FY 2016

Integrated
Comments and Recommendations

on the MWRA's Proposed
Capital Improvement Program
and
Current Expense Budget

MWRA
Advisory Board

The Community Advisory Board to the Massachusetts Water Resources Authority

June 2015

The MWRA Advisory Board…

was established by the State Legislature to represent the 60 communities in the MWRA service area. Through annual comments and recommendations on the Authority's proposed capital and current expense budgets and rates, the Advisory Board provides a ratepayer perspective on the MWRA's plans and policies to improve the region's water and sewer systems.

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on the MWRA's Proposed

Fiscal Year 2016

Capital Improvement Program

and

Current Expense Budget

June 2015

Joseph E. Favaloro

Executive Director

Preface

Pursuant to its responsibility under Sections 8 and 23 of Chapter 372 of the Acts of 1984, the MWRA Advisory Board has undertaken a comprehensive review of the Authority's proposed Current Expense Budget and Capital Improvement Program and Budget for the fiscal year beginning July 1, 2015 (FY 2016). The Advisory Board's review has produced these *INTEGRATED COMMENTS AND RECOMMENDATIONS*, which state the Advisory Board's opinions on a number of issues and policies, plus recommendations on proposed spending in each MWRA department. These *Comments and Recommendations* were approved at the May 21, 2015 meeting of the full Advisory Board.

These *Comments and Recommendations* were prepared by Joseph Favaloro, Matthew Romero, Travis Ahern and Cornelia Potter of the Advisory Board staff. Overall direction was provided by Vice Chairman for Finance, Bernard Cooper, with the participation of Advisory Board members.

All base information for figures and tables, schematics and photographs contained within the *Comments and Recommendations* document are provided by MWRA or their consultants, unless otherwise noted.

The Advisory Board extends its appreciation to MWRA staff for their assistance in reviewing the FY16 Capital and Current Expense Budgets.

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Introduction

By statute, the Advisory Board of MWRA communities is charged with reviewing the Massachusetts Water Resources Authority's proposed Capital Improvement Program (CIP) and proposed Current Expense Budget (CEB). Beginning in 2009, the Advisory Board consolidated this review into one *Integrated Comments and Recommendations* document.

At the time of this writing, the Advisory Board and Authority are celebrating the 30th anniversary of their creation. At "milestone" years it is often important to look at accomplishments and ask questions about the past in order to better shape the actions of the future. The first question is: why was the MWRA created? Quite simply, due to chronic capital underinvestment, the Metropolitan District Commission (MDC) had failed to maintain the regional water and sewer systems. Recognizing how critical these systems were to the environmental and economic life of the Commonwealth, the legislature created the MWRA to begin addressing the significant and immediate challenges it faced. In order to face these challenges, the MWRA was also empowered to independently raise revenues and borrow funds as needed to finance the billions of dollars that would be required. But the cost of fixing these failing systems begged the second question: what about accountability?

Toward that end, the Enabling Act also created the Advisory Board of MWRA communities to ensure a balanced approach to fiscal and policy decisions. It gave voice to and placed the focus on the customer – namely the member communities, and ultimately the ratepayers paying the bills. The statutory role of the Advisory Board, which includes not only the annual budget review but also representation on the MWRA Board of Directors, has allowed the MWRA to meet its core mission while helping to control costs.

Fast-forwarding 30 years, what was once derided as "the dirtiest harbor in America" is now being referred to by EPA as a "great American jewel."[1] The restored Boston Harbor has unlocked untold economic opportunity and allowed for a revitalization of the waterfront area.[2] Last year, the American Water Works Association declared Boston and MWRA water to be the "Best of the Best" in a blind tap water taste test.[3] The results of the MWRA's and the Advisory Board's efforts over the last 30 years speak for themselves.

In addition to the 30th anniversary, the Authority has recently hit a number of major milestones, which this year's *Comments* discusses in detail. From environmental milestones like the pending completion of the court-mandated Combined Sewer Overflow (CSO) Program to achieving full funding of the pension fund and the subsequent strategy on beginning to fund its Other Post-Employment Benefits (OPEB) liability, this year marks a significant turning point for the Authority. With the majority of its mandated capital spending complete, the agency now faces the challenge of determining the appropriate level of capital investment to ensure the adequate maintenance of the infrastructure it has built and restored. Discussion of the need for capital reinvestment forms a major part of our review of the proposed FY16 CIP (see CIP Chapter, page 12).

The proposed FY16 CEB includes a combined rate revenue requirement increase of 4.1%. If untouched, this would be the first year since FY 2010 that the rate increase would be over 4%. That said, it is the Authority's and the Advisory Board's intention to bring the final FY16 increase in line with last year's mantra "Four No More," in which the Advisory Board challenged the Authority to bring increases between FY15 and FY20 below the 4% mark. Though the proposed FY16 CEB includes projections of increases above this level during this timeframe, recent actions by the MWRA Board of Directors

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[1] http://www.bostonglobe.com/magazine/2012/05/11/boston-waterfront-has-arrived/WoPbPzHYEOv66Bna9XaryL/story.html

[2] See the Economic Development Report commissioned by the Advisory Board: http://mwraadvisoryboard.com/wp-content/uploads/2014/01/MWRAAB-Economic-Development-Report-Final-2014-01.pdf

[3] http://www.mwra.com/01news/2014/061014-clean-sweep.html

will bring projected increases below 4% through FY21. This was achieved due to yet another milestone for the Authority and will be discussed in greater detail (see Capital Financing Chapter, page 54) as part of the successful long-term approach to rates management.

In fact, this leads to the final question to ask: how have the Authority and the Advisory Board been so successful over the years? The answer lies in the interaction between the Advisory Board and the Authority. Sometimes the Advisory Board serves as a constructive critic, other times as a close collaborator, and yet others as an outright opponent; however, each entity approaches the decision being made with the same goal of achieving the best possible outcome. The end result of this "push and pull," has been 30 years of successful accomplishments and achievements for both entities.

In truth, this collaboration between the Advisory Board and the Authority is the true success of the Enabling Act. It provided the opportunity for a balanced approach to spending and construction, delivered concrete results, all the while maintaining accountability to the communities, the ratepayers, and the public at large.

The Advisory Board remains proud of the achievements of the last 30 years and looks forward to addressing the challenges of the next 30 years as well.

Proposed FY16 Capital Improvement Program Highlights

Table 1

Currently Active Projects ($ millions)			
Program	**Active Projects Spending thru FY14**	**Future Active Projects Spending**	**TOTAL Active Projects**
Wastewater System Improvements	$1,791.7	$1,183.8	$2,975.5
Waterworks System Improvements	1,915.6	991.0	2,906.7
Business & Operations Support	82.9	44.0	127.0
TOTAL MWRA (w/o Contingency)	**$3,790.3**	**$2,218.9**	**$6,009.2**

- Currently open capital projects total $6.01 billion
- Nearly $3.8 billion has been spent on these projects through FY14
- Another $4.05 billion is treated as completed (and closed out) and removed from the open project list
  - Most notable among these is $3.51 billion for the Boston Harbor Project[4]
- From the inception of the Authority through FY14 spending totals $7.84 billion

Table 2

MWRA Spending Since 1985			
Program	**Completed (and closed out) Projects**	**Active Projects Spending thru FY14**	**TOTAL SPENT 1985-2014**
Wastewater System Improvements	$3,851.8	$1,791.7	$5,643.4
Waterworks System Improvements	$168.3	1,915.6	2,084.0
Business & Operations Support	$32.4	82.9	115.3
TOTAL MWRA (w/o Contingency)	**$4,052.4**	**$3,790.3**	**$7,842.7**

- Future project spending is nearly $2.22 billion

Table 3

MWRA Spending Since 1985 (including future active projects)			
Program	**MWRA Past Spending**	**MWRA Future Spending**	**TOTAL**
Wastewater System Improvements	$5,643.4	$1,183.8	$6,827.3
Waterworks System Improvements	2,084.0	991.0	$3,075.0
Business & Operations Support	115.3	44.0	159.3
TOTAL MWRA (w/o Contingency)	**$7,842.7**	**$2,218.9**	**$10,061.6**

- In addition to spending through FY14, the proposed budget includes both ongoing and future planned spending totaling $10.06 billion

[4] On Deer Island. Including spending on residuals processing facilities, the Boston Harbor Project total is $3.8 billion.

- Each year, the Authority includes new projects, as identified in the Master Plan, although not all projects in the Master Plan are in the annual budget document
- The Master Plan, published first in 2006, identified and prioritized $3.1 billion in water and wastewater projects
  - FY 2007 – 2018 (12 years): nearly $2.034 billion in project needs were identified (66% of the total)
  - FY 2019 – 2048 (30 years): $1.044 billion in future project needs were identified
- The Master Plan was updated in 2012-2013 with a 40-year look at potential capital expenditures to 2053. The updated Plan identifies (approximately):
  - Wastewater needs: $2.5 billion
  - Waterworks system needs: $1.5 billion
  - Updated total: $4.0 billion
    - FY14-33: $2.0 billion
    - For consideration in future capital budgets: $2.0 billion
    - Updated Master Plan is available electronically

Shift from Mandated Spending to Asset Protection

- Nearly 80% of all spending since 1985 has been for court-mandated projects or major new facilities, including:
  - Deer Island Wastewater Treatment Plant/Boston Harbor Project: $3.51 billion
  - Residuals facilities at Fore River/Quincy: $0.18 billion
  - CSO Control Program: $853.3 million through FY 2014
  - MetroWest Water Supply Tunnel: $696.8 million through FY 2014
  - Carroll Water Treatment Plant: $415.5 million through FY 2014
- Going forward, the Authority's focus is on Water and Wastewater Asset Protection and on Water System Redundancy projects

Capital Spending by Initiative

Table 4

	Total Contract	**FY09-13**	**FY14-18**	**FY19-23**	**Beyond 23**
Asset Protection	$ 2,254.5	$ 248.0	$ 411.9	$ 788.7	$ 170.5
Carroll WTP	437.8	38.5	14.8	11.8	0.0
Water Redundancy	1,893.9	134.7	182.9	495.2	218.5
CSO	873.6	315.5	58.6	2.0	-
Other	549.3	88.4	53.7	(22.6)	(64.8)
Total	**$ 6,009.2**	**$ 825.1**	**$ 721.8**	**$ 1,275.0**	**$ 324.2**
Asset Protection	**37.5%**	**30.1%**	**57.1%**	**61.9%**	**52.6%**
Carroll WTP	7.3%	4.7%	2.0%	0.9%	0.0%
Water Redundancy	**31.5%**	**16.3%**	**25.3%**	**38.8%**	**67.4%**
CSO	14.5%	38.2%	8.1%	0.2%	0.0%
Other	9.1%	10.7%	7.4%	-1.8%	-20.0%
Total	100.0%	100.0%	100.0%	100.0%	100.0%

- Asset Protection and Water Redundancy spending for the FY14-18 cap period:
  - Projected to be 82.4% of all spending identified (See Table 4)
  - Spending similar to final FY15 CIP levels and distribution
  - Some scheduled spending has shifted beyond the current cap period
- CSO Control Program nears completion (December 2015)
  - Program totals nearly $900 million
  - FY14-18 spending: $59 million
    - Makes up 8% of total FY14-18 spending
  - FY09-13 spending: $317 million
    - Made up nearly 40% of total FY09-13 spending
  - Spending increases over current cap period due to:
    - Cambridge/Alewife project
    - Reserved Channel (South Boston) project
- Negative spending beyond FY18 reflects repayments of the loan portions of the community assistance programs

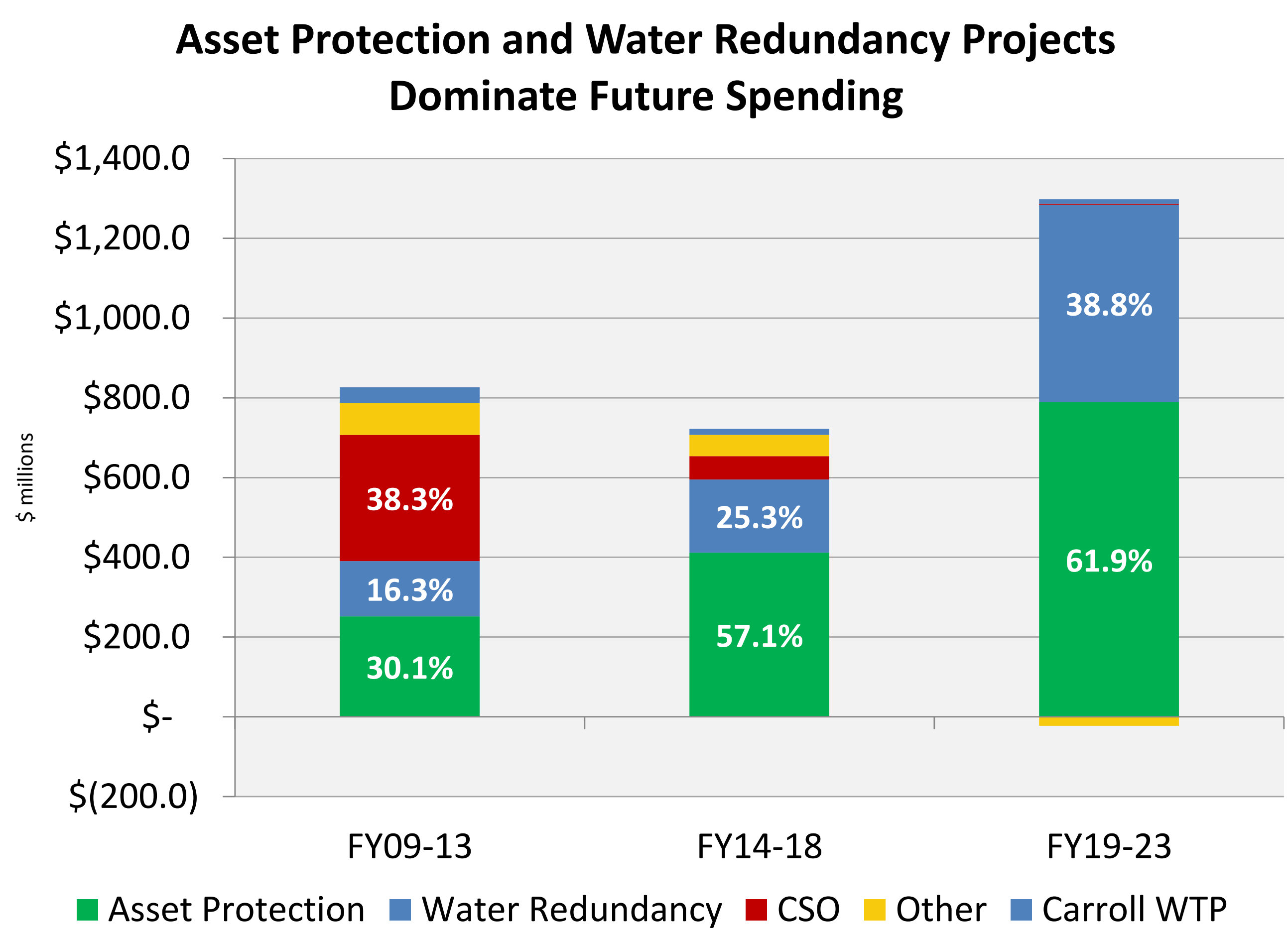

Figure 1

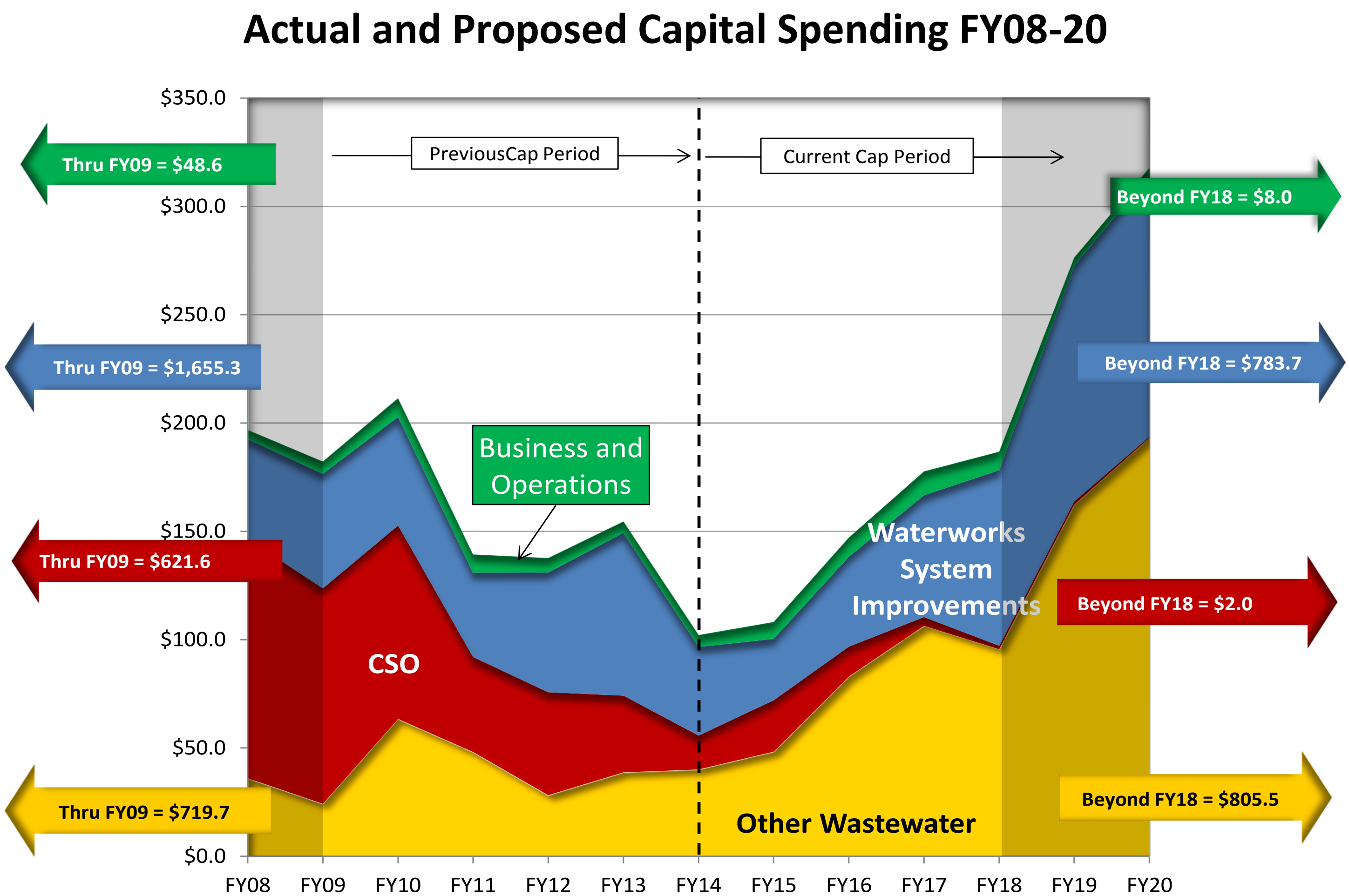

Figure 2

Table 5

Actual FY09-13 Capital Spending by Program

($ millions)

Program	Total Contract	Spending thru FY14	Remaining Balance	FY09 Actual	FY10 Actual	FY11 Actual	FY12 Actual	FY13 Actual	FY09-13
Wastewater System Improvements	**$2,975.5**	**$1,791.7**	**$1,183.8**	**$123.7**	**$152.7**	**$92.0**	**$75.8**	**$74.2**	**$518.3**
Interception & Pumping	890.8	527.4	363.3	6.8	2.5	15.1	6.0	1.9	32.4
Treatment	776.0	213.8	562.1	14.7	56.0	29.8	16.4	16.0	132.9
Residuals	167.6	64.6	103.0	0.0	0.4	0.0	0.0	0.4	0.7
CSO	898.3	853.3	45.0	99.4	89.3	43.8	47.6	35.4	315.5
Other	242.9	132.5	110.3	2.7	4.5	3.3	5.8	20.4	36.8
Waterworks System Improvements	**2,906.7**	**1,915.6**	**991.0**	**52.9**	**50.1**	**38.9**	**55.3**	**75.1**	**272.3**
Drinking Water Quality Improvements	665.5	625.4	40.1	17.8	12.4	2.4	18.4	35.5	86.7
Transmission	1,223.5	759.5	464.0	6.3	15.7	24.6	18.3	17.2	82.2
Distribution and Pumping	948.6	377.5	571.1	19.4	16.5	12.7	14.3	4.4	67.3
Other	69.0	153.2	-84.2	9.3	5.5	-0.9	4.3	18.0	36.2
Business & Operations Support	**127.0**	**82.9**	**44.0**	**5.7**	**8.7**	**8.4**	**6.6**	**5.2**	**34.5**
TOTAL MWRA w/o CONTINGENCY	**$6,009.2**	**$3,790.3**	**$2,218.9**	**$182.2**	**$211.4**	**$139.3**	**$137.6**	**$154.5**	**$825.1**

Table 6

Proposed FY14-18 Capital Spending by Program ($ millions)									
Program	**Total Contract**	**Spending thru FY14**	**Remaining Balance**	**FY14 Actual**	**FY15 Projected**	**FY16 Proposed**	**FY17 Projected**	**FY18 Projected**	**FY14-18**
Wastewater System Improvements	**$2,975.5**	**$1,791.7**	**$1,183.8**	**$55.7**	**$72.0**	**$96.7**	**$110.5**	**$97.1**	**$432.0**
Interception & Pumping	890.8	527.4	363.3	6.9	9.1	17.6	38.4	31.1	103.1
Treatment	776.0	213.8	562.1	29.1	28.0	47.8	47.9	42.8	195.6
Residuals	167.6	64.6	103.0	0.1	0.0	0.7	1.2	3.6	5.5
CSO	898.3	853.3	45.0	15.6	23.7	13.7	4.1	1.5	58.6
Other	242.9	132.5	110.3	4.0	11.2	16.9	18.9	18.1	69.2
Waterworks System Improvements	**2,906.7**	**1,915.6**	**991.0**	**41.0**	**28.4**	**41.6**	**56.2**	**81.1**	**248.3**
Drinking Water Quality Improvements	665.5	625.4	40.1	30.2	17.0	3.9	4.7	2.2	58.1
Transmission	1,223.5	759.5	464.0	4.5	3.9	21.2	24.1	32.5	86.1
Distribution and Pumping	948.6	377.5	571.1	4.8	8.5	15.6	27.2	41.2	97.2
Other	69.0	153.2	-84.2	1.5	-1.0	0.9	0.2	5.2	6.8
Business & Operations Support	**127.0**	**82.9**	**44.0**	**5.5**	**7.8**	**8.8**	**10.9**	**8.5**	**41.5**
TOTAL MWRA w/o CONTINGENCY	**$6,009.2**	**$3,790.3**	**$2,218.9**	**$102.2**	**$108.1**	**$147.1**	**$177.6**	**$186.8**	**$721.8**

Changes in Proposed Spending for FY14-18

- Final FY13 CIP spending for FY14-18: $997.3 million
- Final FY14 CIP revised spending level FY14-18: $717.9 million
  - Reduction: nearly $280 million
  - Purpose of reduction was to bring capital spending cap amount under $800 million per Advisory Board recommendation
  - Much of this spending was shifted beyond FY18 based on levels of actual spending (See Figure 2 and Table 6)

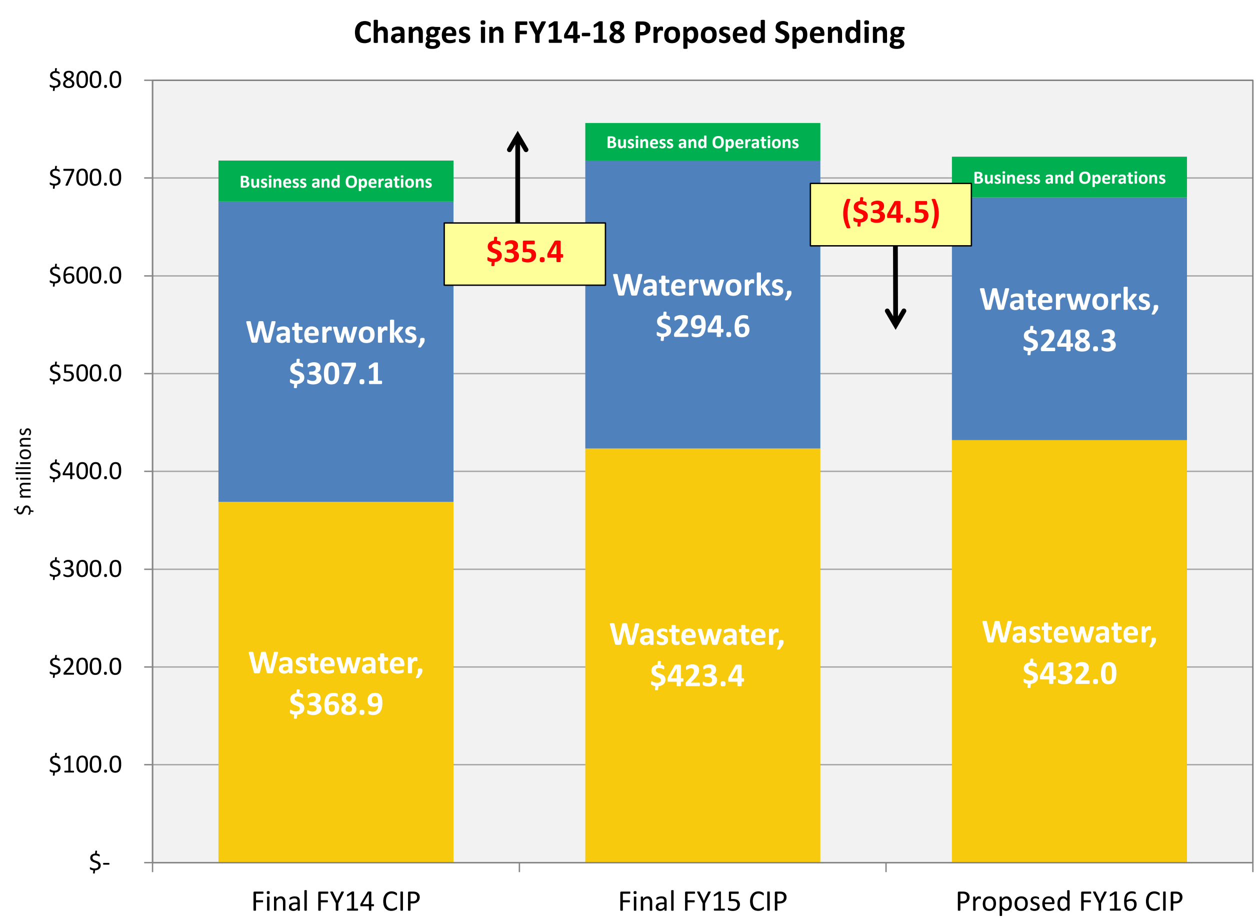

Figure 3

- Final FY15 CIP updated spending for FY14-18 period: $756.3 million
    - Increase of $35.4 million
- Proposed FY16 CIP spending for FY14-18 period: $721.8 million
    - Close to Final FY14 CIP
- FY14-18 wastewater spending: $432 million
    - Represents 60% of total spending
- FY14-18 waterworks spending: $248.3 million
    - $60 million lower than final FY14 CIP
    - Represents 34% of total spending
- FY14 total actual spending: $102 million
- FY15, FY16, FY17 spending reduced, while FY18 increases
- Total spending for FY14-18 reduced by $34.5 million (See Figure 3)
    - Reflects $56.6 million in schedule shifts beyond FY18
    - Partially offset by spending on new and expanded existing projects

Table 7

Proposed FY16 CIP Largest 10 Projects				
Utility	**Program**	**Project**	**FY16 Spending**	**% of Total FY16 Spending**
Wastewater	Treatment	DI Treatment Plant Asset Protection	$45.2	30.7%
Waterworks	Transmission	Long Term Redundancy	18.3	12.4%
Wastewater	Interception & Pumping	Facility Asset Protection	17.1	11.6%
Wastewater	Other	I/I Local Financial Assistance	16.9	11.5%
Wastewater	CSO Community Managed	Cambridge Sewer Separation	11.9	8.1%
Waterworks	Distribution & Pumping	Weston Aqueduct Supply Mains	6.1	4.1%
Waterworks	Distribution & Pumping	NIH Redundancy & Storage	5.5	3.7%
Business & Operation	Support	Application Improvement Program	2.3	1.6%
Waterworks	Other	Central Monitoring System	2.3	1.6%
Waterworks	Drinking Water Quality Improvements	Carroll Water Treatment Plant	2.0	1.4%
Top 10 Spending in FY16			**$127.6**	**86.7%**
FY16 Total Proposed CIP Spending			**$147.10**	**100.0%**

FY16 Capital Spending

- Total FY16 spending: $147.1 million
    - Represents a 36% increase in proposed spending[5]
- Forty-five contracts budgeted at $166.5 million are projected to be awarded
    - Ten largest projects represent 77% of the value of the expected awards

[5] Compared to revised projections for FY15 spending ($108.1 million)

Wastewater Capital Spending

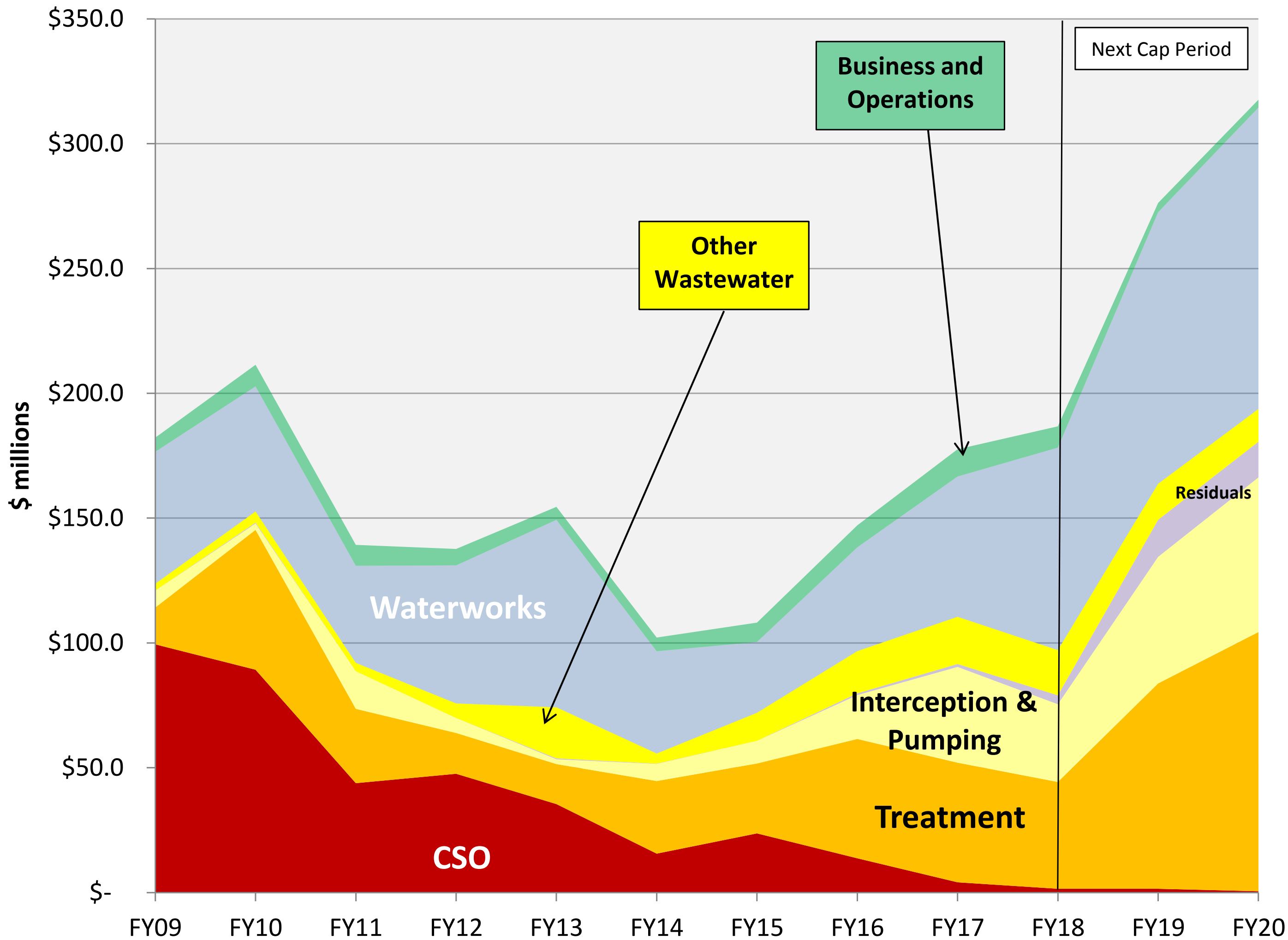

Figure 4

- Wastewater system improvements are divided into five categories: ([See Table 6](#) and [Figure 4](#))
    1. Interception and Pumping
    2. Treatment
    3. Residuals
    4. CSOs
    5. Other

<u>Wastewater Spending Highlights</u>

- FY16 spending budgeted at $96.7 million
- Represents 66% of all proposed spending for FY16

Table 8

Largest Wastewater Projects FY16 ($ millions)		
Project	**FY16 Spending**	**Program**
DI Treatment Plant Asset Protection	$45.25	Treatment
Facility Asset Protection	17.12	Interception and Pumping
I/I Local Financial Assistance	16.91	Other Wastewater
Cambridge Sewer Separation	11.92	CSO (Community Managed)
Clinton Wastewater Treatment Plant	2.55	Treatment
Dorchester Bay Sewer Separation	0.75	CSO (Community Managed)
Reserved Sewer Channel Separation	0.71	CSO (Community Managed)
Residuals Asset Protection	0.69	Residuals
TOTAL	**$95.9**	

Table 9

Largest Wastewater Projects FY14-18 ($ millions)		
Project	**FY14-18 Spending**	**Program**
DI Treatment Plant Asset Protection	$182.01	Treatment
Facility Asset Protection	93.41	Interception and Pumping
I/I Local Financial Assistance	69.18	Other Wastewater
Cambridge Sewer Separation	41.65	CSO (Community Managed)
Clinton Wastewater Treatment Plant	13.58	Treatment
Reserved Sewer Channel Separation	12.57	CSO (Community Managed)
Wastewater Meter Sys. Equip. Replace.	6.44	Interception and Pumping
Residuals Asset Protection	5.54	Residuals
MWR003 Gate & Siphon	3.85	CSO (MWRA Managed)
TOTAL	**$428.2**	

- FY16 Deer Island Treatment Plant (DITP) Asset Protection project spending: $42.25 million
  - Nearly one-third of all FY16 spending
  - Includes multiple design and construction contracts
- Second largest wastewater project: Wastewater Facility Asset Protection
  - Also includes multiple design and construction contracts
  - Includes pump stations, headworks facilities, pipeline rehabilitation
- FY16 CSO spending: $13.7 million
  - FY16 is the last year of CSO spending over $10 million
  - Court-ordered completion date is December 2015
- FY16 Facility Asset Protection project contracts: $17.1 million
  - Includes multiple facility and pipeline contracts
  - Nearly doubles from FY15 projected spending of $8.8 million
  - Increase due to more projects moving from design to construction phases
- The Facility Asset Protection project includes contracts for:
  - The rehabilitation of the Chelsea Creek Headworks

- Followed by rehabilitation of the Ward Street and Columbus Park headworks facilities
    - Alewife Brook Pump Station rehabilitation
    - Nut Island Headworks improvements
    - Chelsea Screenhouse upgrades
    - Caruso Pump Station improvements
    - Sewer pipeline rehabilitation
- Only one new contract proposed for the FY16 CIP
    - Wastewater SCADA/PLC upgrades at $7.0 million to start in FY17 (See Appendix G)

Interception and Pumping (I&P) Projects

- Includes projects that address the wastewater collection system facilities, sewers and tunnels. Among them are:
    - Four remote headworks
    - Twenty pump stations and CSO facilities
    - More than 250 miles of sewer pipelines
    - Four cross harbor tunnels to the Deer Island plant totaling 18 miles
- Proposed FY14-18 spending: $103.1 million
    - FY15 spending: $9.1 million
    - FY16 spending: $17.6 (nearly doubles)
    - FY17 spending: $38.4 million (nearly doubles again)
- Wastewater Facility Asset Protection is the largest group of contracts in the I&P projects category
    - FY14-18 spending: $93.4 million
    - Total future spending: $290 million
        - $176 million of this total scheduled for FY19-23
    - Upcoming contract awards include:
        - Alewife Brook Pump Station Rehabilitation construction ($10.4 million)
        - Chelsea Creek Headworks Upgrades construction ($54.8 million)
        - Interceptor Renewal 1, Reading Extension ($3.64 million)
        - Caruso Pump Station Improvements construction ($2.9 million)
        - Cottage Farm PCB Abatement ($2.15 million)
        - Chelsea Screenhouse Upgrades ($3.6 million)
- Other I&P projects have measurable future spending after the current cap period and include:
    - Braintree-Weymouth improvements
    - Siphon structure rehabilitation
    - Corrosion and Odor Control
    - Wastewater Central Monitoring
    - Wastewater Process Optimization
    - Wastewater Meter System Equipment Replacement

Wastewater Treatment

- Includes:
  - Deer Island Treatment Plant asset protection
  - Clinton Wastewater Treatment Plant
- FY16 spending : $47.8 million
- FY14-18 spending: $195.6 million
- Deer Island Treatment Plant spending for FY14-18: $182.0 million
  - Largest wastewater project; many separate projects and contracts
  - Largest of all projects for FY16 capital budget
- Clinton Wastewater Treatment Plant FY14-18 spending: $13.6 million
- Laboratory Instrumentation: see Equipment Purchase project under Business and Operations Support

Deer Island Wastewater Treatment Plant

- FY14-18 spending: $182.01 million
- FY16 spending: $45.25 million
  - Largest capital project in FY16
- Dozens of contracts are moving forward or are planned for the five-year cap period (and beyond)
  - 16 contracts involve spending of $3 million or more during the cap period (See Table 10).
  - Another 22 contracts involve spending of between $1 million to $3 million during the cap period.
- The largest contracts with significant spending (over $10 million) during the FY14-18 period are:
  - Scum skimmer replacement ($20.16 million)
  - North Main Pump Station VFD replacement ($17.82 million)
  - Butterfly valve replacement ($16.96 million)
  - Electrical equipment upgrades, phase 4 ($10.91 million)
  - Clarifier rehabilitation Phase 2 ($10.83 million)
- Total increase from final FY15 CIP: +$65.3 million
  - FY14-18 increase: +$3.35 million
  - FY19-23 increase: +$62.0 million
- Co-digestion projects
  - Residuals ($2.3 million)
  - Co-digestion storage, piping, and pumping facilities ($5.0 million)
- Combined heat and power design ($6 million) and construction ($83 million)[6]

[6] During next cap period (FY19-23)

Table 10

Top Deer Island Projects ($ millions)		
Projects	**FY14-18**	**FY19-23**
Top Deer Island Projects, Over $1 Million		
Ancillary Modifications	$ -	$ 11.64
Ancillary Modifications - Design 4	$ 2.14	$ 2.14
As-needed Design 7-1	$ 1.05	$ -
As-needed Design 7-2	$ 1.20	$ -
As-needed Design 7-3	$ 1.45	$ -
As-needed Technical Design	$ 5.00	$ 10.00
Barge Berth and Facility Replacement	$ 0.75	$ 1.51
Centrifuge Backdrive Replacement	$ 3.65	$ -
Centrifuge Replacements - Construction	$ -	$ 3.47
Chemical Pipe Replacement	$ -	$ 2.07
Clarifier Rehabilitation Phase 2 - Construction	$ 10.83	$ 24.17
Clarifier Rehabilitation Phase 2 - Design	$ 1.69	$ 0.54
Clarifier Rehabilitation Phase 2 - REI	$ 0.46	$ 1.04
Co-Digestion - Design/Build	$ 5.00	$ -
Co-Digestion Temporary Facilities	$ 2.30	$ -
Combined Heat & Power - Construction	$ -	$ 83.00
Combined Heat & Power - Design	$ 3.00	$ 3.00
Cryogenics Chillers Replacement	$ 3.24	$ -
Cryogenics Plant - Equipment Replacement - Construction	$ -	$ 5.30
Cryogenics Plant - Equipment Replacement - Design	$ -	$ 1.60
CTG Rebuilds	$ -	$ 6.00
Digester & Storage Tank Rehab - Construction	$ -	$ 21.70
Digester & Storage Tank Rehab - Design	$ 1.50	$ 1.50
Digester Modules 1 & 2 Pipe Replacement	$ 1.20	$ -
DSL Pump Replacement - Phase 2	$ 4.66	$ -
Dystor Membrane Replacements	$ 1.20	$ -
Eastern Seawall - Construction 1	$ -	$ 3.75
Electrical Equipment Upgrade - Construction 4	$ 10.91	$ -
Electrical Equipment Upgrade - Phase 5	$ 0.80	$ 15.97
Electrical Equipment Upgrade 4 - REI	$ 1.04	$ -
Equipment Replacement Projection	$ -	$ 25.00
Expansion Joint Repair - Construction 2	$ 1.21	$ -
Expansion Joint Repair - Construction 3	$ 1.93	$ -
Fire Alarm System Replacement - Construction	$ 5.78	$ 10.22
Fire Alarm System Replacement - Design	$ 1.43	$ 0.67
Fire System Replacement - REI	$ 0.65	$ 1.15
Future Miscellaneous VFD Replacements - Construction	$ 1.48	$ 3.85
Future NMPS VFD Replacements - Construction	$ -	$ 4.42
Future NMPS VFD Replacements - Design	$ -	$ 2.76
Future Sodium Hypochlorite Tank Rehab	$ -	$ 6.67
Future SPSS VFD Replacements - Construction	$ -	$ 19.20
Future SPSS VFD Replacements - Design	$ 1.80	$ 3.00
Gravity Thickener Rehabilitation	$ 5.79	$ -
HVAC Equipment Replacement - Construction	$ 8.96	$ 8.14
HVAC Equipment Replacement - Design	$ 1.49	$ 0.44
Miscellaneous VFD Replacements	$ 2.25	$ -
NMPS & WTD Butterfly Valve Replacement	$ 16.96	$ -
NMPS Harmonic Filter Replacement	$ -	$ 3.00
NMPS Motor Control Ctr. Phase 2 - Construction	$ -	$ 6.09
NMPS Motor Control Ctr. Phase 2 - Design/REI	$ 1.00	$ 1.00
NMPS VFD Replacement - Construction	$ 17.82	$ -
NMPS VFD Replacement - REI	$ 1.28	$ -
NMPS WTF - REI	$ 2.30	$ -
PICS Distributed Processing Units Replacement	$ -	$ 8.00
PICS Replacement - Construction	$ -	$ 5.40
Power System Improvements - Construction	$ 4.30	$ -
Scum Skimmer Replacement	$ 20.16	$ -
Sodium Bisulfite & Hypochlorite Tanks Rehabilitation	$ 6.58	$ -
Sodium Hypochlorite Pipe Replacement - Construction	$ -	$ 4.00
South System Pump Station Lube System Replacement	$ -	$ 2.90
Switchgear Replacement - Construction	$ -	$ 16.00
Switchgear Replacement - Design	$ 2.25	$ 2.25
Thermal Power Plant Boiler Control Replacement	$ 1.59	$ -
WTF VFD Replacement	$ 4.16	$ -
Subtotal	**$ 174.25**	**$ 332.58**
All Other Active Projects	**$ 7.77**	**$ 7.90**
Total	**$ 182.01**	**$ 340.47**

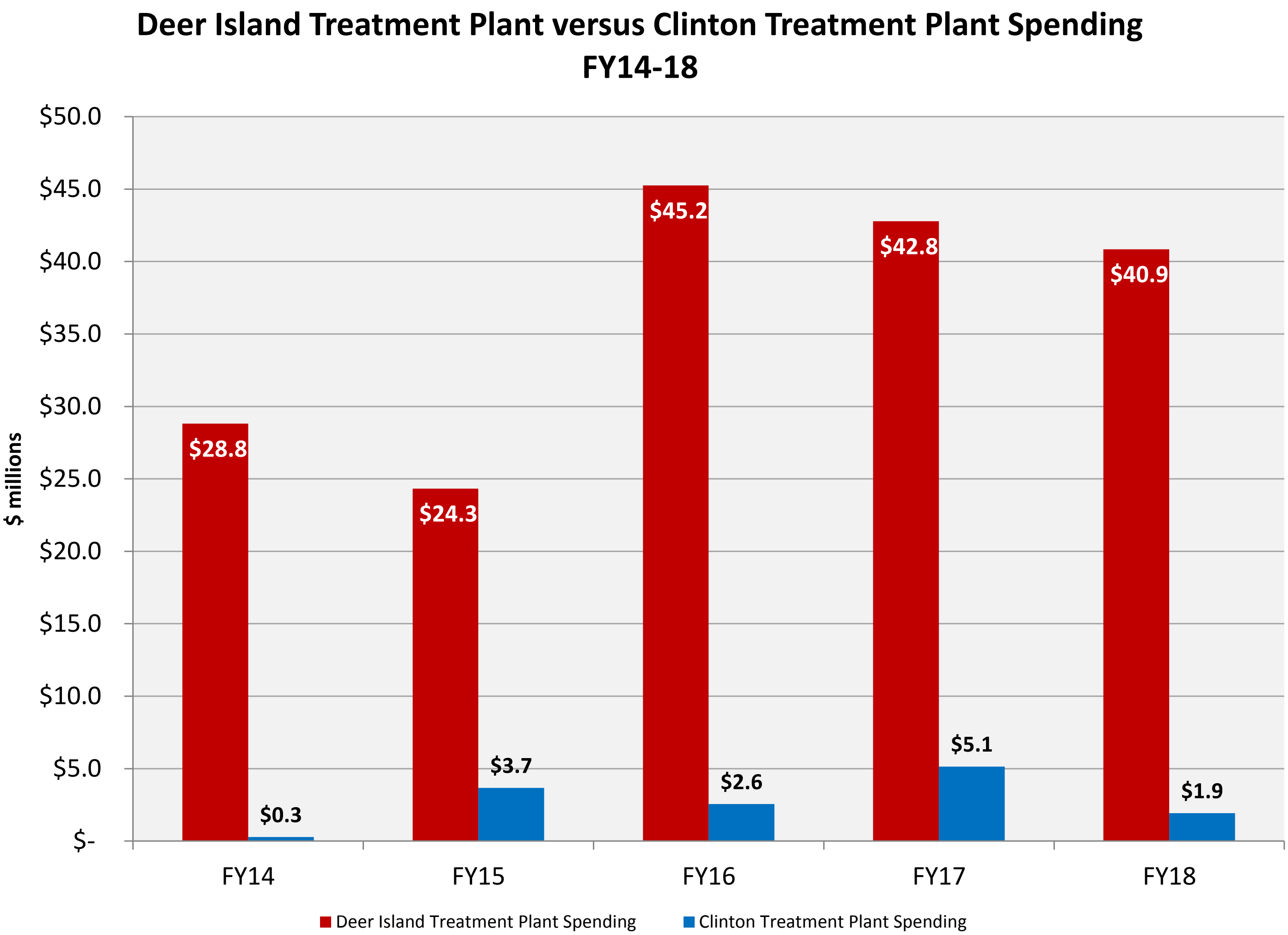

Figure 5

Clinton Wastewater Treatment Plant

- Total costs of projects: $20.4 million
- Projected FY14-18 spending: $13.6 million
- Projected FY19-23 spending: $3.9 million
- Phosphorus Removal construction project: $7.1 million
  - Makes up just over half of all Clinton FY14-18 spending
  - Expected to be required by Clinton's new NPDES permit, still in draft form; EPA reissued the draft permit (originally issued in 2010) in September 2013
  - Notice to proceed: February 2016
  - Design contract awarded in fall 2013 at $1.14 million
    - Construction bid documents are under review
- Digester cleaning and rehabilitation contract: $4.85 million
  - Continues through April 2017
- Facilities rehabilitation: $4.29 million
  - FY 2019 start date and includes:
    - Rehabilitation or replacement of grit removal facilities
    - Two belt filter presses
    - Closure of Cell #1 of landfill

Table 11

Clinton Wastewater Treatment Plant ($ millions)			
Projects	FY 09-13	FY14-18	Beyond 18
Clinton Soda Ash Replacement	$ 0.15		
Clinton Plant-Wide Concrete Repair	$ 0.06		
Clinton Digester Cleaning and Rehab	$ 0.09	$4.77	
Clinton Aeration Efficiency Improvement	$ 1.88	($0.01)	
Phosphorus Removal - Design		$1.20	$0.01
Phosphorus Removal - Construction		$7.09	
Clinton Roof Rehab		$0.54	
Clinton Facilities Rehab		$0.00	$3.93
TOTAL	**$2.18**	**$13.58**	**$3.94**

Policy Point

Clinton Wastewater Treatment Plant

"Déjà vu All Over Again"

Bearing costs associated with the Clinton Wastewater Treatment Plant (CWWTP) has been a longstanding and frustrating topic for the Advisory Board. Over the years there have been lawsuits to recover costs that were not paid requiring legislative intervention and settlement as well as legislation to divest the Authority of the responsibilities of the plant that was ultimately vetoed. In the end, the result was that the Authority was left with responsibility of the plant with only $500 thousand from the Commonwealth to help offset the costs of operating and maintaining the CWWTP. In the Governor's proposed budget, this $500 thousand line item was not included. Given the frustration surrounding this topic, the loss of what little funding the Authority receives toward the plant is unacceptable.

