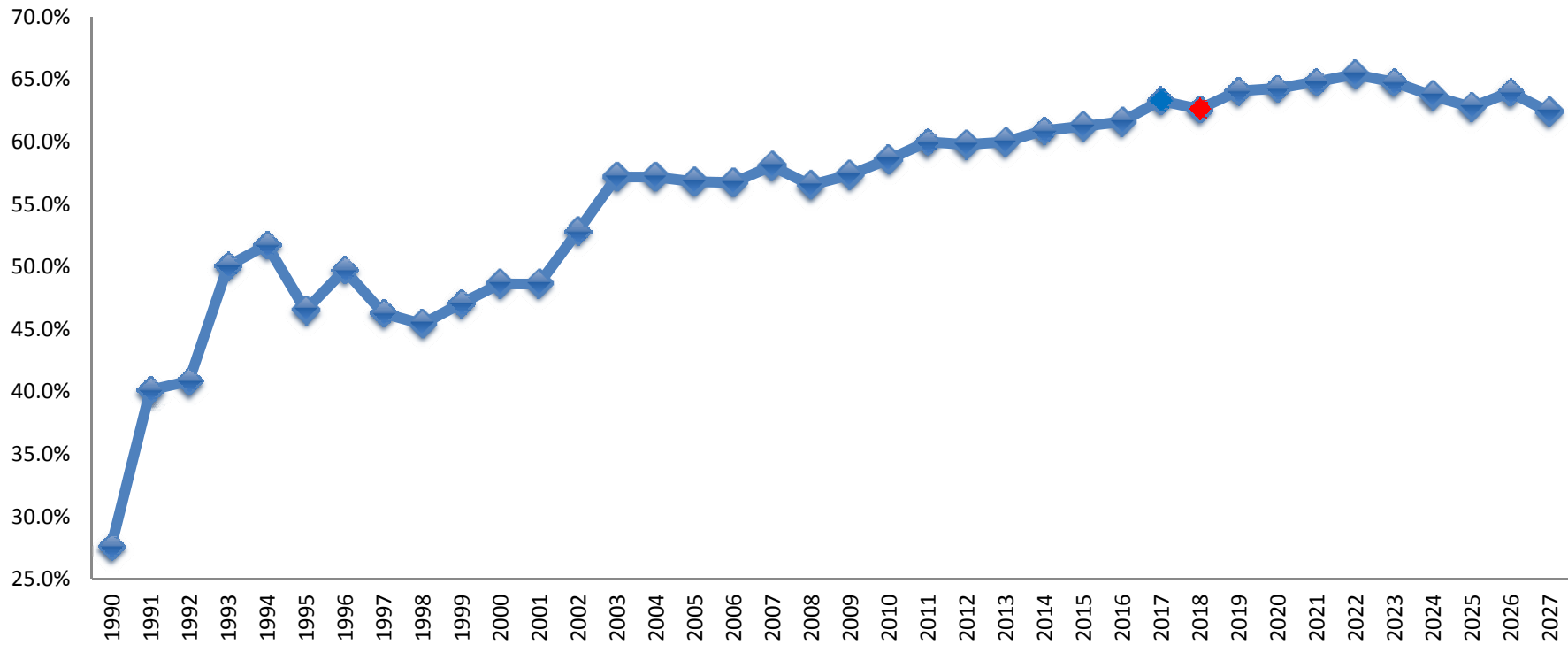
Capital Financing Comparison FY17 - FY18





