



# MASSACHUSETTS WATER RESOURCES AUTHORITY

Charlestown Navy Yard  
100 First Avenue, Building 39  
Boston, MA 02129

Frederick A. Laskey  
Executive Director

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## **ADMINISTRATION, FINANCE & AUDIT COMMITTEE MEETING**

*Chair: (vacant)*  
*Vice-Chair: H. Vitale*  
*Committee Members:*  
J. Carroll  
K. Cotter  
J. Foti  
A. Pappastergion  
J. Walsh

to be held on

Wednesday, March 11, 2015

Location: 100 First Avenue, 2nd Floor  
Charlestown Navy Yard  
Boston, MA 02129

Time: 10:00 a.m.

### **AGENDA**

#### **A. Information**

1. Delegated Authority Report – January and February 2015
2. Review of MWRA's Draft Five-Year Strategic Business Plan 2016-2020
3. Second Quarter FY15 Orange Notebook
4. January/February 2015 Snow Storms Report
5. Fiscal Year 2015 Mid-Year Capital Project Spending Report
6. FY15 Financial Update and Summary as of February 2015
7. FY15 Sewer Assessment Adjustment
8. Preliminary FY16 Water and Sewer Assessments

#### **B. Approvals**

1. Transmittal of Proposed FY16 Current Expense Budget
2. Amendments to Investment Policy

#### **C. Contract Awards**

1. Adams Street Grade Crossing and Cattlepass Bridge: Contract FRR29, LM Heavy Civil Construction, LLC

MASSACHUSETTS WATER RESOURCES AUTHORITY

Meeting of the  
Administration, Finance and Audit Committee

January 14, 2015

A meeting of the Administration, Finance and Audit Committee was held on January 14, 2015 at the Authority headquarters in Charlestown. Vice-Chairman Vitale presided. Present from the Board were Ms. Wolowicz and Messrs. Cotter, Flanagan, Foti, Pappastergion and Walsh. Among those present from the Authority staff were Fred Laskey, Steve Remsberg, Michele Gillen, Russ Murray, Mike Hornbrook, Kathy Soni, Andrew Hildick-Smith, Tom Durkin, and Bonnie Hale. The meeting was called to order at 10:25 a.m.

**Information**

Delegated Authority Report – December 2014

Staff gave an overview of the report, and there was question and answer on some of the items.

FY15 Financial Update and Summary as of December 2014

Staff summarized the information in the update, and there was general discussion and question and answer.

Other Post-Employment Benefits (OPEB)

Staff explained why they are proposing to develop a comprehensive plan to include the establishment of an irrevocable trust to address the OPEB liability as part of the FY2016 budget process, and there was general discussion.

The meeting adjourned at 11:00 a.m.



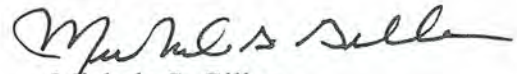
STAFF SUMMARY

**TO:** Board of Directors  
**FROM:** Frederick A. Laskey, Executive Director  
**DATE:** March 11, 2015  
**SUBJECT:** Delegated Authority Report – January and February 2015



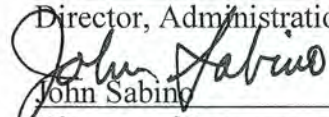
COMMITTEE: Administration, Finance & Audit

INFORMATION  
 VOTE



Michele S. Gillen  
Director, Administration

Barbie Aylward, Administrator A & F  
Joanne Gover, Admin. Systems Coordinator  
Preparer/Title



John Sabino  
Director of Procurement

**RECOMMENDATION:**

For information only. Attached is a listing of actions taken by the Executive Director under delegated authority for the period January 1 through February 28, 2015.

This report is broken down into three sections:

- Awards of Construction, non-professional and professional services contracts and change orders and amendments in excess of \$25,000, including credit change orders and amendments in excess of \$25,000;
- Awards of purchase orders in excess of \$25,000; and
- Amendments to the Position Control Register, if applicable.

**BACKGROUND:**

The Board of Directors' Management Policies and Procedures, as amended by the Board's vote on October 14, 2009, delegate authority to the Executive Director to approve the following:

Construction Contract Awards:

Up to \$1 million if the award is to the lowest bidder; or up to \$500,000 if the award is to other than the lowest bidder.

Change Orders:

Up to 25% of the original contract amount or \$250,000, whichever is less, where the change increases the contract amount, and for a term not exceeding an aggregate of six months; and for any amount and for any term, where the change decreases the contract amount. The delegations for cost increases and time can be restored by Board vote.

Professional Service Contract Awards:

Up to \$100,000 and one year with a firm; or up to \$50,000 and one year with an individual.

Non-Professional Service Contract Awards:

Up to \$250,000 if a competitive procurement process has been conducted, or up to \$100,000 if a procurement process other than a competitive process has been conducted.

Purchase or Lease of Equipment, Materials or Supplies:

Up to \$1 million if the award is to the lowest bidder; or up to \$500,000 if the award is to other than the lowest bidder.

Amendments:

Up to 25% of the original contract amount or \$250,000, whichever is less, and for a term not exceeding an aggregate of six months.

Amendments to the Position Control Register:

Amendments which result only in a change in cost center.

**BUDGET/FISCAL IMPACT:**

Recommendations for delegated authority approval include information on the budget/fiscal impact related to the action. For items funded through the capital budget, dollars are measured against the approved capital budget. If the dollars are in excess of the amount authorized in the budget, the amount will be covered within the five-year CIP spending cap. For items funded through the Current Expense Budget, variances are reported monthly and year-end projections are prepared at least twice per year. Staff review all variances and projections so that appropriate measures may be taken to ensure that overall spending is within the MWRA budget.

CONSTRUCTION/PROFESSIONAL SERVICES DELEGATED AUTHORITY ITEMS JANUARY 1 - 31, 2015

NO.	DATE OF AWARD	TITLE AND EXPLANATION	CONTRACT	AMEND/CO	COMPANY	FINANCIAL IMPAC
C-1.	01/05/15	<b>CRANE MAINTENANCE SERVICE</b> AWARD OF CONTRACT TO LOWEST RESPONSIVE BIDDER FOR PERIODIC AND FREQUENT INSPECTION SERVICES, LOAD TESTING AND NON-EMERGENCY AND EMERGENCY MAINTENANCE SERVICES FOR 161 OVERHEAD AND GANTRY CRANES FOR A TERM OF 730 CALENDAR DAYS.	OP-257	AWARD	SAFEWAY OVERHEAD CRANE SERVICE, INC.	\$188,128.00
C-2.	01/09/15	<b>HVAC SYSTEMS MAINTENANCE JOHN J. CARROLL WATER TREATMENT PLANT</b> REMOVE AND REPLACE THE HUMIDITY ABSORBING DESICCANT WHEEL ON DEHUMIDIFIER 5A IN THE OZONE GENERATING ROOM AT THE JOHN J. CARROLL WATER TREATMENT PLANT.	OP-244	1	ENE SYSTEMS, INC.	\$27,200.00
C-3.	01/09/15	<b>NUT ISLAND HEADWORKS ELECTRICAL AND CONVEYORS IMPROVEMENTS</b> PERFORM ADDITIONAL STRUCTURAL MODIFICATIONS TO EXISTING ROOF SLAB; REPAIR A LEAK IN ONE OF THE EXISTING SODIUM HYPOCHLORITE TANKS IN THE ODOR CONTROL ROOM; FURNISH AND INSTALL ALUMINUM SPACERS ON THE GRIT AND SCREENINGS CONVEYOR BELTS BETWEEN THE FRAME AND THE NEW CONVEYOR BELT COVERS; FURNISH AND INSTALL ADDITIONAL CONDUIT, WIRE AND PULL BOXES FOR THE LIGHTING IN STAIRWELLS 2, 4, 6 AND 7; REPLACE 45 STRUTS INSTEAD OF 14 ALUMINUM CONVEYOR STRUTS; FURNISH AND INSTALL SAFETY WARNING SYSTEM FOR SCREENING CONVEYOR 3.	7313	4	J.F. WHITE CONTRACTING CO.	\$180,163.66
C-4.	01/28/15	<b>MONITORING AND MAINTENANCE OF INTRUSION ALARM SYSTEMS</b> AWARD OF CONTRACT TO LOWEST RESPONSIVE BIDDER FOR SUPERVISED MONITORING OF INTRUSION ALARM SYSTEMS, NON-EMERGENCY AND EMERGENCY REPAIR SERVICES AND REPLACEMENT PARTS FOR EQUIPMENT LOCATED AT VARIOUS MWRA FACILITIES FOR A TERM OF 730 CALENDAR DAYS.	EXE-035	AWARD	INTELLIGENT SYSTEMS & CONTROL CONTRACTORS, INC. d/b/a FTG SECURITY	\$47,840.00



## PURCHASING DELEGATED AUTHORITY ITEMS - January 1 - 31, 2015

NO.	TITLE AND EXPLANATION	CONTRACT #	AMENDMENT	COMPANY	FINANCIAL IMPACT
P-1.	1/2/15 <b>ONE VERTICAL, SOLID WASTE PUMP</b> AWARD OF A PURCHASE ORDER TO THE LOWEST RESPONSIVE BIDDER FOR ONE 10-INCH VERTICAL, SOLID WASTE PUMP FOR THE HINGHAM PUMP STATION. THE HINGHAM PUMP STATION HAS THREE 4.85-MILLION-GALLONS-PER-DAY CENTRIFUGAL PUMPS, EACH DRIVEN BY 75-HORSEPOWER MOTORS. THE STATION HAS A TOTAL PUMPING CAPACITY OF 6.62 MILLION GALLONS PER DAY OF WASTEWATER. DURING NORMAL-FLOW CONDITIONS, ONLY ONE PUMP IS NEEDED, BUT DURING HIGH-FLOW CONDITIONS, THE STATION IS REQUIRED TO HAVE TWO PUMPS AVAILABLE. THE STATION WAS REHABILITATED IN 1990 AND THE PUMPS HAVE NOT BEEN COMPLETELY OVERHAULED DURING SUBSEQUENT 24-YEAR TIME SPAN. THEREFORE, STAFF RECOMMEND THAT MWRA PURCHASE A COMPLETE PUMP ASSEMBLY TO HAVE AS A SPARE IN THE EVENT OF A PUMP FAILURE. WITH THE CURRENT AGE OF THE EXISTING PUMPS, STAFF ARE OF THE OPINION THAT HAVING A SPARE PUMP ON HAND FOR IMMEDIATE REPLACEMENT WILL SIGNIFICANTLY REDUCE THE DOWNTIME NEEDED FOR EITHER PERMANENT REPLACEMENT OR REPAIR.	WRA-3959Q		DIVERSIFIED PUMP AND COMPRESSOR	\$28,992.00
P-2.	1/2/15 <b>ONE CAGE DRIVE UNIT</b> AWARD OF A PURCHASE ORDER TO THE LOWEST RESPONSIVE BIDDER FOR ONE CAGE DRIVE UNIT FOR THE DEER ISLAND TREATMENT PLANT. THERE ARE SIX GRAVITY THICKENERS ON DEER ISLAND TO CONCENTRATE THE PRIMARY SLUDGE. TANKS 1 AND 2 ARE DESIGNATED AS SCUM CONCENTRATORS/GRAVITY THICKENERS. EACH GRAVITY THICKENER HAS A CENTER COLUMN FEED SLUDGE PIPE AND A SLUDGE COLLECTOR EQUIPPED WITH A RAKE ARM, THICKENING PICKETS AND FULL SURFACE SKIMMING EQUIPMENT. AT THE TOP OF EACH TANK IS A "CAGE DRIVE" UNIT, WHICH IS BASICALLY A LARGE GEAR DRIVE THAT TURNS THE RAKE ARMS INSIDE THE TANK. THE CAGE DRIVE UNIT IN GRAVITY THICKENER1 WAS REPLACED IN 2011, USING A SPARE UNIT FROM INVENTORY. A REPLACEMENT CAGE DRIVE THEN WAS PURCHASED TO REPLENISH STOCK. HOWEVER, SOON AFTER THE REPLACEMENT DRIVE UNIT WAS RECEIVED, IT WAS INSTALLED IN GRAVITY THICKENER 5, WHICH HAD EXPERIENCED A FAILED BULL GEAR SHAFT IN ITS CAGE DRIVE. BID WRA-3942 IS FOR THE PURCHASE OF ANOTHER SPARE REPLACEMENT CAGE DRIVE UNIT.	WRA-3942		WES TECH ENGINEERING, INC.	\$66,714.00
P-3.	1/2/15 <b>FOUR 18-INCH DEWATERING SLUICE GATES</b> AWARD OF A PURCHASE ORDER TO THE LOWEST RESPONSIVE BIDDER FOR FOUR 18-INCH DEWATERING SLUICE GATES FOR THE DEER ISLAND TREATMENT PLANT. THERE ARE 48 PRIMARY CLARIFIERS ON DEER ISLAND THAT REMOVE FLOATABLE SCUM AND SETTABLE SOLIDS, OR SLUDGE. EACH CLARIFIER HAS A SET OF EIGHT 14-INCH-DIAMETER INFLUENT SLUICE GATES THAT ISOLATE THE FLOW OF RAW WASTEWATER FROM THE PRIMARY INFLUENT CHANNEL INTO EACH CLARIFIER AND ONE 18-INCH DEWATERING SLUICE GATE USED TO DEWATER THE CLARIFIER THROUGH THE DEWATERING SYSTEM TO THE WINTHROP TERMINAL FACILITY. OVER TIME, THESE SOLIDS AND THE CORROSIVENESS OF WASTEWATER AFFECT THE ABILITY OF THE GATES TO PROVIDE LEAK-FREE ISOLATION OF THE CLARIFIER OR A TIGHT SEAL ON THE DEWATERING GATES. THE ORIGINAL SLUICE GATES WERE MANUFACTURED BY RODNEY HUNT COMPANY AND INSTALLED UNDER THE BOSTON HARBOR PROJECT APPROXIMATELY 20 YEARS AGO AND HAVE EXCEEDED THEIR USEFUL SERVICE LIFE. STAFF ANTICIPATE THAT MORE GATES WILL CONTINUE TO FAIL. THIS PURCHASE IS FOR FOUR SPARE 18-INCH DEWATERING SLUICE GATE ASSEMBLIES TO ENABLE STAFF TO REPLACE FAILED GATES ON AN AS-NEEDED BASIS UNTIL ALL OF THE SLUICE GATE ARE REPLACED UNDER AN UPCOMING CLARIFIER REHABILITATION, PHASE 2 PROJECT.	WRA-3947		WILLIAMSON NEW ENGLAND	\$120,628.00
P-4.	1/9/15 <b>WINDOWS VIRTUAL DESKTOP ACCESS SUBSCRIPTION LICENSES AND REMOTE DESKTOP SERVICES LICENSES AND SUPPORT</b> AWARD OF A PURCHASE ORDER TO THE LOWEST RESPONSIVE BIDDER FOR WINDOWS VIRTUAL DESKTOP ACCESS SUBSCRIPTION LICENSES AND REMOTE DESKTOP SERVICES LICENSES AND SUPPORT. THE MIS FIVE-YEAR STRATEGIC PLAN, UNDER THE IT INFRASTRUCTURE PROGRAM CONTAINS FUNDS TO IMPLEMENT THE MOBILE DEVICE MANAGEMENT & APPLICATION DELIVERY ENVIRONMENT. ON APRIL 16, 2014, THE MWRA BOARD OF DIRECTORS APPROVED A PROFESSIONAL SERVICES CONTRACT FOR CITRIX APPLICATION VIRTUALIZATION AND MOBILE DEVICE MANAGEMENT DESIGN & IMPLEMENTATION EFFORT. THE INFRASTRUCTURE WILL BE CENTRALLY HOSTED IN THE MWRA DATA CENTER AND WILL CONSIST OF THE CITRIX NETSCALER PLATFORM AND MULTIPLE CITRIX XENDESKTOP SERVERS, RUNNING IN A VIRTUALIZED ENVIRONMENT. THE ENVIRONMENT WILL BE DESIGNED TO SUPPORT SUFFICIENT XENDESKTOP CLIENT ACCESS LICENSES AND NECESSARY CONCURRENT SESSIONS. THE DESIGN AND CONFIGURATION OF THE CITRIX ENVIRONMENT WILL BE ABLE TO SUPPORT ADDITIONAL ACCESS REQUIREMENTS AND FUTURE GROWTH. AS PART OF THE FINAL DESIGN VALIDATED BY CITRIX, THE SELECTED VENDOR, INTRASYSTEMS, INC., PROVIDED THE INITIAL ROUND OF EQUIPMENT AND SOFTWARE REQUIRED FOR THE IMPLEMENTATION. THIS REQUEST PROVIDES THE NECESSARY VIRTUAL DESKTOP ACCESS (VDA) SUBSCRIPTION LICENSES AND WINDOWS REMOTE DESKTOP SERVICES LICENSES.	WRA-3946Q ITS42		SHI INTERNATIONAL CORPORATION	\$41,990.00
P-5.	1/9/15 <b>SIX MICROSOFT SQL SERVER 2014 ENTERPRISE LICENSES</b> AWARD OF A PURCHASE ORDER TO THE LOWEST RESPONSIVE BIDDER FOR SIX MICROSOFT SQL SERVER 2104 ENTERPRISE LICENSES. THE MIS FIVE-YEAR STRATEGIC PLAN, UNDER THE IT INFRASTRUCTURE PROGRAM CONTAINS FUNDS TO IMPLEMENT THE MOBILE DEVICE MANAGEMENT & APPLICATION DELIVERY ENVIRONMENT. ON APRIL 16, 2014, THE MWRA BOARD OF DIRECTORS APPROVED A PROFESSIONAL SERVICES CONTRACT FOR CITRIX APPLICATION VIRTUALIZATION AND MOBILE DEVICE MANAGEMENT DESIGN & IMPLEMENTATION EFFORT. THE INFRASTRUCTURE WILL BE CENTRALLY HOSTED IN THE MWRA DATA CENTER AND WILL CONSIST OF THE CITRIX NETSCALER PLATFORM AND MULTIPLE CITRIX XENDESKTOP SERVERS, RUNNING IN A VIRTUALIZED ENVIRONMENT. THE ENVIRONMENT WILL BE DESIGNED TO SUPPORT SUFFICIENT XENDESKTOP CLIENT ACCESS LICENSES AND NECESSARY CONCURRENT SESSIONS. AS PART OF THE FINAL DESIGN VALIDATED BY CITRIX, THE SELECTED VENDOR, INTRASYSTEMS, INC., PROVIDED THE INITIAL ROUND OF EQUIPMENT AND SOFTWARE REQUIRED FOR THE IMPLEMENTATION. THIS REQUEST PROVIDES THE NECESSARY LICENSING FOR THE REQUIRED DATABASE MANAGEMENT SYSTEM TO SUPPORT THE DESIGN. A DATABASE MANAGEMENT SYSTEM (DBMS) IS A COMPUTER SOFTWARE APPLICATION THAT INTERACTS WITH THE USER, OTHER APPLICATIONS, AND THE DATABASE ITSELF TO CAPTURE AND ANALYZE DATA.	WRA-3924 ITS42		DELL MARKETING, LLP	\$86,997.30

NO.	TITLE AND EXPLANATION	CONTRACT #	AMENDMENT	COMPANY	FINANCIAL IMPACT	
P-6.	1/9/15	CITRIX NETSCALER APPLIANCE AND SUPPORT	WRA-3939Q		INTRA SYSTEMS, INC.	\$315,462.00
		AWARD OF A PURCHASE ORDER TO THE LOWEST RESPONSIVE BIDDER FOR A CITRIX NETSCALER APPLIANCE AND SUPPORT. THE MIS FIVE-YEAR STRATEGIC PLAN, UNDER THE IT INFRASTRUCTURE PROGRAM CONTAINS FUNDS TO IMPLEMENT THE MOBILE DEVICE MANAGEMENT & APPLICATION DELIVERY ENVIRONMENT. ON APRIL 16, 2014, THE MWRA BOARD OF DIRECTORS APPROVED A PROFESSIONAL SERVICES CONTRACT FOR CITRIX APPLICATION VIRTUALIZATION AND MOBILE DEVICE MANAGEMENT DESIGN & IMPLEMENTATION EFFORT. THE INFRASTRUCTURE WILL BE CENTRALLY HOSTED IN THE MWRA DATA CENTER AND WILL CONSIST OF THE CITRIX NETSCALER PLATFORM AND MULTIPLE CITRIX XENDESKTOP SERVERS, RUNNING IN A VIRTUALIZED ENVIRONMENT. THE ENVIRONMENT WILL BE DESIGNED TO SUPPORT SUFFICIENT XENDESKTOP CLIENT ACCESS LICENSES AND NECESSARY CONCURRENT SESSIONS. THE DESIGN AND CONFIGURATION OF THE CITRIX ENVIRONMENT WILL BE ABLE TO SUPPORT ADDITIONAL ACCESS REQUIREMENTS AND FUTURE GROWTH. AS PART OF THE FINAL DESIGN VALIDATED BY CITRIX, THE SELECTED VENDOR, INTRASYSTEMS, INC., PROVIDED THE INITIAL ROUND OF EQUIPMENT REQUIRED FOR THE IMPLEMENTATION. THIS REQUEST IS FOR NEW PRODUCTION ENVIRONMENT AND UPGRADED DISASTER RECOVERY NETSCALER HARDWARE AND SOFTWARE.	ITC47			

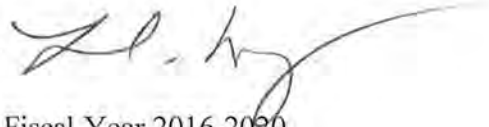
CONSTRUCTION/PROFESSIONAL SERVICES DELEGATED AUTHORITY ITEMS FEBRUARY 1 - 28, 2015

NO.	DATE OF AWARD	TITLE AND EXPLANATION	CONTRACT	AMEND/CO	COMPANY	FINANCIAL IMPAC
C-1.	02/04/15	<b>NPDES COMPLIANCE PROGRAM EFFLUENT TOXICITY TESTING</b> AWARD OF CONTRACT TO LOWEST RESPONSIVE BIDDER TO PERFORM TOXICITY TESTING AND AS-NEEDED TECHNICAL SUPPORT FOR THE NPDES COMPLIANCE PROGRAM FOR A TERM OF 1,096 CALENDAR DAYS.	5534	AWARD	ENVIROSYSTEMS, INC.	\$90,275.00
C-2.	02/11/15	<b>CLINTON WASTEWATER TREATMENT PLANT PHOSPHORUS REDUCTION FINAL DESIGN, CA/RE SERVICES</b> INCREASE LEVEL OF EFFORT NEEDED FOR INVESTIGATION AND DESIGN SERVICES TO EXTEND GAS SERVICE LINES TO EACH BUILDING WITHIN THE FACILITY AND MONITORING OF THE EXISTING BURNERS AND ASSOCIATED EQUIPMENT FOR CONNECTION TO THE NEW GAS SERVICES LINES; ADDITIONAL DESIGN SERVICES NEEDED FOR REPLACEMENT OF EXISTING CHLORINE ANALYZER.	7377	1	FAY, SPOFFORD & THORNDIKE	\$68,394.35
C-3.	02/23/15	<b>SECURITY IMPROVEMENTS AT VARIOUS FACILITIES</b> FURNISH AND INSTALL AN ADDITIONAL 80 LINEAR FEET OF NEW CONDUIT ALONG A DIFFERENT ROUTE TO WEST SIDE OF THE NUT ISLAND HEADWORKS BUILDING; FURNISH AND INSTALL CONDUIT INCLUDING ALL HARDWARE AND WALL AND FLOOR PENETRATIONS AT NUT NUT ISLAND, PERFORM GROUND PENETRATING RADAR; REMOVE VERIZON CLOUD ELECTRICAL CABINET AND FURNISH AND INSTALL A NEMA-1 CABINET AT NUT ISLAND HEADWORKS AND NEWTON STREET PUMP STATION.	6760W	3	EWING ELECTRIC CO., INC.	\$34,795.01



NO.	TITLE AND EXPLANATION	CONTRACT #	AMENDMENT	COMPANY	FINANCIAL IMPACT
P-1.	2/4/15 <b>ELECTRICAL HARDWARE AND SUPPLIES</b> AWARD OF A PURCHASE ORDER TO THE LOWEST RESPONSIVE BIDDER FOR ELECTRICAL HARDWARE AND SUPPLIES FOR THE PRIMARY SCUM COLLECTION SYSTEM AT THE DEER ISLAND TREATMENT PLANT. THIS PURCHASE IS FOR MATERIAL NECESSARY TO COMPLETE WORK THAT INCLUDES 500 FEET OF THREE-INCH PVC-COATED CONDUIT, 900 FEET OF COPPER CONDUCTORS, STAINLESS STEEL JUNCTION BOXES, AND THE REQUIRED STAINLESS STEEL HARDWARE.	WRA-3958Q		U.S. ELECTRICAL SERVICES, INC.	\$29,153.95
P-2.	2/4/15 <b>10 REPLACEMENT TELOG R-CU-02 WATER METER PANELS</b> AWARD OF A SOLE SOURCE PURCHASE ORDER FOR TEN REPLACEMENT TELOG R-CU-02 WATER METER PANELS. MWRA'S WATER METER SYSTEM HAS APPROXIMATELY 200 METERS IN USE WHICH PROVIDE INFORMATION ABOUT FLOW, PRESSURE, AND LEVEL MEASUREMENTS AT REMOTE LOCATIONS. EACH METER IS TIED INTO A PANEL THAT ESSENTIALLY IS THE CONTROL CENTER FOR THE METER THAT CAPTURES THE DATA AND TRANSMITS IT BACK TO THE MAIN TELOG ENTERPRISE SYSTEM IN CHELSEA. THE PANELS HAVE BEEN IN OPERATION FOR APPROXIMATELY 15 YEARS; THE NORMAL EXPECTED USEFUL LIFE OF THESE PANELS IS 10 TO 15 YEARS, AFTER WHICH EITHER DETERIORATION OR TECHNOLOGY CHANGES RENDERS IT OBSOLETE. IF A PANEL FAILS, LOSS OF VALUABLE DATA OCCURS. MWRA CURRENTLY HAS TWO REMAINING NEW R-CU-02 METER PANELS IN STOCK FROM THE PREVIOUS PURCHASE AND STAFF RECOMMEND THE PURCHASE OF 10 MORE PANELS TO ENSURE ADEQUATE INVENTORY TO BE ABLE TO CONTINUE TO IMMEDIATELY REPLACE ANY PANEL THAT FAILS.			TELOG INSTRUMENTS, INC.	\$44,520.00
P-3.	2/4/15 <b>FOUR PICK-UP TRUCKS AND ONE EXPRESS VAN</b> AWARD OF A PURCHASE ORDER TO THE LOWEST RESPONSIVE BIDDER FOR FOUR PICK-UP TRUCKS AND ONE EXPRESS VAN. IN OCTOBER 2014, MWRA COMPETITIVELY BID THE PROCUREMENT OF 29 VEHICLES IN A REVERSE AUCTION FORMAT AND SEPARATE PURCHASE ORDERS SUBSEQUENTLY WERE AWARDED IN A TOTAL AMOUNT OF \$1,317,499. THE FY15 CEB VEHICLE REPLACEMENT BUDGET INCLUDED FIVE ADDITIONAL VEHICLES THAT WERE NOT INCLUDED IN THE REVERSE AUCTION. STAFF HAVE SINCE REVIEWED PROGRAM NEEDS AND HAVE REVISED THE VEHICLE SPECIFICATIONS. WRA-768 IS A 2002 CHEVROLET ASTRO VAN, IT WAS REMOVED FROM SERVICE DUE TO MECHANICAL FAILURE. WRA-768 WILL BE REPLACED WITH A NEW CHEVROLET CITY EXPRESS CARGO VAN WITH INSTALLED STORAGE SHELVES. WRA-222 AND WRA-223 ARE 2001 GMC SAFARI VANS AND WRA-775 AND WRA-776 ARE 2004 CHEVROLET ASTRO VANS. ALL FOUR OF THESE VEHICLES WILL BE REPLACED WITH CHEVROLET K1500 CREW CAB PICKUPS OUTFITTED WITH STORAGE BOXES. ALL OF THE VEHICLES ARE BEING REPLACED IN ACCORDANCE WITH CURRENT REPLACEMENT PRACTICE, AND THE RECOMMENDATION OF MWRA'S VEHICLE COMMITTEE. ALL VEHICLES MEET OR EXCEED THE CURRENT REPLACEMENT CRITERIA FOR AGE, AND/OR MILEAGE, AND/OR CONDITION.	WRA-3960		LIBERTY CHEVROLET	\$154,976.00
P-4.	2/11/15 <b>ONE BUCKET MACHINE SYSTEM</b> AWARD OF A PURCHASE ORDER TO THE LOWEST RESPONSIVE BIDDER FOR ONE BUCKET MACHINE SYSTEM. THE WASTEWATER PIPELINE MAINTENANCE UNIT MAINTAINS THREE POWER BUCKET MACHINE SYSTEMS TO CLEAN SEWER PIPELINE SEGMENTS AND INVERTED SIPHONS. TWO OF THE BUCKET MACHINES WERE PURCHASED IN 1994, AND THE THIRD IN 2005. DUE TO THE AGE OF THE TWO OLDER UNITS, AND THE WEAR AND TEAR THAT THIS EQUIPMENT IS SUBJECTED TO ON A DAILY BASIS, STAFF RECOMMENDED THAT THEY BE REPLACED. BOTH MACHINES HAVE REACHED THE POINT WHERE CONTINUED MAINTENANCE IS NO LONGER COST EFFECTIVE. UNDER THIS BID, STAFF RECOMMENDED REPLACING WRA-469 (PULLER UNIT) AND WRA-470 (LOADER UNIT). STAFF PLAN ALSO TO REPLACE THE SECOND OLDER SET IN FY16. UPON RECEIPT OF THE NEW UNITS, WRA-469 AND WRA-470 WILL BE CONSIDERED SURPLUS AND DISPOSED OF IN ACCORDANCE WITH MWRA'S SURPLUS PROPERTY POLICY VIA A PUBLICLY ADVERTISED BID OR AUCTION.	WRA-3962		J.F. MCDERMOTT CORPORATION	\$179,377.00
P-5.	2/18/15 <b>UPGRADE THE ALLEN BRADLEY VARIABLE FREQUENCY DRIVE</b> AWARD OF A SOLE SOURCE PURCHASE ORDER TO UPGRADE AN ALLEN BRADLEY VARIABLE FREQUENCY DRIVE AT THE HYDE PARK WATER PUMP STATION. THE HYDE PARK PUMP STATION SERVES THE SOUTHERN EXTRA HIGH SERVICE AREA, WHICH INCLUDES THE CITY OF BOSTON, CANTON, MILTON, STOUGHTON, AND NORWOOD. THE FACILITY HAS THREE AURORA HORIZONTAL SPLIT-CASE PUMPS RATED AT 6,300 GPM WITH 300-HP MOTORS WITH ALLEN BRADLEY VARIABLE FREQUENCY DRIVES (VFDS) THAT ARE CONTROLLED BY SCADA. THE VFD FOR PUMP 2, WHICH WAS INSTALLED IN 2009, RECENTLY FAULTED. STAFF COULD NOT PINPOINT THE LOCATION OF THE FAILURE AND CONTACTED ALLEN BRADLEY'S AUTHORIZED SERVICE DEALER, NORTHEAST ELECTRICAL DISTRIBUTORS, INC. NORTHEAST INVESTIGATED AND DETERMINED THAT THE INVERTER SECTION OF THE VFD, ESSENTIALLY THE "GUTS" OF THE VFD, FAILED. NORTHEAST ELECTRICAL HAS DETERMINED THAT THE FAILED INVERTER IS OBSOLETE AND PARTS ARE DIFFICULT TO OBTAIN. SINCE THE REMAINING COMPONENTS OF THE VFD, THE EXISTING CABINET AND CONTROLS ARE STILL USABLE AND OPERATIONAL, STAFF RECOMMENDED THAT THE OBSOLETE INVERTER BE REPLACED WITH AN UPGRADED ALLEN BRADLEY POWER FLEX 700 INVERTER. MWRA WILL RECEIVE A 12-MONTH WARRANTY THAT WILL COMMENCE ONCE THE VFD IS FULLY TESTED AND OPERATIONAL.			NORTHEAST ELECTRICAL DISTRIBUTORS, INC.	\$30,993.00
P-6.	2/18/15 <b>SUPPLY AND DELIVERY OF 3/4-INCH CRUSHED STONE</b> AWARD OF A TWO-YEAR PURCHASE ORDER TO THE LOWEST RESPONSIVE BIDDER FOR THE SUPPLY AND DELIVERY OF 3/4 -INCH STONE TO MWRA'S CHELSEA FACILITY. EACH YEAR, MWRA'S WATER PIPELINE UNIT REPLACES AN AVERAGE OF 20 MAIN LINE VALVES AND 10 BLOW-OFF VALVES THROUGHOUT THE WATER DISTRIBUTION SYSTEM. THIS WORK REQUIRES EXCAVATION AND SUBSEQUENT BACKFILL WITH, FIRST, 3/4-INCH CRUSHED STONE TO THE SPRING LINE (CENTER LINE) OF THE PIPE, AND THEN TO THE SURFACE (ALLOWING APPROPRIATE SPACE FOR ASPHALT PAVING) WITH STATE MIX. THE CRUSHED STONE MATERIAL IS DELIVERED TO MWRA'S CHELSEA FACILITY ON AN AS-NEEDED BASIS. PIPELINE CREWS THEN LOAD MWRA TRUCKS AND DELIVER THE MATERIAL TO THE VARIOUS WORK SITES AS REQUIRED. STAFF ESTIMATE THE MWRA WILL REQUIRE APPROXIMATELY 2,000 TONS OF CRUSHED STONE PER YEAR OR 4,000 TONS DURING THE ENTIRE TWO-YEAR TERM OF THE CONTRACT. THIS ESTIMATE, WHICH WAS USED FOR COMPARISON OF BIDS, WAS DEVELOPED BASED UPON HISTORICAL AVERAGE YEARLY USAGE. HOWEVER, THIS IS NOT A FIRM COMMITMENT OF PURCHASE AND MWRA WILL PAY ONLY FOR PRODUCT THAT IS DELIVERED AND RECEIVED.	WRA-3955		J & J LANDSCAPE SUPPLY CO., LLC	\$44,400.00


**STAFF SUMMARY**

**TO:** Board of Directors  
**FROM:** Frederick A. Laskey, Executive Director   
**DATE:** March 11, 2015  
**SUBJECT:** Draft Five-Year Strategic Business Plan, Fiscal Year 2016-2020

COMMITTEE: Administration, Finance & Audit

X INFORMATION  
     VOTE

Carolyn M. Fiore, Deputy Chief Operating Officer  
Lise Marx, Sr. Program Manager  
Denise Breiteneicher, Project Manager, Technical Services  
Preparer/Title

  
Michael J. Hornbrook  
Chief Operating Officer

*The development of MWRA's Business Plan dates back to the 1990s, with updates in 2003 and 2008, and periodic internal progress reporting on objectives and milestones. The most recent Business Plan for FY09-FY13 was presented to the Board in May 2008 with 28 separate business strategies, relating primarily to routine and core business activities. Greater than 90% of the activities identified were accomplished by the end of the plan period. The production of a five-year business plan is consistent with the Attributes of Effectively Managed Water Sector Utilities, guidelines developed by a collaboration of water sector organizations in 2007. A copy of the Draft Five-Year Strategic Business Plan, Fiscal Year 2016-2020 is attached.*

**RECOMMENDATION:**

For information only.

**DISCUSSION:**

Staff are presenting the Draft Five-Year Strategic Business Plan, Fiscal Year 2016-2020 for the Board's consideration. MWRA's Strategic Business Plan is a blueprint developed by staff that articulates the mission statement, values, and goals of the agency, as well as specific initiatives associated with these goals to be achieved or evaluated over the next five years. The document serves as a vehicle to communicate these goals and initiatives to all stakeholders. The Plan complements, rather than supplants, other MWRA planning tools including the Water and Wastewater Master Plans, the Capital Improvement Program (CIP), and the annual Current Expense Budget (CEB), among others.

The Plan was developed as a tool to guide staff in prioritizing projects and programs within the broader framework of MWRA's goals and mandates, and to evaluate system-wide performance.



It articulates MWRA's organizational values and identifies five strategic priorities integral to MWRA's mission.

The MWRA values included in the Plan are:

- I. Public Accountability & Transparency
- II. Cost-Effective Services
- III. Collaboration with Internal and External Partners
- IV. System Resilience
- V. Environmental Stewardship
- VI. Employee Safety and Training

The Five Strategic Priorities are:

- I. Drinking Water Quality and System Performance
- II. Wastewater Management and System Performance
- III. Infrastructure Management and Resilience
- IV. Finance and Management
- V. Environmental Sustainability

Under each priority, MWRA has identified a series of goals to achieve these priorities, as well as core and special initiatives that describe the specific projects and direction MWRA intends to undertake over the next five years to continue to manage to excellence. Core Initiatives address the activities that MWRA must complete to meet its performance goals, regulatory requirements, and financial commitments. Links to associated documents, which report on actual performance, such as the Orange (quarterly) and Yellow (monthly) Notebooks, will be available in the Business Plan.

The Special Initiatives address activities, projects, and emerging issues that staff will be assessing or undertaking in order to improve MWRA's performance of its core responsibilities. Annually, staff will evaluate progress on the initiatives and identify new issues as they arise. Existing reporting mechanisms, such as the Orange and Yellow Notebooks, will continue to be used to manage and track performance.

Staff look forward to the Board's feedback on the Business Plan. Staff intend to finalize the FY16-20 Strategic Business Plan by June 30, 2015.

**BUDGET/FISCAL IMPACT:**

The budgetary impacts of the initiatives in the Business Plan are accounted for in the CEB and CIP.

**ATTACHMENT:**

Draft Five-Year Strategic Business Plan, Fiscal Year 2016-2020





**Massachusetts Water Resources Authority**  
Five-Year Strategic Business Plan  
FY 2016–2020





**Board of Directors**

Matthew A. Beaton, Chairman

John J. Carroll, Vice-Chair

Joseph C. Foti, Secretary

Joel A. Barrera

Austin F. Blackmon

Kevin L. Cotter

Paul E. Flanagan

Andrew M. Pappastergion

Henry F. Vitale

John J. Walsh

Jennifer L. Wolowicz

**Prepared by:**

Denise Breiteneicher

Lise Marx





## Dear Reader,

The Massachusetts's Water Resources Authority's (MWRA) Five Year Strategic Business Plan for fiscal years (FY) 2016-2020 provides a management tool for identifying and prioritizing the strategic initiatives critical to MWRA's mission. It ensures staff are all working toward the same goals and objectives in an ever changing environment while allowing staff to track progress and identify new issues as they arise. It also provides transparency for our ratepayers and helps to ensure these initiatives are carried out within the annual capital budget spending limits adopted by the MWRA Board of Directors.

MWRA was established 30 years ago to operate and modernize the failing water and wastewater systems serving approximately 2.5 million people as a wholesaler to 61 cities and towns in eastern Massachusetts. The water and wastewater systems have a combined asset replacement value of approximately \$13 billion. While the systems have been significantly upgraded and rehabilitated over the past 30 years, work remains to be done to complete system upgrades and to ensure that facilities are properly maintained on an ongoing basis. This will enable MWRA to meet changing conditions, such as new regulatory requirements and the effects of climate change.

This Business Plan articulates MWRA's goals and initiatives, grouping them by the following strategic priorities:

- I. Drinking Water Quality and System Performance
- II. Wastewater Management and System Performance
- III. Infrastructure Management and Resilience
- IV. Finance and Management
- V. Environmental Sustainability

Links throughout this document provide additional context and more detailed information on specific projects, ongoing reporting on routine maintenance initiatives, information on capital budgets and master planning efforts, and compliance with regulatory requirements.

MWRA's partnership with the cities and towns within our service area is critical to ensuring the continued delivery of safe water and the transport of wastewater. MWRA continues to provide financial assistance in the form of grants and loans to assist member communities in maintaining and upgrading their local systems.

Within both the water and wastewater systems, MWRA continues to lead in renewable energy production, energy efficiency and revenue generation opportunities. This work continues through MWRA's ongoing plan to upgrade the combined heat and power systems producing more electricity while maintain the heat requirements of the Deer Island Plant. Other key measures to address environmental sustainability include additional efforts to monitor and protect our assets against sea level rise and storm surges associated with climate change and reasonable expansions to the water system service area to assist new communities with insufficient drinking water resources.

MWRA employs robust financial management policies, procedures, and systems to ensure both accountability and transparency to our ratepayers and cost effective resource management over the long-term. Outside of direct water and wastewater system operations, MWRA is moving forward with new initiatives in information technology to evaluate business processes and enhance opportunities to increase overall efficiency.

The Business Plan provides the framework for MWRA staff to manage and measure progress towards achieving system priorities. We hope that you find this document helpful.

Sincerely,

Frederick A. Laskey  
Executive Director





## **Our Mission**

To provide reliable, cost-effective, high quality water and sewer services that protect public health and maintain customer confidence while being good environmental stewards and supporting a prosperous economy

## **Our Values**

- I. Public Accountability & Transparency**
- II. Cost-Effective Services**
- III. Collaboration With Internal/External Partners**
- IV. System Resilience**
- V. Environmental Stewardship**
- VI. Employee Safety and Training**

## Brief System Overview

MWRA's water system extends from the Quabbin, Ware, and Wachusett watersheds in central Massachusetts to the Boston metropolitan area supplying 200 million gallons per day (MGD) to 51 cities and towns. Assets and facilities include roughly 100 miles of transmission system tunnels and aqueducts, another 284 miles of pipelines, treatment facilities, pump stations, and water storage facilities. The Metro Boston Service Area's water supply, is treated at the John J. Carroll Water Treatment Plant (JCWTP) in Marlborough, Massachusetts, which uses ozone and ultraviolet light to provide disinfection. The Chicopee Valley Aqueduct service area water supply is treated at the William A. Brutsch Water Treatment Facility in Ware, Mass., which uses chlorine and ultraviolet light to provide disinfection of water.

MWRA's Metropolitan Sewerage Service Area system covers 518 square miles in the greater Boston area and serves 43 communities. MWRA's system includes 274 miles of tunnel and interceptors, remote headworks facilities, pump stations and combined sewer overflow (CSO) storage and treatment facilities. The Deer Island Wastewater Treatment Plant has an average daily flow of 354 million

gallons per day (MGD) with a wet weather capacity of 1,270 MGD. MWRA's pelletizing plant ensures beneficial reuse of the residuals generated at Deer Island. MWRA also operates the Clinton Wastewater Treatment Plant, serving Clinton and Lancaster, MA., which has an average daily flow of 3 MGD and a wet weather capacity of 6 MGD.

Ensuring a safe and reliable source of drinking water to our customers, and wastewater discharges that meet all applicable regulations drives both capital and current expense budget costs.

## Strategic Business Plan Approach

Five strategic priorities integral to MWRA's mission have been identified for action during 2016-2020. Under each of these priorities, MWRA has identified goals and initiatives to guide action. The Strategic Business Plan allows MWRA to track progress towards meeting the core (routine, on-going) and special (new, one-time or aspirational) initiatives. Core and/or special initiatives are identified for each Business Priority Area.

## Key Strategic Priorities

- I. Drinking Water Quality & System Performance**
- II. Wastewater Management & System Performance**
- III. Infrastructure Management & Resilience**
- IV. Finance & Management**
- V. Environmental Sustainability**





I.