In response, the Advisory Board recommends that the Phosphorus Removal Construction Project be placed on indefinite hold pending receipt of $500 thousand toward the operation of the Clinton Wastewater Treatment Plant.

The Advisory Board's hope is that the legislature will restore this funding. Indeed, at the time of this writing, Representative Naughton has included it in the House version of the budget, for which the Advisory Board's communities are grateful. However, if this funding is not included in the final budget, the Advisory Board expects that the Authority will pursue receipt of these funds from the Town of Clinton. Short of receiving these funds – either from the Legislature, the Town of Clinton, or some other source – the Advisory Board remains opposed to further movement of this project.

Residuals

Residuals Asset Protection

- Total Residuals Asset Protection future spending: $103.0 million
  - $97.5 million scheduled beyond FY18
    - Serve as placeholders for capital projects at Deer Island and/or pellet plant

- Fore River pelletizing plant:
  - Initial work scheduled from January 2017 – December 2019
  - Design contract: $2 million
    - Scheduled start: July 2015
    - No bid documents issued at the time of this writing
  - Construction contract: $10 million
    - Start of contract extended to January 2017 (one year)
  - Condition assessment/technology and regulatory review have been conducted
    - Total budget was $0.83 million
    - Results may point to need for additional feasibility studies on possible process changes
  - Co-digestion pilot study contract shifted to Deer Island Asset Protection project
    - Original cost: $0.5 million
    - Updated cost: $2.3 million
  - Concept plan for future design and construction projects reduced by $43.7 million[7]

Combined Sewer Overflow Control Program

Table 12

CSO Spending
($ millions)

Project	FY09-13	FY14-18	Beyond FY18
North Dorchester Bay	$82.58	($0.02)	
East Boston Branch Sewer Relief	$74.94	($0.01)	
MWR003 Gate & Siphon	$0.65	$3.85	
Dorchester Bay Sewer Separation (Fox Point)	$0.39	$0.47	
Dorchester Bay Sewer Separation (Commercial Point)	$6.26	$2.28	$0.75
Stony Brook Sewer Separation	($0.86)	$0.05	
Union Park Detention Treatment	($0.27)	$0.00	
Cambridge Sewer Separation	$32.03	$41.65	
Cambridge Floatables	$0.16	$0.40	
Fort Point Channel Sewer Separation	$3.72	($0.90)	
Morrissey Boulevard Drain	$17.67	($0.01)	
Reserved Channel Sewer Separation	$57.32	$12.57	
Brookline Sewer Separation	$24.73	($1.11)	
Bulfinch Triangle Sewer Separation	$9.36	($0.80)	
Charles River CSO	$2.53	$0.00	
CSO Support	$4.28	($0.38)	$1.26
TOTAL	**$315.49**	**$58.05**	**$2.01**

[7] During FY14 budget cycle.

- Work on the multi-year CSO Control Program close to completion:
    1. 32 of the 35 projects are complete
    2. Substantial construction progress made in 2014 and early (calendar) 2015 on three remaining projects
    3. Substantial completion is scheduled for December 2015
- Total project costs: $898.3 million
    1. Increase of $5.85 million[8]
    2. Spending through FY14: $853.3 million
    3. Remaining balance: $45.0 million
    4. FY15-16 spending: $37.4 million
    5. Project costs and eligibility for MWRA payments on community-managed projects are audited regularly by the Authority's Internal Audit Department
- Cash flows and spending schedules are tied to dates established in the Court Order
- Much lower levels of spending will continue through FY 2021, when MWRA is to complete a sewer system performance assessment verifying attainment of the goals for long-term CSO control levels
- Remaining three projects:
    1. *Cambridge CAM004 Sewer Separation*
        - Four project contracts in construction or out for bid
        - Substantial completion on schedule for December 2015
        - Total cost: $92.1 million
        - Increased by $1.3 million to ensure December 2015 court-ordered completion date achieved
    2. *Reserved Channel Sewer Separation* (in Boston)
        - Includes nine construction contracts
        - Completion on schedule for December 2015
        - Total cost: $72.6 million
        - Increased by $3.7 million due to:
            - Additional sewer and storm drain installations
            - Greater utility conflicts
            - Contaminated soils
            - Related police detail costs
    3. *Control Gate and Floatables Control at Outfall MWR003 and MWRA Rindge Avenue Siphon Relief* (in Cambridge)
        - Construction started: August 2014
        - Total cost: $4.5 million
        - Increased by $0.78 million due to higher costs for the MWR003 contract
- *Brookline Sewer Separation* project
    - Considered substantially complete
    - Increased by $0.1 million based on eligible portions of final payments for engineering, construction, and police costs
- Last three active CSO projects plus updated final payments for the Brookline project contributed to the $5.85 million in total project cost increases[9]

Other Wastewater Projects

- Includes one major project/program: the Infiltration/Inflow Local Financial Assistance Program

[8] From final FY15 CIP.
[9] Less smaller cost decreases identified in the proposed FY16 CIP.

- Total budget: $460.75 million
    - Grant portion: $242.6 million
    - Loan portion: $218.2 million
- Through FY14 net payment: $132.3 million[10]
- Net balance: $110.3 million[11]
- FY14-18 net budget: nearly $70 million
- Program inception: August 1992
    - Phase 1 and 2: 25% grants/75% loans
    - Phase 3 through Phase 8: 45% grants/55% loans
        - Total each phase: $40 million
        - Repayment period: five years
    - Phase 9 and 10: 75% grants/25% interest-free loans
        - Total each phase: $80 million
        - Repayment period: ten years
- Through February 2015:
    - $283.1 million distributed in grants and interest-free loans
    - Funded 475 local sewer rehabilitation projects in 43 wastewater communities

Policy Point

Inflow/Infiltration Local Financial Assistance Program

"Right Program, Right Time"

Over the course of FY14 the Advisory Board convened its Operations Committee, and with the assistance of Authority staff reviewed various options for expanding the I/I Program. The recommendation was approved not only by the Advisory Board, but subsequently by the MWRA Board of Directors as well, including:

1. Phase 9 and Phase 10 added at $80 million each (prior phases were $40 million each)
2. Changing the grant/loan split to be 75% grant/25% interest-free loan
3. Extending payback period from five years to ten years
4. Allowing communities to withdraw all of their funds from these phases at once, if desired
5. Including an automatic "trigger" that allowed communities to become immediately eligible for Phase 10 funds once 50% of their Phase 9 funds had been expended

In short, the expansion of the program has been a resounding success. Through March 2015, $10.7 million in Phase 9 funds were distributed to nine communities. In fact, having received all of their Phase 9 funds, both the City of Newton and the City of Waltham are eligible to request their Phase 10 funds for distribution by August 2015. At the time of this writing, three communities have submitted requests for an additional $3.6 million in Phase 9 funding distributions before the end of FY15. Beyond the communities who have already taken advantage of the new phases, some additional movement has been seen from other communities on their prior phases. Because communities are required to use all of their prior-phase funds before requesting Phase 9 funds, many are beginning to use up these earlier funds with the aim of accessing Phase 9 more quickly.

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[10] Grant and loan distributions less repayments of the loan portions.

[11] Until all loans have been repaid.

Though included in last year's vote by the MWRA Board of Directors, ***the Advisory Board supports the funds included in the proposed FY16 CIP to provide distributions to communities for Phase 9, Phase 10, and earlier phases as well.*** The Advisory Board also thanks the Authority for working with the communities to better forecast their anticipated I/I project needs to provide better information for budgetary purposes.

Waterworks Capital Spending

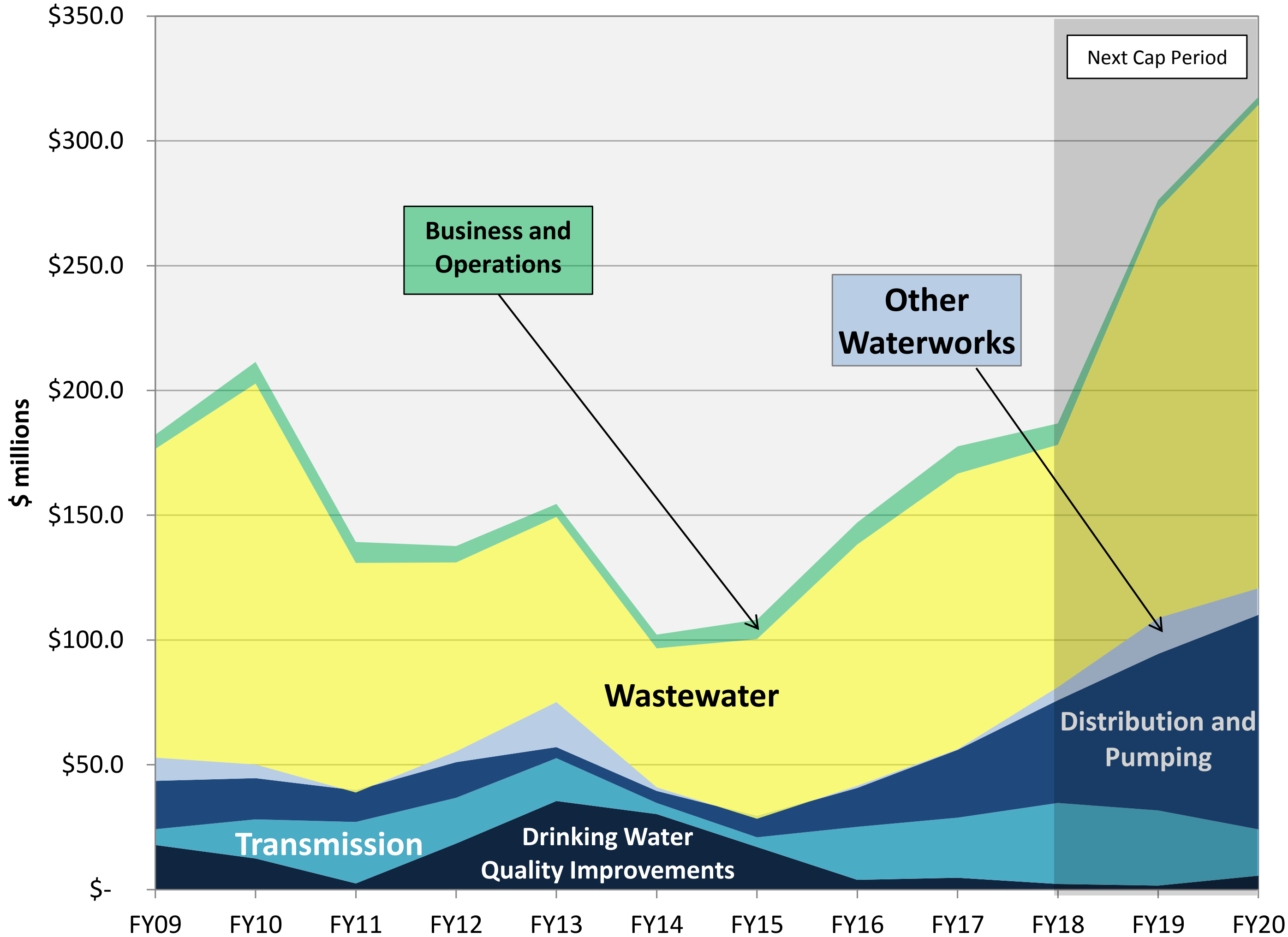

Figure 6

- There are four main categories of Waterworks spending
    1. Drinking Water Quality Improvements
    2. Transmission
    3. Distribution and Pumping
    4. Other projects
- Active waterworks projects in proposed CIP: $2.9 billion
    - Spending through FY14: $1.9 billion
    - Just under $1.0 billion is budgeted for spending in FY15 forward
    - Of that amount 25% or $248.3 million is budgeted for the FY14-18 cap period
    - $2.9 billion total is $63 million greater than the $2.84 billion included in the final FY15 CIP
- Proposed FY14-18 spending: $248.3 million
    - Decrease from final FY15 CIP: $46.4 million
    - Thus, $109.3 million of increased and rescheduled spending is planned for the next cap period and beyond
- Half the reductions in FY14-18 waterworks spending reflect changes in spending for Distribution and Pumping projects
    - Lower bid awards and changed scope for a Weston Aqueduct Supply Mains project contributed to $12.15 million in lower spending
- Waterworks FY16 spending: $41.59 million

    - This is less than half of total Wastewater FY16 spending
    - The amount is greater than the $28.4 million projected to be spent during FY15 and about the same as actual spending in FY14 of $41.0 million
    - Spending is projected to nearly double two years ahead in FY18 at $81.1 million
- Nine projects make up nearly all Waterworks spending for FY16
    - The top four of these are among the top ten of the Authority's largest projects for the year ahead:
        1. Long-Term Redundancy ($18.3 million)
        2. Weston Aqueduct Supply Mains ($6.1 million)
        3. NIH Redundancy and Covered Storage ($5.5 million)
        4. Central Monitoring System ($2.3 million)

Table 13

Largest Waterworks Projects FY14-18 ($ millions)		
Project	**FY14-18 Spending**	**Program**
Long-Term Redundancy	$62.26	Transmission
NIH Redundancy and Covered Storage	40.53	Distribution and Pumping
Spot Pond Storage Facility	36.19	Drinking Water Quality Improvements
Weston Aqueduct Supply Mains (WASMs)	19.79	Distribution and Pumping
SEH Redundancy and Storage	17.21	Distribution and Pumping
John J. Carroll Water Treatment Plant	14.76	Drinking Water Quality Improvements
NHS Revere & Malden Pipeline Improve.	11.20	Distribution and Pumping
Winsor Station Pipeline	9.34	Transmission
Watershed Land	6.66	Transmission
Central Monitoring System	5.50	Other Waterworks
TOTAL	**$223.4**	

Table 14

Largest Waterworks Projects FY16 ($ millions)		
Project	**FY16 Spending**	**Program**
Long-Term Redundancy	$18.26	Transmission
Weston Aqueduct Supply Mains (WASMs)	6.06	Distribution and Pumping
NIH Redundancy and Covered Storage	5.48	Distribution and Pumping
Central Monitoring System	2.26	Other Waterworks
John J. Carroll Water Treatment Plant	2.02	Drinking Water Quality Improvements
Spot Pond Storage Facility	1.82	Drinking Water Quality Improvements
Watershed Land	1.50	Transmission
SEH Redundancy and Storage	1.25	Distribution and Pumping
Spot Pond Supply Mains Rehab	1.03	Distribution and Pumping
TOTAL	**$39.7**	

Drinking Water Quality Improvements

- Budgeted FY14-18 spending: $58.1 million
- FY16 spending: $3.9 million
- These projects focus on the treatment and storage of the MWRA's water supplies, including:
    - John J. Carroll Treatment Plant (CWTP) and related contracts
        - FY14-18 spending: $14.8 million
        - FY16 spending: $2.0 million
        - Most of FY16 planned spending is for Existing Facilities Modifications (CP-7) for a projected $1.49 million plus design-related costs
        - Estimates for the storage tank roof drainage system have increased to $7 million and been rescheduled into the next cap period
    - Quabbin Water Treatment Plant
        - FY14-18 spending: $6.9 million
            - All spending on this project is expected to be completed before FY16
        - UV disinfection construction phase has reached substantial completion
    - Blue Hills Covered Storage Reservoir is complete
    - Spot Pond Storage Facility and Pump Station is nearing completion, projected for May 2015. The $51.4 million design/build contract has $1.5 million in remaining spending and close-out costs during FY16
    - The $106.7 million Norumbega Covered Storage project is complete

Transmission

- The water transmission system consists of more than 100 miles of tunnels and aqueducts that transport water daily by gravity from the supply reservoirs to points of distribution within the service area
- FY16 spending: $21.25 million
- FY14-18 spending: $86.14 million
- Most of the spending is scheduled for the FY16-FY18 timeframe
- The largest projects during FY14-18 are:
    - The Wachusett Aqueduct Pump Station[12]: $53.9 million
        - Construction contract total: $49.5 million
            - Scheduled for the fall 2014
    - Winsor Station Pipeline: $9.3 million
        - Includes Winsor Station rehabilitation and improvements
    - Watershed land purchases: $6.7 million
    - MetroWest Tunnel: $5.2 million
        - Spending from several smaller contracts
    - Long-Term [Water Transmission] Redundancy FY16 spending: $18.26 million
        - Includes multiple contracts
        - Wachusett Aqueduct Pump Station updated estimate: $60.5 million[13]
            - FY16 spending: $17.3 million
        - Sudbury Aqueduct contracts include:
            - MEPA review: $3.4 million
                - $1 million spent through FY14

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[12] Under the Long-Term Redundancy project.
[13] Plus related design and engineering services expenses

        - Construction: $101.1 million
            - Begins after FY18
        - Design and residential inspection services: $55.3 million
            - Begins in FY18
        - Sudbury Aqueduct Connection construction: $163.7 million
            - Begins after FY18
        - Chestnut Hill Final Connection construction: $11.7 million
            - Begins after FY18
    - Watershed Land Acquisition total cost: $24 million
        - Unchanged from final FY15 CIP
        - FY16 spending: $1.5 million
        - FY16-18 spending: $4.9 million
        - Majority of spending already paid out
    - Sudbury/Weston Aqueduct Repairs total cost: $6.9 million
        - $6.25 million of that amount is scheduled for FY16-18 and the next cap period
    - Other projects are shifting out beyond the current cap period
    - Winsor Station Pipeline contracts:
        - Winsor Station Rehab & Improvement notice to proceed date: July 2017
        - Shaft 2 and 12 construction notice to proceed date: July 2017
    - Hatchery Pipeline Construction:
        - Active dates: July 2017 through January 2020
- Quabbin Transmission System remaining balance: $8.0 million
    - Most spending is proposed for the next cap period

Policy Point

Hatchery Pipeline

"Outright Opposition Leads to Win-Win-Win"

The Advisory Board had, for several years, remained opposed to the Hatchery Pipeline project. The Advisory Board's objections were rooted in the common sense belief that ratepayers should not be funding projects that have no benefits to the MWRA system. As discussed in detail in last year's *Integrated Comments*, (CIP Chapter, page 27), the project benefits only the Commonwealth's trout hatchery, both from an avoidance of capital costs and a savings on electricity.

To parlay this into a "win-win" scenario, the Advisory Board suggested that if the Commonwealth could assist the MWRA in achieving a streamlined review process for system expansion, the Authority could construct the pipeline to assist the Commonwealth. Unfortunately, efforts on this stalled, and a streamlined process was not realized. As a result, the Advisory Board had continued its opposition to continuing the project.

Having been unsuccessful in creating a "win-win" scenario, the Advisory Board then considered options for creating a solution that would at least be cost-neutral for ratepayers. Could a way be found for the Commonwealth to pay back the Authority for the funds it would expend on building the pipeline? The Advisory Board proposed allowing the Commonwealth to pay the Authority the equivalent of the reduced electricity costs it would realize as a result of the pipeline. These annual payments would have been in place for the life of the debt service being paid on the pipeline. Though the then-Secretary of Energy and Environmental Affairs agreed to look into this option further, an agreement was not reached, and this plan similarly stalled. As a result, the Advisory Board continued its opposition.

At the May 2015 MWRA Board of Directors meeting, the Secretary of Energy and Environmental Affairs (EEA) announced that the Commonwealth would be providing $2.5 million to fund this project via EEA, the Division of Fisheries and Wildlife and the Department of Fish and Game. Additionally, the Authority had already secured two grants that completely covered the cost of the hydropower components of the capital project. Between all of these sources, the construction of the Hatchery Pipeline project will be funded at no expense to MWRA ratepayers. Moreover, revenue from the hydropower electricity generation is estimated to be about $53 thousand annually.[14]

The Advisory Board's opposition to this project came directly from adhering to its core mission: to advocate on behalf of and represent its member communities and the ratepayers. However, as was demonstrated over the years, this opposition was not inflexible and intractable. Indeed, twice the Advisory Board provided potential avenues to move this project forward, so long as ratepayers could see some measurable benefit (a streamlined system expansion process) or, at minimum, avoid unnecessary expense (electricity savings toward debt service). In all cases, the Advisory Board's aim was always to find a "pathway to yes" that benefited as many as possible.

In light of these new developments, the Advisory Board is delighted to point to this as an example of when its outright opposition to funding a project with no ratepayer benefit at ratepayer expense, and its consistent determination to hold to this position have ultimately led to a "win-win-win" situation, where all parties contributed and all parties benefited. The Commonwealth is providing the funds for the capital project, the Authority is constructing and managing the capital project, and the Advisory Board is providing permission to join the MWRA Waterworks System. The Commonwealth benefits by avoiding electricity costs; reducing chemical, overtime, and maintenance costs; reducing greenhouse emissions; and securing a consistently optimal water source for its facility. The Authority benefits by avoiding any capital costs and realizing additional revenue via the hydropower component of the project. Finally, the ratepayers benefit because the hydropower revenues immediately reduce the rate revenue requirement of the waterworks utility.

The Advisory Board thanks Authority staff, especially MWRA Executive Director Fred Laskey, and Policy and Planning Manager Pam Heidell for all of their time and efforts over the years exploring all possible pathways to making this project cost-neutral to ratepayers. Additionally, the Advisory Board thanks the current Secretary of Energy and Environmental Affairs Matthew Beaton for helping to secure the state funds needed to move this project forward. **Therefore, the Advisory Board grants approval under Section 8 (d) of the MWRA's Enabling Act for the MWRA to provide water to the Commonwealth at its McLaughlin Fish Hatchery subject to the execution of a legally binding agreement between the Authority and the Commonwealth guaranteeing no less than $2.5 million, as well as confirmation of the grant funding necessary to construct the hydropower turbine. It is with great pleasure that under these conditions, the Advisory Board reverses its prior recommendation to remove the Hatchery Pipeline Project from the MWRA's Capital Improvement Program.**

Distribution and Pumping

- Includes projects that focus on the metropolitan system, which is divided into seven pressure zones and includes:
    - 284 miles of distribution pipeline east of Shaft 5
    - 11 storage tanks
    - 11 pump stations
    - 9 tunnel shafts
    - approximately 4,700 valves
- FY16 Distribution and Pumping spending: $15.6 million

[14] Includes both purchase price of power sold to the grid and Renewable Energy Certificates, based on current values.

- FY14-18 Distribution and Pumping spending: $97.2 million
    - $26.4 million reduction[15]
- Notable projects include:
    - Weston Aqueduct Supply Mains
        - FY16 spending: $6.1 million
        - FY14-18 spending: $19.8 million
            - $11.09 million (36%) reduction[16]
    - Northern Intermediate High Redundancy and Covered Storage
        - FY16 spending: $5.5 million
        - FY14-18 spending: $40.5 million
    - Southern Extra High Redundancy and Storage
        - FY16 spending: $1.25 million
        - FY14-18 spending: $17.2 million
- Completed projects include:
    - Boston Low Service – Pipe and Valve Rehabilitation
    - Heath Hill Road Pipe Replacement
    - James L. Gillis Pump Station
    - Northern High Service Connecting Mains from Section 91
    - Southern Extra High – Sections 41 & 42
    - Warren Cottage Line Rehabilitation
    - Hydraulic Model Update
    - Walnut Street & Fisher Hill Pipeline Rehabilitation

Other Waterworks Projects

- FY16 net spending: +$0.87 million
- FY14-18 net spending: $6.79 million
- Spending for projects in FY14-18 includes:
    - Central Monitoring System: $5.5 million
        - Quabbin Power Communications and Security design and construction: $2.8 million
        - Waterworks SCADA/PLC Upgrades: $1.59 million
    - Local Water System Assistance program: -$4.7 million[17]
        - Distributions: +$105.1 million
        - Loan repayments: -$109.8 million
    - Water Facility Asset Protection: $5.06 million
        - This is less than half the amount for this same period in the Proposed FY15 CIP
        - Several projects including elevated water storage tank repainting (See Table 13)

[15] From proposed FY15 CIP.
[16] From proposed FY15 CIP
[17] Net distribution and repayments

Business and Operations Spending

- FY16 Business and Operations spending: $8.8 million
  - Two projects in this category of spending are among the top ten projects for spending in FY16:
    - Application Improvement Program: $2.3 million
    - IT Infrastructure Program: $1.7 million

Table 15

Largest Business & Ops Projects FY16 ($ millions)	
Project	**FY16 Spending**
Application Improvement Program	$2.3
IT Infrastructure Program	1.7
Alternative Energy Initiatives	1.4
Equipment Purchase	1.4
TOTAL	**$6.8**

- FY14-18 Business and Operations spending: $41.5 million
  - Increase from final FY15 CIP: $3.2 million

Table 16

Largest Business & Ops Projects FY14-18 ($ millions)	
Project	**FY14-18 Spending**
Application Improvement Program	$9.1
Equipment Purchase	8.7
IT Infrastructure Program	8.6
Capital Maint. Planning & Develop.	6.6
Alternative Energy Initiatives	5.0
TOTAL	**$37.9**

- MIS-related FY14-18 spending: $20.2 million
  - Business Systems Plan: $0.1 million
    - A 6-phase plan to replace aging systems and network architecture, improve disaster recovery, enhance data integration, consolidate server resources, and implement best practices
  - Application Improvement Program: $9.1 million
    - To improve efficiencies of business processes associated with managing operations and support divisions
  - Information Security Program: $1.6 million
    - To increase resiliency and sustainability of data security practices
  - Information Technology Management: $0.9 million
    - To improve oversight process for procurement of IT solutions throughout the Authority
  - IT Infrastructure Program: $8.6 million
    - To implement consolidated and optimized versions of equipment and databases

- Alternative Energy Initiatives FY14-18 spending: $5.0 million including
    - Deer Island Wind Phase II Construction: $2.5 million
    - Deer Island Wind Construction (Battery D Location): $1.0 million
    - Fish Hatchery Pipeline Hydro: $0.7 million
- Capital Maintenance Planning and Development FY14-18 spending: $6.7 million
    - Includes spending on six contracts for as-needed design services
- Capital Equipment purchases in FY14-18: $8.7 million
    - Security Equipment & Installation: $2.8 million
    - Vehicle Purchases (FY14-18 specific): $5.4 million
    - Major Lab Instrumentation (FY14-18 specific): $0.5 million
- Technical Assistance Contract FY14-18 spending: $1.1 million
    - Supports such services as land appraisal, surveying and hazardous materials assessment

Future Risk Factors

- The Authority continues to note future risk factors for the capital program. This year, the Authority identifies projects that may change in the budget put forth for FY16 as the preferred option has not been decided at this time. They include:
    - Sudbury Aqueduct – tunnel versus surface pipeline
    - Residual Processing/Asset management
    - New regulatory mandates
- The Authority notes that due to the nature of the capital improvement program, there will be changes to projects over time due to schedule shifts, revisions to project scopes, cost increases or decreases, environmental mandates, etc.

Policy Point

HEEC – Cross Harbor Electric Cable

"Ratepayers Won't Be 'Zapped' into Paying Twice"

Though not included in this year's list, last year the Authority identified the Cross Harbor Cable relocation as a potential risk factor. In last year's document, a brief section was included with regard to the Cross-Harbor Cable relocation. At the time, federal funding had been announced for part of the proposed relocation, and the Authority was planning to discuss the remaining costs with NSTAR. Because these events occurred after the Advisory Board's official vote on the *Integrated Comments*, but prior to publication, we instead mentioned that the Advisory Board would be making a formal recommendation at its meeting on June 19, 2014.

At this meeting, the Advisory Board voted unanimously to approve a resolution related to this topic. The resolution can be viewed at http://mwraadvisoryboard.com/wp-content/uploads/2015/05/BARTLETT_CBL_RES.pdf. Basically, the Advisory Board's perspective remains that the Authority and the ratepayers have already paid for the installation of the cable once for a total of $104 million – under no circumstances should the cable be paid for a second time, especially when the primary reason for relocation has nothing to do with MWRA's core mission; ratepayers should not be funding such an expense.

Capital Spending Cap

Background for Setting a Five-Year Cap on Capital Spending

- The Authority first adopted a capital spending cap in 2001, setting a ten-year cap each year as part of the approval of the final CIP and annual caps for the first three years of the budget period. In each succeeding year, a new ten-year cap was calculated by removing the completed year, adding any unspent funds from the just completed year and adding a new tenth year in the amount of $100 million.[18]
- In June 2003, the Board of Directors adopted a revised capital spending cap policy with a calculation that reflected projected expenditures for a five-year period, plus contingency allowances and inflation adjustments[19], less Chicopee Valley Aqueduct projects.
- A second provision of the cap allows annual spending within the five-year period to vary within plus or minus 20% of the initial amounts calculated for each of the five years, as long as the five-year total is not exceeded. In the event that an annual cap limit is exceeded, the Authority may request approval by the Board of Directors to exceed the limit for an individual fiscal year.

The First Five-Year Cap: FY04-08

- Approved in June 2003 as part of the approval of the final FY04 CIP
- Baseline FY04-08 capital spending cap: $1.1345 billion (See Appendix E)
  - Based on projected capital spending of $1.0233 billion
- Actual spending: $888.5 million
- Spending according to the cap equation: $880.1 million
  - Underspending from the “baseline” cap: $254.4 million (22.4%)
- The Authority did not exceed the overall five-year cap or the allowance of 20% over the individual base year caps

The Second Five-Year Cap: FY09-13

- Approved in June 2008 as part of the approval process for the final FY09 CIP (See Appendix F)
- Baseline FY09-13 capital spending cap: $1.1438 billion
  - Based on projected capital spending of: $1.0814 billion
- Actual spending: $825.1 million
  - Lower than the first cap period
- Spending according to the cap equation: $821.0 million
  - Underspending from the “baseline” cap: $322.8 million (28.2%)

The Third Five-Year Cap: FY14-18

- During the review of the proposed FY13 CIP, the Advisory Board, noting the lower than budgeted spending of the first two periods and observing the progress toward completing the court-ordered CSO Control Program, challenged the Authority to limit the FY14-18 cap to no more than $800 million.
- The Authority reshaped its proposed capital program and reconsidered the scheduling for a number of projects, and recommended a new five-year cap below the $800 million challenge.

[18] Adjusted for inflation.
[19] On unawarded construction contracts.

Table 17

FY14-18 Baseline Cap Calculation Versus Updated Spending Projections ($ millions)	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 Baseline Cap	**$145.8**	**$159.1**	**$166.4**	**$161.3**	**$159.1**	**$791.7**
Projected Expenditures	$102.2	$108.1	$147.1	$177.6	$186.8	$721.8
Contingency	0.0	5.3	8.2	10.8	11.6	35.9
Inflation on Unawarded Construction	0.0	0.0	1.4	5.5	9.2	16.1
Less: I/I Program	0.0	(11.2)	(16.9)	(18.9)	(18.1)	(65.1)
Less: Water Loan Program	0.0	1.6	2.2	2.5	(0.1)	6.1
Less: Chicopee Valley Aqueduct Projects	(5.6)	(1.5)	(0.0)	(0.1)	(0.2)	(7.3)
FY16 Proposed Subtotal	**$96.6**	**$102.3**	**$149.9**	**$177.5**	**$189.2**	**$707.5**
Change ($)	(49.2)	(56.7)	(24.5)	16.1	30.1	(84.2)
Change (%)	-33.8%	-35.7%	-14.7%	10.0%	18.9%	-10.6%

- Approved in June 2013 as part of the approval process for the final FY14 CIP
- Baseline FY14-18 capital spending cap: $791.7 million
  - Based on projected capital spending of: $718.0 million
- Updated FY14-18 spending: $721.8 million[20]
  - This is $103.3 million less than the $825.1 million in actual spending for the previous cap period
  - If spending on the CSO Control Program is netted out, non-CSO spending of $663.2 million, as compared to the $510 million of non-CSO spending during the FY09-13 cap period, is $153.2 million more for the current cap period
- The Authority has further revised its projections for spending during FY14-18, reducing spending for the first three years of the period by a total of $82 million. This amount, plus another $3.8 million has been shifted to the last two years, FY17-18 (See Table 17)
- Calculation of the FY14-18 cap using numbers from the proposed FY16 CEB also nets out I/I Program and Water Loan Program distributions (net of repayments) as recommended in the Advisory Board's *Comments* on the proposed FY15 CEB

Policy Point

Capital Underspending

"What's the Right Number?"

The five-year capital spending cap was born out of an Advisory Board initiative. At the time, the aim was to find ways of curtailing what was, at the time, exceptionally high levels of capital spending. While recognizing the need to perform critical and in many cases court-mandated work, the question was the correct level of capital spending to be targeted, and how could that number be managed to?

The first two capital spending caps were set at over $1 billion, but spending was significantly below this level. In fact, both periods were more than 20% underspent. This generated discussion about whether the capital spending cap should be viewed as a ceiling or a target. While the cap was originally intended to place an upper limit on the Authority's capital

[20] Actual for FY14, projected for FY15, proposed for FY16-18.

spending, the Advisory Board argued that actual spending should at least be closer to the baseline cap. As the Authority's spending shifted from mandatory projects to asset protection projects, the Advisory Board believed the most recent capital spending cap provided the opportunity to generate more realistic forecasts with a corresponding capital spending cap.

The Authority, for its part, met the Advisory Board's challenge to set the FY14-18 capital spending cap at no greater than $800 million. The biggest change to proposed spending was to make project schedules less ambitious and more in line with historical experience; in short, to make a more realistic forecast of how quickly work could be completed and dollars spent. The Advisory Board applauded the Authority for meeting the $800 million challenge and expected that capital spending would begin tracking closer to this lowered baseline cap particularly since spending for both of the prior cap periods were over $800 million. This does not, however, seem to be the case so far.

FY14 capital spending was $40.3 million (28.3%) below projected spending for the year, and FY15 is similarly projected to be underspent ($39.5 million, or 26.7%).[21] While admittedly the extraordinary winter conditions this past winter caused some understandable delays, the mid-year capital Project Performance Report reported adjusted underspending of $8.3 million (21.5%) indicating that significant underspending was already occurring prior to winter conditions.[22] Last year, the Advisory Board recommended bringing a number of standalone projects to near-full design to create a "pipeline" of projects that could be substituted when other projects "slipped" out due to unforeseen circumstances. The Authority believed that where it was able to do so they were identifying projects that could be "swapped," but that there were inherent limits to this process.

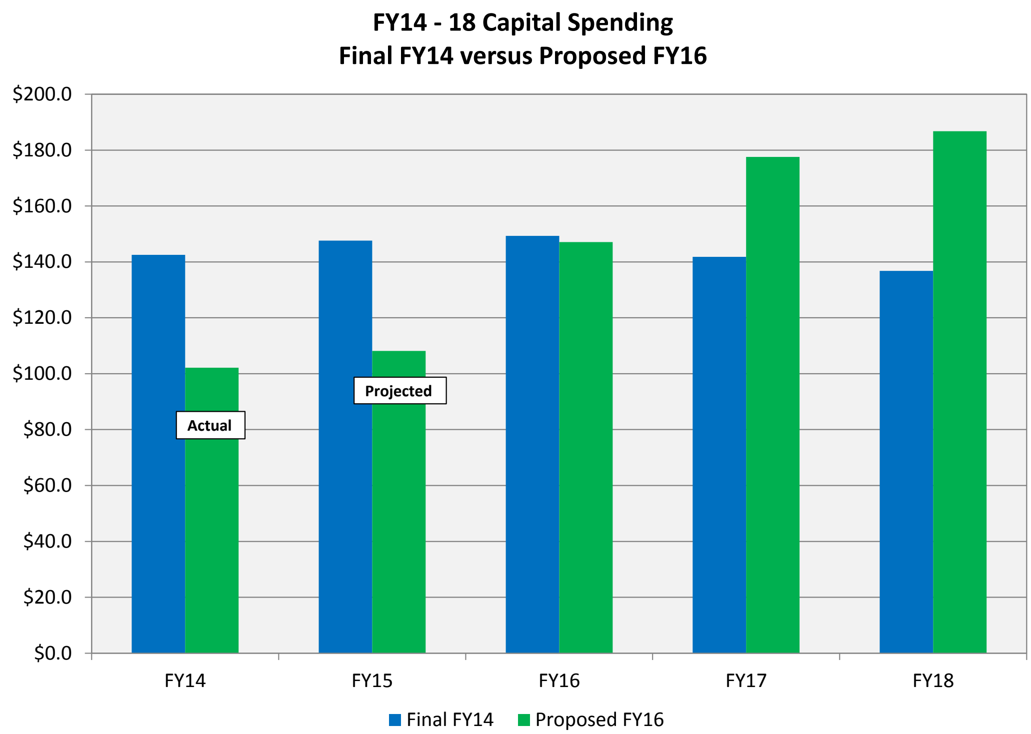

Figure 7

The "project pipeline" recommendation was born out of the Advisory Board's concerns about maintaining capital spending at an appropriate level:

> Because the MWRA was created with the charge to make capital improvements and investments in an arguably neglected infrastructure, the ever-present concern is to make sure the Authority is maintaining the capital

[21] This includes spending from projects/programs outside of the Authority's direct control (e.g. community-managed CSO work and Community Assistance Programs). Adjusting for this capital spending, the Authority was $39.9 million (28.1%) below projected spending for FY14.

[22] Adjusted capital spending removes the projects/programs outside of the Authority's direct control (e.g. community-managed CSO work and Community Assistance Programs). Due to significantly higher I/I distributions than budgeted, unadjusted capital spending through December 2014 was below budget by $3.1 million (5.9%).

> investment moving forward. In response to these questions, the Authority asserted that this revised spending was at an appropriate level to continue its core mission.
>
> If the Authority's assertion that the spending levels set in the FY14-18 capital spending cap are the "right" level to avoid running the system to failure, the current trends beg the question of what needs to be done to ensure the capital work gets accomplished.
>
> The Advisory Board understands that "slippage" – when a project's schedule and spending become delayed from original budget projections – often happens, and can have many legitimate causes. Actual conditions are frequently different than originally expected when undergoing construction or a community may have a particular concern or request that may necessitate negotiations that delay consensus on a project's path or scope. However, the concern is that if all of the projects in the CIP are important, and the current year's projects slip out, the result is that the future years' projects also "slip" further out causing increased delays.[23]

The aim of the Advisory Board's initial recommendation to lower the current capital spending cap to $800 million was to "tighten" actual capital spending, bringing it closer to the so-called ceiling of the baseline cap. Regardless of the feasibility of the "pipeline" approach, the fact remains that the Authority's spending under the new, lower capital spending cap has continued to be significantly below budgeted/projected levels.

To clarify, the question the Advisory Board has asked over the years is "What is the correct level of spending for the Authority to be making to make necessary improvements to or maintain its capital infrastructure?" The question was <u>not</u> "What percentage level under the capital spending cap should the Authority be spending?" In short, the Advisory Board's perspective is identifying the correct spending level in absolute dollars that should be spent each year, not in terms of what percentage of the cap is being spent. Either the baseline cap reflects the "correct" level of capital spending needed to fulfill the Authority's core mission of maintaining its capital infrastructure[24] or it remains higher than it should be. If the baseline cap is "correct" and funds are being spent at a level significantly below the optimal level, the reasons for this underspending need to be thoroughly analyzed and methods found to bring capital spending closer to this level. Is it an issue of workflow – being able to move quickly while still thoroughly through the administrative process? Is it a question of not having sufficient staff or resources in certain areas that are slowing down this process? Whatever the reasons, **the Advisory Board recommends that the Authority identify the causes for continued capital underspending and takes the steps necessary to bring capital spending closer to the baseline cap levels.**

With current concerns in the Commonwealth about underinvestment in critical infrastructure and the resulting impacts and potential additional costs associated with "catching up" in future years, the Advisory Board continues to voice its concern that the Authority identifies and then spends at the appropriate level to maintain the water and wastewater capital infrastructure.

---

[23] Source: *FY 2015 Integrated Comments and Recommendations on the MWRA's Proposed Capital Improvement Program and Current Expense Budget*

[24] Note: the Authority has a sizeable and thorough infrastructure maintenance program funded through the CEB (See Maintenance Expenses, page 70); however, capital projects also reflect an investment in maintaining or expanding necessary infrastructure and is, arguably, critical work that must get completed in a timely fashion.

Proposed FY16 CEB Highlights

Table 18

MWRA Current Expense Budget
($ millions)

	FY15 Budget	FY16 Proposed	$ Change	% Change
Expenses				
Direct Expenses	217.1	223.8	6.6	3.0%
Indirect Expenses	47.5	47.8	0.2	0.5%
Capital Financing	417.4	439.2	21.8	5.2%
Subtotal Expenses	***$682.1***	***$710.7***	***$28.7***	***4.2%***
Offsets				
Bond Redemption	(6.7)	(3.5)	3.2	-47.4%
Debt Service Assistance	(0.9)	0.0	0.9	-100.0%
Subtotal Offsets	***-$7.6***	***-$3.5***	***$4.1***	***-53.3%***
Net Expenses	**$674.5**	**$707.2**	**$32.7**	**4.8%**
Revenues				
Other User Charges	7.6	8.0	0.4	5.0%
Other Revenue	6.8	12.7	5.9	86.2%
Rate Stabilization	0.0	0.0	0.0	-
Investment Income	9.7	9.5	-0.2	-2.4%
Subtotal Non-Rate Revenue	***$24.2***	***$30.2***	***$6.0***	***24.9%***
Rate Revenue	***$650.3***	***$677.0***	***$26.7***	***4.10%***
Total Revenue and Income	**$674.5**	**$707.2**	**$32.7**	**4.85%**
$6.5 million ≈ 1% rate increase				

- Proposed FY16 CEB: $707.2 million
- Wholesale rate revenue increases 4.1% or $26.7 million
- Direct expenses increase 3.0%
- Capital financing expense[25] is the largest portion of the proposed CEB
  - Totals $439.2 million (over 61%)
  - Increases by 5.2% ($21.8 million)
- Much of the debt service is for ongoing payments of principal and interest on outstanding borrowings for completed projects, notably the Boston Harbor Project and the Integrated Water Supply Improvement Program

[25] Before offsets

Proposed FY16 CEB by Major Category

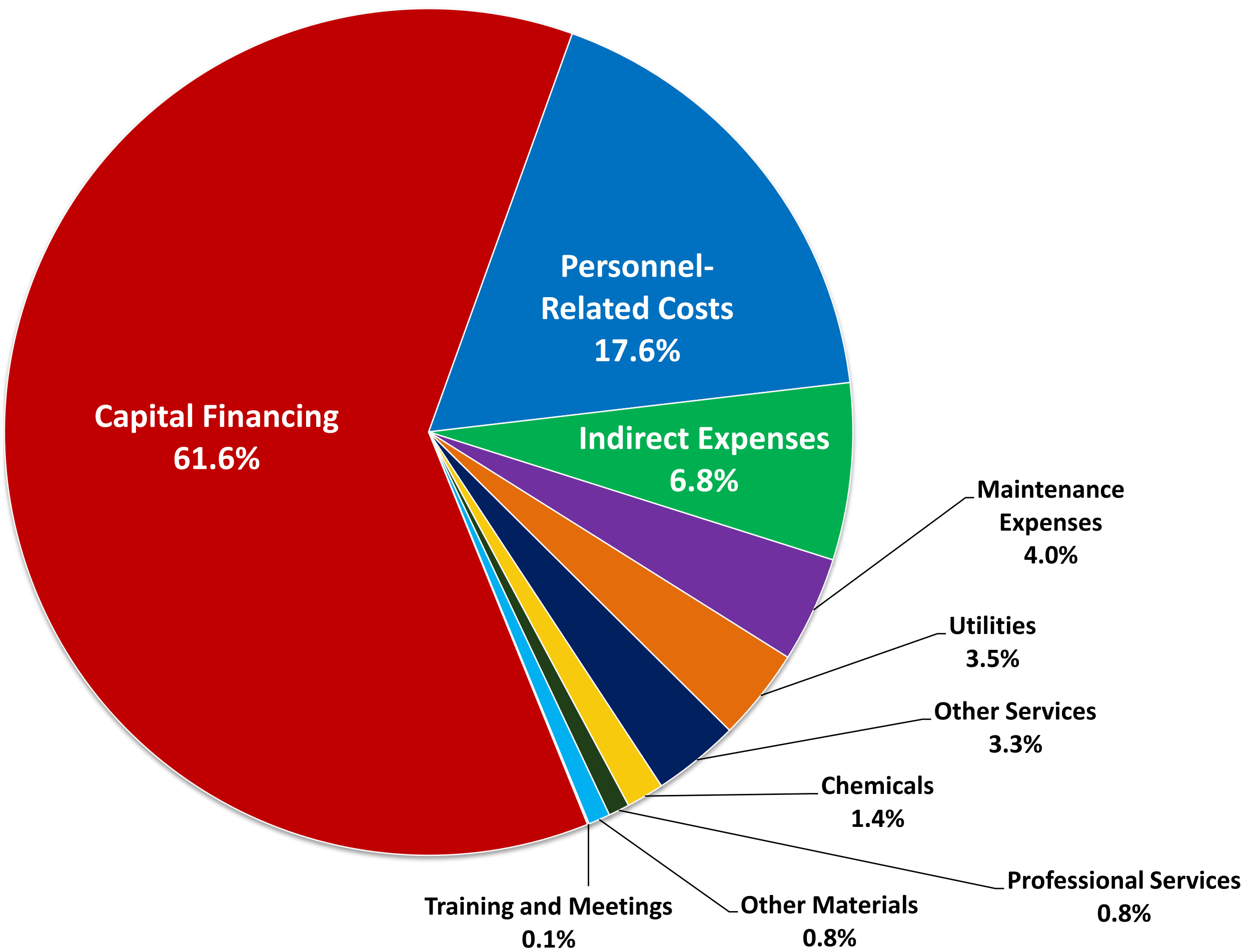

Figure 8

<u>Direct Expenses</u>

- Direct expenses: $223.8 million
  - 32% of proposed CEB
- Personnel-related costs: $124.8 million
  - 56% of all direct expenses and include:
    - Wages and salaries
    - Overtime
    - Fringe benefits
    - Workers' compensation
- Maintenance: $28.6 million
  - 12.8% of direct expenses
  - Second largest category
  - Larger maintenance projects are part of the capital budget
- Utilities: $24.9 million
  - 11.1% of all direct expenses
  - Electricity: $18.1 million (almost 73% of utilities)
  - Increases $1.4 million from FY15
    - Driven by increases in electricity and diesel fuel
- Other services: $23.4 million

- 10.5% of direct expenses
    - Primarily for sludge pelletization at the Fore River plant
- Chemicals expense: $10.1 million
    - 4.5% of direct expenses
- Remaining direct expenses: $12.0 million
    - 5.4% of direct expenses and includes:
        - Professional services
        - Other materials
        - Training and meetings

Indirect Expenses

- Total: $47.8 million
    - Makes up 6.7% of total expenses
- Largest components are:
    - Watershed-related expenses ($28.1 million)
    - Pension fund deposit ($8.2 million)
    - Optional pension fund deposit/Other Post-Employment Benefits ($5.1 million)

Capital Financing Expense

- Total: $439.2 million[26]
    - Makes up 62% of all expenses
- Debt service: $414.0 million
    - Makes up 94.3% of capital financing
    - Includes principal and interest payments on:
        - State Revolving Fund (SRF) borrowings
        - Senior debt
        - Subordinate debt
- Remaining capital financing expenses: $25.2 million
    - Supports:
        - Water pipeline commercial paper program ($4.15 million)
        - Current revenue for the capital program ($11.2 million)
        - Capital lease payments for the debt portion of the Chelsea facility ($3.2 million)
        - A deposit of $6.7 million to the Community Obligation and Revenue Enhancement (CORE) Fund

[26] Before $3.5 million in bond redemption offsets

“DELTA REPORT”