Capital Finance Expenses – Peak in 2022

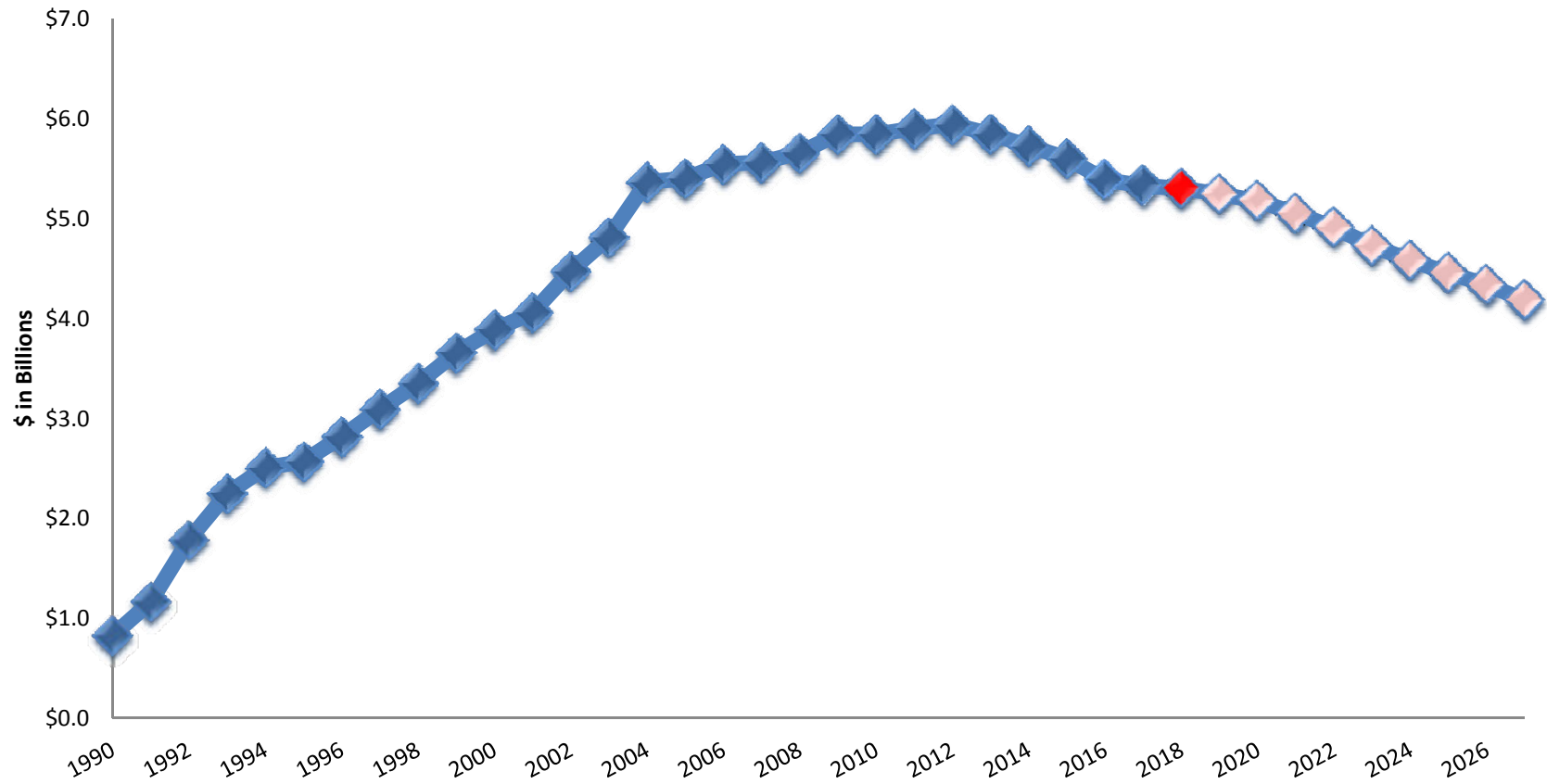
Debt Service as % of Total Budget





Outstanding Debt

Outstanding Debt History





Ways to address the Debt Service challenge

- Defeasance
- Use of Reserves
 - Rate Stabilization Fund
 - Bond Redemption Fund
- Tactical Issuance – Repayment Structure
- Control Capital Spending
- Strategic Use of Current Revenue/Capital Funding