# Drinking Water Quality & System Performance

Goal	Initiatives
<p><b>1.</b> Maintain drinking water quality to protect public health, and continue to ensure that MWRA water meets all applicable regulations.</p>	<p><b>Core:</b></p> <p>Optimize operation of water treatment facilities to produce high quality, safe drinking water while maximizing water aesthetics (i.e. taste, clarity, and odor).</p> <p>Monitor drinking water quality in collaboration with member communities and the Department of Conservation and Recreation (DCR) in order to verify high quality water and provide guidance for operating decisions.</p> <p>Ensure reliability of data presented in required regulatory compliance reports.</p> <p>Work cooperatively with DCR and the Watershed Trust to ensure effective watershed management for water quality protection.</p> <p>Operate the reservoir system to optimize both quality and quantity of water available for water supply purposes and to meet statutory and regulatory requirements for downstream releases.</p> <p>Enhance the security of the water supply and watershed system against accidental or intentional threats and hazards.</p> <p><b>Special Initiatives:</b></p> <p>Identify potential transportation related contaminants to the source water and develop a response to potential contamination from these sources.</p> <p>Evaluate improved ways to monitor and manage the system to maintain high quality water all the way to the ends of the community systems.</p> <p>Advocate for responsible and reasonable revised drinking water regulations.</p> <p>Develop improved data handling, auditing, and reporting functionality.</p>





Goal	Initiatives
<p><b>2.</b> Continue to effectively report and communicate water quality information to our customers and public officials.</p>	<p><b>Core:</b> Distribute the federally required annual water quality report, the Consumer Confidence Report (CCR), to all households.</p> <p>Maintain and improve water quality and public health information on MWRA's web page, <a href="http://www.MWRA.com">www.MWRA.com</a>.</p> <p><b>Special Initiatives:</b> Investigate web-based and more real time reporting of data.</p>
<p><b>3.</b> Assist member communities to improve local water distribution systems through ongoing financial, technical and operational support programs to maximize long-term water quality benefits.</p>	<p><b>Core:</b> Provide technical and operational support through training, on-call contracts, and targeted assistance, as needed.</p> <p>Promote and manage MWRA's Local Water System Assistance Program to help facilitate improvements in local community infrastructure.</p> <p><b>Special Initiative:</b> Coordinate with MWRA's Advisory Board and develop a recommendation for a third phase of the community water financial assistance program for the FY21 to FY30 timeframe consistent with the Water Master Plan.</p>









## II.

# Wastewater Management & System Performance

Goal	Initiatives
<p><b>4.</b> Meet or surpass environmental compliance standards at both MWRA treatment facilities and throughout the wastewater collection system.</p>	<p><b>Core:</b> Continue to carry out the Pretreatment Program to protect receiving water quality, maximize the beneficial reuse of wastewater residuals, and protect workers and MWRA's wastewater treatment plants.</p> <p>Continue to monitor DITP Process Control and quality of treated effluent to optimize plant performance and ensure all applicable NPDES permit limits continue to be attained.</p> <p>Implement enhanced phosphorus control at the Clinton Wastewater Treatment Plant.</p> <p><b>Special Initiatives:</b> Develop a molybdenum control strategy to enable more widespread biosolids reuse.</p>
<p><b>5.</b> Continue to initiate plans and studies to prepare for regulatory changes; identify opportunities to refine monitoring requirements; and, improve effluent quality.</p>	<p><b>Core:</b> Prepare updated Local Limits Studies for Clinton and Deer Island in accordance with EPA guidelines to confirm appropriate discharge limits from industries.</p> <p>Continue to review all Ambient Monitoring Plan questions and conduct evaluations to ensure they address MWRA needs and public concerns. <b>Ambient Monitoring Plan</b></p> <p>Continue to closely follow potential permit issues such as the impact of changes in bacterial and nutrient water quality standards, NPDES delegation to MA, stormwater permitting, and endangered species designations.</p> <p><b>Special Initiatives:</b> Develop a plan to respond to emerging contaminants as they are identified and frame an approach to respond to the public's concerns about these constituents.</p> <p>Review new organic waste treatment technologies as they arise</p> <p>Prepare for the Dental Amalgam Rule change.</p>



Goal	Initiatives
<p><b>6.</b> Move forward with design and construction of major wastewater infrastructure rehabilitation and renewal projects.</p>	<p><b>Core:</b> Continue to design and implement the rehabilitation projects for various pump stations, headworks, and CSO facilities.</p> <p>Develop ongoing program to review, prioritize and accelerate the implementation of interceptor renewal projects.</p> <p><b>Special Initiatives:</b> Implement feasible recommendations from the North System Hydraulic Study to maximize conveyance of wastewater to the locations of least concern for health and environmental impact.</p> <p>Complete DITP valve and piping replacement project including operationally complex North Main Pump Station/Winthrop Terminal valve replacement.</p>
<p><b>7.</b> Complete all CSO milestones by 2020 and demonstrate that the CSO Plan meets its performance objectives at all outfalls. Ensure compliance with CSO NPDES permit requirements..</p>	<p><b>Core:</b> Complete implementation of the remaining 3 of the original 35 CSO control projects and attain levels of CSO discharge frequency and annual volume specific to each of the 84 CSO outfalls addressed in the long-term CSO plan by 2020, after which responsibility for each Non-MWRA CSO reverts back to the community that owns and operates it (per the Federal Court Order).</p> <p>Complete final eligibility reviews and closeout of each completed community-implemented CSO Project.</p> <p>Develop scope for the court ordered CSO verification assessment by FY16 and implement the assessment during the period CY 18-20. This assessment is required to demonstrate, by December 2020, that MWRA has attained the performance objectives in its approved CSO Control Plan.</p> <p><b>Special Initiatives:</b> Conduct an evaluation of the CSO treatment processes to determine potential opportunities to better meet permit limits.</p>

<b>Goal</b>	<b>Initiatives</b>
<p><b>8.</b> Assist member communities to improve their wastewater collection systems through ongoing technical, financial, and operational support programs.</p>	<p><b>Core:</b> Provide technical and operational support including TV inspections, field work assistance, or other targeted assistance, as needed</p> <p>Promote and manage MWRA's Inflow/Infiltration Local Financial Assistance Program to facilitate reduced I/I in local community infrastructure.</p>





## III.

# Infrastructure Management & Resilience

Goal	Initiatives
<p><b>9.</b> Maintain and enhance water and wastewater system assets over the long term at the lowest possible life cycle cost and acceptable risk, consistent with customer, community, and regulatory support service levels</p>	<p><b>Core:</b></p> <p>Continue to ensure proper operations and maintenance of the water and wastewater systems and to minimize system downtime by performing:</p> <ul style="list-style-type: none"> <li>• Preventative maintenance</li> <li>• Predictive maintenance</li> <li>• Corrective maintenance on equipment and linear assets, as required</li> <li>• Leak surveys of the water system</li> <li>• Water system valve inspections and exercise</li> <li>• Wastewater pipelines, structures, water storage tanks, and inverted siphons inspections, and cleaning.</li> </ul> <p>Inspect, maintain, and improve the dams, dikes, and other facilities constituting the infrastructure of the watershed system through ongoing maintenance and an adequate multi-year capital improvement program in order to ensure system reliability and limit potential flood hazards.</p> <p><a href="#">2013 Wastewater.pdf</a>  <a href="#">2013 Water.pdf</a>  <a href="#">FY15 Proposed Document.pdf</a></p> <p><b>Special Initiatives:</b></p> <p>Continue use of Condition Monitoring for all Water and Wastewater sites. Expand Condition Monitoring techniques to provide earlier indication of asset degradation.</p> <p>Conduct an updated benchmarking analysis in order to identify gaps and sustain the goal of maximizing asset protection while potentially identifying new best practices in the industry.</p> <p>Update the wastewater metering system and evaluate new technologies to ensure continued accurate flow accounting and to enhance its usefulness for operational and evaluation purposes by adding additional monitoring locations.</p> <p>Continue to research and develop Key Performance Indicators (KPI) to compare our performance internally and against the industry.  <a href="#">(Link to ONB)</a></p>



Goal	Initiatives
<p><b>9.</b> <i>(Continued.)</i></p>	<p>Enhance and monitor water pipeline protection to maximize pipeline lifetime.</p> <p>Upgrade MWRA’s Authority-wide Computerized Maintenance Management System (MAXIMO) to increase functionality to track assets, improve work flow and augment the use of handheld units to increase productivity.</p> <p>Continue to upgrade and improve upon the Supervisory Control and Data Acquisition (SCADA) hardware and software to meet the current industry standard and to address cyber security concerns.</p>
<p><b>10.</b> Prepare for catastrophic events that could affect the water and wastewater delivery systems.</p>	<p><b>Core:</b></p> <p>Continue to improve and incorporate redundancy in the water system to ensure uninterrupted service by developing and implementing plans to eliminate or mitigate single points of failure within MWRA’s water transmission and distribution system, including the Northern Intermediate High, the Southern Extra High, and the Metro Tunnel System.</p> <p>Continue to train staff on various potential emergency scenarios and participate in broader Massachusetts Emergency Management Agency (MEMA) and other training exercises.</p> <p>Continue to implement a comprehensive security and emergency preparedness program.</p> <p><b>Special Initiative:</b></p> <p>Develop and implement an Information Security Plan to increase the resiliency and sustainability of the MWRA’s data security practices.</p> <p>Redesign Cyber Security Network perimeter defense in-depth strategy to mitigate the new and evolving threats by taking advantage of next generation technologies.</p>









## IV.

## Finance and Management

Goal	Initiatives
<p><b>11.</b>                      Ensure Financial Sustainability, Integrity, and Transparency.</p>	<p><b>Core:</b> Continue the long-term strategic budgeting practice to ensure predictable and reasonable sewer and water assessments to our member communities.</p> <p>Manage debt and investment portfolios to maximize savings/returns in compliance with all applicable rules and regulations.</p> <p>Continue diversification strategy to insulate against overexposure and promote resiliency to changing market conditions.</p> <p>Maintain a system of internal controls to best protect the organization's resources.</p> <p>Continue to employ budget and expense control practices to manage expenses.</p> <p>Identify and pursue optimization in all aspects of MWRA financial operations.</p> <p>Continue to conduct strategic energy procurements.</p> <p>Continue to fund the pension fund at the annual required contribution level and to develop strategies to address the growing other Post-Employment Benefits.</p>





Goal	Initiatives
<p><b>12.</b>                      Ensure Cost Effective Operational and Resource Management.</p>	<p><b>Core:</b> Maintain and expand MWRA-wide recycling efforts.</p> <p><b>Special Initiative:</b> Work with staff MWRA-wide to improve specifications development and documentation.</p> <p>Develop, implement, and transition to fully automated, virtually paperless procurement and purchasing system.</p> <p>Expand use of electronic platforms for the purchase of all goods and services.</p>
<p><b>13.</b>                      Maintain an Excellent Workforce.</p>	<p><b>Core:</b> Prioritize Succession Planning in anticipation of critical retirements over the next five years.</p> <p>Continue to provide programs and procedures to ensure employee safety.</p> <p>Provide effective training necessary for employees to obtain and maintain required licenses and certifications to ensure a highly skilled workforce.</p> <p>Continue MWRA's efforts to develop new recruitment and retention strategies to foster diversity, including traditionally underrepresented categories, people with disabilities, and veterans.</p> <p><b>Special Initiatives:</b> Continue to expand on MWRA's in-house Job Shadowing and career development training programs.</p> <p>Create programs with a focus on professional and leadership development.</p> <p>Upgrade MWRA's Employment application system to expedite critical hiring and increase applicant data base.</p> <p>Expand intern initiative.</p>

Goal	Initiatives
<p><b>14.</b> Leverage Information Technology to Improve Organizational Effectiveness.</p>	<p><b>Core:</b>            Deliver Information Technology (IT) services and solutions efficiently and effectively.</p> <p>Provide Information Technology solutions to streamline work processes while ensuring the security and integrity of MWRA data by leveraging the use of existing or emerging technologies.</p> <p>Obtain feedback from users on satisfaction levels and desired new services and implement changes accordingly.</p> <p>Maintain current technology hardware, software, and network infrastructure.</p> <p>Enhance Information Technology workforce capabilities through new certification and license requirements.</p> <p><b>Special Initiatives:</b>            Implement an Application Improvement Program that will continue MWRA's efforts to update and enhance the myriad applications used in the MWRA to improve efficiencies of business processes and effectiveness of staff.</p> <p>Implement an e-Discovery, Achieve and Purge System that will provide an automated and integrated solution for archiving electronic content that will allow the Authority to intelligently store, manage and discover email and all critical business information sources, while providing easy and intuitive access for end users.</p> <p>Execute a Technology Infrastructure Improvement Program that will assess and implement consolidated and optimized versions of MWRA's core IT infrastructure elements and improve data management practices.</p> <p>Improve the organization of Information Technology and the oversight processes for selecting and implementing IT solutions throughout the MWRA.</p> <p>Implement near real-time SSO reporting system to provide public information and ensure reporting timeframes meet regulatory requirements.</p>





## V.

## Environmental Sustainability

Goal	Initiatives
<p><b>15.</b> Continue to maximize energy efficiency of MWRA operations, renewable energy production, and revenue generation opportunities using MWRA's energy assets.</p>	<p><b>Core:</b> Continue to conduct energy audits at all facilities and establish regular audit schedules.</p> <p>Optimize processes to save energy.</p> <p>Incorporate energy efficiency into new construction, rehabilitation projects, and equipment replacement.</p> <p>Continue to invest in the production and utilization of cost effective renewable energy at MWRA facilities.</p> <p>Continue to reduce greenhouse gas emissions that result from MWRA operations.</p> <p>Continue to maximize revenue from generation assets.</p> <p>Take full advantage of utility energy efficiency rebate opportunities. <a href="#">Energy Staff Summary.pdf</a></p> <p><b>Special Initiatives:</b> Incorporate employee education on energy efficiency in MWRA training outlets, e.g. tool box talks and HR training classes.</p> <p>Determine technical and economic viability of co-digestion at Deer Island Wastewater Treatment Plant to ensure it is compatible with existing MWRA wastewater and sludge treatment processes while producing a significant amount of additional high quality gas for energy production.</p> <p>Move forward with the design of new gas turbine technology combined heat and power equipment to take advantage of the higher power and thermal efficiencies of new equipment, maximizing the production of additional electric power for on-site use at Deer Island as well as cost savings while reducing maintenance spending on aging equipment.</p> <p>Investigate the potential energy savings from installing new, larger residuals drying trains at the Pelletizer Plant compared to the operational cost of running them.</p>



Goal	Initiatives
<p><b>16.</b> Continue to monitor climate change research and move forward with plans to reduce impacts of projected sea level rise and storm surge events on MWRA infrastructure.</p>	<p><b>Core:</b>                      Incorporate design modifications into facility renovations and maintenance activities to address sea level rise and storm surge.</p> <p>Plan and install flood protection barriers at water and wastewater sites which fall below expected elevations of flood waters under condition of a FEMA 100 year storm plus 2 ½ feet to minimize damage and still provide service.</p> <p><b>Special Initiative:</b>                      Work with State and regional organizations and academic institutions to identify how MWRA's existing long-term environmental data sets can be used to help assess and project impacts of climate change.</p>
<p><b>17.</b> Advance reasonable water system expansion.</p>	<p><b>Core:</b>                      Continue to provide assistance to communities seeking admission to the MWRA's water system or seeking emergency withdrawals.</p> <p>Work with prospective communities to inform them of the benefits of admission.</p> <p><b>Special Initiatives:</b>                      Advocate for a more streamlined regulatory review procedure, including expediting the Massachusetts Environmental Policy Act and Interbasin Transfer Act review process.</p> <p>Work with MWRA's Advisory Board on legislative initiatives to pursue funding for connection assistance for new communities connecting to the water system.</p>

<b>Goal</b>	<b>Initiatives</b>
<p><b>18.</b> Continue to recognize the environmental, cultural, historical, and recreational importance of the watershed lands, the aqueduct system, and the unique location on Boston Harbor of the Deer Island Treatment Plant and Nut Island Headworks, to the citizens of the Commonwealth.</p>	<p><b>Core:</b> Continue to work cooperatively with DCR and cities and towns to ensure that these lands are available for appropriate public access.</p> <p>Continue to work with cities and towns to implement the Public Access Initiative on the Wachusett, Weston, Sudbury, and Cochituate Aquaducts.</p> <p>Continue to provide public access to Boston Harbor at Deer and Nut Islands, while ensuring appropriate security for MWRA's operations.</p>



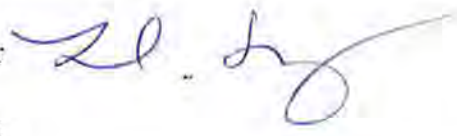


Massachusetts Water Resources Authority | 100 First Ave. Boston, Massachusetts 02129 | (617) 242-6000



**STAFF SUMMARY**


**TO:** Board of Directors  
**FROM:** Frederick A. Laskey, Executive Director  
**DATE:** February 11, 2015  
**SUBJECT:** FY15 Second Quarter Orange Notebook



COMMITTEE: Administration, Finance & Audit

X INFORMATION  
     VOTE

Stephen Estes-Smargiassi, Director, Planning & Sustainability  
Preparer/Title

  
Michael J. Hornbrook  
Chief Operating Officer

**RECOMMENDATION:**

For information only. The Board of Directors Report on Key Indicators of MWRA Performance (the Orange Notebook) is prepared at the close of each quarter of the fiscal year.

**DISCUSSION:**

The Orange Notebook presents performance indicators for operational, financial, workforce, and customer service parameters tracked by MWRA management each month. Significant outcomes for the second quarter are noted below.

Energy Tracking

As discussed with the last Orange Notebook staff summary, staff are revising and adding a number of new indicators related to energy use and green energy production.

On page 10, staff have revised the presentation on the electrical production of renewable energy facilities. This page now summarizes production of all renewable energy facilities, both on Deer Island and off, with separate charts for hydro-electric generators, wind turbines, solar, and electricity generated from methane produced in the sludge digesters. Combined, these facilities generated savings (from avoided purchases of power) or revenue (from sales of power to the grid) of \$1.53 million dollars through October 2014. (Billing data from MWRA's electrical suppliers is typically several months behind, and staff are only reporting actual figures.)

The two charts on the bottom of page 10 show two different ways of comparing total electrical demand from all MWRA facilities to the amount of renewable power generated and either used on site or sold to the grid. Renewable power generation represented approximately 36% of total power demand in FY15 through November 2014. With the exception of Deer Island, where power generated by renewable sources is used at the facility and reduces power purchases, most of the electricity generated by MWRA's renewable sources is exported to the grid.

Savings and revenue associated with green power and self generation system-wide are presented on page 11. Savings and revenue from MWRA renewable generation in the second quarter



(actual only through October 2014) was \$371,588, which is 13% below the budget. This is partly due to the fact that the actual electricity unit price for Deer Island has been 20% lower than the budgeted estimate for the same period. (Page 1)

Also shown on page 11 are revenues from the sales of Renewable Energy Certificates (RECs) and Demand Response Program participation at Deer Island and at other MWRA facilities. Revenue from RECs is based on production by MWRA's renewable assets; it totaled \$426,511 for the quarter. The bottom two charts show revenue from participation in demand response programs, in which MWRA facilities are available to "go off the grid" during periods of high electricity demand. Participation in the demand response programs is not part of MWRA's renewal program, but is another opportunity to manage energy costs. The Deer Island Demand Response program generated \$143,303 in Net Avoided Costs and capacity payments through November (slightly above budget) and the Field Operations facilities' participation generated \$29,859 (above budget).

It is important to note that the new charts on pages 10 and 11 only track renewable electricity generation savings and revenue and do not include the thermal value of utilizing methane gas from the Deer Island digesters. In addition to utilizing the methane gas generated in the secondary treatment process as a fuel in the Deer Island steam turbines to produce electricity, methane gas primarily provides a renewable on-site fuel for Deer Island's boilers for producing heat, resulting in an estimated annual fuel cost savings of an additional approximately \$17.5 million.

#### Sludge Management

Solids destruction in the digesters averaged 52.3% during the second quarter, producing slightly more digester gas (3.1%) than the four-year average. During the quarter, 99.6% of the digester gas was used, producing 7,611 MWh of electricity, as well as heat for the plant. Year-to-date, electricity generated by digester gas represented \$842,442 in avoided power purchases. (Pages 4 and 10)

The Pelletizing Plant received an average of 100.1 dry tons per day (DTPD) of sludge from Deer Island during calendar year 2014, slightly less than the budgeted 102.9 DTPD. The Pelletizing Plant captured 91.28% of solids during the calendar year, slightly better than the contractual minimum of 90%%. (Page 4)

#### Workforce Management

Staff turnover continues to run higher than the past couple of years, and promotions and hirings are up. During the first half of FY15, 111 positions were filled, potentially on track to be significantly above last year's total of 162 for the whole year, which was, in turn, higher than each of the prior three years. Promotions and transfers accounted for 70% of the total, slightly above last fiscal year. (Page 42)

Overall staffing numbers were at 1,152 at the end of the December 2014, below the FY15 target of 1,175. (Page 42)



MASSACHUSETTS WATER RESOURCES AUTHORITY

**Board of Directors Report**  
On  
**Key Indicators of MWRA Performance**  
For  
Second Quarter FY2015

Q1	Q2	Q3	Q4



Frederick A. Laskey, Executive Director  
Michael J. Hornbrook, Chief Operating Officer  
February 11, 2015

# Board of Directors Report on Key Indicators of MWRA Performance

## Second Quarter FY15

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This quarterly report is prepared by MWRA staff to track a variety of MWRA performance measures for routine review by MWRA's board of directors. The content and format of this report is expected to develop as time passes. Information is reported on a preliminary basis as appropriate and available for internal management use and is subject to correction and clarification.

Frederick A. Laskey, Executive Director  
Michael J. Hornbrook, Chief Operating Officer  
**February 11, 2015**

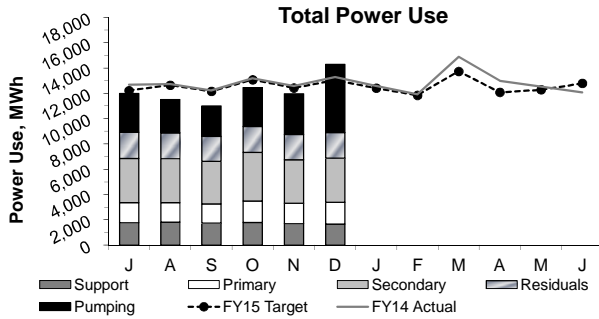
# OPERATIONS AND MAINTENANCE



# Deer Island Operations

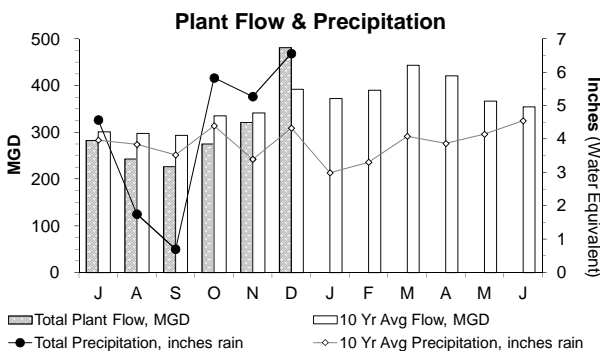
2nd Quarter - FY15

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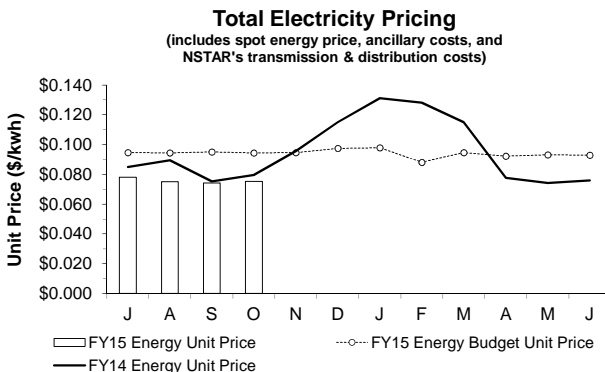
Total Power Use in the 2nd Quarter was on target (within 0.5%) as the 3 year average plant flow through the 2nd Quarter was also similar to projections (within 4.2%).

Note: Power usage projections are based on 3 year averages.



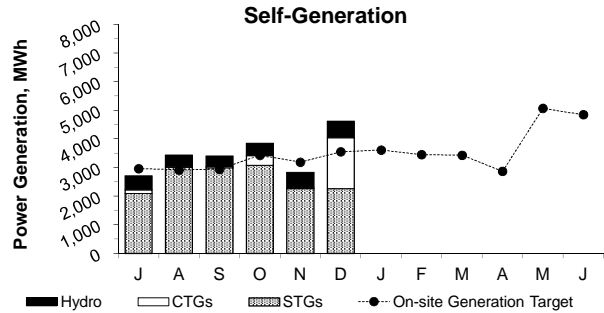
Total Plant Flow for the 2nd Quarter was on target with the 10 year average plant flow (359.4 MGD actual vs. 356.3 MGD expected) as precipitation for the 2nd Quarter was 46% higher than target (17.66 inches actual vs. 12.12 inches expected) following many months of mostly lower-than-expected precipitation.

Total Plant Flow for the December was higher-than-expected following 17 consecutive months of lower-than-expected Total Plant Flow.



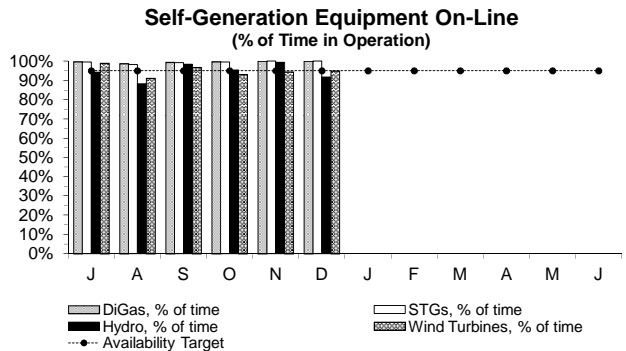
Under the current energy supply contract, a block portion of DI's energy is a fixed rate and the variable load above the block is purchased in real time. The actual Total Energy Unit Price in the 2nd Quarter (actual only through October) was 20.2% lower than the FY15 budget estimate for the same period. The Total Energy Unit Prices for November and December are not yet available as the complete invoices for these months are still pending receipt as of reporting time. The Total Energy Unit Price includes a fixed block price, spot energy price, transmission & distribution charges, and ancillary charges.

Note: Only the actual energy prices are being reported. Therefore, the data lags by two (2) months due to the timing of invoice receipt.

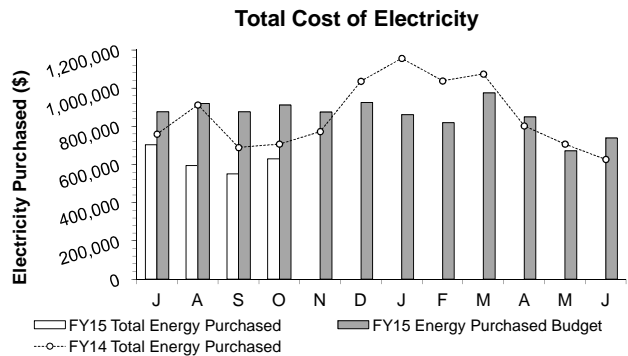


Power generated on-site during the 2nd Quarter was 18.3% higher than target as generation by the CTGs, STGs and the Hydro Turbines met or exceeded their targets. The CTGs generated over nine (9) times higher than their target due mainly to operation during two (2) severe weather events; one (1) in October and another in December for a total of 143.88 hours. The CTGs were operated in parallel with NSTAR during these storm events as a precautionary measure. DITP also successfully responded to the ISO-NE Demand Response audit event called on December 10. The Wind Turbines and Solar Panels generated slightly lower than their targets.

Note: Power generation by the Solar Panels and the Wind Turbines are not included in the graph (as the amounts generated cannot be seen within the current scale of this graph); a total of 118.0 MWh was generated by the Solar Panels and 588.2 MWh was generated by the Wind Turbines in the 2nd Quarter.



The DiGas, STGs, Hydro Turbines, and Solar Panel systems all met or exceeded the 95% availability target for the 2nd Quarter. Wind Turbine availability fell slightly below target due mainly to downtime for scheduled maintenance.



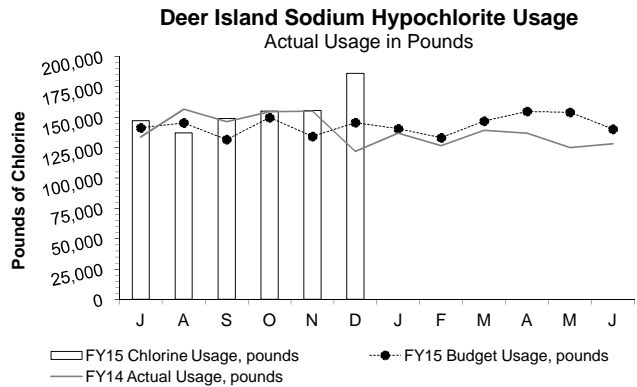
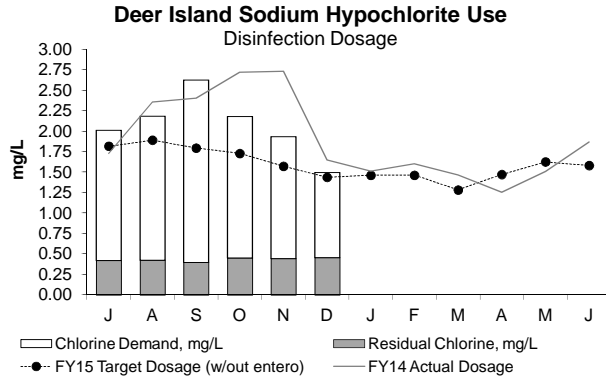
The cost of electricity Purchased during the 2nd quarter (actuals through October) was 30.9% lower than budgeted. Year-to-date costs are \$1,105,127 (30.8%) lower than budgeted through the 2nd Quarter (actuals only) as the Total Energy Unit Price and the Total Power Purchased were both lower than budgeted by 20.0% and 13.6%.

Note: Only months with complete Electricity Purchased data are being reported. Therefore, the data lags by two (2) months due to the timing of invoice receipt.

# Deer Island Operations

2nd Quarter - FY15

Page 2 of 4



Disinfection dosing rate in the 2nd Quarter was 18% higher than target, due to a higher chlorine demand as a result of stronger wastewater caused by the lower-than-expected plant flows in October and November, followed by much higher-than-expected plant flow in December as a result of several significant storm events. Hypochlorite usage in pounds of chlorine was 15.7% higher than the target for the quarter.

The overall disinfection dosing rate (target and actual) is dependent on plant flow, target effluent total chlorine residual levels, effluent quality and NPDES permit levels for fecal coliform.

## Secondary Blending Events

Month	Count of Blending Events	Count of Blending Events Due to Rain	Count of Blending Events Due to Non-Rain-Related Events	Secondary, as a Percent of Total Plant Flow	Total Hours Blended During Month
J	2	2	0	99.4%	8.50
A	1	1	0	99.95%	1.90
S	0	0	0	100.0%	0.00
O	1	1	0	98.5%	11.82
N	4	4	0	99.5%	9.99
D	5	5	0	94.5%	72.22
J					
F					
M					
A					
M					
J					
<b>Total</b>	<b>13</b>	<b>13</b>	<b>0</b>	<b>98.2%</b>	<b>104.43</b>

97.0% of all flows were treated at full secondary for the 2nd Quarter. There were a total of ten (10) separate secondary blending events in the quarter; all due to high plant flows resulting from heavy rain. The ten (10) blending events combined produced a total of 94.03 hours of blending and 992.78 Mgal of flow blended with secondary effluent. The Maximum Secondary Capacity for the entire quarter was 700 MGD.

Permit limits were met at all times during the 2nd Quarter of FY15.

## Deer Island Operations & Maintenance Report

### Environmental/Pumping:

A maximum average hourly flow rate of 1,288.4 MGD was achieved on December 9 as a result of a record-breaking nor'easter storm. This storm event dropped a range of 3.8 to 4.5 inches of rain over a three (3) day period and triggered a single blending event lasting 65.11 hours from 10:10 AM on December 9 to 3:17 AM on December 12. Pumping and treatment at DITP continued without incident through this storm event, as well as throughout the entire quarter.

Batteries for the Programmable Logic Controllers (PLCs) for the wastewater pumps were successfully replaced at the South System Pump Station and the four (4) headworks facilities on November 19.

### Primary and Secondary Treatment:

Progress on the major Primary and Secondary Scum Tip Tube Replacement Project continued through Q2 FY15. The primary scope of this project is to replace 88 of the 96 primary treatment tip tubes, 72 treatment tip tubes in Secondary Batteries A and B, and modification of 36 secondary tip tubes in Secondary Battery C. The contractor is limited by the construction documents to working in no more than four (4) primary clarifiers and three (3) secondary clarifiers (one or two per battery to minimize capacity constraints so as to not reduce the overall secondary capacity). Construction was approximately 60.4% complete for the primary clarifiers and 35.2% complete for the secondary clarifiers by the end of the quarter. The contract is currently on schedule and functional testing is on-going.

# Deer Island Operations

2nd Quarter - FY15

Page 3 of 4

## Deer Island Operations & Maintenance Report (continued)

### Primary and Secondary Treatment (cont.)

Annual turnaround maintenance was performed on Train #1 at the Cryogenic Oxygen Facility in October. This turnaround maintenance is performed on roughly half of the components and systems in the Cryo Facility and allows the remaining half of the facility to continue to operate and produce oxygen uninterrupted. The same turnaround maintenance was completed on Train #2 in April.

The Cryogenic Oxygen facility on DITP transitioned to the winter mode of operation in mid-November. With the seasonal reduction in the oxygen demand in the secondary aeration process, the energy efficiency of the cryogenic operation can be optimized by reducing the operating demands of the plant (in comparison to the operating demand during the summer months) while still meeting the objectives of producing enough oxygen to meet the secondary aeration process needs, as well as producing enough liquid oxygen (LOX) to maintain a consistent inventory of 900 tons in the LOX storage tank.

### Energy and Thermal Power Plant:

Solar power generation accounted for 0.98% (118.0 MWh) of the total power generated on-site in the 2nd Quarter while Wind Turbine generation accounted for 4.90% (588.2 MWh) of the total power generated on-site in the 2nd Quarter. Overall, total power generated on-site accounted for 31.0% of Deer Island's total power use for the quarter. Renewable power generated on-site (by Solar, Wind, STGs, and Hydro Turbines) accounted for 25.5% of Deer Island's total electrical power use for the quarter.

Scheduled annual overhaul maintenance of CTG-1A began on September 29 and was successfully completed and the unit returned to full operating availability on October 6.

Operation of the boiler and STG system in the Thermal Power Plant was switched over to "winter" mode on October 30. The boiler and STG system began operating in "summer" mode in August after the installation of a steam bypass valve. The addition of this steam bypass valve in conjunction with the operation of the back-pressure turbine (BP-STG) allows staff to operate the steam system at higher efficiencies by operating the main turbine in a vacuum, extracting the highest possible amount of electricity from the steam. This improves the overall efficiency of the steam to electricity conversion process. However, in "winter" mode (no vacuum), the primary concern is to meet the heat demands of DITP and the secondary benefit is power generation.

The fire system isolation valves on both CTG units were successfully replaced during the workday on November 4. This valve replacement took several hours to perform for each CTG unit and was performed on one (1) CTG unit at a time.

Routine scheduled preventative maintenance was performed on both Wind Turbine #1 and #2 at the beginning of December and required each unit to be taken out of service for several hours. The preventative maintenance was successfully completed and both units were tested without issue before being returned to operation.

### Residuals Treatment:

An average of eight (8) active digesters remained in operation during the month of December as Module #3 digester operation was transitioned to Module #1 digester operation. Module #2 remained in operation for the entire month and all four (4) digesters in Module #1 were in operation by the end of month. All the digesters in Module #3 were offline by the end of the month.

### Other:

The above-ground heating fuel tank at the Vehicle/Equipment Maintenance Building was successfully removed on October 31. The building was connected to the plant-wide hot water system, allowing removal of the potential environmental liability at Deer Island.

The DITP Machine shop and Maintenance staff completed fabrication and installation of a protective grating on Deer Island storm water outfall number 3. The original duckbill had been battered off by tidal action, and this grating will protect the outfall system from backfilling with large tidal debris.

Licensed contractors completed pump-out, cleaning, and interior inspection of the waste oil underground storage tank on November 3. The integrity of this tank was reaffirmed during the inspection.

### Clinton AWWTP:

The rehabilitation of the primary clarifiers and anaerobic digesters which began on July 1 is moving forward.

The following items were started this quarter.

#### Primary Clarifiers 3&4:

Tnemec coating was applied to tanks. Railings were reinstalled around tanks and earth was backfilled around tanks to original grade level.

Contractors have started installing gear drives and flights in tanks.

#### Secondary Digester:

Cover has been sandblasted and patching of corroded areas is continuing. Removal of the center column and support structure to accommodate the new Ovivo mixing system.

#### Electrical & Instrumentation:

New electrical duct banks and conduit have been installed to allow information to be sent from digester control panel to the scada system in the administration building.

#### Security and surveillance:

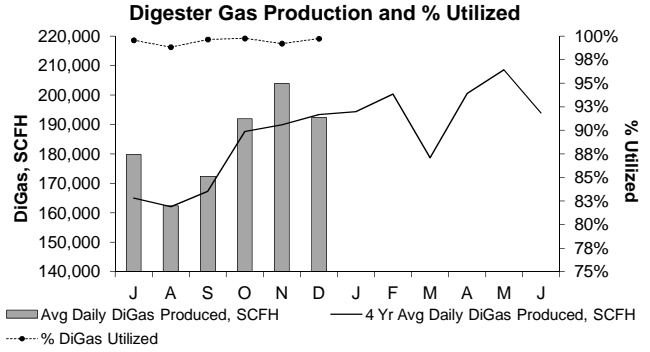
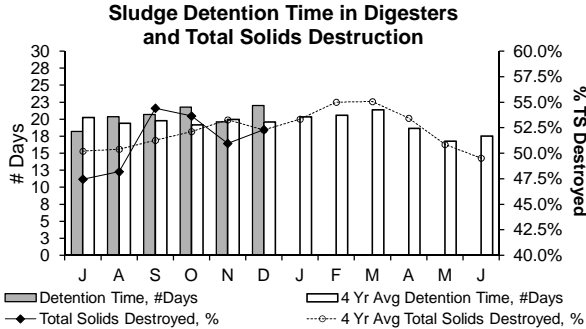
Contractors have started installing electrical conduits in all buildings to provide card access to buildings and camera surveillance of grounds.



# Deer Island Operations and Residuals

2nd Quarter - FY15

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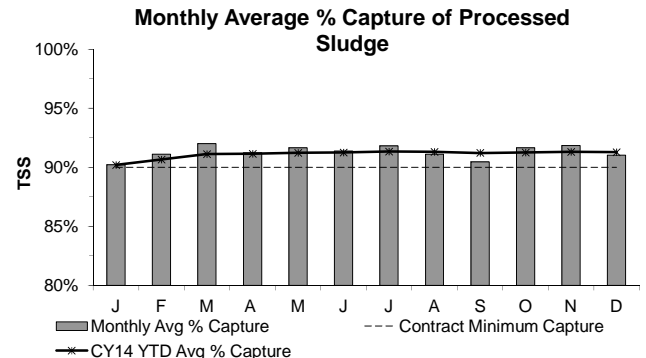
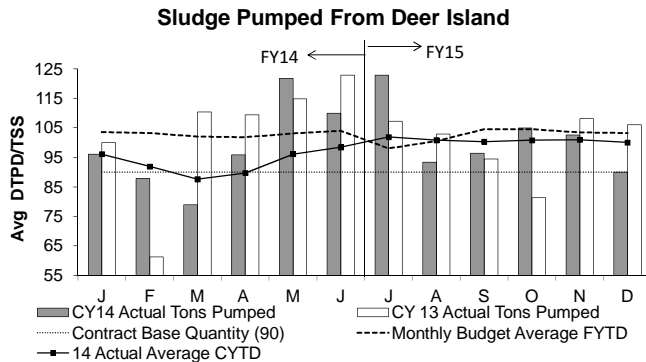


Total solids (TS) destruction following anaerobic sludge digestion averaged 52.3% during the 2nd Quarter, similar to the 4 year average of 52.6%. The sludge detention time in the digesters of 21.1 days was slightly higher than the 4 year average of 19.6 days as DI operated with an average of 8.1 digesters during the 2nd Quarter.

The Average Daily DiGas Production in the 2nd Quarter was 3.1% higher than the target 4 Year Average Daily DiGas Production for the same period. On average, 99.6% of all the DiGas produced in the quarter was utilized at the Thermal Power Plant.

Total solids (TS) destruction is dependent on sludge detention time which is determined by primary and secondary solids production, plant flow, and the number of active digesters in operation. Solids destruction is also significantly impacted by changes in the number of digesters and the resulting shifting around of sludge.

MWRA pays a fixed monthly amount for the calendar year to process up to 90 DTPD/TSS as an annual average. The monthly invoice is based on 90 DTPD/TSS (Dry Tons Per Day/Total Suspended Solids) times 365 days divided by 12 months. At the end of the year, the actual totals are calculated and additional payments are made on any quantity above the base amount. The base quantity of 90 DTPD/TSS was set for the 15-year term of the contract. (FY15's budget is 102.9 DTPD/TSS).



The average total quantity of sludge pumped in the 2nd Quarter was 99.2 DTPD - lower than FY15's budget of 102.9 DTPD. The lower amount is due to lower sludge production due to colder weather and inventory shifts. The YTD average tonnage is 100.1.

The contract requires NEFCo to capture at least 90% of the solids delivered to the Biosolids Processing Facility in Quincy. The YTD average capture is 91.28%

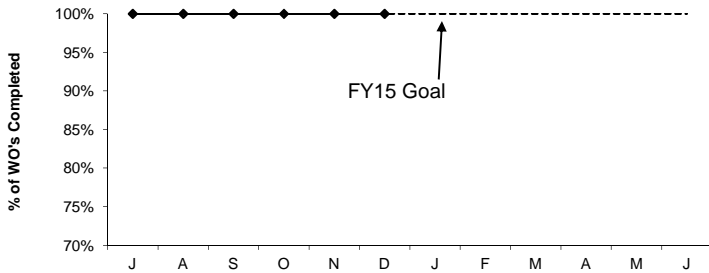
# Deer Island Maintenance

## 2nd Quarter - FY15

### Productivity Initiatives

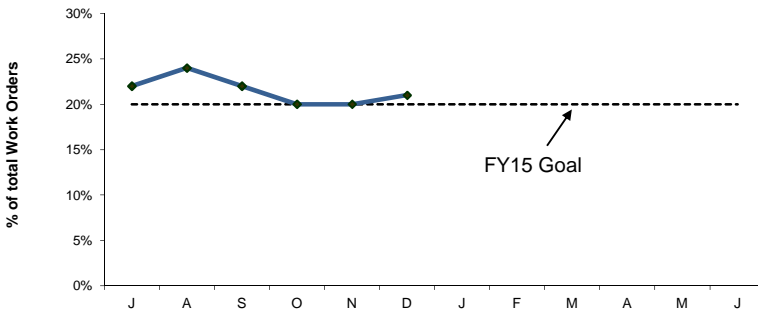
Productivity initiatives include increasing predictive maintenance compliance and increasing PdM work orders. Accomplishing these initiatives should result in a decrease in overall maintenance backlog.

#### Predictive Maintenance Compliance



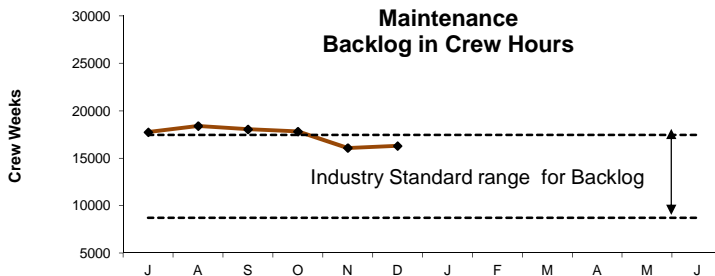
Deer Island's FY15 predictive maintenance goal is 100%. DITP completed 100% of all PdM work orders this quarter. DITP is continuing with an aggressive predictive maintenance program.

#### Predictive Maintenance



Deer Island's FY15 predictive maintenance goal is 20% of all work orders to be predictive. 20% of all work orders were predictive maintenance this quarter. The industry is moving toward increasing predictive maintenance work to reduce downtime and better predict when repairs are needed.

#### Maintenance Backlog in Crew Hours

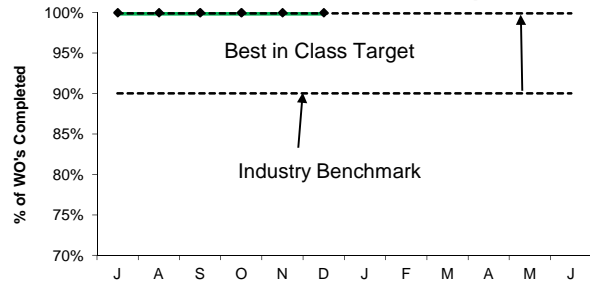


DITP's maintenance backlog at Deer Island is 16,737 hours this quarter. DITP is within the industry average for backlog. The industry standard for maintenance backlog with 99 staff (currently planned staffing levels) is between 8,730 hours and 17,460 hours. Backlog is affected by five vacancies, an Instrument Technician, a Building and Grounds worker, a Welder, a Machinist and an O&M Specialist.

### Proactive Initiatives

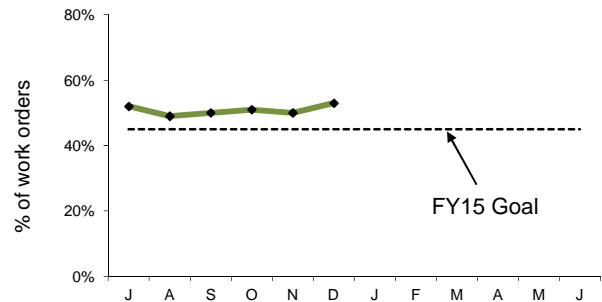
Proactive initiatives include completing 100% of all preventative maintenance tasks and increasing preventative maintenance kitting. These tasks should result in lower maintenance costs.

#### Preventive Maintenance Compliance



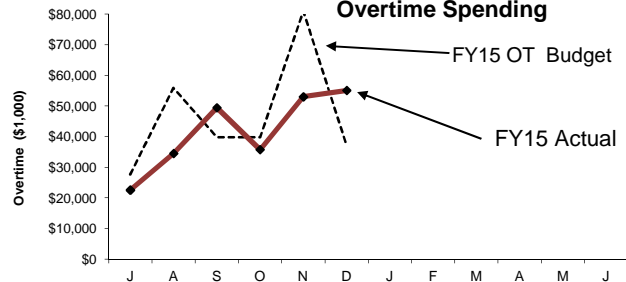
Deer Island's FY15 preventative maintenance goal is 100% completion of all work orders from Operations and Maintenance. DITP completed 100% of all PM work orders this quarter.

#### Maintenance Kitting



Deer Island's FY15 maintenance kitting goal is 45% of all work orders to be kitted. 51% of all work orders were kitted this quarter. Kitting is staging of parts or material necessary to complete maintenance work. This has resulted in more wrench time and increased productivity.

#### Overtime Spending

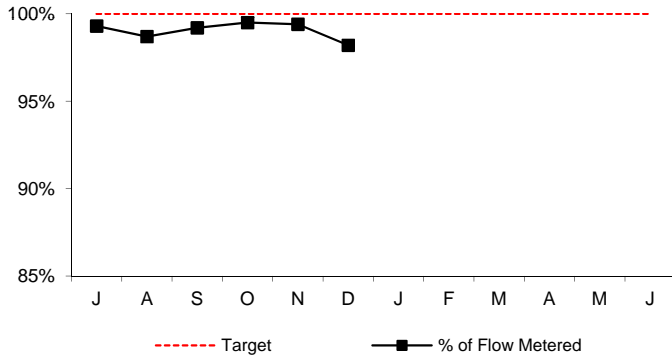


Maintenance overtime was under budget by \$13K this quarter and \$31k under for the year. Management continues to monitor backlog and to ensure all critical equipment and systems are available. This quarters overtime was predominately used for installation of HVAC units (coils, condensers, evaporators, fabricating and installing filter racks) throughout Deer Island, installing view ports in Digester Complex Modules, high flows and storm coverage.

## Operations Division Metering 2nd Quarter - FY15

### WATER METERS

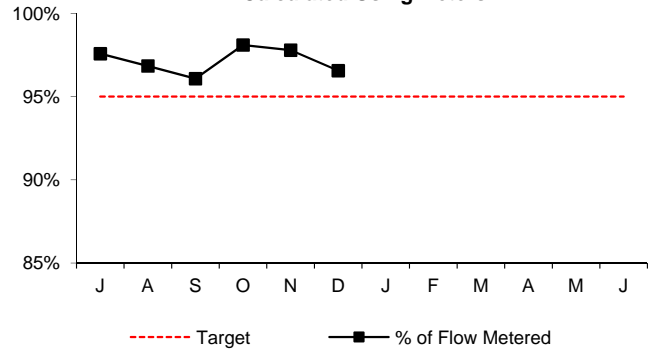
**Percent of Total Revenue Water Deliveries Calculated Using Meters**



The target for revenue water deliveries calculated using meters is 100%. Estimates are generated for meters that are out of service due to instrumentation problems or in-house and capital construction projects. During the 2nd Quarter of FY15, meter actuals accounted for 99.03% of flow; only 0.97% of total revenue water deliveries were estimated. The following is the breakdown of estimations:  
In-house and Capital Construction Projects - 0.60%  
Instrumentation Failure - 0.37%

### WASTEWATER METERS

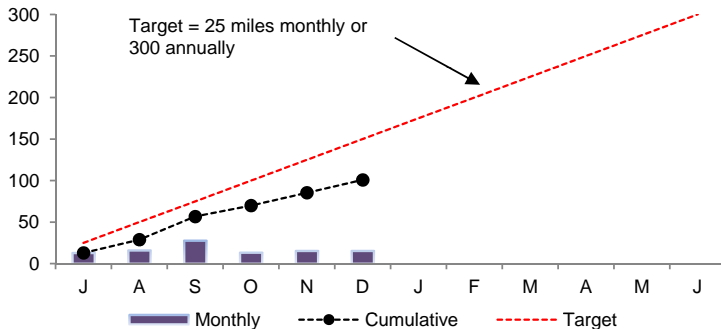
**Percent of Total Wastewater Transport Calculated Using Meters**



The target for revenue wastewater transport calculated using meters is 95%. Estimates are generated for meters missing data due to instrument failure and/or erratic meter behavior. Estimates are produced using data from previous time periods under similar flow conditions. During the 2nd Quarter of FY15, meter actuals accounted for 97.5% of flow; 2.5% of wastewater transport was estimated.

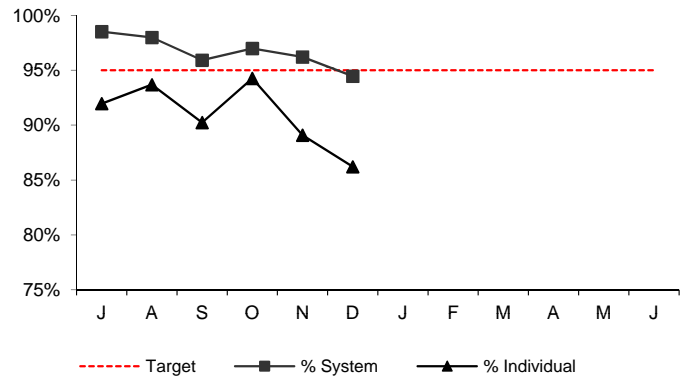
### WATER DISTRIBUTION SYSTEM PIPELINES

**Miles Surveyed for Leaks**



During the 2nd Quarter of FY15, 100.83 miles of water mains were inspected.

**% Wastewater Meter Uptime**



During the 2nd Quarter of FY15, out of a possible 1,536,768 data points, only 63,420 points were missed resulting in a system-wide up time of 95.9%. Of the 174 revenue meters installed, on average 18 experienced down time greater than the 5% target resulting in a 89.8% individual meter uptime. For the 2nd Quarter of FY15, down time for an individual meter is defined by any individual meter having less than 2,796.7 data points out of a potential 2,944 data points.

**Water Distribution System**

Month	J	A	S	O	N	D	J	F	M	A	M	J
Leaks Detected	6	1	7	5	2	1						
Leaks Repaired	8	1	1	4	7	3						
Backlog	4	4	10	11	6	4						
Avg. Lag Time	12.9	22.4	24.5	31.9	38.7	41.4						

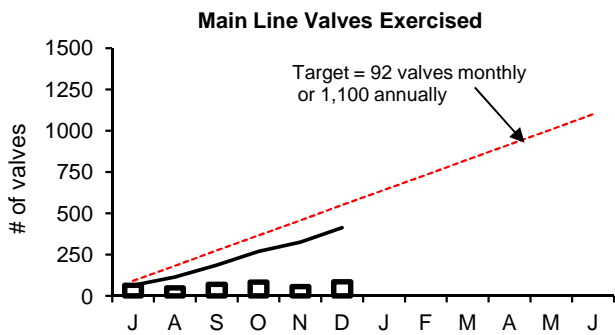
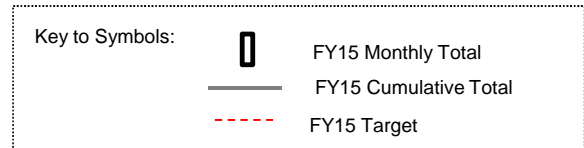
During the 2nd Quarter of FY15, eight (8) new leaks were detected and 14 were repaired. Of the fourteen repaired, six (6) were detected during the 2nd Quarter, six (6) during the 1st Quarter and two (2) that were carried over from FY14. At the end of the 2nd Quarter there are four (4) leaks that need to be repaired: two (2) from the 2nd Quarter, one (1) from the 1st Quarter and one (1) from the 4th Quarter of FY14. The two leaks that remain from the 2nd Quarter of FY15 are located at Comm. Ave. at Mass Pike, Newton and Fairbanks Street, Brighton. Comm. Ave., Newton remains unrepaired due to coordination of resources, including a police detail and Fairbanks Street, in Brighton remains unrepaired due to a moratorium on street openings for non-surfacing leaks. The one (1) remaining leak originally detected during the 1st Quarter of FY15 is located on Reservoir Road, Weston. It is small in nature and non-surfacing so the pipe remains in service awaiting repair. Additionally, still remaining from FY14 is the second leak on the GE Bridge, Revere/Lynn line originally detected during the 4th Quarter of FY14. This leak remains unrepaired and the line out of service due to an extensive coordination of resources including the rental of a barge.

## Water Distribution System Valves 2nd Quarter - FY15

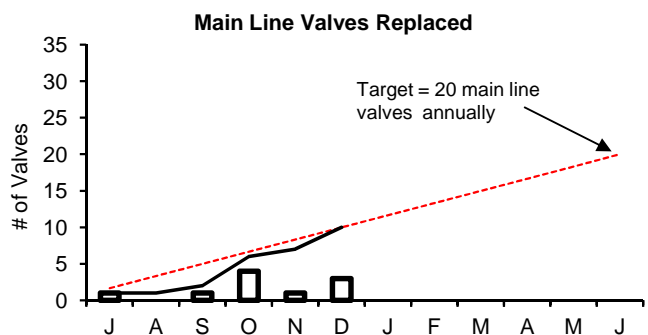
### Background

Valves are exercised, rehabilitated, or replaced in order to improve their operating condition. This work occurs year round. Valve replacements occur in roadway locations during the normal construction season, and in off-road locations during the winter season. Valve exercising can occur year round but is often displaced during the construction season. This is due to the fact that a large number of construction contracts involving rehabilitation, replacement, or new installation of water lines, requires valve staff to operate valves and assist with disinfection, dechlorination, pressure-testing, and final acceptance. Valve exercising can also be impacted due to limited redundancy in the water system; valve exercising cannot be performed in areas where there is only one source of water to the community meters or flow disruptions will occur.

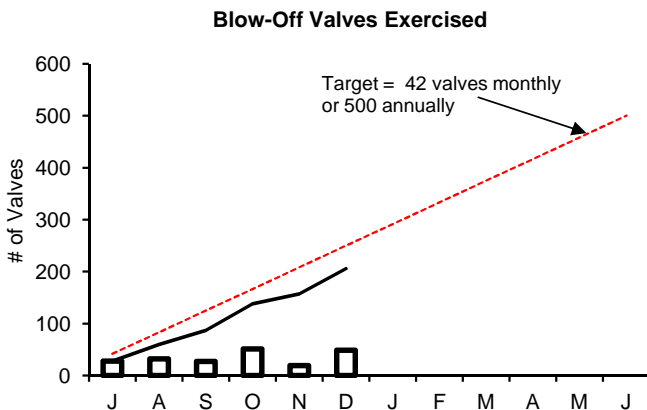
Type of Valve	Inventory #	Operable Percentage	
		FY15 to Date	FY15 Targets
Main Line Valves	2,092	96.2%	95%
Blow-Off Valves	1,206	91.8%	95%
Air Release Valves	1,335	91.5%	95%
Control Valves	48	100.0%	95%



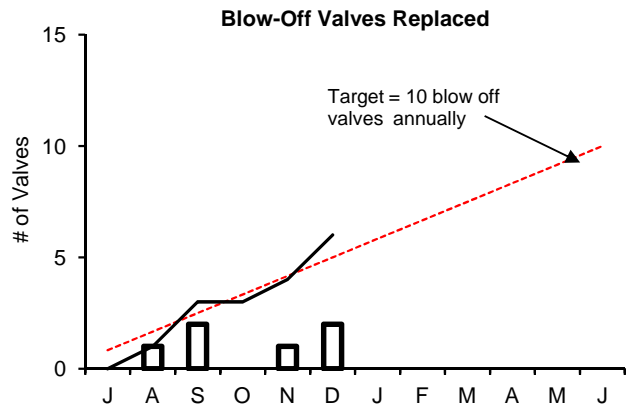
During the 2nd Q of FY15 staff exercised 228 main line valves. The total for the fiscal year to date is 414.



During the 2nd Q of FY15 staff replaced eight main line valves. The total for the fiscal year to date is ten.



During the 2nd Q of FY15 staff exercised 119 blow-off valves. The total for the fiscal year to date is 206.