Total Spending Increases $23.7 Million

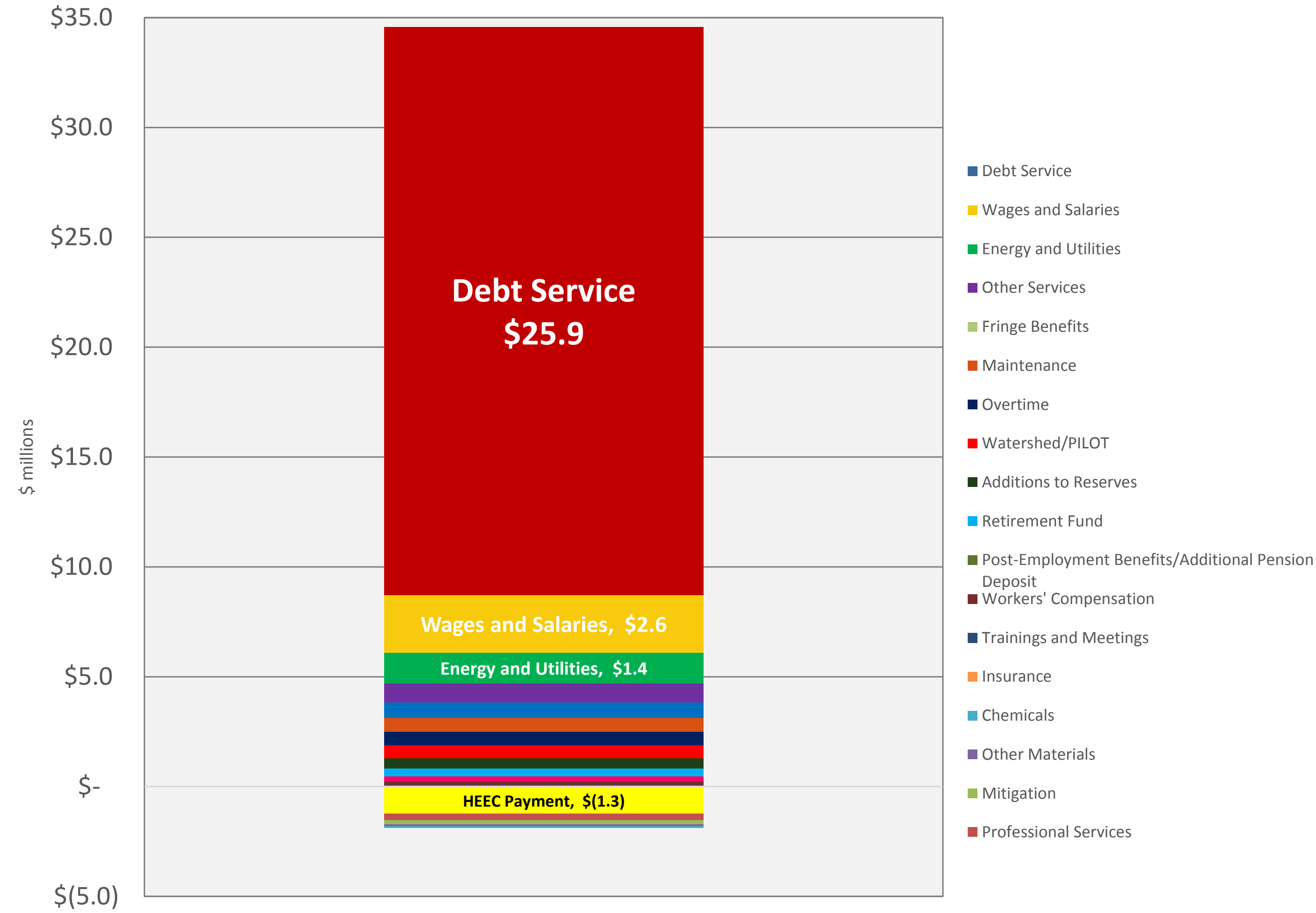

Figure 9

- Debt Service: $25.9 million (net)
  - Largest increase
  - Actual increase: $21.8 million
  - Offset by:
    - $3.2 million in lower use of bond redemption funds
    - $0.9 million in lower Debt Service Assistance[27]
- Wages and Salaries increase: $2.6 million
  - Second largest increase
- Decreases partially offsetting total “delta” include:
  - HEEC payment
  - Professional services
  - Mitigation
  - Chemicals
  - Other materials

[27] FY15 DSA received was $0.9; FY16 DSA anticipated: $0

Revenues

- Rate revenue requirement: $677 million
  - Increase from FY15: $26.68 million (4.1%)
  - Makes up 95.7% of total revenue
  - Raised through wholesale water and sewer rates
- Non-rate revenue: $30.2 million
  - Increase from FY15: $6.0 million
  - Makes up 4.3% of total revenue
  - Sources include:
    - Investment income
    - Other revenue
    - Other user charges
- As proposed, the FY16 wholesale rate increase would be above $25 million for the first time in ten years
- FY11 increase of 1.49% ($8.4 million) was the lowest in the previous 15 years, since 1996 when the Authority received $31.5 million in state debt service assistance
- Rates are currently projected to increase by over $25 million for six of the next seven years ahead (See Figure 10)

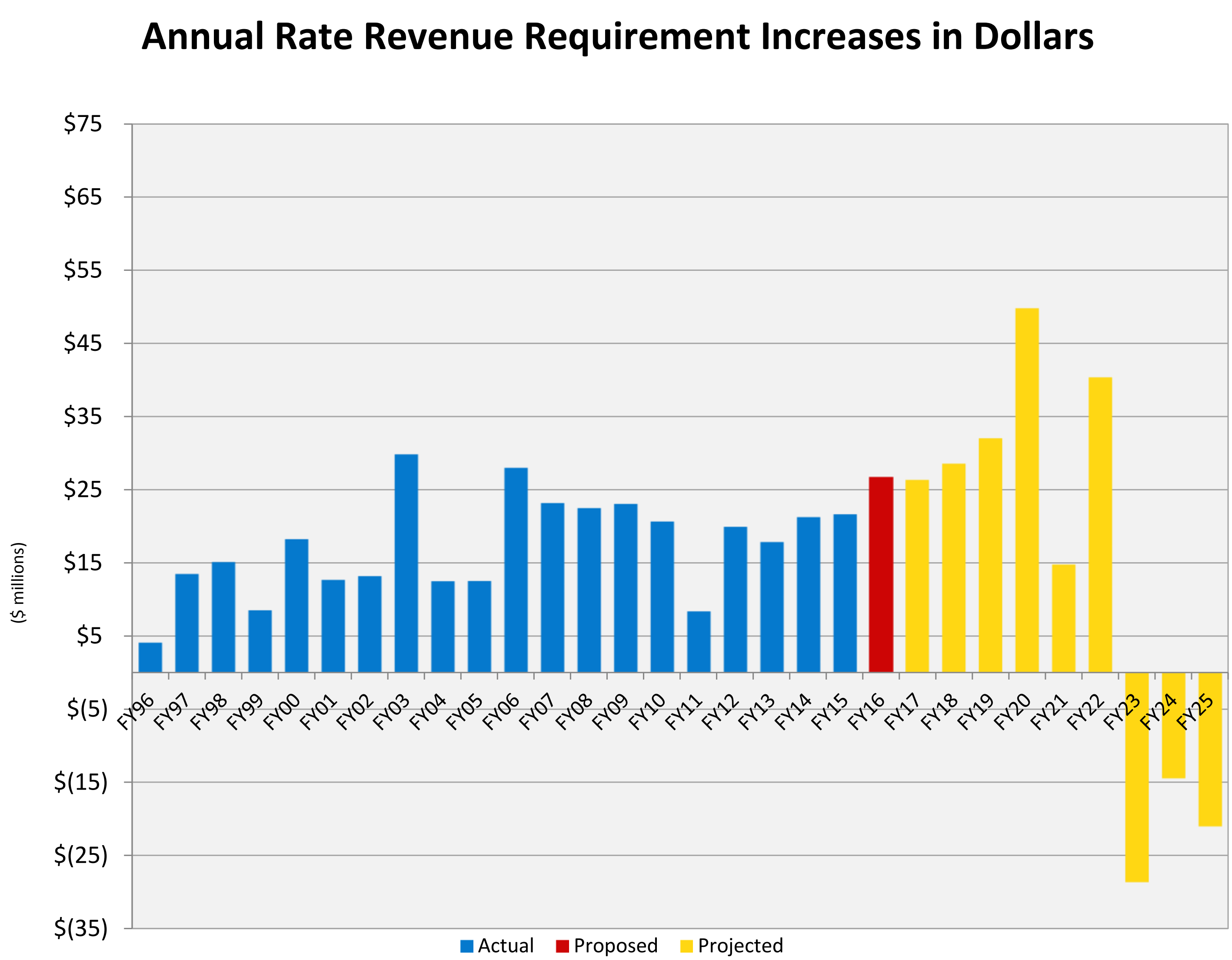

Figure 10

- After FY2022, the Authority projects that rates will start to trend down, as debt service peaks
- The rate increases, lower than previous projections, reflect a multi-year rates management strategy to keep rates at sustainable levels during these continued challenging times
- These rates reflect the significant benefits of reduced debt service payments (as compared to earlier projections) resulting from:
    - January 2007 restructuring transaction
    - Spring 2008 defeasance transaction
    - February 2009 refunding
    - Restructuring of targeted amounts of debt service that had been due in FY09-15
        - Benefits seen through FY 2019
- Defeasance: the prepayment of a portion of a future year's debt service using current-year surplus funds.
    - This tool has been used consistently and strategically
- Proposed FY10 CEB was the first proposed budget to assume benefits of a planned defeasance transaction.
- This assumption allows proposal of lower rate revenue increases than earlier projected
- Total defeased debt between 2006 and projected FY15 defeasance: $335 million (See Figure 16)
- The Authority has also continued to work to tighten direct expenses in the proposed FY16 CEB, continuing to absorb more risk in the budget assumptions and reflect updated historical spending patterns

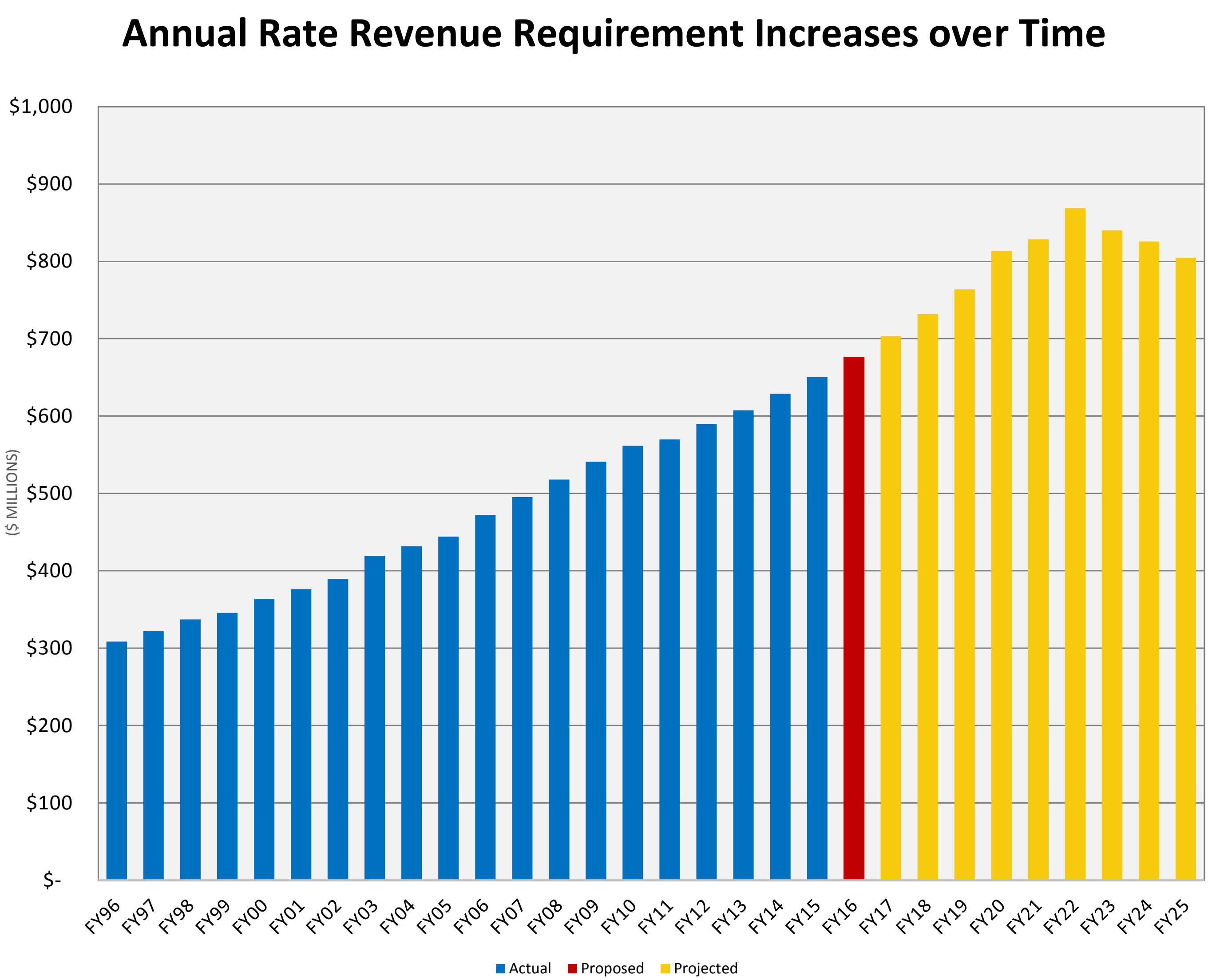

Figure 11

FY16 Current Expense Budget Recommendation

Last year, the Advisory Board challenged the Authority to keep assessment increases below 4% through FY20. To its credit, the Authority has embraced this "Four No More" concept, and has incorporated it as a context for many of their presentations and handouts related to planning projections and rates management. In fact, the Authority's updated projections presented to the MWRA Board of Directors in April 2015 achieves projected rate increases of 3.9% through FY 2021.[28] If rates match these projections moving forward, the Authority will more than achieve the Advisory Board's initial goal, which was to keep assessment increases below 4% for ten years in a row (from FY10-FY20). The Advisory Board applauds the Authority for attaining this goal so quickly, and for working with the Advisory Board and Long-Term Rates Management Committee to do so. This sub-4% level of rate increases provides a wonderful starting point as the Advisory Board and Authority look for the next goal to set and work together to similarly achieve them in the next few years.

The Advisory Board has recommended or identified nearly $8.4 million in net line item reductions,[29] and has recommended that some of these reductions be offset by removing the intended use of bond redemption funds (approximately $3.5 million) for an actual reduction of $4.8 million. **Therefore, the Advisory Board recommends this $4,811,604 be used to reduce the rate revenue requirement for the FY16 Current Expense Budget, resulting in a 3.36% wholesale rate increase.** The specific reductions are identified and explained in the subsequent chapters.

<u>Major Categories of Spending</u>

Detailed discussion of the major categories of spending follows in order of highest to lowest levels of spending:

Table 19

Proposed FY16 CEB Major Categories of Spending ($ millions)	
Capital Financing	$435.7
Personnel-Related Costs	124.8
Indirect Expenses	47.8
Maintenance Expenses	28.6
Utilities	24.9
Other Services	23.4
Chemicals	10.1
Professional Services	5.7
Other Materials	5.9
Training and Meetings	0.4
TOTAL EXPENSES	**$707.2**
REVENUE	**$707.2**

[28] "With the application of the $36.5 million in released reserves, strategic utilization of available Rate Stabilization and Bond Redemption funds." April 2015 MWRA Board of Directors staff summary (http://mwraadvisoryboard.com/wp-content/uploads/2015/05/BOD-Pack-2015-04-15.pdf)

[29] Note: $8.4 million reduction includes $2.2 million in anticipated increased expenses. (See Appendix C)

Table 20

Proposed Fiscal Year 2016 **Capital Financing Summary** ($ millions)				
Line Item/Description	*Final FY15*	*Proposed FY16*	*Δ ($s)*	*Δ (%)*
Total Senior Debt Service	**$220.84**	**$283.41**	**$62.58**	**28.3%**
Outstanding	219.04	276.01	56.98	26.0%
New FY15/FY16	1.80	8.31	6.51	361.4%
Potential Defeasance/Restructuring	0.00	-0.90	-0.90	-
Fixed rate debt service, existing and new borrowings during FY13/14.				
Total Subordinate Debt Service	**99.69**	**49.22**	**-50.46**	**-50.6%**
Outstanding	99.69	49.22	-50.46	-50.6%
New FY15/FY16	0.00	0.00	0.00	-
Potential Defeasance/Restructuring	0.00	0.00	0.00	-
Variable rate debt service: 3.25% interest rate assumption.				
Total SRF Debt Service	**78.46**	**81.37**	**2.91**	**3.7%**
Outstanding	76.66	76.80	0.14	0.2%
New FY15/FY16	1.80	4.56	2.76	153.5%
Low-interest loans from the Commonwealth. 2.0% interest rate (Water); 2.5% (Sewer).				
TOTAL DEBT SERVICE	**398.98**	**414.00**	**15.02**	**3.8%**
Water Pipeline Commercial Paper	**4.15**	**4.15**	**0.00**	**0.0%**
Debt service supporting $25 million/year for the Local Water Pipeline Improvement and Local Water System Assistance Loan Programs.				
Current Revenue/Capital	**10.20**	**11.20**	**1.00**	**9.8%**
Amount of current revenue used to fund ongoing capital projects and to meet coverage requirements.				
CORE Fund Deposit	**0.88**	**6.66**	**5.79**	**660.2%**
The CORE Fund is 10% of Senior Debt Service for the fiscal year per the Bond Resolution.				
Capital Lease	**3.22**	**3.22**	**0.00**	**0.0%**
Chelsea facility lease payment.				
TOTAL OTHER CAPITAL EXPENSES	**18.44**	**25.23**	**6.79**	**36.8%**
Bond Redemption	**-6.75**	**-3.55**	**3.20**	**-47.4%**
Bond Redemption funds used to reduce capital financing expense.				
Debt Service Assistance (offset)	**-0.85**	**0.00**	**0.85**	**-100.0%**
The state-wide program providing assistance with wastewater debt service is not expected in the Commonwealth's FY13 budget.				
TOTAL CAPITAL FINANCING EXPENSES	**$409.83**	**$435.68**	**$25.86**	**6.3%**

Other Highlights

- Outstanding principal: $5.467 billion[30]
    - Lower than one year ago
- Planned FY16 borrowings:
    - MWRA: $100 million
    - SRF: $47.9 million and $15.8 million, total of $63.7 million
- FY15 CEB also includes funding for a $100 million borrowing transaction in June of 2015
- No new Debt Service Assistance is assumed

[30] Through December 31, 2014

Capital Financing Expenses Increase $21.8 Million[31]

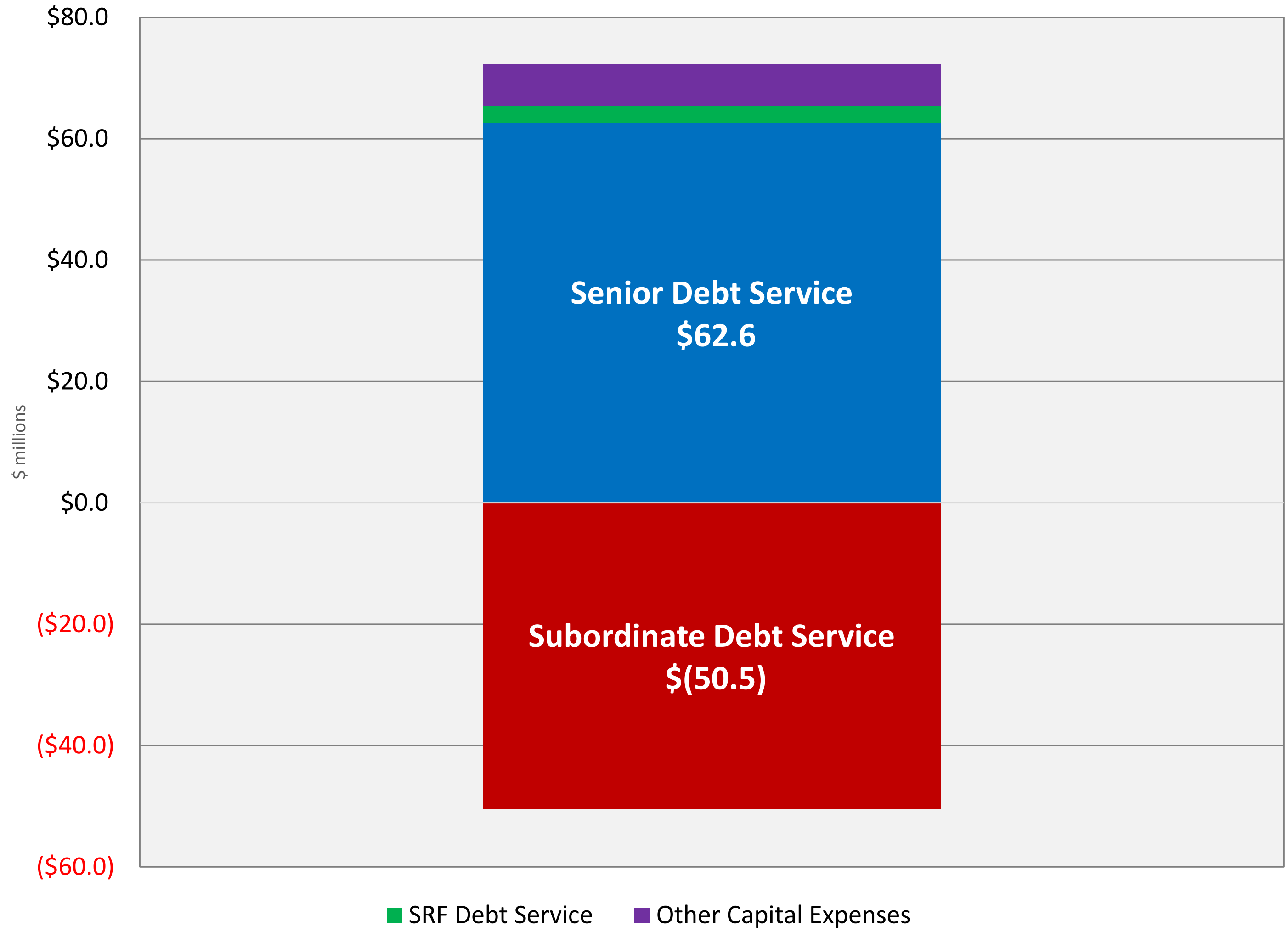

Figure 13

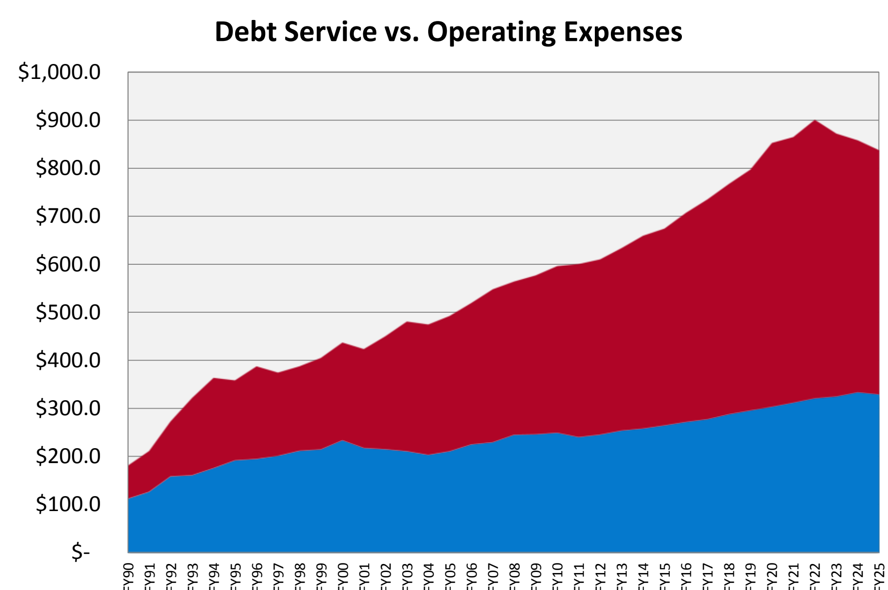

Figure 12

<u>MWRA Debt Financing and Principal</u>

- The Authority relies heavily on debt financing to fund its capital program
- The Authority has spent $7.84 billion on its capital improvement program[32]
- For FY16, capital financing expense as a percent of all expenses is 61.6% (For reference (See Figure 12)
- Outstanding principal borrowed totals $5.467 billion[33] and includes four categories:
  - State Revolving Fund (SRF)

---

[31] Before offsets
[32] Through FY14
[33] As of December 31, 2014.

- Pure Variable (subordinate debt)
  - Swap Notional (subordinate debt)
  - Senior Debt
- Commercial paper (CP) outstanding: $130 millio
  - Including CP, total outstandi principal = $5.658 billion
- Outstanding principal is declining and is $46 milli less than the prior year

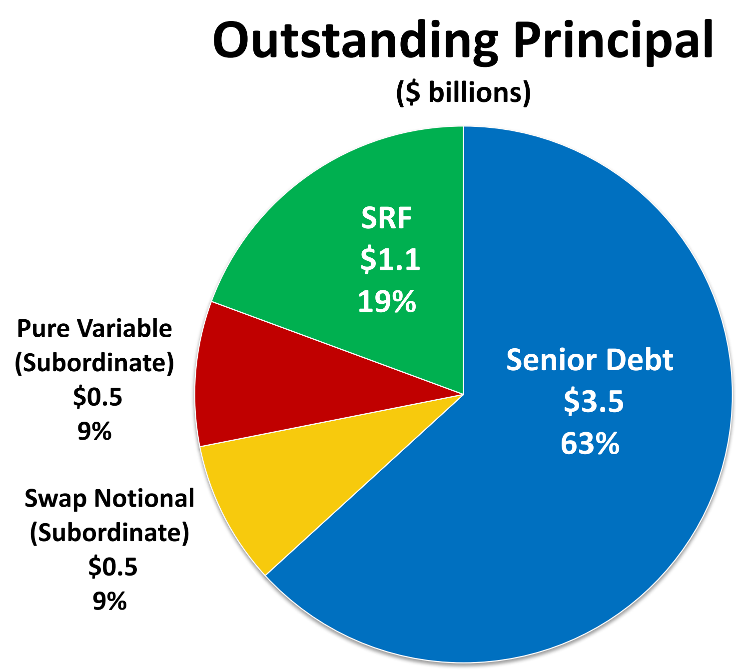

Figure 14

Debt Service on Senior Debt

- FY16 debt service on senior debt is $283.41 milli including:
  - $6.5 million for full first-year costs planned spring 2015 borrowing of $1 million
  - $1.8 million for partial year debt service new borrowing of $100 million next spri 2016
  - $0.90 million in estimated reduced debt service in FY16 from projected 2015 defeasance transaction

Debt Service on Subordinate MWRA Debt

- FY16 debt service on subordinate debt: $49
- Variable rate debt interest rate assumption
  - Same as the last four fiscal years
  - Based on a 20-plus year average
  - Federal Reserve Board has indicat may increase in the coming fiscal conservative rate assumption will shield the Authority from risk
- One factor rating agencies consider when Authority's bond rating is how much varial exposure the Authority has
- Outstanding variable rate debt: $963.4 milli
  - Makes up 17.4% of all outstanding
  - Percentage has been declining o several years: just three years earli of all outstanding debt
- Total variable rate debt exposure expectec to 16.5% by the end of FY16, and to 15.3% FY18

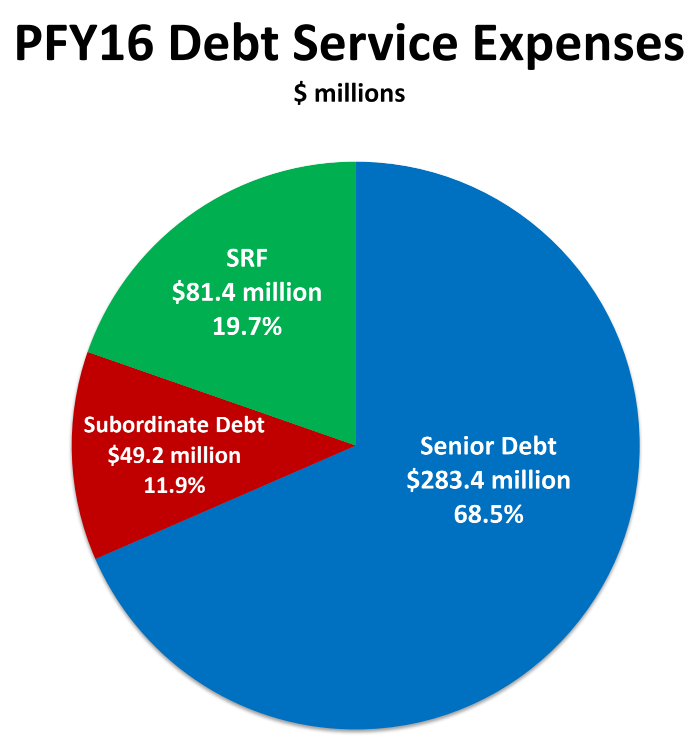

Figure 15

SRF Borrowings

- FY15 debt service on SRF borrowings: $81.37 million
  - $4.56 million of this is for Pool 19 new borrowings

  - These amounts may be updated in the final FY16 CEB
- Outstanding SRF debt: $1.05 billion
  - 19.4% of total outstanding debt[34]

Policy Point

Tax-Exemption for Municipal Bonds at Risk

"Money Grab"

At its April 2015 meeting, the Advisory Board received a presentation from the Massachusetts Municipal Association (MMA), the Clean Water Trust, and MWRA staff about a potentially huge issue facing member communities, both at the local level and through their MWRA assessments. Specifically, there are proposals being floated by President Obama and some legislators to restrict or remove the abilities of cities and towns to issue tax-exempt municipal bonds. What does that mean? In short, higher costs for cities and towns.

The proposals come as a potential strategy to raise additional revenues at the federal level, but in essence they amount to a shifting of costs from the federal government onto state and local governments. Removing or curtailing the federal tax-exemption of interest on municipal bonds would cause investors to "demand higher interest payments to offset their new tax liabilities, forcing states and localities to pay more to finance projects."[35]

At the local level, this issue would affect any bonds issued to pay for bridges, schools, and municipal buildings, dramatically increasing interest costs. Moreover, member communities would also see an increase through their MWRA assessments as well when the Authority's bonds were similarly impacted.

Authority staff has estimated the impacts of the loss of tax-exempt bonds to be approximately $15 million in additional cost per $100 million in today's favorable interest market. The MWRA expects to borrow over $2 billion over the next ten years to fund its capital program. When applying this estimated cost to the $2 billion anticipated borrowing plan, the cost to the communities over the life of the bonds would be $300 million in additional debt service. Moreover, these estimates assume the current low-interest rate market – when (not if) interest rates increase in the future, the additional costs to ratepayers will similarly increase. Moreover, some of the proposals include a retroactive component, which is especially worrisome for the Authority, who has $3.5 billion in outstanding senior debt.

The Advisory Board will be discussing this issue and taking an official position at its June 2015 meeting, but felt it was important to highlight and provide background on the topic in this year's *Integrated Comments*, given the prominence of capital financing costs in the MWRA's Current Expense Budget.

Bond Defeasance and Refunding

- Proposed FY16 CEB assumes a defeasance transaction of $20.44 million
  - The funds represent underspending during FY15, particularly for variable rate debt
  - Total estimated benefit in future years: $20.44 million
    - Benefits are mainly in FY17 (42%) and FY18 (47%)

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[34] As of December 31, 2014

[35] MMA Executive Director's Report The Beacon, May 2013 (http://www.mma.org/advocacy-mainmenu-100/exec-directors-reports/11871-tax-exemption-for-bonds-threatened-by-dc-money-grab)

- Updated June 2014 defeasance transaction is $29.7 million
    - Total benefit is estimated at $31.3 million
- Since 2006, through the planned spring 2015 defeasance, MWRA will have defeased $335 million for targeted debt service reductions over multiple years (See Figure 16)
- The Authority continues to look for opportunities for refunding and refinancing to reduce projected debt service

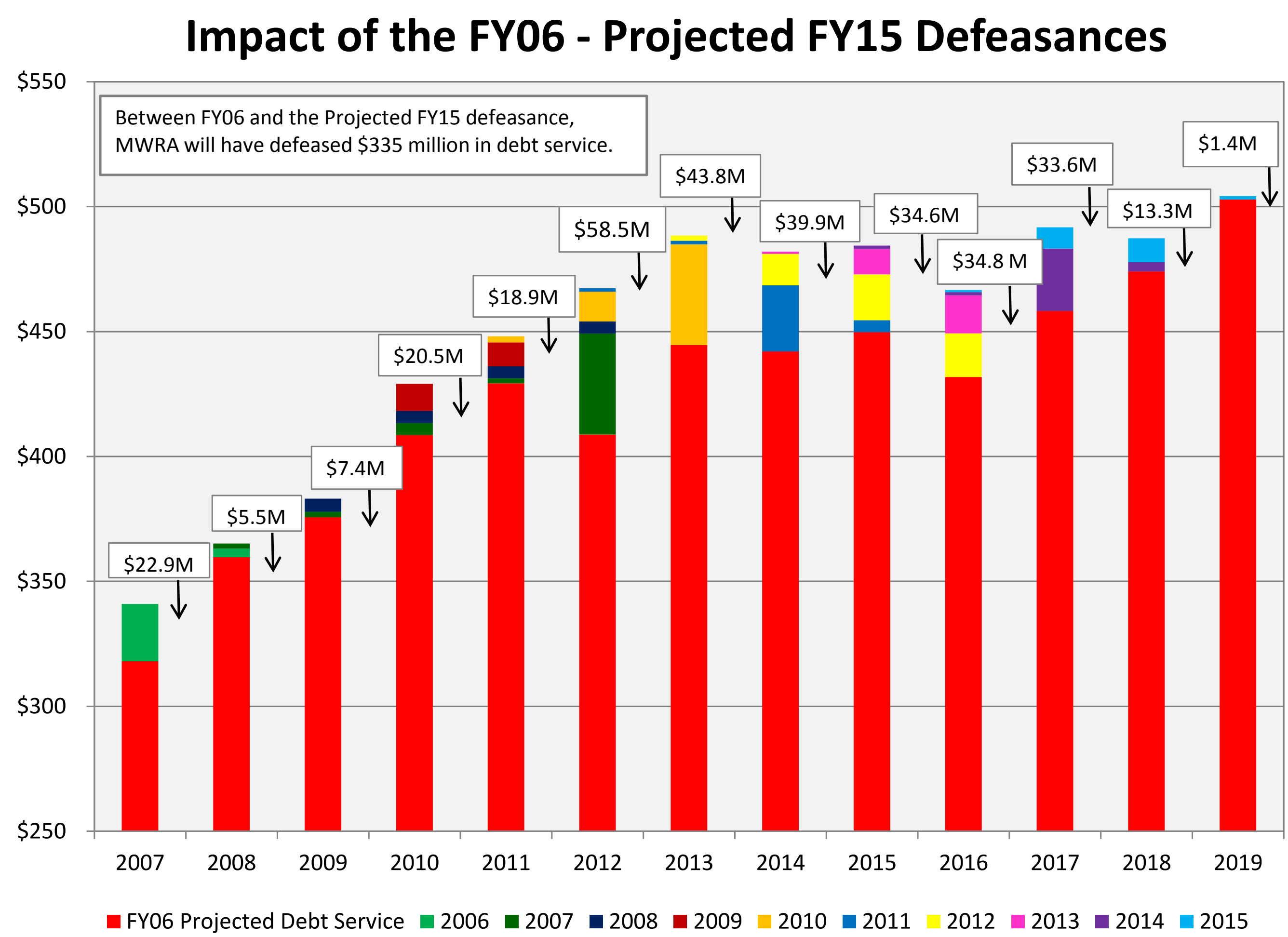

Figure 16

- The Board has authorized the continuation of the defeasance account to receive surplus funds raised for capital financing expenses to manage future rates. The account ensures that these funds are used in a manner consistent with the purpose for which they were budgeted and raised from the ratepayers. [36]
- ***The Advisory Board supports the continued use of the defeasance account strategy, which clearly identifies a use of variable rate debt service savings that is consistent with the original intended use of the funds that were raised.***
- ***The Advisory Board expects the Authority to reduce capital financing by an additional $400,000 to reflect the spring 2015 defeasance transaction.***
- ***The Advisory Board expects the Authority to increase the line item for State Revolving Fund (SRF) debt service by $1,000,000 to reflect the updated amounts anticipated for FY16.***

Other Components of Capital Financing Expense

- Water Pipeline Commercial Paper: $4.15 million

[36] Figure 16 includes the **projected** FY15 defeasance transaction.

- Interest payments on commercial paper borrowings for:
    - Local Pipeline Assistance Program (LPAP)
    - Local Water System Assistance Program (LWSAP)
  - Assumptions include:
    - 3.25% interest rate (same as past five years)
    - $127.67 million average balance of commercial paper outstanding (same as FY15 budget)
    - Chelsea facility capital lease payment: $3.22 million
  - The amount has remained the same since 2002
  - The current portion of the annual payment is included in the CEB (See Other Services)
- Capital Lease Payment: $3.2 million
  - Relating to capital costs of Chelsea administration and maintenance facilities; flat annual cost
  - Annual lease costs, insurance and taxes are included in the "Other Services" section
- Current revenue for the capital program: $11.2 million
  - The FY15 budget was $10.2 million; the FY14 budget was $9.2 million

Community Obligation and Revenue Enhancement (CORE) Fund Deposit

- As senior debt service has increased, the requirement to fund the CORE fund has reappeared in the budget after a number of years when the conditions for fund deposits had been met
- Funding is proposed at $6.66 million, but is only required under the terms of the original bond covenants
- **Due to the official release of reserves in April 2015 and the corresponding change in bond covenant requirements, the Advisory Board recommends that the $6,663,030 CORE Fund deposit is removed from the final FY16 CEB.**

Debt Service Offsets

- Bond redemption funds: $3.55 million
  - FY15 budget: use of $6.75 million
  - Current balance: $26.1 million (including the $3.55 million above)

The Advisory Board recommends reducing the anticipated use of bond redemption funds by $3,547,000. This reduction in bond redemption fund use is offset by the other recommendations/adjustments being made/identified by the Advisory Board.

- Debt Service Assistance funds from the Commonwealth have been a critical tool in managing sewer (and some water) revenue increases for MWRA communities
  - Proposed FY16 budget assumes $0 funding
  - The Advisory Board's goal is to keep the line item funded in the state budget. Staff will continue to work to support inclusion in the FY16 state budget

Bond Covenant Changes

- Bond covenant changes from January 2007 will allow certain reserves balances to be released when two-thirds of outstanding principal has been issued or restructured pursuant to the revised covenants
  - Current projected release is April 2015
- Current projected release total: $113.4 million
  - $10.0 million will be contributed to OPEB Trust Fund
  - $103.4 million will be used to lower wholesale rate assessments
- Funds eligible for release before FY16 were included in ongoing defeasance transactions

Policy Point

Released Reserves

"Advisory Board Initiative Pays Dividend"

History and Background

As mentioned earlier, the Authority has reached another milestone, which opened up a host of options. Over the last several years, one of the "future tools" referred to by both the Advisory Board and the Authority were the "release of reserves." At the time of this writing, the requirements to release the reserves have been met, allowing for their use as a powerful rates management tool. However, this tool was only made possible through years of effort by both the MWRA and the Advisory Board.

In 1990, the MWRA did not have a track record as a standalone debt issuer, so when the General Bond Resolution was approved, a "belt and suspenders" approach was employed to provide additional security to the bondholders.

Over time, the Advisory Board has made recommendations for pursuing a multi-year rates management strategy, including the formation of many working groups and committees to consider a variety of issues and options to manage future budgets and rate requirements including changing the bond covenants and the restructuring of debt.

This has been a recurring theme of the Advisory Board since at least 1999. The level of effort was stepped up in the spring of 2006 with a recommendation to convene a working committee to include members of the MWRA's Board of Directors and the Financial Advisor as well as staff from the MWRA and the Advisory Board. The committee would be charged with developing a debt restructuring plan to provide sustainable and predictable rate revenue requirements to achieve rate stability. The Advisory Board continued to request presentations and meetings of the working committee on long-range rates management to achieve, among other things, significant changes in the bond covenants. The purpose of the proposed changes was to free up some of the significant amounts of reserves required by the initial general bond resolution for use as a rates management tool. The first bonds incorporating the amendments were issued in February 2007.

Types of Reserves

Though the released reserves were to come from three different funds - the Debt Service Reserve (DSR), the (Community Obligation Revenue Enhancement) CORE Fund, and the Renewal and Replacement Reserve – these reserves fell into two distinct categories.

The first category would be made up of the funds released from the Debt Service Reserve, currently estimated at approximately $67.1 million (See Table 21). Because the DSR was funded by bond proceeds, their application is limited by IRS tax-exempt regulations; as such, these funds will be used to defease outstanding bonds in the same series limiting the years in which they can be used. It should be noted that the

Released Reserves

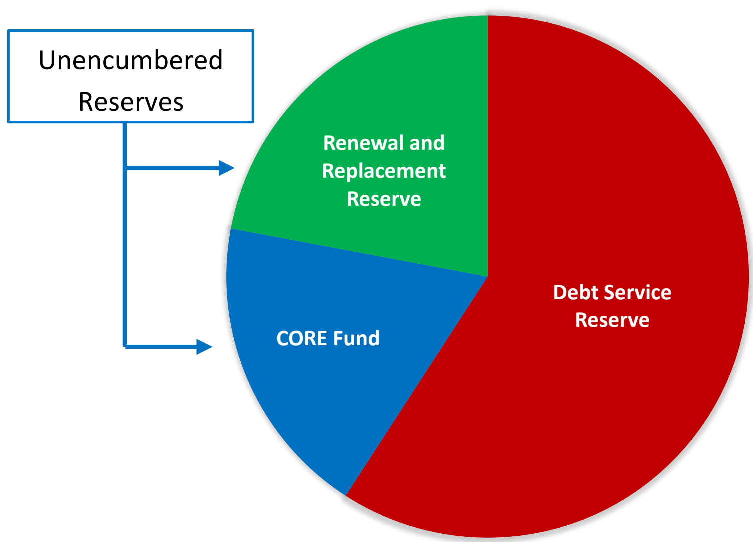

Figure 17

Authority began incorporating the use of the DSR funds into the FY14 rate projections.

The second category of funds include the reserves released from both the CORE Fund (currently estimated at $21.3 million) and the Renewal and Replacement Fund (currently estimated at $25 million). Because these funds were not limited in the same way as the DSR funds, these "unencumbered reserves," for lack of a better, term offered much more flexibility in their use as a management tool.

In an effort to create a proactive plan for the released reserves, and especially the unencumbered reserves, in the *Proposed FY11 Integrated Comments* the Advisory Board recommended convening a committee to evaluate the range of tools that could be used for long-term rates management. The Long-Term Rates Management Committee (LTRMC) was made up of representatives from the Advisory Board, the MWRA Board of Directors with staff from both agencies offering support. Though many options were presented and discussed, ultimately it was decided to table further discussion and a final recommendation until the release of reserves was imminent.

In last year's *Comments*, armed with the knowledge that the reserves would likely be eligible for release at some point in FY 2015 or FY 2016, the Advisory Board recommended reconvening the LTRMC to make a final recommendation on the best use of the unencumbered reserves.

In March 2015, the LTRMC - again with representatives from the MWRA, the Advisory Board, and staff in attendance - met to discuss updated options for the use of the reserves. At this time, the updated amounts being released in the CORE and Renewal and Replacement Funds totaled $46.3 million (See Table 21). Many options were presented, ranging from putting the entire $46.3 million into an OPEB Trust (see additional discussion on page 63) to using the entire $46.3 million for rate relief. Ultimately, the LTRMC made the recommendation to place $10 million into an OPEB Trust, and to use the remaining $36.3 million to reduce debt service.

Two benefits made this a compelling option for the Committee:

1) When combining the $36.3 million with the DSR Funds, over 91% of the released reserves would ultimately be used for rate relief.

2) Using the $36.3 million as part of a defeasance allowed the Authority to keep the combined rate revenue requirement increase under 4% through FY21. As previously mentioned, the Advisory Board's "Four No More" recommendation in last year's *Comments* challenged the Authority to bring rate revenue increases below the 4% level from FY15-20.

Table 21

Reserve Balances
Pre- and Post-Amendment

Reserve Account	Current Balance	Post-Amendment	Release as Result of Amendment
Debt Service Reserve Fund	$ 217,108,010	$ 150,040,431	$ 67,067,579
CORE Fund	$ 21,323,633	$ -	$ 21,323,633
Renewal and Replacement Reserve	$ 35,000,000	$ 10,000,000	$ 25,000,000
Total	**$ 273,431,643**	**$ 160,040,431**	**$ 113,391,212**

In April 2015, the MWRA Board of Directors voted to approve the recommendation of the LTRMC. ***The Advisory Board officially supports and endorses the recommendation of the Long-Term Rates Management Committee and subsequent vote of the MWRA Board of Directors for the intended use of the unencumbered released reserves.***

The Advisory Board thanks Authority staff for all of the time and effort that went into preparing the materials needed to fully discuss the range of options for the use of the released reserves.

<u>Longer Term Outlook for Principal and Interest Payments</u>

- Debt Service payments increase rapidly in the coming years and are currently projected to peak in FY2022
- Current projections indicate that debt service payments will not return to today's levels until 2027
- FY13 debt service: $368.5 million[37]
    - FY13 principal: $116.2 million
    - FY13 new borrowing: $40.6 million[38]
    - First year more principal was repaid than amount of new borrowings
- FY19 debt service: $518.9 million[39]
    - FY19 principal: $264.1 million
    - FY19 interest: $254.9 million

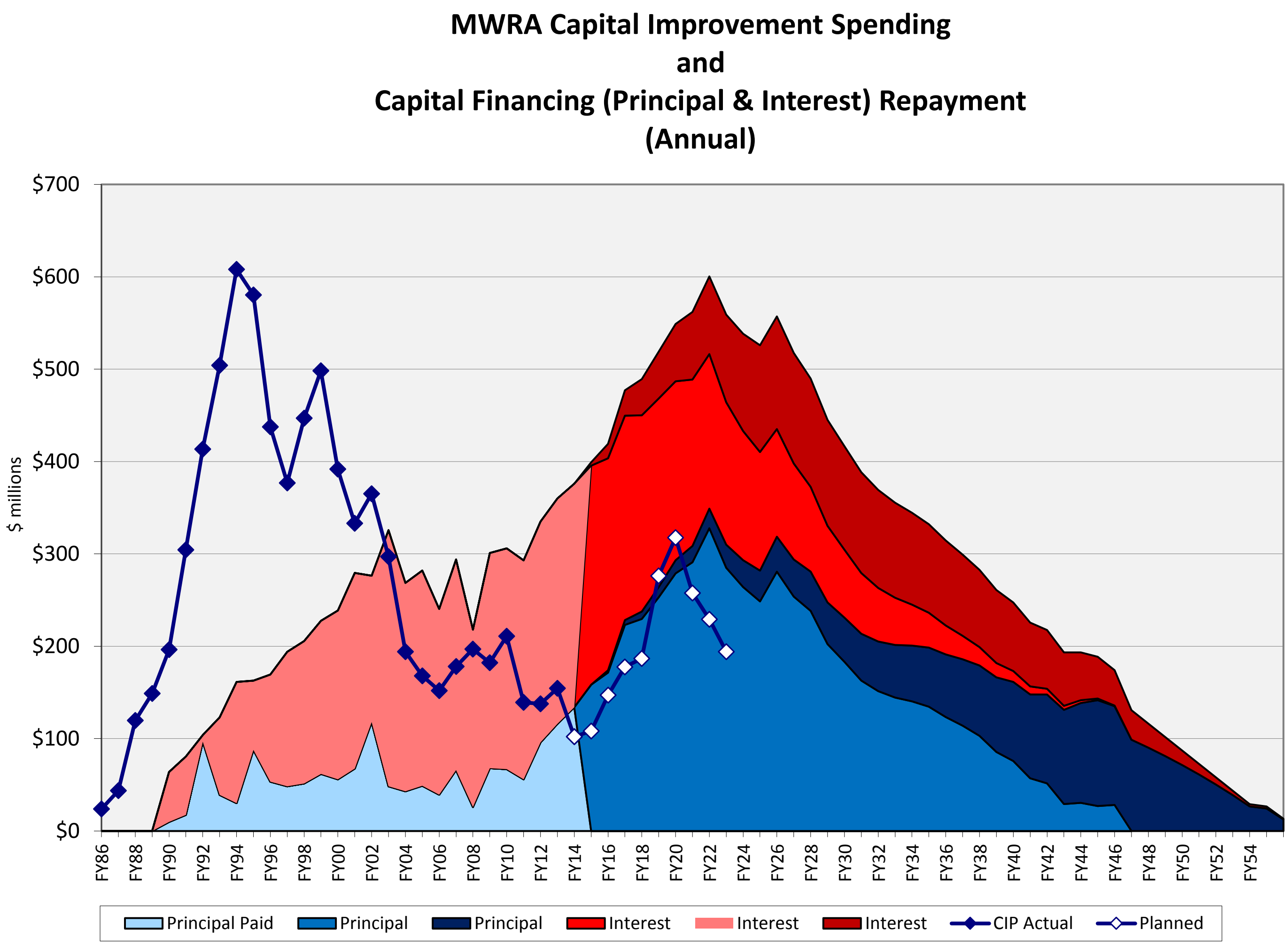

Figure 18

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37 Actuals. Does not include commercial paper, current revenue for the capital program, or capital lease costs.
38 SRF borrowing. Does not include commercial paper, current revenue for the capital program, or capital lease costs.
39 Projected.