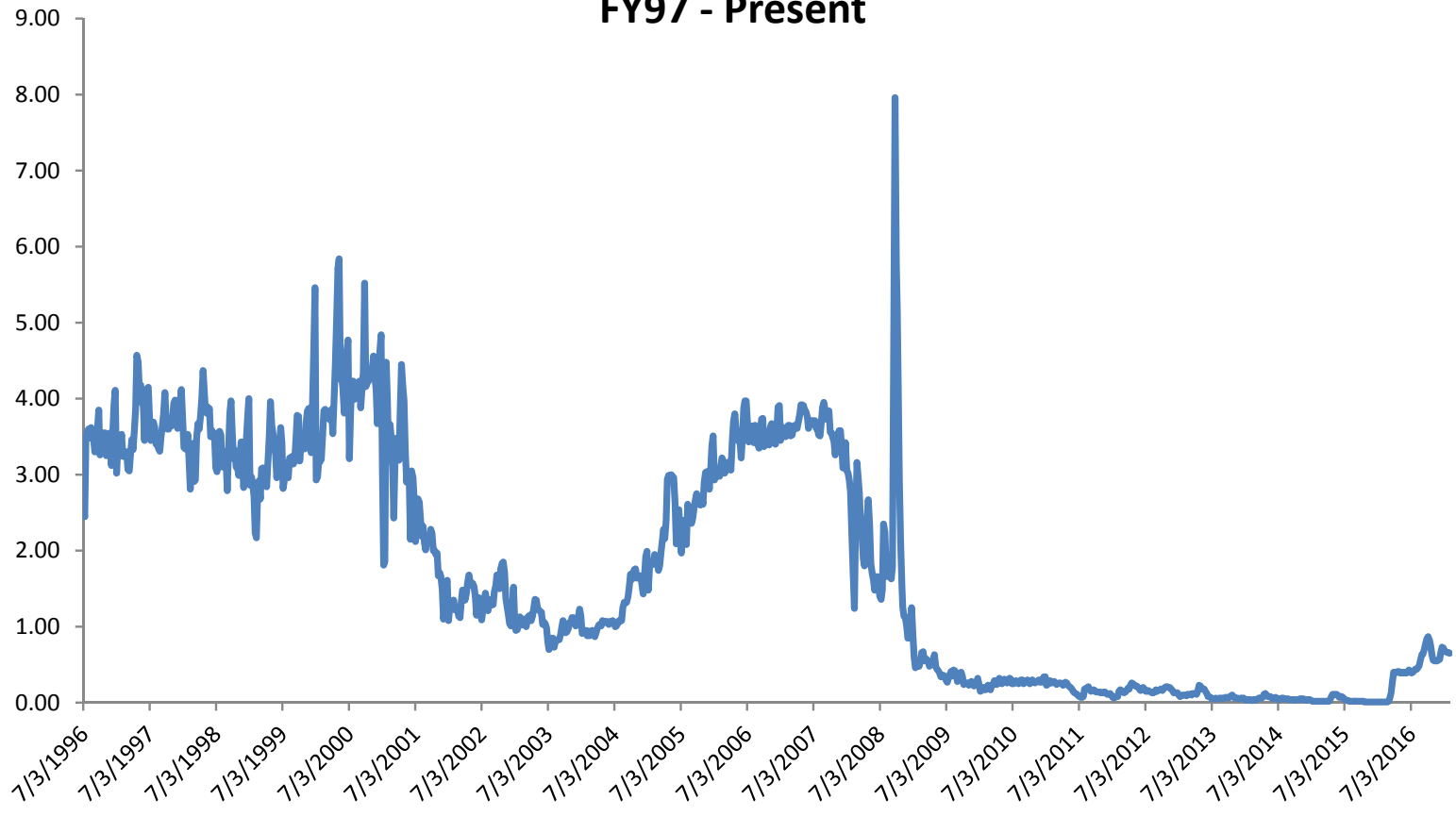
Managing Uncertainty

- Interest Rates
- Amount and Timing of New Money
- Amount and Timing of SRF
- Potential Tax Code Changes