During the 2nd Q of FY15 staff replaced three blow-off valves. The total for the fiscal year to date is six.

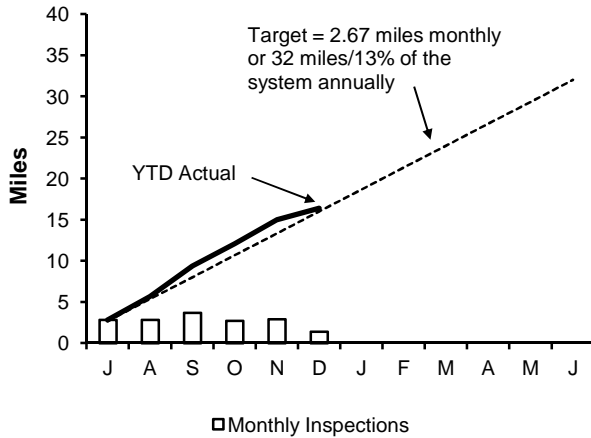


# Wastewater Pipeline and Structure Inspections and Maintenance

ONB 2nd Quarter - FY 15

## Inspections

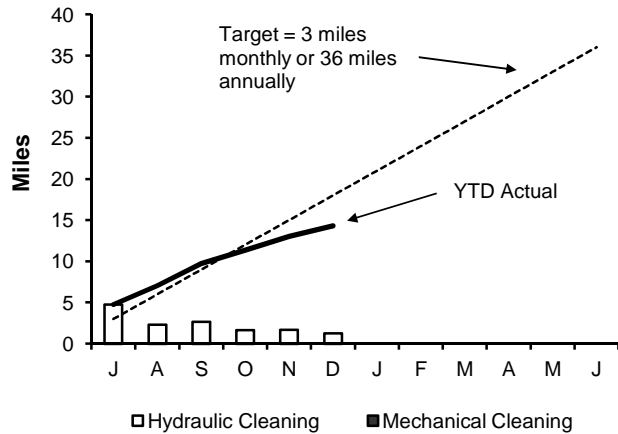
### Pipeline Inspections



7.06 miles of MWRA sewer pipeline were inspected during this quarter. The year to date total is 16.41 miles. Community Assistance was provided to Somerville, staff inspected 806 linear feet of various diameter sewer and drain lines this quarter.

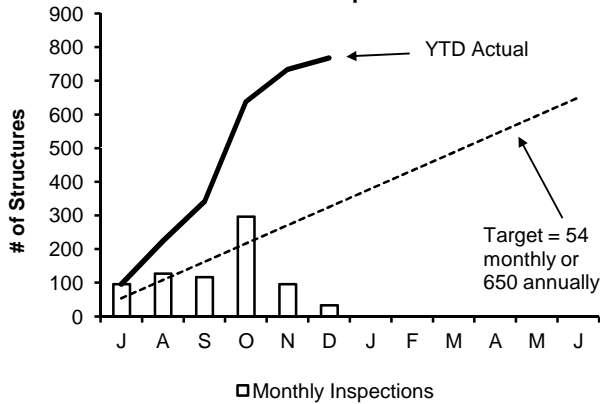
## Maintenance

### Pipeline Cleaning



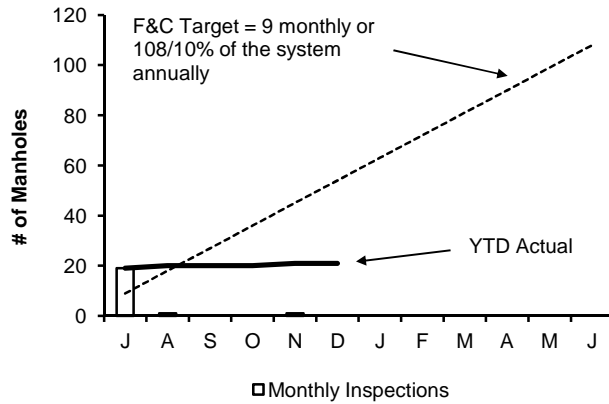
4.60 miles of MWRA's sewer system were cleaned and removed 30 yards of grit and debris removed during this quarter. The year to date total is 14.31 miles. Community Assistance was provided to Somerville. Staff cleaned 1,700 linear feet of 12" and 28" diameter sewer line this quarter.

### Structure Inspections



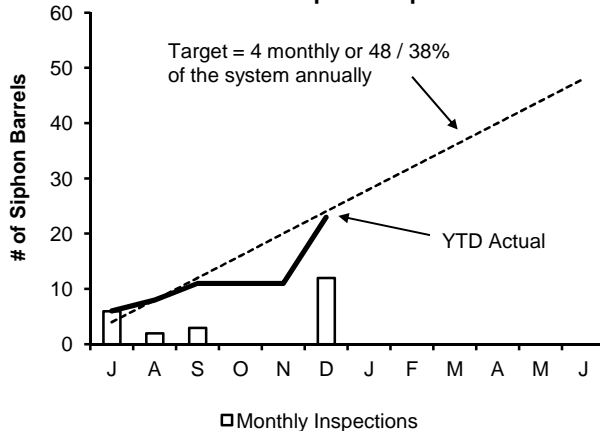
36 CSO structures and 427 additional manhole/structure were inspected during this quarter. The year to date total is 768

### Manhole Rehabilitation



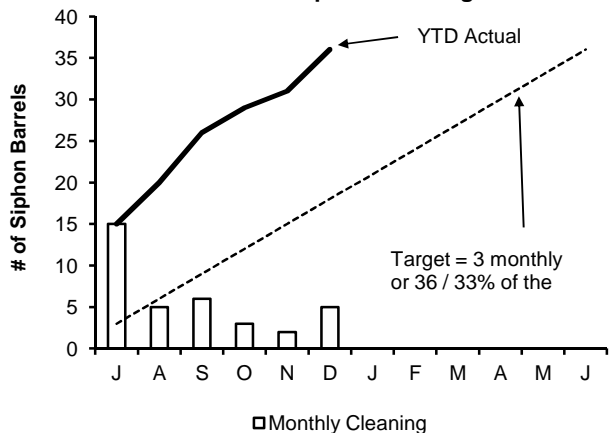
Staff replaced 1 frame & cover during this quarter. The year to date total is 21.

### Inverted Siphon Inspections



2 siphon barrels were inspected during this quarter. Year to date total is 23 inspections.

### Inverted Siphon Cleaning

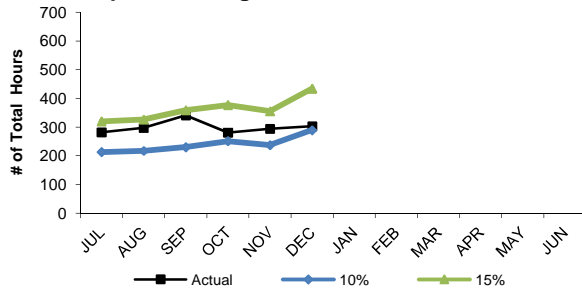


10 siphon barrels were cleaned during this quarter. The year to date total is 36 barrels.

## Field Operations' Metropolitan Equipment & Facility Maintenance 2nd Quarter, FY15

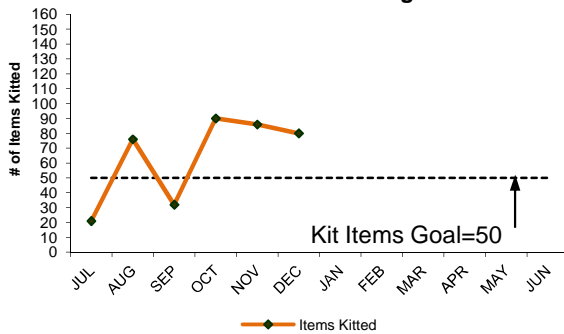
Several maintenance and productivity initiatives are in progress. The goal for the Overall PM completion and the Operator PM completion was raised to 100% for Fiscal Year 2010. The Operator PM and kitting initiatives frees up maintenance staff to perform corrective maintenance and project work, thus reducing maintenance spending. Backlog and overtime metrics monitor the success of these maintenance initiatives.

**Operations Light Maintenance PM Hours**



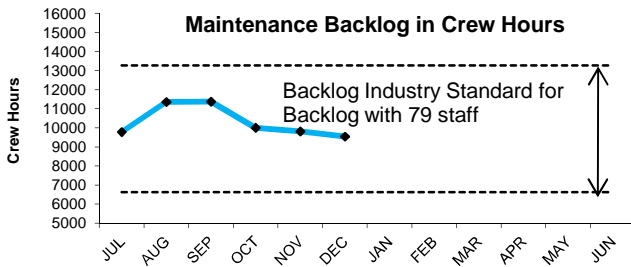
Operations staff averaged 293 hours of preventive maintenance during the 2nd Quarter, an average of 11% of the total PM hours for the 2nd Quarter, which is within the industry benchmark of 10% to 15%.

**Items Kitted Utilizing Maximo**



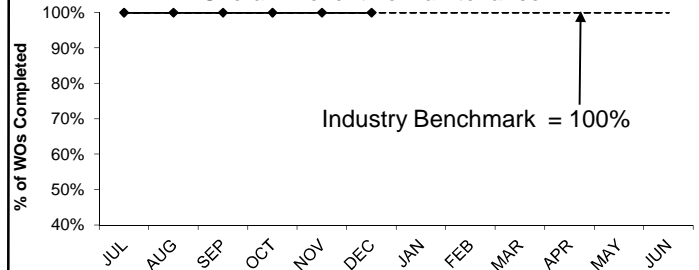
In an effort to more efficiently complete work, maintenance staff and work coordination staff have utilized the Lawson/Maximo interface to better kit stock and non stock material. The goal for FY15 is to "kit" 50 stock and non stock items total per month. An average of 85 items were kitted during the 2nd Quarter.

**Maintenance Backlog in Crew Hours**



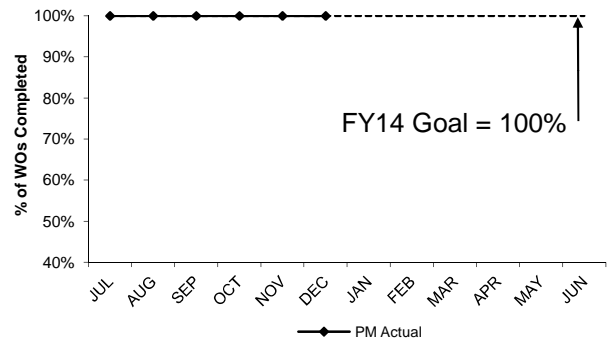
The 2nd Quarter backlog average is 9,790 hours. Management's goal is to continue to control overtime and still stay within the industry benchmark of 6450 to 12,940 hours. There are currently two vacant positions, one Facility Specialist and one Mechanic.

**Overall Preventive Maintenance**



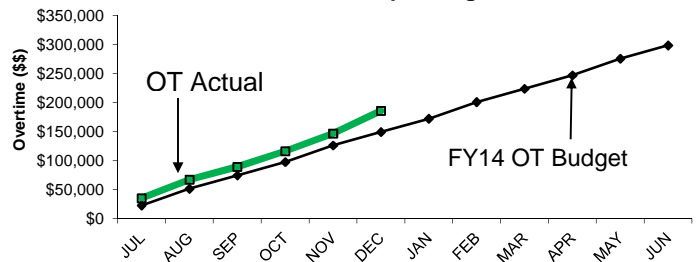
The Field Operations Department (FOD) preventive maintenance goal for FY15 is 100% of all PM work orders. Staff completed an average of 100% of all PM work orders in the 2nd Quarter.

**Operations Light Maintenance % PM Completion**



Wastewater Operators complete light maintenance PM's which frees up maintenance staff to perform corrective maintenance. Operations' FY15 PM goal is completion of 100% of all PM work orders assigned. Operations completed an average of 100% of PM work orders in the 2nd Quarter.

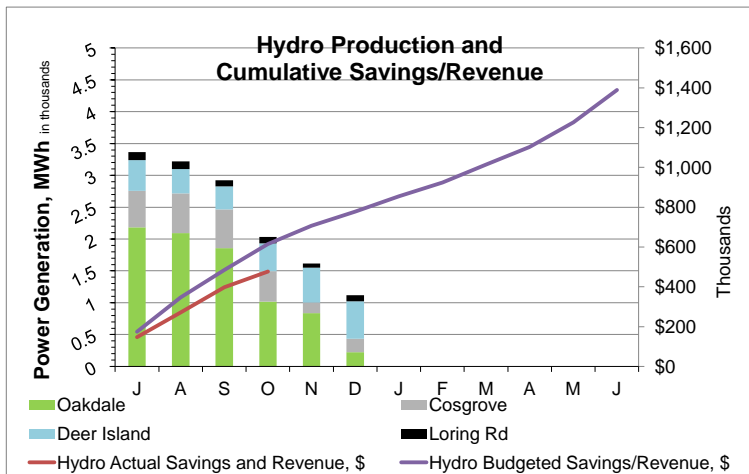
**Overtime Spending**



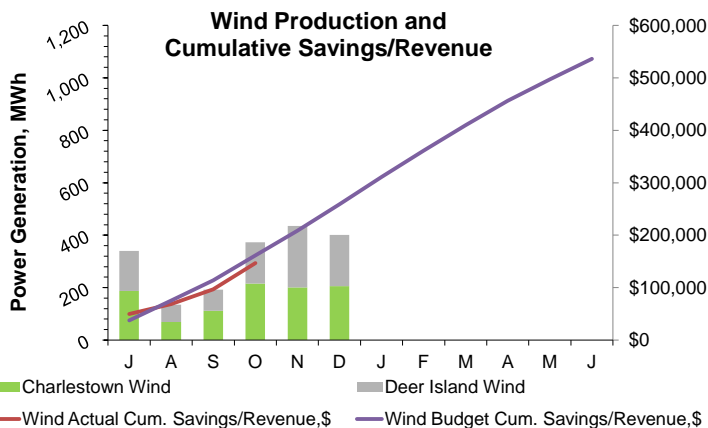
Maintenance overtime was \$37k over budget for the 2nd Quarter. Overtime was used for staging for weather events, critical maintenance repairs, and upgrades to the Chelsea Administration Building.

# Renewable Electricity Generation: Savings and Revenue

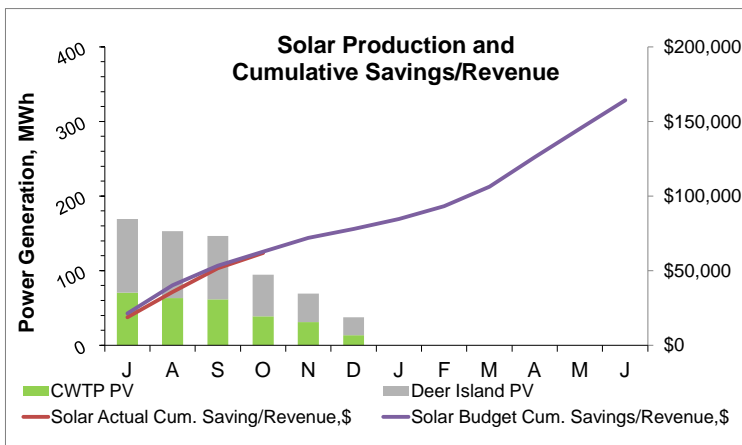
2nd Quarter - FY15



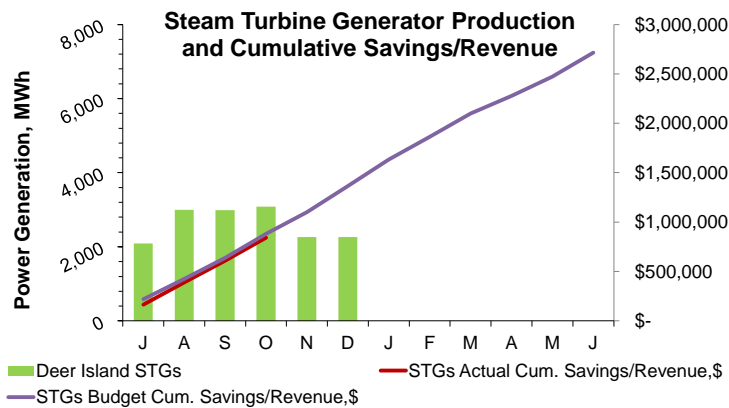
In the 2nd Quarter, the renewable energy produced from all hydroelectric facilities totaled 4,770 MWh; which is 15% higher than the budget for the quarter. The total energy produced to date in FY15 is 14,276 MWh. The total savings and revenue to date in FY15 (actual only through October\*) is \$476,964; which is 22% below budget, due to the fact that the actual electricity unit price for Deer Island has been 20% lower than the budgeted estimate for the same period.



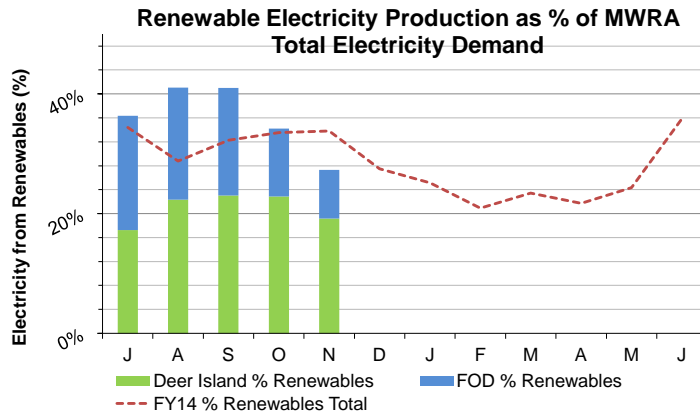
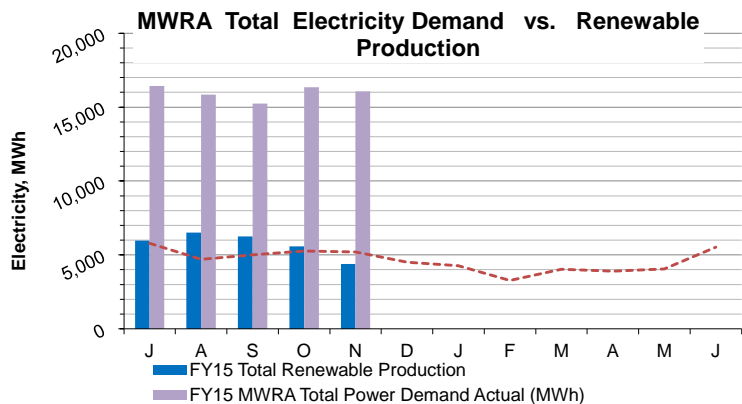
In the 2nd Quarter, the renewable energy produced from all wind turbines totaled 1,209 MWh; which met the budget for the quarter. The total energy produced to date in FY15 is 1,875 MWh. The total savings and revenue to date in FY15 (actual only through October\*) is \$146,553; which is 9% below budget, due to the fact that the actual electricity unit price for Deer Island has been 20% lower than the budgeted estimate for the same period.



In the 2nd Quarter, the renewable energy produced from all solar PV systems totaled 201 MWh; 10% below budget for the quarter. The total energy produced to date in FY15 is 670 MWh. The total savings and revenue to date in FY15 (through October\*) is \$61,855.



In the 2nd Quarter, the renewable energy produced from all steam turbine generators totaled 7,611 MWh; which met the budget for the quarter. The total energy produced to date in FY15 is 15,693 MWh. The total savings to date in FY15 (through October\*) is \$842,442.



In the first 5 months of FY15, MWRA's electricity generation by renewable resources totaled 28,690 MWh. MWRA's total electrical demand was approximately 79,879 MWh. The MWRA total demand is the sum of all electricity purchased for Deer Island and FOD plus electricity produced and used on-site at these facilities. Approximately 97% of FOD electrical accounts are accounted for by actual billing statements; minor accounts that are not tracked on a monthly basis such as meters and cathodic protection systems are estimated based on this year's budget.

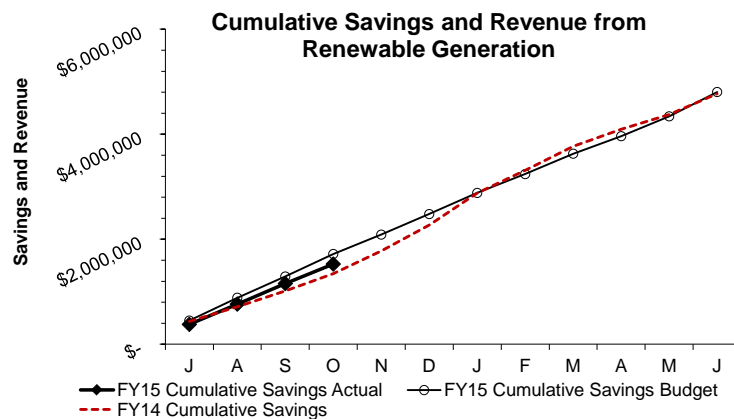
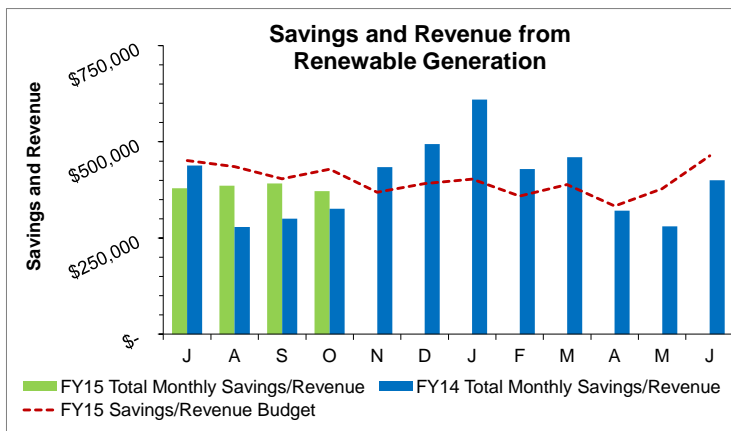
In the first 5 months of FY15, green power generation represented approximately 36% of total electrical demand. With the exception of Deer Island, most of the electricity generated by MWRA's renewable sources is exported to the grid.

Note: \*Only the actual energy prices are being reported. Therefore, some of the data lags up to (2) months due to timing of invoice receipt.

\*\*Savings and Revenue: Savings refers to any/all renewable energy produced that is used on-site therefore saving the cost of purchasing that electricity, and revenue refers to any value of renewable energy produced that is sold to the grid.

# Renewable Electricity Generation: Savings and Revenue

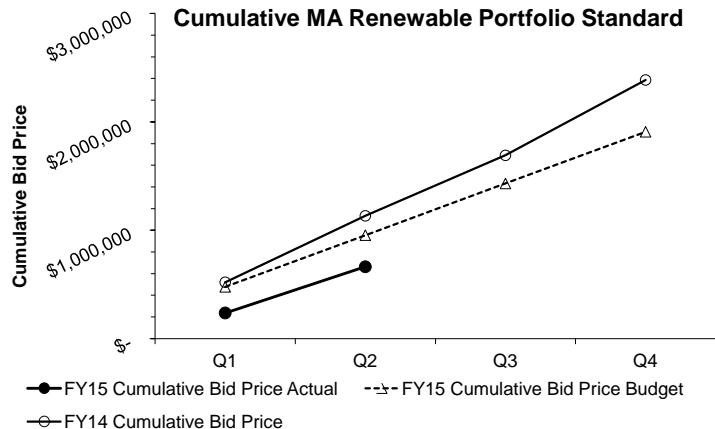
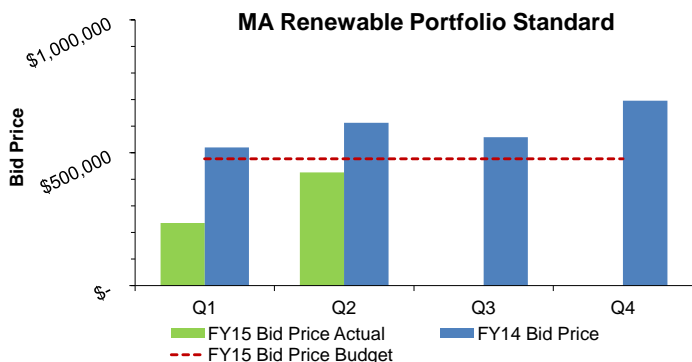
2nd Quarter - FY15



Savings and revenue from MWRA renewable generation in the 2nd Quarter (actual only through October) is \$371,588; which is 13% below the budget. This is partly due to the fact that the actual electricity unit price for Deer Island has been 20% lower than the budgeted estimate for the same period. Savings and revenue from all renewable energy sources include wind turbines, hydroelectric generators, solar panels, and steam turbines (DI). This includes savings and revenue due to electricity generation (does not include avoided fuel costs and RPS REC).

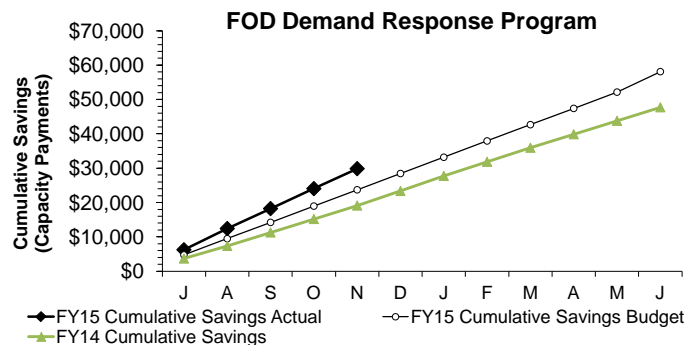
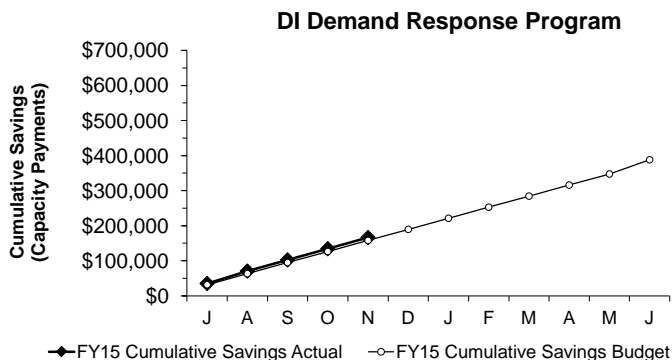
The use of DITP digester gas as a fuel source provides the benefit of both electricity generation from the steam turbine generators, and provides thermal value for heating the plant, equivalent to approximately 5 million gallons of fuel oil per year (not included in charts above).

\*\*Savings and Revenue: Savings refers to any/all renewable energy produced that is used on-site therefore saving the cost of purchasing that electricity, and revenue refers to any value of renewable energy produced that is sold to the grid.



Bids were awarded during the 2nd Quarter from MWRA's renewable energy assets; for the sale of 6,365 Class I Renewable Energy Certificates (RECs), 118 Solar RECs, and 2,869 Class II RECs for a total value of \$426,511 RPS revenue; which is 11% below the budget.

REC prices reflect the bid prices on the date that bids are accepted. Cumulative bid price reflects the total value of bids received to date.



Deer Island, 2 Water, and 4 Wastewater facilities\*\*\* participate in the ISO-New England Demand Response Programs. By agreeing to have its generators available to run and thus relieve the New England energy grid of some of MWRA's load during times of high energy demand, MWRA receives monthly Capacity Payments from ISO-NE. When MWRA operates back-up generators during an ISO-NE called event, MWRA also receives energy payments from ISO-NE. Cumulative savings (Capacity Payments only) through November total \$29,859 for FOD and \$166,166 for DI.

Note: \*Only the actual payments received are now being reported.

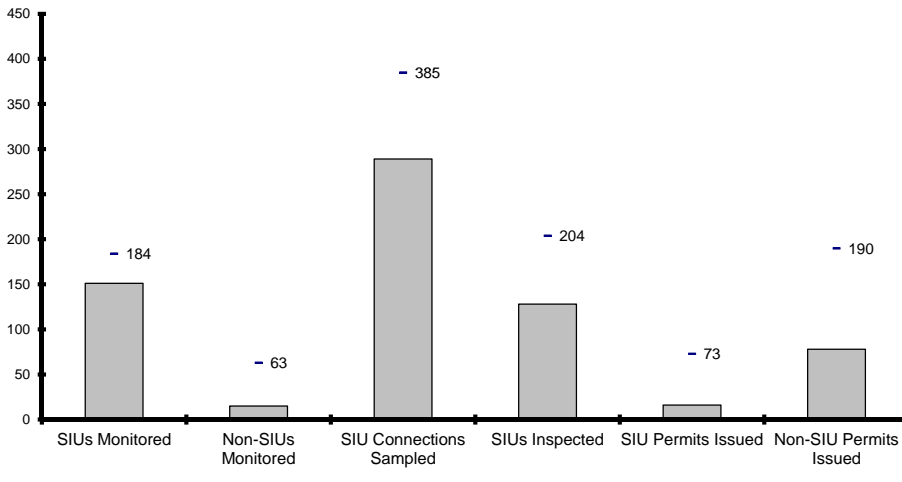
\*\*\* FOD Facilities include: CWTP, Loring Road, Chelsea Creek, Columbus Park, Ward St., and Nut Island.



# Toxic Reduction and Control

2nd Quarter - FY15

Inspections, Monitoring Events, Permits Issued, Year to Date



EPA Required SIU Monitoring Events

for FY15: 184  
YTD: **151**

Required Non-SIU Monitoring Events

for FY15: 63  
YTD: **15**

SIU Connections to be Sampled

For FY15: 385  
YTD: **289**

EPA Required SIU Inspections

for FY15: 204  
YTD: **128**

SIU Permits due to Expire

In FY15: 73  
YTD: **16**

Non-SIU Permits due to Expire

for FY15: 190  
YTD: **78**

Significant Industrial Users (SIUs) are MWRA's highest priority industries due to their flow, type of industry, and/or their potential to violate limits. SIUs are defined by EPA and require a greater amount of oversight.

EPA requires that all SIUs *with flow* be monitored at least once during the fiscal year.

The "SIU Monitored" data above, reflects the number of industries monitored in the month. However, many of these industries have more than one sampling point and the "SIU Connections Sampled" data reflect samples taken from

TRAC's annual monitoring and inspection goals are set at the beginning of each fiscal year but they can fluctuate due to the actual number of SIUs at any given time. During the course of the year, some SIUs do not discharge and cannot be monitored.

TRAC also monitors one-third of the non-SIUs each year. SIU and Non-SIU permits are issued with durations of two to five years, depending on the category of industry, varying the number of permits that expire in a given year.

Number of Days to Issue a Permit

	0 to 120		121 to 180		181 or more		Total Permits Issued	
	SIU	Non-SIU	SIU	Non-SIU	SIU	Non-SIU	SIU	Non-SIU
Jul	0	10	0	1	0	1	0	12
Aug	2	9	0	1	0	2	2	12
Sep	5	19	0	2	0	0	5	21
Oct	3	6	0	1	1	2	4	9
Nov	2	6	0	0	0	2	2	8
Dec	2	15	1	1	0	0	3	16
Jan							0	0
Feb							0	0
Mar							0	0
Apr							0	0
May							0	0
Jun							0	0

% YTD	88%	83%	6%	8%	6%	9%	16	78
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EPA requires MWRA to issue or renew 90% of SIU permits within 120 days of receipt of the application or the permit expiration date - whichever is later. EPA also requires the remaining 10% of SIU permits to be issued within 180 days.

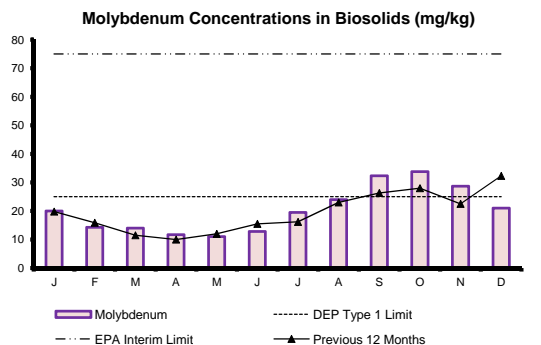
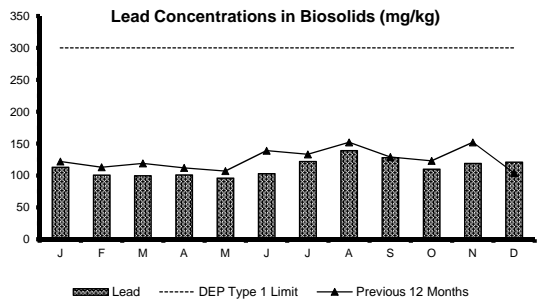
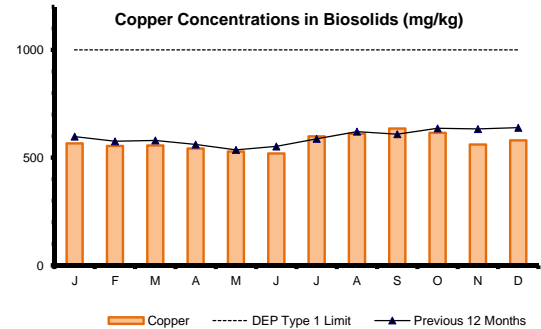
In the second quarter of FY15, forty-two permits were issued. Seven SIU permits and twenty-seven non-SIU permits were issued within 120 days. One SIU and two non-SIU permits were issued within the 120 to 180 day timeframe. One SIU and four non-SIU permits exceeded the 180 day period. Some delays continue: i) awaiting payment and ii) Industrial Coordinators' workload workload. Also this quarter, there was a delay while the permit holder decided whether their operations would continue and if the permit was needed.

Copper, lead, and molybdenum are metals of concern for MWRA as their concentrations in its biosolids have, at times, exceeded regulatory standards for unrestricted use as fertilizer. Cooling tower usage typically causes a seasonal spike in molybdenum concentrations due to the blowdown on large AC systems that use corrosion inhibitors containing molybdenum.

Levels drop again following the end of the cooling season, although this is delayed due to biosolids processing time. The hotter the season, the higher the spike.

TRAC has an ongoing program to persuade cooling tower operators to switch to phosphate-based corrosion inhibitors, but increases this year indicate that additional regulatory options must be considered.

In October and November the level of molybdenum was above the DEP type 1 limit; in December it was below. MWRA and its contractor (NEFCO) generally do not distribute product in Massachusetts between July and January under its approval of suitability.



# Field Operations Highlights – Yellow Notebook Bullets

## 2<sup>nd</sup> Quarter – FY15

### Western Water Operations and Maintenance

John J. Carroll Water Treatment Plant: “B” Side half plant shut down operations completed. Staff shut down and drained the B-side of the treatment plant and performed all critical annual maintenance tasks with the treatment system secure. These tasks include replacing the rupture discs on the primary contactors, tightening all of the connections on the Ozone delivery system, replacing the check valves in the chemical feed systems, cleaning the primary ozone contactors, cleaning the storage tank and post treatment sections of the process. The UV Contractor completed the removal process of temporary sluice gates and the installation of access ladders. At the completion of the maintenance and construction, staff refilled the treatment and storage tanks, flushed the Metrowest Tunnel and placed the system back in full plant operation with full redundancy on the treated water supply.

Lighting Upgrades: Staff replaced the exterior light fixtures at the Norumbega reservoir headquarters facility and the interior fixtures at the Hultman aqueduct shaft four with high efficiency LED fixtures that extend the operation life of the lights and decrease energy use.

William Brusch Water Treatment Facility: Facility, Grounds and Aqueduct Maintenance Staff prepared the facility for the dedication ceremony that was held on November 12<sup>th</sup> 2014. These preparations included, installing new signage, preparing the grounds, painting and cleaning the areas that had been disturbed by the construction project and setting up tents, tables and chairs for the ceremony. The dedication was a successful event and the plant has been operating smoothly since going online.

### Metro Water Operations & Maintenance

Water Pipeline Program: Valve installations and/or replacements were completed in Chelsea on Section 15 (including emergency connection to the Chelsea system); on Section 33 in Everett; and on Section 70 in Saugus. Work began in Brookline on Fisher Ave to replace the existing piping, valves, and meter at Meter 98. A new emergency connection between MWRA and Brookline Water system was completed which will allow for the isolation of Meter 98 for its replacement, with no disruption of service. Major work on the piping and valve replacement will begin in January.

Repair work was undertaken on the Section 56 piping on the General Edwards Bridge (Route 1A) over the Saugus River. A barge was mobilized to provide access to the piping over the water. A second leak was repaired that had surfaced on the southbound roadway during the month. The line remains out of service, due to the condition of the pipe within the superstructure of the bridge. Replacement of short segments may be required in order to return the line to service. The blow off retrofit on Section 84 on Adams and Pearl Street in Malden was completed, utilizing Section 70 as an additional source of water to the NHS area for the duration of the isolation. Service remained normal thru the operation. The leaking blow off valve on Section 63 on Summer Street in Arlington was replaced. Two leaking joints on Section 62 at Forest St at Summer Street in Arlington were repaired. Both joints were re-caulked and bell joint clamps were installed.

Hydrant pressure data recorders were deployed on two fire hydrants in the Lynn Water and Sewer Commission (LWSC) water system as part of the data collection effort to support the LWSC Low Service Reservoir project.

Chestnut Hill Underground Pump Station: All four pumps were successfully run at the station during the quarter, however, some electrical issues occurred. There is an issue with water in the electrical conduits that are embedded in the concrete. Staff installed temporary wiring and ran the pumps successfully. A design will be completed to install surface mounted conduit to minimize the water intrusion issue. The current elevation of the reservoir, which is lower than normal due to the winter draw down, would need to be raised several feet with water from the Sudbury Aqueduct system if the pumps were needed until early spring when the reservoir level will be returned to its normal operating range.

### Operations Engineering: Community Support

Continued coordination with the City of Lynn regarding the city’s potential temporary use of MWRA water, while replacing the cover to their low service finished water reservoir.

Along with Water Quality Assurance, assisted the Town of Wellesley to discover and resolve the water quality issues associated with their Pierce Hill Tanks. An access hatch to the larger tank was buried for years. The hatch was uncovered and was found to be corroding with several noticeable holes. This allowed contaminants to enter the tanks. They were isolated, dewatered and necessary repairs were made to the smaller tanks. The smaller tank was disinfected and activated. The larger tank repairs were finished in December and it is hoped to activate the tank in January.

Working with Reading and North Reading and other MWRA Staff on the possibility of MWRA supplying North Reading through Reading; and

Along with Water Quality Assurance, assisted the City of Quincy with a water quality issue with their Ricciuti Drive Tank, including changing tank operating levels and pumping cycles. Also assisted in locating a potential leak nearby.

## **Wastewater Operations & Maintenance**

North Main Pump Station Shutdown: Wastewater Operations Staff continues to prepare for the North Main Pump Station Equipment Upgrade project. Staff is providing wastewater system operating conditions, monitoring points, system modeling information and regulatory notification comments.

## **Metro Equipment and Facility Maintenance**

Caruso Pump Station and Prison Point Dry Weather Flow Pump #2 Variable Frequency Drive (VFD): VFDs at these two facilities failed. New VFDs were purchased and installed by MWRA Electrical Staff.

New Neponset Soft Starter: The Soft Starter for Pump #3 failed. A new soft starter was purchased and installed by MWRA Electricians.

Gillis Sewerage Pump Ejectors: The sewerage ejection pumps were worn and beyond useful life. New pumps were purchased and installed by MWRA Plumbers and Electricians.

## **Metering**

Staff continues to work with Telog and MIS to improve functionality of the new web module. Staff continues to work on a new scope of services for the Wastewater Meter Replacement Contract. Staff notified Everett, Malden, Medford, Melrose, Newton, Norwood, Revere and Weston of increases in their flows indicating possible leaks. Staff worked with Malden to help identify valve closures necessary to divide their high service system into three separate districts to aid in identifying locations of leak potential.

## **Environmental Quality**

UCMR3: Quarterly samples were collected as part of EPA's third Unregulated Contaminant Monitoring Rule (UCMR3) Program in October. This completes the set of samples for 2014. Staff finalized sample locations for the 2015 UCMR3 Sampling Program. In 2015, ENQUAL-Water MWRA will sample eight fully-served communities on a quarterly basis. Community samplers will be responsible for sampling at six partially-served communities and two CVA communities. Staff prepared a presentation of the UCMR3 Rule as well as sampling protocols and logistics that will be offered to partially-served communities in early January.

### Community Support:

Staff provided sampling and testing support to Wellesley, Weston, and Quincy in October. Staff collected depth samples in Wellesley's Pierce Tank which has been cleaned and disinfected following the E. coli event in August, and the tank was reactivated with DEP approval. Complaint samples were collected and tested in Weston, and staff also identified problems with field testing equipment used by Weston Water Department. The issue has been resolved. Samples were collected at Riccutti Drive Water Storage Tank in Quincy to evaluate and respond to water quality concerns in that tank. Poor results led Quincy Water Department to drain, chlorinate and refill the tank and this greatly improved chlorine residuals.

Staff provided assistance to the Hanscom Air Force Base in November in response to a taste and odor complaint at a maintenance building located on base property. Field results showed a decrease in chlorine residual in two taps within the building. ENQUAL-Water Staff provided help with field testing and sampling and provided preliminary and final results to Hanscom Air Force Base Staff.

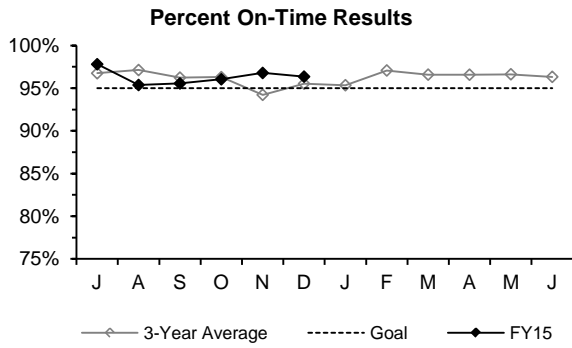
Staff provided assistance to the Boston Water & Sewer Commission, in November, in response to a complaint of accumulation on screens associated with in-line water meters. ENQUAL-Water Staff, in conjunction with a MWRA Valve Crew, sampled several air valves in close proximity to the complaint site. Results show that screens in large meters may disrupt flow resulting in biofilm accumulations, thus requiring periodic cleaning.

Staff provided assistance to the Chelsea Water Department, in November, in response to a water quality complaint originated by a business on Crescent Avenue. The tenant complained about discoloration and filter fouling. ENQUAL-Water Staff conducted testing on several samples and forwarded additional samples for metals testing to DLS. The final results show that samples leading to the building are within acceptable water quality regulatory and non-regulatory targets. A sample taken from the premise plumbing indicated a copper result close to the DEP secondary MCL for drinking water. The final report was provided to Chelsea Water Department Staff

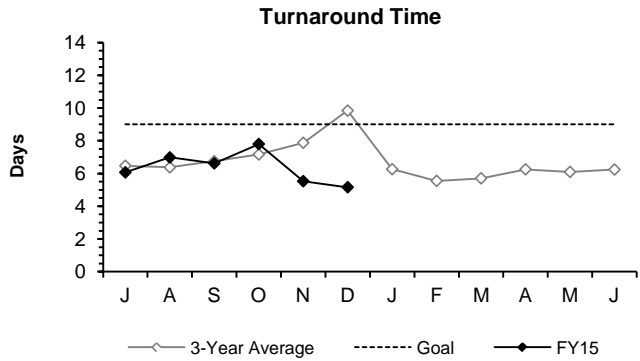
### Contaminant Monitoring:

The Contaminant Monitoring Station at Arlington Covered Reservoir and Bellevue Standpipes are fully installed and providing continuous data.

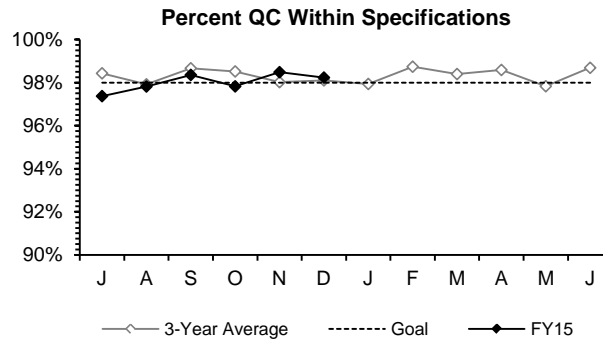
## Laboratory Services 2nd Quarter - FY15



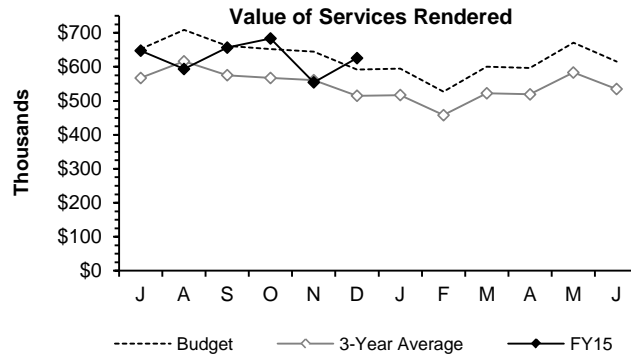
The Percent On-Time measurement was above the 95% goal each month of the quarter.



Turnaround Time was faster than the 9-day goal each month of the quarter.



Percent of QC tests meeting specifications was above the 98% in-house goal two out of three months of the quarter.



Value of Services Rendered was above the seasonally adjusted budget projection two out of three months of the quarter. Year to date we are 4% below budget, while staffing has averaged 9% below budget

**Highlights:**

Dr. Delaney has been appointed by the EPA Administrator to a two year term on the EPA Environmental Laboratory Advisory Board (ELAB) a committee which advises EPA with regard to environmental laboratories. He also gave presentations on improving cyanide testing at three meetings: ELAB, DEP Laboratory Advisory Committee, and the Independent Testing Laboratory Association.

**Quality Assurance:**

The few corrective actions identified in the Internal Audit management advisory on Lab Quality Control have been completed. The quarterly internal audit on Sampling and Sample Custody found good compliance with requirements.

**Security/Mobile Lab:**

Continuing to monitor DPH weekly Ebola Prep conference calls. Provided information for Wachusett spill response plan and CWS alarm response plan.

**DITP:**

The Lab collected random quality control samples during fuel delivery.

**Wastewater Operations:**

Preparations were made to process samples from the CSO Treatment Evaluation special study when they are collected during wet weather CSO activations.

**ENQUAL Clean Water:**

Working with ENQUAL on the impact of the EPA "Sufficiently Sensitive" rule to identify any contaminants that need to be monitored with more sensitive methods than we are currently using.

**ENQUAL Drinking Water:**

A new quarterly water sampling program focusing on nutrients was initiated at the Chestnut Emergency Distribution Reservoir in support of future efforts to reduce blue-green algae.



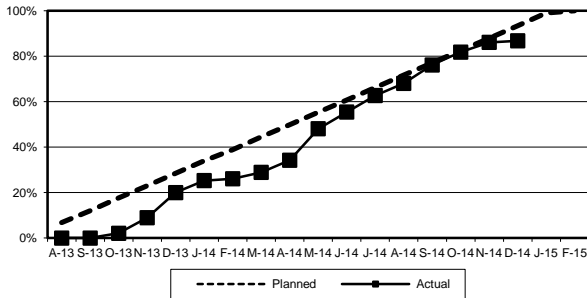
# CONSTRUCTION PROGRAMS

# Projects In Construction

Q2 – FY15

(Progress Percentages based on Construction Expenditures)

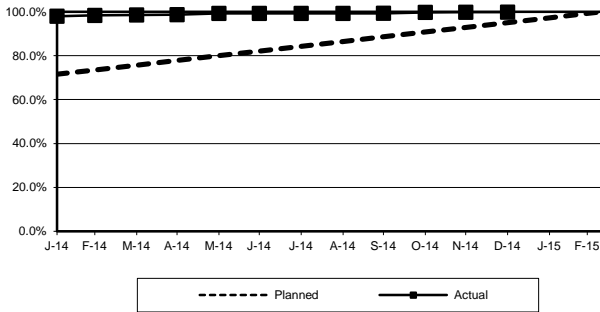
## Nut Island Headworks Electrical and Conveyor Improvements Progress – December 2014



**Project Summary:** This project will replace the floor-slab-embedded electrical conduits in the bottom level of the headworks, as well as improvements to the grit and screenings conveyors.

**Status and Issues:** As of December, the electrical contractor continued with the installation of conduit for existing equipment on the bottom level of the facility and power feed cut-overs to existing equipment in the pump, blower and odor control areas. In addition, they began the cut-over of the carbon beds and pneumatic dampers.

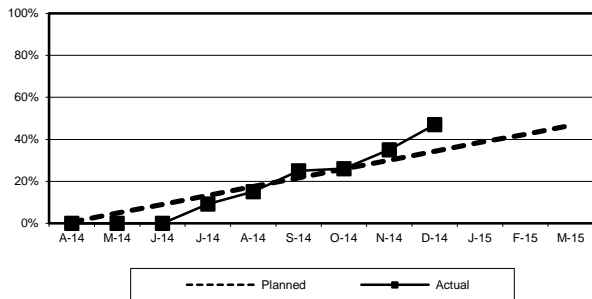
## UV Disinfection Facilities CWTP Progress – December 2014



**Project Summary:** In accordance with the EPA's requirement to have two primary methods of disinfection, the Authority will add an Ultraviolet (UV) light disinfection process at the Carroll Water Treatment Plant, which will render Cryptosporidium inactive.

**Status and Issues:** As of December, the electrical contractor mobilized back to the site to work on punchlist items generated by the State Electrical Inspector. Warrantee work was performed on the dehumidifier units and the flood alarm was activated and programmed for connection to SCADA. Contractor removed temporary sluice gates in B side of chlorine contact channel during half plant shutdown.

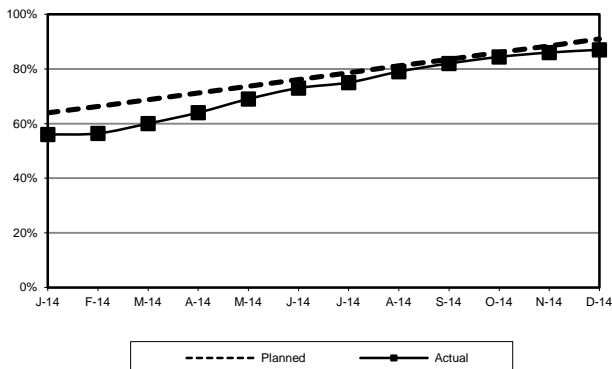
## Clinton Digester and Primary Clarifier Rehab Progress - December 2014



**Project Summary:** This project involves the rehabilitation of the Plant's two digesters, as well as the replacement of the gas compressors, sludge collection equipment, isolation gates and repairs to the concrete.

**Status and Issues:** As of December, Contractor continued with the sandblasting and painting of the digester floating cover. The coating of Primary Clarifiers 3&4 was completed, as well as the backfilling and railing installation.

## Spot Pond Water Storage Facility Progress – December 2014



**Project Summary:** This is a design/build project for the construction of two, 10 million-gallon covered concrete storage tanks and a buried pump station, which will provide back-up redundancy for the Northern High and Northern Intermediate High distribution service areas.