Table 22

Proposed Fiscal Year 2016 **Personnel Expenses Summary** ($s)				
Line Item/Description	*Final FY15*	*Proposed FY16*	*Δ ($s)*	*Δ (%)*
Regular Pay	$94,733,253	$97,416,860	$2,683,607	2.8%
Regular wages and salaries for full- and part-time employees.				
Other Pay	1,821,497	1,769,078	-52,419	-2.9%
Includes shift differential, holiday pay, temporary employees, interns/co-ops, and stand by pay.				
Wages and Salaries Subtotal	96,554,750	99,185,938	2,631,188	2.7%
Fringe Benefits	18,299,405	19,006,475	707,070	3.9%
Includes health insurance, dental insurance, Medicare, and all other fringe benefits.				
Overtime	3,620,600	4,219,293	598,693	16.5%
For planned maintenance, emergency, and coverage.				
Workers' Compensation	2,200,000	2,343,000	143,000	6.5%
Includes compensation payments, medical payments, and other related costs.				
TOTAL PERSONNEL EXPENSES	**$120,674,755**	**$124,754,706**	**$4,079,951**	**3.4%**

Other Highlights

- Wages and salaries expense includes an estimate of FY16 COLA increases
- Average funded staffing level: 1,170
  - FY15 budgeted level: 1,175
- Fringe benefits expense increased mainly due to projected increase from the GIC; potential changes to the employee contribution for health benefits could impact this line item in the final budget
- Workers' compensation expense is based on a three-year average of actual spending

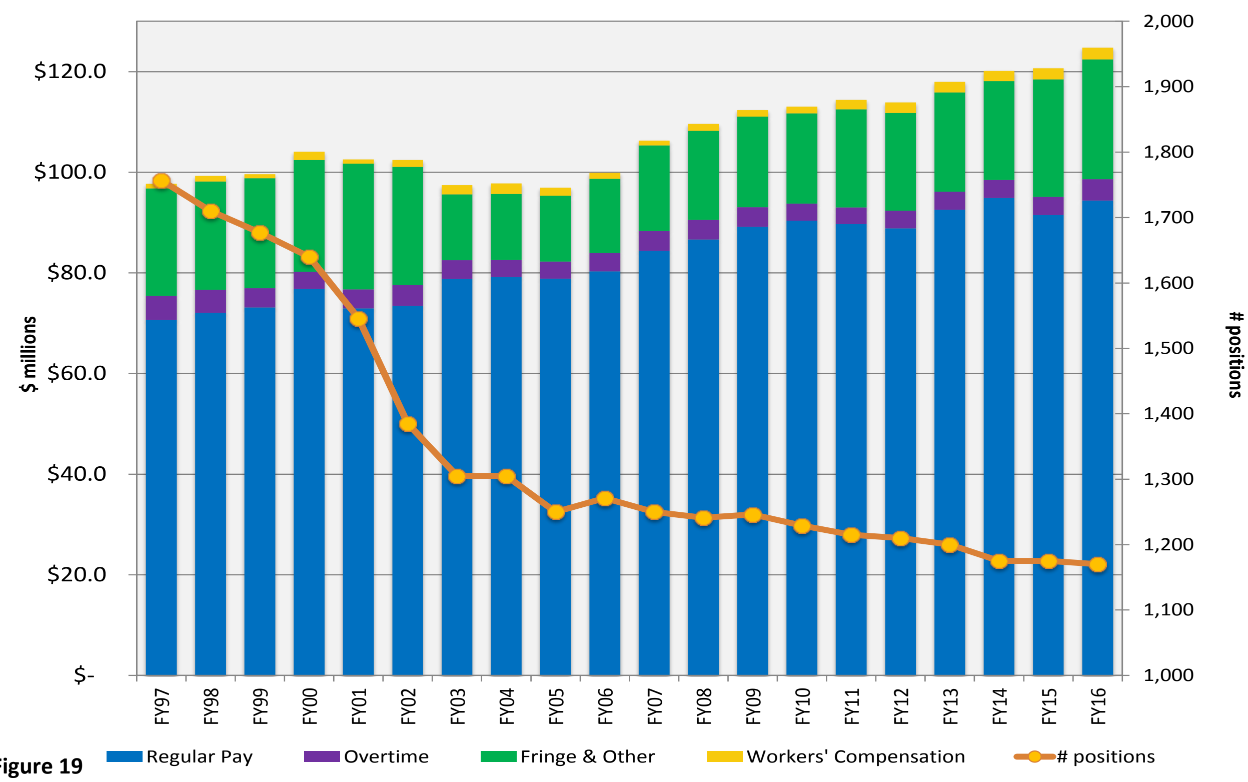

Figure 19

"DELTA REPORT"

Personnel Expenses Increase $4.1 Million

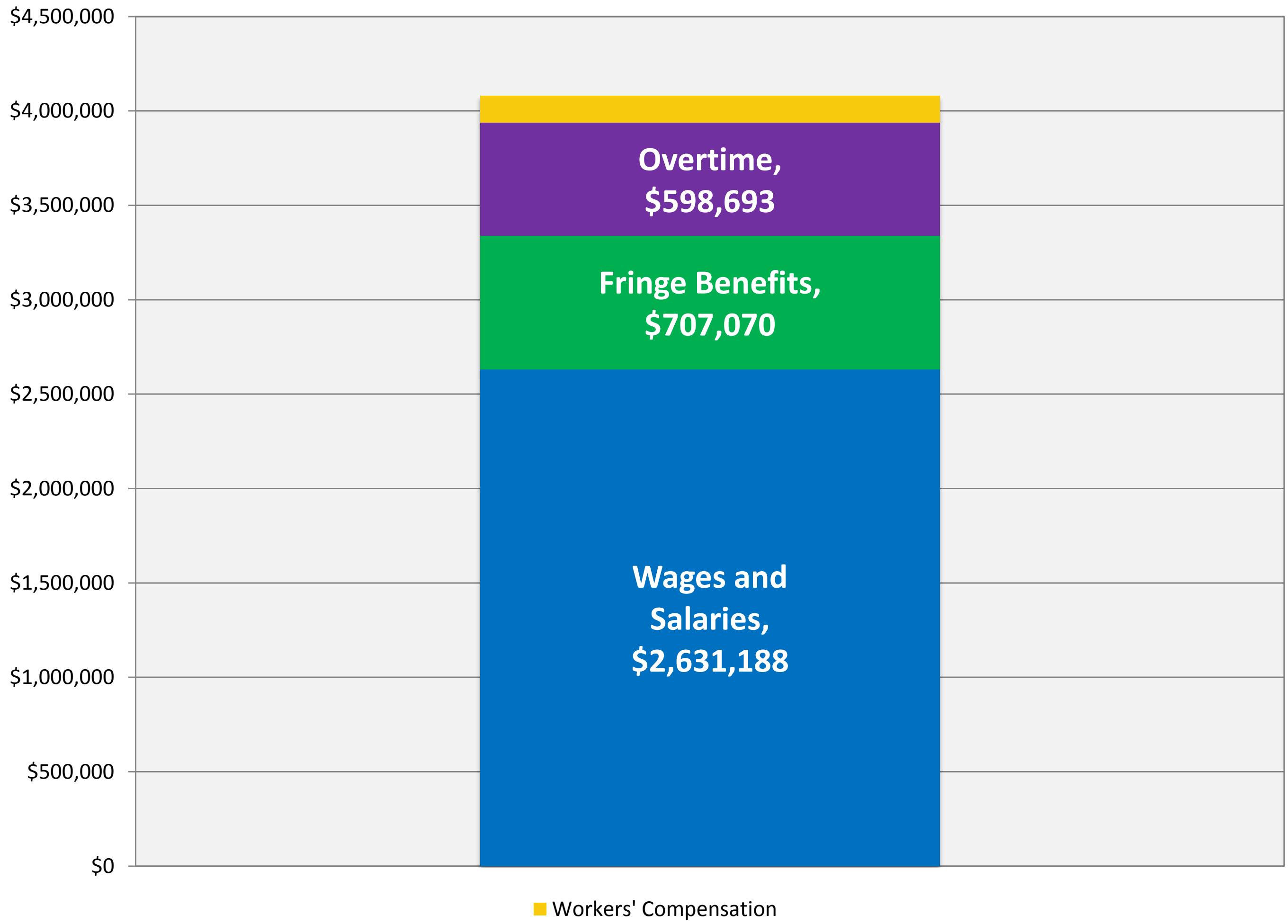

Figure 20

- Staffing levels have decreased by over one-third since 1997
  - March 1997 = 1,775 (peak)
  - Proposed FY15 = 1,170
  - Total reduction: 605 positions
  - March 2014 staffing level: 1,152 filled positions
- New hires tend to begin at lower pay-rates than the incumbents, helping to contain costs
- New hires pay a higher percent of health insurance premiums, reducing fringe benefits costs
- **Due to the lag time inherent in backfilling vacancies, the Advisory Board recommends that the Authority adjusts its attrition/vacancy rate assumptions upward by the average value of three positions, for a reduction of $300,000 (including associated fringe benefits).**
- **The Advisory Board recommends adding $100,000 to fund additional personnel for the Toxic Reduction and Control (TRAC) department to begin preparation for issuing permits aimed at reducing molybdenum in the wastewater system (see additional discussion in the Policy Chapter, page 101).**

Fringe Benefits

- Makes up 15.2% of total Personnel-related expenses
- ***The Advisory Board expects the Authority's health insurance costs to increase based on new data released this spring from the GIC. The Advisory Board estimates this increase to be $350,000***

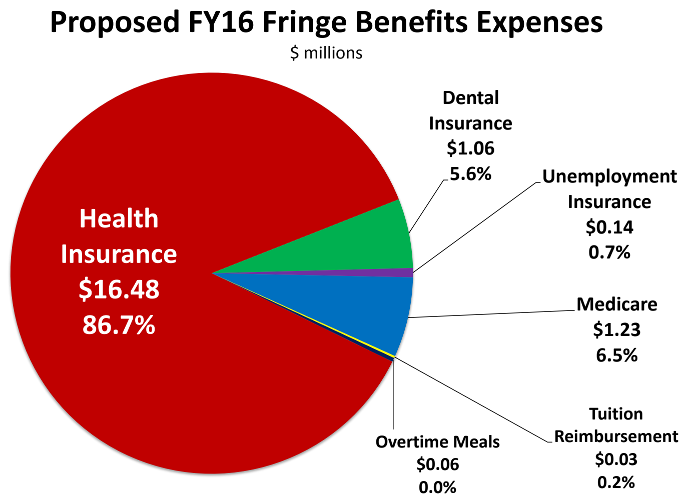

Figure 21

Workers' Compensation

- Based on a three- to five-year average (average FY13-16 = $2,300,000)
- Overall average spending has increased by approximately $200,000 or 10% since FY 2009, but varies from year to year:
    - Factors include number and severity of cases, increases in medical expenses over the years and settlements reached
- MWRA staff administer the program including processing and monitoring injured employees' claims, coordinating claims investigations, working with injured employees to return them to work, and attending hearings at the Department of Industrial Accidents
- MWRA is self-insured
- Authority uses services of a third party administrator for claims management, utilization review, payment processing for lost time compensation and payment of medical bills
- Annual budget includes actual expenses for weekly compensation payments to injured employees for lost time, payments for medical care, and other expenses (DIA hearing fees, medical examinations costs and investigation services)
- The budget also includes reserves for each workers' compensation claim (both compensation for lost time and medical expenses) which represent the estimated future liability for each claim.
- MWRA maintains ongoing safety and training programs to promote and maintain a safe work environment, including confined space entry, trench safety, ladder staging, evacuation training and

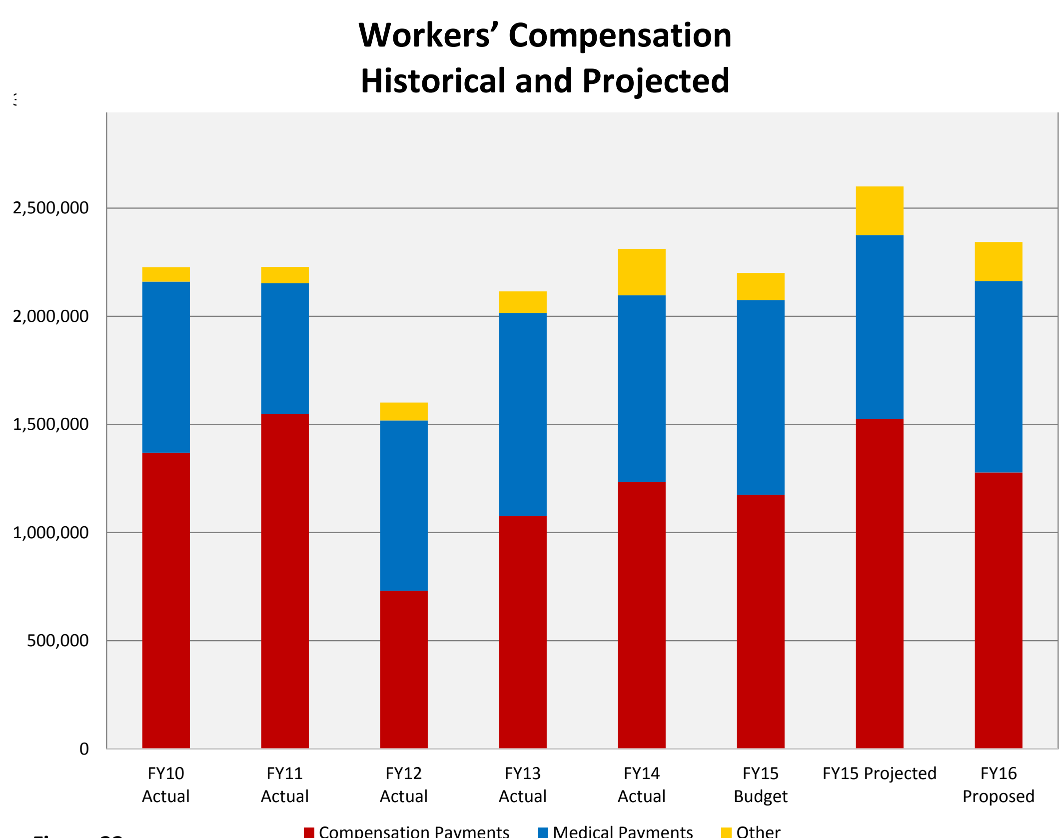

Figure 22

electrical safety, plus safe lifting training

- Light duty assignments are also utilized
- The Authority reports regularly on injury and illness rates as well as highlights of the workers' compensation program (including light duty returns), in the quarterly Orange Notebooks

Overtime

- Increased by 16.5% ($600 thousand)
  - Largest driver: planned maintenance (increase of $573 thousand) for:
    - Wage increases plus resizing based on trends
    - North Main Pump Station and Winthrop Terminal Facility butterfly valve replacement ($515 thousand in FY16)
      - Assumes 36 eight-hour, overnight shutdowns in FY16; 50 overall
      - Project runs during FY15 through FY17

Table 23

Proposed Fiscal Year 2016 **Indirect Expenses Summary** ($s)				
Line Item/Description	*Final FY15*	*Proposed FY16*	*Δ ($s)*	*Δ (%)*
Pension	$7,808,155	$8,159,521	$351,366	4.5%
Scheduled updated contribution to retirement fund. Amortization payment: $5.48 million. Employer normal cost: $2.68 million.				
Post-Employment Benefits/Additional Pension Deposit	4,821,320	5,062,470	241,150	5.0%
OPEB is considered all other benefits for retirees (e.g. health insurance).				
Insurance	2,128,155	2,160,797	32,642	1.5%
Insurance and payments/claims.				
Mitigation Payments	1,605,967	1,400,000	-205,967	-12.8%
Mitigation payments to Quincy and Winthrop.				
HEEC Payments	3,198,174	1,946,157	-1,252,017	-39.1%
Cross harbor cable to Deer Island (includes both debt service and O&M components). Contract expires after FY15.				
Watershed Reimbursements	27,466,790	28,061,183	594,393	2.2%
Supports the operations and related costs of the state's Department of Conservation and Recreation, Office of Watershed Management.				
Additions to Reserves	482,953	962,449	479,496	99.3%
1/6th of all planned Operating Expenses.				
TOTAL INDIRECT EXPENSES	**$47,511,514**	**$47,752,577**	**$241,063**	**0.5%**

Other Highlights

- Pension is 98.3% funded[40]
- “Virtual Full Funding” is an industry te recognizes how difficult it is to get to exa funding of the pension liability; it is co between 95% and 105% funded
- FY16 Pension annual required contribution $8.2 million is based on:
  - A valuation report as of January 20
  - A FY24 funding schedule
- Other Post-Employment Benefits (OP treated together with pension obligations a marks the first payment; going forward, t liability will be actively funded
- The OPEB/Additional Pension Deposit li ($5.1 million) is expected to be deposite newly created OPEB Trust Fund in FY16
- Insurance expense based on five-year average

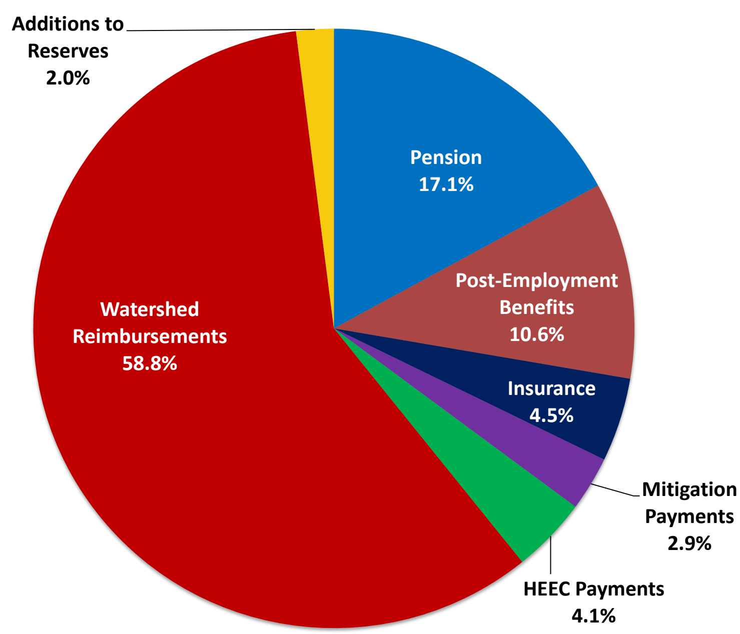

Figure 23

- HEEC payments for O&M and debt service charges decline. The current agreement runs until May 2015
- Costs of the Office of Watershed Management are treated as a reimbursement to the state and include PILOT payments and debt service on watershed land purchases, as well as direct operating expenses

[40] As of January 1, 2015

“DELTA REPORT”

Indirect Expenses Increase $241 Thousand

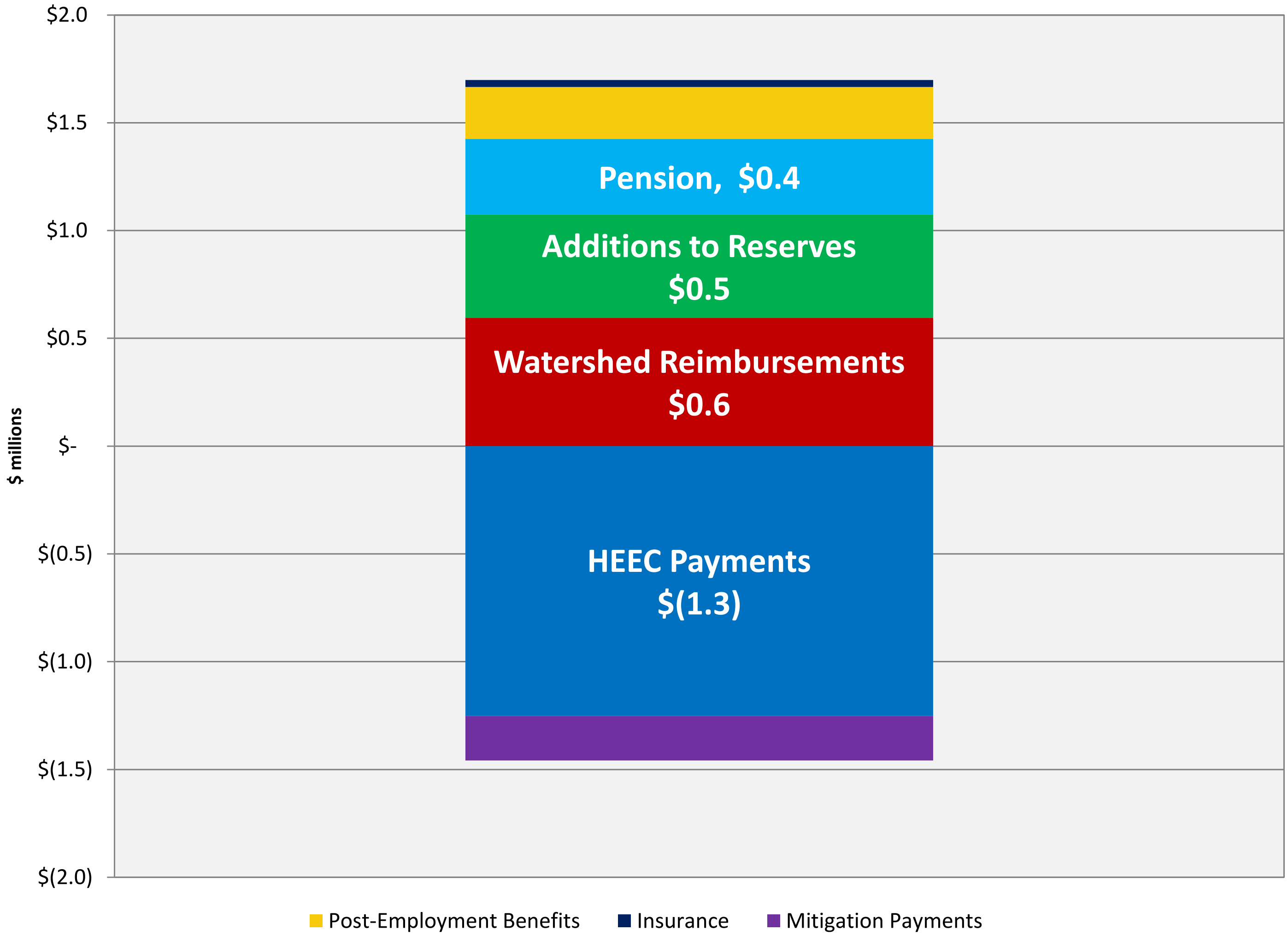

Figure 24

Other Post-Employment Benefits (OPEB) and Pension

- Retirement fund currently scheduled to be fully funded by 2024
- FY15 pension expense: $12.6 million
  - $7.81 million = annual required contribution
  - $4.82 million = optional contribution
- Proposed FY16 pension expense: $8.2 million
  - $8.16 million = annual required contribution (ARC)
  - Additional Pension Deposits had been made each year to fully fund the pension before beginning to fund the OPEB liability. Because the pension fund has reached virtual full funding, this expense will go to OPEB.
- Proposed FY16 OPEB/Additional Pension expenses: $5.06 million
  - Authority will make the first OPEB contribution out of the CEB now that the pension fund has reached virtual full funding
- Governmental Accounting Standards Board (GASB) Statement No. 45 governs the accounting and financial reporting of OPEB
  - Governmental entities are not currently required to fund OPEB
  - All entities comply with GASB 45 by accounting and reporting on its OPEB liability

- The Authority has met all current provisions of GASB 45

Policy Point

Other Post-Employment Benefits

"From Heads to Tails"

History of Other Post-Employment Benefits (OPEB)

The interrelated topics of the MWRA's Retirement Fund and Other Post-Employment Benefits (OPEB) liability have been a perennial subject of the Advisory Board's review, both from a financial and a policy standpoint.

Beginning in FY 2007 the Authority was required to begin accounting for and reporting its unfunded OPEB liability under the terms of the Governmental Accounting Standards Board Statement 45 (GASB 45). At the time, discussion of the Authority's OPEB liability centered on whether or not to pre-fund it, and the fact that for any contribution to reduce the unfunded liability it would need to be made into an irrevocable trust.

At the time, the Advisory Board expressed a few concerns with prefunding its OPEB liability, some of which were related to the irrevocable trust. First, there was a concern that placing funds in an irrevocable trust would make them entirely inaccessible later on. Subsequently, an understanding that the funds could be drawn down to fund the "pay-as-you-go" (PAYGo) expenses was reached; however, the Advisory Board had another concern related to the irrevocable trust. Namely, that the creation of a trust *without* funding could potentially be viewed negatively by the rating agencies, which might in turn pressure the Authority into making regular contributions. Moreover, as the Advisory Board pointed out at the time and repeated in the intervening years: there is no obligation to fund any of the OPEB liability other than the PAYGo. The only requirements of GASB 45 were and are to account for the unfunded liability and disclose said numbers on the balance sheet. The Authority, therefore, has met and continues to meet the requirements of GASB 45 as they currently exist.

The other reason the Advisory Board advocated for a measured approach toward OPEB was the fact that the pension was not yet fully funded, and (unlike OPEB) had a legal deadline to be met through sizable annual payments. Fortunately, the Authority and its financial advisors proposed a way of viewing both the pension and OPEB liabilities not as two separate liabilities, but rather as one total unfunded liability. The phrase that came out of these discussions was that each of the liabilities were, in fact, "two sides of the same coin."[41]

In light of this new outlook, the Advisory Board formally recommended that the Authority continue its aggressive schedule to fully fund the pension by 2024 (the Commonwealth at the time allowed for funding schedules to be extended to 2040, and only then turn its attention toward addressing the unfunded OPEB liability.[42]

At the time of this writing, another major milestone for the Authority has been reached. The MWRA retirement fund has reached "virtual full funding." The concept of "virtual full funding" was raised by MWRA staff in response to questions about how to determine and maintain full funding of the pension. Indeed, almost the instant the pension reached 100% funding, it would invariably move away from this 100% mark. If investments gained, funding would exceed 100%, and if investments experienced loss, funding would dip below 100%. How, then, could the retirement fund be defined as fully funded with these inevitable variations? The solution they determined from industry accepted practices was the concept of "virtual full funding," which is defined as funding anywhere in the range from 95% - 105%. The most recent Retirement

[41] July 2008 MWRA Board of Directors staff summary (http://mwraadvisoryboard.com/wp-content/uploads/2015/05/July-2008-OPEB-Staff-Summary.pdf)

[42] Recommendation was in the *Integrated C&R* for the proposed FY12 CEB/CIP.

System Valuation has identified the pension as 98.3% funded as of January 1, 2015, well within the "virtual full funding" range.

Understanding this was a likely scenario, the Advisory Board had engaged in discussions with Authority staff about beginning to address the Authority's OPEB liability, consistent with the Advisory Board's prior recommendation. In April 2015, the MWRA Board of Directors voted to establish an irrevocable trust to begin accepting contributions toward the OPEB liability.

There was, however, one last concern the Advisory Board raised about OPEB contributions as they related to the Operating Reserve Requirement. The General Bond Resolution requires that the Authority maintains a reserve equal to no less than one-sixth of the annual operating expenses for the current fiscal year. Included in the "operating expenses" enumerated were contributions to the retirement fund. The Advisory Board had long conceded this point; indeed, given the legal requirement to fully fund the pension by a date certain, arguing that such contributions were required operating expenses made sense. However, the Advisory Board questioned OPEB contributions as triggering the Operating Reserve Requirement. If, as noted before, there was no obligation to fund OPEB, the Advisory Board reasoned that such expenses should not be included in the calculation of the annual operating reserve balance. To give an idea of the impact, a $10 million annual contribution would require an additional $1.7 million to be raised and placed in the Operating Reserve.

When discussing the next steps to begin funding OPEB this spring, the Advisory Board once again raised this concern. Finance staff at the Authority, being in general agreement, inquired further with bond counsel who similarly agreed that OPEB contributions should not be subject to the Operating Reserve Requirement. The Advisory Board thanks Authority staff for pursuing this issue further, which will allow for a savings of $850 thousand in the FY16 CEB (see below). The Advisory Board also congratulates the Authority on maintaining its strategy to aggressively bring the pension to full funding and then turn toward addressing the OPEB liability.

Strategy to Fund OPEB

Pension Funding Level

First, the Advisory Board officially endorses the "virtual full funding" concept, which defines the pension as fully funded if the system's valuation is between 95% - 105% of the targeted funding level. By adopting this definition, the current valuation of the retirement system (98.3% funded as of January 1, 2015) means the pension is virtually fully funded.

OPEB Irrevocable Trust

Understanding that funds cannot reduce the OPEB liability unless they are placed in an irrevocable trust, the ***Advisory Board officially supports and endorses the MWRA Board of Directors' establishment of the irrevocable trust as presented at the April 2015 Board of Directors meeting.***[43]

The Advisory Board expects that future contributions to the OPEB trust will not trigger the need for the one-sixth Operating Reserve Requirement, per the opinion of bond counsel.

The Advisory Board notes that should funding OPEB become a legal obligation according to a specific schedule similar to the retirement fund, these contributions may subsequently be subject to the terms of the Operating Reserve Requirement. Authority staff has also identified one other scenario that would make OPEB contributions subject to the terms of the Operating Reserve Requirement, which is a policy voted by the MWRA Board of Directors on OPEB funding. **In order to avoid triggering this requirement, the Advisory Board recommends that any strategy toward funding the OPEB liability**

[43] http://mwraadvisoryboard.com/wp-content/uploads/2015/05/BOD-Pack-2015-04-15.pdf

be framed as the Authority's "approach" or "practice" rather than as a formally voted policy of the MWRA Board of Directors.

FY16 OPEB Contribution

As noted in the Capital Financing Chapter (see Long-Term Rates Management, page 54), the MWRA Board of Directors voted to implement the Long-Term Rates Management Committee's recommendation to use a portion of the released reserves as an initial contribution toward OEPB. ***As noted in that chapter, the Advisory Board supports the Long-Term Rates Management Committee's recommendation and the subsequent MWRA Board of Directors vote to use $10 million of the unencumbered released reserves as an initial deposit into the OPEB irrevocable trust.*** Indeed, at the time of this writing, the irrevocable trust has been established and the $10 million has been deposited.

The Authority has also noted that in FY08 there had been an additional $800 thousand placed in an account (though not an irrevocable trust) intended as a contribution toward the OPEB liability. Similar to the $10 million discussed above, this amount has already been added to the irrevocable trust. ***The Advisory Board supports the Authority's actions in making this $800 thousand deposit into the OPEB irrevocable trust.***

Separate from these deposits, the Authority has included in the proposed FY16 CEB approximately $5.1 million for "Postemployment Benefits/Additional Pension Deposit." In recent years, the Authority renamed this line item to indicate that the amount budgeted could be used for either an OPEB contribution or an additional pension contribution. In practice, the Authority had acted consistent with its "two sides of the same coin" strategy to address the pension liability first before addressing OPEB by depositing the budgeted amount into the retirement fund.

This year, however, the landscape is a bit different. Having achieved virtual full funding, the Authority is now in the position to "flip the coin over" to begin directing these funds to the OPEB liability if it is the will of the MWRA Board of Directors.

Given the virtual full funding of the pension and consistent with its prior recommendation the Advisory Board endorses designating the $5,062,470 in the proposed FY16 CEB as an intended contribution toward the OPEB liability rather than as an additional pension payment.

Especially since the market dislocation in FY 2007, one of the Advisory Board's aims is to preserve the Authority's flexibility to address unforeseen financial circumstances. Toward that end, the Advisory Board recommends that the $5,062,470 in the proposed FY16 CEB be deposited on the final day of FY 2016 to allow the Authority flexibility to use these funds for other purposes if deemed necessary.

Consistent with the recent opinion of bond counsel and the Advisory Board's earlier positions, **the Advisory Board recommends that the FY16 CEB be reduced by $843,745 - the amount that had been budgeted in case OPEB contributions were found to trigger the Operating Reserve Requirement.**

Future OPEB Contributions

The Authority currently includes in its planning projections an assumption of 50% of the Annual Required Contribution (ARC) defined in the OPEB actuarial report. The Advisory Board would like to take this opportunity to point out one misnomer as it relates to the OPEB contribution. Because there is no actual requirement to fund OPEB, the term "Annual Required Contribution" as it relates to this unfunded liability can be somewhat misleading. To avoid confusion with the pension ARC, which is actually a required minimum level of payment, the Advisory Board will henceforth refer to this term as the Actuarial Calculated Contribution (ACC). In reality, if there were a requirement to fund this liability similar to the pension, the Authority would not be able to opt for a 50% of the ACC level of payment.

Authority staff has shared that other public agencies that are funding OPEB are funding at 50% of the ACC or less, so the Advisory Board recognizes this level as an emerging trend; however, **at this time the Advisory Board recommends that contributions to OPEB be no greater than 50% of the ACC.** As has often been the Advisory Board's perspective, the Authority should be aiming for targets similar to like entities, but not necessarily "lead the pack" as it were.

Similar to the recommendation above, the Advisory Board wishes to preserve the Authority's flexibility to use any or all of these funds to address any unexpected needs that may arise. **Therefore, the Advisory Board recommends that the Authority adopt the practice of depositing any funds intended as an OPEB contribution on the last day of the fiscal year in which they are intended to be deposited.**

Insurance

- Based on three-year average
- Insurance program is out for bid with award anticipated spring 2015
  - Has been on an annual renewal schedule, though multi-year bids are currently being reviewed

Additions to Reserves

- The Operating Reserve level requirement: 1/6th of all designated expenses
  - Proposed FY16: $962 thousand
  - Final FY15: $483 thousand
- Throughout these *Comments*, the Advisory Board is recommending updates and other modifications to the proposed budget, which will result in the need to update the proposed budget for increased deposits to the Operating Reserve
- **The Advisory Board recommends that the Authority reduce the "additions to reserves" line item by $207,404 to reflect reductions to applicable expenses as recommended by the Advisory Board (see Appendix C).**[44]

Watershed Reimbursement

- Other costs relating to watershed management have been added in recent years to both the Authority's CEB and CIP budgets. These include funding for new acquisition of watershed lands, dam repairs and PCB removal, as well as dam inspections and invasive species surveys and control.
- Watershed related debt service reflects an even, multi-year payment schedule and remains at $5.6 million per year

Table 24

Watershed Reimbursement

EXPENSES	FY15 Budget	FY16 Proposed	Δ ($s)	Δ (%)
Operating Expenses	$14,833,003	$15,157,350	$324,347	2.2%
Debt Service	5,608,833	5,608,833	0	0.0%
Revenue	1,000,000	1,005,000	5,000	0.5%
SUBTOTAL	$19,441,836	$19,761,183	$319,347	1.6%
Payment in Lieu of Taxes (PILOT)	8,100,000	8,300,000	200,000	2.5%
TOTAL	**$27,541,836**	**$28,061,183**	**$519,347**	**1.9%**

[44] Note: this reduction does not include the reduction related to the OPEB contribution.

Table 25

Watershed Revenues				
EXPENSES	**FY15 Budget**	**FY16 Proposed**	**Δ ($s)**	**Δ (%)**
Interment Fees	$0	$0	$0	0.0%
Fish & Boating/Deer Hunt	260,000	240,000	(20,000)	-7.7%
Rents	0	0	0	0.0%
Forestry Sales	125,000	125,000	0	0.0%
Miscellaneous	15,000	50,000	35,000	233.3%
Prior Year Refunds	0	0	0	0.0%
Hydropower/Tr Lines	600,000	590,000	(10,000)	-1.7%
TOTAL	**$1,000,000**	**$1,005,000**	**$15,000**	**1.5%**

Policy Point

Watershed Green Certification

"One Twig at a Time…"

During FY 2010, both the Department of Conservation and Recreation (DCR) and the Division of Water Supply Protection (DWSP) had received some press coverage related to reports of "clear cutting" in some areas of forest. DWSP acknowledged that some of the forestry activity had been done outside of the guidelines established and allowed by DCR.

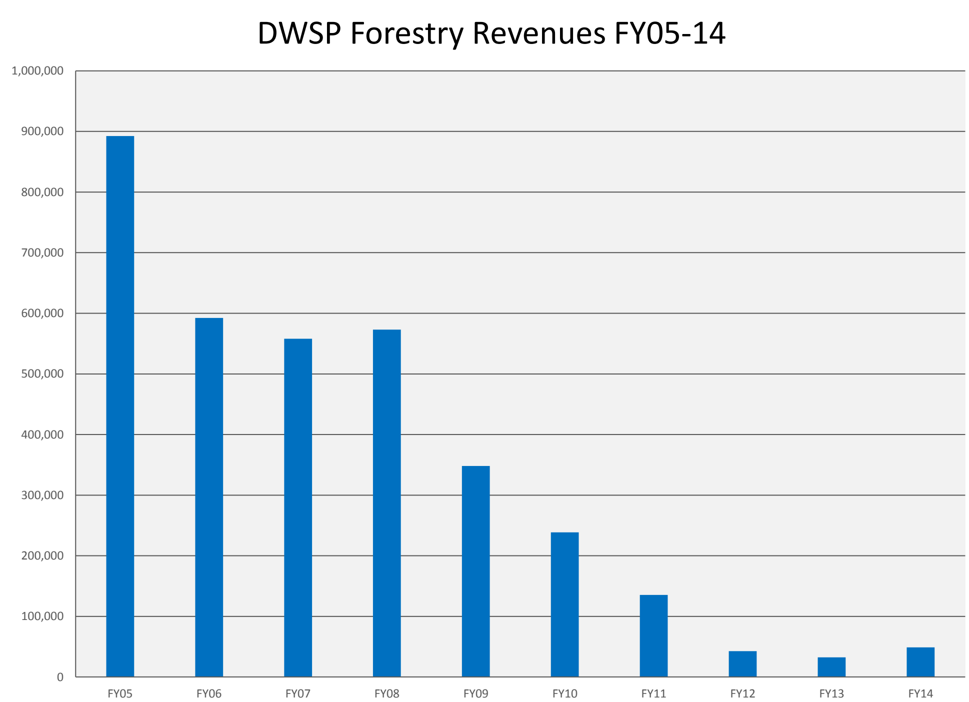

Figure 25

In response, the decision was made to reconvene the Quabbin Science and Technical Advisory Committee (STAC) to conduct an audit of the watershed forestry management program. Thirty months later, much to the chagrin of the Advisory Board, the STAC report was released in December 2012 with a comment period through January 2013.

The Advisory Board's comments were to immediately implement the findings of the STAC report and to begin its forestry program according to the recommendations of the STAC report. As seen in Figure 25, forestry revenues were in the $500 thousand-plus range until the forestry program was halted for STAC's review. Since then, there has been very little growth in revenue from the forestry program.

The Advisory Board recognizes that the watershed is crucial for the protection of the water supply. Indeed, the Advisory Board has even bought into the concept of an actively managed forestry program to assist in the natural filtration of the water supply.

Furthermore, the Advisory Board reiterates its recommendation from the *Integrated Comments* on the Proposed FY14 CEB: **DCR should pursue a "green" recertification of DWSP lands through the Forest Stewardship Council.**

Beyond "green" recertification, **the Advisory Board remains concerned about the results of the forestry program since it has been restarted, and recommends that DWSP make a formal presentation to the MWRA Board of Directors comparing the current status of the forestry program with the recommendations of the STAC report to see what progress has been made.**

Table 26

Proposed Fiscal Year 2016 **Maintenance Expense Summary** ($s)				
Line Item/Description	*Final FY15*	*Proposed FY16*	*Δ ($s)*	*Δ (%)*
Buildings and Grounds Expense	$4,760,519	$4,368,999	-$391,520	-8.2%
Materials and services for maintaining buildings and grounds.				
Automotive Expense	679,500	667,500	-12,000	-1.8%
Materials and services for maintaining vehicles.				
Plant and Machinery Expense	10,950,623	11,904,712	954,089	8.7%
Materials and services for maintaining plant and machinery expenses. (E.g. drive chains, facility painting and coating)				
Pipeline Expense	1,648,102	1,648,102	0	0.0%
Materials and services for maintaining pipeline.				
Specialized Equipment Expense	3,062,847	3,293,052	230,205	7.5%
Materials and services for specialized equipment. (E.g. grit screens, lab equipment repairs, sewer bucketing equipment)				
Computer Expense	3,060,743	3,090,632	29,889	1.0%
Includes materials services, software licenses and upgrades.				
Electrical Expense	2,663,050	2,639,400	-23,650	-0.9%
Materials and services for maintaining electrical systems.				
All Other Maintenance Expense	1,147,223	999,571	-147,652	-12.9%
Includes HVAC materials and services and purchase cards.				
TOTAL MAINTENANCE EXPENSE	**$27,972,607**	**$28,611,968**	**$639,361**	**2.3%**

Other Highlights

- Larger maintenance projects are funded through budget
- Maintenance expense is 13% of all direct expenses
- Deer Island maintenance: $12.94 million
- Field Operations maintenance: $9.61 million includin
  - CWTP
  - Headworks
  - CSO facilities
  - Water and wastewater pump stations
- Other Operations Division maintenance expenses:
  - Residuals: $0.85 million
  - Clinton WWTP: $0.46 million
- All other maintenance expense: $4.75 million
  - Makes up 16.6% of all maintenance sp includes:
    - MIS: $2.99 million
    - Laboratory services: $0.31 million
    - Fleet maintenance: $0.71 million

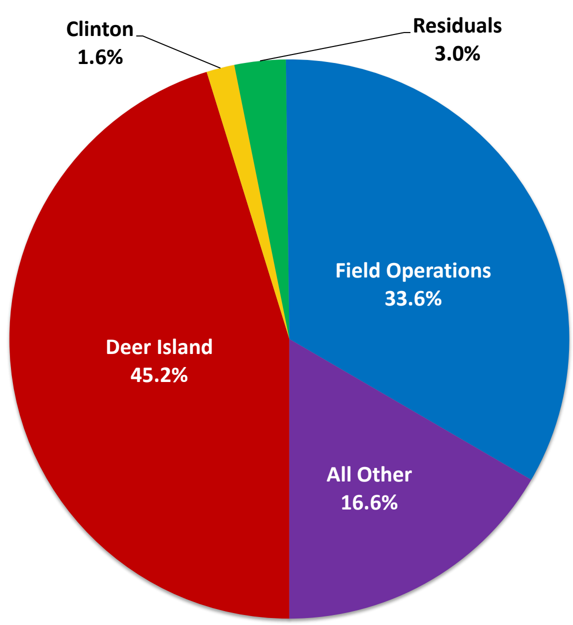

Figure 26

- Maintenance needs are also funded through the technical assistance group of engineering contracts and through the capital program

"DELTA REPORT"

Maintenance Expenses Increase $639 Thousand

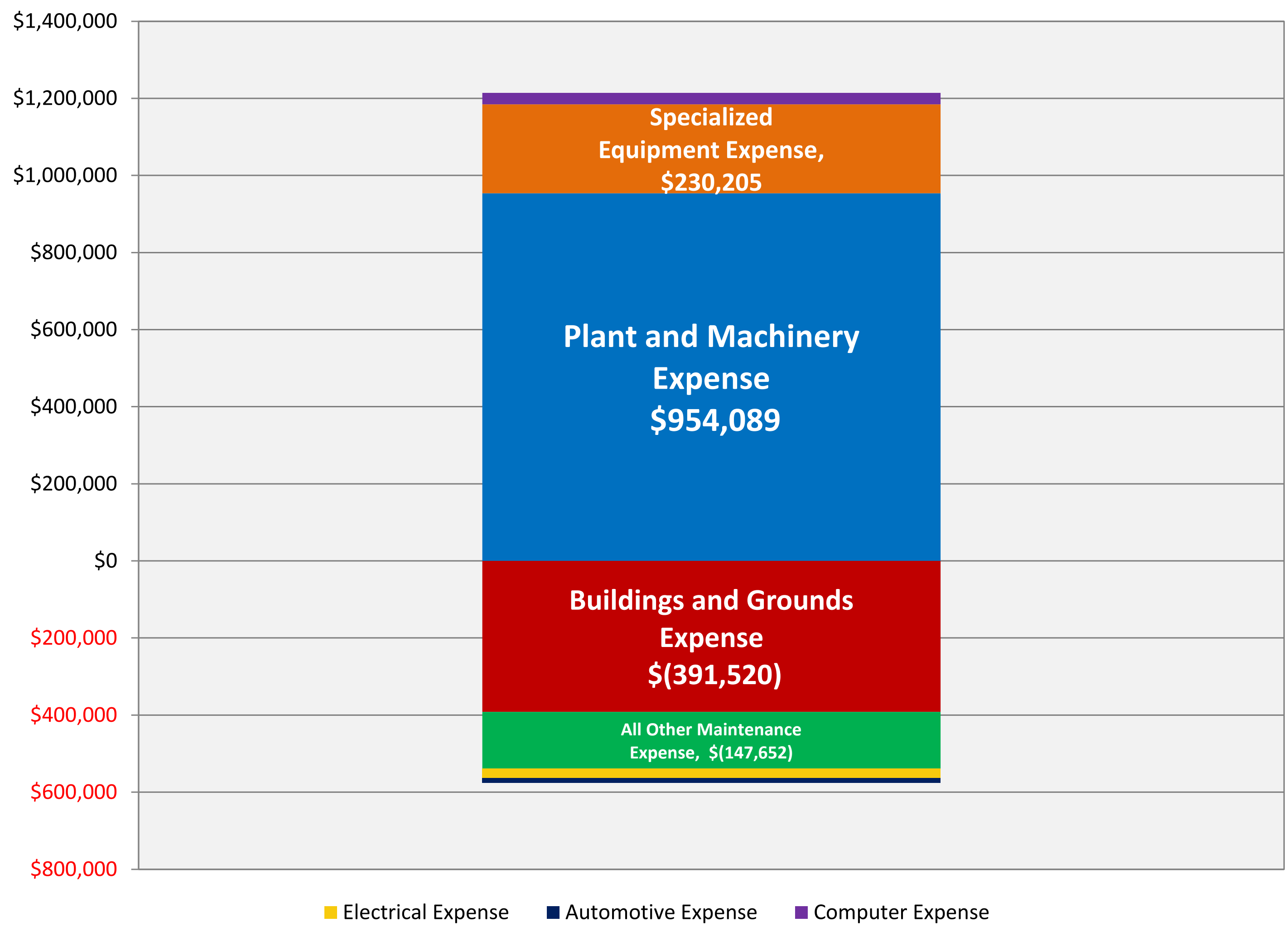

Figure 27

<u>Deer Island Maintenance Totals $12.94 Million</u>

- Materials: $5.88 million
  - 45% of the department's budget
- Services: $7.06 million
  - 55% of the department's budget
- Deer Island maintenance spending increased by 2%
- Plant and machinery services and materials: $8.38 n
  - Makes up 65% of all Deer Island maintenan
- Electrical system maintenance: $2.10 million
- Buildings and grounds work: $1.31 million
- Some of the largest projects or contracts include:
  - Boiler maintenance: $1.00 million combinin
    - Boiler maintenance
    - Hydro maintenance

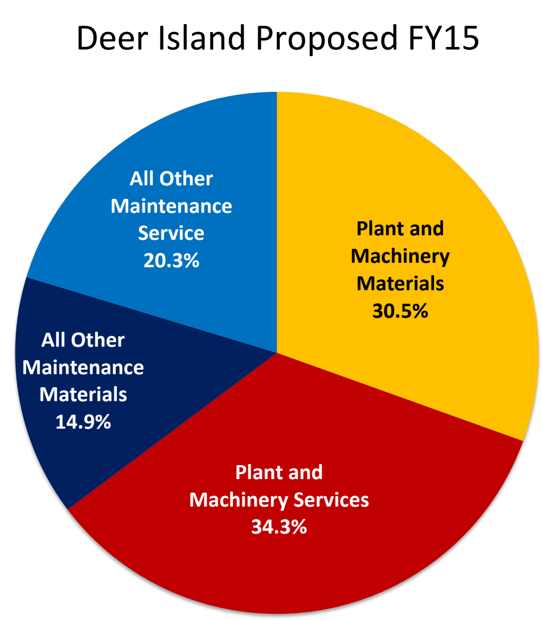

Figure 28

        - Steam turbine generator (STG) maintenance
    - Cryogenic Maintenance Services: $0.50 million
    - Janitorial Services: $0.45 million
    - Combustion Turbine Generator (CTG) maintenance: $0.34 million
    - Pipe Cleaning: $0.30 million
    - Facility Painting: $0.25 million
    - Reactor Mixer Gearbox Rebuilds: $0.20 million
    - Refurbish Slide Gates: $0.20 million
    - Exterior Door Replacements: $0.20 million

Field Operations Department (FOD) Maintenance Totals $9.61 Million

- FOD maintenance spending decreases by $0.49 million (-5%) from FY15, comprised of:
    - Completion of many critical and high-cost projects: -$0.34 million
    - Decrease in services due, in part, to unit migration: -$0.20 million
    - Decrease in energy initiatives: -$0.14 million
    - Partially offset by increase in day-to-day needs: +$0.18 million
- Five-year annual average: $9.90 million[45]
- Plant and machinery materials and services increase: +$0.23 million (+10%)
- HVAC materials and services increase: +$5 thousand (+2%)
- Budget includes:
    - Day-to-day needs: $4.3 million
    - Service contracts: $3.3 million
    - Major projects: $1.6 million
    - Energy initiatives: $0.4 million
        - Includes HVAC and lighting efficiency upgrades
- FOD maintenance projects over $100 thousand are:
    - Manhole rehabilitation contract: $360 thousand
    - Invasives control at Stillwater Basin: $214 thousand
    - Replace washdown piping with stainless steel at Prison Point: $125 thousand
    - Carpet replacement at Chelsea Facility: $100 thousand
    - Annual tank cleaning: $100 thousand

Residuals Pelletizing Facility Maintenance Totals $846 Thousand

- Based on agreement with NEFCo contract award
    - Original contract level: $653 thousand
    - Multi-year inflation factor: $194 thousand
- Increase from FY15: $148 thousand (+21%)
- Contractual amounts vary for each calendar year
- Funding supports:
    - Capital Repair
    - Replacement
    - Improvements

[45] Including proposed FY16 CEB

Clinton Wastewater Treatment Plant (CWWTP) Maintenance Totals $464 Thousand

- Increase from FY15: $257 thousand (+125%)
  - Driven by $250 thousand painting to address active concrete channel tank
- Included is $70 thousand for major projects based on the most current rolling priority list
- Remainder of the budget is for routine materials and services
- Maintenance represents 24% of the FY16 proposed budget for CWWTP

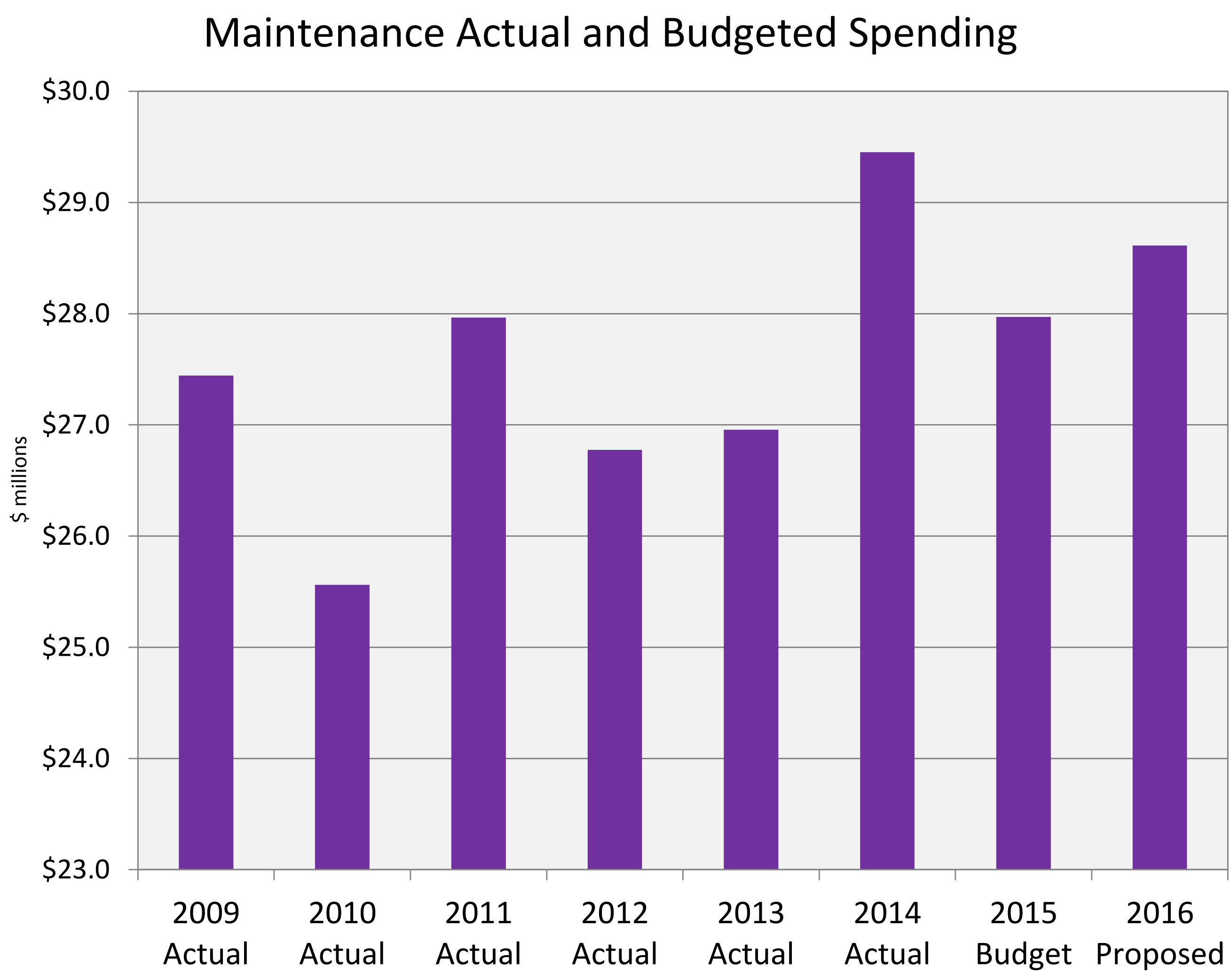

Figure 29

Table 27

Proposed Fiscal Year 2016 **Utilities Summary** ($s)				
Line Item/Description	*Final FY15*	*Proposed FY16*	*Δ ($s)*	*Δ (%)*
Electricity	$16,967,886	$18,123,442	$1,155,556	6.8%
Most facilities are powered by Electricity including DITP and CWTP.				
Diesel Fuel	3,710,592	3,809,352	98,760	2.7%
Heating, CTGs at DITP, and other backup generators.				
Water	2,070,604	2,224,031	153,427	7.4%
A "pass-through" cost to account for Water; self-supplied.				
Natural Gas	516,027	485,581	-30,446	-5.9%
Primarily used for heating various MWRA facilities				
All Other Utilities	207,246	222,150	14,904	7.2%
Oxygen, #2 Fuel Heating Oil, Propane, and all Other Utilities.				
TOTAL UTILITIES EXPENSES	**$23,472,355**	**$24,864,556**	**$1,392,201**	**5.9%**

Other Highlights

- Electricity expense increases by $1.2 million to price increases, especially at Deer Isla despite reductions in purchased electricity du conservation projects
- Increased wind and solar energy generat hydropower generation, use of steam genera at Deer Island, and improved energy efficie continue to reduce the amount of purcha electricity over the last several years
- Electricity prices in New England are driver natural gas pricing rather than oil prices
- The increase of $99 thousand for diesel fuel the decrease of $30 thousand for natural gas both largely due to changes in quanti purchased. For diesel, the Authority has trie capitalize on low prices by filling reserve tanks. Natural gas purchases have decreased, with no change in price assume.
- Natural gas use at the Fore River pelletizing plant is part of the NEFCo monthly charge, under the Other Services budget category. The Authority has included $3.03 million for natural gas (+7% from FY15), and another $1.43 million for electricity (+9% from FY15) for utilities under the NEFCo contract.