Interest Rate Risk

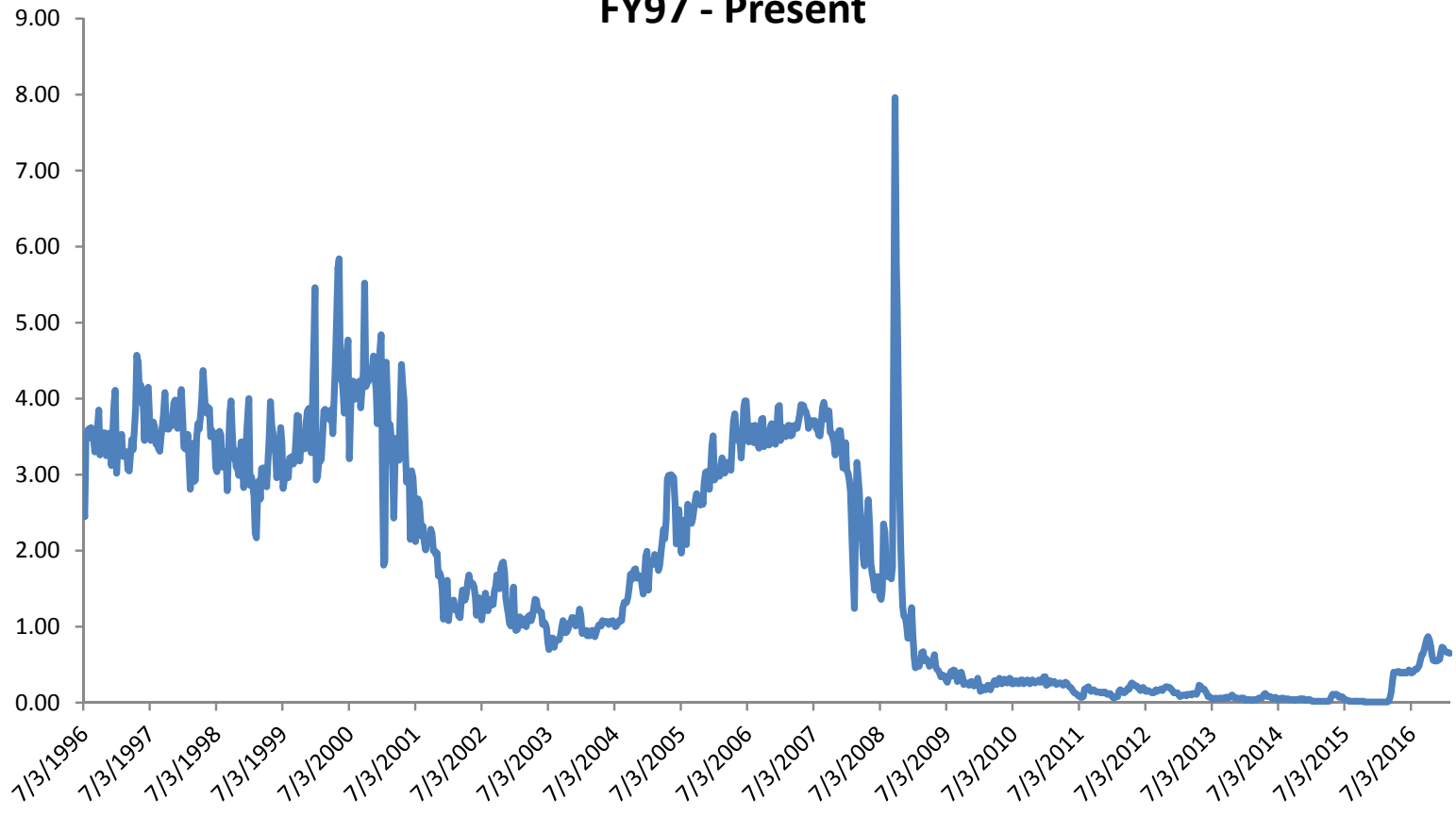
**SIFMA Resets
FY97 - Present**





Interest Rate Risk

SIFMA Resets FY97 - Present





FY18 Proposed Current Expense Budget (CEB)

Highlights – Capital Finance Expenses

- Variable Rate Debt Assumption 3.50%, 25 bp increase
- \$20 million defeasance built into the FY18 Budget
- \$10.9 million prepayment of debt built into FY18 Budget
- \$1.0 million continued commitment to increase Current Revenue for Capital
- No Debt Service Assistance



FY18 Proposed Current Expense Budget (CEB)

Non- Rate Revenue

- Other User Charges - \$9.0 million, increase of \$0.2 million
- Other Revenue - \$7.7 million, increase of \$1.1 million
- Investment Income - \$11.3 million, increase of \$1.8 million