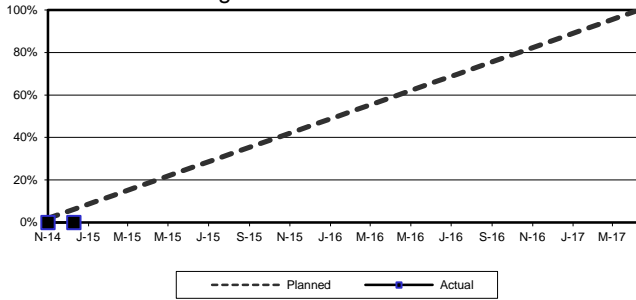
**Status and Issues:** As of December, the Contractor continued with the internal remedial work on Tank #2 walls and columns. They continued waterproofing the roof decks of both tanks. In addition, they worked on the mechanical piping, plumbing, electrical and HVAC installations in the pump station.

# Projects In Construction

Q2 – FY15

(Progress Percentages based on Construction Expenditures)

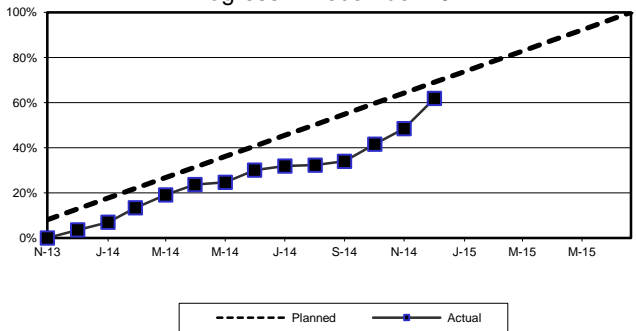
Water Mains: Section 36, W11C and S9-A  
Progress – December 2014



**Project Summary:** This project includes the replacement of Section 36 in Arlington; the installation of a new water main (Section W11C); and the replacement of an inoperable 48-inch butterfly valve on Shaft 9-A pipeline in Medford.

**Status and Issues:** This contract was awarded on 11/4/14 to RJV Construction. As of December, the preliminary schedule was under review and the Contractor has installed the construction trailers at the Brattle Court Pump Station lot.

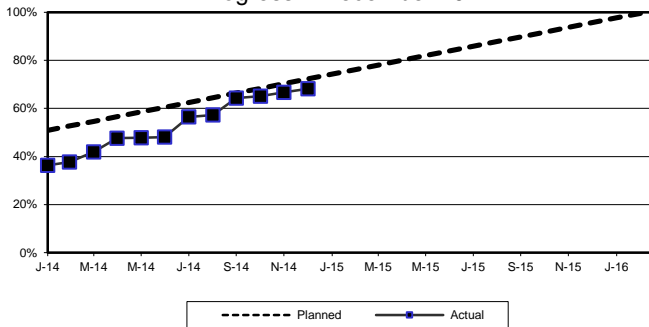
Pump, Gear Box and Diesel Engine Upgrade  
Prison Point and Cottage Farm CSO Facilities  
Progress - December 2014



**Project Summary:** This project involves the rebuilding of pumps right angle gear drives and engines as well as the installation of diesel oxidation catalysts at the Prison Point and Cottage Farm CSO facilities.

**Status and Issues:** During December, Philadelphia Gear performed factory testing of the Prison Point Right Angle Gear Drive #1 at their Delaware facility which was witnessed by FST. The new wear ring and pull out assembly inside Pump #1 was installed and factory testing of Pumps 1 – 4 at the Maryland facility was witnessed by FST.

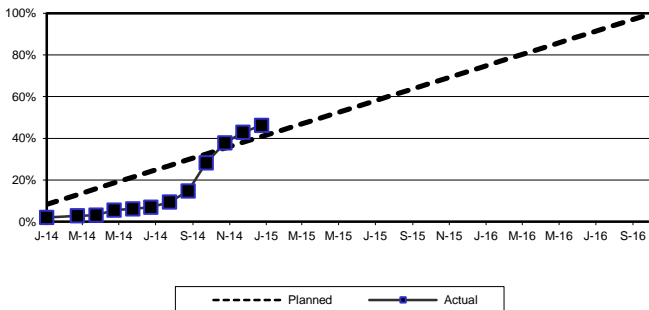
North Main Pump Station VFDs & Motors  
Progress - December 2014



**Project Summary:** This project involves the replacement of the existing 3500 HP variable frequency drives and synchronous motors for the RWW pumps at the North Main Pump Station.

**Status and Issues:** During December, VFD 2 4160V power on 12/11/14 and testing of systems started. Loop checks performed of field device wiring and VFD interface. Motor coupled and 4 hour run on 12/18/14. VFD 2 and Motor 2 started into the 48 hour IST on 12/18/14 and completed on 12/20/14. VFD 2 started 10 day OAD on 12/20/14 and ended on 12/30/14.

Primary and Secondary Clarifier Scum Tip Tubes  
Progress - December 2014



**Project Summary:** This project involves the replacement of the existing carbon steel tip tubes with 316 stainless steel in 48 primary and 54 secondary clarifiers to improve reliability and increase longevity.

**Status and Issues:** Through December the contractor, Walsh Construction, continued with the replacement of scum skimmers (Completed 88 of 196) and the installation of conduit and wiring in Secondary & Primary Areas from control panel to tube actuators.

# CSO CONTROL PROGRAM

2nd Quarter - FY15

MWRA and the CSO communities have completed 32 of the 35 projects in the Long-Term CSO Control Plan. The three remaining CSO projects are in construction: Reserved Channel Sewer Separation by BWSC, CAM004 Sewer Separation by City of Cambridge, and Automated Gate/Floatables Control at Outfall MWR003 and Rindge Ave. Siphon Relief. The following table reports on the progress of the three CSO projects not yet complete, as well as BWSC's continuing inflow removal work associated with the completed South Dorchester Bay Sewer Separation project.

Project		Court Milestones in Schedule Seven (Shaded milestones are complete.)			Status as of December 31, 2014																																				
		Commence Design	Commence Construction	Complete Construction																																					
Reserved Channel Sewer Separation		Jul 06	May 09	Dec 15	<p>BWSC continues to make progress with the nine planned contracts for the Reserved Channel Sewer Separation project.</p> <table border="0"> <tr><td>Contract 1</td><td>CSO outfall rehab</td><td>\$ 4.1 M</td><td>Complete</td></tr> <tr><td>Contract 2</td><td>Sewer separation</td><td>\$ 5.9 M</td><td>Complete</td></tr> <tr><td>Contract 3A</td><td>Sewer separation</td><td>\$11.8 M</td><td>Complete</td></tr> <tr><td>Contract 3B</td><td>Sewer separation</td><td>\$14.8 M</td><td>Sub. Comp.</td></tr> <tr><td>Contract 4</td><td>Sewer separation</td><td>\$13.9 M</td><td>92% complete</td></tr> <tr><td>Contract 5</td><td>Cleaning &amp; Lining</td><td>ineligible</td><td>Underway</td></tr> <tr><td>Contract 6</td><td>Downspout Disconnect</td><td>\$ 0.2M</td><td>NTP 12/8/14</td></tr> <tr><td>Contract 7</td><td>Pavement restoration</td><td>\$ 1.2 M</td><td>Complete</td></tr> <tr><td>Contract 8</td><td>Pavement restoration</td><td>\$ 4.8 M</td><td>50% complete</td></tr> </table> <p>The MWRA Board approved Amendment 15 to the BWSC MOU/FAA on November 12, 2014, increasing the total award amount to \$296.3 million. BWSC plans to complete all work for the Reserved Channel sewer separation project by December 2015, in compliance with Schedule Seven.</p>	Contract 1	CSO outfall rehab	\$ 4.1 M	Complete	Contract 2	Sewer separation	\$ 5.9 M	Complete	Contract 3A	Sewer separation	\$11.8 M	Complete	Contract 3B	Sewer separation	\$14.8 M	Sub. Comp.	Contract 4	Sewer separation	\$13.9 M	92% complete	Contract 5	Cleaning & Lining	ineligible	Underway	Contract 6	Downspout Disconnect	\$ 0.2M	NTP 12/8/14	Contract 7	Pavement restoration	\$ 1.2 M	Complete	Contract 8	Pavement restoration	\$ 4.8 M	50% complete
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Cambridge/ Alewife Brook Sewer Separation	CAM004 Sewer Separation	Jan 97	Jul 98	Dec 15	<p>Cambridge completed four initial construction contracts for this project more than a decade ago and is presently managing four additional sewer separation contracts (contracts 8A, 8B, 9 and Concord Lane) to complete the project.</p> <table border="0"> <tr><td>Contract 8A</td><td>Sewer separation</td><td>\$10.6M</td><td>Subst. complete</td></tr> <tr><td>Contract 8B</td><td>Sewer separation</td><td>\$18.3M</td><td>77% complete</td></tr> <tr><td>Contract 9</td><td>Sewer separation</td><td>\$ 7.1M</td><td>58% complete</td></tr> <tr><td>Concord Lane</td><td>Sewer separation</td><td>\$1.8M</td><td>Bids received</td></tr> </table> <p>Cambridge recently received bids for Concord Lane and plans to meet with the property owner and contractor to finalize the last 1 right of entry for construction. Cambridge plans to commence construction in Concord Lane this spring and complete all work for the CAM004 sewer separation project by December 2015, in compliance with Schedule Seven.</p>	Contract 8A	Sewer separation	\$10.6M	Subst. complete	Contract 8B	Sewer separation	\$18.3M	77% complete	Contract 9	Sewer separation	\$ 7.1M	58% complete	Concord Lane	Sewer separation	\$1.8M	Bids received																				
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Concord Lane	Sewer separation	\$1.8M	Bids received																																						
	MWR003 Gate and Rindge Ave. Siphon Relief	Apr 12	Aug 14	Oct 15	<p>MWRA issued the notice to proceed with construction on August 28, 2014. The contractor is 31% complete and plans to complete all work by October 31, 2015, in compliance with Schedule Seven.</p>																																				



Other CSO Related Work				
Project	Court Milestones in Schedule Seven (Shaded milestones are complete.)			Status as of December 31, 2014
	Commence Design	Commence Construction	Complete Construction	
South Dorchester Bay Sewer Separation Post-Construction Inflow Removal	N/A	N/A	N/A	BWSC has completed its investigation of alternatives for removing additional stormwater inflow from its Dorchester Interceptor or otherwise relieving hydraulic conditions in the interceptor during extreme storms following the closing of CSO regulators with completion of the South Dorchester Bay sewer separation project in 2007. The findings from the final report are under review. Meanwhile, BWSC continues with a construction contract to remove some of the remaining inflow sources from its sewer system. The contract amount is \$562,261, of which \$204,000 is eligible for MWRA funding under the BWSC CSO MOU and FAA. MWRA's FY15 CIP includes \$5.4 million for the inflow removal effort, of which approximately \$2.7 million is allocated to awarded design and construction contracts.

# CIP Expenditures

2<sup>nd</sup> Quarter – FY15

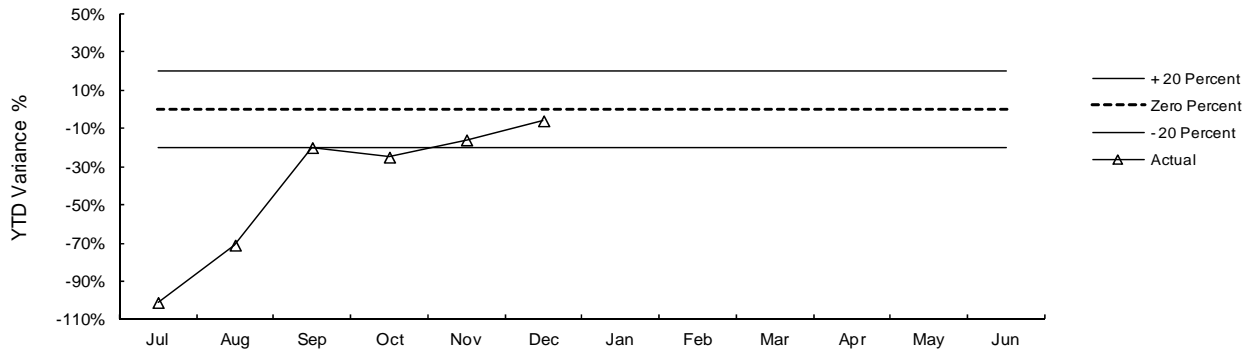
The Year-To-Date variances are highlighted below:

FY15 Capital Improvement Program Expenditure Variances through December by Program (\$000)				
Program	FY15 Budget Through December	FY15 Actual Through December	Variance Amount	Variance Percent
Wastewater	31,350	33,265	1,915	6%
Waterworks	17,536	14,020	(3,516)	-20%
Business and Operations Support	2,916	1,447	(1,469)	-50%
Total	51,801	\$48,731	(\$3,070)	-6%

Overspending within Wastewater is primarily due contractor progress on Scum Skimmer and Clinton Digester Rehabilitation contracts, updated costs estimates due to increase scope for Reserved Channel Sewer Separation, and greater than anticipated community requests for grants and loans for the infiltration/inflow (I/I) Program. This was partially offset by timing of work for Electrical Equipment Upgrade Construction 4, Centrifuge Backdrive Replacement, Butterfly Valve Replacement, and North Main Pump Station (NMPS) Variable Frequency Drive Construction contracts. Underspending in Waterworks is primarily due to timing of work for the Spot Pond Storage Facility Design/Build contract and less than anticipated spending on WASM 3 Design and Southern Extra High Design contracts. This was partially offset by greater than anticipated community requests for loans, timing of Watershed Land purchases, and contractor progress for the Quabbin Ultraviolet Disinfection Construction contract.

## CIP Expenditure Variance

Total FY15 CIP Budget of \$137,600,000.



## Construction Fund Management

All payments to support the capital program are made from the Construction Fund. Sources of fund in-flows include bond proceeds, commercial paper, SRF reimbursements, loan repayments by municipalities, and current revenue. Accurate estimates of cash withdrawals and grant payments (both of which are derived from CIP spending projections) facilitate planning for future borrowings and maintaining an appropriate construction fund balance.

Cash Balance 12/27/2014	\$49 million
Unused capacity under the debt cap:	\$853 million
Estimated date for exhausting construction fund without new borrowing:	Oct-15
Estimated date for debt cap increase to support new borrowing:	Not anticipated at this time
Commercial paper outstanding:	\$130 million
Commercial paper capacity:	\$350 million
Budgeted FY15 capital spending:*	\$125 million

\* Cash based spending is discounted for construction retainage.

# DRINKING WATER QUALITY AND SUPPLY

# Source Water – Microbial Results and UV Absorbance

2nd Quarter – FY15

## Source Water – Microbial Results

Total coliform bacteria are monitored in both source and treated water to provide an indication of overall bacteriological activity. Most coliforms are harmless. However, fecal coliform, a subclass of the coliform group, are identified by their growth at temperatures comparable to those in the intestinal tract of mammals. They act as indicators of possible fecal contamination. The Surface Water Treatment Rule for unfiltered water supplies allows for no more than 10% of source water samples prior to disinfection over any six-month period to have more than 20 fecal coliforms per 100mL.

### Sample Site: Quabbin Reservoir

Quabbin Reservoir water is sampled at the William A. Brutsch Water Treatment Facility (formerly Ware Disinfection Facility) raw water tap before being treated and entering the CVA system.

All samples collected during the 2nd Quarter were below 20 cfu/100ml. **For the current six-month period, 0.0% of the samples have exceeded a count of 20 cfu/100mL.**

### Sample Site: Wachusett Reservoir

Wachusett Reservoir water is sampled at the CWTP raw water tap in Marlborough before being treated and entering the MetroWest/Metropolitan Boston systems.

In the wintertime when smaller water bodies near Wachusett Reservoir freeze up, many waterfowl will roost in the main body of the reservoir - which freezes later. This increased bird activity tends to increase fecal coliform counts. DCR has an active bird harassment program to move the birds away from the intake area.

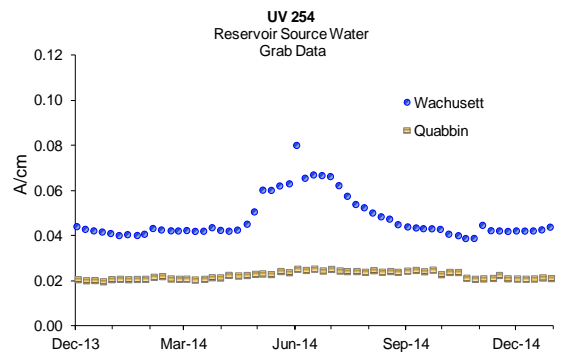
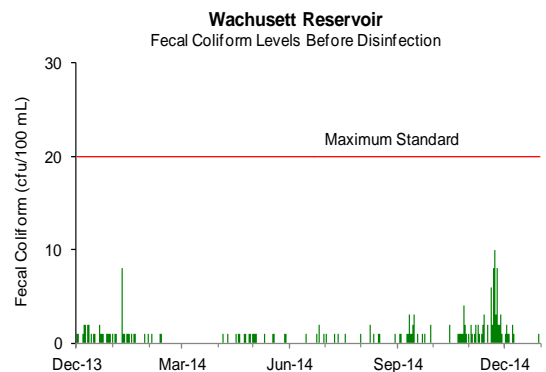
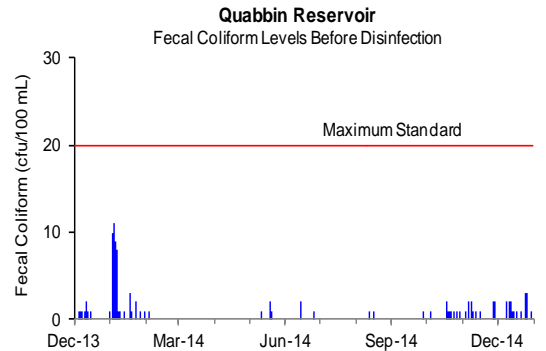
All samples collected during the 2nd Quarter were below 20 cfu/100mL. **For the current six-month period, 0% of the samples exceeded a count of 20 cfu/100mL.**

## Source Water – UV Absorbance

UV Absorbance at 254nm wavelength (UV-254), is a measure of the amount and reactivity of natural organic material in source water. Higher UV-254 levels cause increased ozone and chlorine demand resulting in the need for higher ozone and chlorine doses, and can increase the level of disinfection by-products. UV-254 is impacted by tributary flows, water age, sunlight and other factors. Hurricanes can have a significant and long lasting impact.

Quabbin Reservoir UV-254 levels are currently around 0.021 A/cm.

Wachusett Reservoir UV-254 levels are currently around 0.044 A/cm.





## Source Water – Turbidity

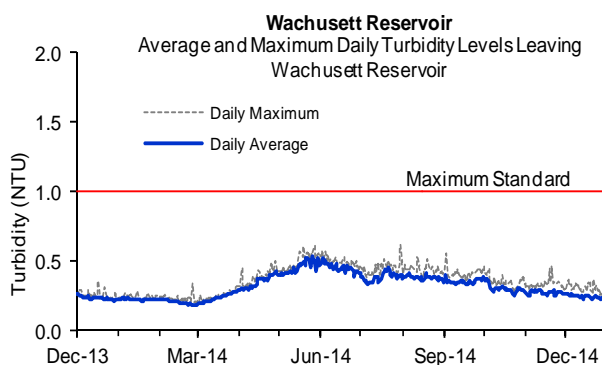
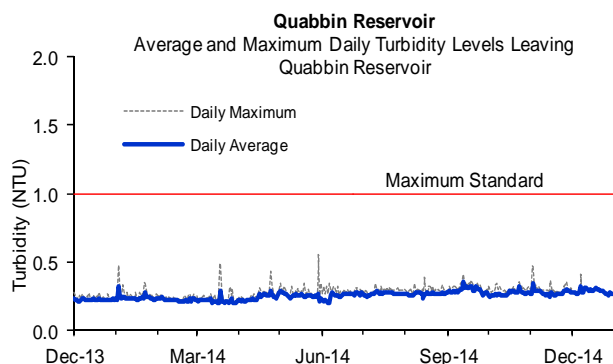
2nd Quarter – FY15

Turbidity is a measure of suspended and colloidal particles including clay, silt, organic and inorganic matter, algae and microorganisms. The effects of turbidity depend on the nature of the matter that causes the turbidity. High levels of particulate matter may have a higher disinfectant demand or may protect bacteria from disinfection effects, thereby interfering with the disinfectant residual throughout the distribution system.

There are two standards for turbidity: all water must be below 5 NTU (Nephelometric Turbidity Units), and water only can be above 1 NTU if it does not interfere with effective disinfection.

Turbidity of Quabbin Reservoir water is monitored continuously at the William A. Brutsch Water Treatment Facility before chlorination. Turbidity of Wachusett Reservoir is monitored continuously at the Carroll Water Treatment Plant before ozonation.

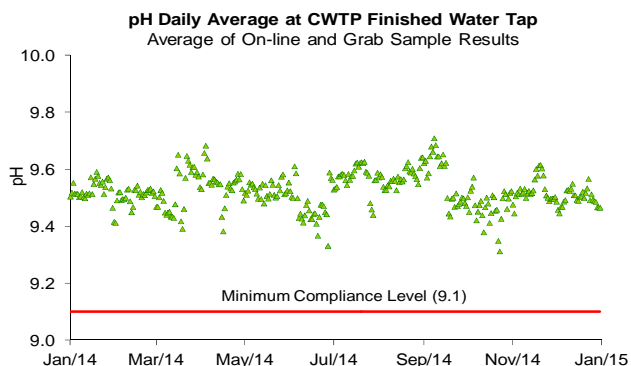
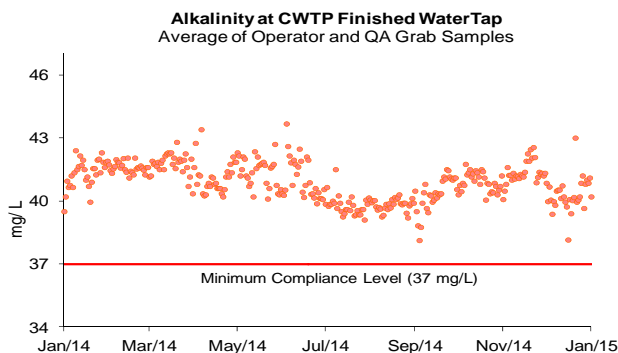
Maximum turbidity results at Quabbin and Wachusett were within DEP standards for the quarter



## Treated Water – pH and Alkalinity Compliance

MWRA adjusts the alkalinity and pH of Wachusett water to reduce its corrosivity, which minimizes the leaching of lead and copper from service lines and home plumbing systems into the water. MWRA tests finished water pH and alkalinity daily at the CWTP's Fin B sampling tap. MWRA's target for distribution system pH is 9.3; the target for alkalinity is 40 mg/l. Per DEP requirements, CWTP samples have a minimum compliance level of 9.1 for pH and 37 mg/L for alkalinity. Samples from 27 distribution system taps have a minimum compliance level of 9.0 for pH and 37 mg/L for alkalinity. Results must not be below these levels for more than nine days in a six month period. Distribution system samples are collected in March, June, September, and December.

Distribution system samples were collected on December 10 and 11, 2014. Distribution system sample pH ranged from 9.4 to 9.6 and alkalinity ranged from 40 to 42 mg/L. No sample results were below DEP limits for this quarter.



# Treated Water – Disinfection Effectiveness

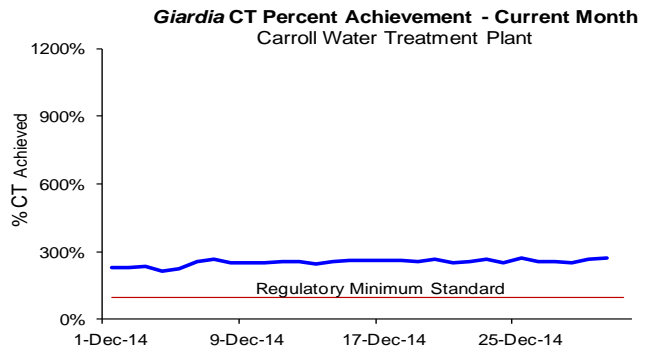
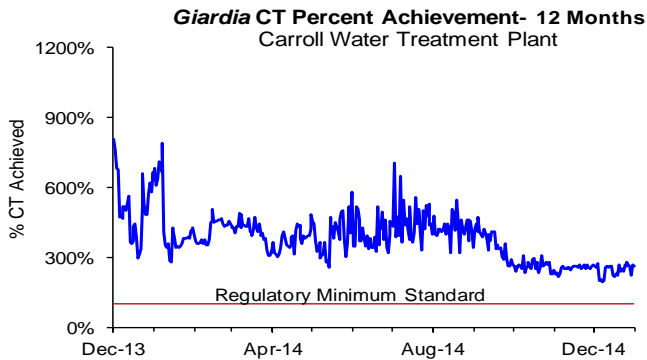
2nd Quarter – FY15

At the Carroll Water Treatment Plant (CWTP), MWRA meets the required 99.9% (3-log) inactivation of *Giardia* using ozone (reported as CT: concentration of disinfectant x contact time) and the required 99% (2-log) inactivation of *Cryptosporidium* using UV (reported as IT: intensity of UV x time). MWRA calculates inactivation rates hourly and reports *Giardia* inactivation at maximum flow and *Cryptosporidium* inactivation at minimum UV dose. MWRA must meet 100% of required CT and IT.

CT achievement for *Giardia* assures CT achievement for viruses, which have a lower CT requirement. For *Cryptosporidium*, there is also an "off-spec" requirement. Off-spec water is water that has not reached the full required UV dose or if the UV reactor is operated outside its validated ranges. No more than 5% off-spec water is allowed in a month.

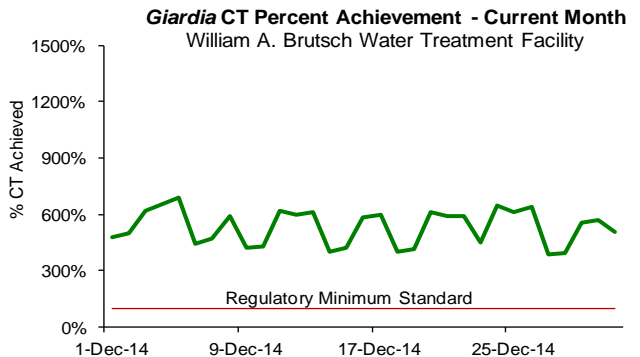
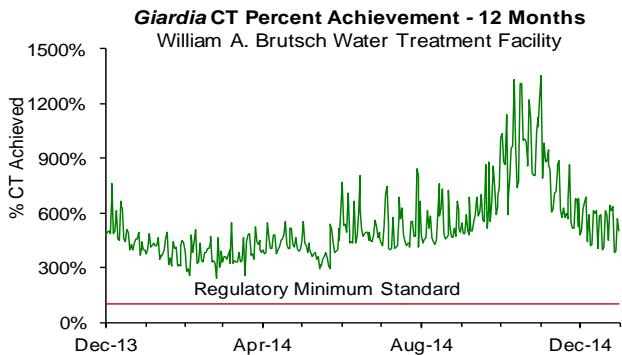
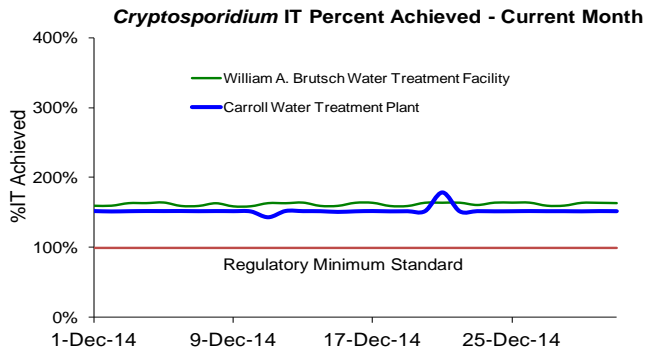
## Wachusett Reservoir – MetroWest/Metro Boston Supply:

- Ozone dose at the CWTP varied between 1.1 to 1.6 mg/L for the quarter.
- Giardia* CT was maintained above 100% at all times the plant was providing water into the distribution system this quarter, as well as every day for the last fiscal year.
- Cryptosporidium* IT was maintained above 100% during the month. Off-spec water was less than 5%.



## Quabbin Reservoir (CVA Supply) at: William A. Brutsch Water Treatment Facility

- The chlorine dose at WABWTF is adjusted in order to achieve MWRA's seasonal (June 1 – October 31) target of  $\geq 1.0$  mg/L at Ludlow Monitoring Station.
- The chlorine dose at WABWTF varied between 1.3 to 1.6 mg/L for the quarter.
- Giardia* CT was maintained above 100% at all times the plant was providing water into the distribution system for the quarter.
- Cryptosporidium* IT was maintained above 100% during the month. Off-spec water was less than 5%.
- The WABWTF UV treatment process officially went on-line for regulatory compliance on October 1.



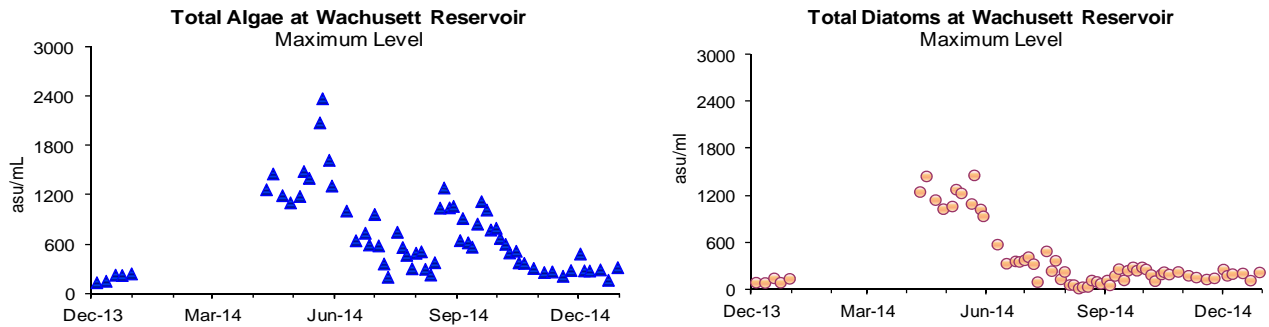
## Source Water - Algae

### 2nd Quarter – FY15

Algae levels in Wachusett Reservoir are monitored by DCR and MWRA. These results, along with taste and odor complaints, are used to make decisions on source water treatment for algae control.

Taste and odor complaints at the tap may be due to algae, which originate in source reservoirs, typically in trace amounts. Occasionally, a particular species grows rapidly, increasing its concentration in water. When *Synura*, *Anabaena*, or other nuisance algae bloom, MWRA may treat the reservoir with copper sulfate, an algicide. During the winter and spring, diatom numbers may increase. While not a taste and odor concern, consumers that use filters may notice a more frequent need to change their filters.

In the 2nd Quarter, no complaints which may be related to algae were reported from local water departments.

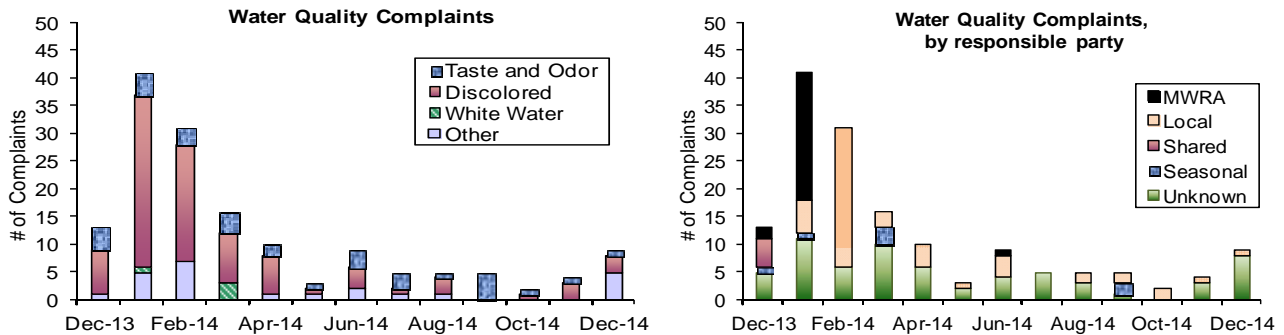


## Drinking Water Quality Customer Complaints: Taste, Odor, or Appearance

MWRA collects information on water quality complaints that typically fall into four categories: 1.) discoloration due to MWRA or local pipeline work; 2.) taste and odor due to algae blooms in reservoirs or chlorine in the water; 3.) white water caused by changes in pressure or temperature that traps air bubbles in the water; or 4.) “other” complaints including no water, clogged filters or other issues.

MWRA routinely contacts communities to classify and tabulate water complaints from customers. This count, reflecting only telephone calls to towns, probably captures only a fraction of the total number of customer complaints. Field Operations staff have improved data collection and reporting by keeping track of more kinds of complaints, tracking complaints to street addresses and circulating results internally on a daily basis.

Communities reported 15 complaints during the quarter compared to 32 complaints for 2nd Quarter of FY14. Of these complaints, 7 were for “discolored water”, 3 were for “taste and odor”, and 5 were for “other”. Of these complaints, 4 were local community issues and 11 were unknown in origin.



# Bacteria & Chlorine Residual Results for Communities in MWRA Testing Program

2<sup>nd</sup> Quarter – FY15

While all communities collect bacteria samples and chlorine residual data for the Total Coliform Rule (TCR), data from the 43 systems that use MWRA's Laboratory are reported below.

The MWRA TCR program has 141 sampling locations. These locations include sites along MWRA's transmission system, water storage tanks and pumping stations, as well as a subset of the community TCR locations.

The TCR requires that no more than 5% of all samples in a month may be total coliform positive (or that no more than one sample be positive when less than 40 samples are collected each month). Public notification is required if this standard is exceeded.

*Escherichia coli* (*E. coli*) is a specific coliform species whose presence likely indicates potential contamination of fecal origin. If *E. coli* are detected in a drinking water sample, this is considered evidence of a critical public health concern. Public notification is required if follow-up tests confirm the presence of *E. coli* or total coliform.

A disinfectant residual is intended to maintain the sanitary integrity of the water; MWRA considers a residual of 0.2 mg/L a minimum target level at all points in the distribution system.

## Highlights

In the 2<sup>nd</sup> Quarter, 15 of the 6,401 community samples (0.2% system-wide) submitted to MWRA labs for analysis tested positive for coliform (Canton, South Hadley, Waltham, and Wellesley – in October; Bedford, Hanscom AFB, and Reading – in November; Bedford and Melrose– in December). Hanscom AFB violated the TCR for November. None of the 1,948 MWRA samples (0.0%) tested positive for total coliform. No community sample tested positive for *E. coli*. Only 6.6% of the samples had any chlorine residuals lower than 0.2 mg/L for the quarter.

	# Coliform Samples (a)	Total Coliform # (%) Positive	E.coli # Positive	Public Notification Required?	Minimum Chlorine Residual (mg/L)	Average Chlorine Residual (mg/L)	
d	MWRA Locations	320	0 (0%)	0		1.87	2.54
	Shared Community/MWRA sites	1628	0 (0%)	0		0.02	2.08
	<b>Total: MWRA</b>	<b>1948</b>	<b>0 (0%)</b>	<b>0</b>		<b>0.02</b>	<b>2.16</b>
	ARLINGTON	188	0 (0%)	0		0.03	1.52
	BELMONT	104	0 (0%)	0		0.02	1.71
	BOSTON	795	0 (0%)	0		0.00	2.28
	BROOKLINE	221	0 (0%)	0		0.05	2.04
	CHELSEA	169	0 (0%)	0		1.20	1.94
	DEER ISLAND	52	0 (0%)	0		1.21	2.01
	EVERETT	169	0 (0%)	0		1.01	1.14
	FRAMINGHAM	216	0 (0%)	0		0.21	2.00
	LEXINGTON	126	0 (0%)	0		0.04	2.30
	LYNNFIELD	18	0 (0%)	0		0.07	0.92
	MALDEN	235	0 (0%)	0		0.06	2.12
	MARBLEHEAD	72	0 (0%)	0		0.16	1.83
	MEDFORD	205	4 (2.45%)	0	No	0.06	1.95
	MELROSE	163	0 (0%)	0		0.02	1.34
	MILTON	96	0 (0%)	0		1.11	1.90
	NAHANT	30	0 (0%)	0		0.05	1.53
	NEWTON	276	0 (0%)	0		0.21	2.11
	NORWOOD	99	0 (0%)	0		0.03	1.67
	QUINCY	321	0 (0%)	0		0.07	1.68
	READING	144	1 (0.69%)	0	No	0.02	1.08
	REVERE	210	0 (0%)	0		1.18	2.20
	SAUGUS	104	0 (0%)	0		1.31	1.84
	SOMERVILLE	272	0 (0%)	0		0.37	1.78
	SOUTHBOROUGH	30	0 (0%)	0		0.10	1.98
	STONEHAM	98	0 (0%)	0		0.12	2.00
	SWAMPSCOTT	54	0 (0%)	0		0.14	1.44
	WALTHAM	222	2 (0.90%)	0	No	0.76	2.15
	WATERTOWN	140	0 (0%)	0		0.53	2.07
	WESTBORO HOSPITAL	15	0 (0%)	0		0.07	0.50
	WESTON	48	0 (0%)	0		1.10	2.29
	WINTHROP	72	0 (0%)	0		0.19	1.65
	<b>Total: Fully Served</b>	<b>4964</b>	<b>7 (0.14%)</b>				
b	BEDFORD <sup>d</sup>	63	2 (3.17%)	0	No	0.11	1.28
	CANTON	89	1 (1.12%)	0	No	0.01	0.97
	HANSCOM AFB	42	2 (4.76%)	0	Yes	0.01	1.22
	MARLBORO	126	0 (0%)	0		0.28	2.30
	NEEDHAM	123	0 (0%)	0		0.05	1.29
	NORTHBORO	48	0 (0%)	0		0.04	1.38
	PEABODY	234	0 (0%)	0		0.05	1.07
	WAKEFIELD	156	0 (0%)	0		0.30	1.56
	WELLESLEY	119	2 (1.68%)	0	No	0.03	0.85
	WILMINGTON	85	0 (0%)	0		0.10	1.47
	WINCHESTER	91	0 (0%)	0		0.13	1.21
	WOBURN	210	0 (0%)	0		0.12	1.13
	SOUTH HADLEY FD1	51	1 (1.96%)	0	No	0.08	0.45
	<b>Total: CVA &amp; Partially Served</b>	<b>1437</b>	<b>8 (0.56%)</b>				
	<b>Total: Community Samples</b>	<b>6401</b>	<b>15 (0.23%)</b>				

(a) The number of samples collected depends on the population served and the number of repeat samples required.

(b) These communities are partially supplied, and may mix their chlorinated supply with MWRA chloraminated supply.

(c) Part of the Chicopee Valley Aqueduct System. Free chlorine system.

(d) MWRA total coliform and chlorine residual results include data from 125 community pipe locations as described above. In most cases these community results are accurately indicative of MWRA water as it enters the community system; however, some are clearly strongly influenced by local pipe conditions. Residuals in the MWRA system are typically between 1.0 and 2.8 mg/L.

(e) Sample collection period starts October 8, 2014 by DEP.

# Treated Water Quality: Disinfection By-Product (DBP) Levels in Communities

## 2nd Quarter – FY15

Total Trihalomethanes (TTHMs) and Haloacetic Acids (HAA5s) are by-products of disinfection treatment with chlorine. TTHMs and HAA5s are of concern due to their potential adverse health effects at high levels. EPA's running annual average (RAA) standard is 80 µg/L for TTHMs and 60 µg/L for HAA5s. For the MetroBoston system, effective Q2 2013, under the Stage 2 DBP Rule, compliance is based on locational running annual averages (LRAA). Sampling locations have increased from 16 to 32 each quarter. Data prior to Q1 2013 reports the running annual average, and since Q1 2013, the maximum LRAA is reported (in addition to min and max values).

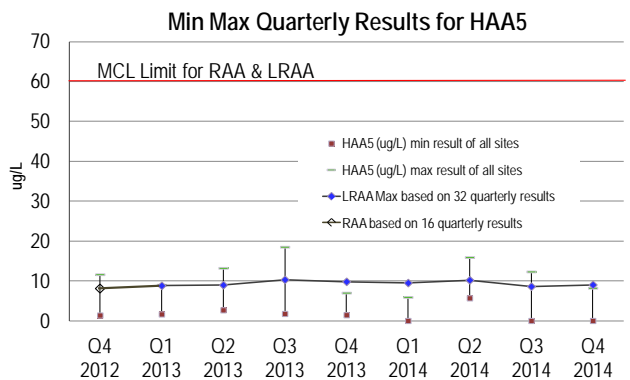
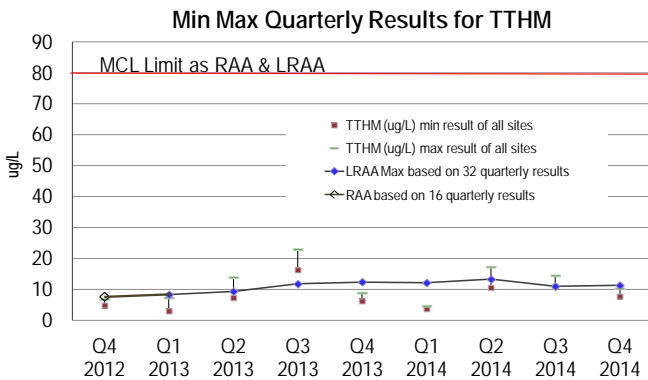
For the CVA communities, effective Q3 2013, under the Stage 2 DBP Rule, compliance is based on a LRAA for each community. Sampling locations have increased from 12 to 14 each quarter. Prior to Q3 2013, the running annual average is reported, and since Q3 2013, the maximum LRAA is reported (in addition to min and max values). The chart below combines all three CVA communities data.

Partially served and CVA communities are responsible for their own compliance monitoring and reporting, and must be contacted directly for their individual results.

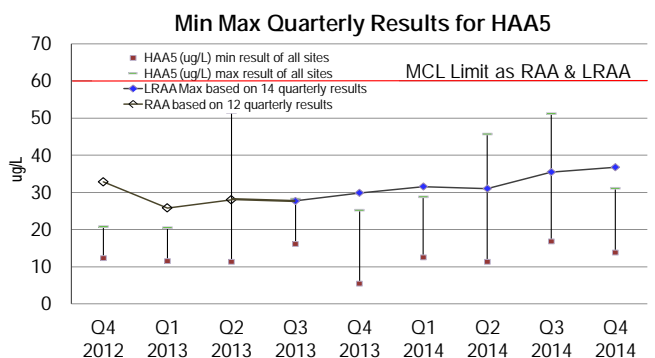
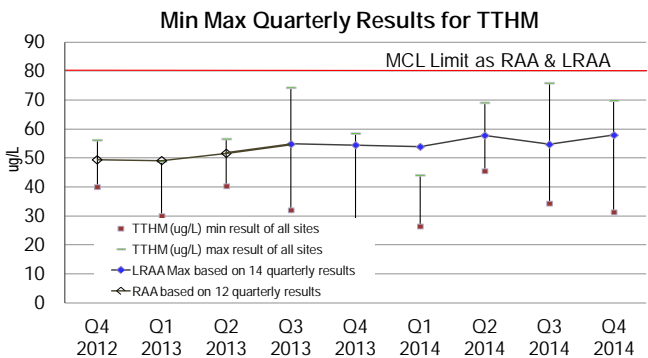
Bromate is tested monthly per DEP requirements for water systems that treat with ozone. Bromide in the raw water may be converted into bromate following ozonation. EPA's RAA MCL standard for bromate is 10 µg/L.

The RAA for TTHMs and HAA5s for MWRA's Compliance Program (represented as the line in the top two graphs below) remain below current standards. The LRAA for TTHMs = 11.3 µg/L; HAA5s = 9.0 µg/L. The current RAA for Bromate = 0.0 µg/L. CVA's DBP levels continue to be below current standards.

### MetroBoston Disinfection By-Products



### CVA Disinfection By-Products





# Water Supply and Source Water Management

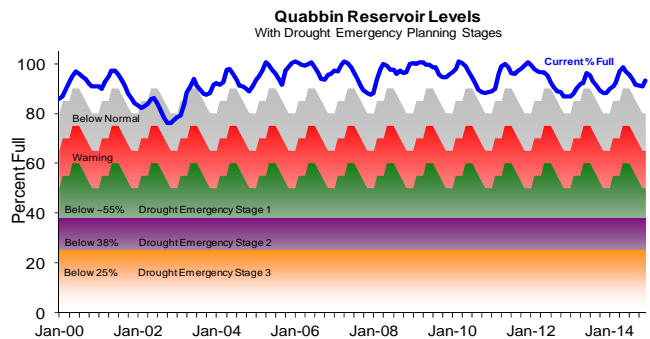
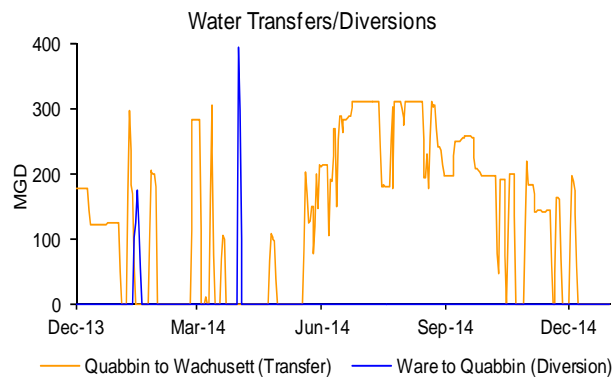
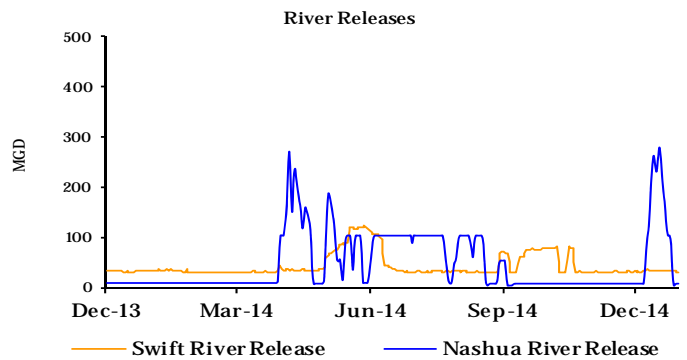
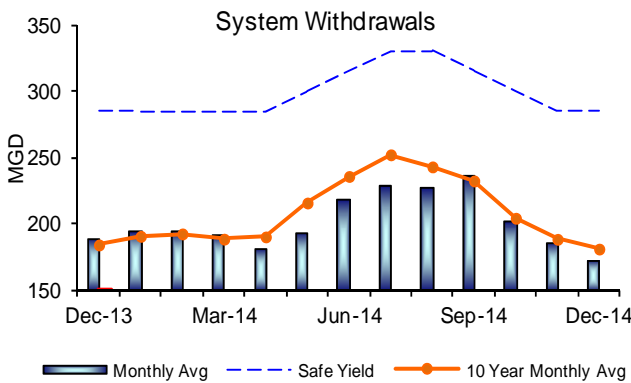
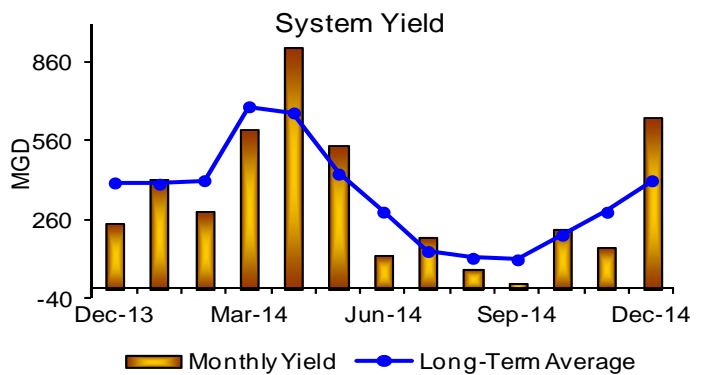
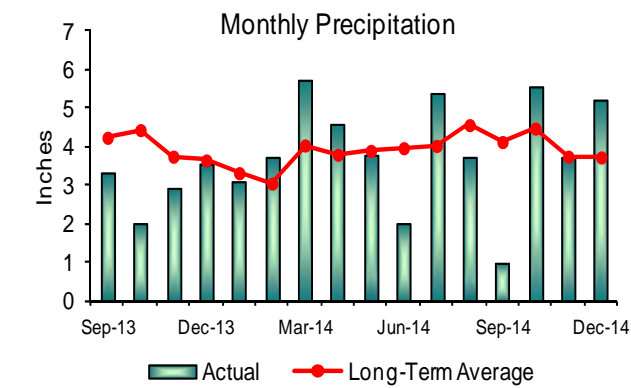
2nd Quarter – FY15

## Background

A reliable supply of water in MWRA's reservoirs depends on adequate precipitation during the year and seasonal hydrologic inputs from watersheds that surround the reservoirs. Demand for water typically increases with higher summer temperatures and then decreases as temperatures decline. Quabbin Reservoir was designed to effectively supply water to the service areas under a range of climatic conditions and has the ability to endure a range of fluctuations. Wachusett Reservoir serves as a terminal reservoir to meet the daily demands of the Greater Boston area. A key component to this reservoir's operation is the seasonal transfer of Quabbin Reservoir water to enhance water quality during high demand periods. On an annual basis, Quabbin Reservoir accounts for nearly 50% of the water supplied to Greater Boston. The water quality of both reservoirs (as well as the Ware River, which is also part of the System Safe Yield) depend upon implementation of DCR's DEP-approved Watershed Protection Plans. System Yield is defined as the water produced by its sources, and is reported as the net change in water available for water supply and operating requirements.

## Outcome

Quabbin Reservoir level remains within the normal operating range for this period of the year. The volume of the Quabbin Reservoir was at 93.3% as of December 31, 2014; a 1.8% increase for the quarter, which represents an increase of 7.8 billion gallons of storage. Yield and precipitation for the quarter were above their respective quarterly long term averages. Monthly withdrawal continues to be below its long-term average.