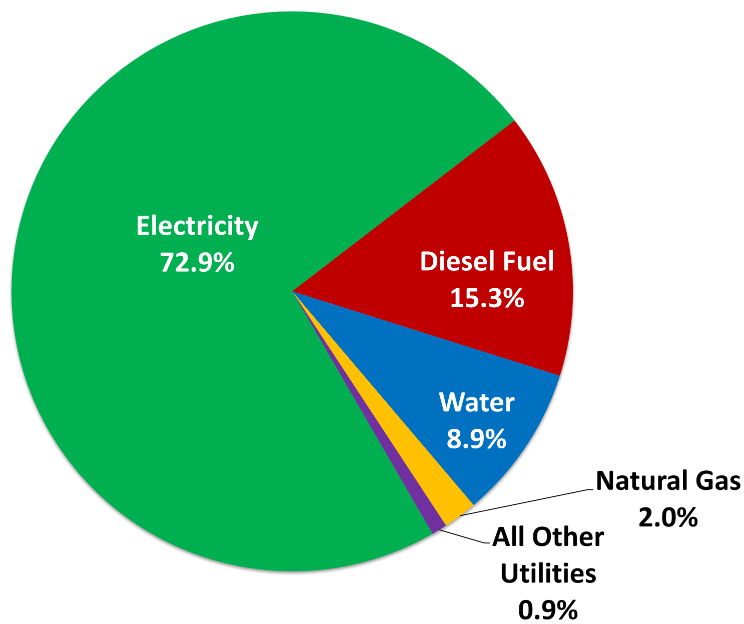

Figure 30

"DELTA REPORT"

Utilities Spending Increases $1.4 million

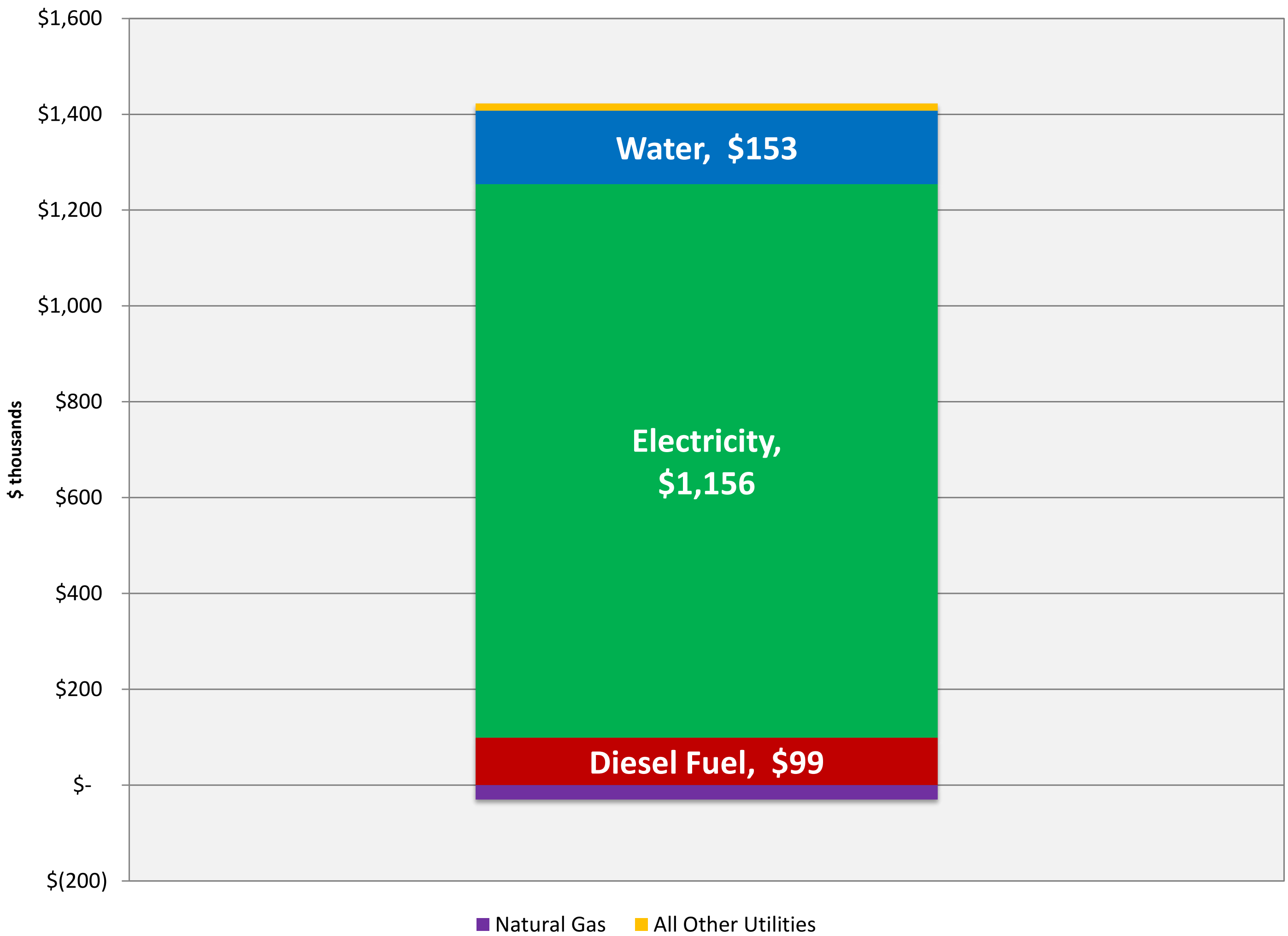

Figure 31

<u>Electricity</u>

- FY16 Deer Island electricity: $10.56 million
    - Increase from FY15: $239 thousand
    - Increase from FY14: $199 thousand
    - Driver: price increases, not quantity
- FY16 Deer Island electricity usage: 148.8 million kWh
    - Reduction from FY15: -1.2 million kWh
- Total self-generation of electricity increases by 6.4% in FY16 due to maintenance of the steam turbine generators (STGs) in FY15, the largest source of renewable energy; represents 30% of all electricity demand on the island
- Total purchased electricity: 103.9 million kWh
    - Lowest in at least five years; 4.2% reduction from FY15

Proposed FY16 Electricity Expense

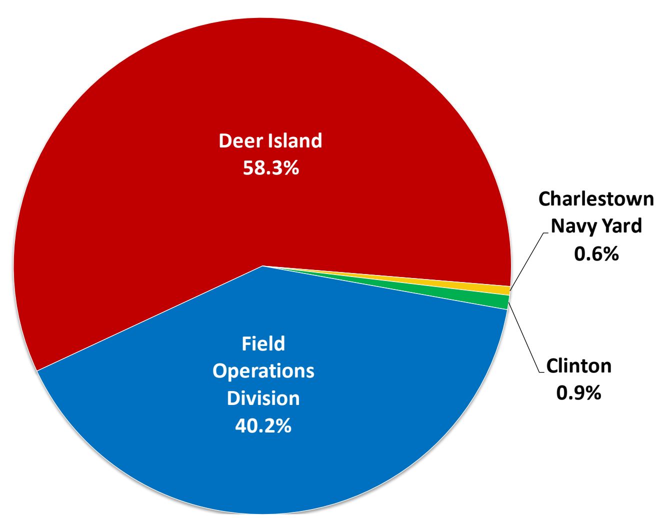

Figure 32

    - Energy conservation and efficiency projects continue to bring purchased electricity amounts down (even with the small reductions in projected self-generation due to maintenance)
- The Authority continues to pursue a number of demand-side changes and initiatives
- Field Operations Department (FOD) facilities electricity expense increase: $898 thousand (+14%)
    - Usage is essentially flat from FY15 to FY16; increase is due to pricing

<u>Diesel Fuel</u>

- FY16 diesel fuel budget: $3.8 million
    - Deer Island: $1.89 million
    - All other Wastewater Facilities: $1.74 million
    - Water facilities: $0.18 million
- Deer Island usage remains level while pricing decreases
    - Increase in gallons purchased: 12.7%
    - FY15 price assumption: $3.20/gallon
    - FY16 price assumption: $3.05/gallon
- Field Operations Department usage increases while pricing decreases
    - Purchases decrease -1.7% from FY15
    - FY15 price assumption: $3.50/gallon
    - FY16 price assumption: $3.50/gallon

<u>Natural Gas</u>

- FY16 natural gas expense: $485.6 thousand
    - Reduction from FY15: -$30 thousand
- Natural gas is used at a number of facilities in the Field Operations Department

Being made aware of pricing and usage trends, the Advisory Board expects the Authority to decrease its FY16 CEB "utilities" line item. The Advisory Board's estimate of this reduction is $1,600,000.

Table 28

Proposed Fiscal Year 2016 **Other Services Summary** ($s)				
Line Item/Description	*Final FY15*	*Proposed FY16*	*Δ ($s)*	*Δ (%)*
Pelletization	$13,865,940	$14,271,739	$405,799	2.9%
NEFCo contract to process and dispose of sludge pellets				
Lease	3,486,895	3,630,474	143,579	4.1%
Charlestown ($1.39 million), Chelsea ($1.91 million), Marlborough Records Center ($65.6 thousand).				
Telephone	1,436,385	1,703,777	267,392	18.6%
Voice and data lines; Operations Division				
Grit and Screenings Removal	852,347	888,503	36,156	4.2%
Removal of grit and screened materials from various facilities.				
All Others	2,896,932	2,903,858	6,926	0.2%
Printing, membership dues/subscriptions, advertising; health/safety, police details; Advisory Board operations; various other services.				
TOTAL OTHER SERVICES EXPENSES	**$22,538,499**	**$23,398,351**	**$859,852**	**3.8%**

Other Highlights

- Sludge pelletization and grit and screenings e $15.16 million or nearly 65% of all Other Services
- New England Fertilizer Company (NEFCo) pelletizi costs are based on processing an average of 10 day, with annual costs increased by an inflation f
- The pelletizing contract runs from FY 2001 throu 2015
- Grit and screenings (and scum) are removed fror the remote headworks, certain pump statio facilities. Budget estimates assume 6,638 tons of removed, with an estimated 5% increase in cost two-year contract to start in June 2015.
- Lease costs include costs for the Chelsea property lease and the Marlborough Records Center an (including revised rent schedules, operating expenses and property taxes)

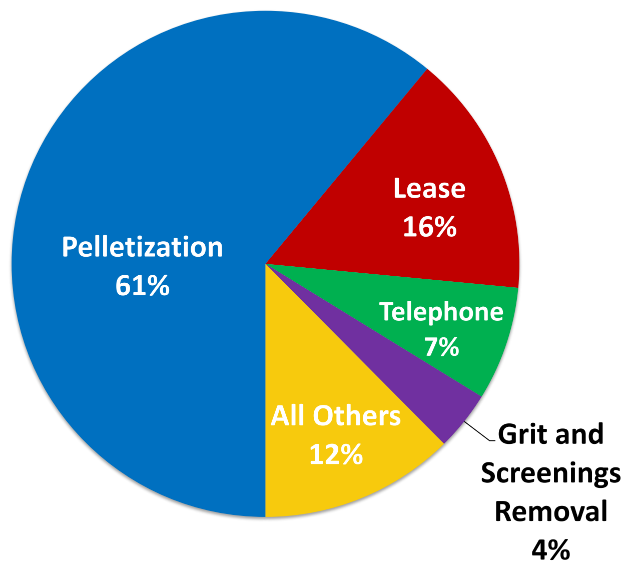

Figure 33

"Delta Report"

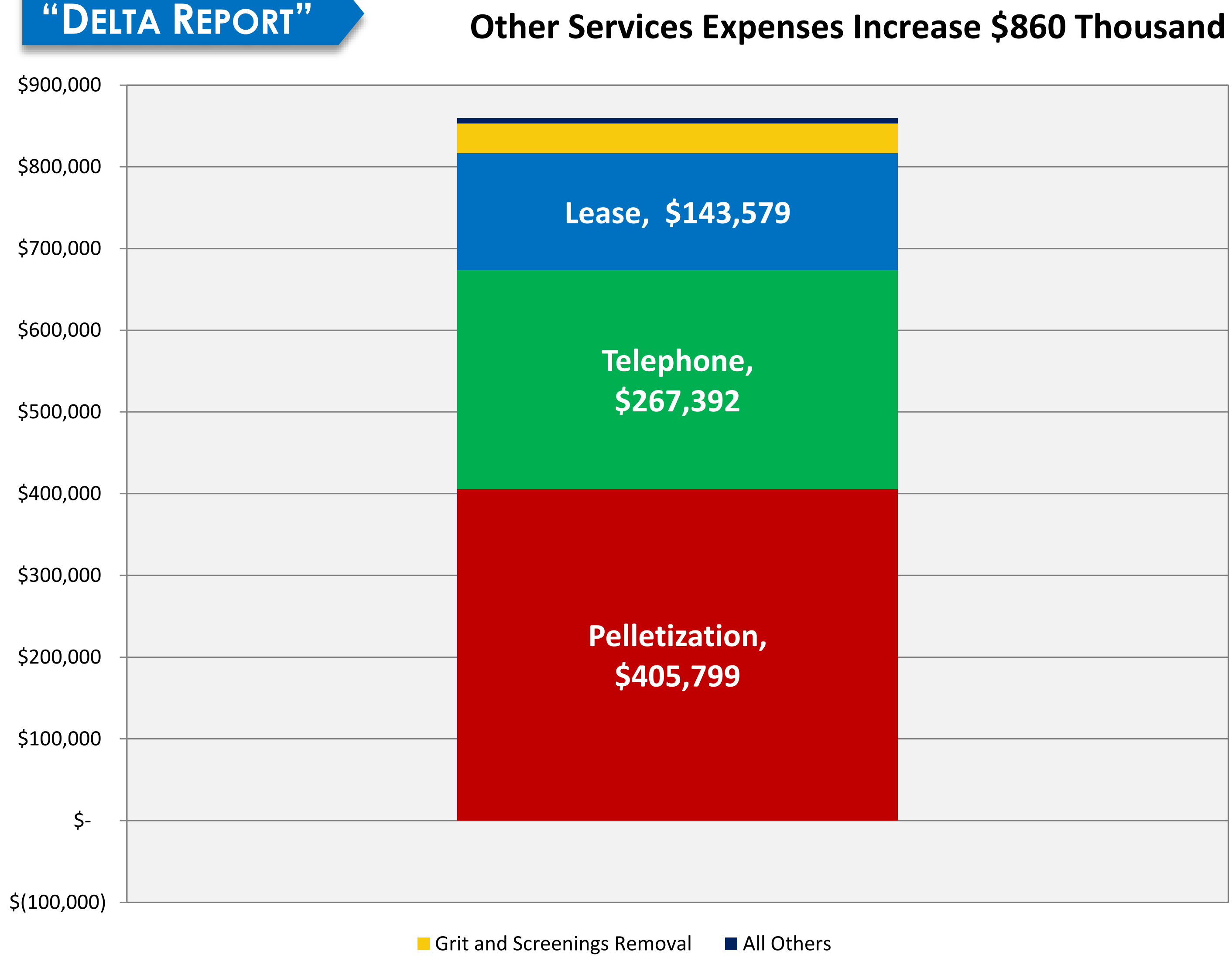

Figure 34

Sludge Pelletization

- FY16 proposed budget: $14.3 million
    - Increase from FY15: $0.41 million (2.9%)
- The budget average is based on a two-year average of 100.38 tons (FY13 and FY14) and reflects continuing improvements to digester operations at Deer Island plus estimates for the impacts (averaging 1.78 tons per day) of the pilot co-digestion project (which will be ramped up during the year starting in October 2015)
- **The Advisory Board is recommending a reduction of $58,000 to reflect a later start-up of the co-digestion pilot program until the last quarter of the fiscal year (see Policy Chapter, page 98).**[46]
- Each additional ton per day is equivalent to approximately $100 thousand
- The inflation factor reflects assumptions for materials and labor, electricity and natural gas

[46] Note: $58,000 includes multiple line items associated with co-digestion pilot program. The Advisory Board's recommendation assumes an appropriate reduction in each corresponding line item associated with a six-month delay from the October 2014 start date in the proposed FY16 CEB.

- In March, the Board of Directors, anticipating the December 31, 2015 end of the current NEFCo contract period, approved an amendment extending the contract term for five years, from January 1, 2016 through December 31, 2020. The Authority noted that the negotiated extension will result in a savings of an estimated $1.25 million over the five-year period, and will provide time for new pellet plant dryer technology to be proven, allow for the possible development of more firms to provide competition for a long-term bid and clarify any uncertainty regarding potential changes in MWRA's sludge quantities.

<u>Grit and Screenings</u>

- Estimates of tonnages of grit and screenings have increased in the last several years to reflect mechanical improvements at some of the headworks and scum collector repair work. With more scum to be kept on site, budgeted tonnages are being reduced but also includes 30 additional tons of floatable materials to be removed from North Main Pump Station shafts.
- Total tonnages come to 6,630 or a decrease of 180 tons from the FY15 budget
- ***Based on updated information, the Advisory Board expects the Authority will increase the "grit and screenings" line item by $325,000.***

<u>Lease Costs</u>

- Lease costs reflect increases in taxes and insurance charges for the Chelsea lease, and updated rent charges plus taxes and operating expenses for the Charlestown lease
- Rent, operating expenses and tax-related costs are also included for the Records Center and Warehouse located in Marlborough

<u>Other Services</u>

- Telephone expense increases nearly 20% for telephone and telecommunications, to $1.7 million, due primarily to security network upgrades started in FY15; budgeted in the MIS Department
- Printing expense declines nearly 10% to $163 thousand
- Police detail expense increases 8% to nearly $450 thousand
- **The Advisory Board recommends that the Authority reduce the "other services" line item in the final FY16 CEB by $5,425 consistent with the Advisory Board's final FY16 operating budget.**

Table 29

Proposed Fiscal Year 2016 **Chemicals Summary** ($s)				
Line Item/Description	*Final FY15*	*Proposed FY16*	*Δ ($s)*	*Δ (%)*
Soda Ash	$3,706,975	$3,847,851	$140,876	3.8%
Used primarily at the CWTP; some at Clinton WWTP.				
Sodium Hypochlorite	2,226,784	2,008,926	-217,858	-9.8%
Used for treatment at DITP ($1.15 million) and CWTP ($0.9 million). NPDES begins January 2013 and price increased.				
Hydrofluosilic Acid	541,145	596,237	55,092	10.2%
Fluoride control at CWTP.				
Liquid Oxygen	611,744	605,503	-6,241	-1.0%
Ozone generation at CWTP.				
Ferric/Ferrous Chloride	858,824	934,178	75,354	8.8%
For struvite control at DITP. Dramatic price increase due to increased global demand for new applications.				
Sodium Bisulfite	522,978	323,758	-199,220	-38.1%
For dechlorination of treated wastewater and water. Usage increased for new NPDES permit requirements.				
Activated Carbon	313,942	302,960	-10,982	-3.5%
For odor control at DITP.				
Carbon Dioxide	281,976	284,335	2,359	0.8%
To increase pH and alkalinity level of water supply at CWTP.				
Polymer	316,558	309,714	-6,844	-2.2%
Sludge thickening at DITP and Clinton. Expected reduction in Final FY14 due to new contract prices.				
All Other Chemicals	838,654	936,450	97,796	11.7%
For algae control; corrosion control in Framingham Relief Sewer and DITP.				
TOTAL CHEMICALS EXPENSES	**$10,219,580**	**$10,149,912**	**-$69,668**	**-0.7%**

Other Highlights

- Chemicals budget is 1.4% of all expens
  of all direct expenses.
- Water operations chemicals: $6.34 mi
  - Increase: +$0.93 million (+1.5
  - Assumes reduced fluoride re
    CWTP not in effect during FY1
- DITP chemicals: $3.09 million
  - Decrease of nearly $100 thou
  - Assumes no new NPDES perm
  - Ferric chloride increases
    thousand with startup of
    program
- Clinton wastewater treatment plant
  $0.36 million
  - Decrease of $24 thousand (6.
  - Assumes new NPDES permit f
  - Chemical expense has doubled since FY 2010
- Other wastewater facilities chemicals: $0.36 million

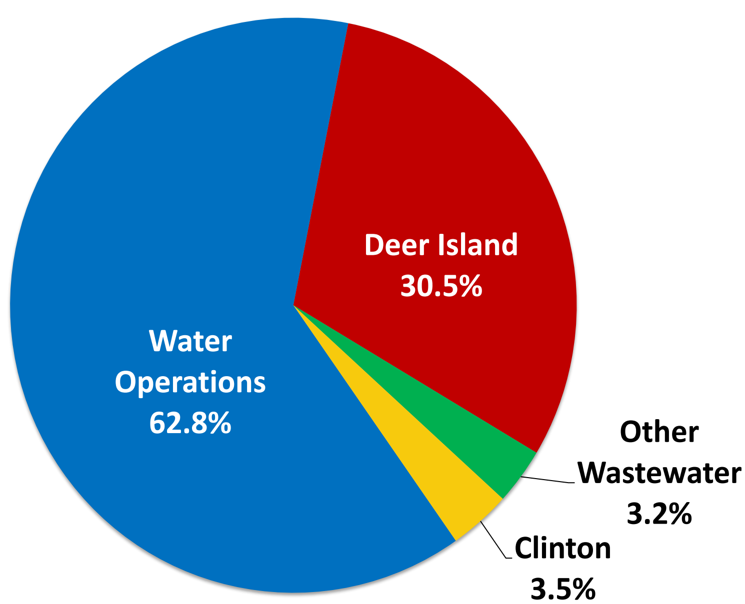

Figure 35

"Delta Report" Chemicals Spending Decreases Almost $70 Thousand

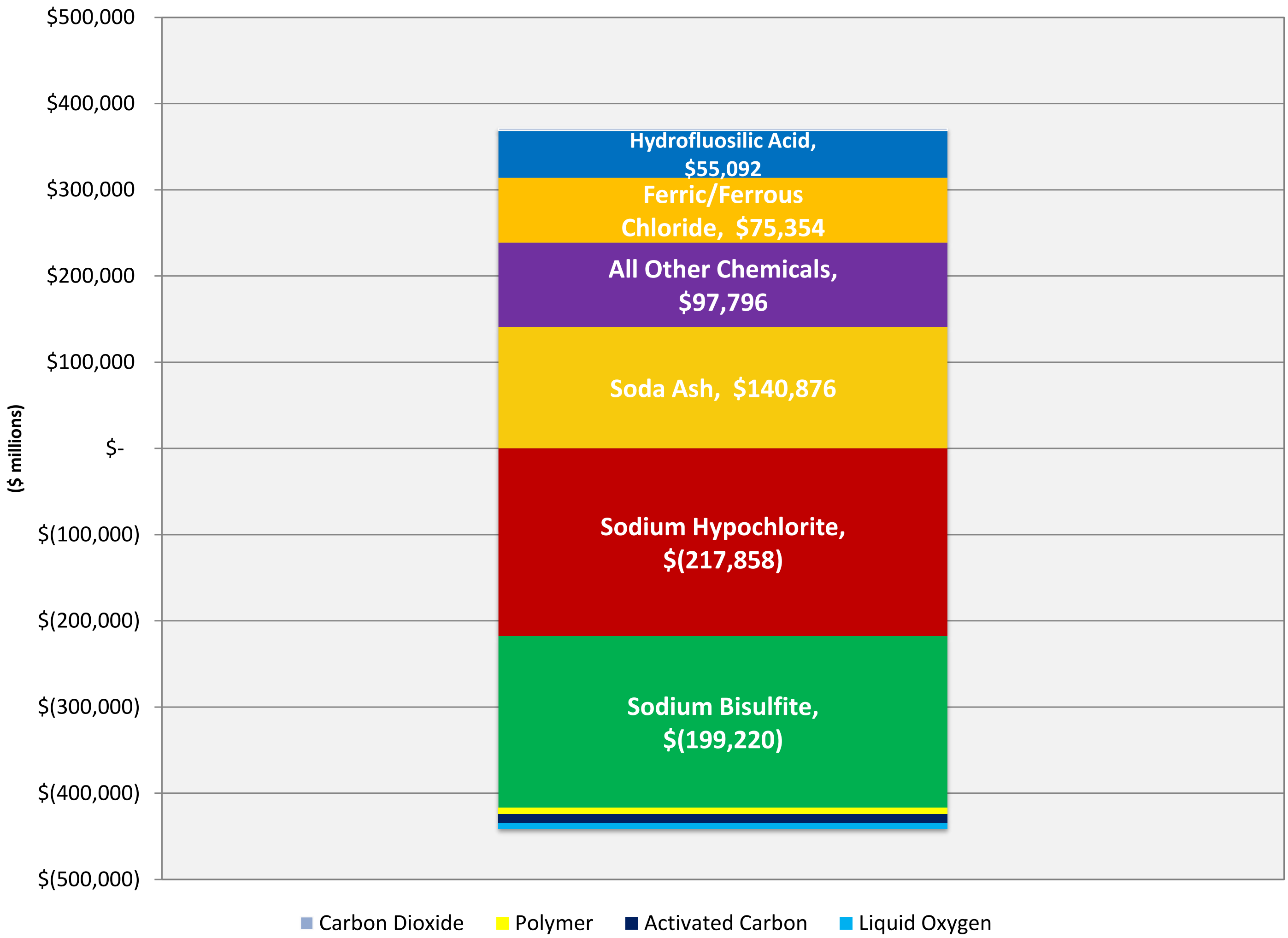

Figure 36

Regulatory Changes Impacts

- Assumes new DITP NPDES permit will not be in effect during FY16
  - FY15 budget assumed April 2015 start
  - Results in reduced sodium hypochlorite and sodium bisulfite budgets
- Assumes new Clinton NPDES permit will be in effect for full year
  - Costs of using increased amounts of ferric chloride to control phosphorus levels are more than offset by reduced quantities based on recent actual

Table 30

Impact of Price versus Quantity in Dollars			
Chemical	**Price**	**Quantity**	**Net Change**
Soda Ash	$115,000	$26,000	$140,000
Nitrazyme	(13,600)	(83,900)	(2,913)
Hydrofluosilic Acid	(125,000)	180,000	55,000
Aqua Ammonia	12,956	5,042	17,998
Liquid Oxygen	34,810	41,051	(6,241)
Sodium Bisulfite	(15,000)	(185,000)	(199,000)
Sodium Hypochlorite	(186,000)	(33,000)	(218,000)
Total Change	**$(176,834)**	**$(49,807)**	**$(213,156)**

- Assumes new fluoride regulations will not be in effect during FY16
    - Increased quantities to meet unchanged dosing levels of $180 thousand are partially offset by lower pricing of $125 thousand for a net increase of $55 thousand

<u>Chemicals Changes by Location</u>

- Deer Island decreases due to assumption of no new NPDES permit offset by increases in ferric chloride use and hydrogen per plus increased pricing for sodium hydro
- Water operations chemicals spe increases due primarily to increase quantities and pricing
- Over half (56.8% or $6.1 million) c chemicals spending is for soda ash sodium hypochlorite (See Figure 37)
- ***The Advisory Board expects that chemicals budget will be revised to r updated pricing and usage assump including the reduction in fluoride d consistent with updated federal regula The Advisory Board estimates this to reduction of $350,000.***

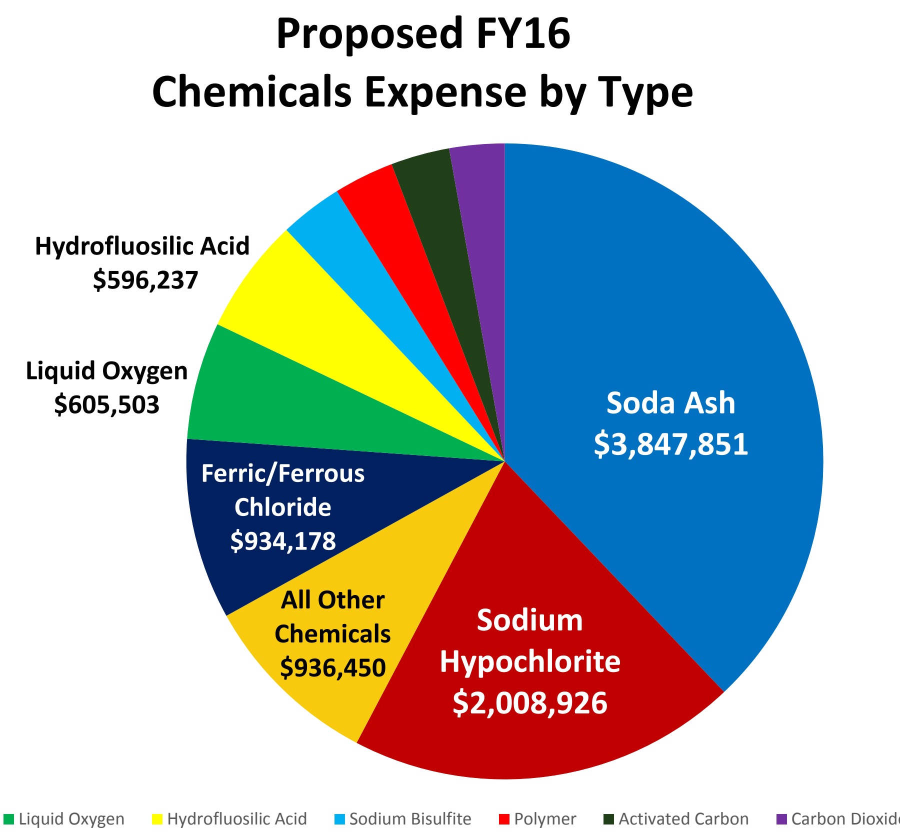

Figure 37

Table 31

Proposed Fiscal Year 2016 **Professional Services Summary** ($s)				
Line Item/Description	*Final FY15*	*Proposed FY16*	*Δ ($s)*	*Δ (%)*
Lab and Testing Analysis	$1,525,235	$1,528,720	$3,485	0.2%
Primarily harbor and outfall monitoring; some specialized outside lab services.				
Security	1,708,595	1,840,300	131,705	7.7%
Security and guard contracts.				
Engineering	682,000	378,118	-303,882	-44.6%
Specialized outside services such as dam inspection; beach nourishment studies for Deer Island; as needed engineering support.				
All Other Professional Services	2,041,371	1,934,366	-107,005	-5.2%
Legal Services, Audit Services, Local Limits Study, Communications; energy audits				
TOTAL PROFESSIONAL SERVICES EXPENSES	**$5,957,201**	**$5,681,504**	**-$275,697**	**-4.6%**

Other Highlights

- Security services increases reflect new and ir contract costs for the Chelsea, Deer Island, anc Water Treatment Plant facilities; decreases for se the Charlestown offices reflect a reduction in the ı of hours of service.
- Reflecting the slow progress on issuing the nex permit, the FY16 budget for engineering services (include funding of about $250,000 for a Local Lim (as did the FY15 budget)
- All other professional services include:
  - Trustee, financial advisor and related ser the Treasury Department
  - Insurance consultant services
  - Audit services
  - Legal services
  - Energy consulting services
  - Technical and professional development services for the Human Resources Department plus services relating to the employee assistance program
  - MIS services relating to the upgrade of the MAXIMO system
  - Communications services, including funding for WAC and WSCAC

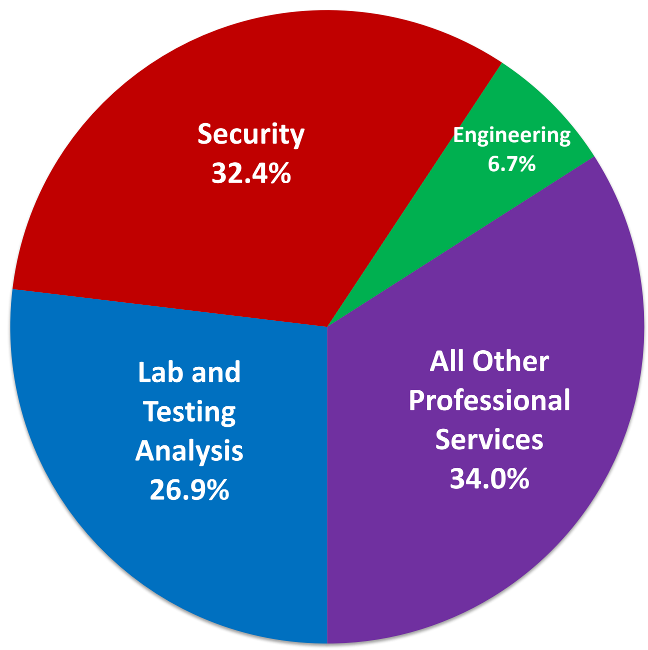

Figure 38

“DELTA REPORT” **Professional Services Expense Decrease $276 Thousand**

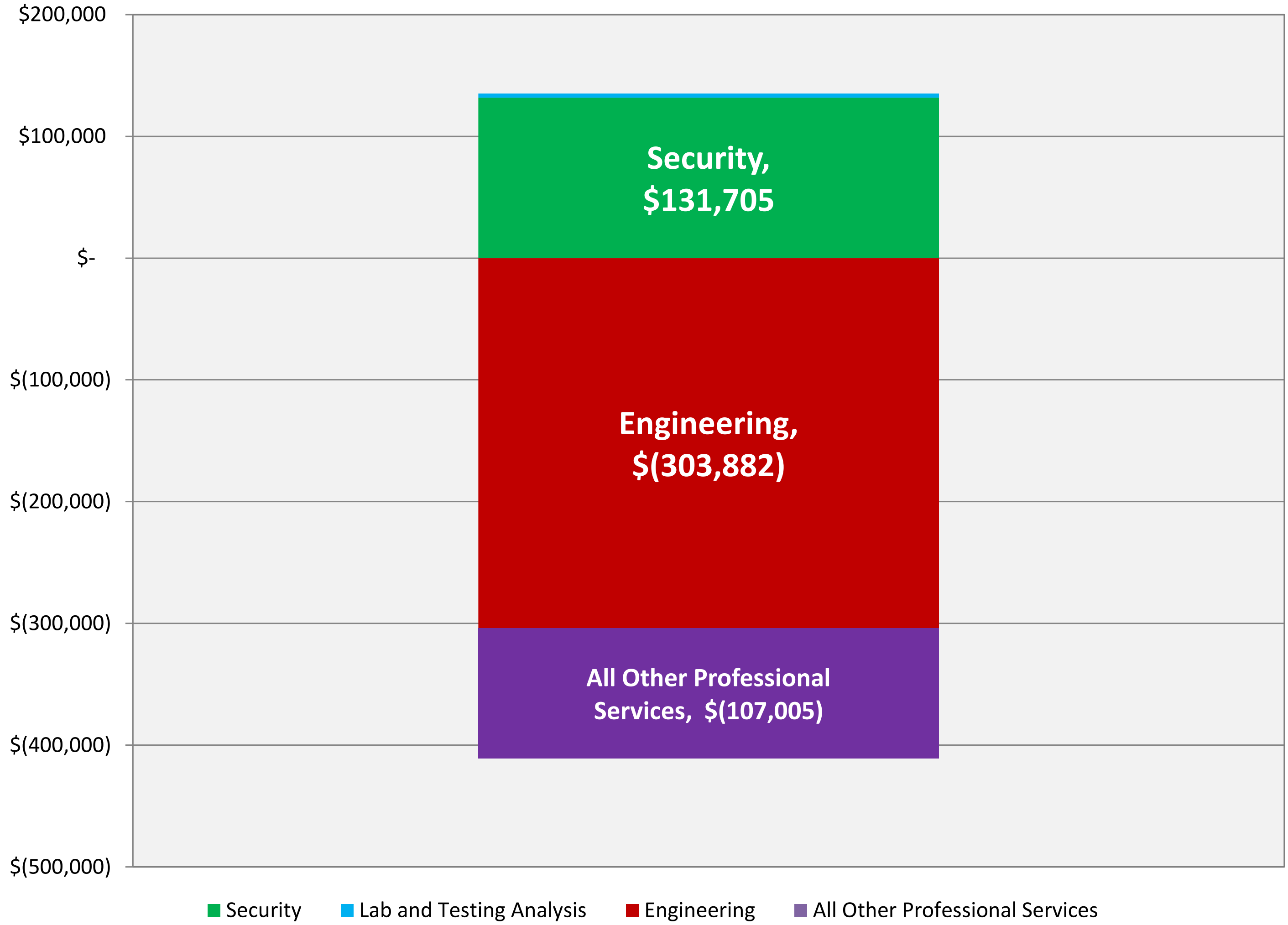

Figure 39

Laboratory, Testing, and Analysis Services

- FY16 harbor and outfall monitoring support: $1.36 million
  - Largest area of expense within laboratory testing category
  - Slight increase from FY15 (budget): +$5,435; from FY14 (actual): +$115,500
  - Monitoring costs linked to existing National Pollutant Discharge Elimination System (NPDES) permit
  - Current permit expired in August 2005
  - New permit not yet drafted or released for review
  - FY16 expense is approximately $840 thousand lower than in earlier years
    - Changes to scope of monitoring
    - Transfer of some analyses to in-house staff
    - $40 thousand/year savings due to regulatory approval to discontinue measuring floatables
- Remaining laboratory testing services: $170 thousand
  - For outside, specialized laboratory testing services

Other Engineering Services Expenses

- As-needed engineering services
- Leak detection survey
- Dam safety

Security Services

- Budgeted at $1.84 million
- Includes funding for security and related services for the Chelsea operations facility, Deer Island Treatment Plant, Carroll Water Treatment Plant and the Charlestown Navy Yard offices
- Spending increase: $131,705 (+7.7%)

All Other Professional Services

- $375 thousand for trustee bank services, financial advisory services, bond and disclosure counsels, insurance consultant services and related other services for the Treasury and Risk Management Departments; $140 thousand for audit services
- $240 thousand for professional assistance with network infrastructure, applications and design for the MIS Department
- $225 thousand for legal services for outside legal counsel and arbitrators' and workers compensation claims administration services
- $167.5 thousand in support of the WAC and WSCAC advisory committees
- $155 thousand for technical and professional development training managed through the Human Resources Department
- $150 thousand for contribution for modeling work coordinated through the Mystic River Watershed Association, pending further discussions (see discussion below)
- $150 thousand for as needed engineering services for water operations and for Deer Island plant
- $65 thousand for survey of new invasive aquatic plants plus $55 thousand for monitoring mechanical harvesting of aquatic invasive plants in the Wachusett Reservoir; also, $65 thousand for dam safety services and $55 thousand for dam emergency action plan updates
- $55 thousand for energy audits and advisory services

Policy Point

Mystic River Modeling Project

"Stormwater or Sewerage?"

Last year, the Advisory Board recommended a limit to the contributions the Authority made to the Mystic River Modeling Project.[47] The aim and purpose was to ensure that the Authority did not end up fully funding a project that was purported to have other entities contributing funds; moreover, to not spend one dollar on this project until the other funds were secured. This caution was evidently well placed, since much of the additional funding did not come to fruition.

[47] Note: official name is Mystic River Flow Monitoring and Water Quality Improvement Project

At the April 2015 meeting of the MWRA Board of Directors, the Authority entered into a multi-year Joint Funding Agreement (JFA) with the United States Geological Survey (USGS) for the installation, maintenance, and ongoing operation of three streamgaging stations on the Mystic River. This streamgaging is one small component of the broad-based Mystic River Modeling project discussed last year. Though a part of the larger project, here are a couple of compelling reasons for the Authority to have entered into the JFA this time.

First, "contracting with MWRA will allow USGS to provide $16,700 annually in matching funds that it would not otherwise be able to provide if contracting with a nongovernmental agency such as the Mystic River Watershed Association."[48] Securing USGS funding is consistent with the Advisory Board's recommendation to find outside funding toward the Mystic River, and could only be done with the aid of a governmental agency such as the Authority.