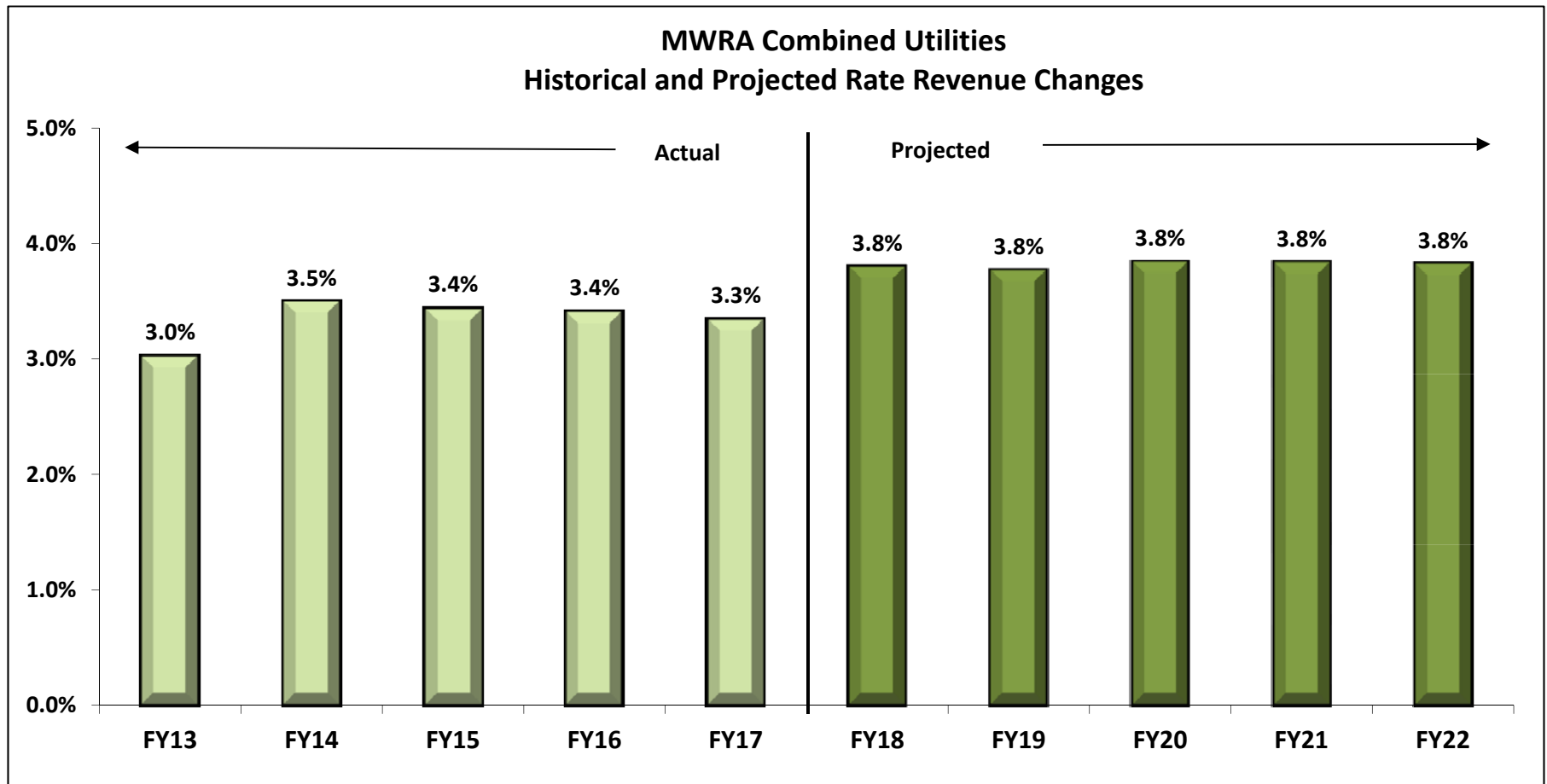


Rate Revenue Requirement

Direct Expense	\$238.4 M
Indirect Expense	\$41.6 M
Debt Service	\$469.1 M
Non-Rate Revenue	(\$27.9) M
Rate Revenue Requirement	<hr/> \$721.2 M