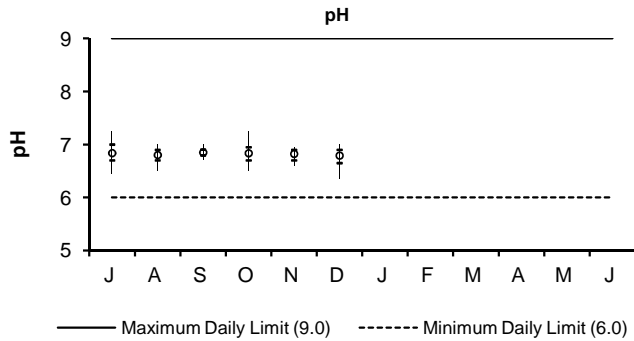
# WASTEWATER QUALITY

## NPDES Permit Compliance: Deer Island Treatment Plant 2nd Quarter - FY15

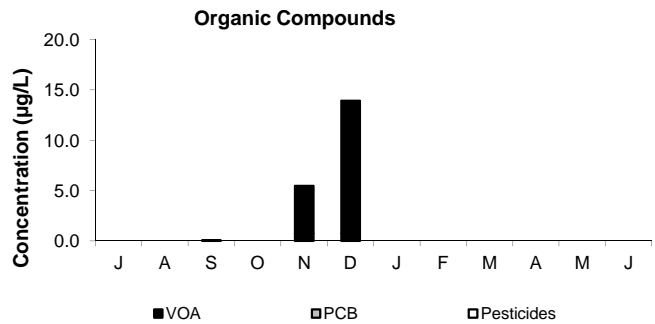
### NPDES Permit Limits

Effluent Characteristics		Units	Limits	October	November	December	1st Quarter Violations	FY15 YTD Violations
Dry Day Flow:		mgd	436	266.6	273.7	283.9	0	0
cBOD:	Monthly Average	mg/L	25	5.8	5.5	5.7	0	0
	Weekly Average	mg/L	40	7.9	6.5	7.5	0	0
TSS:	Monthly Average	mg/L	30	7.0	6.5	9.1	0	0
	Weekly Average	mg/L	45	11.5	8.2	16.9	0	0
TCR:	Monthly Average	ug/L	456	<40	<40	<40	0	0
	Daily Maximum	ug/L	631	<40	<40	<40	0	0
Fecal Coliform:	Daily Geometric Mean	col/100mL	14000	38	37	48	0	0
	Weekly Geometric Mean	col/100mL	14000	8	8	13	0	0
	% of Samples >14000	%	10	0	0	0	0	0
	Consecutive Samples >14000	#	3	0	0	0	0	0
pH:		SU	6.0-9.0	6.5-7.3	6.6-7.0	6.4-7.0	0	0
PCB, Aroclors:	Monthly Average	ug/L	0.000045	UNDETECTED			0	0
Acute Toxicity:	Mysid Shrimp	%	≥50	>100	>100	>100	0	0
	Inland Silverside	%	≥50	>100	>100	>100	0	0
Chronic Toxicity:	Sea Urchin	%	≥1.5	50	50	25	0	0
	Inland Silverside	%	≥1.5	50	100	100	0	0

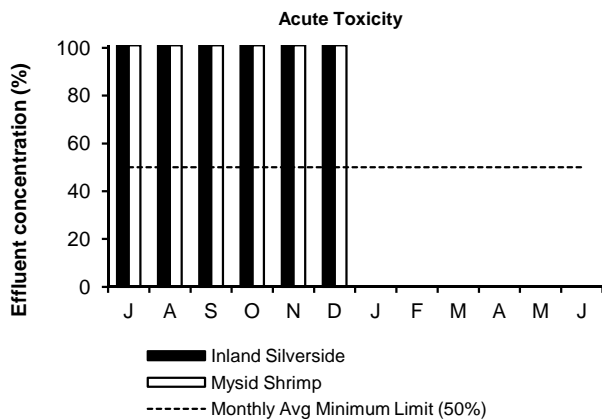
There have been no permit violations in FY15 to date at the Deer Island Treatment Plant.



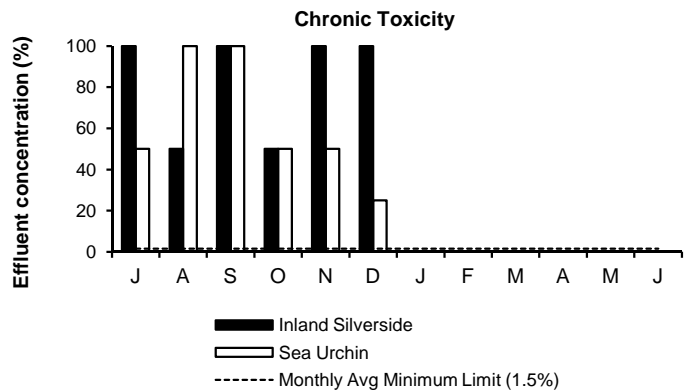
pH is a measure of the alkalinity or acidity of the effluent. Fluctuations in pH do not have an adverse effect on marine environments. Because of the pure oxygen used in the activated sludge reactor, the effluent pH tends to be at the lower pH range. pH measurements for the 2nd Quarter were within the daily permit limits.



An important wastewater component monitored in the effluent is organic compounds, such as volatile organic acids, pesticides, and polychlorinated biphenyls, which are all sampled monthly. The secondary treatment process has significantly reduced organic compounds in the effluent stream. In the 2nd Quarter, some volatile organic compounds were detected in the effluent in November and December. These spikes happen occasionally; there are no permit limits on VOCs. All other organic compounds were below the detection limit for the quarter.



The acute toxicity test simulates the short-term toxic effects of chemicals in wastewater effluent on marine animals. The test measures the concentration (percent) of effluent that kills half the test organisms within four days. The higher the concentration of effluent required, the less toxic the effluent. For permit compliance, the effluent concentration that causes mortality to mysid shrimp and inland silverside must be at least 50%. Acute toxicity permit limits were met for the 2nd Quarter for both the inland silverside and mysid shrimp.



Typically, effects of chronic exposures differ from those of acute exposures. Because of this, chronic toxicity responses are not necessarily related to acute toxicity. The chronic toxicity test simulates the long-term toxic effects of chemicals in wastewater effluent on marine animals. To meet permit limits, a solution of 1.5% effluent and 98.5% dilution water must show no observed effect on the growth and reproduction of the test species. Chronic toxicity permit limits were met for the 2nd Quarter for both the inland silverside and sea urchin.

**NPDES Permit Compliance: Clinton Wastewater Treatment Plant**  
2nd Quarter - FY15

**NPDES Permit Limits**

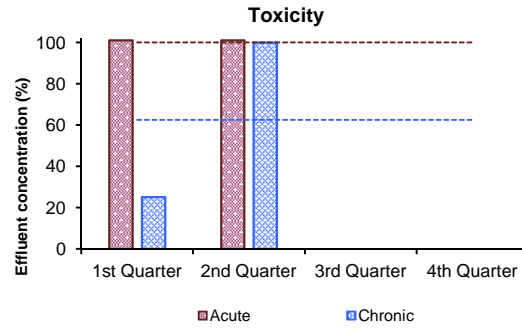
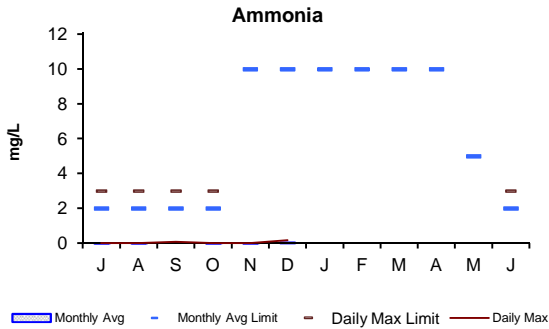
Effluent Characteristics		Units	Limits	October	November	December	2nd Quarter Violations	FY15 YTD Violations
Flow:	Running Average:	mgd	3.01	2.31	2.34	2.55	0	0
BOD:	Monthly Average:	mg/L	20	2.0	2.4	3.7	0	0
	Weekly Average:	mg/L	20	2.4	2.7	4.4	0	0
TSS:	Monthly Average:	mg/L	20	2.9	3.6	3.7	0	0
	Weekly Average:	mg/L	20	3.3	4.7	5.5	0	0
pH:		SU	6.5-8.3	7.1-7.6	7.3-7.5	6.9-7.4	0	0
Dissolved Oxygen:	Daily Minimum:	mg/L	6	6.9	8.4	9.3	0	0
Fecal Coliform:	Daily Geometric Mean:	col/100mL	400	4	5	12	0	0
	Monthly Geometric Mean:	col/100mL	200	3	3	4	0	0
TCR:	Monthly Average:	ug/L	50	0.22	<20	<20	0	0
	Daily Maximum:	ug/L	50	6.67	<20	<20	0	0
Total Ammonia Nitrogen: November 1 - March 31								
	Monthly Average:	mg/L	2.0	<0.1	<0.1	0.04	0	0
	Daily Maximum:	mg/L	3.0	<0.1	<0.1	0.18	0	0
Copper:	Monthly Average:	ug/L	20	5.2	5.7	6.1	0	0
Phosphorus: May 1 - Oct 31								
	Monthly Average:	mg/L	1.0	0.15	--	--	0	0
Acute Toxicity:	Daily Minimum:	%	≥100	*N/A	*N/A	>100	0	0
Chronic Toxicity:	Daily Minimum:	%	≥62.5	*N/A	*N/A	100	0	1

There has been one permit violation in FY15 at the Clinton Treatment Plant.

**1st Quarter:** There was one permit violation in the 1st Quarter of FY15. In September 2014, the chronic toxicity was 25%, which is below the permit minimum of 62.5%.

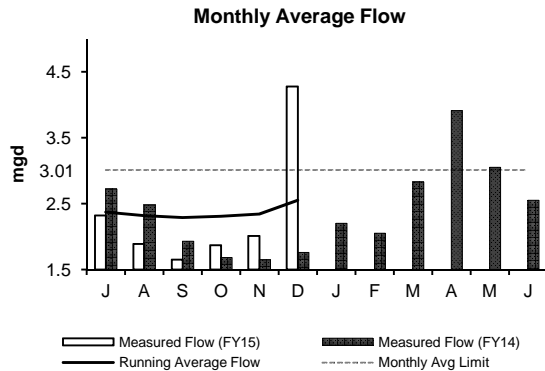
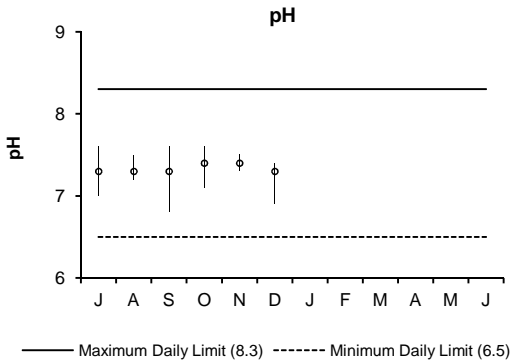
**2nd Quarter:** There were no permit violations in the second quarter of FY15.

\*Toxicity testing at the Clinton Treatment Plant is conducted on a quarterly basis.



The 2nd Quarter's monthly average and daily maximum ammonia concentrations were below the permit limits. The monthly average and daily maximum limits for the 2nd Quarter are 2 mg/L and 3 mg/L (October) and 10.0 mg/L and 35.2 mg/L (November and December). The permit limits are most stringent from June to October when warm weather conditions are most conducive to potential eutrophication.

Acute and chronic toxicity testing simulates the short- and long-term toxic effects of chemicals in wastewater effluent on aquatic animals. For permit compliance, the effluent concentration that causes mortality to the daphnid in acute and chronic testing must be at least >100% and 62.5%, respectively. The chronic toxicity was below the permit minimum, possibly due to the river control samples performing better than is typical. Therefore there was a permit violation in September 2014.



pH is a measure of the alkalinity or acidity of the effluent. All daily pH results for the 2nd Quarter were within the range set by the permit.

The graph depicts the running annual average monthly flow, measured in million gallons per day, exiting the plant. December high flow did not cause the running annual average to exceed permit limits.

# COMMUNITY FLOWS AND PROGRAMS



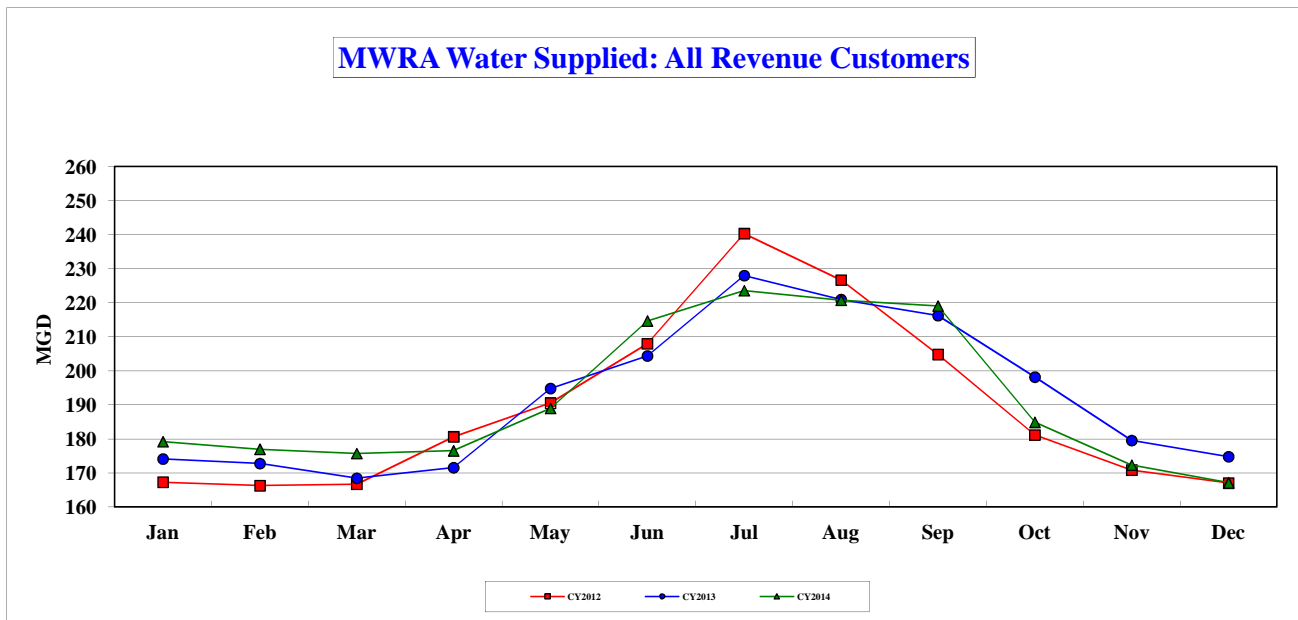
**Total Water Use :  
MWRA Core Customers Water Supplied  
2nd Quarter - FY15**

Massachusetts Water Resources Authority

**Water Supplied: All Revenue Customers**

MGD	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Average
<b>CY2012</b>	167.323	166.293	166.754	180.645	190.542	207.946	240.313	226.681	204.802	181.186	170.881	167.060	189.307
<b>CY2013</b>	174.117	172.782	168.462	171.569	194.838	204.384	227.963	220.962	216.216	198.168	179.548	174.814	192.133
<b>CY2014</b>	179.212	176.987	175.736	176.536	188.974	214.660	223.544	220.734	219.049	184.918	172.333	167.145	191.729

MG	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
<b>CY2012</b>	5,187.018	4,822.495	5,169.362	5,419.336	5,906.792	6,238.376	7,449.711	7,027.100	6,144.072	5,616.755	5,126.421	5,178.864	69,286.302
<b>CY2013</b>	5,397.612	4,837.906	5,222.328	5,147.061	6,039.966	6,131.507	7,066.855	6,849.826	6,486.467	6,143.217	5,386.450	5,419.236	70,128.430
<b>CY2014</b>	5,555.575	4,955.629	5,447.807	5,296.068	5,858.182	6,439.790	6,929.849	6,842.752	6,571.479	5,732.472	5,169.979	5,181.506	69,981.088



The December 2014 Community Water Use Report recently distributed to communities served by the MWRA waterworks systems. Each community's annual water use relative to the system as a whole is the primary factor in allocating the annual water rate revenue requirement to MWRA water communities. Calendar year 2014 water use will be used to allocate the FY16 water utility rate revenue requirement.

December 2014 water supplied of 167.1 mgd (for revenue generating users) is down 7.7 mgd or 4.4% compared to December 2013. The decrease includes the 9.0 mgd that the City of Cambridge used in December 2013. Cambridge stopped using MWRA water in June 2014.

Annual system-wide consumption for CY14 ended up slightly lower than CY13 with 191.7 mgd being supplied to MWRA customers through December. This is 0.4 mgd lower than CY13, and is an decrease of 0.2%.

# Community Wastewater Flows

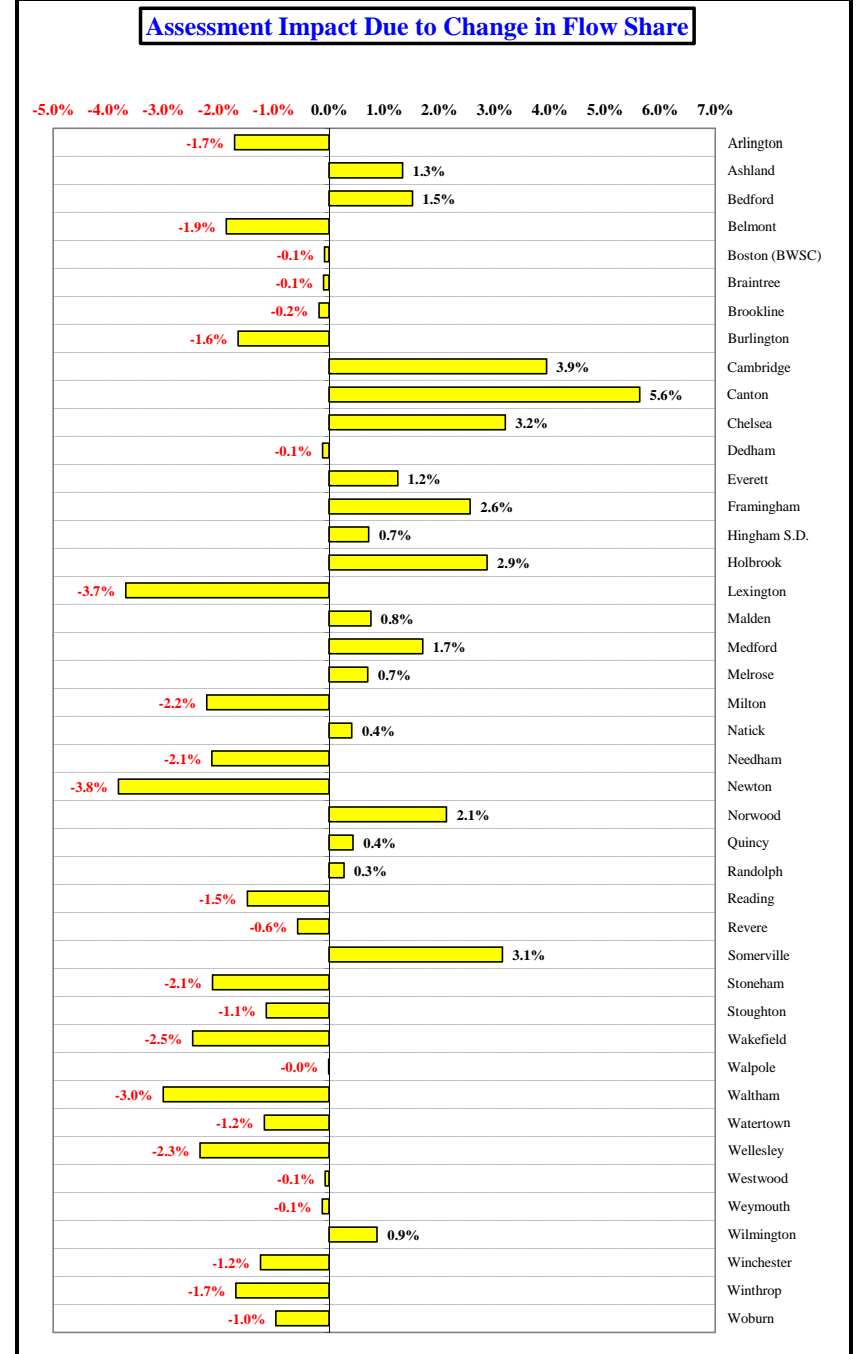
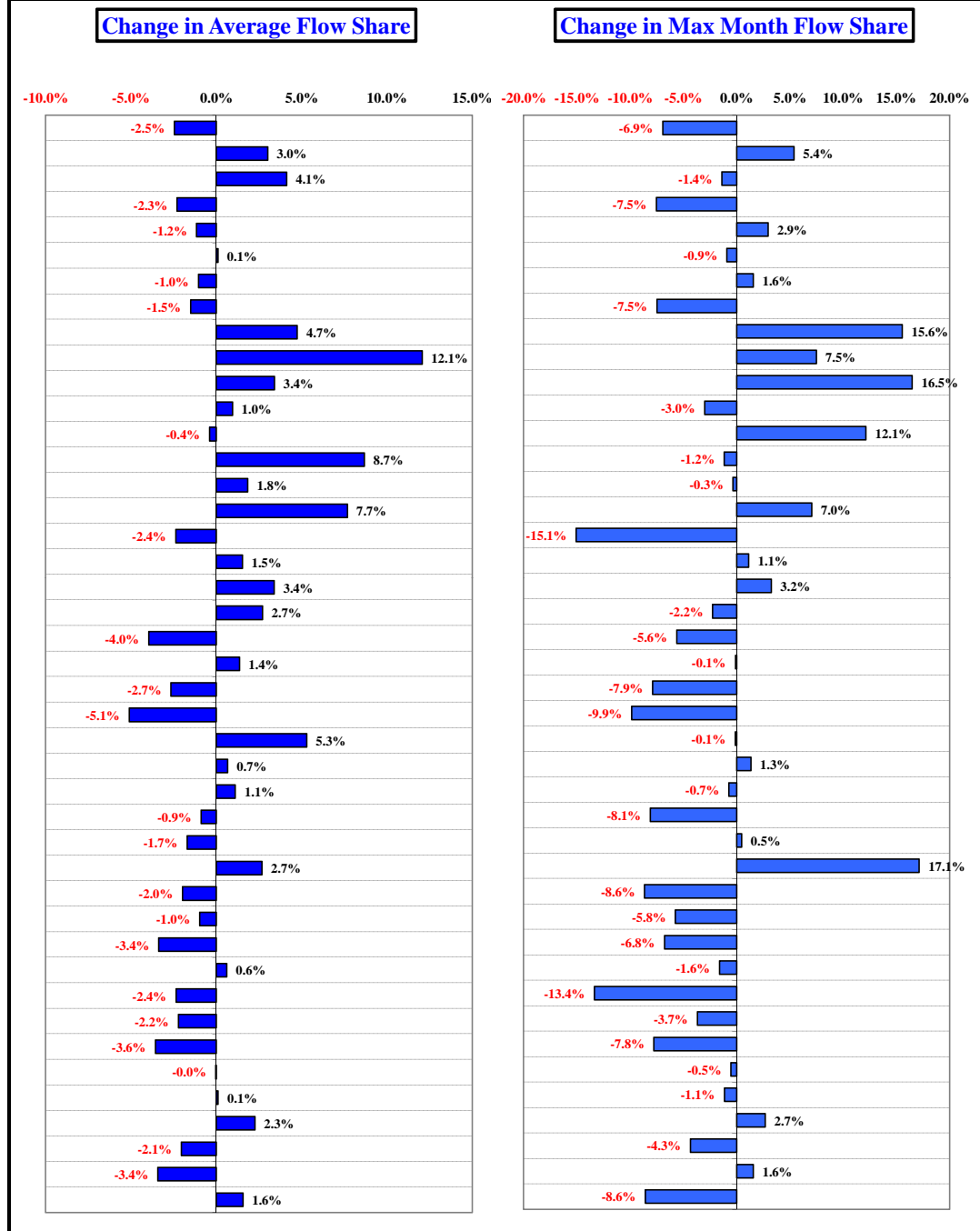
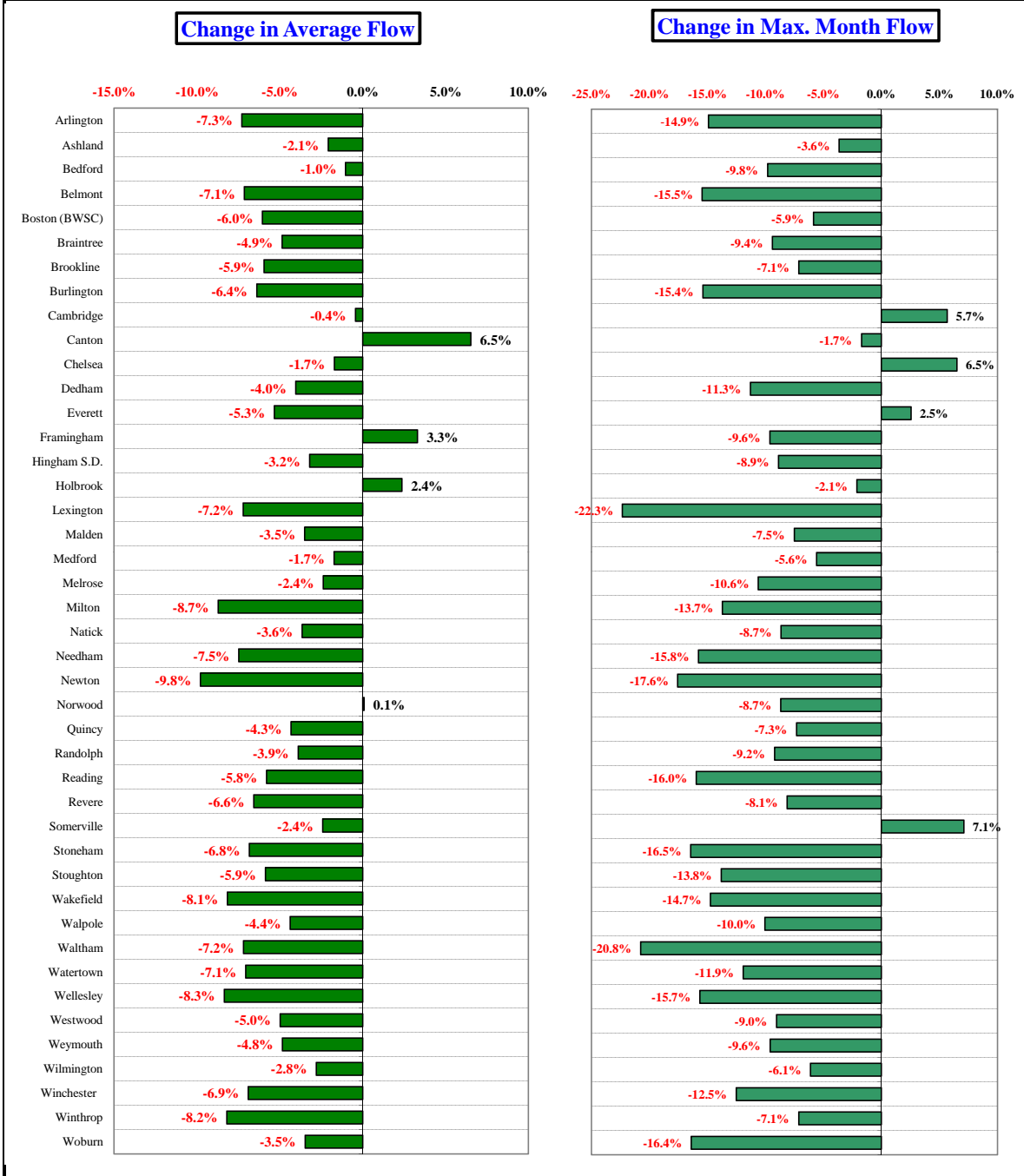
2nd Quarter - FY15

## How Projected CY2014 Community Wastewater Flows Could Effect FY2016 Sewer Assessments <sup>1,2,3</sup>

The flow components of FY2016 sewer assessments will be calculated using a 3-year average of CY2012 to CY2014 wastewater flows compared to FY2015 assessments that used a 3-year average of CY2011 to CY2013 wastewater flows.

But as MWRA's sewer assessments are a ZERO-SUM calculation, a community's assessment is strongly influenced by the RELATIVE change in CY2012 to CY2014 flow share compared to CY2011 to CY2013 flow share, compared to all other communities in the system.

The chart below illustrates the change in the TOTAL BASE assessment due to FLOW SHARE CHANGES. <sup>4</sup>



**Notes:**

<sup>1</sup> MWRA uses a 3-year flow average to calculate sewer assessments. Three-year averaging smoothes the impact of year-to-year changes in community flow share, but does not eliminate the long-term impact of changes in each community's relative contribution to the total flow.

<sup>2</sup> Based on CY2011 to CY2014 average wastewater flows as of 01/30/15. Flow data is preliminary and subject to change pending additional MWRA and community review.

<sup>3</sup> CY2011 to CY2013 wastewater flows based on actual meter data. CY2014 flows based on actual meter data for January to December.

<sup>4</sup> Represents ONLY the impact on the total BASE assessment resulting from the changes in average and maximum wastewater FLOW SHARES.

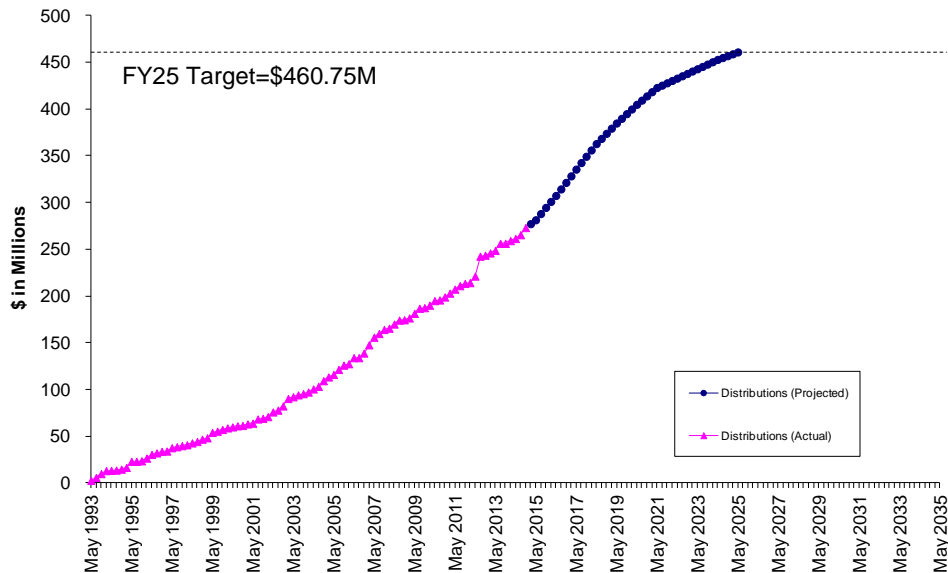
# Community Support Programs

2<sup>nd</sup> Quarter – FY15

## Infiltration/Inflow Local Financial Assistance Program

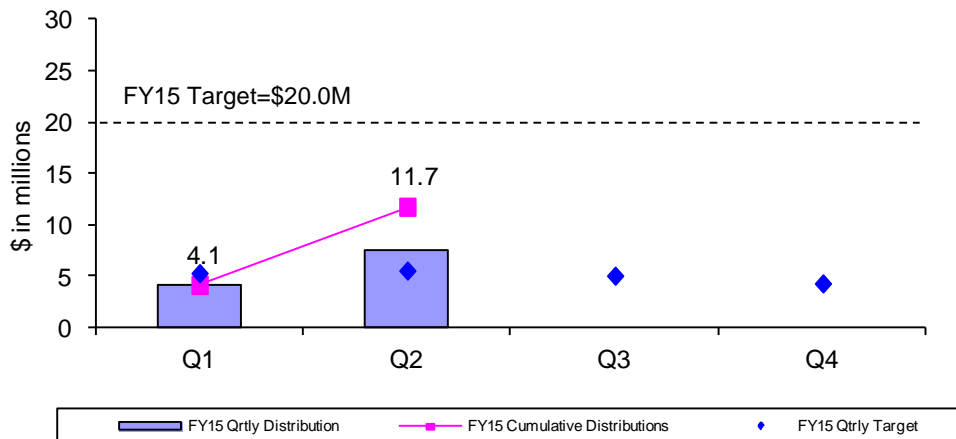
MWRA's Infiltration/Inflow (I/I) Local Financial Assistance Program provides \$460.75 million in grants and interest-free loans (average of about \$14 million per year from FY93 through FY25) to member sewer communities to perform I/I reduction and sewer system rehabilitation projects within their locally-owned collection systems. Eligible project costs include: sewer rehabilitation construction, pipeline replacement, removal of public and private inflow sources, I/I reduction planning, engineering design, engineering services during construction, etc. I/I Local Financial Assistance Program funds are allocated to member sewer communities based on their percent share of MWRA's wholesale sewer charge. Phase 1-8 funds (total \$300.75 million) were distributed as 45% grants/55% loans with interest-free loans repaid to MWRA over a five-year period. Phase 9 and 10 funds (total \$160 million) are distributed as 75% grants and 25% loans with interest-free loans repaid to MWRA over a ten-year period.

### I/I Local Financial Assistance Program Distribution FY93-FY25



During the 2<sup>nd</sup> Quarter of FY15, \$7.6 million in financial assistance (45% grants and 55% interest-free loans) was distributed to fund local sewer rehabilitation projects in Brookline, Newton, Stoneham, Stoughton and Wakefield. Total grant/loan distribution for FY15 is \$11.7 million. From FY93 through the 2<sup>nd</sup> Quarter of FY15, all 43 member sewer communities have participated in the program and more than \$273 million has been distributed to fund 466 local I/I reduction and sewer system rehabilitation projects. Distribution of the remaining funds has been approved through FY25 and community loan repayments will be made through FY36. All scheduled community loan repayments have been made.

### FY15 Quarterly Distributions of Sewer Grant/Loans



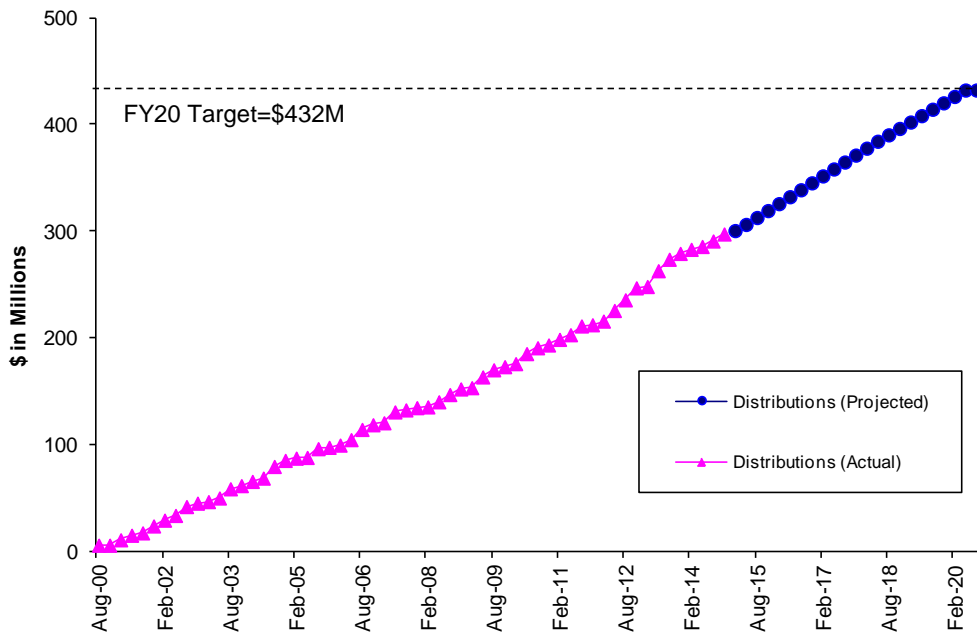
# Community Support Programs

2<sup>nd</sup> Quarter – FY15

## Water Local Pipeline and Water System Assistance Programs

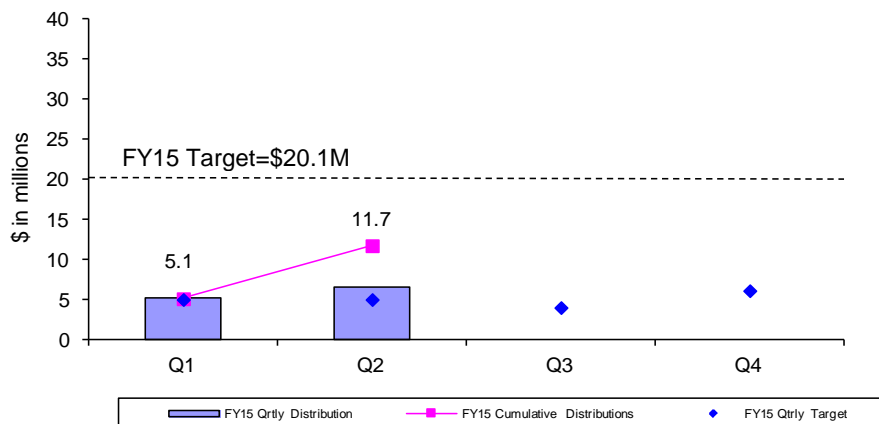
MWRA's Local Pipeline and Water System Assistance Programs (LPAP and LWSAP) provide \$432 million in interest-free loans (an average of about \$22 million per year from FY01 through FY20) to member water communities to perform water main rehabilitation projects within their locally-owned water distribution systems. Eligible project costs include: water main cleaning/lining, replacement of unlined water mains, lead service replacements, valve, hydrant, water meter, tank work, engineering design, engineering services during construction, etc. MWRA partially-supplied communities receive pro-rated funding allocations based on their percentage use of MWRA water. Interest-free loans are repaid to MWRA over a ten-year period beginning one year after distribution of the funds. The Phase 1 - LPAP concluded in FY13 with \$222 million in loan distributions. The Phase 2 - LWSAP continues through FY20.

### Local Pipeline and Water System Assistance Programs Distribution FY01-FY20



During the 2<sup>nd</sup> Quarter of FY15, \$6.6 million in interest-free loans was distributed to fund local water projects in Boston, Everett and Newton. Total loan distribution for FY15 is \$11.7 million. From FY01 through the 2<sup>nd</sup> Quarter of FY15, more than \$297 million has been distributed to fund 340 local water system rehabilitation projects in 38 MWRA member water communities. Distribution of the remaining funds has been approved through FY20 and community loan repayments will be made through FY30. All scheduled community loan repayments have been made.

### FY15 Quarterly Distributions of Water Loans

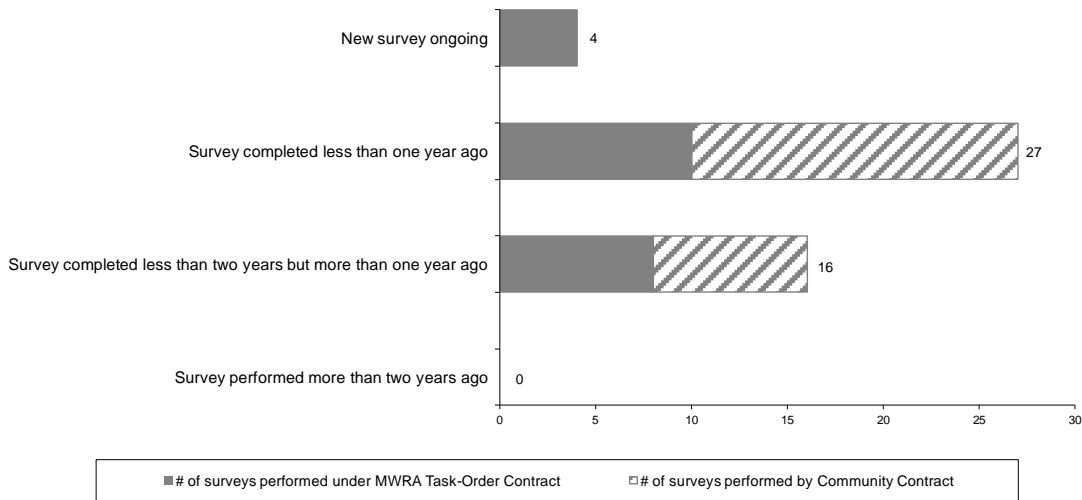


## Community Support Programs

2<sup>nd</sup> Quarter – FY15

### Community Water System Leak Detection

To ensure member water communities identify and repair leaks in locally-owned distribution systems, MWRA developed leak detection regulations that went into effect in July 1991. Communities purchasing water from MWRA are required to complete a leak detection survey of their entire distribution system at least once every two years. Communities can accomplish the survey using their own contractors or municipal crews; or alternatively, using MWRA's task order leak detection contract. MWRA's task order contract provides leak detection services at a reasonable cost that has been competitively procured (3-year, low-bid contract) taking advantage of the large volume of work anticipated throughout the regional system. Leak detection services performed under the task order contract are paid for by MWRA and the costs are billed to the community the following year. During the 2<sup>nd</sup> Quarter of FY15, all member water communities were in compliance with MWRA's Leak Detection Regulation.



### Community Water Conservation Outreach

MWRA's Community Water Conservation Program helps to maintain average water demand below the regional water system's safe yield of 300 mgd. Current 5-year average water demand is less than 210 mgd. The local Water Conservation Program includes distribution of water conservation education brochures (indoor and outdoor bill-stuffers) and low-flow water fixtures and related materials (shower heads, faucet aerators, toilet leak detection dye tabs, and instructions), all at no cost to member communities or individual customers. The Program's annual budget is \$25,000 for printing and purchase of materials. Annual distribution targets and totals are provided in the table below. Distributions of water conservation materials are made based on requests from member communities and individual customers.

	Annual Target	Q1	Q2	Q3	Q4	Annual Total
Educational Brochures	100,000	18,484	806			19,290
Low-Flow Fixtures (showerheads and faucet aerators)	10,000	6,382	1,886			8,268
Toilet Leak Detection Dye Tablets	-----	5,041	2,207			7,248



## BUSINESS SERVICES

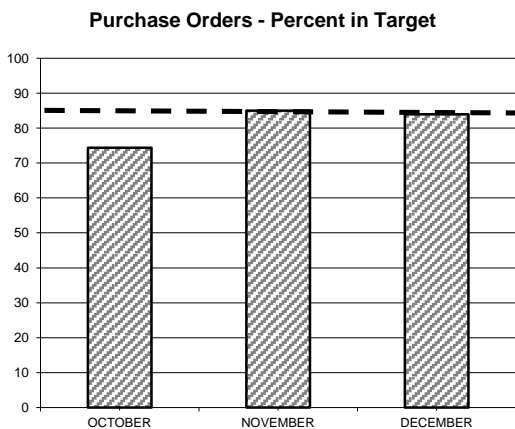
# Procurement: Purchasing and Contracts

## 2nd Quarter - FY15

**Background:** Goal is to process 85% of Purchase Orders and 80% of Contracts within Target timeframes.

**Outcome:** Processed 84% of purchase orders within target; Average Processing Time was 6.76 days vs. 7.94 days in Qtr 2 of FY14. Processed 72% (13 of 18) of contracts within target timeframes; Average Processing Time was 95 days vs. 84 days in Qtr 2 FY14.

### Purchasing



	No.	TARGET	PERCENT IN TARGET
\$0 - \$500	1017	3 DAYS	78.3%
\$500 - \$2K	1069	7 DAYS	92.4%
\$2K - \$5K	167	10 DAYS	69.3%
\$5K - \$10K	85	25 DAYS	79.4%
\$10K - \$25K	72	30 DAYS	84.0%
\$25K - \$50K	25	60 DAYS	72.7%
Over \$50K	23	90 DAYS	80.0%

The Purchasing Unit processed 2458 purchase orders, 27 less than the 2485 processed in Qtr 2 of FY14 for a total value of \$11,705,441 versus a dollar value of \$20,250,332 in Qtr 2 of FY14.

The purchase order processing target was not met for \$0 - 500 due to vendor price confirmations; \$2k - \$5k due to end user confirmations and approvals; \$5k - \$10k due to end user confirmations and approvals; \$25k - \$50k due to sole source and staff summary requirements and over \$50k due to end user approval and staff summary requirements.

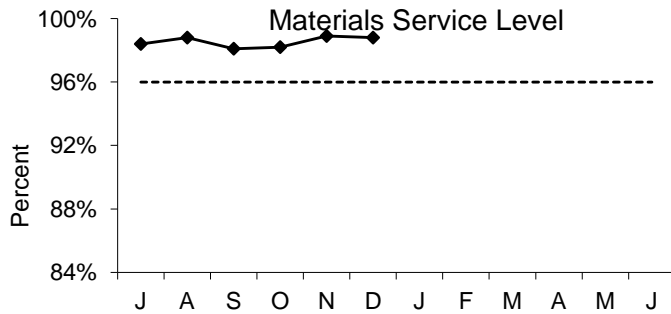
### Contracts, Change Orders and Amendments

Five contracts were not processed within the target timeframes. Reasons included: an insurance program renewal required a multi-step process; approval required from the FRR board and constraints with regards to the board's meeting schedule; delays due to bidder questions and subsequent revisions to specifications; and need to obtain satisfactory backup information from the consultant.

Procurement processed eighteen contracts with a value of \$5,113,375 and 10 amendments with a value of \$1,463,033.

Twenty one change orders were executed during the period. The dollar value of all non-credit change orders during the 2nd quarter FY15 was \$2,010,856 and the value of credit change orders was (\$63,961).

## Materials Management 2nd Quarter - FY15



The service level is the percentage of stock requests filled. The goal is to maintain a service level of 96%. Staff issued 8,357 (98.8%) of the 8,494 items requested in Q2 from the inventory locations for a total dollar value of \$1,402,120.

### Inventory Value - All Sites

Inventory goals focus on:

- Maintaining optimum levels of consumables and spare parts inventory
- Adding new items to inventory to meet changing business needs
- Reviewing consumables and spare parts for obsolescence
- Managing and controlling valuable equipment and tools via the Property Pass Program

The FY15 goal is to reduce consumable inventory from the July '14 base level (\$7.7 million) by 2.0% (approximately \$154,987), to \$7.5 million by June 30, 2015 (see chart below).

Items added to inventory this quarter include:

- Deer Island – flow control valve, pressure gauges, processors, and gas sensors for I&C; gate valves, dust filters, and pressure transmitters for HVAC; current switches, electrodes, electric motors, and relays for Electrical; epoxy for Facilities
- Chelsea – spark plugs, oil filters, thermostat housing, axle bearings, and brake hardware kit for Fleet Services; galvanized chain, impeller ring, submersible pump, actuator, variable frequency drive, sensors for Work Order Coordination Group; nuts, screws, and washers for Maintenance.
- Southboro – graffiti remover and epoxy coating for Maintenance; fuel sensor, air and oil filters for Fleet Services; dehumidifier for Carroll Water Treatment Plant.

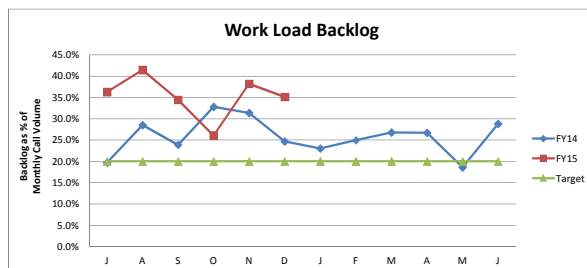
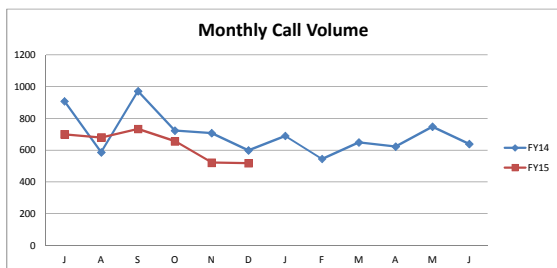
Property Pass Program:

- Audits were conducted for Chelsea welder's tool boxes during Q2.
- Numerous obsolete monitors, computers, printers, scanners, keyboards, mice, fax machines, cell phones and tape drives have been received into Property Pass as surplus. Disposition is being handled as part of our ongoing recycling efforts.
- Scrap revenue received for Q2 amounted to \$9,506. Year to date revenue received amounted to \$39,317.
- Revenue received from online auctions held during Q2 amounted to \$55,274. Year to date revenue received amounted to \$73,173.

Items	Base Value July-14	Current Value w/o Cumulative New Adds	Reduction / Increase To Base
Consumable Inventory Value	7,749,357	8,149,513	400,156
Spare Parts Inventory Value	7,358,692	7,950,190	591,498
Total Inventory Value	15,108,049	16,099,703	991,654

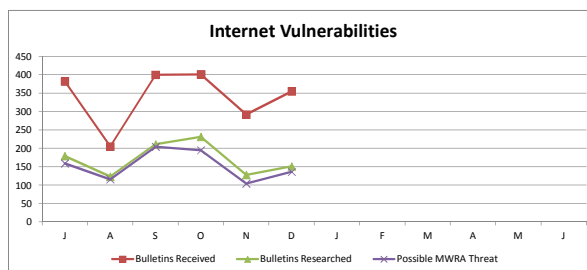
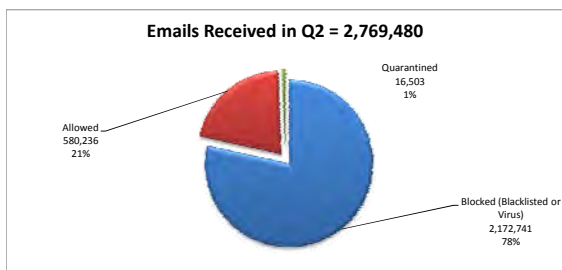
**Note:** New adds are items added at an inventory location for the first time for the purpose of servicing a group/department to meet their business needs/objectives.

## MIS Program 2nd Quarter FY15



**Performance:**

Call Volume: Peaked in October. FY15-Q2 call volume decreased by 16% from FY14-Q2 last year. Call Backlog: Peaked in November. FY15-Q2 backlog average is 13% above the targeted benchmark of 20%.



**Information Security:**

During Q2, staff pushed security fixes and updates to desktops and servers throughout the quarter in order to protect against 237 vulnerabilities. LANDesk Antivirus quarantined 39 distinct viruses from 21 MWRA PCs. PCs are current with anti-virus providers' signatures for all known malware.

**Infrastructure:**

Citrix Mobile Application Design and Development: The Citrix upgrade was completed to ensure compatibility with the new Apple iOS upgrade. Required XENDesktop hardware has been specified and is going through the procurement process. Custom vendor training curriculum was designed and training is scheduled for Q3. The Helpline is successfully scheduling and deploying iPhones (101 out of 154) to blackberry users daily. The Helpline is also wrapping deployed iPads with Citrix making the user experience more consistent across devices and more secure.

Connectivity: Within the Data Center, provided 10Gb/s connectivity to the Oracle Database Appliances by running new fiber cables and configuring the core appropriately for applications servers; testing and confirming connectivity.

Backup and Refresh Upgrade Project: Installed a dedicated server with the new backup software in the DMZ, providing a secure way of backing the servers on that segment. This work included installation of a new Fiber Channel switch and creating trunk between SAN switch and the FC switch.

Infrastructure Upgrade Project: A Blade-system chassis was installed, burned in, tested and configured in DI. A new 3-PAR SAN was installed in DI and the latest patch and service packs were applied.

Firmware Upgrade: Upgraded the Cisco Core switch in Chelsea. This Switch is the heart of the data center and provides connectivity to all MIS services and application, including connectivity to other sites and the Internet.

**Applications/Training/Records Center:**

Strategic Sourcing and Contract Management: Worked with an Infor technical consultant to apply Critical Update 4 (CU4) on the development Landmark Procurement. Continued working on developing contract language and configuring templates. Additional work focused on Affirmative Action processes for contract-subcontractor diversity tracking and AP contract invoice entry as well as Landmark security access requirements and custom development of workflows for approvals.