Second, MWRA staff believes that:

> further studying the Mystic River flows and nutrient loadings will support the appropriateness of MWRA's Long-Term CSO Control Plan and demonstrate that CSO discharges and very infrequent sanitary sewer overflows are not the cause of significant nutrient loading and the subsequent heavy growth of invasive aquatic vegetation in the Lower Mystic River.[49]

The Advisory Board agrees with the Authority's current belief that CSO/SSO discharges are not the primary cause of the Mystic River's water quality issues. The challenges facing the Mystic River are substantially different than those facing the Charles River before its cleanup. As a recent Globe editorial noted:

> It will take a different strategy for the Mystic, because the causes of its pollution are not identical. In addition to occasional sewage overflows, the Mystic is surrounded by dense communities that have little unpaved ground to absorb runoff before it reaches the river (about three-quarters of Somerville is paved). The river is also frequently the victim of illegal discharges by nearby businesses. [50]

It should be noted that the MWRA currently has a CSO Variance with regard to the Mystic River. The Advisory Board supports using the timeframe of this variance to better understand the issues and challenges facing the Mystic River. In fact, the Advisory Board is supportive of the general concept of the broad-based collaborative Mystic River Modeling Project, particularly as it relates to corroborating the belief that CSO/SSO discharges are not the primary cause of the Mystic River's water quality issues. **However, the Advisory Board recommends that the Authority limit its financial participation to the amount committed to in the JFA, and to revisit further contributions if and when the other collaborating entities secure funds for their portion of the project. Consistent with this recommendation, the Advisory Board recommends a reduction of the Mystic River Modeling Project by $116,000 in the final FY16 CEB.**

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[48] April 2015 MWRA Board of Directors staff summary (http://mwraadvisoryboard.com/wp-content/uploads/2015/05/BOD-Pack-2015-04-15.pdf)

[49] April 2015 MWRA Board of Directors staff summary (http://mwraadvisoryboard.com/wp-content/uploads/2015/05/BOD-Pack-2015-04-15.pdf)

[50] The Boston Globe (May 6, 2015): http://www.bostonglobe.com/opinion/editorials/2015/05/06/boston-olympic-bid-could-lead-swimmable-mystic-river/MqkHOuAmaLfAZYeSdrm3mM/story.html?event=event12

Table 32

Proposed Fiscal Year 2016 **Other Materials Summary** ($s)				
Line Item/Description	*Final FY15*	*Proposed FY16*	*Δ ($s)*	*Δ (%)*
Vehicle Expense Bulk gasoline, diesel purchases, mileage reimbursement, and some toll fees.	$1,085,454	$1,047,902	-$37,552	-3.5%
Vehicle Purchase/Replacements Purchases of vehicles and equipment under $100,000.	1,700,000	1,700,000	0.00	0.0%
Lab and Testing Supplies Supports Central Lab and TRAC.	802,745	840,187	37,442	4.7%
Equipment/Furniture Miscellaneous equipment and furniture.	458,783	375,483	-83,300	-18.2%
Computer Hardware & Software PCs, printers, plotters, and scanners.	520,742	447,282	-73,460	-14.1%
Office Supplies Office supplies including paper.	213,208	227,355	14,147	6.6%
All Others Includes postage, work clothes, and health and safety materials.	1,171,797	1,243,344	71,547	6.1%
TOTAL OTHER MATERIALS EXPENSES	**$5,952,729**	**$5,881,553**	**-$71,176**	**-1.2%**

Other Highlights

- The Authority has multi-year replacement plans for purchase of vehicles and computer hardware
- Funding for vehicle replacement supports purchase of 49-57 vehicles or 10-11% of the active fleet
- The computer hardware budget increases 14% reflecting replacement of numerous printers, scanners and computers, many of which are more than ten years old, according to a multi-year replacement plan
- Vehicle expense, lab and testing supplies, and work clothes budgets are based on updated historical spending

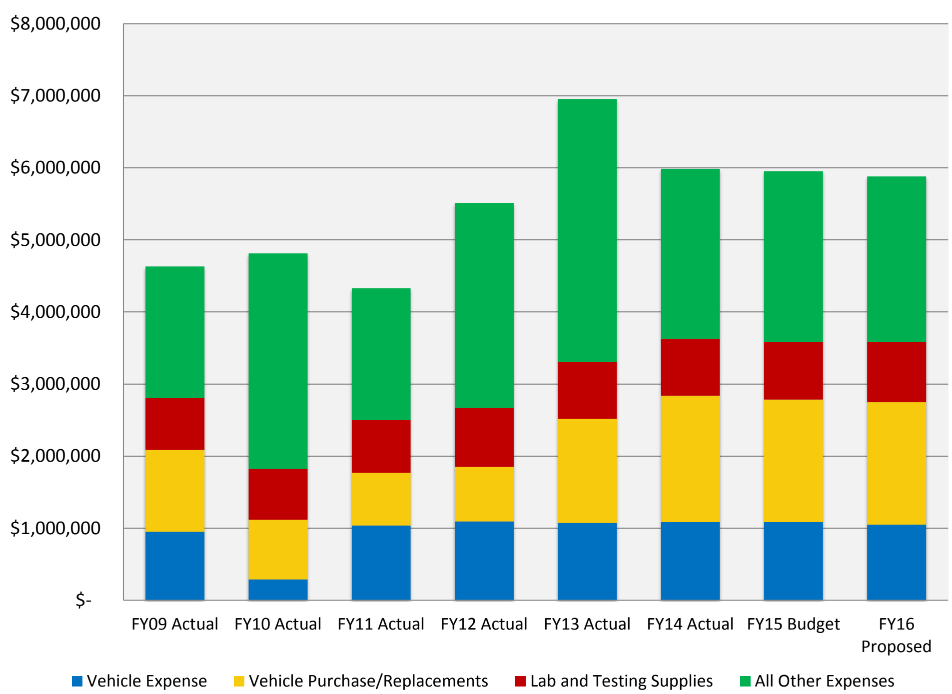

Figure 40

"Delta Report" Other Materials Spending Decreases $71 Thousand

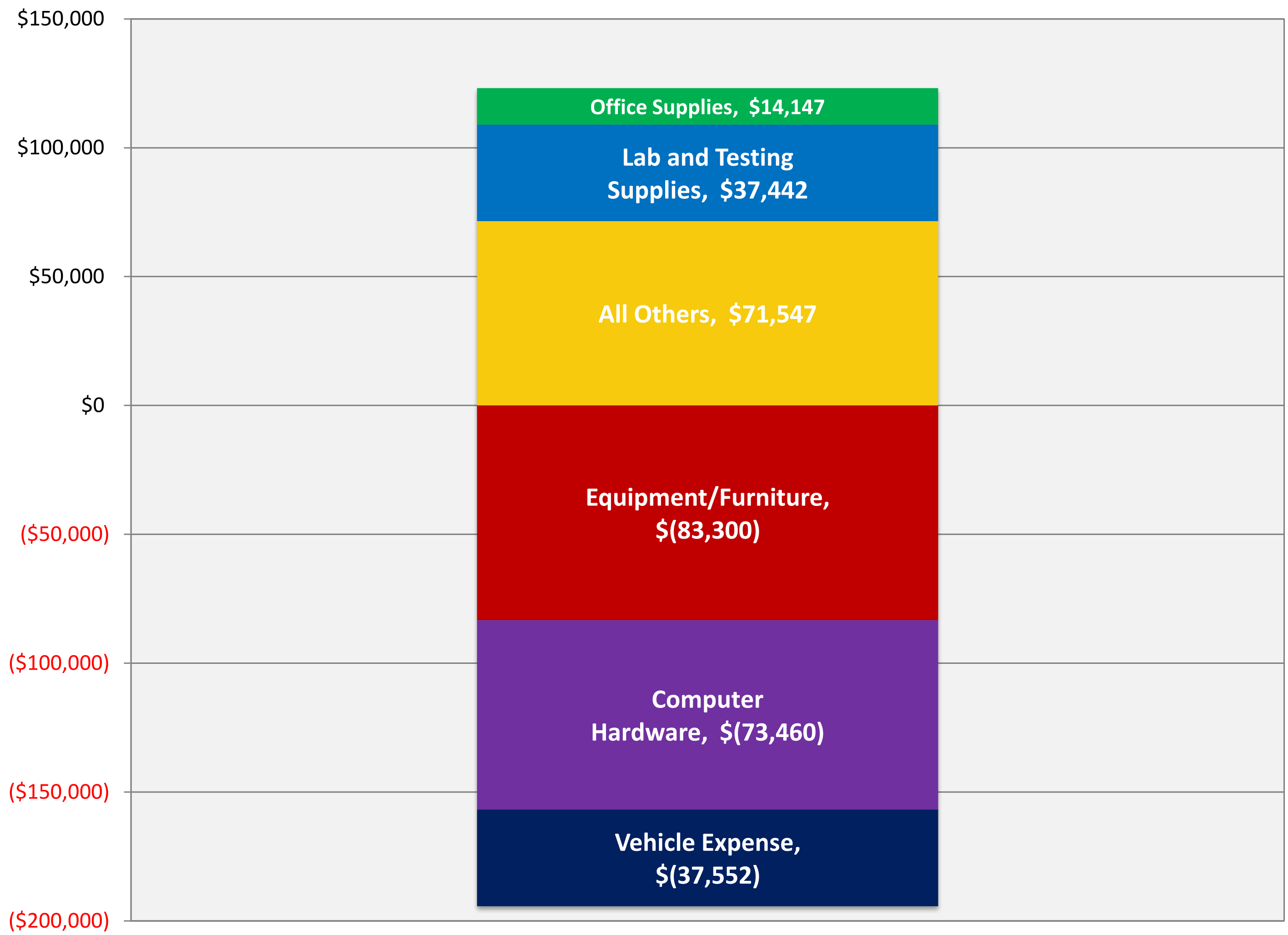

Figure 41

<u>Computer Hardware Purchases</u>

- Findings of the five-year Information Technology (IT) strategic plan (completed in 2012) include the need to:
    - Adopt more effective and standardized IT management and processes
    - Develop methods to share data quickly across multiple applications
    - Develop streamlined work flows
    - Reduce reliance on paper records and improve access to information
- Because technology evolves so rapidly, the Authority will have to continuously adapt its plans to accommodate changes and updates to its programs and software

Vehicle Purchases

- Vehicle fleet size is reviewed regularly, and has been reduced in recent by about 10%
- Over half of the fleet is five years or older

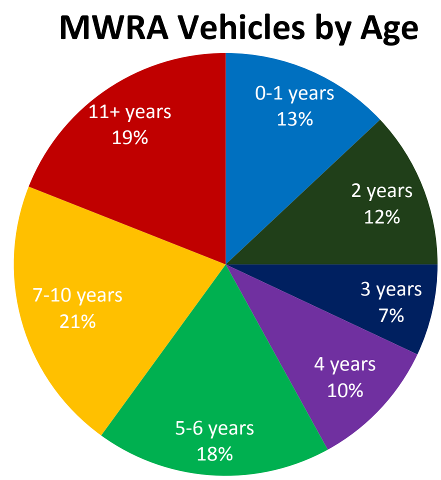

Figure 42

- The multi-year replace also helps to control mat ces costs in the Fleet Se ent
- e Authority continue uel consumption by red s and increasing the numb powered by fuel other than and diesel. The Authority bulk fuels from state contracts
- e Authority has also instituted an Automated Vehicle Locator (AVL) which has reduced fuel consumption as well
- 373 vehicles currently have AVL devices installed
- About 15% of the fleet is powered by fuels other than gasoline and diesel (See Figure 43)

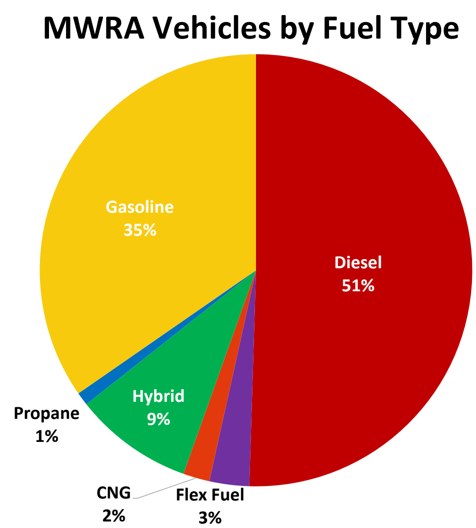

Figure 43

- The Authority has also reduced the number of domiciled vehicles and increased the use of pooled vehicles, increasing the useful life of the vehicles
- Vehicles at the end of their useful lives for the agency are sold as surplus, resulting in increased income

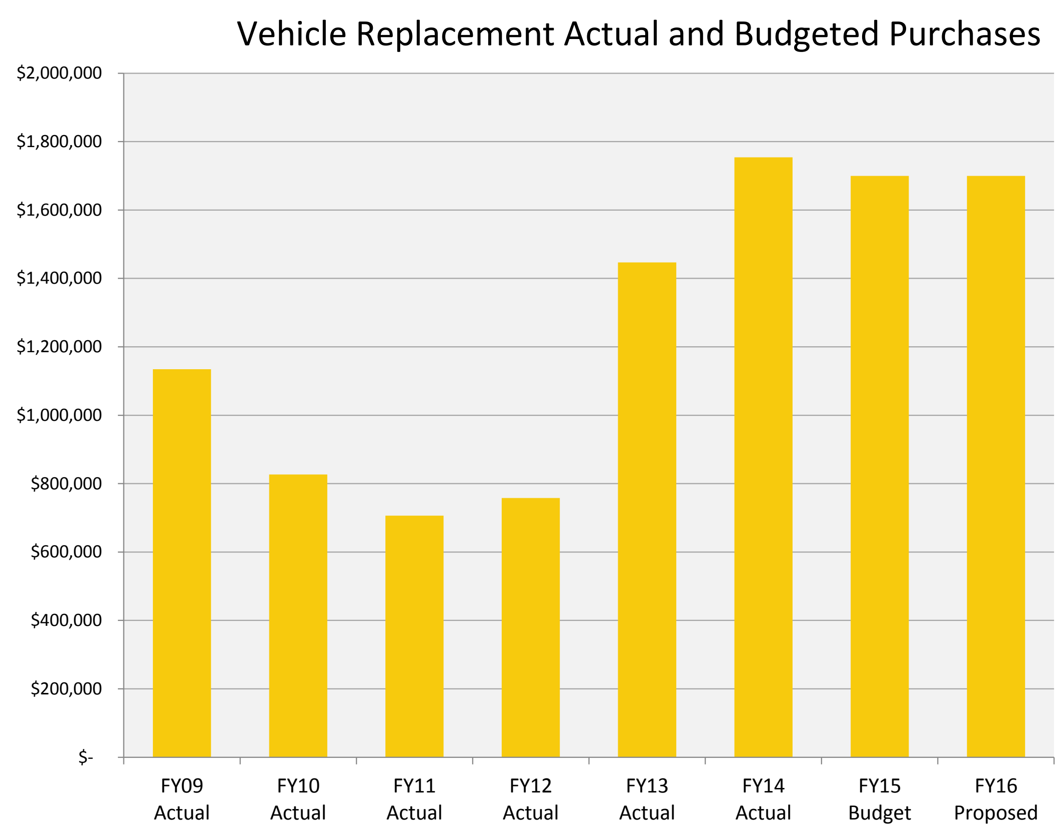

Figure 44

Policy Point

Real-Time Review

"Flexibility with Accountability"

For years, the Advisory Board's annual CEB review was a months-long process that focused exclusively on a snapshot of the proposed budget submitted well before the final budget was voted in June. Invariably, and necessarily, there would be changes from the proposed budget to the final that would be made throughout the intervening months. For example, contracts for chemicals or utilities would be issued that would change the numbers from the proposed budget's assumptions, sometimes decreasing, and sometimes increasing (often referred to as "spring revisit" items). This meant that the reductions proposed by the Advisory Board would often be offset by contractual or other increases making the formal *Comments and Recommendations* an incomplete picture of what would be ultimately voted upon by the MWRA Board of Directors.

Beginning in recent years, and even more formalized this year, the Advisory Board has begun to incorporate spring revisit items into its recommendations. The thought being that the snapshot provided to the communities and ultimately recommended to the MWRA Board of Directors should incorporate as much up-to-date information that could affect the final rate revenue requirement number. This year, one addition in particular was a particularly large increase, but highlighted another benefit of this new trend toward including spring revisit items.

In December 2014, the Authority engaged in a tabletop security drill to test current response plans and identify areas for improvement and coordination as it related to a hypothetical train derailment scenario. PanAm has trains that currently run over certain sections of the Wachusett Reservoir and were participants in this tabletop drill. The results of this drill identified certain pieces of equipment and tools that the Authority could put in place to improve response time and control measures.

In the past, these expenditures would have had to wait until the next fiscal year's budget process to begin moving forward. The Authority has maintained a good practice of not making major changes (especially adding to or increasing) the final CEB in order to preserve the role of the Advisory Board's statutory review; however, this practice also built in limitations on agile responses to critical situations.

This year, the Authority arranged a special briefing to bring Advisory Board staff up-to-date with the findings of the tabletop drill and to provide a detailed explanation of the requested increases that they wanted to include in the final version of the CEB.

This new approach to include spring revisit items or new initiatives has provided another win-win opportunity for the Authority and the Advisory Board. The Authority gains some much needed flexibility to react to critical time-sensitive issues, and the Advisory Board's review becomes a much more relevant and real-time review of the ever-evolving process of budget development. Such major changes should, however, be limited to critical needs; clearly, given recent nationwide concerns over train derailments and the importance of protecting the MWRA's water sources qualified for such an inclusion. ***The Advisory Board supports this new process that allows for important and time-sensitive changes to be made to the MWRA's budgets while still preserving the Advisory Board's statutory review.*** This proactive approach is a common sense way to allow such initiatives to move forward rather than to become delayed by bureaucratic procedure, which, in this instance, benefits the security and safety of the water supply, the Authority, and the ratepayers.

The Advisory Board supports the Authority's expected addition of $435,000 in CEB spending and the estimated additional $340,000 in CIP spending consistent with the additional contaminant monitoring needs discussed above.[51]

[51] Note: not all expenses within the $435 thousand are "other materials"; however, the Advisory Board's recommendation is intended to encompass all of the specific additions up to the aggregate, budgeted in the appropriate line items.

Table 33

Proposed Fiscal Year 2016 **Training and Meetings Summary** ($s)				
Line Item/Description	*Final FY15*	*Proposed FY16*	*Δ ($s)*	*Δ (%)*
Training and Meetings	$361,019	$413,714	$52,695	14.6%
TOTAL TRAINING AND MEETINGS EXPENSES	**$361,019**	**$413,714**	**$52,695**	**14.6%**

Other Highlights

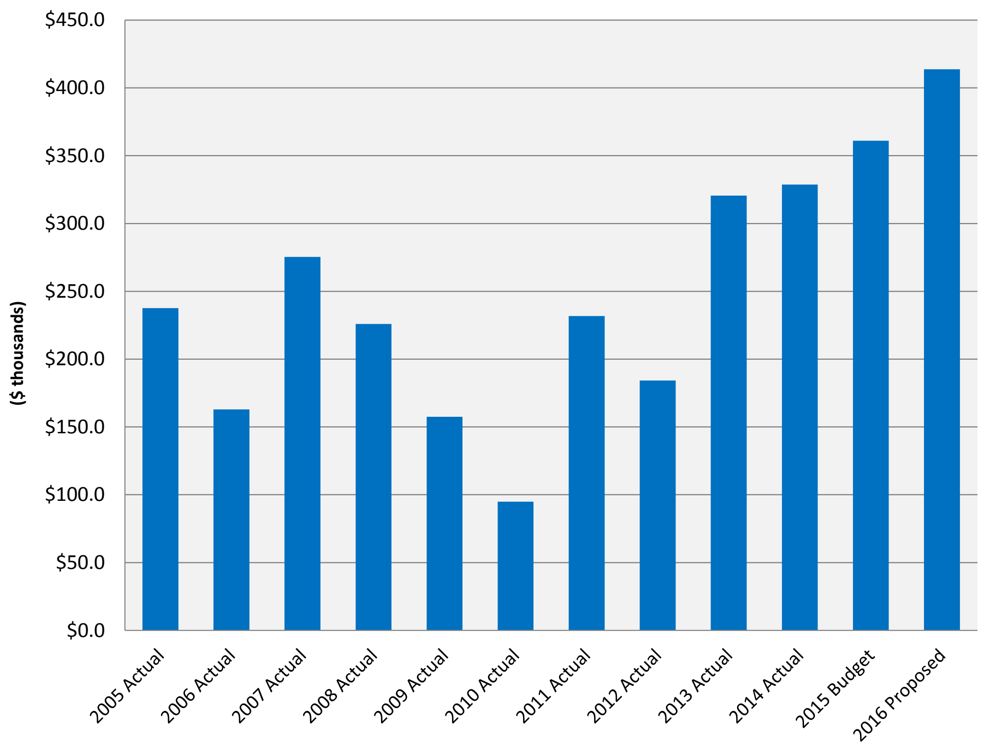

Figure 45

- Costs cover a variety of meetings, seminars, conferences and training sessions. Most spending supports maintaining professional licenses and certifications, as well as training in the use of specialized equipment, out-of-state site visits (such as water treatment plants that use UV disinfection) and site audits, and health and safety compliance, as well as cyber security training.
- The continued increase in Training and Meeting expenditures over the past few fiscal years is part of an organization-wide strategy to prepare the next wave of MWRA management who will be needed to step in as the impact of retirements is realized. Funding also supports training in emerging technology such as electrical thermography.
- The Authority also budgets $155,320 for professional development and technical training under professional services in the Human Resources Department.

Policy Point

Trainings and Meetings

"Investing in the Most Critical Infrastructure"

When economic times are tough and budgets are instructed to be reduced to meet a target, one of the first areas that almost all entities – public or private – tend to look to immediately are line items associated with training and attendance of meetings. Such was the case after the most recent economic downturn. As seen in Figure 45, the line item had been curtailed significantly and maintained at lower levels until the last few years. The recent trend in this increase is largely due to one of the greatest challenges facing the MWRA currently and in the coming years: the increased number of retiring employees. The average age of the Authority staff continues to be higher than many other public utilities, and in recent years retirements have trended upward. As noted before, one benefit of the Authority's current workforce has been the "deep bench" of employees who were able to move into senior positions being vacated by retiring individuals. However, the need to make the "bench" deep once more is a new challenge, and providing opportunities and skills for new hires to allow them to move up is equally as important. This includes training for technical licenses that similarly allow for better cross-functionality of the workforce and better coverage when needed. Moreover, in a highly technical industry where equipment and technology is constantly changing, ensuring that employees are up-to-date on the latest techniques available will be important for continuity of service if and when these new technologies are adopted by the Authority. Investing in the Authority's most important resource – its employees – is critical to the success of the agency moving forward.

Meetings are a separate category from training, but also provide benefit to the agency. In recent years, visits to other water treatment facilities, particularly those with existing ultraviolet (UV) facilities, lead to important recommendations during the design phase of the MWRA's UV projects. Similar exchanges with other agencies have also led to a better understanding and generated new ideas at the Deer Island Treatment Plant and the Authority's dam maintenance and safety program among others. By being able to discuss these "lessons learned," the Authority has benefited from the work of other entities who have already adopted certain technologies or practices. Moreover, some of these meetings have also prevented the Authority from adopting some emerging technologies when companies were unable to deliver on their promised services, causing significant operational and financial damages to other systems.

Moreover, the Authority is a very "large player" as water and wastewater systems go, so it should be interacting with other like entities from across the nation, or even overseas. This is not to say that the operations and challenges are identical and that there are no lessons to be learned from smaller and local entities, but the Authority should "cast a wide net" when exploring and evaluating technology, as well as looking for ways to improve its operations.

While the Advisory Board is pleased to see the Authority's increased activity in this area, there still must be checks and balances in place. Certainly, these expenses have potential for misuse and have garnered significant media attention when such abuse has been discovered at other agencies. ***Therefore, the Advisory Board supports and endorses the increased staff training and participation in national groups and organizations provided there are checks and balances to ensure that there is no misuse of funds for these purposes, particularly with regard to out-of-state travel.***

Table 34

Proposed Fiscal Year 2016 **Revenue Summary** ($s)				
Line Item/Description	*Final FY15*	*Proposed FY16*	*Δ ($s)*	*Δ (%)*
Rate Revenue	$650,315,784	$676,995,000	$26,679,216	4.1%
Revenue generated directly from member communities through annual assessments.				
Other User Charges	8,259,693	8,751,391	491,698	6.0%
From 20 customers including CVA communities; emergency water supply connections, and entrance fees.				
Other Revenue	6,180,450	11,950,563	5,770,113	93.4%
Other sources of revenue including alternative energy sources.				
Rate Stabilization	0	0	0	-
From rate stabilization fund.				
Investment Income	9,729,457	9,496,318	-233,139	-2.4%
Interest on both short- and long-term investments.				
TOTAL REVENUES	**$674,485,384**	**$707,193,272**	**$32,707,888**	**4.8%**

Other Highlights

- Proposed FY16 rate revenue increase: +$26.68 million (+4.1%)
  - Greatest proposed increase since FY09
  - 1% increase = $6.503 million
- Non-rate revenue increase: $30.2 million
  - Majority of increase is other revenue: $5.8 million
- Chemical cost reimbursements from the Commonwealth of $0.867 million, long a source of revenue, have been eliminated since FY10
- Other user charges increase for CVA communities for second year in a row due in part to increased costs of installation of UV treatment

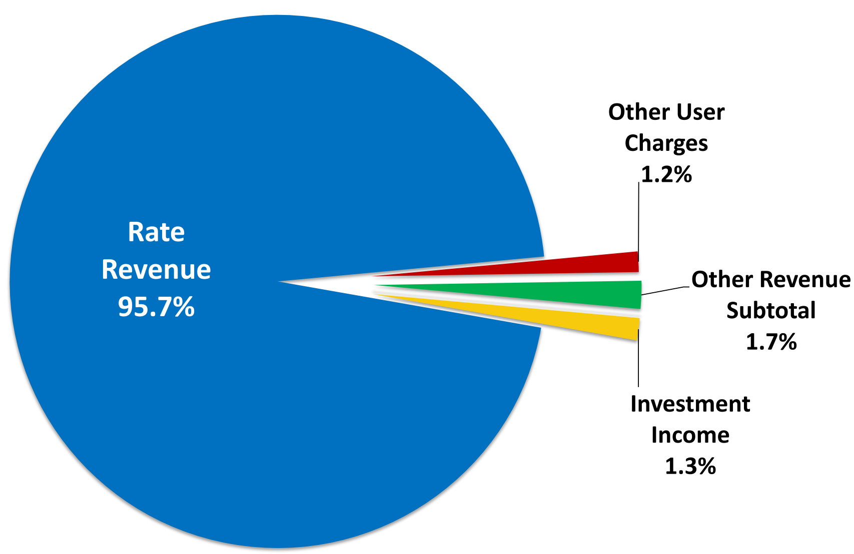

Figure 46

- Other revenue from forestry product sales, fishing, and hunting licenses is credited to the Office of Watershed Management budget. (See Indirect Expenses, Watershed Revenues, Table 25)

"DELTA REPORT"

Total Revenues Increase $32.7 million

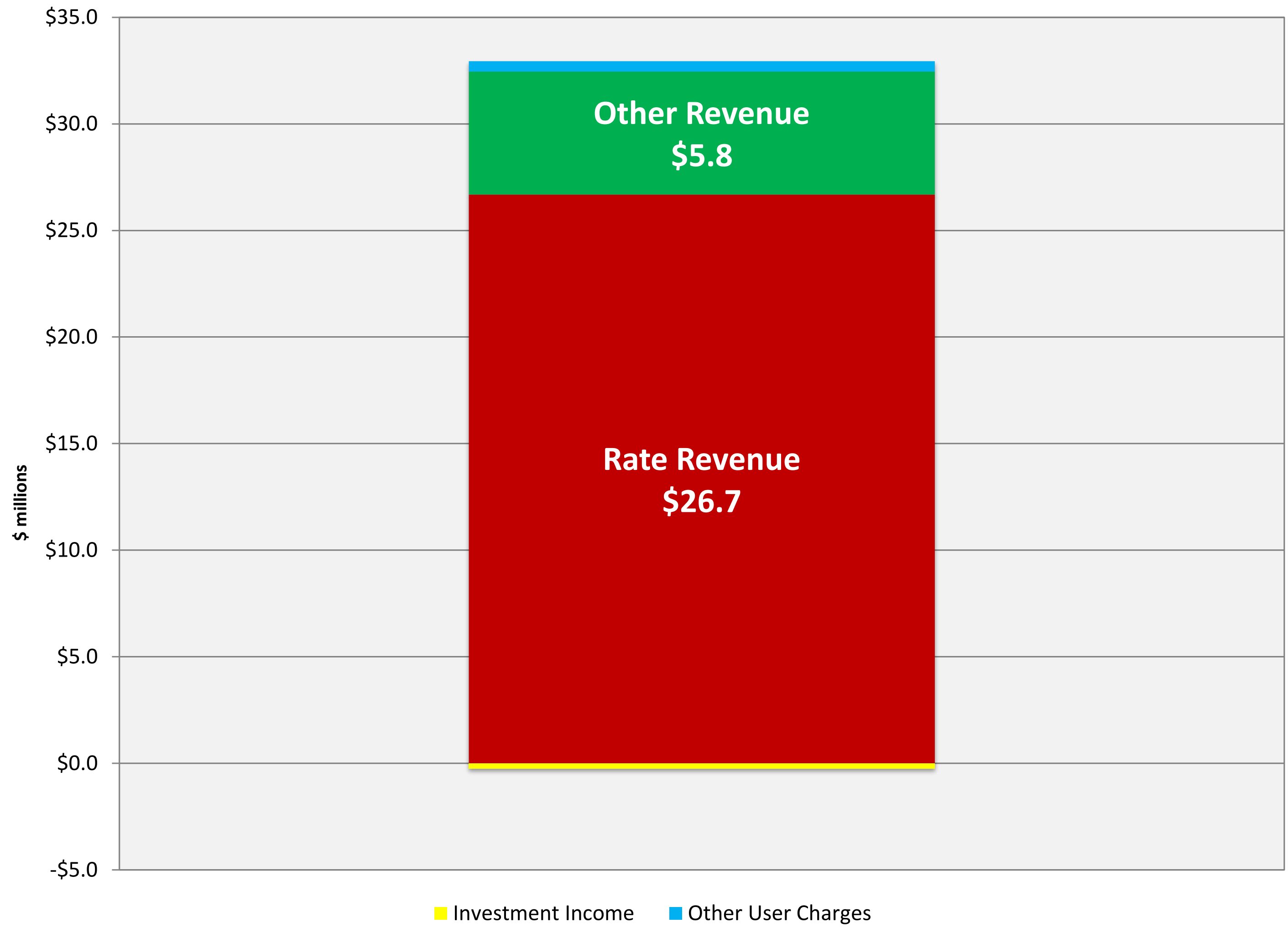

Figure 47

Table 35

Other User Charges		
Fernald School	$71,705	
Commonwealth Zoological (State Zoo)	$40,086	
Department of Youth Services	$22,093	
DCR Pools/Parks	$26,724	
Regis College	$62,000	Individual users of sewer system
NE Center for Children	$14,359	
Lancaster	$295,877	Income relating to Clinton Wastewater Treatment Plant costs
Worcester	$151,554	
Clinton	$500,000	
Chicopee	$3,409,662	CVA Communities
Wilbraham	$730,813	
South Hadley	$691,599	
WTP Residuals	$290,000	From nine water treatment plants
Entrance Fees	$753,220	Stoughton, Wilmington & Dedham-Westwood
Deer Island	$1,691,699	Transfer payment of sewer cost to water revenue
TOTAL	**$8,751,390**	

Table 36

Other Revenue			
Category	**Budget FY15**	**Proposed FY16**	**Description**
Hydropower Revenue	$ 224,510	$ 221,000	Revenue generated from hydroturbines at Cosgrove.
Permit Fees	1,994,000	2,060,000	TRAC permit and monitoring fees.
Penalties	150,000	100,000	Issued through the TRAC program.
Pymts from Commonwealth	0	0	For chemical costs via statute.
Miscellaneous Revenue	1,025,540	6,675,624	Includes revenue from Fore River Railroad, antenna licenses, and other miscellaneous revenues.
Revenue - Energy	2,786,400	2,893,939	Includes DITP and CWTP demand-response payments; renewable portfolio credits for DITP.
TOTAL	**$ 6,180,450**	**$ 11,950,563**	

Non-Rate Revenue

- FY16 proposed non-rate revenue: $30.2 million
  - Reductions from FY15: -$0.2 million
  - Increases from FY15: +$6.3 million
  - Net increase from FY14: +$6.0 million
  - Majority of increase is other revenue: +$5.8 million
- Other Revenue increase: +$5.77 million
  - Increase in miscellaneous revenue: +$5.63 million in revenue from water provided to Cambridge during CSO capital project in FY15
  - Energy Revenue: $2.89 million
    - Power Sales: $0.65 million
    - Demand Response: $0.53 million
    - RPS Credits: $1.93 million

Investment Income

- FY15 and FY16 are the only years that investment income has been below $10 million since before FY90 when the Authority first issued its own debt. The continued decline is due to:
  - Assumed short-term interest rates of 0.20%
  - Lower average balances in both short-term and long-term investments
  - Lower average fund balances in the construction fund
- The proposed budget for investment income is less than 24% of the $40.3 million earned in FY07

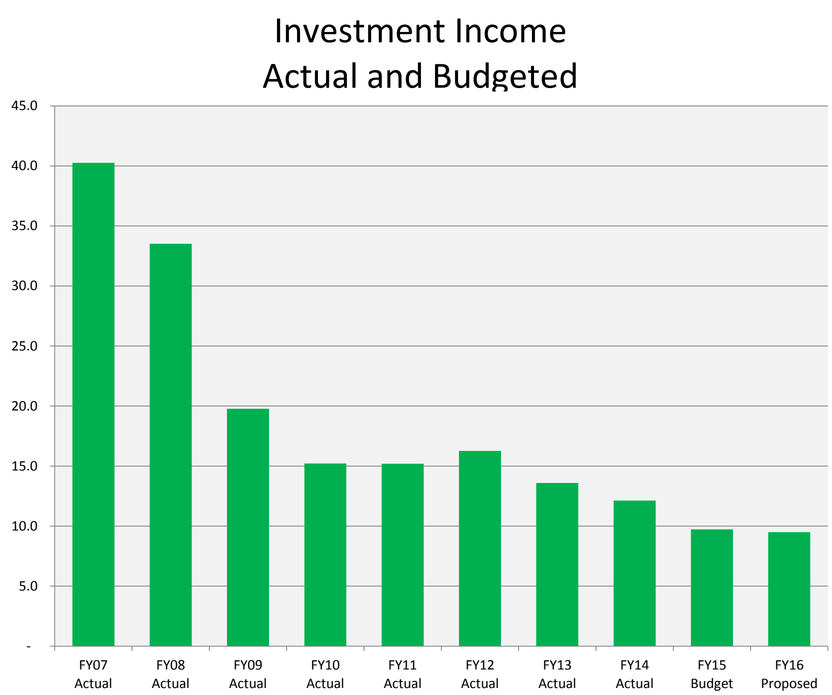

Figure 48

Debt Service Assistance

- Debt Service Assistance (DSA), when available, is treated as an offset to debt service
- No DSA is assumed in the proposed FY16 CEB
- In prior years, the Authority generally received about 70% of the funding when approved

Policy Chapter

Stormwater

"Dark Clouds Ahead"

History and Background

"Stormwater," as defined by the Clean Water Act regulations, includes "stormwater runoff, snow melt runoff, and surface runoff and drainage."[52] This stormwater, in particular, the runoff from impervious surfaces - parking lots, roads, buildings, and compacted soil - was found to carry many pollutants either directly or indirectly through storm drains into surface waters.

The history of stormwater regulation began in 1972 with the passage of the Clean Water Act (CWA), which provided the United States Environmental Protection Agency (EPA) with the authority to regulate stormwater. The initial regulations largely exempted all but the most significant stormwater contributors; however, following a successful challenge in court, the initial regulations were found too limited in scope. Further legal battles ensued throughout the 1980s until the passage of the federal Water Quality Act of 1987 (WQA).

Also referred to as the 1987 Stormwater Amendments, the WQA expanded the definition of "point source" to include municipal separate storm sewer systems (MS4s), which were required to obtain NPDES permits.[53] The WQA was implemented in two phases beginning with municipalities with populations of more than 100 thousand, which were issued permits between 1991 and 1992 (Phase I). The Phase II Rule was finalized in December 1999 and required NPDES permits by 2003 for small municipalities, defined to include those in urbanized areas with populations less than 100 thousand.

The 2003 MS4 General Permit expired in 2008, and had been administratively extended. The new Draft General Permit was issued September 20, 2014 with six minimum control measures implemented. The comment period on the Draft General Permit was extended through February 21, 2015, with responses and the final permit still pending.

The Authority is not a stormwater utility, nor, in the opinion of the Advisory Board, should it become a stormwater utility. Stormwater is firmly in the province of the municipalities, but the Advisory Board believes there are some elements of the stormwater issue that affect both the Authority and the communities. Moreover, some of these overlapping areas of interest provide opportunities for the Authority and Advisory Board to provide support to assist communities in meeting their stormwater obligations moving forward.

NPDES Permit Co-Permittees

"Do Your Own Dirty Work"

The greatest area of concern that the Advisory Board has continually raised with regard to the draft National Pollutant Discharge Elimination System (NPDES) permit for the Deer Island Wastewater Treatment Plant (DITP) is that of naming the member communities as co-permittees to the Authority's NPDES permit. The Advisory Board maintains its belief that this would fundamentally change the relationship between the MWRA and its communities, by making the Authority the enforcer of EPA's agenda on MWRA communities.

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[52] 40 C.F.R. §122.26(b)(13)

[53] Though the WQA includes different permits related to different sources of stormwater, the narrative herein focuses exclusively on community-specific provisions of federal laws and regulations.

If any individual community is found to be in noncompliance with the terms of the NPDES permit, EPA has only to turn its focus to the larger co-permittee - namely the Authority - to ensure the desired results are achieved one way or another.

The Advisory Board believes this change in dynamic would be exceptionally detrimental to the relationship between the Authority and the Advisory Board.

In fact, the Advisory Board felt so strongly on this matter that it committed a portion of its legal fund (combined with many other stakeholders and interested parties) to support the appeal of the Charles River Pollution Control District's (CRPCD's) NPDES permit. Similar to the Authority, the CRPCD is a regional wastewater treatment facility serving the towns of Medway, Franklin, Bellingham and Millis. Also similar to the Authority, EPA had included language in the draft NPDES Permit naming the member communities as co-permittees with the CRPCD. The belief is that EPA is attempting to establish a precedent for co-permittee language with NPDES permits for smaller systems before attempting to include the language in the Authority's Deer Island permit. The CRPCD permit was brought before the Environmental Appeals Board (EAB) – an appellate body within EPA appointed by the EPA Administrator. Unsurprisingly, the EAB ultimately denied the appeal, siding with EPA on all points including co-permittee language. The CRPCD communities did not have the financial capability to pursue further appeal.

The Advisory Board believes that EPA, emboldened by this self-awarded victory, will continue to introduce co-permittee language into future NPDES permits including, at some point, the Deer Island permit. As stated before, the Advisory Board believes this issue is one worth fighting for. **As such, the Advisory Board recommends** t**hat Authority staff draft an informational staff summary and provide a detailed presentation to the full MWRA Board of Directors in July 2015 on the history and the significance of the issues at stake with regard to co-permittee language in the Deer Island NPDES permit.**

Wastewater Primacy

“The Devil You Know”

In its *Proposed FY13 Integrated Comments*, the Advisory Board recommended that the Authority actively engage and participate in a process with the necessary stakeholders to allow the Commonwealth of Massachusetts to obtain delegated authority over National Pollutant Discharge Eliminations Systems programs ("primacy"). The Authority not only agreed with the Advisory Board's recommendation, but it was also an active participant in the process to explore the Commonwealth's assumption of wastewater primacy concurrent with the Advisory Board's budget review process. Directed by the Legislature, MassDEP convened a 21-member NPDES Delegation Advisory Committee (NDAC) with members from the regulated community, environmental advocates, budget and fiscal experts, municipalities and the legal field.[54] On July 2, 2013, they issued a report to the Legislature outlining both the benefits and the challenges of MassDEP assuming NPDES primacy. Unfortunately, despite the detailed and thorough work of MassDEP and the NDAC, further movement toward primacy stalled. However, the Advisory Board believes current circumstances may provide a renewed interest in primacy.

First, the prior review was undertaken during the previous gubernatorial administration, and one nearing its completion. With the advent of a new administration and new leadership, there is an opportunity to revisit the case for primacy with the potential for a different outcome.

Second, as noted before, the final MS4 General Permits are almost issued. Because stormwater, and thereby MS4 permits, are regulated through NPDES programs, there may be some additional support from communities with regard to primacy. Indeed, one of the main concerns from the communities' perspectives is not only the immensely increased scope of the

[54] Chapter 139 of the Acts of 2012, §209

new MS4 permits, but also the dramatically increased costs and the aggressive schedule attached to them as well. While EPA has claimed that the costs to municipalities would not be as great as they fear, even MassDEP in its comment letter has raised concerns that the costs and schedule could be far greater than communities can reasonably bear.[55] This seems to be consistent with the question that the Advisory Board had raised in its earlier recommendation: would agencies and communities prefer to interact with MassDEP, which has a better understanding of and sensitivity to local needs, challenges, and issues when balancing against environmental benefits - or EPA, which tends to employ a "one size fits all" approach to environmental regulation nationwide?

To be sure, one of the major concerns raised by the NDAC had been the added costs and resources, and the need to determine a consistent funding source.[56] The NDAC identified a wastewater assessment fee based on wastewater flow as the "most significant and reliable source of funding." The Advisory Board would suggest that stormwater costs per permittee should be factored more heavily into the assessment fee methodology. While these are details to be worked out, the Advisory Board's aim with flagging this issue is to ensure that the Authority pays its fair share (but not more than its fair share) since municipalities would also be benefiting from MassDEP oversight of the MS4 General Permit implementation.

Therefore, the Advisory Board recommends that the Authority join with the Advisory Board by actively pursuing NPDES delegation authority with the current administration.

Community Support

"Not Impervious to Communities' Needs"

While the Advisory Board believes that addressing stormwater is the responsibility of the communities, it also believes there are ways in which both it and the Authority can provide some centralized support to communities.

Educational Resources

In October 2014, the Advisory Board conducted its first municipal workshop – *#MuniWorks* – with a focus on stormwater and its impacts upon communities. The aim of this workshop was to provide member communities with access to resources and information that could benefit them as they approach their local stormwater obligations. Conducted in two sessions, the first session brought in experts on retail rates setting, as well as stormwater funding mechanisms. The second session was a three-community panel moderated by the Advisory Board's Boston Water and Sewer Commission representative that provided a community perspective on addressing local stormwater needs and costs. *#MuniWorks* was a resounding success, attracting 115 attendees ranging from Advisory Board members to CFOs, business managers, and active citizens. To view videos of the first *#MuniWorks* sessions visit:

http://mwraadvisoryboard.com/resources/muniworks/

Additionally, in its *2014 Annual Water and Sewer Retail Rate Survey*, the Advisory Board for the first time began incorporating a dedicated section on stormwater rates and fees. The appendix provides an in-depth overview of the challenges communities face related to increasing stormwater regulations, with an explanation of the various cost-recovery mechanisms. The appendix also compares the various stormwater fees being charged by communities both inside of Massachusetts and nationwide. While only three MWRA communities are listed as having stormwater fees in the 2014 document, the expectation is that this appendix will continue to grow as more communities develop stormwater

[55] http://www.mass.gov/eea/docs/dep/water/laws/i-thru-z/ms4-comments14.pdf
[56] The NDAC estimated a cost of $9-10 million/year.

cost-recovery structures. Hopefully this new resource will provide assistance to member communities as they compare their costs and structures with the other communities included in the survey.

Advisory Board staff remains committed to providing what support it can to member communities with regard to centralized informational and educational resources as they begin to address their local stormwater needs.

Centralized Resources

The Authority may also prove a centralized resource for meeting some of the more general and less community-specific requirements of the MS4 General Permits. One such area is the educational and public outreach component of the permits. Rather than multiple public outreach campaigns or many different educational brochures, pamphlets, and handouts, perhaps a centralized and standardized set of resources could help the communities in meeting their requirements.

The Advisory Board recommends that the Authority put together a joint MWRA/Advisory Board working committee to review and identify areas where the Authority may be of assistance to the member communities in meeting the requirements of the MS4 General Permits including, but not necessarily limited to, the public education and outreach requirements.

Co-Digestion

"Food for Thought"

Co-digestion, or the addition of food waste to the digesters at the Deer Island Treatment Plant (DITP) first became a topic of discussion two years ago. The potential self-generation and resulting revenue for co-digestion made and continue to make it a compelling possibility for the Authority, and for the Advisory Board. The Advisory Board remains solidly by its original position that any full-scale co-digestion program at the Authority should be not simply revenue neutral, but rather a significant revenue generator.

However, since co-digestion was first discussed, there have been some developments that caused the Authority to put the pilot program on hold. The Advisory Board took this opportunity to raise additional questions relative to scope, scale, and costs associated with the pilot program, even prior to any full-scale co-digestion program (see Integrated Comments Policy Chapter, page 80). In short, the Advisory Board questioned the level of investment the Authority might have to make for the pilot program, especially once barging material to Deer Island was the only method of transportation that would be considered. Additionally, the Advisory Board recognized that while there was potentially a benefit to the Authority, the benefit was just that – potential. Meanwhile, the Commonwealth – who promulgated the initiative to divert organic food waste – was not participating in what could have been one of the larger opportunities for a beneficial reuse of the organic material. The Advisory Board continues to believe the Commonwealth should "put its money where its mouth is" and provide substantial financial support toward any pilot program expenses.

The Authority's proposed FY16 CEB assumes that the co-digestion pilot will begin in October 2015, and notes that some CEB funds were included toward this end. Essentially, three-quarters of a year's worth of funding was incorporated into the proposed budget. Authority staff provided an update this spring that indicated the final FY16 CEB would push back the start date of co-digestion; along with all related expenses, until January 2016. Net expenses for the co-digestion pilot for this reduced six months would be $58 thousand total.[57] These expenses include additional tonnage for pelletization at the Fore River plant, and additional ferric chloride required for the process. The Advisory Board recognizes that the

[57] Note: six month delay is from the proposed FY16 CEB start date, not the spring revisit date. This $58 thousand expenditure includes a reduction in avoided electricity purchase due to the pilot program's self-generation.

Authority needs to include funds in the FY16 budget to meet contract obligations, therefore, including funds toward co-digestion for FY16 is understandable; however, the Advisory Board remains less optimistic of the timeframe for beginning any co-digestion pilot program. **As such, the Advisory Board recommends that the Authority reduce the FY16 CEB by $58,000 – equivalent to a six-month delay from the original October 2015 start date assumed in the proposed FY16 CEB.**[58]

Last year, the Advisory Board's concerns about the costs of the pilot program were due, in large part, to the unknown additional costs caused by a change in scope for the program. The Town of Winthrop expressed concern and vociferous opposition to the co-digestion slurry being trucked to Deer Island, and the Authority committed to finding an alternative. Barging the material seemed to be the only other option, but this could potentially lead to a series of additional costs both capital and operationally that had not existed before for the pilot program. Since then, these potential additional costs have been quantified as not terribly significant. The pier, for example, was found to be in fairly good condition not requiring a significant amount of capital investment to prepare it for barge deliveries. Additionally, the Advisory Board understands that in order to determine the viability of a full-scale co-digestion program, some small upfront costs will be necessary in the short term. This understanding has led to the recommendation to delay the pilot program costs and to not recommend an outright removal of the costs. However, the Advisory Board remains concerned about the viability of a full-scale co-digestion program.

Moreover, the Advisory Board reiterates that its original recommendation still applies: any full-scale co-digestion program cannot be merely cost-neutral, but rather be a significant revenue generator for the Authority. Significant capital investment will need to be made to make a full-scale program possible, so the question becomes, what is the payback period? At what point do the offset electricity costs combined with tipping fee revenues begin to outpace the capital costs? Similar to alternative energy projects, the Advisory Board argues that the payback period should be relatively short in order to consider a full-scale program viable. Accepting additional waste materials not through the wastewater system begins to stray from the Authority's core mission, so doing so must come with a significant benefit.

Toward that end, the Advisory Board recommends that the Authority arrange a presentation to the MWRA Board of Directors from MassDEP on the status of the Organics Diversion Program. Additionally, the Advisory Board recommends that Authority staff then extrapolate from this information the viability of a market/supply for Deer Island should co-digestion be deemed viable. Authority staff has anecdotally stated that should co-digestion be deemed viable on Deer Island, that there would be no trouble securing a supply of organic material. The Advisory Board would like to have this assertion explored and confirmed as part of evaluating the future of the co-digestion program.

[58] $58,000 includes funds across multiple line items, as well as offsets in electricity generation. This recommendation assumes an appropriate reduction/addition in each of the affected line items to reflect a six-month delay in the start of the co-digestion pilot program.

Water Revenue Generation

"There's Water in Them Thar Hills"

System Expansion

"Good for the Environment, Good for the MWRA, Great for the Economy"

The Advisory Board has been an ardent advocate for waterworks system expansion and continues to work toward the goal of finding new member communities. As our oft-repeated argument goes, it could very well be a "win-win-win" situation. The Commonwealth realizes an environmental benefit to a potentially stressed basin, an otherwise constrained community now has the freedom to realize its desired economic development, and increasing the MWRA's customer base helps to ease the financial burdens on each of the existing member communities.

Moreover, the Advisory Board has also worked diligently to make joining the MWRA system easier for new member communities. Though unsuccessful to date, the Advisory Board advocated strongly for a streamlined regulatory review process to reduce the time and costs associated with joining the system. Additionally, the Advisory Board, working with MWRA and other stakeholders, secured passage of the landmark Water Infrastructure Bill, which included provisions allowing for state funding toward entrance fees and connection costs. Lastly, the Advisory Board has recommended changes to the structure of the entrance fee payment to make it less onerous for municipalities to pay their fair share of prior water infrastructure investment. In November 2014, the MWRA Board of Directors voted to adopt the entrance fee language as proposed by the Advisory Board.

While system expansion remains a priority for the Advisory Board, it is not, in and of itself, the end goal. Ultimately, the goal is to provide additional revenues for the water system that will help to ease the costs of the member communities. System expansion is one pathway to doing so, but this year, Advisory Board is looking at other opportunities for developing water revenue.

Direct Source Water Rate

"Straight from the Source"

Recently, the Advisory Board and MWRA staff have received a couple of inquiries about the potential for receiving water via a direct connection to the reservoir. In these particular instances, the communities have the existing infrastructure and capability to treat water to meet the Safe Drinking Water Act (SDWA) requirements; however, they lack local sources capable of providing the volume they require. In short, MWRA would provide "raw water" to the communities, who would then be responsible for treating it appropriately to meet the requirements of the SDWA.

This "Direct Source Water" would serve a new category of potential customer for the MWRA. Because it is untreated, clearly the debt service costs associated with waterworks infrastructure (e.g. treatment plant, tunnels, etc.) would not be factored into charges to these customers. However, some costs (i.e. watershed-related expenses) should be recovered. As such, this new class of customer would require its own rate methodology. This is similar to how the Chicopee Valley Aqueduct (CVA) communities have a separate rate structure that layers in only the capital costs associated with treating and delivering the water to their communities, as separate from the majority of the MWRA's waterworks system.