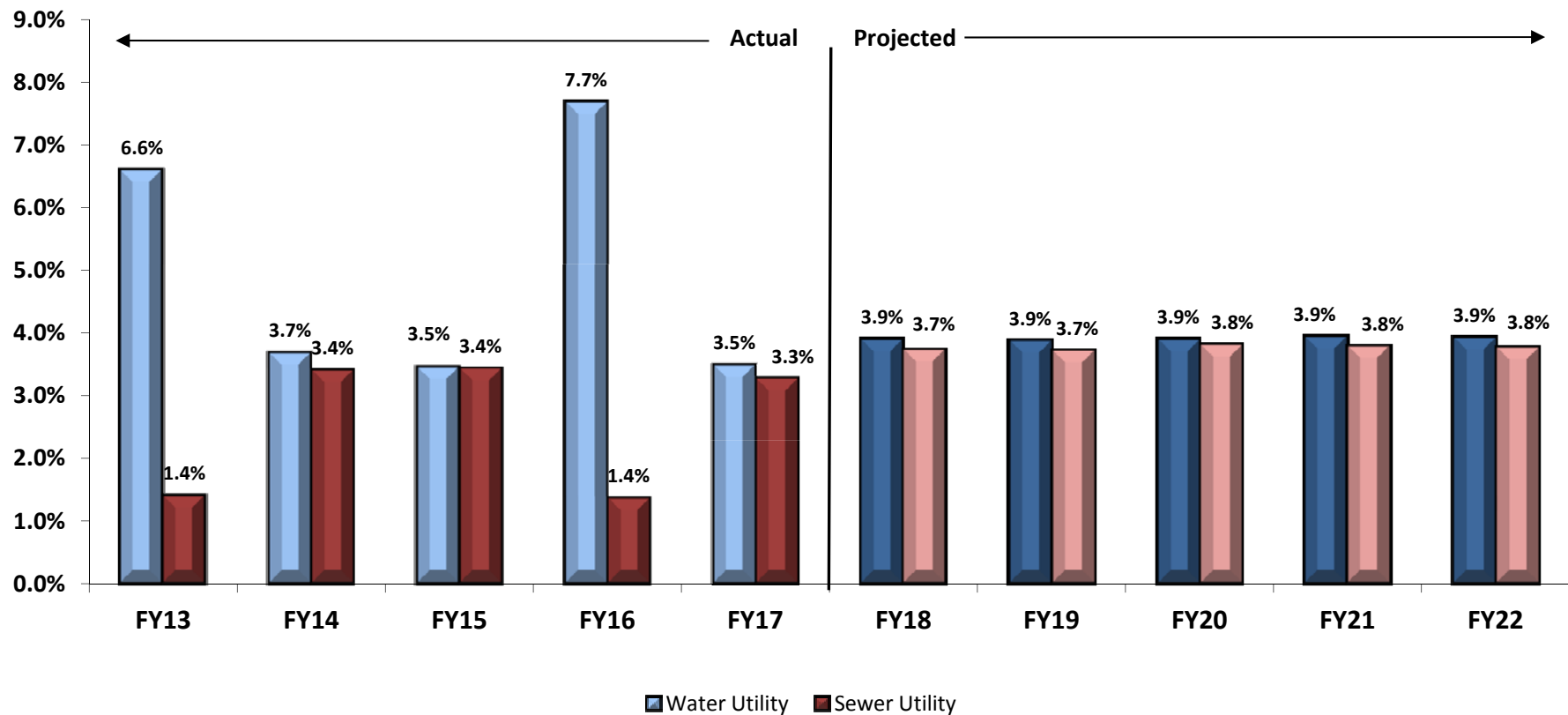
Actual and Forecasted Assessment Changes





Actual and Forecasted Assessment Changes by Utility

MWRA Water & Sewer Utilities Historical and Projected Rate Revenue Changes





FY18 Current Expense Budget Next Steps

- Transmit Proposed Budget to Advisory Board for 60 day review
- Public Hearing
- MWRA Board Hearing
- Staff will present Draft Final Budget in June



Thank You