Miscellaneous Lawson Support: Supported retroactive pay and benefit changes associated with the contract settlements of Units 1, 3, and 6. Formatted and uploaded GIC files into Lawson; this information is needed for the W2s produced next month. Successfully ran 'live' AP checks on Deer Island as part of quarterly Disaster Recovery testing. Completed the production WebSphere Application Server (WAS) upgrade from 7.0.0.13 to 7.0.0.33. Upgraded the development and production Lawson System Foundation Core Technology (LSFCT) required for all Infor/Lawson core modules from version 9.0.1.9 to 9.0.1.13. The LSFCT upgrade included required enhancements for the BSI TaxFactory 8.0 upgrade.

Document Management Initiatives: (1) Physical Records Tracking Application: Conducted a kickoff meeting to evaluate a replacement application for the unsupported legacy application used to track physical records. Current functionality was reviewed and desired features and requirements were documented; several vendor demos were conducted. Evaluations will continue in Q3. (2) eDiscovery Archive and Purge: A project to implement Symantec Enterprise Vault file system archiving and Clearwell e-discovery software applications began. These applications will give MWRA the ability to better archive records electronically and automate purge and discovery processes to support records retention requirements and document search and legal discovery needs. The vendor will provide templates in January for hardware sizing and policy development as well as a project plan and draft kickoff meeting materials. An official kick off meeting is expected to occur in January once the preparation activities are completed.

Telogo: Development of a new Web and SQL Server reporting interface to replace a custom user developed standalone MS Access reporting application is complete. This project will eliminate an unsupported legacy reporting tool and use current MWRA standard database programming tools allowing for efficient maintenance and support. The first reports will be published after the calendar year end.

Employee Tracking Application: Conducted a drill in October to ensure the application is properly functioning. The application allows staff centrally report absences and management to view what staff and skills are available by location. This drill was done in support of potential Ebola developments. In addition, Infor/Lawson safety training reports were modified to support Ebola related staff training.

# Legal Matters

## 2nd Quarter -FY15

### PROJECT ASSISTANCE

#### COURT AND ADMINISTRATIVE ORDER

- **Boston Harbor Litigation and CSO:** Reviewed Amendment 15 to memorandum of understanding and financial assistance agreement between MWRA and BWSC for implementation of CSO projects; submitted annual report to EPA and DEP providing updated information on the landfill sites that NEFCO identified as acceptable landfill sites for use as part its emergency residuals disposal back up plan; reviewed and filed Compliance and Progress Report with Federal District Court.
- **NPDES:** Reviewed and provided comments on CSO related signage developed in accordance with MWRA's CSO water quality variance for the Charles River. Reviewed and revised SOP for influent gates at Clinton Wastewater Treatment Plant.
- **Administrative Consent Order (DITP power outages):** Reviewed and submitted updated semi-annual *Consultant's Deer Island Energy Recommendations Tracking Sheet* to DEP and EPA.

#### REAL ESTATE, CONTRACT AND OTHER SUPPORT

- **Orders of Conditions:** Recorded Extension to Order of Conditions for DEP File 297-0353 for Spot Pond Water Storage Facility and Pump Station, Recorded Certificate of Compliance related to Order of conditions for DEP File 082-0109 for Winthrop water line project.
- **Waters of the U.S.:** Assisted in finalizing comments to EPA's proposed regulatory changes to federal regulations governing EPA jurisdiction.
- **Spot Pond:** Drafted notice of MWRA's intent to extend the License for Entry for an additional six (6) months.
- **Watershed Acquisition:** Reviewed and commented on materials for the acquisition of a parcel of land in Holden from the Grady Realty Trust, W-000083, a parcel of land in West Boylston from Pusateri, W-001141, a parcel in Holden from Grady Realty Trust, W-000083, and a parcel of land in West Boylston #W-000341 from CLT Park, LLC.
- **FRRC:** Drafted release of easement and grant of easement related to land swap needed to straighten the railroad tracks for FRRC's railcars.
- **Cross Harbor Cable:** Reviewed Army Corps of Engineers regulations relating to the question of who the Permittee should be on the permit(s) relating to NSTAR's project to protect the Cross Harbor Cable.
- **Water Continuation Contracts:** Reviewed contract language for nine (9) water supply contracts.
- **Public Access:** Drafted amendment to Framingham Weston Aq. Public Access Permit to include abutting open space to be used as a park. Finalized Weston's Public Access Permit.
- **Great Esker Park:** Assisted Operations with preparation of First Annual Compliance Report to DEP re: Great Esker Park project.
- **Miscellaneous Licenses:** Drafted license for access to NSTAR property related to MWRA's Section 4, Webster Avenue Pipe and Utility Bridge Replacement project (MWRA Contract No. 7335).
- **Construction Contractor Claim:** Reviewed and made a recommendation on one (1) construction contractor claim.

#### MISCELLANEOUS

- Reviewed and approved forty (40) Section 8(m) Permits.



## LABOR, EMPLOYMENT AND ADMINISTRATIVE

### New Matters

Two demands for arbitration were filed.

### Matters Concluded

Received a Department of Unemployment Assistance (DUA) decision in favor of the MWRA concerning an employee terminated for not having a valid CDL license, operating MWRA vehicles without a valid CDL license and a second positive drug test.

## LITIGATION/TRAC

### New Matters

During the Second Quarter of FY 2015, no new lawsuits were received.

### Significant Developments

The Dow Company v. MWRA: On November 24, 2014, the Court heard oral argument on the parties' Motions for Summary Judgment. MWRA moved for Summary Judgment on the ground that the Court should uphold the Engineers' Decisions denying Dow's claims, under the statutory standard of limited review. On December 18, 2014, the Superior Court issued a decision on the parties' Summary Judgment Motions. The Court granted the plaintiff Summary Judgment on its first claim, and granted MWRA summary judgment denying the plaintiff's second and third claims. Dow's first claim was for reimbursement of police detail costs. The Court awarded Dow \$374,102.94 in reimbursement of its police detail expenses incurred in the course of the project. MWRA had argued that Dow improperly failed to include the costs in its winning bid. Dow argued that the Contract documents did not require it to do so. MWRA is considering filing an appeal of the judgment.

### Matters Concluded

No cases closed during the Second Quarter FY 2015.

### Significant Claims Not in Suit:

Dora Gonzalez – Personal Injury Claim: This former Risk Management matter arises out of a personal injury claim from a motor vehicle accident that occurred on February 19, 2014 at the intersection of Cary Avenue and Tudor Street in Chelsea, MA. An MWRA employee, operating an MWRA vehicle, slid on ice and struck the rear of Ms. Gonzalez's vehicle. The Claimant's vehicle sustained minor bumper damage but there was no damage to the MWRA vehicle. Ms. Gonzalez claims medical bills in excess of \$14,000 and lost wages that exceed \$4,000. Risk Management received a demand letter on September 10, 2014 for \$50,000 for personal injuries and lost wages from Claimant's counsel, Joseph F. DeLeo, Esq. No litigation has been filed to date.

### Subpoenas

During the Second Quarter of FY 2015, no new subpoenas were received and no subpoenas were pending at the end of the Second Quarter FY 2015.

### Public Records

During the Second Quarter of FY 2015 six public records request were received and three public records requests were closed.

## TRAC/MISC.

### New Appeals

There was one new TRAC appeal received in the 2nd Quarter FY 2015.

Leavitt Corporation; MWRA Docket No. 14-01

### Settlement by Agreement of Parties

One case was settled by Agreement of Parties in the 2nd Quarter FY 2015.

Cookies By Design; MWRA Docket No. 13-17

### Stipulation of Dismissal

No cases were dismissed by Stipulation of Dismissal, fine waived.

**Notice of Dismissal  
Fine paid in full**

No cases were dismissed by Joint Stipulation of Dismissal with Prejudice, fine paid in full.

**Tentative  
Decisions**

No Tentative Decisions were issued in the 2nd Quarter FY 2015.

**Final  
Decisions**

No Final Decisions were issued during the 2nd Quarter FY 2015.

**SUMMARY OF PENDING LITIGATION MATTERS**

TYPE OF CASE/MATTER	As of Dec 2014	As of Sept 2014	As of June 2014
Construction/Contract/Bid Protest (other than BHP)	4	4	4
Tort/Labor/Employment	5	5	5
Environmental/Regulatory/Other	1	1	1
Eminent Domain/Real Estate	0	0	0
<b>total – all defensive cases</b>	<b>10</b>	<b>10</b>	<b>10</b>
Affirmative cases not in suit:	0	0	0
Other Litigation matters (restraining orders, etc.) <u>MWRA v. Thomas Mercer</u>	1	1	1
<b>total – all pending lawsuits</b>	<b>11</b>	<b>11</b>	<b>11</b>
Significant claims not in suit: <u>Deer Island Submarine Power Cable</u> <u>Braiani, Agostinho</u> <u>Rosa, Antonio</u> <u>Gonzalez, Dora</u>	4	3	0
Bankruptcy	1	1	0
Wage Garnishment	15	15	16
TRAC/Adjudicatory Appeals	1	1	1
Subpoenas	0	0	0
<b>TOTAL – ALL LITIGATION MATTERS</b>	<b>32</b>	<b>31</b>	<b>28</b>

## INTERNAL & CONTRACT AUDIT PROGRAM 2nd Quarter FY15

### Highlights

A final report was issued on Records Management practices across the MWRA. The areas reviewed included the training of Department Records Managers (DRMs) and Officers (DROs), the submission of active records filing schemes, the identification of vital records, the physical condition of the Records Center (RC), RC staff practices, and the storage of rock cores and soils. A number of recommendations were to improve records management procedures including;

- Conducting an inventory of all boxes stored at the RC and reconciling the results with the InfoSTAR inventory records
- Replacing the InfoSTAR system as soon as possible with a system that is compatible with bar coding and integration with Enterprise Content Management Systems (ECM)
- Installing permanent bay and shelf location signage at the RC
- Considering consolidation of the rock cores and soil collection in one location
- Continuing to provide DROs and DRMs training in records management practices

### Status of Open Audit Recommendations (14 recommendations closed in the 2nd quarter)

The Internal Audit Department follows up on open recommendations on a continuous basis. All pending recommendations have target implementation dates. When a recommendation has not been acted on in 48 months the appropriateness of the recommendation is re-evaluated during a subsequent audit. On closed assignments 98% of recommendations have been implemented.

Report Title (date)	Recommendations Pending Implementation	Closed Recommendations
DITP Data Center Access Controls (10/14/11)	2	20
Chelsea Facility Physical Security (12/31/12)	3	29
Hardware Equipment Management (5/22/13)	9	27
Follow-Up Report on Fleet Services Activities (12/31/13)	4	13
MBE/WBE Program Contracting Goals (3/14/14)	5	5
Bay State Fertilizer Follow-Up (9/30/14)	1	4
Expanded Affirmative Action Requirements (9/30/14)	3	13
8(m) Permit Fee (11/17/14)	2	4
Records Management (12/5/14)	8	8
<b>Total Recommendations</b>	<b>37</b>	<b>123</b>

### Audit Savings

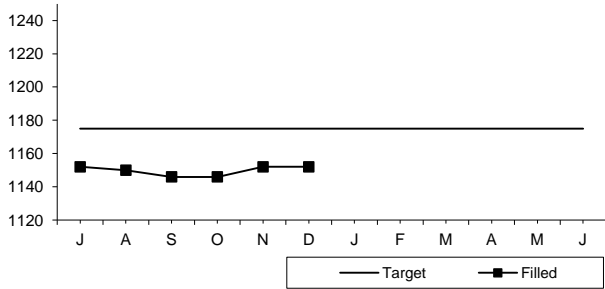
The Internal Audit Department's target is to achieve at least \$1 million in cost savings each year. Cost savings vary each year based upon many factors. In some cases, cost savings for one year may be the result of work in prior years.

Savings	FY11	FY12	FY13	FY14	FY15 (2Q)	TOTAL
Consultants	\$520,176	\$259,245	\$587,314	\$294,225	\$68,741	\$1,729,701
Contractors & Vendors	\$3,129,538	\$435,760	\$2,153,688	\$415,931	\$727,992	\$6,862,909
Internal Audits	\$152,478	\$407,350	\$391,083	\$923,370	\$83,085	\$1,957,366
<b>Total</b>	<b>\$3,802,192</b>	<b>\$1,102,355</b>	<b>\$3,132,085</b>	<b>\$1,633,526</b>	<b>\$879,818</b>	<b>\$10,549,976</b>

## OTHER MANAGEMENT

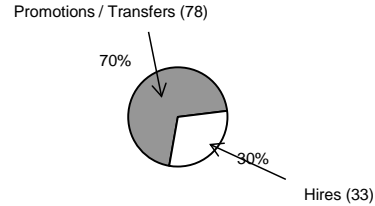
# Workforce Management 2nd Quarter FY15

**Filled Position Tracking**



FY15 Target for Filled Positions = 1175  
Filled Positions as of December 2014 = 1152

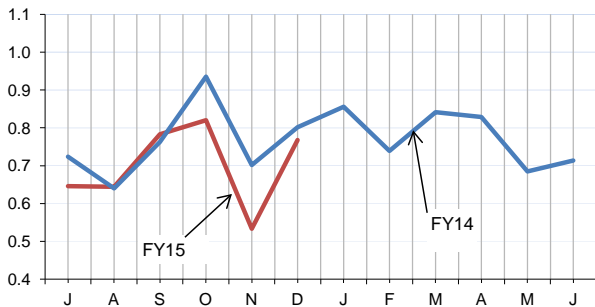
**Positions Filled by Hires/Promotions  
FY15-YTD**



	Pr/Trns	Hires	Total
FY12	42 (61%)	27 (39%)	69
FY13	82 (64%)	47 (36%)	129
FY14	111 (69%)	51 (31%)	162
FY15	78 (70%)	33 (30%)	111

(To Date)

**Average Monthly Sick Leave Usage  
Per Employee**



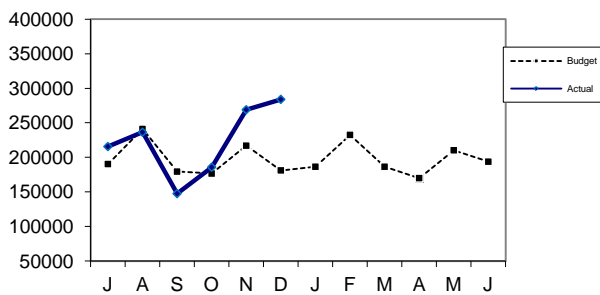
Average monthly sick leave for the 2nd Quarter of FY15 increased as compared to the 1st Quarter of FY15 (8.30 to 8.49 days).

In Q2 of FY15, the average quarterly sick leave usage has decreased 7.01% from the same quarter last year.

	Number of Employees	YTD	Annualized Total	Annual FMLA %	FY14
A&F	177	4.53	9.06	32.9%	10.18
Aff. Action	6	5.58	11.17	0.0%	11.78
Executive	5	1.04	2.08	0.0%	4.37
Int. Audit	8	3.27	6.54	0.0%	7.46
Law	17	5.67	11.33	6.9%	10.35
OEP	6	6.21	12.41	76.4%	16.14
Operations	932	4.10	8.19	20.4%	8.98
Pub. Affs.	13	4.91	9.81	10.8%	12.21
<b>MWRA Avg</b>	<b>1164</b>	<b>4.20</b>	<b>8.39</b>	<b>22.2%</b>	<b>9.23</b>

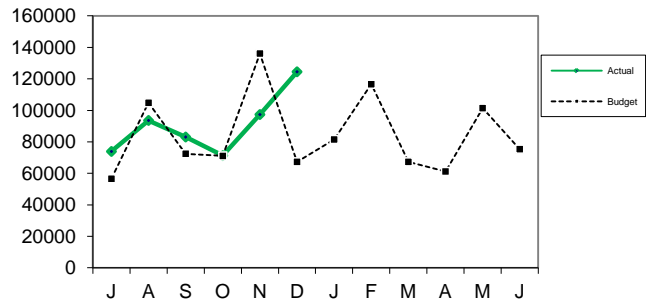
Percent of sick leave usage attributable to Family and Medical Leave Act (FMLA) leave is 22.2% for FY15.

**Field Operations  
Current Quarter Overtime \$**



Total Overtime for Field Operations for the second quarter of FY15 was \$738,655 which is \$164k over budget. Emergency overtime was \$348k, which was \$51k over budget mainly due to rain events, which totaled \$220k for the quarter. Coverage overtime was \$143k, which was \$13k over budget, reflecting the month's shift coverage requirements. Planned overtime was \$248k or \$100k over budget, mainly for Half-Plant operations at Carroll - \$38k, planned operations - \$50k, and maintenance off hours work - \$63k. YTD, Field Operations has spent \$1,185,672 on overtime which is \$153k over budget.

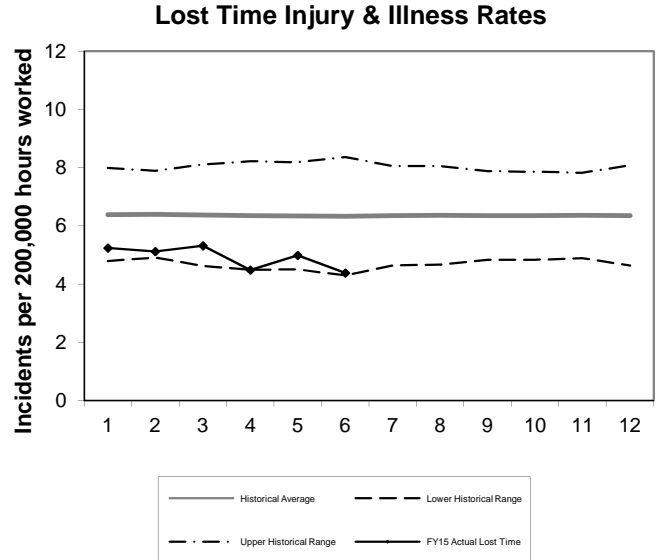
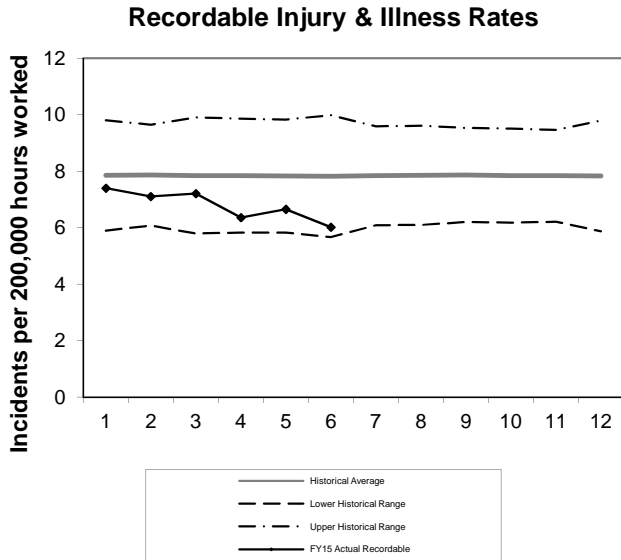
**Deer Island Treatment Plant  
Current Quarter Overtime \$**



Total overtime for Deer Island for the second quarter of FY15 was \$293,106, which is \$18,645 or 6.8% over budget. The variance is primarily due to higher than budgeted planned/unplanned maintenance overtime due to repair of critical systems and equipment, \$49K, higher shift coverage overtime requirements due to staffing vacancies, \$13K, offset in part by less than budgeted storm coverage overtime, (\$43K). YTD, Deer Island has spent \$543,697 on overtime, which was \$35K over budget.



## Workplace Safety 2nd Quarter - FY15



- 1 "Recordable" incidents are all work-related injuries and illnesses which result in death, loss of consciousness, restriction of work or motion, transfer to another job, or require medical treatment beyond first aid.
- 2 "Lost-time" incidents, a subset of the recordable incidents, are only those incidents resulting in any days away from work, days of restricted work activity or both - beyond the first day of injury or onset of illness.
- 3 The "Historical Average" is computed using the actual MWRRA monthly incident rates for FY99 through FY14. The "Upper" and "Lower Historical Ranges" are computed using these same data – adding and subtracting two standard deviations respectively. FY15 actual incident rates can be expected to fall within this historical range.

### Workers Compensation Claims Highlights - Second Quarter FY15

	New	Closed	Open Claims
Lost Time	3	16	62
Medical Only	14	28	15
Report Only	17	17	
	<b>New</b>		<b>YTD Light Duty Returns</b>
Light Duty Returns	1		5

#### Highlights/Comments:

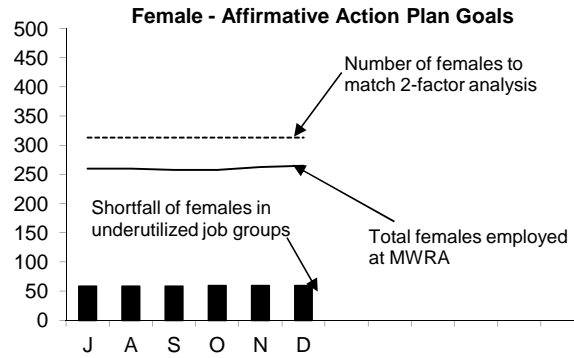
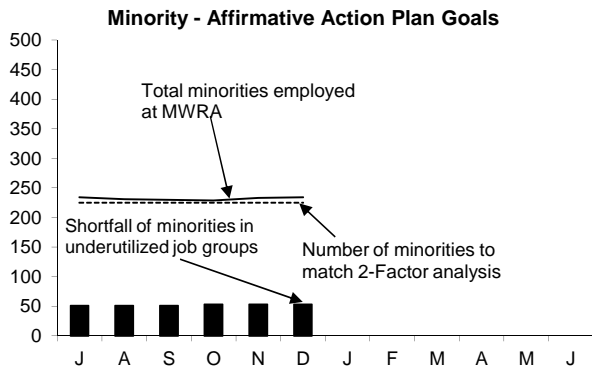
##### Light Duty Returns

**Oct** none  
**Nov** 1 employee returned to work light duty from workers' compensation  
**Dec** none

##### Regular Duty Returns

**Oct** 2 employees returned to work full duty from light duty  
 2 employees returned to work full duty from workers' compensation  
**Nov** 2 employees returned to work full duty from light duty  
 2 employees returned to work full duty from workers' compensation  
**Dec** 1 employee returned to work full duty from light duty  
 1 employee returned to work full duty from workers' compensation

**MWRA Job Group Representation**  
2nd Quarter - FY15



**Highlights:**

At the end of Q2 FY15, 11 job groups or a total of 53 positions are underutilized by minorities as compared to 9 job groups or a total of 38 positions at the end of Q2 FY14; for females 11 job groups or a total of 59 positions are underutilized by females as compared to 14 job groups or a total of 71 positions at the end of Q2 FY14. During Q2, 7 minorities and 10 females were hired. During this same period, 3 minorities and 3 females terminated.

**Underutilized Job Groups - Workforce Representation**

Job Group	Employees	Minorities	Achievement	Minority	Females	Achievement	Female
	as of 12/31/2014	as of 12/31/2014		Over or Under Under utilized	As of 12/31/2014		Over or Under Under utilized
Administrator A	19	2	2	0	6	6	0
Administrator B	21	0	3	-3	2	6	-4
Clerical A	38	17	10	7	33	15	18
Clerical B	32	7	11	-4	11	1	10
Engineer A	82	19	21	-2	14	17	-3
Engineer B	51	14	12	2	7	13	-6
Craft A	115	14	22	-8	0	3	-3
Craft B	148	29	27	2	3	5	-2
Laborer	65	23	15	8	3	3	0
Management A	104	15	24	-9	36	47	-11
Management B	43	6	11	-5	11	18	-7
Operator A	67	5	7	-2	1	4	-3
Operator B	65	7	17	-10	3	2	1
Para Professional	56	12	17	-5	26	39	-13
Professional A	35	4	8	-4	23	14	9
Professional B	167	43	44	-1	81	76	5
Technical A	51	16	8	8	5	8	-3
Technical B	5	1	1	0	0	2	-2
<b>Total</b>	<b>1164</b>	<b>234</b>	<b>260</b>	<b>27/-53</b>	<b>265</b>	<b>279</b>	<b>43/-59</b>

**AACU Candidate Referrals for Underutilized Positions**

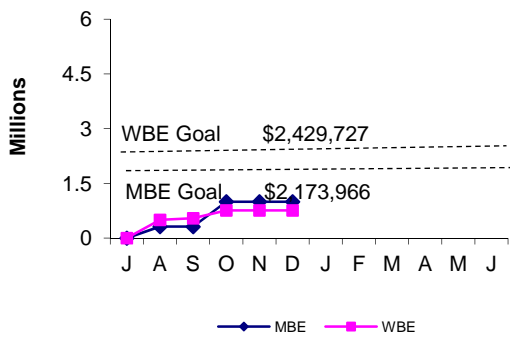
Job Group	Title	# of Vac	Requisition Int. / Ext.	Promotions/ Transfers	AACU Ref. External	Position Status
Administrative B	Deputy Director, Maintenance	1	Int	1	0	P = WM
Craft A	M&O Specialist	2	Int	1	0	P = HM
Craft B	Toolmaker	1	Int	1	0	P = WM
Clerical B	Secretary I	1	Int/Ext	0	2	In Progress
Clerical B	Head Clerk	1	Int/Ext	0	2	In Progress
Clerical B	Warehouse Materials Handler	2	Int/Ext	1	1	P=WM, NH=WF
Engineer A	Sr. Program Manager	1	Int	1	0	P = WM
Engineer A	Project Engineer	1	Int	1	0	P = BM
Engineer A	Project Engineer, Process Monitor	1	Int/Ext	0	1	In Progress
Engineer B	Project Manager, Process Monitor	1	Int	1	0	P = WF
Engineer B	Staff Engineer	4	Int/Ext	0	0	NH = HF and 3 WM
Laborers	OMC Laborer	5	Int/Ext	0	2	NH = BM, (2)WM
Management A	Program Manager	3	Int/Ext	2	0	P = WM, BF; NH = AF
Management A	Manager, Benefits & HRIS	1	Int	0	0	In Progress
Management A	Construction Coordinator	0	Int	1	0	P = WF
Operator B	Operator	2	Int/Ext	0	0	NH=WM, P=WM
Operator A	Transmission & Treatment Operat	1	Int/Ext	1	0	P = WM
Professional A	Assistant Manager, Labor Relation	1	Int/ Ext	0	0	NH = BF
Professional B	Sr. Laboratory Technician	1	Int/ Ext	0	0	Rehire = WF
Professional B	Regional Manager	1	Int/Ext	1	0	P = WF
Professional B	Biologist I	1	Int	1	0	P = BF
Technical A	Sr. Instrument Technician	2	Int/Ext	1	0	NH=WF; P=WM
Technical A	Systems Administrator III	1	Int/Ext	1	0	P = WM
Technical B	Water Quality Technician	1	Int/Ext	0	2	NH = WF
ParaProfessional	Special Projects Coordinator	1	Int/Ext	0	0	In Progress

# MBE/WBE Expenditures

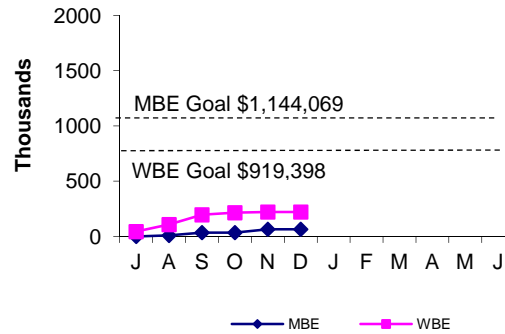
## 2nd Quarter - FY15

**Background:** MBE/WBE targets are determined based on annual MWRA expenditure forecasts in the procurement categories noted below. MBE/WBE percentage goals are the results from a 2002 Availability Analysis, and MassDEP's 2010 Availability Analysis. As a result of the Availability Analyses, the category of Non-Professional Services is included in Goods/Services. Consistent with contractor reporting requirements, MBE/WBE expenditure data is available through December.

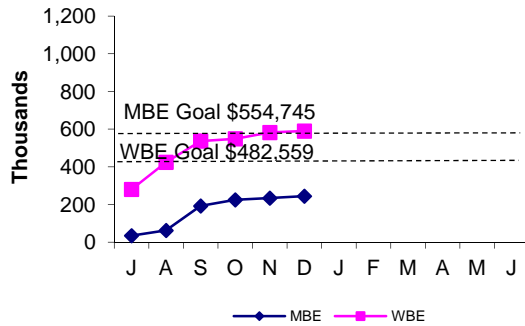
**Construction**



**Professional**



**Goods/Services**



FY15 spending and percentage of goals achieved, as well as FY14 performance are as follows:

	MBE				WBE			
	FY15 Year-to-Date		FY14		FY15 Year-to-Date		FY14	
	Amount	Percent	Amount	Percent	Amount	Percent	Amount	Percent
Construction	997,485	45.9%	1,053,966	25.5%	760,440	31.3%	3,407,380	165.9%
Professional Svc.	65,303	5.7%	584,242	44.5%	221,262	24.1%	457,558	43.4%
<u>Goods &amp; Svcs.</u>	<u>244,022</u>	<u>44.0%</u>	<u>359,270</u>	<u>45.8%</u>	<u>590,005</u>	<u>122.3%</u>	<u>966,425</u>	<u>141.6%</u>
<b>Total</b>	<b>1,306,810</b>	<b>33.7%</b>	<b>1,997,478</b>	<b>32.1%</b>	<b>1,571,707</b>	<b>41.0%</b>	<b>3,890,658</b>	<b>102.6%</b>

FY15 MBE/WBE dollar totals do not include MBE and WBE payments to prime contractors and consultants.

## MWRA FY15 CEB Expenses 2<sup>nd</sup> Quarter – FY15

	December 2014 Year-to-Date (\$000)					
	Budget	Actual	Variance	%	FY15 Budget	%
<b>EXPENSES</b>						
WAGES AND SALARIES	\$ 46,082	\$ 44,789	\$ (1,293)	-2.8%	\$ 96,555	46.4%
OVERTIME	1,810	2,064	253	14.0%	3,621	57.0%
FRINGE BENEFITS	9,195	9,014	(182)	-2.0%	18,299	49.3%
WORKERS' COMPENSATION	1,100	1,420	320	29.1%	2,200	64.5%
CHEMICALS	5,239	5,228	(10)	-0.2%	10,220	51.2%
ENERGY AND UTILITIES	10,624	9,631	(993)	-9.3%	23,472	41.0%
MAINTENANCE	12,059	14,567	2,507	20.8%	27,973	52.1%
TRAINING AND MEETINGS	139	190	51	36.6%	361	52.7%
PROFESSIONAL SERVICES	2,724	2,546	(179)	-6.6%	5,957	42.7%
OTHER MATERIALS	1,891	2,270	379	20.0%	5,953	38.1%
OTHER SERVICES	11,474	11,552	78	0.7%	22,538	51.3%
<b>TOTAL DIRECT EXPENSES</b>	<b>\$ 102,338</b>	<b>\$ 103,270</b>	<b>\$ 932</b>	<b>0.9%</b>	<b>\$ 217,149</b>	<b>47.6%</b>
<b>INDIRECT EXPENSES</b>						
INSURANCE	\$ 1,064	\$ 906	\$ (158)	-14.8%	\$ 2,128	42.6%
WATERSHED/PILOT	13,733	13,614	(119)	-0.9%	27,467	49.6%
BEC <sub>o</sub> PAYMENT	1,670	1,486	(184)	-11.0%	3,198	46.5%
MITIGATION	803	730	(73)	-9.1%	1,606	45.5%
ADDITIONS TO RESERVES	241	241	-	0.0%	483	50.0%
RETIREMENT FUND	12,629	12,645	16	0.1%	12,629	100.1%
<b>TOTAL INDIRECT EXPENSES</b>	<b>\$ 30,141</b>	<b>\$ 29,623</b>	<b>\$ (518)</b>	<b>-1.7%</b>	<b>\$ 47,512</b>	<b>62.4%</b>
<b>DEBT SERVICE</b>						
STATE REVOLVING FUND	\$ 38,544	\$ 38,544	\$ -	0.0%	\$ 78,461	49.1%
SENIOR DEBT	108,249	107,390	(858)	-0.8%	220,836	48.6%
CORD FUND	438	438	-	0.0%	877	50.0%
DEBT SERVICE ASSISTANCE	(854)	(854)	-	0.0%	(854)	100.0%
CURRENT REVENUE/CAPITAL	5,100	5,100	-	0.0%	10,200	50.0%
SUBORDINATE MWRA DEBT	49,714	49,714	-	0.0%	99,686	49.9%
LOCAL WATER PIPELINE CP	2,074	2,074	-	0.0%	4,148	50.0%
CAPITAL LEASE	1,609	1,609	-	0.0%	3,217	50.0%
VARIABLE DEBT	-	(6,239)	(6,239)	---	-	0.0%
BOND REDEMPTION SAVINGS	(3,373)	(3,373)	-	0.0%	(6,746)	50.0%
DEFEASANCE ACCOUNT	-	7,097	7,097	---	-	0.0%
<b>TOTAL DEBT SERVICE</b>	<b>\$ 201,501</b>	<b>\$ 201,501</b>	<b>\$ -</b>	<b>0.0%</b>	<b>\$ 409,825</b>	<b>49.2%</b>
<b>TOTAL EXPENSES</b>	<b>\$ 333,981</b>	<b>\$ 334,395</b>	<b>\$ 414</b>	<b>0.1%</b>	<b>\$ 674,485</b>	<b>49.6%</b>
<b>REVENUE &amp; INCOME</b>						
RATE REVENUE	\$ 325,158	\$ 325,158	\$ -	0.0%	\$ 650,316	50.0%
OTHER USER CHARGES	3,876	3,933	57	1.5%	8,260	47.6%
OTHER REVENUE	3,996	4,963	967	24.2%	6,180	80.3%
RATE STABILIZATION	-	-	-	---	-	---
INVESTMENT INCOME	4,844	4,722	(122)	-2.5%	9,729	48.5%
<b>TOTAL REVENUE &amp; INCOME</b>	<b>\$ 337,874</b>	<b>\$ 338,776</b>	<b>\$ 902</b>	<b>0.3%</b>	<b>\$ 674,485</b>	<b>50.2%</b>

As of December 2014, total expenses were \$334.4 million, \$414,000 or 0.1% higher than budget and total revenue was \$338.8 million, \$902,000 or 0.3% higher than budget, for a net variance of \$488,000.

### Expenses –

- **Direct Expenses** are \$103.3 million, \$932,000 or 0.9% higher than budget.
- **Maintenance** is \$2.5 million or 20.8% higher than budget. Materials are overspent by \$2.1 million and services are overspent by \$432,000 mainly due to timing.
- **Wages & Salaries** are underspent by \$1.3 million or 2.8% due to lower headcount and the salary mix differential between staff retiring at higher rates and new hires coming on board at lower rates.
- **Utilities** are underspent by \$993,000 or 9.3% due to lower Electricity of \$1.3 million mainly due to lower pricing and lower flows at Deer Island and Water use of \$119,000 offset by higher Diesel of \$415,000 due to the decision to purchase fuel in November vs. March 2015 at Deer Island in order to take advantage of favorable pricing.
- **Other Materials** are over budget by \$379,000 or 20.0% mainly due to timing of Computer Hardware purchases, Clinton gravel purchases, Work Clothes, and Health and Safety Materials.
- **Workers Compensation** expenses are higher than budget by \$320,000 or 29.1%, based on higher Compensation Payments of \$247,000 and administrative and legal costs of \$59,000.
- **Overtime** is overspent by \$253,000 or 14.0% due to higher wet weather events and coverage requirements.
- **Fringe Benefits** are lower than budget by \$182,000 or 2.0% mainly due to lower than budgeted health, unemployment insurance, and dental due to the lower headcount.
- **Professional Services** are lower than budget by \$179,000 or 6.6% mainly due to the timing of initiatives such as the Mystic River Modeling project.
- **Other Services** are higher than budget by \$78,000 or 0.7% mainly due to higher telecommunications expenses due to security data lines, Charlestown Navy Yard headquarters carpet and painting upgrades, and timing of Department of Conservation and Recreation (DCR) radio licensing fees which were paid in December and budgeted in June.
- **Indirect Expenses** of \$29.6 million are \$518,000 or 1.7% under budget mainly for lower Insurance expenses of \$158,000 and lower Watershed Reimbursement expenses of \$119,000 due to FY14 overaccrual.
- **Debt Service Expenses** totaled \$201.5 million, which is at budgeted level after the transfer of \$7.1 million of a favorable year-to-date variance to the Defeasance Account and \$858,000 in year-to-date underspending that is the result of the recently completed debt refinancing on fixed rate bonds.

### Revenue and Income –

- **Total Revenue / Income** for December is \$338.8 million, \$902,000 or 0.3% higher than budget due to Non-Rate Revenue of \$1.0 million offset by lower Investment Income of \$122,000 due to lower short-term rates. The higher Non-Rate Revenue is due to \$425,000 for the sale of emergency water for the Town of Hudson, \$372,000 payment received for the sale of the Fox Point CSO Facility, and \$104,000 for higher permit, monitoring, and penalty fees, offset by lower Energy Revenue of \$246,000 mainly due to the timing of Renewable Portfolio Standard (RPS) sales.

# Cost of Debt

## 2<sup>nd</sup> Quarter – FY15

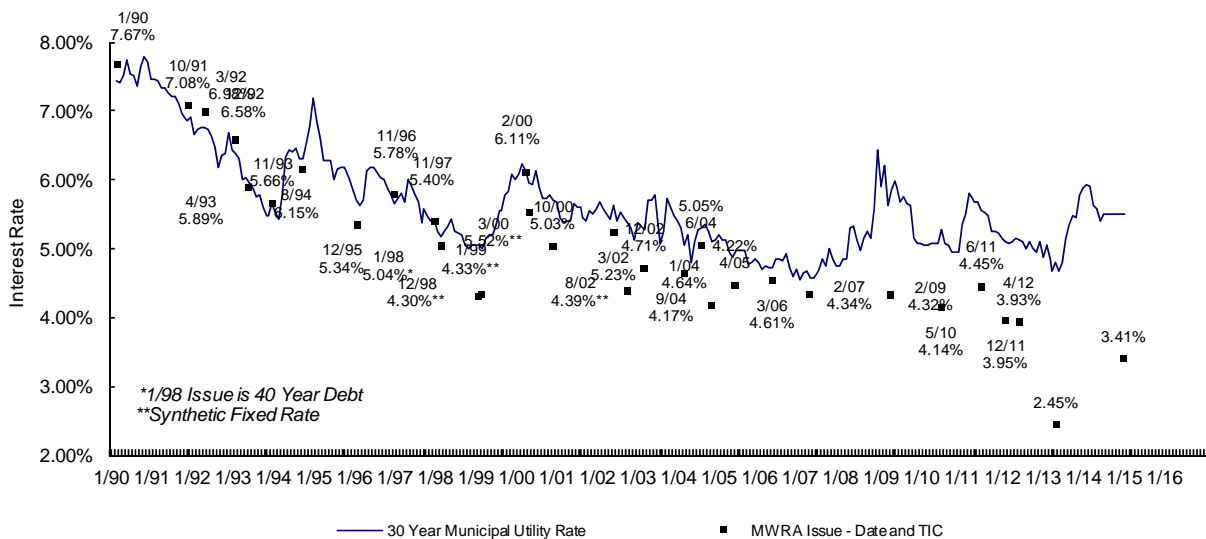
MWRA borrowing costs are a function of the fixed and variable tax exempt interest rate environment, the level of MWRA's variable interest rate exposure and the perceived creditworthiness of MWRA. Each of these factors has contributed to decreased MWRA borrowing costs since 1990.

<b>Average Cost of MWRA Debt</b>	
Fixed Debt (\$3,980)	4.25%
Variable Debt (\$484.2)	0.63%
SRF Debt (\$974.1)	1.24%
<b>Weighted Average Debt Cost (\$5,439)</b>	<b>3.39%</b>

### Most Recent Senior Fixed Debt Issue November 2014

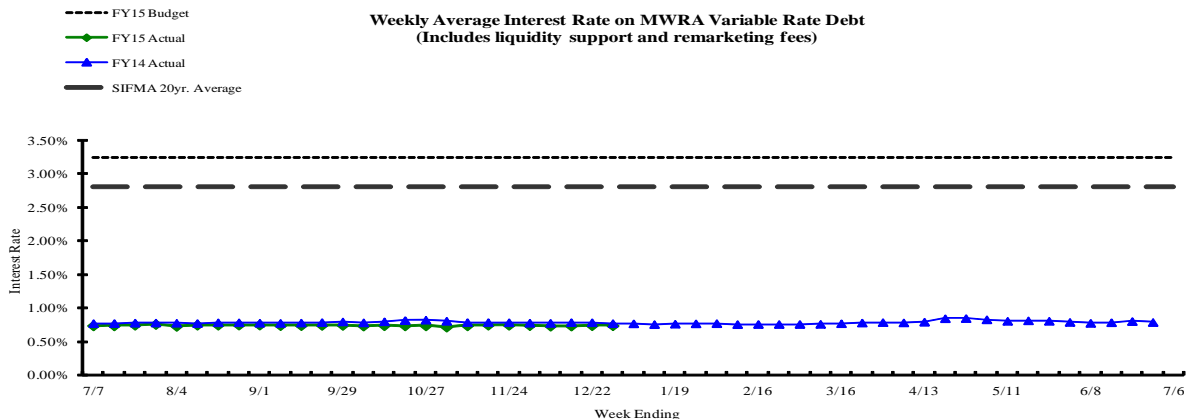
2014 Series D-F (\$243.9)	3.41%
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**MWRA Fixed Rate Debt vs. 30 Year Municipal Utility Interest Rate**



### Weekly Average variable Interest Rates vs. Budget

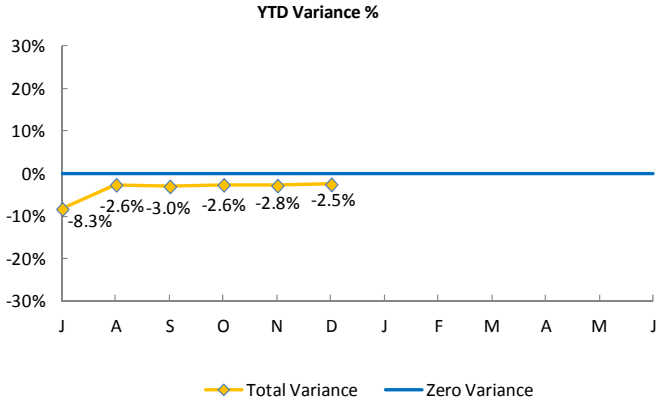
MWRA currently has ten variable rate debt issues with \$1.0 billion outstanding, excluding commercial paper. Of the ten outstanding series, five have portions which have been swapped to fixed rate. Variable rate debt has been less expensive than fixed rate debt in recent years as short-term rates have remained lower than long-term rates on MWRA debt issues. In December, SIFMA rates fluctuated with a high of 0.04% and a low of 0.03%. MWRA's issuance of variable rate debt, although consistently less expensive in recent years, results in exposure to additional interest rate risk as compared to fixed rate debt.



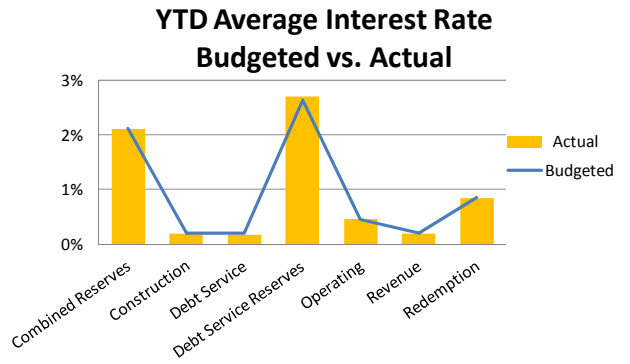
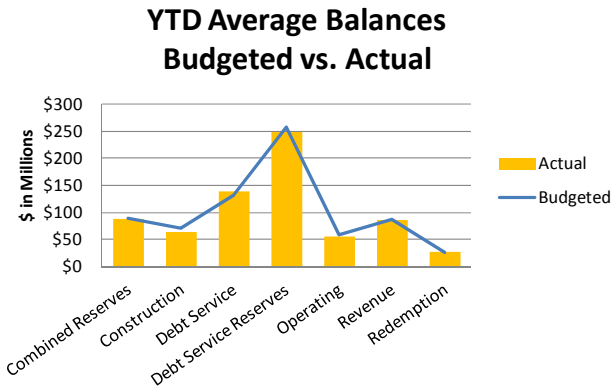
# Investment Income

## 2<sup>nd</sup> Quarter – FY15

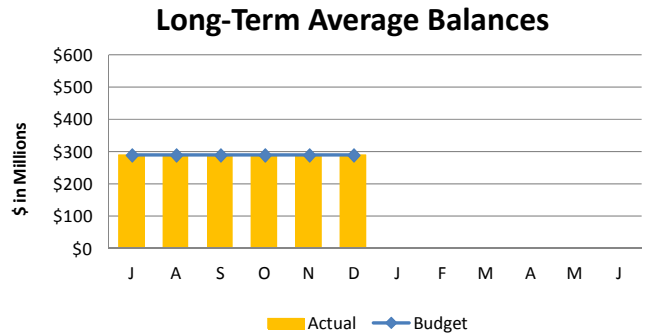
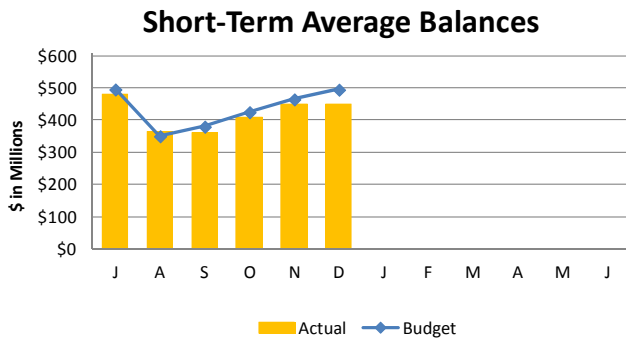
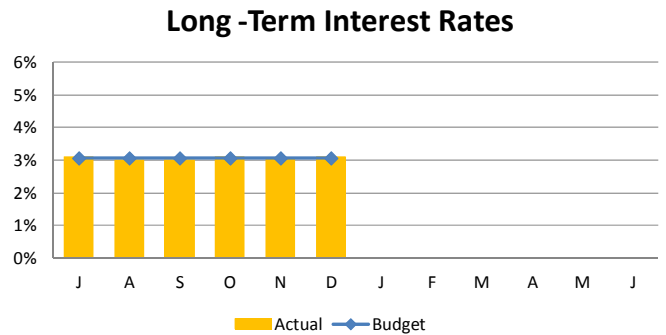
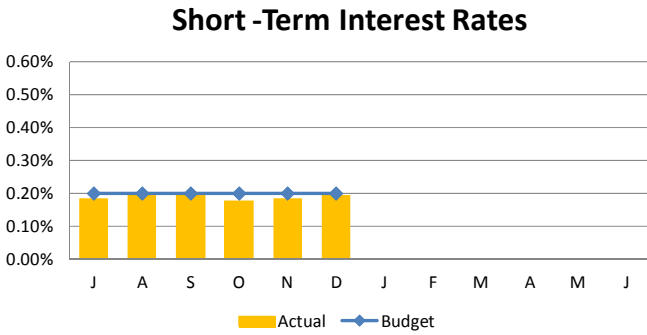
### Year To Date



	YTD BUDGET VARIANCE			
	(\$000)			
	BALANCES IMPACT	RATES IMPACT	TOTAL	%
Combined Reserves	(\$1)	(\$16)	(17)	-1.9%
Construction	(\$8)	(\$6)	(14)	-20.0%
Debt Service	\$5	(\$12)	(7)	-5.0%
Debt Service Reserves	(\$110)	\$38	(72)	-2.1%
Operating	(\$6)	\$5	(1)	-0.7%
Revenue	(\$2)	(\$7)	(9)	-10.0%
Redemption	(\$1)	(\$1)	(2)	-1.9%
<b>Total Variance</b>	<b>(\$122)</b>	<b>\$0</b>	<b>(\$122)</b>	<b>-2.5%</b>



## Monthly





**STAFF SUMMARY**

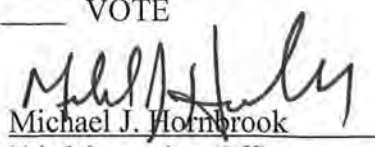
**TO:** Board of Directors  
**FROM:** Frederick A. Laskey, Executive Director  
**DATE:** March 11, 2015  
**SUBJECT:** January/February 2015 Storm Report



COMMITTEE: Administration, Finance & Audit

INFORMATION  
 VOTE

Carolyn M. Fiore, Deputy Chief Operating Officer  
John P. Vetere, Deputy Chief Operating Officer  
Preparer/Title

  
Michael J. Hornbrook  
Chief Operating Officer

*As has been well documented in the media, the period commencing on January 26, 2015 to the end of February 2015 was a record breaking period for snow and below average temperatures. This staff summary outlines the operational, facilities, and fiscal impacts to MWRA from this extreme weather period.*

**RECOMMENDATION:**

For information only.

**DISCUSSION:**

January/February Weather

As of March 4, 2015, winter 2014-2015 is now the second snowiest winter season on record with a total of 105.7 inches of snow. To put this in context, the average winter snowfall at Logan Airport is 43.5 inches. On January 26-28, the service area was hit with a major blizzard. Multiple major winter storms continued in February with February 2015 shattering the previous record for the snowiest month with a total of 64.8 inches of snow. Numerous other snowfall records were set (30-day snowfall; fastest 90-inch snowfall; most days with measurable snow in a month).

In addition to the record snowfall and high winds causing repeated blizzard conditions and coastal flooding, the MWRA service area experienced extreme cold temperatures throughout the month. The City of Boston recorded 28 consecutive days with lows of 20 degrees or colder, breaking the all-time record of 27 consecutive days set in 1881.

MWRA Storm Response

During this extreme weather period, MWRA did not experience any loss of water or sewer service to any communities. All MWRA facilities remained operational during the storms and extreme cold temperatures.



For the largest storms during the period, MWRA's Emergency Operations Center was opened and operational, and maintenance staff were pre-positioned at key facilities. Pre-storm coordination meetings with all MWRA operational and support units were held to review latest forecasts and MWRA storm roles and responsibilities. Essential MWRA staff were identified and notified per pre-established procedures. Extended shifts were implemented to ensure continuous coverage of facilities during difficult or dangerous travel conditions. Emergency generators at all MWRA facilities were checked, as were all chemical and fuel inventories.

MWRA has approximately 100 water and wastewater sites (facilities and other structures such as chambers and tanks) that require access. MWRA staff and equipment are utilized to plow these sites to ensure access. During the period, MWRA pre-positioned plowing equipment and staffing at critical sites to provide plowing capability during and after the storm events. Snow plowing and removal required extensive staffing resources and extended staff hours working in difficult weather conditions. The single biggest plowing challenge during the blizzard events was keeping the Deer Island access road, especially near Shirley Gut, open due to high drifts and wind.