The Advisory Board recommends that the Authority convene a working group to develop an appropriate rate structure for Direct Source Water. Further that the recommendation of the working group be brought to the Operations Committee and full Advisory Board for a vote as a new admission policy for the MWRA.

Water Capacity Insurance

Moreover, the Advisory Board would like to pursue another area where potential water revenue could be generated, namely the concept of allowing non-member communities to reserve a portion of MWRA water for their occasional use. Some wholesalers refer to this as a "standby fee," but the Advisory Board believes it is more about security for member communities. Much as automobile insurance offers peace of mind for motorists who may encounter unforeseen circumstances and disrupt use of their vehicle, Water Capacity Insurance from the MWRA would similarly guard against unpredictable weather conditions, which might otherwise lead to water bans or other extreme conservation methods. Moreover, Water Capacity Insurance could even allow communities to shut down portions or all of their systems for repairs when necessary for a period of time.

Currently, the only options available to non-member communities are to request water under the Emergency Water Supply policy. Such authorizations are for only six months at a time, and can sometimes prove difficult to coordinate logistically between a town's meeting schedule for local authorization, scheduled Advisory Board meetings, and finally MWRA Board of Directors meetings prior to the needs of the town. Water Capacity Insurance could provide a more expedient alternative to this, avoid the high emergency water rates (especially for repeated requests), and generate revenue for the Authority on a continuous basis. Perhaps a provision could be included, similar to the emergency use policy to count funds for Water Capacity Insurance to be credited toward the entrance fee should a community later decide to become a full or partial member community.

The Advisory Board therefore recommends that a working group be convened to discuss a methodology for structuring Water Capacity Insurance to be offered to non-member communities, including members of the Advisory Board, as well as staff from both MWRA and the Advisory Board. Further, that the recommendation of this working group be brought to the Operations Committee and full Advisory Board for a vote as a new admission policy for the MWRA.

Molybdenum

"A Green Solution for Greener Pastures"

The concentration of molybdenum in the MWRA's biosolids (pellets) being produced at the Fore River Pelletization Plant was an issue raised by the Advisory Board last year. For a detailed explanation of molybdenum and the science behind why limits on molybdenum concentrations in biosolids exist, please see last year's Integrated Comments (Policy Chapter, page 88).

The Advisory Board does not contend that molybdenum limits should not exist, simply that the limit put in place by the Massachusetts Department of Environmental Protection (MassDEP) is excessive in nature. MassDEP has the most stringent molybdenum limits in the country for biosolids, which are 25 mg/kg for general land application and 10 mg/kg for application to pastureland (land used for grazing cattle). Per a recent survey, Massachusetts is the only state in the country to implement two limits, each of which are prohibitive to the distribution of the pellets in-state and well below the Environmental Protection Agency's (EPA's) interim limit of 75 mg/kg, which was adopted by the vast majority of states in the country.

The concern for the Advisory Board is that MassDEP's overly stringent limits on molybdenum concentrations in biosolids are forcing NEFCo (the MWRA's independent operator of the Pelletizing Plant) to ship 96% of the product out of state each year at a great cost to the environment through additional carbon emissions related to trucking the product.

Figure 49 shows the MassDEP limit in relation to the EPA interim limit and the New York Department of Environmental Conservation (NYDEC) limit of 40 mg/kg.

The New York DEC limit is based on a study by O'Connor et al. which calls 40 mg/kg a conservative limit that protects ruminants (such as cows, goats and sheep) from any ill effects of molybdenum concentrations in biosolids applied to land. Other than Massachusetts, New York, New Hampshire (35 mg/kg) and Hawaii (25 mg/kg) are the only other two states in the country that the Advisory Board has found to have adopted limits below the EPA's interim limit of 75 mg/kg.

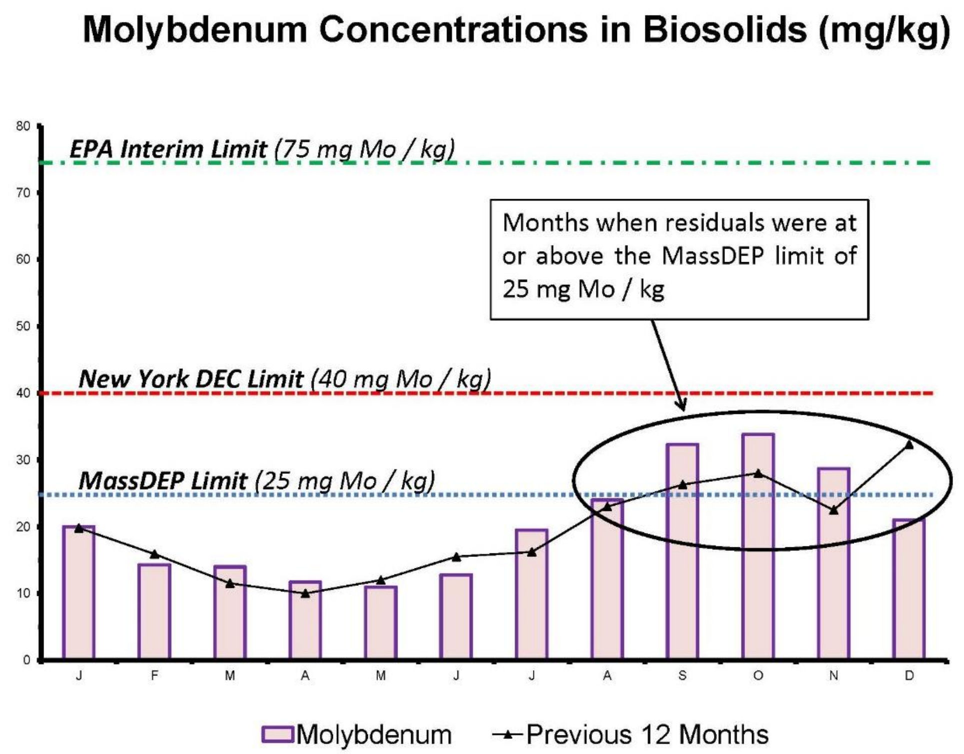


Figure 49

Environmental Impacts of Changing the Limit

It is estimated that almost immediately after changing the MassDEP molybdenum limit from 25 mg/kg to 40 mg/kg, NEFCo will be able to increase their in-state distribution from 4% of total pellet production to 30%. This change would reduce the average distance of each truckload by a conservatively estimated 40 miles, saving 80,000 miles per year and 13,000 gallons of diesel fuel. It's important to note that this reduction in trucking provides not only a financial savings, but also a positive environmental benefit due to reduced fossil fuels used for transporting the product out of state. Moreover, the O'Connor et al. study proves that 40 mg of molybdenum per kg of biosolids applied to the land will not negatively impact cattle; therefore, there appears to be no downside to increasing the limit from 25 mg/kg to 40 mg/kg. In fact, it reduces costs, benefits the environment, and generates a local market within the Massachusetts economy.

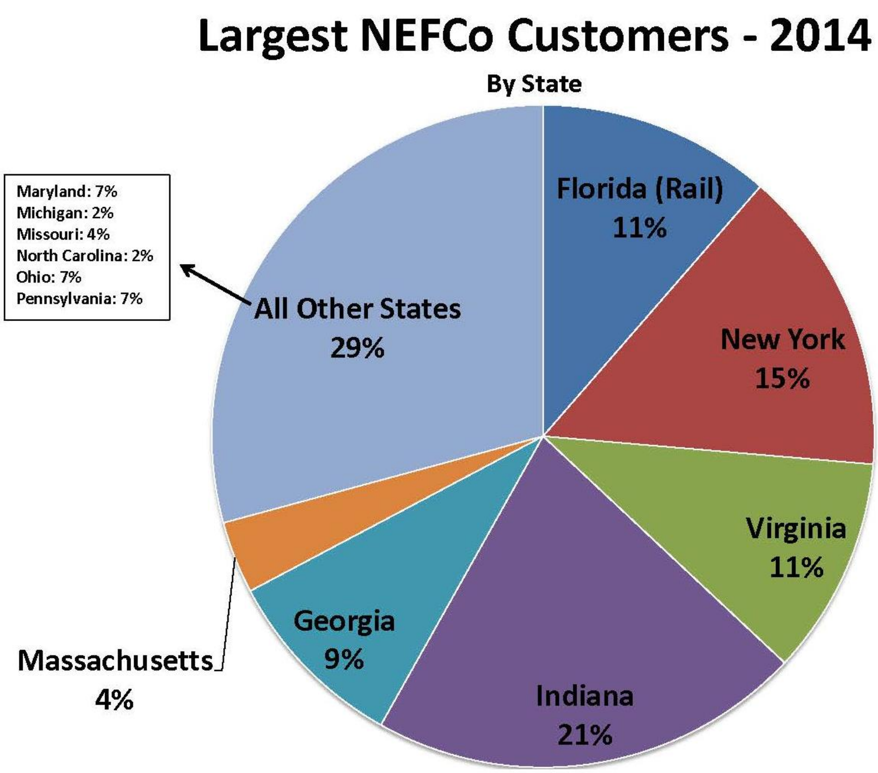


Figure 50

Without a change in the MassDEP limit, the Advisory Board will continue to pursue MWRA policy solutions to the problem of having to ship 96% of pellets out of state. One such policy solution would be for the MWRA, through its Toxic Reduction And Control (TRAC) program, to prohibit the use of molybdenum-based products within the MWRA system, forcing the largest users (office buildings with cooling towers) to find an alternative product. There are two significant problems with this solution. First, the top alternative product on the market is phosphate-based and phosphorous levels are of great concern to environmental groups in the MWRA service area. Second, the TRAC program would require a significant increase in funding to be able to implement this type of regulation, turning the argument to the economic impacts of MassDEP's overly stringent molybdenum regulation.

Economic Impacts of Changing the Limit

The Advisory Board has recommended adding $100,000 to the FY2016 CEB for TRAC staffing, allowing the MWRA to prepare an implementation strategy of new TRAC-enforced molybdenum regulations for buildings within the MWRA system (see Personnel Chapter, page 58). Such regulations would cost MWRA ratepayers money annually while also impacting commercial office buildings that use molybdenum-based products in their cooling towers. Why should private businesses have to deal with more regulations simply to fix a mistake by MassDEP in how they set their molybdenum limit?

But the economic impacts extend beyond just MWRA ratepayers and those effected by potentially new regulations. Massachusetts farmers, who currently cannot use MWRA biosolids for at least six months out of the year, could save between $20 and $50 per acre by using MWRA biosolids. These significant savings are part of the reason that a change in MassDEP limits would allow NEFCo to increase in-state distribution so quickly.

Environmental and economic interests are both served by changing the MassDEP limit on molybdenum concentrations in biosolids to 40 mg/kg. With Governor Baker's office issuing Executive Order 562 in April of 2015, aimed at reducing unnecessary regulatory burden, this is the right time for MassDEP to revisit and correct a mistake which has limited the beneficial reuse of MWRA biosolids within the Commonwealth.

Therefore, the Advisory Board recommends that the Authority partner with the Advisory Board to take any and all actions necessary to ensure that 100% of the pellets from the Fore River Pelletization Plant are able to be placed within the Commonwealth year-round by FY 2017.

Business Plan

"Pathway for the Future"

Background of the MWRA Business Plan

In December 1995, the first draft of the MWRA's Business Plan was issued. It included a mission statement, five organizational goals, ten objectives, and 49 strategies. The Business Plan was to serve as strategic road map, with an aim to improve customer service, upgrade operations and maintenance, and pursue aggressive rates management. The concept was to focus on long-term priorities through a continually evolving Business Plan document.

Since that first draft, there have been multiple iterations, with the most recent Strategic Business Plan issued for the FY09-13 period.

Draft MWRA Business Plan

The Advisory Board has long supported the continuing production and evolution of this important strategic document. In last year's *Comments*, the Advisory Board recommended that the Authority review and update the Strategic Business Plan for the five-year period from FY 2015 - FY 2019.

Toward that end, Authority staff presented the first draft of its revised Business Plan to the MWRA Board of Directors in March of 2015. At this meeting, Authority staff acknowledged that the Business Plan was still a work in progress, but the intention was to have it finalized by June 30, 2015 and have it cover the period from FY16-20.

In reviewing the prior Business Plan, staff identified some changes in the way the MWRA operates that suggested making structural changes to the Business Plan. Years ago, it had been a tremendously useful document to initiate a discussion about what the MWRA's priorities were, and to begin introducing some accountability in pursuing these priorities and achieving specific goals.

In the intervening years, however, the Authority has become much more adept at reporting in general. Take, for example the Orange Notebook, used by the MWRA to report key performance indicators quarterly to the MWRA Board of Directors and the Yellow Notebook, which similarly provides a report of management indicators on a monthly basis as an internal reference for Authority and Advisory Board staff. The previous Business Plan included several big projects or new initiatives to implement, many of which have since become routine to the MWRA's workflow. Moreover, the reporting under the prior format was not only more cumbersome to produce than the newer reporting methods developed, but also made it difficult for someone to see how well the MWRA was achieving objectives without a great deal of searching and reading. In the end, it was decided to explore how to make the Business Plan more user-friendly for the two categories of people most frequently referencing it: first, for Authority staff as a guidance document and management tool; and second, for those looking to learn about or monitor the Authority by serving as a communications tool clearly identifying the Authority's current priorities and goals.

Development Process

MWRA staff began the process of reimagining the Business Plan by first reviewing about 10 different business/strategic plans from other like entities across the nation. Conducting this research, determining what was to be kept from the original business plan, and drafting a mock-up of the proposed new format for review by senior management took about seven months. After that, extensive in-house efforts to update the new business plan took an additional eight months and included talking with the different department managers and their staff about both their core goals and initiatives over the next five years. Additionally, department staff expressed interest in the inclusion of "special” initiatives, or initiatives that were acknowledged to be unusual or perhaps more difficult or aspirational. The prior Business Plan format did not allow for this distinction. There were also several iterations and review periods throughout this eight month period.

Where the former Business Plan had been a more voluminous document including vast amounts of detail on each priority and project, the reinvented Business Plan aimed to be a streamlined statement of the Authority's values and goals with a list of specific initiatives associated with each of those goals. The hope was to have the Business Plan complement, rather than supplant, the other MWRA planning tools including the Water and Wastewater Master Plans, the Capital Improvement Program (CIP), and the annual Current Expense Budget (CEB).[59]

This streamlined Business Plan was not, however, intended to disregard the importance of measuring and reporting progress toward goals. Rather than create an additional and redundant set of reporting, moving forward the Business Plan will include links to the Orange Notebook and other relevant documents that clarify or add depth to the understanding of individual initiatives or that function as performance tracking tools.

[59] March 2015 MWRA Board of Directors staff summary (http://mwraadvisoryboard.com/wp-content/uploads/2015/05/BOD-Pack-2015-04-151.pdf)

Advisory Board Review

Authority staff presented their approach to reinventing the Strategic Business Plan as part of Advisory Board staff's annual budget review. Advisory Board staff also reviewed the draft presented to the MWRA Board of Directors.

The Advisory Board commends the Authority on updating its Business Plan, but more importantly for using the opportunity to improve upon the document's structure by focusing upon the document's ultimate purpose.

By focusing on the Business Plan as a communications and management tool, the changes better meet the needs of the end-users. Authority staff and managers will have a clear set of priorities, goals, and values to use as a consistent framework when evaluating the direction of existing initiatives, as well as new initiatives. These same principles will also provide context to individuals and entities such as the Advisory Board when reviewing the Authority's activities and performance.

Yet, while it has provided a clean, concise statement of the Authority's mission, values, and goals, it hasn't sacrificed the importance of measuring and reporting on progress. By referencing resources like the Orange Notebook and other documents within the Business Plan, the Authority has provided a direct link to the more detailed analysis and reporting of the agency. By "factoring out" this detail, it allows the Business Plan to remain focused on communicating about the agency's goals at a high level, while still providing easy access to detailed information for those who wish to delve further. While the current draft includes some of the referenced links, **the Advisory Board recommends making more specific references throughout the list of initiatives to better help readers "crosswalk" between the Business Plan and more detailed backup such as the Orange Notebook.** For example, under the Core Initiatives for Goal 9, references or links to the specific section to find reporting on the listed items (e.g. preventative maintenance or valve exercising) in the Orange Notebook would be helpful (e.g. "See most recent Orange Notebook - Water Distribution System – Valves Section.") Particularly for anyone new to the Authority's operations, making the references more specific will make it easier to find any specific information desired, which was one of the concerns of the former Business Plan.

The Advisory Board looks forward to the Final Five-Year Strategic Business Plan.

List of Appendices

Appendix A

List of Recommendations

1. The Advisory Board recommends that the Phosphorus Removal Construction Project be placed on indefinite hold pending receipt of $500 thousand toward the operations of the Clinton Wastewater Treatment Plant. (Page 24)

2. The Advisory Board grants approval under Section 8 (d) of the MWRA's Enabling Act for the MWRA to provide water to the Commonwealth at its McLaughlin Fish Hatchery subject to the execution of a legally binding agreement between the Authority and the Commonwealth guaranteeing no less than $2.5 million, as well as confirmation of the grant funding necessary to construct the hydropower turbine. (Page 33)

3. The Advisory Board reverses its prior recommendation to remove the Hatchery Pipeline Project from the MWRA's Capital Improvement Program, subject to the terms of the prior recommendation. (Page 33)

4. The Advisory Board recommends that the Authority identifies the causes for continued capital underspending and takes the steps necessary to bring capital spending closer to the baseline cap levels. (Page 40)

5. The Advisory Board recommends that the rate revenue requirement for the FY16 Current Expense Budget be reduced by $4,811,604, resulting in a 3.36% wholesale rate increase. (Page 47)

6. The Advisory Board recommends that the $6,663,030 CORE Fund deposit is removed from the final FY16 CEB. (Page 53)

7. The Advisory Board recommends reducing the anticipated use of bond redemption funds by $3,547,000. (Page 53)

8. The Advisory Board recommends that the Authority adjusts its attrition/vacancy rate assumptions upward by the average value of three positions, for a reduction of $300,000 (including associated fringe benefits). (Page 58)

9. The Advisory Board recommends adding $100,000 to fund additional personnel for the Toxic Reduction and Control (TRAC) department to begin preparation for issuing permits aimed at reducing molybdenum in the wastewater system (Page 58, and page 103)

10. In order to avoid triggering Operating Reserve Requirement related to Other Post-Employment Benefits (OPEB) contributions, the Advisory Board recommends that any strategy toward funding the OPEB liability be framed as the Authority's "approach" or "practice" rather than as a formally voted policy of the MWRA Board of Directors. (Page 64-65)

11. The Advisory Board endorses designating the $5,062,470 in the proposed FY16 CEB currently listed as "Post-Employment Benefits/Additional Pension Deposit" as an intended contribution toward the OPEB liability rather than as an additional pension payment. (Page 65)

12. The Advisory Board recommends that the $5,062,470 in the proposed FY16 CEB be deposited on the final day of FY 2016 to allow the Authority flexibility to use these funds for other purposes if deemed necessary. (Page 65)

13. The Advisory Board recommends that the FY16 CEB be reduced by $843,745 - the amount that had been budgeted in case OPEB contributions were found to trigger the Operating Reserve Requirement. (Page 65)

14. The Advisory Board recommends that any future contributions to OPEB be no greater than 50% of the Actuarial Calculated Cost. (Page 66)

15. The Advisory Board recommends that the Authority adopt the practice of depositing any funds intended as an OPEB contribution on the last day of the fiscal year in which they are intended to be deposited. (Page 66)

16. The Advisory Board recommends that the Authority reduce the "additions to reserves" line item by $207,404 FY16 to reflect reductions to applicable expenses as recommended by the Advisory Board (see Appendix C). (Page 66)

Appendix A

17. The Advisory Board recommends that Department of Conservation and Recreation should pursue a "green" recertification of Division of Water Supply Protection lands through the Forest Stewardship Council. (Page 68)

18. The Advisory Board recommends that the Division of Water Supply Protection make a formal presentation to the MWRA Board of Directors comparing the current status of the forestry program with the recommendations of the Quabbin Science and Technical Advisory Committee report to see what progress has been made. (Page 68)

19. The Advisory Board recommends a reduction of $58,000 to reflect a later start-up of the co-digestion pilot program until the last quarter of the fiscal year. (Page 77, Page 99)

20. The Advisory Board recommends that the Authority reduce the "other services" line item in the final FY16 CEB by $5,425 consistent with the Advisory Board's final FY16 operating budget. (Page 78)

21. The Advisory Board recommends that the Authority limit financial participation in the Mystic River Modeling Project to the amount committed to in the Joint Funding Agreement with USGS, and to revisit further contributions if and when the other collaborating entities secure funds for their portion of the project. (Page 85)

22. The Advisory Board recommends a reduction of the Mystic River Modeling Project by $116,000 in the final FY16 CEB. (Page 85)

23. The Advisory Board supports the Authority's expected addition of $435,000 in CEB spending and the estimated additional $340,000 in CIP spending consistent with the additional contaminant monitoring needs. (Page 89)

24. The Advisory Board recommends that Authority staff draft an informational staff summary and provide a detailed presentation to the full MWRA Board of Directors in July 2015 on the history and the significance of the issues at stake with regard to co-permittee language in the Deer Island NPDES permit. (Page 96)

25. The Advisory Board recommends that the Authority join with the Advisory Board by actively pursuing NPDES delegation authority with the current administration. (Page 97)

26. The Advisory Board recommends that the Authority put together a joint MWRA/Advisory Board working committee to review and identify areas where the Authority may be of assistance to the member communities in meeting the requirements of the MS4 General Permits, including but not necessarily limited to the public education and outreach requirements. (Page 98)

27. The Advisory Board recommends that the Authority arrange a presentation to the MWRA Board of Directors from MassDEP on the status of the Organics Diversion Program. Additionally, the Advisory Board recommends that Authority staff then extrapolate from this information the viability of a market/supply for Deer Island should co-digestion be deemed viable. (Page 99)

28. The Advisory Board recommends that the Authority convene a working group to develop an appropriate rate structure for Direct Source Water. Further that the recommendation of the working group be brought to the Operations Committee and full Advisory Board for a vote as a new admission policy for the MWRA. (Page 100)

29. The Advisory Board recommends that a working group be convened to discuss a methodology for structuring Water Capacity Insurance to be offered to non-member communities, including members of the Advisory Board, as well as staff from both MWRA and the Advisory Board. Further, that the recommendation of this working group be brought to the Operations Committee and full Advisory Board for a vote as a new admission policy for the MWRA. (Page 101)

30. The Advisory Board recommends that the Authority partner with the Advisory Board to take any and all actions necessary to ensure that 100% of the pellets from the Fore River Pelletization Plant are able to be placed within the Commonwealth year-round by FY 2017. (Page 103)

Appendix A

31. The Advisory Board recommends that the Five-Year Strategic Business Plan makes more specific references throughout the list of initiatives to better help readers "crosswalk" between the Business Plan and more detailed backup such as the Orange Notebook. (Page 105)

Appendix B

List of Comments

1. The Advisory Board supports the funds included in the proposed FY16 CIP to provide distributions to communities for Phase 9, Phase 10, and earlier phases as well. (Page 28)

2. The Advisory Board supports the continued use of the defeasance account strategy, which clearly identifies a use of variable rate debt service savings that is consistent with the original intended use of the funds that were raised. (Page 52)

3. The Advisory Board expects the Authority to reduce capital financing by an additional $400,000 to reflect the spring 2015 defeasance transaction. (Page 52)

4. The Advisory Board expects the Authority to increase the line item for State Revolving Fund (SRF) debt service by $1,000,000 to reflect the updated amounts anticipated for FY16. (Page 52)

5. The Advisory Board supports and endorses the recommendation of the Long-Term Rates Management Committee and subsequent vote of the MWRA Board of Directors for the intended use of the unencumbered released reserves including $10 million as an initial deposit into the OPEB irrevocable trust. (Page 55, page 65)

6. The Advisory Board expects the Authority's health insurance costs to increase based on new data released this spring from the GIC. The Advisory Board estimates this increase to be $350,000. (Page 59)

7. The Advisory Board endorses the "virtual full funding" concept, which defines the pension as fully funded if the system's valuation is between 95% - 105% of the targeted funding level. (Page 64)

8. The Advisory Board supports and endorses the MWRA Board of Directors' establishment of the irrevocable trust as presented at the April 2015 Board of Directors meeting. (Page 64)

9. The Advisory Board expects that future contributions to the OPEB trust will not trigger the need for the one-sixth Operating Reserve Requirement, per the opinion of bond counsel. (Page 64)

10. The Advisory Board supports the Authority's actions in making an $800 thousand deposit into the OPEB irrevocable trust from the funds appropriated in a previous year for this purpose. (Page 65)

11. The Advisory Board expects the Authority to decrease its FY16 CEB "utilities" line item. The Advisory Board's estimate of this reduction is $1,600,000. (Page 75)

12. The Advisory Board expects that the chemicals budget will be revised to reflect updated pricing and usage assumptions, including the reduction in fluoride dosing consistent with updated federal regulations. The Advisory Board estimates this to be a reduction of $350,000. (Page 81)

13. The Advisory Board agrees with the Authority's current belief that CSO/SSO discharges are not the primary cause of the Mystic River's water quality issues. (Page 85)

14. The Advisory Board supports and endorses the increased staff training and participation in national groups and organizations provided there are checks and balances to ensure that there is no misuse of funds for these purposes, particularly with regard to out-of-state travel. (Page 91)

Appendix C

Impact of Advisory Board Recommendations and Estimated Adjustments

IMPACTS ON RATE REVENUE REQUIREMENT		Amount
Projected FY2014 RRR	$	628,721,003
Projected FY2015 RRR	$	651,169,441
MWRA Proposed FY15 RRR Increase		**3.57%**
FY14 DSA "Pay it Forward" Recommendation	$	(853,660)
Advisory Board Recommended FY15 RRR Increase		**3.43%**

IMPACTS ON EXPENDITURES		Amount	Description
MWRA ADVISORY BOARD RECOMMENDATIONS FOR FY15 CEB			
Chemicals (DITP NPDES permit)	$	(650,000)	AB recommends no net change in chemicals for DITP NPDES permit in FY15
Staffing (vacancy rate assumptions)	$	(300,000)	AB recommends increasing assumed vacancy rate by 3 positions; including associated benefits
Capitalization (Lab Equipment)	$	(150,000)	AB recommends capitalizing $150,000 lab equipment; move from CEB to CIP
Local Limits (reflect later start date)	$	(125,000)	AB recommends assumption be reduced by 3 months; tied to DITP NPDES
Pellet Production (reduce by 1 ton)	$	(99,000)	AB recommends tightening assumption based on historical averages
Deer Island Beach Erosion (reduce by)	$	(50,000)	AB questions the need for this study in FY15
Subtotal AB Recommendations	**$**	**(1,374,000)**	
ANTICIPATED ADJUSTMENTS TO PROPOSED FY15 CEB			
Defeasance of Debt Service (updated benefit)	$	(501,000)	Updated defeasance benefit assumption for FY15
Professional Services (updated assumptions)	$	(140,000)	Updated cost estimates for FY15
Fringe Benefits Costs (including GIC)	$	(150,000)	Updated cost estimates for FY15
Watershed Reimbursement (DCR budget adjustment)	$	(75,000)	Updated cost estimates for FY15
Maintenance (updated assumptions)	$	(60,000)	Updated cost estimates for FY15
Advisory Board Operating Budget (updated)	$	(5,800)	Updated cost estimates for FY15
Other Materials (updated assumptions)	$	16,500	Updated cost estimates for FY15
Utilities (updated assumptions)	$	125,000	Updated cost estimates for FY15
Subtotal Anticipated Adjustments	**$**	**(790,300)**	
OPERATING RESERVE REQUIREMENT ADJUSTMENT			
Operating Reserve Requirement	$	(264,717)	Updated based on applicable adjustments; does not apply to defeasance or Watershed adjustments
NET CHANGES TO FY15 CEB (Backed out of Rate Stabilization)	**$**	**(2,429,017)**	***AB recommends that all reductions in the proposed budget be backed out of the use of Rate Stabilization, preserving these funds for future budget challenges***

Appendix D

Section	Total MWRA	FY14 Approved	FY15 Proposed	Change FY15 Proposed vs FY14 Approved Budget $	%
EXPENSES	Wages and Salaries	$94,874,284	$96,784,070	$1,909,785	2.0%
	Overtime	3,580,025	3,620,600	40,575	1.1%
	Fringe Benefits	18,063,825	18,539,351	475,526	2.6%
	Workers' Compensation	2,000,000	2,200,000	200,000	10.0%
	Chemicals	10,671,225	10,667,110	(4,116)	0.0%
	Energy and Utilities	22,760,588	23,350,688	590,100	2.6%
	Maintenance	27,761,580	28,036,396	274,816	1.0%
	Training and Meetings	330,917	361,019	30,102	9.1%
	Professional Services	6,083,402	6,143,938	60,536	1.0%
	Other Materials	5,969,470	5,886,229	(83,241)	-1.4%
	Other Services	22,278,699	22,631,589	352,890	1.6%
	TOTAL DIRECT EXPENSES	**214,374,017**	**218,220,990**	**3,846,969**	**1.8%**
	Insurance	2,093,618	2,128,155	34,537	1.6%
	Watershed/PILOT	27,214,833	27,541,836	327,003	1.2%
	HEEC Payment	3,346,854	3,198,174	(148,680)	-4.4%
	Mitigation	1,566,797	1,605,967	39,170	2.5%
	Addition to Reserves	169,304	661,661	492,357	290.8%
	Retirement Fund	7,455,103	7,808,155	353,052	4.7%
	OPEB/Additional Pension Contribution	4,976,411	4,821,320	(155,091)	-3.1%
	TOTAL INDIRECT EXPENSES	**46,822,920**	**47,765,268**	**942,348**	**2.0%**
	Debt Service (before offsets)	397,226,267	418,605,411	21,379,144	5.4%
	Bond Redemption	-	(1,300,000)	(1,300,000)	
	Debt Service Assistance	0	0	0	
	TOTAL DEBT SERVICE	**397,226,267**	**417,305,411**	**20,079,144**	**5.1%**
	TOTAL EXPENSES	**$658,423,204**	**$683,291,669**	**$24,868,461**	**3.8%**
REVENUE AND INCOME	Rate Revenue	628,721,000	651,169,442	22,448,442	3.6%
	Other User Charges	8,127,379	8,254,404	127,025	1.6%
	Other Revenue	6,444,291	6,196,586	(247,705)	-3.8%
	Rate Stabilization	3,500,000	7,861,673	4,361,673	124.6%
	Investment Income	11,630,534	9,809,564	(1,820,970)	-15.7%
	TOTAL REVENUE AND INCOME	**658,423,205**	**$683,291,669**	**$24,868,465**	**3.8%**

Appendix E

Cap Calculation versus Actual FY04-08 Spending

Final FY04 CIP

Baseline Cap FY04-08
($ millions)

	FY04	FY05	FY06	FY07	FY08	Total FY04-08
Projected Expenditures	$237.0	$190.2	$195.2	$217.3	$183.6	$1,023.3
Contingency	19.4	14.1	15.5	19.8	18.1	86.9
Inflation on Unawarded Construction	0.0	0.8	5.8	13.0	16.1	35.7
Less: Chicopee Valley Aqueduct Projects	(5.4)	(1.5)	(1.4)	(0.1)	(3.0)	(11.4)
FY04-08	**$250.9**	**$203.5**	**$215.2**	**$250.1**	**$214.8**	**$1,134.5**

FY08 Closeout Data

FY04-08 Actual Spending

	FY04 Actual	FY05 Actual	FY06 Actual	FY07 Actual	FY08 Actual	Total FY04-08
Projected Expenditures	$194.0	$167.7	$152.3	$177.7	$196.8	$888.5
Contingency	0.0	0.0	0.0	0.0	0.0	0.0
Inflation on Unawarded Construction	0.0	0.0	0.0	0.0	0.0	0.0
Less: Chicopee Valley Aqueduct Projects	(0.4)	(0.5)	(2.4)	(3.3)	(1.8)	(8.4)
FY04-08	**$193.6**	**$167.2**	**$149.9**	**$174.4**	**$195.0**	**$880.1**

Change

Baseline Cap FY04-08 to Actual Spending

	FY04	FY05	FY06	FY07	FY08	Total FY04-08
Projected Expenditures	($43.0)	($22.5)	($42.9)	($39.6)	$13.2	($134.8)
Contingency	(19.4)	(14.1)	(15.5)	(19.8)	(18.1)	(86.9)
Inflation on Unawarded Construction	0.0	(0.8)	(5.8)	(13.0)	(16.1)	(35.7)
Less: Chicopee Valley Aqueduct Projects	5.0	1.0	(1.0)	(3.2)	1.2	3.0
FY04-08 CAP Δ ($)	**($57.4)**	**($36.4)**	**($65.2)**	**($75.6)**	**($19.8)**	**($254.4)**
FY04-08 CAP Δ (%)	**-22.9%**	**-17.9%**	**-30.3%**	**-30.2%**	**-9.2%**	**-22.4%**

Appendix F

Cap Calculation versus
Proposed FY14 Updated Projections

Final FY09 CIP

Baseline Cap FY09-13 ($ millions)	FY09	FY10	FY11	FY12	FY13	Total FY09-13
Projected Expenditures	$230.0	$251.7	$224.3	$196.7	$178.7	$1,081.4
Contingency	15.6	13.8	12.0	12.1	11.4	64.8
Inflation on Unawarded Construction	0.0	0.5	2.8	7.8	11.3	22.4
Less: Chicopee Valley Aqueduct Projects	(1.2)	(1.9)	(9.1)	(9.5)	(2.9)	(24.8)
FY09-13 CAP	**$244.4**	**$264.1**	**$230.0**	**$207.0**	**$198.4**	**$1,143.8**

Proposed FY14 CIP

FY09-13 Actual Spending	FY09	FY10	FY11	FY12	FY13	Total FY09-13
Projected Expenditures	$182.2	$211.4	$139.3	$137.6	$161.9	$832.4
Contingency	0.0	0.0	0.0	0.0	0.0	$0.0
Inflation on Unawarded Construction	0.0	0.0	0.0	0.0	0.0	$0.0
Less: Chicopee Valley Aqueduct Projects	(0.6)	(0.5)	(0.9)	(0.1)	0.0	($2.1)
Projected FY14-18	**$181.6**	**$210.9**	**$138.4**	**$137.5**	**$161.9**	**$835.2**

Change

Baseline Cap FY09-13 to Actual Spending	FY09	FY10	FY11	FY12	FY13	Total FY09-13
Projected Expenditures	($47.8)	($40.2)	($85.0)	($59.1)	($16.8)	($248.9)
Contingency	(15.6)	(13.8)	(12.0)	(4.9)	(1.7)	(48.0)
Inflation on Unawarded Construction	0.0	(0.5)	(2.8)	(7.8)	(11.3)	(22.4)
Less: Chicopee Valley Aqueduct Projects	0.6	1.4	8.3	9.4	1.2	20.9
FY09-13 CAP Δ ($)	**($62.8)**	**($53.2)**	**($91.6)**	**($69.5)**	**($31.7)**	**($308.6)**
FY09-13 CAP Δ (%)	**-25.7%**	**-20.1%**	**-39.8%**	**-33.6%**	**-16.0%**	**-27.0%**

Appendix G

Program/Project/Subphase	Notice To Proceed	Substantial Completion	Total Contract Amount	Payments through FY13	Remaining Balance	FY14	FY15	FY16	FY17	FY18	FY14 - FY18
Total MWRA			5,715,894,229	3,688,117,050	2,027,777,180	117,003,070	124,636,758	145,927,942	170,272,923	160,999,656	718,840,349
Wastewater			2,758,903,381	1,736,000,644	1,022,902,737	62,357,580	73,106,737	80,136,482	91,443,461	82,329,481	389,373,742
Interception & Pumping			870,574,354	520,540,063	350,034,291	7,172,672	12,970,366	26,982,560	31,840,333	36,110,649	115,076,580
102 Quincy Pump Facilities	completed project		25,907,202	25,907,202	-						
104 Braintree-Weymouth Relief Facilities			232,453,932	227,703,932	4,750,000					309,146	309,146
105 New Neponset Valley Relief Sewer	completed project		30,300,304	30,300,304	-						
106 Wellesley Extension Replacement Sewer	completed project		64,358,543	64,358,543	-						
107 Framingham Extension Relief Sewer	completed project		47,855,986	47,855,986	-						
127 Cummingsville Replacement Sewer	completed project		8,998,768	8,998,768	-						
130 Siphon Structure Rehabilitation			6,519,979	939,770	5,580,209	13,065	17,418	17,417			47,900
131 Upper Neponset Valley Sewer System	completed project		54,174,077	54,174,077	-						
132 Corrosion & Odor Control			16,345,847	3,001,406	13,344,441		166,667	500,000	333,333		1,000,000
136 West Roxbury Tunnel			11,313,573	10,313,573	1,000,000						
137 Wastewater Central Monitoring			20,482,201	19,782,201	700,000			143,181	190,908	190,908	524,997
139 South System Relief Project			4,939,244	3,439,244	1,500,000						
141 Wastewater Process Optimization			10,359,951	1,205,179	9,154,772	222,456	74,150		656,649	875,532	1,828,787
142 Wastewater Meter Sys-Equip. Replacement			26,337,912	5,137,912	21,200,000		55,555	3,133,333	3,011,112	4,000,000	10,200,000
143 Regional I/I Management Planning	completed project		168,987	168,987	-						
145 Facility Asset Protection			304,307,848	17,252,979	287,054,868	6,937,151	12,656,576	23,188,629	27,648,330	30,735,063	101,165,750
146 D.I. Cross Harbor Tunnel			5,000,000	-	5,000,000						
147 Randolph Trunk Sewer Relief			750,000	-	750,000						

Appendix G

Program/Project/Subphase	Notice To Proceed	Substantial Completion	Total Contract Amount	Payments through FY13	Remaining Balance	FY14	FY15	FY16	FY17	FY18	FY14 - FY18
Treatment			703,611,723	184,722,770	518,888,953	23,798,348	41,336,297	47,718,413	54,752,097	38,932,989	206,538,143
182 DI Primary and Secondary Treatment		completed project	(957,878)	(957,878)	-						
200 DI Plant Optimization		completed project	33,426,678	33,426,678	-						
206 DI Treatment Plant Asset Protection			651,662,090	147,500,576	504,161,514	23,411,839	39,450,342	45,339,299	50,355,591	36,964,308	195,521,379
210 Clinton Wastewater Treatment Plant			17,253,158	2,525,720	14,727,438	386,510	1,885,955	2,379,114	4,396,506	1,968,681	11,016,766
211 Laboratory Services		completed project	2,227,674	2,227,674	-						
Residuals			168,020,224	64,535,816	103,484,409	484,408	60,606	1,681,818	3,931,818	4,931,818	11,090,468
261 Residuals		completed project	63,810,848	63,810,848	-						
271 Residuals Asset Protection			104,209,377	724,968	103,484,409	484,408	60,606	1,681,818	3,931,818	4,931,818	11,090,468
CSO			893,831,218	837,706,314	56,124,904	31,687,058	19,139,869	3,266,746	8,701	760,863	54,863,237
CSO MWRA Managed			433,010,435	429,878,466	3,131,969	921,978	1,709,567	497,723	2,701		3,131,969
339 North Dorchester Bay			221,630,329	221,620,595	9,734	9,735					9,735
347 East Boston Branch Sewer Relief			85,638,310	85,645,996	(7,686)	(7,685)					(7,685)
348 BOS019 Storage Conduit		completed project	14,287,581	14,287,581	-						
349 Chelsea Trunk Sewer		completed project	29,779,319	29,779,319	-						
350 Union Park Detention Treatment Facility		completed project	49,583,407	49,583,407	-						
353 Upgrade Existing CSO Facilities		completed project	22,385,200	22,385,200	-						
354 Hydraulic Relief Projects		completed project	2,294,549	2,294,549	-						
355 MWR003 Gate & Siphon			3,778,664	648,745	3,129,919	919,928	1,709,567	497,723	2,701		3,129,919
357 Charles River CSO Controls		completed project	3,633,077	3,633,077	-						

Appendix G

Program/Project/Subphase	Notice To Proceed	Substantial Completion	Total Contract Amount	Payments through FY13	Remaining Balance	FY14	FY15	FY16	FY17	FY18	FY14 - FY18
CSO Community Managed			410,510,564	358,463,436	52,047,128	31,908,801	17,387,302	2,751,023			52,047,126
340 Dorch Bay Sewer Separation (Fox Point)			54,168,551	54,152,295	16,256		16,256				16,256
341 Dorch Bay Sew Separation (Commercial Pt.)			64,829,613	61,147,149	3,682,464	(96,000)	3,778,462				3,682,462
342 Neponset River Sewer Separation	completed project		2,444,395	2,444,395	-						
343 Constitution Beach Sewer Separation	completed project		3,768,888	3,768,888	-						
344 Stony Brook Sewer Separation			44,332,539	44,198,384	134,155			134,155			134,155
346 Cambridge Sewer Separation			92,440,373	50,484,205	41,956,168	28,186,000	11,931,000	1,839,170			41,956,170
351 BWSC Floatables Controls	completed project		932,979	932,979	-						
352 Cambridge Floatables Control	completed project		1,086,925	1,086,925	-						
356 Fort Point Channel Sewer Separation	completed project		12,006,708	12,006,708	-						
358 Morrissey Boulevard Drain			32,814,545	32,346,788	467,757	(199)		467,957			467,758
359 Reserved Channel Sewer Separation			65,088,914	60,039,901	5,049,013	3,819,000	1,006,475	223,537			5,049,012
360 Brookline Sewer Separation			26,652,473	25,997,364	655,109		655,109				655,109
361 Bulfinch Triangle Sewer Separation			9,943,660	9,857,456	86,204			86,204			86,204
CSO Planning & Support			50,310,219	49,364,412	945,807	(1,143,721)	43,000	18,000	6,000	760,863	(315,858)
324 CSO Support			50,310,219	49,364,413	945,806	(1,143,721)	43,000	18,000	6,000	760,863	(315,858)
-											
Other Wastewater			122,865,861	128,495,680	(5,629,819)	(784,906)	(400,400)	486,945	910,513	1,593,162	1,805,314
128 I/I Local Financial Assistance			122,584,985	128,214,804	(5,629,819)	(784,906)	(400,400)	486,945	910,512	1,593,162	1,805,313
138 Sewerage System Mapping Upgrades	completed project		280,876	280,876	-						

Appendix G

Program/Project/Subphase	Notice To Proceed	Substantial Completion	Total Contract Amount	Payments through FY13	Remaining Balance	FY14	FY15	FY16	FY17	FY18	FY14 - FY18
Waterworks			2,833,943,285	1,874,674,563	959,268,722	48,381,781	41,979,867	55,844,441	70,190,998	74,296,915	290,694,002
Drinking Water Quality Improvements			658,147,750	595,207,527	62,940,223	35,296,376	17,390,835	5,600,945	2,045,825	714,243	61,048,223
542 Carroll Water Treatment Plant			433,433,984	411,208,516	22,225,468	4,567,241	8,140,638	5,251,755	2,015,834	358,000	20,333,468
543 Quabbin Water Treatment Plant			18,147,189	12,768,242	5,378,947	4,366,622	881,923	130,402			5,378,947
544 Norumbega Covered Storage		completed project	106,674,147	106,674,147	-						
545 Blue Hills Covered Storage			40,546,671	39,962,823	583,848	143,294	31,040	23,280	29,991	356,243	583,848
550 Spot Pond Storage Facility			59,345,761	24,593,801	34,751,960	26,219,218	8,337,234	195,508			34,751,960
Transmission			1,197,515,763	755,038,156	442,477,607	6,115,242	18,066,111	25,561,450	27,981,207	17,764,225	95,488,235
597 Winsor Station Pipeline			27,433,503	1,395,591	26,037,912	442,738	567,504	1,592,481	7,072,597	7,506,791	17,182,111
601 Sluice Gate Rehabilitation		completed project	9,158,411	9,158,411	-						
604 MetroWest Tunnel			708,688,962	695,398,508	13,290,454	1,496,346	298,089	1,038,000	1,013,000	1,335,000	5,180,435
615 Chicopee Valley Aqueduct Redundancy		completed project	8,666,292	8,666,292	-						
616 Quabbin Transmission System			13,572,242	7,202,464	6,369,778	269,778		450,000	650,000	2,500,000	3,869,778
617 Sudbury/Weston Aqueduct Repairs			4,339,547	659,948	3,679,599			250,000	1,073,700	257,899	1,581,599
620 Wachusett Reservoir Spillway Improvements		completed project	9,287,460	9,287,460	-						
621 Watershed Land			24,000,000	17,342,400	6,657,600	1,500,000	1,500,000	1,500,000	1,500,000	657,600	6,657,600
623 Dam Projects			5,540,300	3,085,182	2,455,118	382,745	872,368	292,858	432,143	432,144	2,412,258
625 Long Term Redundancy			386,829,045	2,841,899	383,987,146	2,023,635	14,828,150	20,438,111	16,239,767	5,074,791	58,604,454

Appendix G

Program/Project/Subphase	Notice To Proceed	Substantial Completion	Total Contract Amount	Payments through FY13	Remaining Balance	FY14	FY15	FY16	FY17	FY18	FY14 - FY18
Distribution And Pumping			929,367,670	372,703,577	556,664,094	7,943,968	7,702,825	21,538,785	36,500,507	49,934,541	123,620,625
618 Northern High NW Transmission Section 70			1,000,000	-	1,000,000			750,000	250,000		1,000,000
677 Valve Replacement			22,540,301	12,016,378	10,523,923	438,879	585,173	616,832	711,807	1,074,442	3,427,133
678 Boston Low Service - Pipe & Valve Rehab	completed project		23,690,863	23,690,863	-						
683 Heath Hill Road Pipe Replacement	completed project		19,358,036	19,358,036	-						
689 James L. Gillis Pump Station	completed project		33,419,007	33,419,007	-						
692 Northern High Service - Section 27 Improve.			1,071,382	123,646	947,736	1,000	1,000	4,000	12,000	159,506	177,506
693 NHS - Revere & Malden Pipeline Improve.			48,987,956	26,832,740	22,155,216		350,000	731,000	4,426,000	7,306,534	12,813,534
702 New Connecting Mains - Shaft 7 to WASM 3			33,909,119	10,960,807	22,948,312	7,341		500,000	1,516,000	4,089,000	6,112,341
704 Rehab of Other Pump Stations			55,057,852	30,057,852	25,000,000						
706 NHS - Connecting Mains from Section 91	completed project		2,360,194	2,360,194	-						
708 Northern Extra High Service - New Pipelines			7,776,432	3,632,119	4,144,313	9,500	16,500	133,000	130,000	917,114	1,206,114
712 Cathodic Protection of Distribution Mains			1,635,972	140,913	1,495,059			249,177	249,177		498,354
713 Spot Pond Supply Mains Rehab			66,396,817	60,982,001	5,414,816	80,000	220,000	1,020,000	1,017,517	850,000	3,187,517
714 Southern Extra High - Sections 41 & 42	completed project		3,657,244	3,657,244	-						
719 Chestnut Hill Connecting Mains			31,731,335	17,486,675	14,244,660				345,000	460,000	805,000
720 Warren Cottage Line Rehab	completed project		1,204,821	1,204,821	-						
721 Southern Spine Distribution Mains			74,081,841	36,691,649	37,390,192	23,560				375,000	398,560
722 NIH Redundancy & Storage			88,504,621	5,974,364	82,530,257	2,996,229	1,123,000	5,760,776	13,202,000	16,616,000	39,698,005
723 Northern Low Service Rehab - Section 8			22,963,864	2,320,986	20,642,878		4,000	14,000	214,000	522,088	754,088
725 Hydraulic Model Update	completed project		598,358	598,358	-						
727 SEH Redundancy & Storage			96,143,364	6,756,970	89,386,394	570,714	1,456,833	1,218,000	4,444,000	14,002,000	21,691,547
730 Weston Aqueduct Supply Mains			274,952,874	66,043,296	208,909,578	3,516,413	3,946,319	10,542,000	9,852,006	3,037,857	30,894,595
731 Lynnfield Pipeline			5,977,854	5,677,522	300,332	300,333					300,333
732 Walnut St. & Fisher Hill Pipeline Rehab	completed project		2,717,141	2,717,141	-						
735 Section 80 Rehabilitation			9,630,430	-	9,630,430				131,000	525,000	656,000