As a result of the cumulative snow fall totals, MWRA Engineering staff inspected all flat roofs at MWRA facilities, calculated the weight of the snow on the roofs, and compared the snow loading to the rated capacity of the roofs. With the forecast of additional snow and potential rain, snow removal from flat roofs was performed (see photo above). This again required extensive effort by staff under difficult weather conditions.



**Snow Pile Behind Chelsea Facility**



**MWRA Staff Clearing Snow from Chelsea Facility Roof**



## Storm Damage

MWRA experienced some storm damage as a result of the severe weather. At Deer Island, a fiber-reinforced, polyester resin roof on one of the Gravity Thickeners partially collapsed (see photo below right). The unit, one of six Gravity Thickeners on-island, was off-line at the time of the collapse and there were no operational impacts. The estimated cost to replace the collapsed roof is approximately \$600,000.

Staff are preparing specifications and bid documents for replacing this unit's roof, and four of the other five remaining units (one roof has been recently replaced).

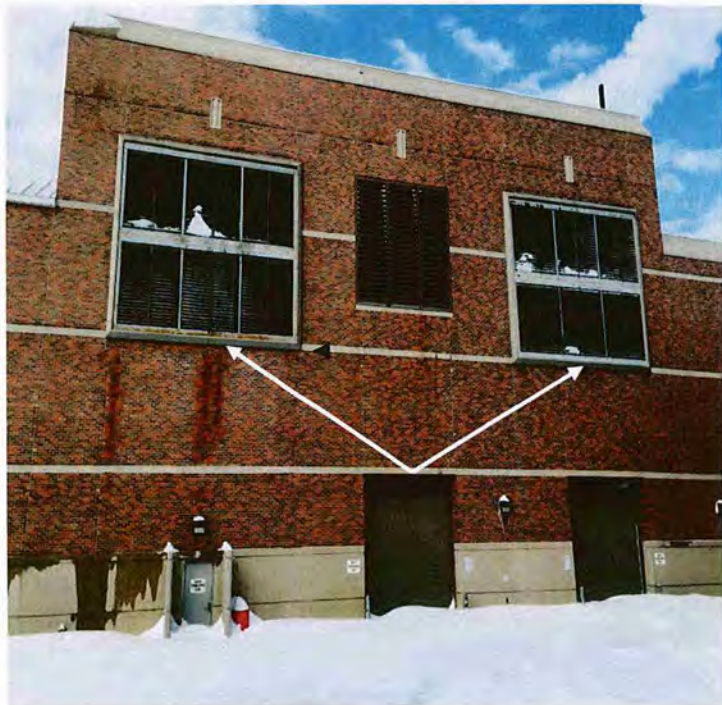
During the first blizzard, as a precautionary measure in case of a power outage from the utility, one of the combustion turbine generators (CTG) was placed on-line and operated in parallel with the utility.



**Collapsed Roof On Gravity Thickener; Separation From Air Duct Can Be Seen.**

During the storm, the CTG intake air filters inside the air ducts located behind the intake louvers, pictured on the right, became wet from the snow and froze over requiring staff to shut down the CTG. There were no operational impacts; staff replaced the frozen filters with new filters from stock and the CTG unit was available for operation, if needed. Staff concluded that this event was caused by the extremely light snow type, the direction and speed of the wind, and the extreme cold.

Staff believe that the long-term solution is to install an external intake hood at the vent intakes. Staff are preparing a design for this modification.



**CTG Exterior Air Intake Louvers**



The storms also caused damage to the perimeter security fence at Deer Island and at other MWRA facilities (see photo below).

### Emergency Assistance

MWRA responded to two emergency requests from the Massachusetts Emergency Management Association (MEMA) and from several MWRA communities to assist with snow removal. MWRA provided available space at two MWRA facilities (Deer Island and DeLauri Pump Station in Charlestown) for communities to utilize as snow fields.



**Damaged Perimeter Security Fence At Deer Island**

### MWRA Maintenance

The extensive effort to respond to the storms diverted some staffing resources and the snow clogging streets limited access resulting in a decrease of lower priority routine activities, such as valve exercising, siphon cleaning, meter maintenance, and sewer inspections. Third quarter performance measures, which will be published in the Orange Notebook next quarter, will reflect the impact of the extreme weather in several of these areas. However, no disruption to MWRA's higher priority functions occurred.

### Impacts to MWRA Construction Projects

The extreme winter conditions have impacted progress on MWRA construction projects. Several projects have either been suspended for the winter (North Intermediate High West Street Transmission Main) or have had progress impacted by the storms/cold weather/snow removal (Spot Pond Covered Storage) and will require construction contract time extensions.

### Next Challenge

The next challenge resulting from this record-breaking historic snowfall will be snow melt and spring rains. Staff estimate that currently, there are approximately six inches of rainfall equivalent within the snowpack in the service area.

On the water side, MWRA has been dropping reservoirs levels in anticipation of a major snow melt and spring rains. Wachusett Reservoir has been lowered three feet below its normal operating band. The latest report from Wachusett has 6.75 inches of snow water equivalent in the Wachusett watershed. Staff also have been dropping levels in the metropolitan area emergency backup reservoirs, and in the Sudbury and Foss Reservoirs.

The latest report from Quabbin indicates that there is 6.86 inches of snow water equivalent and staff are releasing to the Swift River. With the Quabbin Reservoir at 95.4% full, staff anticipate spilling from the Quabbin to the Swift will occur this spring.

On the wastewater side, the liquid equivalent of six to eight inches of water equivalent in the snowpack in the Metropolitan Boston area raises concerns of a quick snowmelt, local high groundwater conditions, and possible spring rain conditions. The result could be river and stream flooding, and surcharging and overflows from the MWRA and local wastewater systems. Due to the extreme cold there has been very little snow melt to date.

**BUDGET/FICAL IMPACT:**

A preliminary estimate of the costs for preparing and responding to the storms of Jan 26-28 through February 2015 is approximately \$1.35 million (excluding regular pay), including \$600,000 for the estimated cost of the Deer Island Gravity Thickener roof replacement. Of the total amount of \$1.35 million, the majority of costs incurred to respond to the storms was for overtime (OT). OT spending for this period was approximately \$425,000 over the budgeted amount for this period. The higher-than-budgeted storm-related costs will be included in the next round of year-end projections. However, this will not require a Budget Amendment.

MWRA staff have been in communication with MEMA regarding the status of a state request for federal disaster assistance. MEMA has confirmed that the first storm of January 26-28 has met the threshold for a disaster declaration for snow and public assistance funds. These funds will be available for 10 counties including Worcester, Suffolk, Middlesex and Norfolk.




**MWRA Staff At The Blue Hills Covered Storage Site**

MEMA is now broadening the scope and will be requesting federal disaster assistance to help recover costs associated with snow removal for *all* major snow storms for the entire period of January 26 through February 22, 2015. MWRA will provide cost information to MEMA for that period, as well. MWRA staff will seek reimbursement for at least \$1 million in eligible storm-related costs for the total storm period.

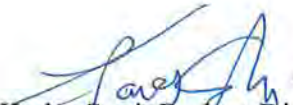



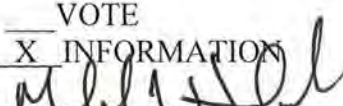
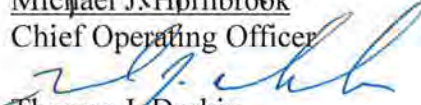
### STAFF SUMMARY

**TO:** Board of Directors  
**FROM:** Frederick A. Laskey, Executive Director   
**DATE:** February 11, 2015  
**SUBJECT:** Fiscal Year 2015 Mid-Year Capital Improvement Program Spending Report

COMMITTEE: Administration, Finance & Audit

VOTE  
 INFORMATION

  
 Kathy Soni, Budget Director  
  
 Dave Whelan, Budget Manager  
 Preparer/Title

  
 Michael J. Hornbrook  
 Chief Operating Officer  
  
 Thomas J. Durkin  
 Director, Finance

*At the mid-point of each fiscal year, staff present the Board with a recap of the year-to-date Capital Improvement Program (CIP) spending with more detailed explanations of variances than those provided in the monthly Financials.*

*MWRA continues to make progress on several major projects. To date, staff are managing over 112 design and construction projects. FY15 actual spending to date is \$48.7 million compared to a budgeted amount of \$51.8 million. New contracts valued at over \$27.0 million were awarded in the first half of the fiscal year.*

*FY15 is the second year of MWRA's five-year spending cap for FY14-18 established at \$791.7 million. The cap serves as a ceiling for annual and cumulative 5-year spending. MWRA has successfully stayed well within its cap limit in the previous caps and complied with both the annual and five-year overall cap requirements.*

*In terms of overall spending, the first half of FY15 is following previous years' trends. Project underspending is driven by a multitude of factors that influence both design and construction projects, such as: changes in schedules, scope and priorities; removal of projects from the CIP due to work being done in-house; permitting issues; and revision or deletion of projects after further re-evaluation, etc.*

### RECOMMENDATION:

For information only. The Fiscal Year 2015 Mid-Year Capital Program Spending Report highlights major capital program accomplishments and provides explanations for spending variances and schedule changes versus the budget.

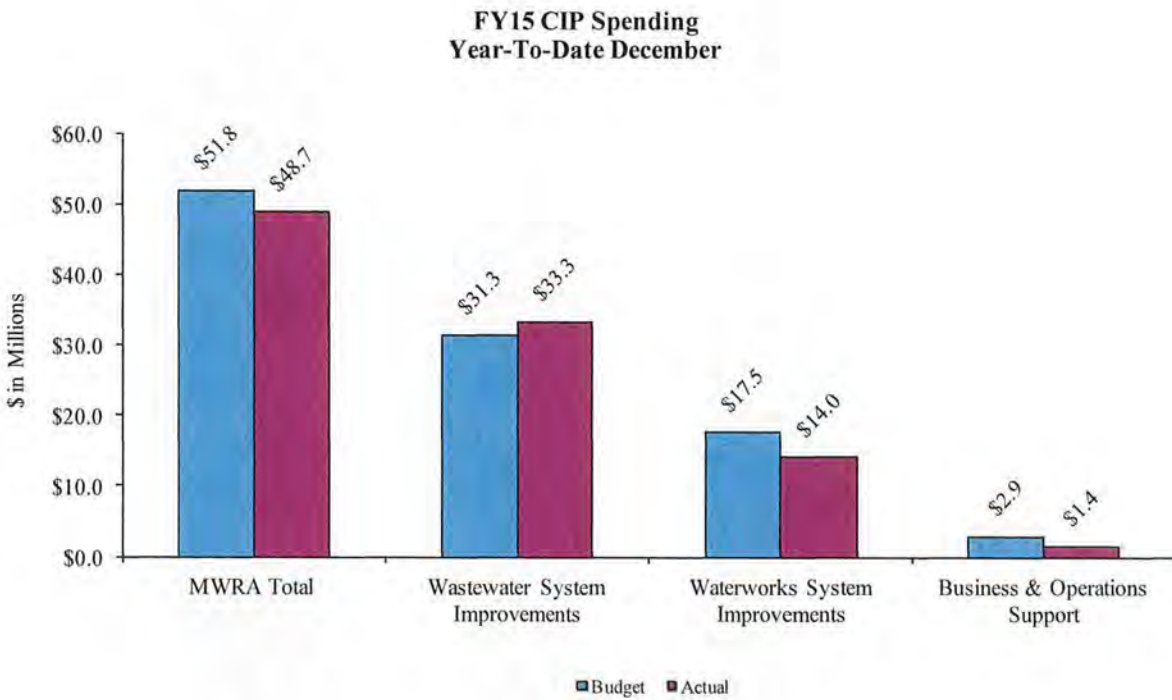


**DISCUSSION:**

Spending year-to-date in FY15 totals \$48.7 million, \$3.1 million or 5.9% lower than budget. After accounting for programs which are not directly under MWRA's control, most notably the Inflow and Infiltration (I/I) program, the Local Water Pipeline program, and the community managed Combined Sewer Overflow (CSOs) projects, the underspending is \$8.3 million or 21.5%.

Underspending was reported in Waterworks of \$3.5 million and Business and Operations Support of \$1.5 million and was offset by overspending in Wastewater of \$1.9 million.

Spending By Program:



Spending by program is represented below:

<b>FY15 Capital Improvement Program Spending Through December 2014 (\$000s)</b>					
<b>Program</b>	<b>Budgeted Spending</b>	<b>Actual Spending</b>	<b>Variance to Budget</b>		<b>% of Total YTD Actual Spending</b>
			<b>\$</b>	<b>%</b>	
<b>Total Wastewater System</b>	<b>\$31,350</b>	<b>\$33,265</b>	<b>\$1,915</b>	<b>6%</b>	<b>68%</b>
Interception & Pumping	\$5,858	\$4,636	(\$1,222)	-21%	10%
Treatment	\$10,114	\$9,087	(\$1,027)	-10%	19%
Residuals	\$0	\$0	\$0	0%	0%
Combined Sewer Overflow	\$9,681	\$12,856	\$3,176	33%	26%
Other Wastewater Programs	\$5,697	\$6,685	\$988	17%	14%
<b>Total Waterworks System</b>	<b>\$17,536</b>	<b>\$14,020</b>	<b>(\$3,516)</b>	<b>-20%</b>	<b>29%</b>
Drinking Water Quality Improvements	\$12,979	\$9,360	(\$3,619)	-28%	19%
Transmission	\$2,364	\$2,235	(\$129)	-5%	5%
Distribution and Pumping	\$3,592	\$2,673	(\$919)	-26%	5%
Other Waterworks Programs	-\$1,398	-\$247	\$1,151	-82%	-1%
<b>Business &amp; Operations Support</b>	<b>\$2,916</b>	<b>\$1,446</b>	<b>(\$1,469)</b>	<b>-50%</b>	<b>3%</b>
<b>Total MWRA (without Contingency)</b>	<b>\$51,801</b>	<b>\$48,732</b>	<b>(\$3,070)</b>	<b>-6%</b>	<b>100%</b>

**Projects that were completed or reached substantial completion in the first half of FY15 included:**

- Brutsch Ultraviolet Disinfection Construction - **\$6.6 million**
- Northern Intermediate High Gillis Pump Station Improvements - **\$2.2 million**
- Chicopee Valley Aqueduct Shea Ave Leak Repair – **\$1.0 million**
- Deer Island Treatment Plant Roof Replacement Phase 3 - **\$0.6 million**

Additionally, the following MWRA Community Managed Combined Sewer Overflow (CSO) project reached substantial completion during the first half of FY15:

- Reserved Channel Sewer Separation, Contract 3B - **\$14.8 million**

**MWRA and CSO communities also made significant progress on a number of water and wastewater projects, including:**

- Reserved Channel Sewer Separation - **97% complete**

- Spot Pond Storage Facility Design/Build – **87% complete**
- Nut Island Electric Grit & Screen Conveyance Construction - **82% complete**
- Cambridge Sewer Separation - **77% complete**
- Deer Island Treatment Plant North Main Pump Station Variable Frequency Drives Construction – **68% complete**
- DI Scum Skimmer Replacement – **63% complete**
- Prison Point Cottage Farm Engine/Pumps Gearbox Rebuilds – **62% complete**

**In addition, the MWRA awarded the following contracts in the first half of FY15:**

- Weston Aqueduct Supply Mains Section 36/W11/S 9-A11 Valve - **\$11.2 million**
- Deer Island Cryogenic Chillers Replacement - **\$3.2 million**
- MWR003 Gate & Siphon Construction 2 - **\$2.7 million**
- Deer Island North Main Pump Station Winthrop Terminal Facility Engineering Services During Construction/Resident Engineer Inspection - **\$2.3 million**
- Deer Island Clarifier Rehabilitation Phase 2 Design/Engineering Services During Construction - **\$2.2 million**
- Deer Island Variable Frequency Drive Additions, Secondary Oxygen Reactor Batteries A, B, and C - **\$2.2 million**
- Deer Island Thermal Power Plant Boiler Control Replacement - **\$1.6 million**
- Quabbin Power Design - **\$0.8 million**
- Beacon Street Repair Design Construction Administration/Resident Inspection - **\$0.4 million**

Also, Boston Water & Sewer Commission’s Final Report of South Dorchester Bay Inflow Removal was issued in July 2014 and the final Cambridge Sewer Separation construction contract for Concord Lane was advertised in December 2014.

In the first half of FY15, MWRA continued the support for the community financial assistance programs by providing funding of \$23.4 million for wastewater infiltration and inflow (I/I) removal (\$11.7 million) and water pipeline improvements (\$11.7 million).

It is important to note that based on the Advisory Board recommendation, two additional Inflow and Infiltration (I/I) Phases totaling \$160 million were added to the FY15 Final Budget. At \$80 million per phase, the new I/I phases are each double the traditional \$40.0 million per phase amount.

**Major Variances to FY15 Budget**

***Wastewater System Improvements***

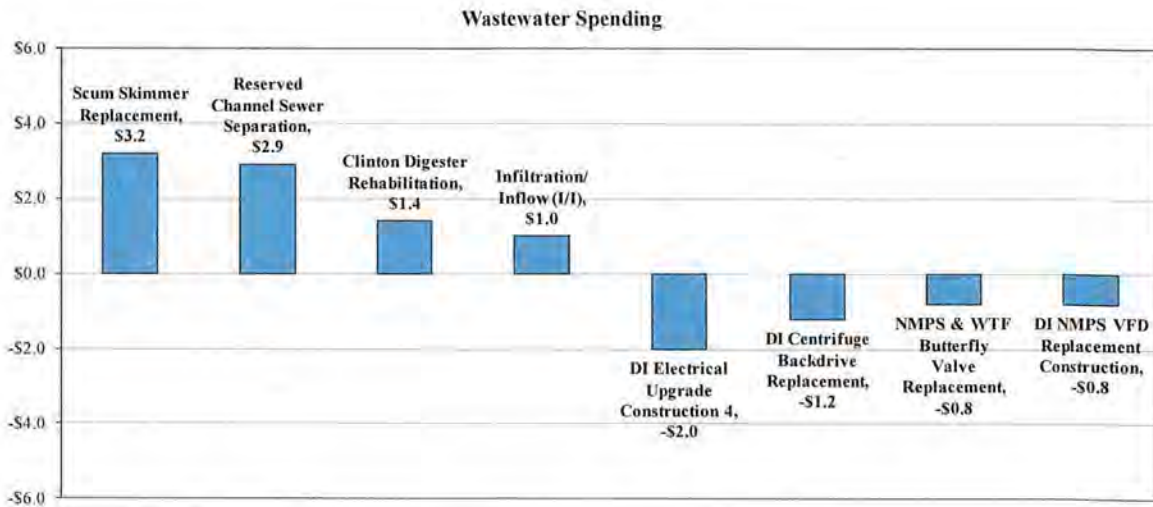
Wastewater actual spending was \$33.3 million, \$1.9 million or 6.1% more than budget. Combined Sewer Overflows (CSO) and Inflow/Infiltration overspending of \$3.2 million and



\$1.0 million respectively accounted for the majority of the overspending. This overspending was partially offset by underspending in Interception & Pumping and Treatment of \$1.2 million and \$1.0 million, respectively. The major spending variances by project are shown on the following page.

Spending is over budget for the following projects:

- Scum Skimmer Replacement of \$3.2 million and Clinton Digester Rehabilitation of \$1.4 million primarily due to greater than budgeted contractor progress.
- Reserved Channel Sewer Separation of \$2.9 million – primarily due to additional scope for contracts 3B and 4.
- Infiltration/Inflow (I/I) of \$1.0 – due to community requests for grants and loans being more than anticipated.



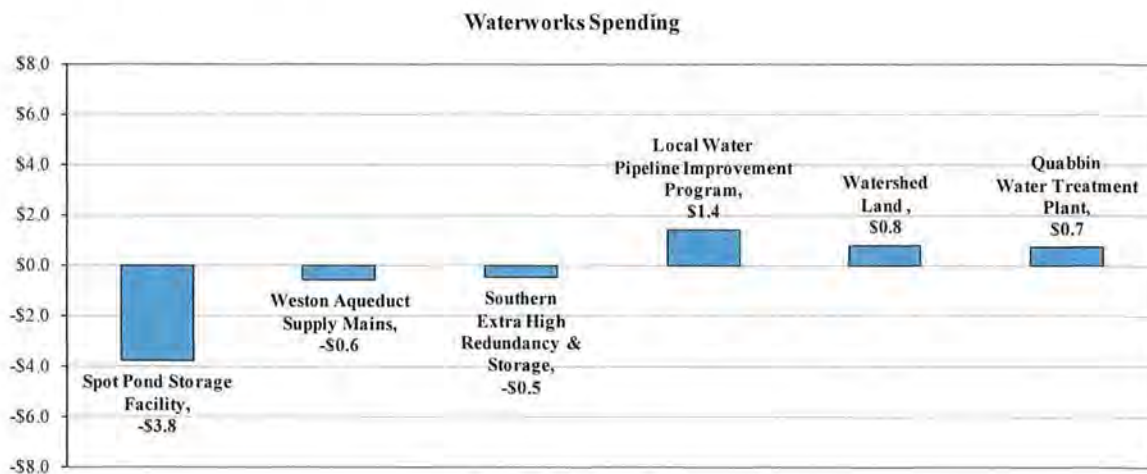
The overspending on the projects above is offset by underspending on Deer Island Electrical Upgrade Construction 4 of \$2.0 million, Centrifuge Backdrive Replacement of \$1.2 million, Butterfly Valve Replacement Construction of \$0.8 million, and North Main Pump Station VFD Replacement Construction of \$0.8 primarily due to timing of work.

***Waterworks System Improvements***

Waterworks actual spending was \$14.0 million, \$3.5 million or 20.0% less than budget. Drinking Water Quality Improvements underspending and Distribution & Pumping underspending totaled \$3.6 million and \$0.9 million respectively, accounting for the majority of the underspending. This was partially offset by Local Water Pipeline Assistance Program overspending that totaled \$1.2 million. The major spending variances are shown in the graph on the following page.

Spending is under budget for the following projects:

- Spot Pond Storage Facility of \$3.8 million – primarily due to timing of work.
- Weston Aqueduct Supply Mains of \$0.6 million – primarily due less than anticipated spending for Design Construction Administration/Resident Inspection for WASM 3 and Design Construction Administration/Resident Inspection for Section 36 as a result of continued evaluation of alternatives.
- Southern Extra High Redundancy & Storage of \$0.5 million – primarily due to Redundancy/Storage Design/Construction Administration/Resident Inspection delays pending additional time to meet with local communities.



The underspending on the projects above is partially offset by greater than anticipated community requests for loans of \$1.4 million, timing of Watershed Land Purchases of \$0.8 million, and contractor progress on the Quabbin Water Treatment Plant \$0.7 million.

***Business and Operations Support***

Business and Operations Support spending is \$1.4 million, \$1.5 million or 50.4% less than budget.

Underspending on MIS-related projects of \$619,000 due to timing of IT Strategic Plan implementation, lower than projected use of as-needed technical assistance contracts of \$428,000, and Centralized Equipment Purchase of \$331,000 mainly due to the timing of vehicle purchases.

Please refer to Attachment A of the report for detailed FY15 CIP variance explanations.



## FY14-18 Spending Cap

The FY14 Final CIP established the FY14-18 Base-Line Cap at \$791.7 million with the following breakdown.

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

In FY15, at the recommendation of the Advisory Board, the Base-Line Cap was modified to exclude Community Assistance Programs from the Cap calculation which resulted in a net change of \$4.7 million (restated Cap would be ~\$787.0 million).

Based on the FY16 Proposed CIP, the five-year spending is now at \$707.5 million, with some cash flow changes between the years based on the latest cost estimates and updated schedules. The exclusion of the Community Assistance Programs from the Cap calculation accounts for a reduction of \$59.0 million.

The FY14-18 Cap based on the FY16 Proposed CIP complies with both the overall and annual Cap requirements.

## FY16 Proposed Cap FY14-18 Comparison

FY16 Proposed		FY14	FY15	FY16	FY17	FY18	Total FY14-18
	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)	
<b>FY16 Proposed FY14-18 Spending</b>	<b>\$96.6</b>	<b>\$102.3</b>	<b>\$141.9</b>	<b>\$177.5</b>	<b>\$189.2</b>	<b>\$707.5</b>	

FY16 Proposed vs FY14-18 Base-Line Cap		FY14	FY15	FY16	FY17	FY18	Total FY14-18
	Projected Expenditures	(\$40.3)	(\$39.4)	(\$2.2)	\$35.8	\$50.0	\$3.8
Contingency	(7.6)	(4.2)	(1.9)	1.1	2.3	(10.2)	
Inflation on Unawarded Construction	(0.8)	(4.2)	(7.0)	(5.6)	(4.2)	(21.8)	
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	(0.6)	0.7	1.4	1.3	0.2	3.0	
<b>FY14-18 Cap (\$ Change)</b>	<b>(\$49.2)</b>	<b>(\$56.7)</b>	<b>(\$24.5)</b>	<b>\$16.1</b>	<b>\$30.1</b>	<b>(\$84.2)</b>	
<b>FY14-18 Cap (% Change)</b>	<b>-33.8%</b>	<b>-35.7%</b>	<b>-14.7%</b>	<b>10.0%</b>	<b>18.9%</b>	<b>-10.6%</b>	

**Status of Contract Awards Planned for FY15**

MWRA’s FY15 Final CIP assumed work would begin on 33 contracts valued at \$128.6 million. As part of the FY16 Proposed CIP development, staff revisited planned work identified in the FY15 Final CIP and updated assumptions based on new information.

Through mid-year, MWRA has awarded 10 contracts for \$27.0 million. By the end of FY15, staff expect to award 14 additional contracts valued at \$87.4 million for a total of 24 contracts valued at \$114.4 million.

The primary reasons for not expecting to award all contracts in FY15 are:

- Six projects have been delayed due to changes in scope that has required additional work;
- Four projects whose schedules have been reprioritized; and
- Two projects where the project/phase has been eliminated or being performed in-house.

The table below summarizes the total number of capital contract awards planned for FY15 and highlights the number planned for award during the second half of FY15.

**Recap of Planned FY15 Contract Awards**

	<b># of projects</b>	<b>Budget/ Award</b>
<b>Total Planned Awards per FY15 CIP</b>	<b>33</b>	<b>\$ 128.6</b>
Actual Awards in First Half FY15	7	19.3
Actual Unplanned Awards in First Half FY15	3	7.7
Planned Awards in Second Half of FY15	14	87.4
Shifted Beyond FY15 - Scope or Priority Change	10	21.6
Deleted/Transferred from CIP/Project on hold	2	0.9
<b>Total Projects Planned to be awarded in FY15</b>	<b>24</b>	<b>\$ 114.4</b>

Please refer to Attachment B for project level detail.

**Major Initiatives for the 2<sup>nd</sup> Half of FY15**

Looking ahead to the second half of FY15, the MWRA anticipates the award of several major construction contracts which account for over 99% of estimated awards. The largest projects are listed below:

<b>Major Planned Construction Contract Awards for Second Half of FY15</b>		
<b>Project</b>	<b>Contract</b>	<b>Budget in Millions</b>
Long-Term Redundancy	Wachusett Aqueduct Pump Station Construction	\$ 60.5
Facility Asset Protection	Alewife Brook Pump Station Rehabilitation Construction	10.4
DI Treatment Plant Asset Protection	Gravity Thickener Rehabilitation	5.8
DI Treatment Plant Asset Protection	Digester Sludge Pump Replacement Phase 2	4.7
DI Treatment Plant Asset Protection	Fuel System Modifications	4.3
DI Treatment Plant Asset Protection	Winthrop Terminal Facility Variable Frequency Drive Replacement Construction	4.2
Facility Asset Protection	Chelsea Screenhouse Upgrades	3.6
<b>Total</b>		<b>\$ 93.5</b>

MWRA also anticipates awarding several significant professional services contracts. The largest contracts are listed below:

<b>Major Planned Professional Services Awards for Second Half of FY15</b>		
<b>Project</b>	<b>Contract</b>	<b>Budget in Millions</b>
DI Treatment Plant Asset Protection	Fire Alarm System Replacement Design	\$ 2.1
Facility Asset Protection	Interceptor Renewal #1 Reading Extension Design Construction Administration/Resident Inspection	1.0
DI Treatment Plant Asset Protection	Thermal/Power Plant Fuel System Modifications Resident Engineer Inspection	0.8
Carroll Water Treatment Plant	Technical Assistance 8	0.6
Facility Asset Protection	Chelsea Screenhouse Engineering Services During Construction/Resident Engineer Inspection	0.4
<b>Total</b>		<b>\$ 4.8</b>

In the second half of the year, MWRA expects substantial completion on several contracts by the end of FY15 which are shown in the table below.

<b>Contracts with Planned Completion Dates for Second Half of FY15</b>		
<b>Project</b>	<b>Contract</b>	<b>Planned Completion Date</b>
DI Treatment Plant Asset Protection	Centrifuge Backdrive Replacement	Feb-15
Northern Intermediate High Redundancy & Storage	West Street Reading Construction Phase 1A	Mar-15
Facility Asset Protection	Nut Island Electric & Grit/Screens Conveyance Construction	Apr-15
Spot Pond Storage Facility	Design/Build	May-15

**Attachments:**

A. FY15 CIP Variance Explanations through December 2014

B. FY15 Planned Capital Contract Awards



**ATTACHMENT A**  
**FY15 CIP VARIANCE EXPLANATIONS THROUGH DECEMBER (Q2) - PROGRAM SUMMARY**  
(\$000s)

	BUDGET	ACTUALS	VARIANCE		MAJOR PROJECT
			(\$)	%	
<b>Total MWRA</b>	\$ 51,801	\$ 48,732	\$ (3,070)	-6%	
<b>Variance by Program</b>					
<b>Total Wastewater</b>	\$ 31,350	\$ 33,265	\$ 1,915	6%	
Interception and Pumping	\$ 5,858	\$ 4,636	\$ (1,222)	-21%	Interception & Pumping Facility Asset Protection (\$1.1M).
Treatment	\$ 10,114	\$ 9,087	\$ (1,027)	-10%	Deer Island Treatment Plant Asset Protection (\$2.4M). Offset by Clinton Wastewater Treatment Plant +\$1.3M.
Residuals	\$ -	\$ -	\$ -	-	
CSO	\$ 9,681	\$ 12,856	\$ 3,176	33%	
MWRA Managed	\$ 395	\$ 710	\$ 315	80%	MWR003 Gate & Siphon +\$315k.
Community-Managed	\$ 9,280	\$ 12,149	\$ 2,869	31%	Reserved Channel Sewer Separation +\$2.9M.
Planning & Support	\$ 6	\$ 0	\$ (6)	-	
Other	\$ 5,697	\$ 6,685	\$ 988	17%	I/I Local Financial Assistance +\$988k.
<b>Total Waterworks System Improvements</b>	\$ 17,536	\$ 14,020	\$ (3,516)	-20%	
Drinking Water Quality Improvements	\$ 12,979	\$ 9,360	\$ (3,619)	-28%	Spot Pond Storage Facility (\$3.9M), and Carroll Water Treatment Plant (\$396k). Offset by Quabbin Water Treatment Plant +\$662k.
Transmission	\$ 2,364	\$ 2,235	\$ (129)	-5%	Long Term Redundancy (\$351k), Dam Projects (\$250k), Metro West Tunnel (\$233k), and Winsor Station/Pipeline Improvements (\$138k). Offset by Watershed Land +\$844k.
Distribution and Pumping	\$ 3,592	\$ 2,673	\$ (919)	-26%	Weston Aqueduct Supply Mains (\$591k), SEH Redundancy & Storage (\$521), and Valve Replacement (325k). Offset by NIH Redundancy & Storage +\$526k.
Other	\$ (1,398)	\$ (247)	\$ 1,151	-82%	Local Water Pipeline Improvement Loan Program +\$1.4M. Offset by Central Monitoring System (\$204k).
<b>Business and Operations Support</b>	\$ 2,916	\$ 1,446	\$ (1,469)	-50%	Capital Maintenance Planning & Development (\$428k), Equipment Purchase (\$331k), IT Infrastructure Program (\$207k), Application Improvement Program (\$188k), Information Technology Management Program (\$121k), and Information Security Program (\$103k).
<b>Total Variance by Program</b>	\$ 51,801	\$ 48,732	\$ (3,070)	-6%	



**ATTACHMENT A**  
**FY15 CIP VARIANCE EXPLANATION THROUGH DECEMBER (Q2) - BY PROJECT**  
(\$000s)

	BUDGET	ACTUALS	VARIANCE		VARIANCE EXPLANATIONS
			(\$)	%	
<b>Total MWRA</b>	\$ 51,801	\$ 48,732	\$ (3,070)	-6%	
<b>Wastewater System Improvements</b>	\$ 31,350	\$ 33,265	\$ 1,915	6%	
<b>Interception &amp; Pumping</b>	\$ 5,858	\$ 4,636	\$ (1,222)	-21%	
Braintree-Weymouth Relief Facilities	\$ -	\$ -	\$ -	0%	
Wastewater Process Optimization	\$ 198	\$ 95	\$ (103)	-52%	
Interception & Pumping (I&P) Facility Asset Protection	\$ 5,660	\$ 4,541	\$ (1,120)	-20%	
Prison Pt./Cottage Farm Engine Pump & Gearbox Rebuilds	\$ 2,396	\$ 2,015	\$ (382)	-16%	Underspending due to timing of work.
NI Electrical & Grit/Screens Conveyance - Construction	\$ 1,837	\$ 1,499	\$ (338)	-18%	
Chelsea Creek Upgrades - Design/CA/RI	\$ 1,096	\$ 728	\$ (368)	-34%	Underspending due to design delays.
<b>Treatment</b>	\$ 10,114	\$ 9,087	\$ (1,027)	-10%	
DITP Asset Protection	\$ 9,186	\$ 6,813	\$ (2,373)	-26%	
Scum Skimmer Replacement	\$ 2,700	\$ 5,907	\$ 3,207	119%	Overspending due to contractor progress.
Electrical Equipment Upgrades - Construction 4	\$ 1,250	\$ (744)	\$ (1,994)	-	Underspending due to timing and accrual estimates.
NMPS VFD Replacement - Construction	\$ 480	\$ (314)	\$ (794)	-	
Centrifuge Backdrive Replacement	\$ 1,604	\$ 399	\$ (1,205)	-75%	Underspending due to timing.
NMPS & WTF Butterfly Valve Replacement	\$ 900	\$ 99	\$ (801)	-89%	
HVAC Equipment Replacement - Design/ESDC	\$ 398	\$ 98	\$ (300)	-75%	
As-Needed Design 7-2	\$ 237	\$ 34	\$ (202)	-85%	
Clinton Wastewater Treatment Plant	\$ 928	\$ 2,274	\$ 1,346	145%	
Clinton Digester Cleaning & Rehab	\$ 778	\$ 2,142	\$ 1,363	175%	Overspending due to contractor progress.
<b>Residuals</b>	\$ -	\$ -	\$ -	-	
Residuals Asset Protection	\$ -	\$ -	\$ -	-	
<b>CSO</b>	\$ 9,681	\$ 12,856	\$ 3,176	33%	
<b>MWRA-Managed</b>	\$ 395	\$ 710	\$ 315	80%	
North Dorchester Bay	\$ -	\$ -	\$ -	-	
MWR003 Gate & Siphon	\$ 395	\$ 710	\$ 315	80%	Overspending due to actual contract award for Construction 2 being greater than budget.
<b>Community-Managed</b>	\$ 9,280	\$ 12,149	\$ 2,869	31%	
Dorchester Bay Sewer Sep. (Commercial Point)	\$ 149	\$ 220	\$ 71	48%	
Brookline Sewer Separation	\$ (1,195)	\$ (1,210)	\$ (15)	1%	
Cambridge Sewer Separation	\$ 7,233	\$ 7,064	\$ (169)	-2%	
Design/CS/RI	\$ 1,579	\$ 2,275	\$ 696	44%	Overspending due to more than anticipated ESDC services.
Construction	\$ 5,654	\$ 4,789	\$ (865)	-15%	Underspending due to construction delays.
Cambridge Floatables Control		\$ 40	\$ 40	-	
Reserved Channel Sewer Separation	\$ 3,093	\$ 6,034	\$ 2,941	95%	Overspending due to updated cost estimate as a result of increased scope of work.
<b>Planning and Support</b>	\$ 6	\$ 0	\$ (6)	-	

**ATTACHMENT A**  
**FY15 CIP VARIANCE EXPLANATION THROUGH DECEMBER (Q2) - BY PROJECT**  
(\$000s)

	BUDGET	ACTUALS	VARIANCE		VARIANCE EXPLANATIONS
			(\$)	%	
<b>Other</b>	\$ 5,697	\$ 6,685	\$ 988	17%	
I/I Local Financial Assistance	\$ 5,697	\$ 6,685	\$ 988	17%	Overspending due to community requests for grants and loans being greater than planned. Total community repayments will equal total loan distributions by the end of the program (FY35).
Grants	\$ 6,338	\$ 6,773	\$ 436	7%	
Loans	\$ 4,413	\$ 4,927	\$ 515	12%	
Repayments	\$ (5,053)	\$ (5,015)	\$ 38	-1%	
<b>Waterworks System Improvements</b>	\$ 17,536	\$ 14,020	\$ (3,516)	-20%	
<b>Drinking Water Quality Improvements</b>	\$ 12,979	\$ 9,360	\$ (3,619)	-28%	
Spot Pond Storage Facility	\$ 11,790	\$ 7,940	\$ (3,850)	-33%	
Design/Build	\$ 11,064	\$ 7,540	\$ (3,524)	-32%	Underspending due to timing of work. Also, delay in getting power to site which resulted in delay in testing of equipment.
Easement/Land Acquisition/Permits	\$ 326	\$ 34	\$ (292)	-90%	Underspending due to less than anticipated permits, etc.
Carroll Water Treatment Plant	\$ 732	\$ 336	\$ (396)	-54%	
CWTP Ultraviolet Disinfection - Design/ESDC/RI	\$ 431	\$ 14	\$ (416)	-97%	Underspending due timing.
Blue Hills Covered Storage	\$ 36	\$ -	\$ (36)	-	
Quabbin Water Treatment Plant	\$ 421	\$ 1,084	\$ 662	157%	
Quabbin UVWTP Construction	\$ 225	\$ 765	\$ 540	240%	Overspending due to contractor progress.
CVA Shea Ave Leak Repair	\$ -	\$ 228	\$ 228	-	Work anticipated in FY14 was completed in FY15. Contract is substantially complete.
<b>Transmission</b>	\$ 2,364	\$ 2,235	\$ (129)	-5%	
Watershed Land	\$ 500	\$ 1,344	\$ 844	169%	
Land Acquisition	\$ 500	\$ 1,344	\$ 844	169%	Overspending due to timing of land acquisitions.
Long Term Redundancy	\$ 1,133	\$ 782	\$ (351)	-31%	
Sudbury Aqueduct Pressurization/MEPA Review	\$ 761	\$ 169	\$ (592)	-78%	Underspending due to ongoing alternatives analysis.
Wachusett Aqueduct Pump Station - Design/ESDC/RI	\$ 372	\$ 613	\$ 240	65%	Overspending due to consultant progress.
Winsor Station/Pipeline Improvements	\$ 284	\$ 146	\$ (138)	-49%	
Dam Projects	\$ 248	\$ (2)	\$ (250)	-	
Dam Safety Modifications & Repairs - Design/ESDC	\$ 247	\$ (2)	\$ (250)	-	Underspending due to less than anticipated design and engineering services.
MetroWest Tunnel	\$ 199	\$ (34)	\$ (233)	-	
Hultman Interconnect - Final Design/CA/RI	\$ 199	\$ (33)	\$ (232)	-	Underspending due to less than anticipated CA/RI services.
<b>Distribution And Pumping</b>	\$ 3,592	\$ 2,673	\$ (919)	-26%	
Valve Replacement	\$ 325	\$ -	\$ (325)	-	
Equipment Purchase	\$ 325	\$ -	\$ (325)	-	Underspending due to timing of equipment purchases.
Northern High Service - Section 27 Improvements	\$ 1	\$ -	\$ (1)	-	
Spot Pond Supply Mains Rehab	\$ 115	\$ 117	\$ 2	2%	
NIH Redundancy & Storage	\$ 1,391	\$ 1,917	\$ 526	38%	
West St. Pipe Reading - Construction Phase 1A	\$ 600	\$ 1,160	\$ 560	93%	Overspending due to greater than budgeted progress.
Weston Aqueduct Supply Mains	\$ 863	\$ 273	\$ (591)	-68%	
WASM 3 - MEPA/Design/CA/RI	\$ 582	\$ 181	\$ (401)	-69%	Underspending due to less than anticipated spending due to continued evaluation of alternatives.

**ATTACHMENT A**  
**FY15 CIP VARIANCE EXPLANATION THROUGH DECEMBER (Q2) - BY PROJECT**  
(\$000s)

	BUDGET	ACTUALS	VARIANCE		VARIANCE EXPLANATIONS
			(\$)	%	
SEH Redundancy & Storage	\$ 886	\$ 365	\$ (521)	-59%	
Redundancy/Storage Phase 1 - Final Design/CA/RI	\$ 886	\$ 365	\$ (521)	-59%	Underspending due to boring program being delayed as a result of additional time needed to meet with local communities.
Northern Extra High Service - New Pipelines	\$ 8	\$ -	\$ (8)	-	
Northern Low Service Rehabilitation - Section 8 & 57	\$ 2		\$ (2)	-	
<b>Other</b>	\$ (1,398)	\$ (247)	\$ 1,151	-82%	
Local Water Pipeline Improvement Loan Program	\$ (1,689)	\$ (294)	\$ 1,395	-	Overspending due to community requests for loans being greater than planned.
Community Loans	\$ 10,000	\$ 11,714	\$ 1,714	17%	Total community repayments will equal total loan distributions by the end of the program (FY30).
Repayments	\$ (11,689)	\$ (12,008)	\$ (319)	3%	
Central Monitoring System	\$ 246	\$ 42	\$ (204)	-83%	
SCADA Implementation	\$ 189	\$ -	\$ (189)	-	Underspending due to schedule shift.
Waterworks Facility Asset Protection	\$ 45	\$ 6	\$ (40)	-88%	
<b>Business &amp; Operations Support</b>	\$ 2,916	\$ 1,446	\$ (1,469)	-50%	
Business Systems Plan	\$ -	\$ 12	\$ 12	-	
Application Improvement Program	\$ 279	\$ 91	\$ (188)	-67%	
Information Technology Management Program	\$ 121	\$ -	\$ (121)	-	Underspending due to timing of IT Strategic Plan implementation.
IT Infrastructure Program	\$ 758	\$ 551	\$ (207)	-27%	
Information Security Program	\$ 103	\$ -	\$ (103)	-	
Alternative Energy Initiatives	\$ 103	\$ -	\$ (103)	-	
Equipment Purchase	\$ 928	\$ 597	\$ (331)	-36%	
FY14-18 Vehicle Purchases	\$ 300	\$ -	\$ (300)	-	Underspending due to the timing of purchases.
Capital Maintenance Planning & Development	\$ 624	\$ 195	\$ (428)	-69%	Underspending due to lower than projected use of as-needed technical assistance.



**ATTACHMENT B  
FY15 PLANNED CAPITAL CONTRACT AWARDS (\$ in Millions)**

<b>Project</b>	<b>Subphase</b>	<b>Notice To Proceed</b>	<b>NTP Updated per FY16 Proposed</b>	<b>FY15 Budget</b>	<b>Award Amount</b>	<b>Vendor</b>	<b>Schedule Change Reason Code*</b>
Applications Improvements Program	LIMS Enhancement	Jul-14	Mar-15	\$0.6			3
Information Technology Management Program	Reorganize MIS Department	Jul-14	Jul-16	0.2			6
<b>IT Infrastructure Program</b>	<b>Enterprise Application Integration</b>	<b>Jul-14</b>	<b>Jul-14</b>	<b>2.1</b>	<b>0.2</b>	<b>IntraSystems, Inc.</b>	<b>1</b>
DI Treatment Plant Asset Protection	Thermal Power Plant Fuel System Modifications Resident Engineer Inspection	Jul-14	Jan-15	0.8			3
<b>DI Treatment Plant Asset Protection</b>	<b>Thermal Power Plant Boiler Control Replacement</b>	<b>Jul-14</b>	<b>Nov-14</b>	<b>1.0</b>	<b>1.6</b>	<b>O'Connor Corp.</b>	<b>1</b>
Carroll Water Treatment Plant	Existing Facilities Modifications - CP7	Jul-14	Jul-15	6.3			5
Carroll Water Treatment Plant	Carroll Water Treatment Plant Storage Tank Roof Drainage System	Jul-14	Apr-19	4.2			6
<b>Central Monitoring System</b>	<b>Quabbin Power Design</b>	<b>Jul-14</b>	<b>Jul-14</b>	<b>0.7</b>	<b>0.8</b>	<b>EDA2 Inc.</b>	<b>1</b>
<b>MWR003 Gate &amp; Siphon</b>	<b>Construction 2</b>	<b>Aug-14</b>	<b>Aug-14</b>	<b>1.9</b>	<b>2.7</b>	<b>P. Gioioso &amp; Sons</b>	<b>1</b>
Facility Asset Protection	DeLauri Pump Station Upgrades	Aug-14	Project being done In-House	0.3			2
<b>DI Treatment Plant Asset Protection</b>	<b>North Main Pump Station Winthrop Terminal Facility Engineering Services During Construction/Resident Engineer Inspection</b>	<b>Aug-14</b>	<b>Dec-14</b>	<b>2.2</b>	<b>2.3</b>	<b>AECOM Technical Services</b>	<b>1</b>
DI Treatment Plant Asset Protection	Fire Alarm System Replacement-Design	Aug-14	Mar-15	2.1			3

**ATTACHMENT B  
FY15 PLANNED CAPITAL CONTRACT AWARDS (\$ in Millions)**

<b>Project</b>	<b>Subphase</b>	<b>Notice To Proceed</b>	<b>NTP Updated per FY16 Proposed</b>	<b>FY15 Budget</b>	<b>Award Amount</b>	<b>Vendor</b>	<b>Schedule Change Reason Code*</b>
<b>Waterworks Facility Asset Protection</b>	<b>Beacon St Repair Design Construction Administration/Resident Inspection</b>	<b>Aug-14</b>	<b>Nov-14</b>	<b>0.4</b>	<b>0.4</b>	<b>Green International</b>	<b>1</b>
Applications Improvements Program	Maximo Upgrade	Sep-14	Jul-15	2.5			6
Facility Asset Protection	Cottage Farm PCB Abatement Design/Construction Administration/Resident Inspection	Sep-14	Jul-15	0.5			5
DI Treatment Plant Asset Protection	Gravity Thickener Rehabilitation	Sep-14	Apr-15	5.8			3
DI Treatment Plant Asset Protection	Fuel System Modifications	Sep-14	Jan-15	3.0			3
Clinton Wastewater Treatment Plant	Clinton Roofing Rehabilitation	Sep-14	Mar-15	0.5			3
Alternative Energy Initiatives	Shaft E Hydro In-Conduit Construction	Oct-14	Project Deleted	0.6			2
DI Treatment Plant Asset Protection	Digester Sludge Pump Replacement Phase 2	Oct-14	Feb-15	4.7			3
<b>Weston Aqueduct Supply Mains</b>	<b>Sect 36/W11/S 9-All Valve</b>	<b>Oct-14</b>	<b>Oct-14</b>	<b>10.5</b>	<b>11.2</b>	<b>RJV Construction</b>	<b>1</b>
Long Term Redundancy	Wachusett Aqueduct Pump Station Construction	Oct-14	Apr-15	50.6			3
DI Treatment Plant Asset Protection	Barge Berth and Facility Replacement	Nov-14	Jul-15	2.3			5
DI Treatment Plant Asset Protection	Future Misc. Variable Frequency Drive Replacements-Design	Dec-14	Dec-15	1.3			6
<b>July 2014-December 2014</b>	<b>24 Contracts Planned, 7 contracts awarded</b>			<b>104.9</b>	<b>19.3</b>		



**ATTACHMENT B  
FY15 PLANNED CAPITAL CONTRACT AWARDS (\$ in Millions)**

<b>Project</b>	<b>Subphase</b>	<b>Notice To Proceed</b>	<b>NTP Updated per FY16 Proposed</b>	<b>FY15 Budget</b>	<b>Award Amount</b>	<b>Vendor</b>	<b>Schedule Change Reason Code*</b>
Wastewater Meter System-Equipment Replacement	Planning/Study/Design	Jan-15	Sep-15	0.3			5
Facility Asset Protection	Alewife Brook Pump Station Rehabilitation - Construction	Jan-15	Mar-15	10.4			3
Facility Asset Protection	Interceptor Renewal 1- Design/Construction Administration/Resident Engineer Inspection	Jan-15	Feb-15	0.7			3
Facility Asset Protection	Nut Island Fire Pump Building - Study	Jan-15	Apr-15	0.3			3
Facility Asset Protection	Caruso Pump Station Improvements - Construction	Jan-15	Jul-15	2.4			5
Facility Asset Protection	Chelsea Screenhouse Upgrades	Jan-15	Mar-15	3.3			3
NHS - Revere & Malden Pipeline Improvements	Sect 53 Connections Design Construction Administration/Resident Inspection	Jan-15	Jul-15	1.6			5
Carroll Water Treatment Plant	Technical Assistance 8	Jan-15	Jun-15	0.6			3
DI Treatment Plant Asset Protection	Winthrop Terminal Facility Variable Frequency Drive Replacement - Construction	Jun-15	Jun-15	4.1			3

**January 2015-June 2015**

**9 Contracts Planned**

**\$23.7**

**0.0**

**33 FY15 Contract Awards Planned**

**\$128.6**

**ATTACHMENT B  
FY15 PLANNED CAPITAL CONTRACT AWARDS (\$ in Millions)**

Project	Subphase	Notice To Proceed	NTP Updated per FY16 Proposed	FY15 Budget	Award Amount	Vendor	Schedule Change Reason Code*
<b>Unplanned Awards</b>							
DI Treatment Plant Asset Protection	DI Clarifier Rehabilitation Phase 2 Design/Engineering Services During Construction	Jun-14	Nov-14	3.0	2.2	CDM Smith	1
DI Treatment Plant Asset Protection	Cryogenic Chillers Replacement	Jun-14	Oct-14	2.2	3.2	William Collins, Inc.	1
DI Treatment Plant Asset Protection	VFD Additions, Secondary Oxygen Reactor Batteries A,B and C	Dec-14	Dec-14	2.2	2.2	Dagle Electrical Construction	1
<b>Unplanned Awards</b>				<b>7.4</b>	<b>7.7</b>		
<b>33 FY15 Contract Awards Planned</b>				<b>\$128.6</b>			
<b>10 FY15 Awards as of 12/14</b>						<b>\$27.0</b>	

**\* Reason Codes:**

1. NTP issued in first half of FY15.
2. Project/Phase eliminated or being performed in-house; or phase completed but on hold.
3. NTP expected January 2015 - June 2015.
4. Schedule change due to permitting.
5. Scope changes.
6. Changes in priorities.