Appendix G

Program/Project/Subphase	Notice To Proceed	Substantial Completion	Total Contract Amount	Payments through FY13	Remaining Balance	FY14	FY15	FY16	FY17	FY18	FY14 - FY18
Other Waterworks			48,912,102	151,725,303	(102,813,201)	(973,805)	(1,179,904)	3,143,261	3,663,460	5,883,906	10,536,918
-											
753 Central Monitoring System			19,392,423	15,803,729	3,588,694	188,694	128,571	1,571,430	1,571,428	128,571	3,588,694
763 Distribution Systems Facilities Mapping			1,798,919	1,036,368	762,551			228,765	305,020	228,766	762,551
764 Local Water Infrastructure Rehab		completed project	7,487,762	7,487,762	-						
765 Local Water System Assistance Program			-	126,859,242	(126,859,242)	(1,162,499)	(1,308,475)	(1,380,933)	(1,721,988)	865,569	(4,708,326)
766 Waterworks Facility Asset Protection			20,232,998	538,203	19,694,795			2,724,000	3,509,000	4,661,000	10,894,000
Business & Operations Support			123,047,563	77,441,842	45,605,720	6,263,709	9,550,154	9,947,018	8,638,463	4,373,261	38,772,605
-											
881 Equipment Purchase			19,892,939	12,107,329	7,785,610	1,724,348	2,745,762	835,500	873,000	683,000	6,861,610
925 Technical Assistance			1,200,000	-	1,200,000		400,000	400,000	400,000		1,200,000
930 MWRA Facility - Chelsea		completed project	9,813,635	9,813,635	-						
931 Business Systems Plan			24,480,106	24,451,230	28,876	19,245	9,631				28,876
932 Environmental Remediation		completed project	1,478,802	1,478,802	-						
933 Capital Maintenance Planning & Develop.			15,812,717	10,124,225	5,688,492	1,555,155	1,599,999	1,599,999	933,339		5,688,492
934 MWRA Facilities Management			2,150,535	370,533	1,780,002						
935 Alternative Energy Initiatives			25,682,239	17,196,804	8,485,435	271,155	150,000	2,143,684	1,339,236	963,000	4,867,075
940 Application Improvement Program			10,050,000	73,125	9,976,875	245,416	2,341,047	2,679,079	2,969,715	1,559,452	9,794,709
942 Information Security Program (ISP)			1,292,950	535,190	757,760	293,722	230,705	200,000	33,333		757,760
944 Information Technology Management Prog.			922,640	-	922,640	167,450	264,739	227,238	210,572	52,641	922,640
946 IT Infrastructure Program			10,271,000	1,290,971	8,980,029	1,987,218	1,808,271	1,861,518	1,879,268	1,115,168	8,651,443

Overview of the FY15 Proposed CIP and Changes from the FY14 Final CIP

	FY14 Final				FY15 Proposed				Change from FY14 Final			
Program and Project	**Total Budget Amount**	**FY14-18**	**FY19-23**	**Beyond 23**	**Total Budget Amount**	**FY14-18**	**FY19-23**	**Beyond 23**	**Total Budget Amount**	**FY14-18**	**FY19-23**	**Beyond 23**
Total MWRA	**5,628,539**	**717,958**	**1,072,185**	**149,016**	**5,715,894**	**718,840**	**1,030,771**	**278,165**	**87,355**	**883**	**(41,413)**	**129,149**
Wastewater	**2,685,135**	**368,930**	**500,147**	**74,374**	**2,758,903**	**389,374**	**525,706**	**107,823**	**73,768**	**20,444**	**25,559**	**33,449**
Interception & Pumping	**846,541**	**118,371**	**180,439**	**26,816**	**870,574**	**115,077**	**205,673**	**29,285**	**24,034**	**(3,294)**	**25,233**	**2,469**
102 Quincy Pump Facilities	25,907	-	-	-	25,907	-	-	-	-	-	-	-
104 Braintree-Weymouth Relief Facilities	233,869	1,364	4,441	-	232,454	309	4,441	-	(1,415)	(1,055)	-	-
105 New Neponset Valley Relief Sewer	30,300	-	-	-	30,300	-	-	-	-	-	-	-
106 Wellesley Extention Replacement Sewer	64,359	-	-	-	64,359	-	-	-	-	-	-	-
107 Framingham Extension Relief Sewer	47,856	-	-	-	47,856	-	-	-	-	-	-	-
127 Cummingsville Replacement Sewer	8,999	-	-	-	8,999	-	-	-	-	-	-	-
130 Siphon Structure Rehabilitation	5,603	4,581	82	-	6,520	48	5,532	-	917	(4,533)	5,450	-
131 Upper Neponset Valley Sewer	54,174	-	-	-	54,174	-	-	-	-	-	-	-
132 Corrosion & Odor Control	16,260	1,000	12,259	-	16,346	1,000	12,344	-	86	-	85	-
134 Ashland Extension Sewer	-	-	-	-	-	-	-	-	-	-	-	-
135 System Master Plan Interceptors	-	-	-	-	-	-	-	-	-	-	-	-
136 West Roxbury Tunnel	11,314	-	1,000	-	11,314	-	1,000	-	-	-	-	-
137 Wastewater Central Monitoring	20,482	700	-	-	20,482	525	175	-	-	(175)	175	-
139 South System Relief Project	4,939	-	1,500	-	4,939	-	1,500	-	-	-	-	-
140 Neponset Valley Relief Sewer	-	-	-	-	-	-	-	-	-	-	-	-
141 Wastewater Process Optimization	10,328	2,542	5,845	698	10,360	1,829	5,794	1,533	32	(713)	(51)	835
142 Wastewater Meter System-Equipment	26,438	5,531	7,692	8,077	26,338	10,200	-	11,000	(100)	4,669	(7,692)	2,923
143 Regional I/I Management Planning	169	-	-	-	169	-	-	-	-	-	-	-
145 Facility Asset Protection	279,794	102,653	141,870	18,042	304,308	101,166	169,136	16,753	24,514	(1,487)	27,266	(1,289)
146 D.I. Cross Harbor Tunnel Inspection	5,000	-	5,000	-	5,000	-	5,000	-	-	-	-	-
147 Randolph Trunk Sewer Relief	750	-	750	-	750	-	750	-	-	-	-	-
Treatment	**659,597**	**199,138**	**225,271**	**46,757**	**703,612**	**206,538**	**264,814**	**47,537**	**44,015**	**7,400**	**39,543**	**780**
182 DI Primary and Secondary	-	-	-	-	(958)	-	-	-	(958)	-	-	-
200 DI Plant Optimization	33,456	-	-	-	33,427	-	-	-	(29)	-	-	-
206 DI Treatment Plant Asset Protection	606,848	188,385	221,677	46,757	651,662	195,521	261,103	47,537	44,814	7,136	39,426	780
210 Clinton Wastewater Treat Plant	17,059	10,753	3,594	-	17,253	11,017	3,711	-	194	264	117	-
211 Laboratory Services	2,235	-	-	-	2,228	-	-	-	(7)	-	-	-
Residuals	**168,020**	**1,549**	**98,237**	**3,672**	**168,020**	**11,090**	**58,644**	**33,750**	**-**	**9,542**	**(39,593)**	**30,078**
261 Residuals	63,811	-	-	-	63,811	-	-	-	-	-	-	-
271 Residuals Asset Protection	104,209	1,549	98,237	3,672	104,209	11,090	58,644	33,750	-	9,541	(39,593)	30,078
CSO	**888,111**	**48,066**	**1,271**	**63**	**893,831**	**54,863**	**1,262**	**-**	**5,720**	**6,797**	**(10)**	**(63)**
340 Dorchester Bay Sewer Separation (Fox Point)	54,169	16	-	-	54,169	16	-	-	-	-	-	-
341 Dorchester Bay Sewer Separation (Commercial Point)	64,776	3,628	-	-	64,830	3,682	-	-	54	54	-	-

Overview of the FY15 Proposed CIP and Changes from the FY14 Final CIP

Program and Project	FY14 Final				FY15 Proposed				Change from FY14 Final			
	Total Budget Amount	FY14-18	FY19-23	Beyond 23	Total Budget Amount	FY14-18	FY19-23	Beyond 23	Total Budget Amount	FY14-18	FY19-23	Beyond 23
342 Neponset River Sewer Separation	2,444	-	-	-	2,444	-	-	-	-	-	-	-
343 Constitution Beach Sewer Separation	3,769	-	-	-	3,769	-	-	-	-	-	-	-
344 Stony Brook Sewer Separation	44,333	-	-	-	44,333	134	-	-	-	134	-	-
346 Cambridge Sewer Separation	85,834	35,349	-	-	92,440	41,956	-	-	6,606	6,607	-	-
351 BWSC Floatables Controls	933	-	-	-	933	-	-	-	-	-	-	-
352 Cambridge Floatables Control	1,087	-	-	-	1,087	-	-	-	-	-	-	-
356 Fort Point Channel Sewer Separation	12,007	-	-	-	12,007	-	-	-	-	-	-	-
358 Morrissey Boulevard Drain	32,815	468	-	-	32,815	468	-	-	-	-	-	-
359 Reserved Channel Sewer Separation	64,809	4,769	-	-	65,089	5,049	-	-	280	280	-	-
360 Brookline Sewer Separation	25,977	(20)	-	-	26,652	655	-	-	675	675	-	-
361 Bulfinch Triangle Sewer Separation	9,944	86	-	-	9,944	86	-	-	-	-	-	-
339 North Dorchester Bay	223,060	807	250	63	221,630	10	-	-	(1,430)	(797)	(250)	(63)
347 East Boston Branch Sewer Relief	85,874	-	-	-	85,638	(8)	-	-	(236)	(8)	-	-
348 BOS019 Storage Conduit	14,288	-	-	-	14,288	-	-	-	-	-	-	-
349 Chelsea Trunk Sewer	29,779	-	-	-	29,779	-	-	-	-	-	-	-
350 Union Park Detention Treatment Facility	49,583	-	-	-	49,583	-	-	-	-	-	-	-
353 Upgrade Existing CSO Facilities	22,385	-	-	-	22,385	-	-	-	-	-	-	-
354 Hydraulic Relief Projects	2,295	-	-	-	2,295	-	-	-	-	-	-	-
355 MWR003 Gate & Siphon	4,005	3,278	-	-	3,779	3,130	-	-	(226)	(148)	-	-
357 Charles River CSO Controls	3,633	-	-	-	3,633	-	-	-	-	-	-	-
324 CSO Support	50,315	(315)	1,021	-	50,310	(316)	1,262	-	(5)	(1)	241	-
Other Wastewater	**122,866**	**1,806**	**(5,072)**	**(2,934)**	**122,866**	**1,805**	**(4,686)**	**(2,749)**	**-**	**-**	**386**	**185**
128 I/I Local Financial Assistance	122,585	1,806	(5,072)	(2,934)	122,585	1,805	(4,686)	(2,749)	-	(1)	386	185
138 Sewerage System Mapping Upgrade	281	-	-	-	281	-	-	-	-	-	-	-
Total Waterworks	**2,820,956**	**307,134**	**568,048**	**74,642**	**2,833,943**	**290,694**	**498,232**	**170,343**	**12,987**	**(16,440)**	**(69,816)**	**95,702**
Drinking Water Quality	**657,172**	**57,311**	**79**	**-**	**658,148**	**61,048**	**1,892**	**-**	**976**	**3,737**	**1,813**	**-**
542 Carroll Water Treatment Plant	433,253	21,026	79	-	433,434	20,333	1,892	-	181	(693)	1,813	-
543 Quabbin Water Treatment Plant	17,393	5,035	-	-	18,147	5,379	-	-	754	344	-	-
544 Norumbega Covered Storage	106,674	-	-	-	106,674	-	-	-	-	-	-	-
545 Blue Hills Covered Storage	40,704	600	-	-	40,547	584	-	-	(157)	(16)	-	-
550 Spot Pond Storage Facility	59,149	30,650	-	-	59,346	34,752	-	-	197	4,102	-	-
Transmission	**1,185,972**	**80,007**	**231,353**	**118,737**	**1,197,516**	**95,488**	**235,130**	**111,859**	**11,544**	**15,481**	**3,777**	**(6,878)**
597 Winsor Station Pipeline	27,256	5,007	20,778	-	27,434	17,182	8,856	-	178	12,175	(11,922)	-
601 Sluice Gate Rehabilitation	9,158	-	-	-	9,158	-	-	-	-	-	-	-
604 MetroWest Tunnel	708,786	7,697	5,660	-	708,689	5,180	8,110	-	(97)	(2,517)	2,450	-
615 Chicopee Valley Aqueduct Redundancy	8,666	-	-	-	8,666	-	-	-	-	-	-	-
616 Quabbin Transmission System	13,516	3,261	3,130	-	13,572	3,870	2,500	-	56	609	(630)	-
617 Sudbury/Weston Aqueduct Repairs	4,327	3,667	-	-	4,340	1,582	2,098	-	13	(2,085)	2,098	-
620 Wachusett Reservior Spillway Improvement	9,287	-	-	-	9,287	-	-	-	-	-	-	-
621 Watershed Land	24,000	6,000	-	-	24,000	6,658	-	-	-	658	-	-

Overview of the FY15 Proposed CIP and Changes from the FY14 Final CIP

	FY14 Final				FY15 Proposed				Change from FY14 Final			
Program and Project	**Total Budget Amount**	**FY14-18**	**FY19-23**	**Beyond 23**	**Total Budget Amount**	**FY14-18**	**FY19-23**	**Beyond 23**	**Total Budget Amount**	**FY14-18**	**FY19-23**	**Beyond 23**
622 Cosgrove/Wachusett Redundancy	-	-	-	-	-	-	-	-	-	-	-	-
623 Dam Projects	5,540	2,328	43	-	5,540	2,412	43	-	-	84	-	-
625 Long Term Redundancy	375,435	52,047	201,742	118,737	386,829	58,604	213,524	111,859	11,394	6,557	11,782	(6,878)
Distribution & Pumping	**931,433**	**153,475**	**296,471**	**108,726**	**929,368**	**123,621**	**300,793**	**132,251**	**(2,065)**	**(29,854)**	**4,322**	**23,524**
618 Northern High NW Tran Sections 70 & 71	1,000	1,000	-	-	1,000	1,000	-	-	-	-	-	-
677 Valve Replacement	22,311	3,131	7,163	-	22,540	3,427	7,097	-	229	296	(66)	-
678 Boston Low Service-Pipe & Valve Rehabilitation	23,691	-	-	-	23,691	-	-	-	-	-	-	-
683 Heath Hill Road Pipe Replacement	19,358	-	-	-	19,358	-	-	-	-	-	-	-
689 James L. Gillis Pump Station Rehabilitation	33,419	-	-	-	33,419	-	-	-	-	-	-	-
692 NHS - Section 27 Improvements	1,043	178	742	-	1,071	178	770	-	28	-	28	-
693 NHS - Revere & Malden Pipeline Improvement	48,622	12,604	9,185	-	48,988	12,814	9,342	-	366	210	157	-
702 New Connect Mains-Shaft 7 to WASM 3	33,351	10,824	11,559	-	33,909	6,112	16,836	-	558	(4,712)	5,277	-
704 Rehabilitation of Other Pump Stations	55,058	-	15,073	9,927	55,058	-	18,750	6,250	-	-	3,677	(3,677)
706 NHS-Connecting Mains from Section 91	2,360	-	-	-	2,360	-	-	-	-	-	-	-
708 Northern Extra High Service New Pipelines	7,653	1,198	2,815	-	7,776	1,206	2,938	-	123	8	123	-
712 Cathodic Protection Of Distrubution Mains	1,591	725	725	-	1,636	498	748	249	45	(227)	23	249
713 Spot Pond Supply Mains Rehabilitation	66,243	2,975	2,288	-	66,397	3,188	2,227	-	154	213	(61)	-
714 Southern Extra High Sections 41 & 42	3,657	-	-	-	3,657	-	-	-	-	-	-	-
719 Chestnut Hill Connecting Mains	31,301	837	7,701	5,277	31,731	805	8,031	5,408	430	(32)	330	131
720 Warren Cottage Line Rehabilitation	1,205	-	-	-	1,205	-	-	-	-	-	-	-
721 South Spine Distribution Mains	73,568	1,158	12,137	23,333	74,082	399	4,000	32,992	514	(759)	(8,137)	9,659
722 NIH Redundancy & Storage	84,956	42,079	36,748	-	88,505	39,698	42,832	-	3,549	(2,381)	6,084	-
723 Northern Low Service Rehabilitation Section 8	22,440	754	19,365	-	22,964	754	19,889	-	524	-	524	-
724 Northern High Service - Pipeline Rehabilitation	-	-	-	-	-	-	-	-	-	-	-	-
725 Hydraulic Model Update	598	-	-	-	598	-	-	-	-	-	-	-
727 Southern Extra High Redundancy & Storage	93,460	26,521	8,566	51,550	96,143	21,692	14,539	53,156	2,683	(4,829)	5,973	1,606
730 Weston Aqueduct Supply Mains	286,418	48,742	153,700	18,640	274,953	30,895	143,819	34,196	(11,465)	(17,847)	(9,881)	15,556
731 Lynnfield Pipeline	6,073	113	-	-	5,978	300	-	-	(95)	187	-	-
732 Walnut St. & Fisher Hill Pipeline Rehabilitation	2,717	-	-	-	2,717	-	-	-	-	-	-	-
733 NHS Pipeline Rehabilitation 13-18 & 48	-	-	-	-	-	-	-	-	-	-	-	-
734 Southern Extra High Pipelines-Sections 30, 39,40, & 44	-	-	-	-	-	-	-	-	-	-	-	-
735 Section 80 Rehabilitation	9,340	636	8,704	-	9,630	656	8,974	-	290	20	270	-
Other	**46,380**	**16,341**	**40,145**	**(152,822)**	**48,912**	**10,537**	**(39,583)**	**(73,767)**	**2,532**	**(5,804)**	**(79,728)**	**79,056**
753 Central Monitoring System	16,992	1,129	-	-	19,392	3,589	-	-	2,400	2,460	-	-
763 Distribution Systems Facilities Mapping	1,799	763	-	-	1,799	763	-	-	-	-	-	-
764 Local Water Infrastructure Rehabilitation Assistance Program	7,488	-	-	-	7,488	-	-	-	-	-	-	-
765 Local Water Pipeline Improvement Loan Program	-	2,927	32,969	(153,687)	-	(4,708)	(47,519)	(74,632)	-	(7,635)	(80,488)	79,055

Overview of the FY15 Proposed CIP and Changes from the FY14 Final CIP

	FY14 Final				FY15 Proposed				Change from FY14 Final			
Program and Project	Total Budget Amount	FY14-18	FY19-23	Beyond 23	Total Budget Amount	FY14-18	FY19-23	Beyond 23	Total Budget Amount	FY14-18	FY19-23	Beyond 23
766 Waterworks Facility Asset Protection	20,101	11,522	7,176	865	20,233	10,894	7,936	865	132	(628)	760	-
Business & Operations Support	**122,448**	**41,895**	**3,990**	**-**	**123,048**	**38,773**	**6,833**	**-**	**600**	**(3,122)**	**2,843**	**-**
881 Equipment Purchase	18,483	7,019	-	-	19,893	6,862	924	-	1,410	(157)	924	-
925 Technical Assistance	1,200	1,200	-	-	1,200	1,200	-	-	-	-	-	-
930 MWRA Facility - Chelsea	9,814	-	-	-	9,814	-	-	-	-	-	-	-
931 Business Systems Plan	24,475	12	-	-	24,480	29	-	-	5	17	-	-
932 Environmental Remediation	1,479	-	-	-	1,479	-	-	-	-	-	-	-
933 Capital Maintenance Planning	15,701	5,646	-	-	15,813	5,688	-	-	112	42	-	-
934 MWRA Facilities Management	2,151	1,780	-	-	2,151	-	1,780	-	-	(1,780)	1,780	-
935 Alternative Energy Initiatives	28,230	6,965	3,652	-	25,682	4,867	3,618	-	(2,548)	(2,098)	(34)	-
940 Applicat Improv Program	9,150	8,986	159	-	10,050	9,795	182	-	900	809	23	-
942 Info Security Program ISP	1,293	792	-	-	1,293	758	-	-	-	(34)	-	-
944 Info Tech Mgmt Program	1,493	1,493	-	-	923	923	-	-	(570)	(570)	-	-
946 IT Infrastructure Program	8,980	8,002	179	-	10,271	8,651	329	-	1,291	649	150	-

Appendix I

New Capital Projects Added to the FY15 Proposed CIP

Program	Project	Subphase	Total Contract Amount	FY14	FY15	FY16	FY17	FY18	FY14-18	Beyond FY18	Total Expenditures
Treatment	DITP Asset Protection	DI Gas Distribution System Modifications Design	$2,000,000			$166,667	$666,666	250,000	$1,083,333	$916,667	$2,000,000
Treatment	DITP Asset Protection	DI Gas Distribution System Modifications Construction	$8,000,000					666,667	$666,667	$7,333,333	$8,000,000
Treatment	DITP Asset Protection	Combined Heat and Power Facility Design	$4,000,000			$250,000	1,000,000	750,000	$2,000,000	$2,000,000	$4,000,000
Treatment	DITP Asset Protection	Combined Heat and Power Facility Construction	$21,000,000						$0	$21,000,000	$21,000,000
Treatment	DITP Asset Protection	Co-Digestion Design/ESDC/REI - Pilot	$750,000			$100,000	200,000	300,000	$600,000	$150,000	$750,000
Treatment	DITP Asset Protection	Co-Digestion Construction - Pilot	$2,500,000					1,667,000	$1,667,000	$833,000	$2,500,000
Interception & Pumping	Facility Asset Protection	Prison Point Rehabilitation Construction	$4,202,400				820,733	1,400,800	$2,221,533	$1,980,867	$4,202,400
Interception & Pumping	Facility Asset Protection	Cottage Farm Construction 1 (PCB)	$2,101,200				1,225,700	875,500	$2,101,200	$0	$2,101,200
Interception & Pumping	Facility Asset Protection	Cottage Farm Construction 2	$7,354,200					3,881,383	$3,881,383	$3,472,817	$7,354,200
Summary:											
Total Wastewater Projects			**$51,907,800**	**$0**	**$0**	**$516,667**	**$3,913,099**	**$9,791,350**	**$14,221,116**	**$37,686,684**	**$51,907,800**
Total Projects			**$51,907,800**	**$0**	**$0**	**$516,667**	**$3,913,099**	**$9,791,350**	**$14,221,116**	**$37,686,684**	**$51,907,800**

Appendix J

CSO Project Cost and Schedules

Project		Cost [1] ($millions)	Commence Design	Commence Construction	Complete Construction
North Dorchester Bay Storage Tunnel and Related Facilities		218.4	Aug-97	Aug-06	May-11
Pleasure Bay Storm Drain Improvements		3.2	Sep-04	Sep-05	Mar-06
Hydraulic Relief Projects	CAM005 Relief	2.3	Aug-97	Jul-99	May-00
	BOS017 Relief			Jul-99	Aug-00
East Boston Branch Sewer Relief		85.6	Mar-00	Mar-03	Jul-10
BOS019 CSO Storage Conduit		14.3	Jul-02	Mar-05	Mar-07
Chelsea Relief Sewers	Chelsea Trunk Sewer Relief	29.8	Jun-97	Sep-99	Aug-00
	Chelsea Branch Sewer Relief			Dec-99	Jun-01
	CHE008 Outfall Repairs			Dec-99	Jun-01
Union Park Detention and Treatment Facility		49.6	Dec-99	Mar-03	Apr-07
CSO Facility Upgrades and MWRA Floatables Control	Cottage Farm Facility Upgrade	22.4	Jun-96	Mar-98	Jan-00
	Prison Point Facility Upgrade			May-99	Sep-01
	Commercial Point Facility Upgrade			Nov-99	Sep-01
	Fox Point Facility Upgrade			Nov-99	Sep-01
	Somerville-Marginal Fac. Upgrade			Nov-99	Sep-01
	MWRA Cloatables and Closings			Mar-99	Mar-00
Cottage Farm Brookline Connection & Inflow Controls		3.0	Sep-06	Jun-08	Jun-09
Charles River Interceptor Gate Controls (Design)		0.7	Jan-08	[2]	[2]
Prison Point CSO Facility Optimization			Mar-06	Mar-07	Apr-08
South Dorchester Bay Sewer Separation		118.9	Jun-96	Apr-99	Jun-07
Stony Brook Sewer Separation		44.2	Jul-98	Jul-00	Sep-06
Neponset River Sewer Separation		2.5		Apr-96	Jun-00
Constitution Beach Sewer Separation		3.7	Sep-97	Apr-99	Oct-00
Fort Point Channel Conduit Sewer Separation		11.9	Jul-02	Mar-05	Mar-07
Morrissey Boulevard Storm Drain		32.3	Jun-05	Dec-06	Jul-09
Reserved Channel Sewer Separation		**72.6**	**Jul-06**	**May-09**	**Dec-15**
Bulfinch Triangle Sewer Separation		9.1	Nov-06	Sep-08	Jul-10
Brookline Sewer Separation		24.9	Nov-06	Nov-08	Jul-13
Somerville Baffle Manhole Separation [3]				Apr-96	Dec-96
Cambridge / Alewife Brook Sewer Separation	CAM004 Outfall and Wetland Basin	13.8		Apr-11	Apr-13
	CAM004 Sewer Separation	**71.8**	**Jan-97**	**Sep-12**	**Dec-15**
	CAM400 Manhole Separation	4.8	Oct-08	Jan-10	Mar-11
	Interceptor Connection Relief/Floatables	2.9	Oct-08	Jan-10	Oct-10
	SOM01A Connection with Floatables	0.8	Apr-12	Sep-13	Dec-13
	MWR003 Gate and Rindge Ave. Siphon	**3.7**	**Apr-12**	**Aug-14**	**Oct-15**
Region-wide Floatables Control and Outfall Closings		0.9	Sep-96	Mar-99	Dec-07
Planning & Support		50.3			
Total Cost		**898.3**			

[1] *From MWRA Proposed FY16 Capital Improvement Program*
[2] *Construction of this project was deleted from the CSO Plan and Schedule Seven in April 2011*
[3] *Cost in "Planning & Support," below*

Appendix K

A 30-Year History

Appendix K

30 Years of the MWRA and Advisory Board

Creating the Best Regional Water and Wastewater Solution in the United States

The following document covers the 30-year history of the MWRA and Advisory Board with a timeline of major MWRA accomplishments in each calendar year and a narrative of the Advisory Board's involvement in the process of shaping the MWRA of today. Below is a brief history of how the MWRA and Advisory Board came to be, followed by six 5-year periods, and a final look at the future challenges facing both entities.

With the Acts of 1984, the **Massachusetts Water Resources Authority (MWRA)** and a separate entity, the **Advisory Board**, were created and put into effect on July 1, 1985 (Fiscal Year 1986). The MWRA took control from the previous agency that handled water and wastewater services in the Greater Boston area, the **Metropolitan District Commission (MDC),** which had failed to provide services in compliance with federal and state regulations.

The true genesis of the MWRA came in December of 1977 when Congress passed amendments to the Clean Water Act that allowed publicly owned treatment works (POTW) like the MDC to apply for a waiver from requirements to upgrade secondary treatment. The MDC applied in 1979 and was denied. In December of 1982 the City of Quincy filed a suit against the MDC claiming violation of the **Massachusetts Clean Water Act** for discharges from the Nut and Deer Island facilities into Boston Harbor. Judge Paul Garrity was assigned to the case. Congruently, the Conservation Law Foundation sued the MDC in June of 1983 in federal court, claiming that sewage discharges violated the federal Clean Water Act. Judge Mazzone was assigned the case.

In July, 1983, Judge Garrity appointed Charles M. Haar as Special Master and he issued the Report of the Special Master in August of 1983 recommending that the MDC evaluate the need for an independent sewerage authority. In November of 1983 Judge Garrity issued an **injunction barring new sewer tie-ins until a new independent authority was created** and set a trial date to consider placing the MDC in receivership. In December of 1984, due to federal and state court decisions, the Massachusetts Legislature passed the Acts of 1984 that established the MWRA and the Advisory Board, set to take effect for the following fiscal year, beginning on July 1st.

To get their foot in the door and have control over the new MWRA, the **Environmental Protection Agency (EPA)** also filed a suit, which was then joined with the existing Conservation Law Foundation suit in January 1985. Also at this time, the newly created Advisory Board of the MWRA reviewed the first MWRA current expense budget for Fiscal Year 1986, and shortly thereafter, the MWRA assumed responsibility for the MDC water and sewer systems. After assuming control, the MWRA Board of Directors voted to build new treatment facilities on Deer Island in response to the recommendation of the **Final Environmental Impact Report**. Additionally, the report recommended that the existing Nut Island Treatment Plant be decommissioned and converted into a headworks facility when the South System flows were transferred to the new Deer Island Treatment Plant (DITP).

At the tail end of 1985 Judge Mazzone found the MWRA to be liable for the MDC's acts, which mainly entailed underinvestment in the water and wastewater systems to the point of near system failure. Judge Mazzone issued a court-ordered schedule for projects deemed necessary for compliance with the Clean Water Act which included a series of deadlines.

The following timeline starts from Day 1 of MWRA control of the waterworks and wastewater systems.

Appendix K

1986 to 1990
A New Era

The MWRA Begins to Borrow for Court-Mandated Projects and the Advisory Board Fights to Cut Costs

The early years of the MWRA followed a consistent theme: state and federal court mandates and legal decisions went against the Authority costing ratepayers billions of dollars. By January 1986, Judge Mazzone found that the MWRA was liable for the acts of the MDC, meaning that the Authority not only had to comply with new mandates, but also address previous failings of the old agency. The cost of these mandates required that the Authority have the ability to borrow, which the MDC had not been able to do. The costs associated with this borrowing have become the main driver of rate assessment increases ever since with $7.9 billion in capital spending being borrowed from 1986 through 2014.

In addition to fighting back against the more stringent mandates handed down, the Advisory Board also helped craft MWRA policy to allow for compliance with existing mandates. In 1987, the Advisory Board developed a rate assessment policy to encourage water conservation and recommended that the MWRA begin metering wastewater. Because of these policies, by 1989 water demand had dropped and the safe yield of Quabbin and Wachusett reservoirs was achieved for the first time in 20 years.

During this period the Advisory Board also took aim at the state for forcing control of the Clinton Wastewater Treatment Plant on the Authority, for which the MWRA assumed operational responsibility in 1987. The cost of operating the facility was the main concern of the Advisory Board, which fought to ensure the state or the Town of Clinton pay for its fair share *(see 1991-1995 for more information on Clinton).*

This initial period set the tone regarding the role that the Advisory Board has had to play in keeping MWRA costs under control for the sake of the ratepayer. In 1990 the Advisory Board forced the Authority to lower its proposed combined rate assessment increases down from 46% to 20%. Controlling rate assessment increases has always been one of the driving forces for Advisory Board members because they represent their communities and ratepayers.

Judge Mazzone found the **MWRA liable for the acts of the MDC**

Safe yield of Quabbin and Wachusett reservoirs achieved for first time in 20 years, due to conservation efforts developed by the Advisory Board

Project Labor Agreement reached between the MWRA and Boston Building Trades Council to prevent costly labor-related work stoppages in construction of new DITP

1986

1987

1988

1989

1990

George H.W. Bush declares Boston Harbor the **"dirtiest harbor"** in the U.S

MWRA **issues first bonds**

Construction began on two significant wastewater projects**:** **1. The Sludge-to-Fertilizer plant** and **2. The 9.5 mile Effluent Outfall Tunnel** to disperse treated wastewater

Appendix K

1991 to 1995
In Full Swing

The MWRA and Advisory Board Optimize Water and Sewer Systems and Policies

The Advisory Board focuses on fairness for all of its communities. This philosophy led to a lawsuit against the Town of Clinton for nonpayment of user charges, as all communities must pay their fair share of the system. The initial court ruling favored the MWRA in the amount of $6.1 million, but was appealed to the Supreme Judicial Court (see 1996-2000 period for result). A cry for fairness from member communities also led the Advisory Board to restructure the sewer rate methodology, creating a new “flow-based” method in June 1995. This sewer rate methodology has been in place ever since and the Advisory Board, through its dedicated members, was instrumental at getting all communities to agree on a fairer system.

In addition to fairness among communities, the Advisory Board pushed for fairness from regulators, pointing out that state and federal mandates were costing ratepayers millions of dollars and increasing the cost of water and sewer services rapidly. To address this, the Advisory Board put forth an initiative to have the Legislature enact the Commonwealth Sewer Rate Relief Fund (Debt Service Assistance), which allowed the MWRA to recoup some of its debt service expenses on court-mandated projects. Additionally, the Advisory Board pushed to have some court-mandated projects rolled back in size and scope for the purpose of saving eventual debt service costs that would be picked up by ratepayers. As an example, in October 1995, the proposed secondary treatment “Battery D” was eliminated from the Deer Island construction plan saving an estimated $125 million in design and construction costs. Finally, in 1991, the Advisory Board spearheaded legal action against Governor Weld’s proposed “water tax” and won the landmark decision.

With the introduction of Debt Service Assistance and the continued financial oversight performed by the Advisory Board, the FY1995 rate assessment increase was kept to 0% for the first time since the MWRA was created 10 years earlier. Unfortunately, this would not become the norm, as increasingly stringent state and federal regulations continued to hammer the Authority and subsequently, the ratepayers.

Advisory Board blocks **Governor Weld’s “Water Tax”**

Sludge discharges into the Boston Harbor end. Sludge-to-Fertilizer pelletizing began at Fore River Plant

“Cohen Bill” enacted; new impetus on protecting MWRA watersheds

Revised CSO control plan lowers projected cost from $1.3 billion in 1991 dollars to under $400 million; costs eventually total around $900 million in 2015 dollars

Independent **“Peat Marwick Report”** finds that MWRA “has demonstrated effective overall management”

1991

1992

1993

1994

1995

Construction began on **4.8 mile under-harbor tunnel from Nut Island** to join South System to DITP

Governor Weld vetoes creation of Clinton-Lancaster Wastewater District; Advisory Board holds protests on steps of State House

Agreement reached with EPA and DEP for new level of watershed protection at Wachusett

First **DSA payment of $27 million** received

Appendix K

1996 - 2000
Cutting Back
The Advisory Board Combats Rising Water and Sewer Rate Assessments

Not all major costs of the Authority were court-ordered, many projects were done to improve the system and ensure quality water and wastewater services could be provided with no interruptions in service. An example is the MetroWest Tunnel, which provides redundant water supply transmission to MWRA customers. Construction began in June of 1996 but because it was not considered to be court mandated it was not eligible for Debt Service Assistance. By December 1996 the Advisory Board had successfully petitioned to make the project eligible, gaining vital funding to offset the cost to ratepayers.

Also, in 1996 the Advisory Board finished the drawn out battle over the costs of the Clinton Wastewater Treatment Plant by securing $4 million from the Legislature as part of a settlement agreement of the lawsuit against the Town of Clinton. While this was a great victory at the time for the Advisory Board, continued attempts by the state to push off expenses of this facility onto the MWRA have led to various battles.

While major accomplishments were reached during this period – namely, transferring South System flows from Nut Island to Deer Island – the impacts of rising costs on communities and ratepayers reached almost extreme levels and the Advisory Board was once again forced to take the role of "fiscal watchdog." In 1999, the Advisory Board recommended cutting $10.8 million from the MWRA's budget and $91.9 million from the MWRA's capital plan to combat rising rate assessments. These cuts led to conversations about how to reduce spending through personnel costs (personnel study) and capital projects (5-year CIP spending cap). *(see next period)*

1996

- **Interim Corrosion Control Facility** in Marlborough comes online to help stabilize the **alkalinity and pH** of drinking water to reduce lead at customer taps
- Construction began on **MetroWest Water Supply Tunnel** to provide redundancy to water supply transmission ($728 million budget)

1997

- Pump station and pipeline improvements allow 100-year old **Spot Pond Reservoir** to be taken offline
- Legislation approved the design/build construction of a 115 mgd **covered drinking water storage facility in Weston**

1998

- **South System flows transferred from Nut Island to Deer Island**; old Nut Island Treatment Plant closed

1999

- Construction began on new drinking water treatment plant in Marlborough (later named the **John J. Carroll Water Treatment Plant**)

2000

- 9.5 mile **outfall tunnel put into service** to transport treated wastewater to the deeper waters of Mass. Bay
- MWRA comes into compliance with the **Clean Water Act** when **secondary treatment** comes online at DITP

Appendix K

2001 - 2005
Brand New Waterworks System
Completion of Major Water Initiatives and Entry of New Water Communities

The beginning of 2001 held the finishing touches on the Deer Island Treatment Plant as the punch-list was completed. This turned significantly more attention to the waterworks system and between 2003 and 2005 three major initiatives were completed, including the MetroWest Tunnel, the Norembega Covered Storage Tanks, and the John J. Carroll Water Treatment Plant.

These significant projects, detailed below, optimized the waterworks system and helped support the expansion of the system with Stoughton, Reading, and Dedham-Westwood all joining the MWRA between 2002 and 2005. Important to note is that the Enabling Act explicitly calls for the Advisory Board to vote on any new communities who wish to join the MWRA. At this time, there was discussion about whether the MWRA should sell more water with opposition coming from certain environmental groups who were calling for more water conservation. Ultimately, the Advisory Board’s member communities decided that more water customers could be served by the MWRA without any harm to the system while also lowering the shared costs of the system by adding new members.

Finally, this period illustrates one of the most significant steps that the Advisory Board has taken to combat rising costs of debt service: the institution of **a 5-Year CIP Spending Cap**, put in place for the 2004-2008 timeframe. The cap set a strict limit on the amount of capital spending that could be undertaken by the Authority. The cap was extremely effective and was followed up by two 5-Year CIP Spending Caps since then in 2009-2013 and the measurably lower cap for 2014-2018.

Pellet plant expanded and a **long-term contract for plant operation** is put into place from March 2001 to December 2015 with **NEFCo**

MetroWest Tunnel completed through 5 communities totaling 17.6 miles through 1,025,000 cubic yards of rock

Norembega Covered Storage Tank completed the year after the MetroWest Tunnel brought water from Quabbin to Weston

MWRA Chelsea Operations Center opens, consolidating 10 field sites

First **5-Year CIP Spending Cap** put in place

Reading and Dedham-Westwood Water District join the MWRA water system

2001

2002

2003

2004

2005

Stoughton joins the MWRA water system

Capital financing makes up more than half of total MWRA expenditures

Debt Service Assistance peaks at $51.3 million

Governor cuts Debt Service Assistance of $47.2 million from budget

John J. Carroll Water Treatment Plant comes online

Appendix K

2006 to 2010
Planning Ahead
Creation of the Master Plan and a 5-Year Capital Spending Cap

The most common "fight" that the Advisory Board had to undertake prior to 2006 was with state and federal regulators over increasingly stringent regulations and mandates. But between 2006 and 2010, the Advisory Board focused mainly on how the Authority could alter its organizational structure and philosophy to save ratepayer money, while still delivering the same level of service.

First, the Advisory Board continued to recommend that the Authority develop a "Master Plan" that prioritized projects and detailed what areas of the system needed to be focused on and in what order. With this list of priorities, the Advisory Board helped develop the second 5-year capital spending cap with the Authority, which would limit the amount of capital spending that could be done from 2009 to 2013. Additionally, the Master Plan was able to identify more efficient ways to restructure the organization.

Restructuring also led to a question of how large, in terms of personnel, the Authority should be to run efficiently. In February 2010, the Advisory Board wrote a letter to the Board of Directors of the MWRA requesting that the Authority undertake a staffing study to determine the appropriate level of staffing for the organization. The staffing study then allowed the Authority to slowly restructure, while keeping their personnel costs low as skyrocketing health care costs were offset by a declining headcount.

Finally, one of the simple but significant victories from this "Planning Ahead" period was the removal of the "back-up landfill" annual standby fee of $1.25 million. After years of paying to keep a landfill in Utah on retainer, in the event the residuals plant failed, the Advisory Board successfully got the requirement reduced to the point where a few less distant back up options would suffice, savings millions of dollars.

2006

- MWRA approves $5.4 million **budget amendment**
- Landmark **CSO agreement** reached with EPA
- MWRA publishes **40-year Master Plan** that identifies 300 projects estimated at $3.2 billion over that period

2007

- First bonds incorporating **bond resolution** amendments are issued
- MWRA restructures $648 million in revenue bonds generating **$400 million in rate relief through FY17**

2008

- First **solar power** at MWRA
- **1st 5-Year CIP Spending Cap** ends; $888.5 million spent of $1.13 billion cap
- **2nd 5-Year CIP Spending Cap** set at $1.14 billion

2009

- **Wilmington** joins the MWRA water system
- **Blue Hills Covered Storage** comes online

2010

- **Shaft 5A break** points Advisory Board and MWRA toward redundancy initiatives

Appendix K

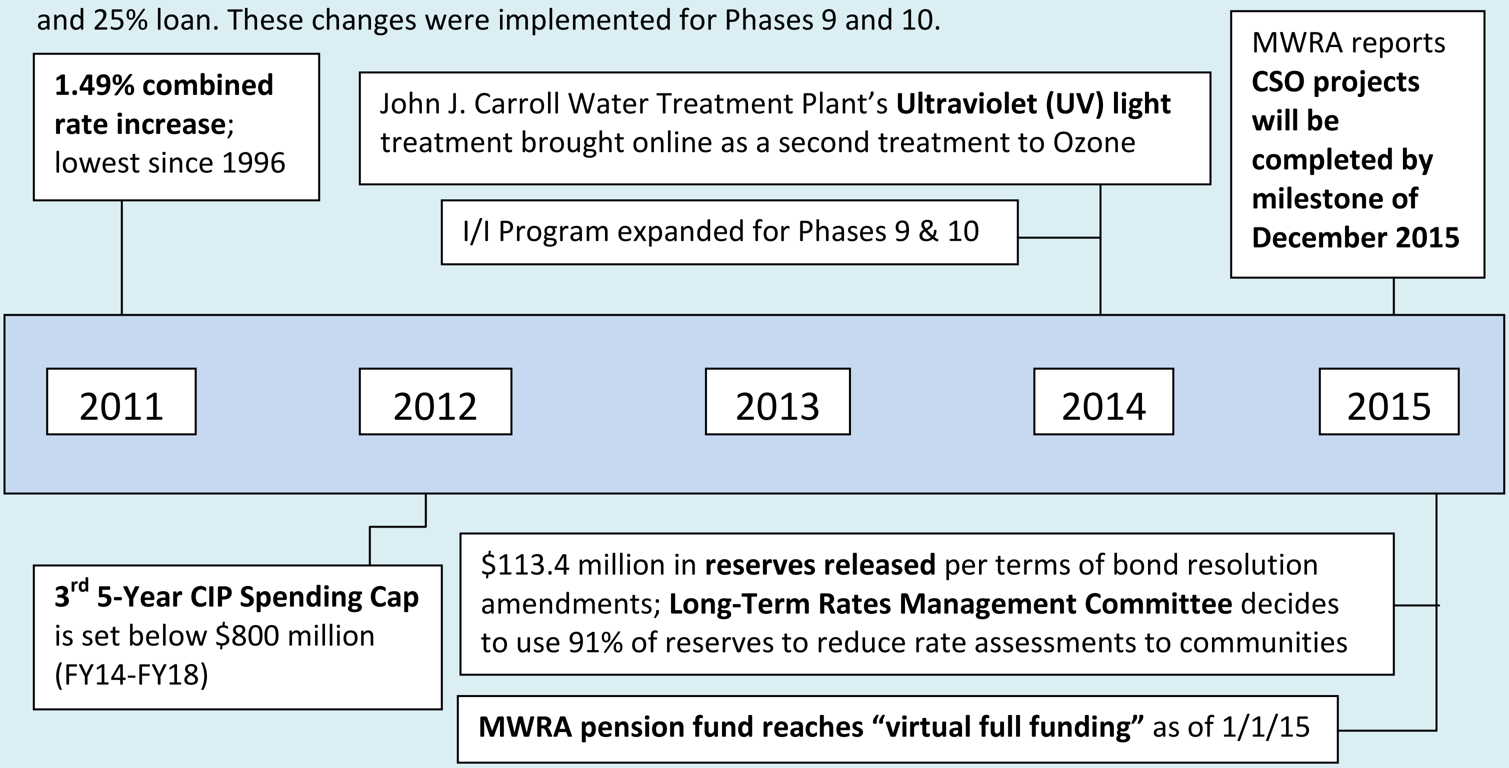
2011 to 2015
The Home Stretch

Sustainable and Predictable Rate Assessments for Communities and Ratepayers

With both water and wastewater systems having gone through substantial transformations prior to 2011, the real challenge in the "Home Stretch" was managing rate assessment increases while the costs of major projects were paid off through debt service each year. There were points when the Advisory Board and Authority have had an adversarial relationship, like in 2011 when the Advisory Board called for a 0% rate increase with an eventual compromise of 1.49% accepted. After that, the Advisory Board staff and membership reached agreement with the MWRA on an approach aimed at "sustainable and predictable" rate increases, allowing communities to better plan for each year's budget.

This approach to rate assessment increases was based on the structure of outstanding debt related to previous court-ordered projects and the schedule to pay off that debt. The Advisory Board got onboard with this approach when the MWRA agreed to certain stipulations. First, the Advisory Board pushed for any annual surplus to go toward **defeasing, or pre-paying, future debt service**, targeting the most challenging years for debt service. For example, in its 2012 budget review the Advisory Board put a "bulls-eye" on FY2017, which was considered a challenging year for debt service and a risk for a high rate assessment increase. While initially projected to have a rate increase of 8%, FY2017 now complies with the Advisory Board's mantra of **"Four No More,"** which means no more combined rate assessment increases over 4% ever again.

Finally, the Advisory Board scored three major victories on behalf of member communities. First, the Advisory Board fought hard for a landmark infrastructure bill, which was passed in 2014 and provided funding for new communities to join the system on the waterworks side by covering half of their entrance fee. Second, the Advisory Board recommended that a new payment plan be accepted for entrance fees to make it easier financially for new communities to join the system; this was adopted by the MWRA Board of Directors in 2014. The third victory was the expansion of the I/I Local Financial Assistance Program, which provides communities funding to do crucial I/I work. The Advisory Board recommended doubling the program from $40 million phases to $80 million phases and changing the split of the program from 45% grant and 55% loan to 75% grant and 25% loan. These changes were implemented for Phases 9 and 10.



Appendix K

The Future

Advisory Board and Authority Plan for Future Without Court-Mandated Projects

This document isn't meant to be a victory lap of the Advisory Board or the MWRA. Instead, it is reminder of how far the system has come, and the lens through which we view the challenges ahead. Often, Advisory Board recommendations can take years to develop before their effects are fully realized. New challenges, not foreseen at this time, will inevitably materialize. But below are the challenges we can see on the horizon right now, and how the Advisory Board plans to address them.

In January 2018, the MWRA will commence a three-year performance assessment of the **Long-Term CSO Control Plan**, including post-construction monitoring. A report will be made by December 2020, with the EPA and MassDEP then making final decisions regarding water quality standards for the Charles River and Alewife Brook. It is important that the Advisory Board continue to highlight the impacts of the CSO control plan, because while this will mark the end of work associated with these court-mandated projects, the costs of these projects will be felt by ratepayers for years to come.

With the understanding that the Authority is approaching the end of court-mandated work, the Authority now enters a stage of "debt-management" due to the costs of these projects, slowly being paid down over time. The Advisory Board, therefore, no longer has a role in scaling back capital spending as aggressively as before, instead aiming its sights on how to combat the capital financing costs created by past capital spending (Note: there are still significant capital projects on the horizon, especially related to water redundancy initiatives, but these pale in comparison to previous capital spending levels). To this end, the Advisory Board has laid down a significant challenge as peak debt service years approach: **"Four No More."** This means no more combined rate assessments increases above 4% from year to year, <u>ever</u>. One thing to keep in mind is that 4% is not a target, it is a ceiling.

But the Advisory Board is not simply setting a ceiling; there are specific ways in which the Advisory Board has continued to support the reduction of future rate increases. First, with the policy recommendation of **"defeasing" debt service**, and then with an agreement with the Authority to aim **for "sustainable and predictable"** rate assessments each year, both of which are policies that the Advisory Board expects to be carried into the future. Also, the Advisory Board continues to strive for revenue sources outside of rate assessments, evident in the Infrastructure Bill of 2014. The Advisory Board will work within the parameters of this bill to provide sources of funding for the "forgotten infrastructure."

On the policy side, the Advisory Board will continue to fight unnecessarily stringent regulations such as **MassDEP's molybdenum limit** for fertilizer (10 mg/kg for pastureland), which forces the MWRA to ship its pellets out of state, increasing the carbon emissions related to placing the product. While this topic may not excite the majority of ratepayers, it's a prime example of poorly conceived regulations that make it harder for the MWRA to operate on a daily basis and undermine the ability of the MWRA to collaborate with other interested parties, such as Western Massachusetts farmers who would benefit from cheap and effective biosolids (fertilizer).

"The Future" signifies a shift away from the rat race of catching up with changing regulations, and instead leading the nation in efficiencies of water and wastewater systems to deliver the best possible service to communities and their ratepayers. The Advisory Board will continue to work with the Authority to ensure that all decisions are made in the best interest of current member communities and encourage non-member communities to join the system (on the water side only) to be able to take advantage of the great resources that the MWRA has developed over the past 30 years.

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