## STAFF SUMMARY

**TO:** Board of Directors  
**FROM:** Frederick A. Laskey, Executive Director  
**DATE:** March 11, 2015  
**SUBJECT:** FY15 Financial Update and Summary

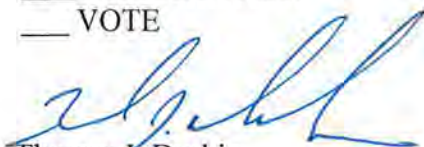


COMMITTEE: Administration, Finance & Audit

INFORMATION  
 VOTE

  
Kathy Soni, Budget Director  
David Whelan, Budget Manager  
Preparer/Title

*DW*

  
Thomas J. Durkin  
Director, Finance

### RECOMMENDATION:

For information only. This staff summary provides the financial update and variance highlights through February 2015, comparing actual spending to the FY15 Budget, and a year-end projection for the Current Expense Budget.

### DISCUSSION:

Total year-to-date expenses are lower than budget by \$918,000 or 0.2% mainly due to lower direct expenses of \$711,000 and indirect expenses of \$208,000, and higher total revenues of \$2.1 million or 0.5% for a net variance of \$3.0 million.

In February, \$2.0 million was transferred to the Defeasance Account mostly as a result of the continued low variable rate environment which brought the year-to-date defeasance account balance to \$10.8 million. In addition to the variable rate related favorable variance, the defeasance account also includes \$2.2 million as a result of the recently completed debt refinancing and lower than budgeted State Revolving Fund (SRF) borrowings. Should these favorable trends continue, the balance is projected at \$21.2 million by year-end. It is important to note that while these funds are allocated for defeasance, the money is available for other budgetary purposes until the defeasance is executed.

Without the transfer of the \$10.8 million in debt service savings to the Defeasance Account, the total year-to-date budgetary variance through February would have been \$13.8 million.

Beyond debt service savings, staff projects a surplus of approximately \$4.5 million at year-end of which \$1.9 million would be for lower direct expenses, \$934,000 for lower indirect expenses, and \$1.6 million for greater than budgeted revenues. Staff will continue to refine the year-end projections each month as more actual spending information becomes available and update the Board accordingly.

*Please refer to Attachment 4 for a more detailed comparison by line item.*



Total Expenses were lower than budget by \$918,000 or 0.2% and total Revenues were higher than budgeted by \$2.1 million or 0.5%.

The expense variances by major categories are represented in the table below:

	FY15 Budget (February)	FY15 Actual (February)	\$ Variance	% Variance
Direct Expenses	\$137.6	\$136.9	-\$0.7	-0.5%
Indirect Expenses	\$36.0	\$35.8	-\$0.2	-0.6%
Debt Service	\$272.4	\$272.4	\$0.0	0.0%
<b>Total</b>	<b>\$446.0</b>	<b>\$445.1</b>	<b>-\$0.9</b>	<b>-0.2%</b>

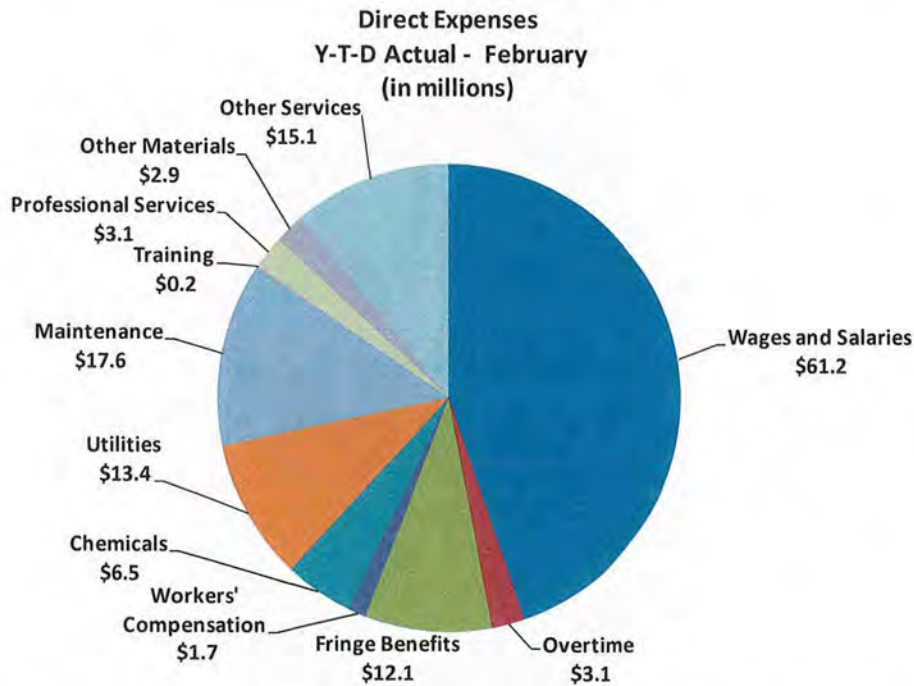
Besides debt service, the largest variances year-to-date are driven by:

- Direct Expenses being lower than budget by \$711,000 for wages and salaries, utilities, professional services, and fringe benefits;
- Indirect Expenses being lower than budget by \$208,000 for lower Watershed expenses due to FY14 overaccrual and lower Harbor Electric Energy Company (HEEC) payments; and
- Revenues exceeding budget by \$2.1 million due to \$995,000 for a prior period adjustment for Watershed related expenses, \$425,000 for the sale of unbudgeted emergency water for the Town of Hudson, \$372,000 payment received for the sale of the Fox Point CSO Facility, \$115,000 for higher permit, monitoring, and penalty fees, \$75,000 reimbursement for Briarwood Rehabilitation Easement project, \$68,000 due to the timing of the Fore River Railroad Corporation payments, \$55,000 for the timing of Rutland/Holden payments, and \$54,000 for the timing of antenna license revenue. The higher favorable variances were offset by lower Energy revenue of \$175,000 mainly due to the timing of Renewable Portfolio Standard (RPS) sales.

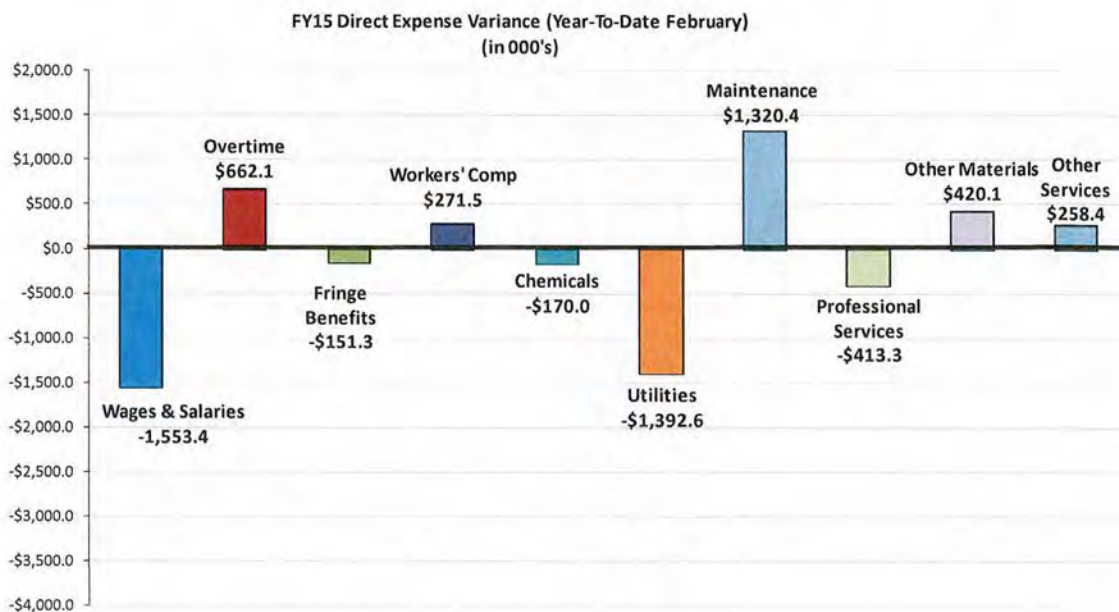
Please refer to Attachment 1 for a more detailed comparison by line item.

## Direct Expenses

Direct expenses total \$136.9 million, \$711,000 or 0.5% lower than budgeted level.



The underspending on direct expenses is related to Wages and Salaries, Utilities, Professional Services, Chemicals, and Fringe Benefits offset by overspending for Maintenance, Overtime, Other Materials, Workers' Compensation, and Other Services.

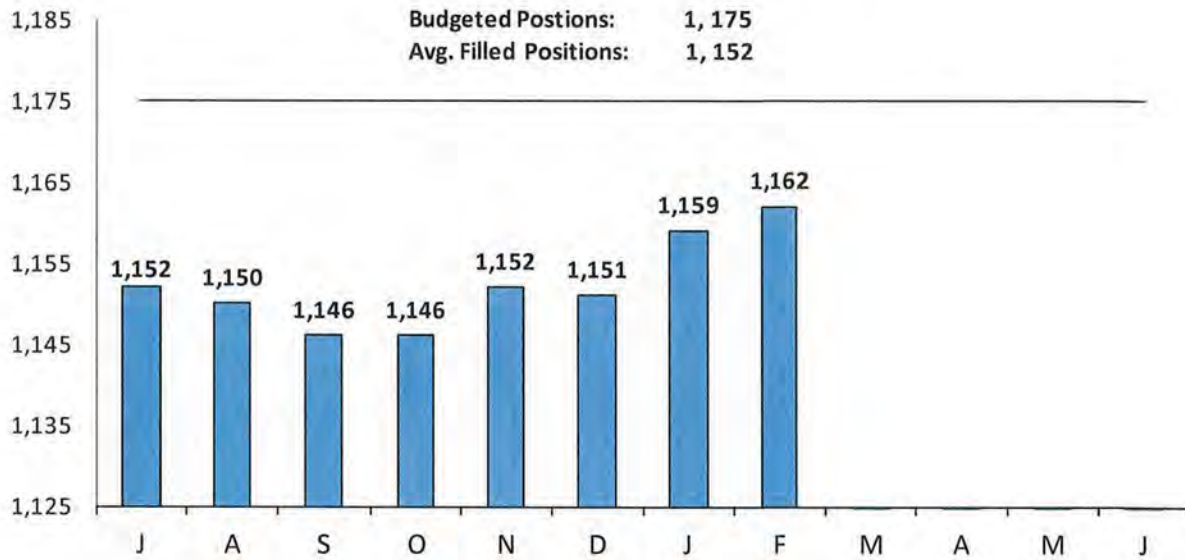




## Wages and Salaries

Wages and Salaries were underspent by \$1.6 million or 2.5% mainly as a result of lower than budgeted positions and the salary mix differential between staff retiring at higher rates and new hires coming on board at lower rates. The filled positions were 1,152 which is 23 positions lower than the 1,175 budgeted positions. Additionally, MWRA had 4 temporary employees.

**FY15 MWRA Positions Trend**



## Utilities

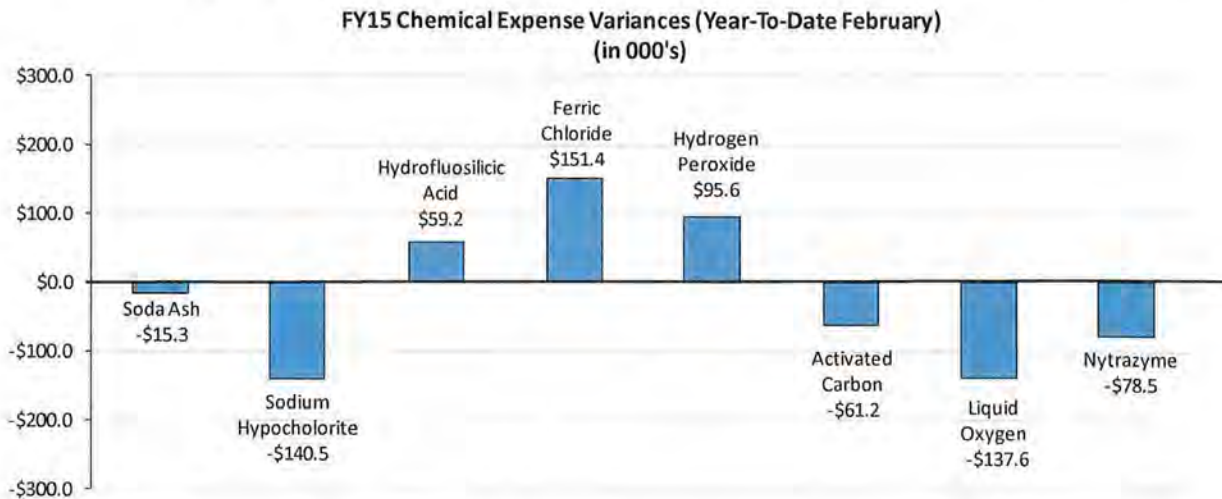
Utilities are underspent \$1.4 million or 9.4% year-to-date primarily for lower Electricity of \$1.5 million mainly due to lower commodity and transmission and distribution costs and lower flows which resulted in less pumping demand at Deer Island and Water use of \$120,000. This underspending is partially offset by overspending on Diesel of \$173,000 due to the decision to purchase fuel at Deer Island earlier than budgeted to take advantage of favorable pricing. Fuel was purchased in November and was budgeted in March.

## Professional Services

Professional Services are lower than budget by \$413,000 or 11.9% mainly due to the timing of initiatives such as the Mystic River Modeling project, dam safety work, and as-needed engineering for maintenance projects.

## Chemicals

Chemicals are underspent by \$170,000 or 2.5% year-to-date mainly due to lower than budgeted need for Sodium Hypochlorite of \$140,000 due to lower pricing and timing of deliveries, Liquid Oxygen of \$138,000 due to better water quality, and Nitrazyme of \$79,000 due to Town of Framingham system modifications. Underspending is offset by overspending for Ferric Chloride of \$151,000 due to struvite control and Hydrogen Peroxide of \$96,000 due to increased need for pretreatment of hydrogen sulfide gas due to lower than budgeted plant flows.



## Fringe Benefits

Fringe Benefits are lower than budget by \$151,000 or 1.2% mainly due to lower than budgeted health and unemployment insurance due to the fewer than budgeted positions.

## Maintenance

Maintenance is overspent by \$1.3 million or 8.1% year-to-date. Materials are overspent by \$1.6 million and services are underspent by \$321,000. The variance is due to several reasons: projects scheduled for FY14 that were completed in FY15 such as energy conservation projects at numerous facilities; critical unbudgeted projects such as \$250,000 for purchase of data diodes to improve the security of the SCADA system's data networks and Back Pressure Steam Turbine Generator condenser unit services at Deer Island; and work completed earlier than budgeted such as reactor mixer gearbox rebuilds at Deer Island.

## Overtime

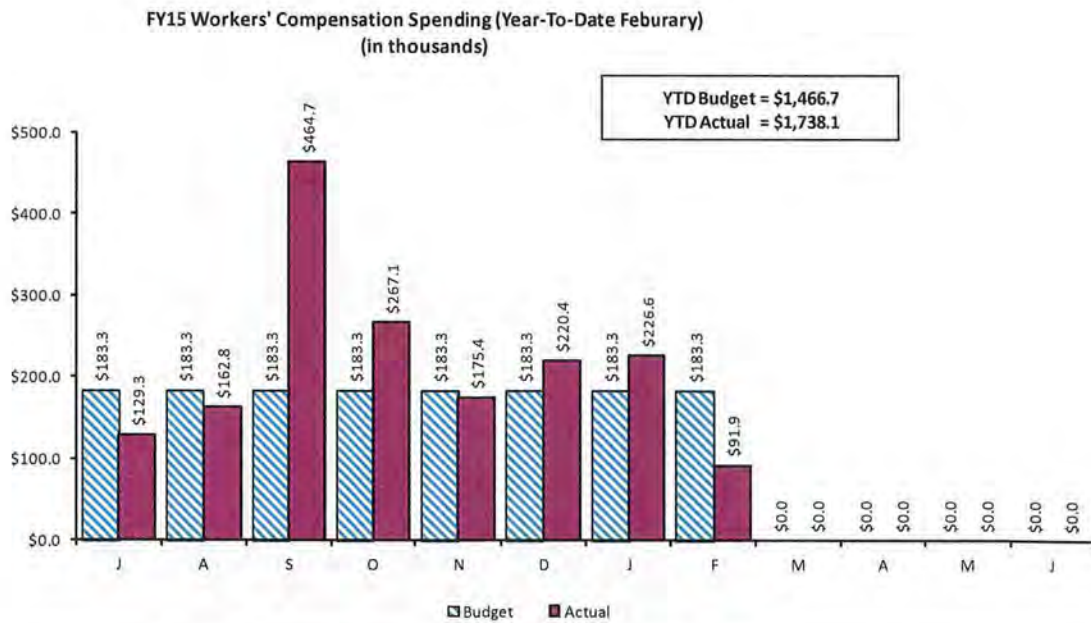
Overtime expenses are higher than budgeted by \$662,000 or 26.8% due to higher than projected wet weather events, specifically for snow removal in February and coverage requirements. In February, overtime spending exceeded the budget by \$423,000.

## Other Materials

Other Materials are higher than budget by \$420,000 or 17.1% mainly due to timing of computer hardware, vehicle, furniture, work clothes, and Clinton gravel purchases. The overspending is offset by lower vehicle expenses mostly related to gasoline prices.

## Workers' Compensation

Workers' Compensation expenses are higher than budget by \$271,000 or 18.5% based on higher compensation payments of \$288,000 and administrative costs of \$51,000 offset by lower medical expenses of \$68,000. February's expenses were lower than budget by \$91,000.



# of Open Claims-Lost Time	69	72	70	66	66	62	64	66	0	0	0	0
# of Open Claims-Medical On	16	24	24	21	14	15	16	24	0	0	0	0

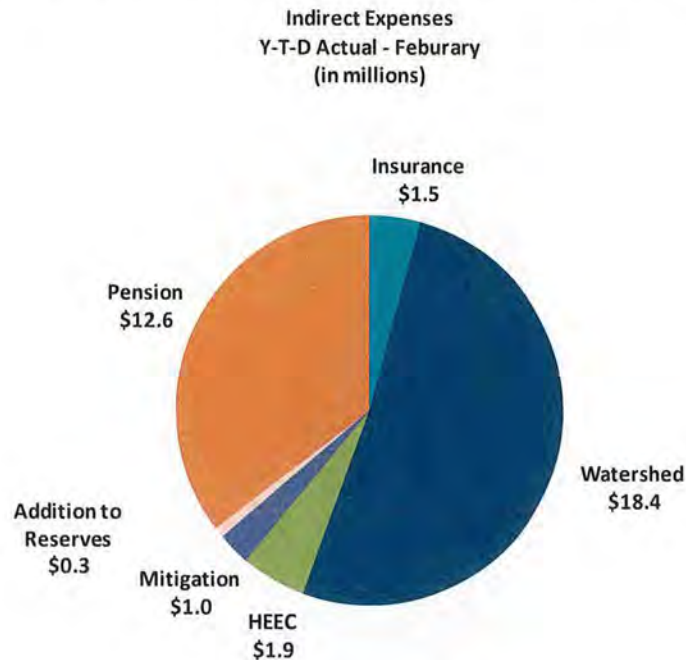
## Other Services

Other Services are higher than budget by \$258,000 or 1.7% mainly due to higher than budgeted telecommunications expenses due to security data line upgrades in support of the enhanced security system, higher Sludge Pelletization of \$108,000 due to higher quantities, and Charlestown Navy Yard headquarters carpet and painting upgrades of \$73,000.



## Indirect Expenses

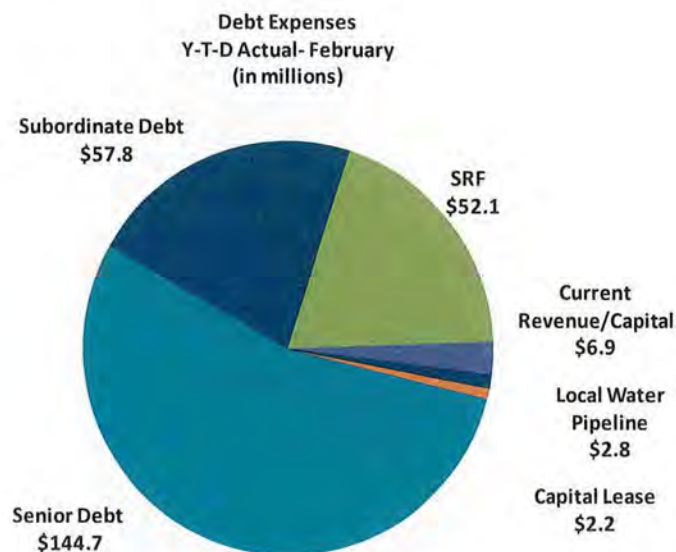
Indirect expenses total \$35.8 million, \$208,000 or 0.1% lower than budget.



The majority of the year-to-date underspending on Indirect Expenses is for lower Watershed Reimbursement of \$119,000 due to FY14 overaccrual and lower Harbor Electric Energy Company (HEEC) of \$102,000 due to lower reimbursement.

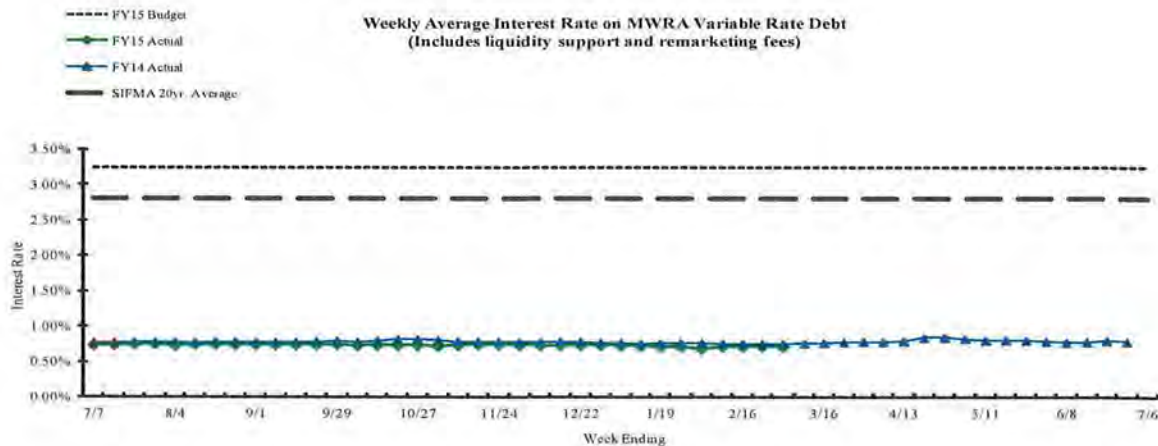
## Debt Service Expenses

Debt Service expenses include the principal and interest payment for fixed debt, the variable subordinate debt, and the State Revolving Fund (SRF) obligation, the commercial paper program for the local water pipeline projects, current revenue for capital, and the Chelsea facility lease payment.



Debt Service expenses through February totaled \$272.4 million which is at budgeted level after the transfer of \$10.8 million of a favorable year-to-date debt variance to the Defeasance Account. \$8.6 million of the \$10.8 million favorable year-to-date debt variance is pertaining to the low short-term variable rate. The balance is attributable to the recently completed debt refinancing, and State Revolving Fund (SRF) borrowings.

The graph below reflects the variable rate trend by month over the past year in comparison with FY13 Actuals and the FY14 Budget for the same period.



## Revenue

Year-to-date revenue for FY15 totals \$456.2 million which is \$2.1 million or 0.5% higher than budget due to higher non-rate revenue of \$2.1 million.

The higher non-rate Revenue is due to \$995,000 for a prior period adjustment for Watershed related expenses, \$425,000 for the sale of unbudgeted emergency water for the Town of Hudson, \$372,000 payment received for the sale of the Fox Point CSO Facility, \$115,000 for higher permit, monitoring, and penalty fees, \$75,000 reimbursement for Briarwood Rehabilitation Easement project, \$68,000 due to the timing of the Fore River Railroad Corporation payments, \$55,000 for the timing of Rutland/Holden payments, and \$54,000 for the timing of antenna license revenue. The higher favorable variances were offset by lower Energy revenue of \$175,000 mainly due to the timing of Renewable Portfolio Standard (RPS) sales.

Please refer to Attachment 2 for a more detailed comparison by line item.

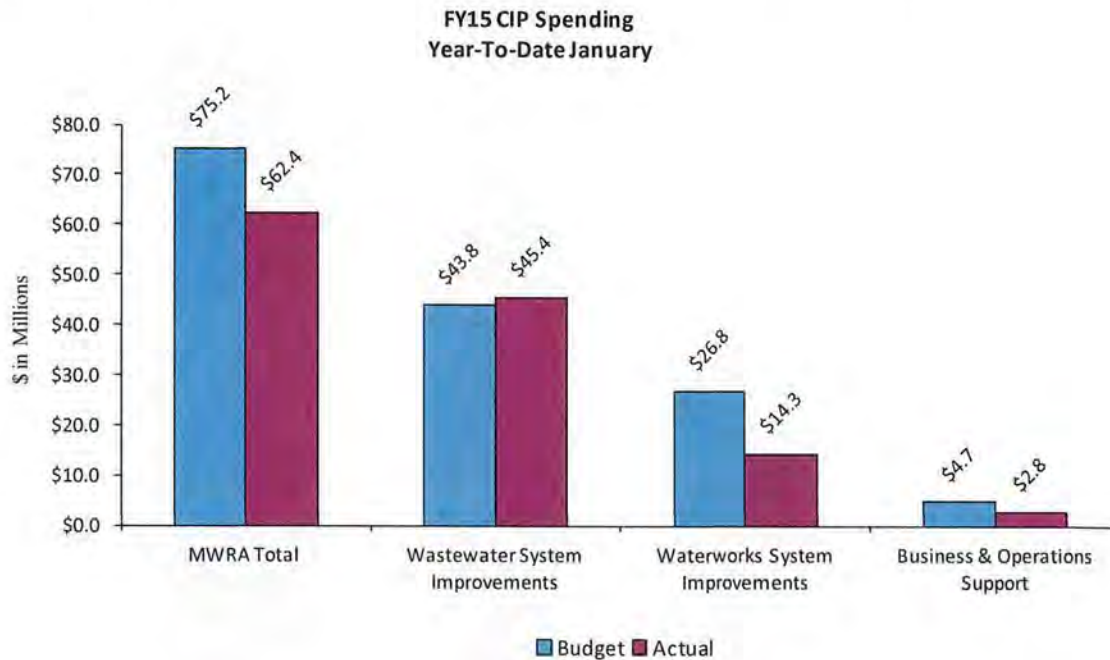


## FY15 Capital Improvement Program

Spending year-to-date in FY15 totals \$62.4 million, \$12.8 million or 17.0% lower than budget. After accounting for programs which are not directly under MWRA's control, most notably the Inflow and Infiltration (I/I) program, the Local Water Pipeline program, and the community managed Combined Sewer Overflow (CSOs) projects, the underspending is \$16.2 million or 28.6%.

Underspending was reported in Waterworks of \$12.5 million and Business and Operations Support of \$1.9 million offset by overspending in Wastewater of \$1.6 million.

Spending By Program:



\$ in Millions	Budget	Actuals	\$ Var.	% Var.
<b>Wastewater System Improvements</b>				
Interception & Pumping	7.4	6.5	-0.9	-11.7%
Treatment	17.2	13.8	-3.4	-19.8%
Residuals	0.0	0.0	0.0	N/A
CSO	9.9	13.7	3.7	37.7%
Other	9.3	11.4	2.1	22.7%
<b>Total Wastewater System Improvements</b>	<b>\$43.8</b>	<b>\$45.4</b>	<b>\$1.6</b>	<b>3.6%</b>
<b>Waterworks System Improvements</b>				
Drinking Water Quality Improvements	17.8	10.9	-6.9	-38.8%
Transmission	2.9	1.3	-1.6	-56.8%
Distribution & Pumping	5.6	3.4	-2.1	-38.5%
Other	0.5	-1.3	-1.8	-371.9%
<b>Total Waterworks System Improvements</b>	<b>\$26.8</b>	<b>\$14.3</b>	<b>-\$12.5</b>	<b>-46.6%</b>
<b>Business &amp; Operations Support</b>	<b>\$4.7</b>	<b>\$2.8</b>	<b>-\$1.9</b>	<b>-41.1%</b>
<b>Total MWRA</b>	<b>\$75.2</b>	<b>\$62.4</b>	<b>-\$12.8</b>	<b>-17.0%</b>

The main reasons for the underspending were:

1. **Drinking Water Quality Improvements** of \$6.9 million – mainly for Spot Pond Covered Storage of \$6.5 million due to timing of work and weather delays and Carroll Water Treatment Plant of \$1.1 million for less than anticipated UV Disinfection Engineering Services During Construction and updated schedule of CP7 Existing Facilities work.
2. **Wastewater Treatment** of \$5.8 million – mainly for Electrical Equipment Upgrade Construction of \$2.4 million, Butterfly Valve Replacement Construction of \$1.7 million, and HVAC Equipment Replacement Design/Engineering Services During Construction of \$369,000 mainly due to timing, and other smaller projects totaling approximately \$1.3 million.
3. **Water Distribution and Pumping** of \$2.1 million – mainly for Weston Aqueduct Supply Mains Design/Construction Administration/Resident Inspection for WASM3 of \$545,000 and Section 36 of \$215,000, Section 36/W11 C/S 9 – All Valve of \$709,000, and Southern Extra High Redundancy and Storage Final Design and Construction Administration of \$553,000 due to delays.
4. **Business and Operations Support** of \$1.9 million – mainly for lower than budgeted spending for MIS initiatives of \$905,000, As-Needed Design Services of \$613,000, and Vehicle Purchases of \$164,000 mostly due to timing.
5. **Waterworks Other** of \$1.8 million – primarily due to lower than projected Local Water Pipeline Assistance Program community requests for loans and greater than budgeted repayments.
6. **Water Transmission** of \$1.6 million – mainly for timing and alternatives analysis of Sudbury Aqueduct – MEPA Review of \$703,000, Watershed Land purchases of \$500,000, and Hultman Interconnections Final Design/Construction Administration/and Resident Inspection of \$298,000.
7. **Wastewater Interception and Pumping** of \$1.3 million – for lower spending mainly on Chelsea Creek Headworks Design of \$589,000 due to design delays and Nut Island Electric Grit & Screening Conveyance Construction of \$506,000 and Prison Point/Cottage Farm Engine, Pumps, and Gearboxes of \$336,000 due to timing of work.

The underspending was offset by overspending on the following programs:

1. **Combined Sewer Overflow (CSO)** of \$3.7 million – due to the higher than anticipated estimates from the City of Boston for work on the Reserved Channel Sewer Separation project of \$2.9 million and MWRA003 Gates and Siphon of \$883,000 due to actual award being greater than budgeted.

2. **Wastewater Treatment** of \$2.4 million – for Scum Skimmer Replacement project due to greater than budgeted contractor progress.
3. **Wastewater Other** of \$2.1 million – primarily due to Inflow and Infiltration (I/I) Financial Assistance Program community requests for higher loans and grants.
4. **Wastewater Interception and Pumping** of \$449,000 – due to greater than budgeted progress on Prison Point/Cottage Farm Engine, Pumps, and Gearboxes of \$336,000 and Nut Island Headworks Electric, Grit & Screenings Conveyance Design of \$113,000.

### **Construction Fund Balance**

The construction fund balance was at \$99 million as of February. Commercial Paper availability was at \$220 million to fund construction projects.

- Attachment 1 – Variance Summary February 2015
- Attachment 2 – Current Expense Variance Explanations
- Attachment 3 – Capital Improvement Program Variance Explanations
- Attachment 4 – FY15 Budget vs. FY15 Projection

ATTACHMENT 1

	February 2015 Year-to-Date					
	Period 8 YTD Budget	Period 8 YTD Actual	Period 8 YTD Variance	%	FY15 Approved	% Expended
<b>EXPENSES</b>						
WAGES AND SALARIES	\$ 62,746,775	\$ 61,193,342	\$ (1,553,433)	-2.5%	\$ 96,554,749	63.4%
OVERTIME	2,468,654	3,130,729	662,075	26.8%	3,620,600	86.5%
FRINGE BENEFITS	12,275,927	12,124,586	(151,341)	-1.2%	18,299,405	66.3%
WORKERS' COMPENSATION	1,466,667	1,738,125	271,458	18.5%	2,200,000	79.0%
CHEMICALS	6,718,456	6,548,423	(170,033)	-2.5%	10,219,580	64.1%
ENERGY AND UTILITIES	14,757,485	13,364,928	(1,392,557)	-9.4%	23,472,354	56.9%
MAINTENANCE	16,280,681	17,601,077	1,320,396	8.1%	27,972,607	62.9%
TRAINING AND MEETINGS	180,144	217,403	37,259	20.7%	361,019	60.2%
PROFESSIONAL SERVICES	3,472,818	3,059,566	(413,252)	-11.9%	5,957,201	51.4%
OTHER MATERIALS	2,462,140	2,882,258	420,118	17.1%	5,952,729	48.4%
OTHER SERVICES	14,799,635	15,058,062	258,427	1.7%	22,538,498	66.8%
<b>TOTAL DIRECT EXPENSES</b>	<b>\$ 137,629,382</b>	<b>\$ 136,918,499</b>	<b>\$ (710,883)</b>	<b>-0.5%</b>	<b>\$ 217,148,742</b>	<b>63.1%</b>
INSURANCE	\$ 1,432,412	\$ 1,528,398	\$ 95,986	6.7%	\$ 2,128,155	71.8%
WATERSHED/PILOT	18,487,262	18,368,218	(119,044)	-0.6%	27,466,790	66.9%
BEC <sub>0</sub> PAYMENT	2,045,852	1,943,611	(102,241)	-5.0%	3,198,174	60.8%
MITIGATION	1,080,939	982,626	(98,313)	-9.1%	1,605,967	61.2%
ADDITIONS TO RESERVES	325,065	325,065	-	0.0%	482,953	67.3%
RETIREMENT FUND	12,629,475	12,645,475	16,000	0.1%	12,629,475	100.1%
<b>TOTAL INDIRECT EXPENSES</b>	<b>\$ 36,001,005</b>	<b>\$ 35,793,393</b>	<b>\$ (207,612)</b>	<b>-0.6%</b>	<b>\$ 47,511,514</b>	<b>75.3%</b>
STATE REVOLVING FUND	\$ 52,361,287	\$ 52,092,230	\$ (269,057)	-0.5%	\$ 78,460,635	66.4%
SENIOR DEBT	146,598,036	144,708,978	(1,889,058)	-1.3%	220,835,626	65.5%
CORD FUND	584,337	584,337	-	0.0%	876,506	66.7%
DEBT SERVICE ASSISTANCE	(853,660)	(853,660)	-	0.0%	(853,660)	100.0%
CURRENT REVENUE/CAPITAL	6,865,384	6,865,384	-	0.0%	10,200,000	67.3%
SUBORDINATE MWRA DEBT	66,445,419	66,445,419	-	0.0%	99,686,106	66.7%
LOCAL WATER PIPELINE CP	2,792,228	2,792,228	-	0.0%	4,148,453	67.3%
CAPITAL LEASE	2,165,329	2,165,329	-	0.0%	3,217,060	67.3%
VARIABLE DEBT	-	(8,597,427)	(8,597,427)	---	-	0.0%
BOND REDEMPTION SAVINGS	(4,540,306)	(4,540,306)	-	0.0%	(6,745,598)	67.3%
DEFEASANCE ACCOUNT	-	10,755,542	10,755,542	---	-	0.0%
<b>TOTAL DEBT SERVICE</b>	<b>\$ 272,418,054</b>	<b>\$ 272,418,054</b>	<b>\$ -</b>	<b>0.0%</b>	<b>\$ 409,825,128</b>	<b>66.5%</b>
<b>TOTAL EXPENSES</b>	<b>\$ 446,048,441</b>	<b>\$ 445,129,946</b>	<b>\$ (918,495)</b>	<b>-0.2%</b>	<b>\$ 674,485,384</b>	<b>66.0%</b>
<b>REVENUE &amp; INCOME</b>						
RATE REVENUE	\$ 437,712,547	\$ 437,712,547	\$ -	0.0%	\$ 650,315,784	67.3%
OTHER USER CHARGES	5,631,633	5,657,866	26,233	0.5%	8,259,693	68.5%
OTHER REVENUE	4,296,710	6,396,177	2,099,467	48.9%	6,180,450	103.5%
RATE STABILIZATION	-	-	-	---	-	---
INVESTMENT INCOME	6,463,794	6,435,820	(27,974)	-0.4%	9,729,457	66.1%
<b>TOTAL REVENUE &amp; INCOME</b>	<b>\$ 454,104,684</b>	<b>\$ 456,202,410</b>	<b>\$ 2,097,727</b>	<b>0.5%</b>	<b>\$ 674,485,384</b>	<b>67.6%</b>



**ATTACHMENT 2**  
**Current Expense Variance Explanations**

Total MWRA	FY15 Budget YTD February	FY15 Actuals YTD February	FY15 YTD Actual vs. FY15 Budget		Explanations
			\$	%	
<b>Direct Expenses</b>					
Wages & Salaries	62,746,775	61,193,342	(1,553,433)	-2.5%	Underspending is due to lower filled positions and salary mix differential between staff retiring at higher rates and new hires coming on board at lower rates. At the end of February the average filled positions of 1,152, 23 positions less than the 1,175 budgeted positions.
Overtime	2,468,654	3,130,729	662,075	26.8%	Overspending due to higher than projected wet weather events, especially snow removal in the month of February.
Fringe Benefits	12,275,927	12,124,586	(151,341)	-1.2%	Lower than budget mainly due to Health of \$139k and Unemployment Insurance of \$37k due to lower filled positions.
Worker's Compensation	1,466,667	1,738,125	271,458	18.5%	Overspending due to higher Compensation Payments of \$288k and Administrative and Legal costs of \$51k.
Chemicals	6,718,456	6,548,423	(170,033)	-2.5%	Lower than budgeted Sodium Hypochlorite of \$140k due to timing of deliveries and pricing, Liquid Oxygen of \$138k due to better water quality, and Nitrazyme of \$79k due to Town of Framingham system modifications. Underspending is offset by overspending for Ferric Chloride of \$151k due to struvite control and Hydrogen Peroxide of \$96k due to increased need for pretreatment of hydrogen sulfide gas due to lower plant flows.
Utilities	14,757,485	13,364,928	(1,392,557)	-9.4%	Underspending due to lower Electricity of \$1.5 million mainly due to lower commodity and transmission and distribution costs and lower flows which resulted in less pumping demand at Deer Island and Water use of \$120k offset by higher Diesel Fuel of \$173k due to the decision to purchase fuel at Deer Island to take advantage of favorable pricing. Fuel was purchased in November and was budgeted in March.
Maintenance	16,280,681	17,601,077	1,320,396	8.1%	Materials are overspent by \$1.6 million and services are overspent by \$321k mainly due to timing.
Training & Meetings	180,144	217,403	37,259	20.7%	



**ATTACHMENT 2**  
**Current Expense Variance Explanations**

Total MWRA	FY15 Budget YTD February	FY15 Actuals YTD February	FY15 YTD Actual vs. FY15 Budget		Explanations
			\$	%	
Professional Services	3,472,818	3,059,566	(413,252)	-11.9%	Lower than budget mainly due to the timing of initiatives such as the Mystic River Modeling project, dam safety work, and as-needed engineering for maintenance projects.
Other Materials	2,462,140	2,882,258	420,118	17.1%	Higher than budget mainly due to timing of Computer Hardware of \$165k, Vehicle of \$98k, Equipment of \$97k, Work Clothes of \$73k, Other Materials of \$66k for Clinton gravel purchases offset by lower Vehicle Expenses of \$113k mostly due to gas prices.
Other Services	14,799,635	15,058,062	258,427	1.7%	Higher than budget mainly due to Telecommunications expenses of \$147k due to increased security data lines, Sludge Pelletization costs of \$108k due to higher quantities, and Space Lease/Rentals of \$73k for Charlestown Navy Yard headquarters carpet and painting upgrades offset by lower Permit Fees \$60k
<b>Total Direct Expenses</b>	<b>137,629,382</b>	<b>136,918,499</b>	<b>(710,884)</b>	<b>-0.5%</b>	
<b>Indirect Expenses</b>					
Insurance	1,432,412	1,528,398	95,986	6.7%	Higher Payments/Claims of \$198k, partially offset by lower Premiums of \$102k.
Watershed/PILOT	18,487,262	18,368,218	(119,044)	-0.6%	Lower Reimbursement expenses of \$119k due to FY14 overaccrual.
HEEC Payment	2,045,852	1,943,611	(102,241)	-5.0%	Lower Capacity Charges of \$94k.
Mitigation	1,080,939	982,626	(98,313)	-9.1%	
Addition to Reserves	325,065	325,065	-	0.0%	
Pension Expense	12,629,475	12,645,475	16,000	0.1%	
Post Employee Benefits	-	-	-		
<b>Total Indirect Expenses</b>	<b>36,001,005</b>	<b>35,793,393</b>	<b>(207,612)</b>	<b>-0.6%</b>	

**ATTACHMENT 2  
Current Expense Variance Explanations**

Total MWRA	FY15 Budget YTD February	FY15 Actuals YTD February	FY15 YTD Actual vs. FY15 Budget		Explanations
			\$	%	
<b>Debt Service</b>					
Debt Service	273,271,714	273,271,714	-	0.0%	Debt Service expenses through February is at budgeted level after the transfer of \$10.8 million of a favorable year-to-date variance to the Defeasance Account.
Debt Service Assistance	(853,660)	(853,660)	-	0.0%	
<b>Total Debt Service Expenses</b>	<b>272,418,054</b>	<b>272,418,054</b>	<b>-</b>	<b>0.0%</b>	
<b>Total Expenses</b>					
<b>Total Expenses</b>	<b>446,048,440</b>	<b>445,129,945</b>	<b>(918,495)</b>	<b>-0.2%</b>	
<b>Revenue &amp; Income</b>					
Rate Revenue	437,712,547	437,712,547	-	0.0%	Higher non-rate Revenue is mainly due to \$995k for a prior period adjustment for Watershed related expenses, \$425k for the sale of unbudgeted emergency water for the Town of Hudson, \$372k payment received for the sale of the Fox Point CSO Facility and other non-essential assets, \$115k for higher permit, monitoring, and penalty fees, The higher favorable variances were offset by lower Energy revenue of \$175k mainly due to the timing of Renewable Portfolio Standard (RPS) sales.
Other User Charges	5,631,633	5,657,866	26,233	0.5%	
Other Revenue	4,296,710	6,396,177	2,099,467	48.9%	
Rate Stabilization	-	-	-		
Investment Income	6,463,794	6,435,820	(27,974)	-0.4%	Lower Investment Income due to lower than budgeted short-term rates.
<b>Total Revenue</b>	<b>454,104,684</b>	<b>456,202,410</b>	<b>2,097,727</b>	<b>0.5%</b>	
<b>Net Revenue in Excess of Expenses</b>	<b>8,056,244</b>	<b>11,072,465</b>	<b>3,016,222</b>		



**ATTACHMENT 3**  
**Capital Improvement Program Variance Explanations**  
**(000's)**

	FY15 Budget YTD February	FY15 Actuals YTD February	YTD Actuals vs. Budget		Explanations
			\$	%	
Interception & Pumping (I&P)	\$7,375	\$6,515	(\$860)	-11.7%	Underspending mainly due to Chelsea Creek Upgrades Design/Construction Administration of \$589,000 due to design delays and Nut Island Electrical and Grit and Screenings Conveyance of \$506,000 due to timing. Offset by Prison Point/Cottage Farm Engine Pump & Gearbox Rebuilds of \$336,000 due to timing.
Treatment	\$17,232	\$13,822	(\$3,410)	-19.8%	Underspending on Electrical Equipment Upgrade Construction 4 of \$2.4M, Butterfly Valve Replacement of \$1.7M, HVAC Equipment Replacement Design/Engineering Services During Construction of \$369,000, Clinton Wastewater Treatment Plant of \$353,000, Miscellaneous VFD Replacements of \$350,000, As-Needed Design of \$269,000, and other smaller projects of \$369,000 due to timing. Offset by overspending on Scum Skimmer Replacement of \$2.4M due to contractor progress.
Residuals	\$0	\$0	\$0	-	
CSO	\$9,913	\$13,655	\$3,742	37.7%	Overspending on Reserved Channel Sewer Separation of \$2.9M due to updated cost estimate as a result of increased scope of work and MWR003 Gate & Siphon of \$883,000 due to actual contract award greater than budget.
Other Wastewater	\$9,263	\$11,367	\$2,105	22.7%	Overspending on Infiltration and Inflow (I/I) due to community requests for grants and loans being more than budgeted.
<b>Total Wastewater</b>	<b>\$43,782</b>	<b>\$45,359</b>	<b>\$1,576</b>	<b>3.6%</b>	
Drinking Water Quality Improvements	\$17,802	\$10,901	(\$6,901)	-38.8%	Underspending for Spot Pond Storage Facility of \$6.5M mainly for timing of work and weather delays and Carroll Water Treatment Plant of \$1.1M mainly for Ultraviolet Disinfection - Design/Engineering Services During Construction/Resident Engineer Inspection due to timing, and Existing Facilities CP-7 due to schedule change. Offset by overspending on Quabbin Water Treatment Plant of \$734,000 primarily due to contractor progress.

**ATTACHMENT 3**  
**Capital Improvement Program Variance Explanations**  
(000's)

	FY15 Budget YTD February	FY15 Actuals YTD February	YTD Actuals vs. Budget		Explanations
			\$	%	
Transmission	\$2,902	\$1,255	(\$1,648)	-56.8%	Underspending for Watershed Land of \$500,000 due to the timing of land acquisitions, Long Term Redundancy of \$367,000 mainly due to ongoing alternatives analysis of Sudbury Aqueduct - MEPA Review, Hultman Interconnect - Final Design/CA/RI of \$298,000 due to less than anticipated construction administration resident inspection services, and Dam Projects of \$250,000 due to less than anticipated design and engineering services.
Distribution & Pumping	\$5,573	\$3,426	(\$2,147)	-38.5%	Underspending on Weston Aqueduct Supply Mains of \$1.5M mainly due to timing for WASM 3 and Section 36 Design/Construction Administration/Resident Inspection, Southern Extra High (SEH) Redundancy & Storage of \$553,000 due to Redundancy/Storage Phase 1 - Final Design/Construction Administration/Resident Inspection delays pending additional time to meet with local communities, and Valve Replacement of \$433,000 due to timing of equipment purchases. Offset by overspending on Northern Intermediate High of \$376,000 mainly due to greater than budgeted progress on West Street Pipe Construction in Reading.
Other Waterworks	\$476	(\$1,293)	(\$1,769)	-	Underspending on Local Water System Assistance Program of \$1.5M due to less than budgeted community requests for loans and greater repayments than planned and Central Monitoring System of \$173,000 due to schedule shift for SCADA implementation.
<b>Total Waterworks</b>	<b>\$26,754</b>	<b>\$14,289</b>	<b>(\$12,465)</b>	<b>-46.6%</b>	
Business & Operations Support	\$4,676	\$2,756	(\$1,919)	-41.1%	Underspending on MIS-related projects of \$905,000 due to timing of IT Strategic Plan implementation, Capital Maintenance Planning & Development of \$613,000 due to lower than projected use of as-needed technical assistance, Alternative Energy of \$287,000 mainly due to Shaft E Hydro project being removed from CIP, and Centralized Equipment Purchase of \$127,000 mainly due to timing of vehicle purchases.
<b>Total MWRA</b>	<b>\$75,212</b>	<b>\$62,404</b>	<b>(\$12,808)</b>	<b>-17.0%</b>	



**ATTACHMENT 4**

**FY15 Budget vs FY15 Projection**

TOTAL MWRA	FY15 Budget	FY15 Projection	Change FY15 Budget vs FY15 Budget vs Projection	
			\$	%
<b>EXPENSES</b>				
WAGES AND SALARIES	\$ 96,554,749	\$ 94,094,681	\$ (2,460,068)	-2.5%
OVERTIME	3,620,600	3,996,570	375,970	10.4%
FRINGE BENEFITS	18,299,405	17,993,119	(306,286)	-1.7%
WORKERS' COMPENSATION	2,200,000	2,600,000	400,000	18.2%
CHEMICALS	10,219,580	9,902,400	(317,180)	-3.1%
ENERGY AND UTILITIES	23,472,354	22,682,386	(789,968)	-3.4%
MAINTENANCE	27,972,607	28,887,376	914,769	3.3%
TRAINING AND MEETINGS	361,019	379,552	18,533	5.1%
PROFESSIONAL SERVICES	5,957,201	5,692,061	(265,140)	-4.5%
OTHER MATERIALS	5,952,729	6,169,475	216,746	3.6%
OTHER SERVICES	22,538,498	22,804,030	265,532	1.2%
<b>TOTAL DIRECT EXPENSES</b>	<b>\$ 217,148,742</b>	<b>\$ 215,201,650</b>	<b>\$ (1,947,091)</b>	<b>-0.9%</b>
INSURANCE	\$ 2,128,155	\$ 1,931,155	\$ (197,000)	-9.3%
WATERSHED/PILOT	27,466,790	27,197,961	(268,829)	-1.0%
HEEC PAYMENT	3,198,174	2,798,174	(400,000)	-12.5%
MITIGATION	1,605,967	1,521,699	(84,268)	-5.2%
ADDITIONS TO RESERVES	482,953	482,953	-	0.0%
RETIREMENT FUND	7,808,155	7,824,155	16,000	0.2%
POSTEMPLOYMENT BENEFITS/ ADDITIONAL PENSION DEPOSIT	4,821,320	4,821,320	-	0.0%
<b>TOTAL INDIRECT EXPENSES</b>	<b>\$ 47,511,514</b>	<b>\$ 46,577,418</b>	<b>\$ (934,096)</b>	<b>-2.0%</b>
STATE REVOLVING FUND	\$ 78,460,635	\$ 77,683,363	\$ (777,272)	-1.0%
SENIOR DEBT	220,835,626	216,661,284	(4,174,342)	-1.9%
DEBT SERVICE ASSISTANCE	(853,660)	(853,660)	-	
CURRENT REVENUE/CAPITAL	10,200,000	10,200,000	-	0.0%
SUBORDINATE MWRA DEBT	99,686,105	99,686,105	-	0.0%
LOCAL WATER PIPELINE CP	4,148,453	341,921	(3,806,532)	-91.8%
CAPITAL LEASE	3,217,060	3,217,060	-	0.0%
VARIABLE DEBT	-	(12,416,923)	(12,416,923)	
CORE FUND DEPOSIT	876,507	876,507	-	0.0%
DEFEASANCE ACCOUNT	-	21,175,069	21,175,069	
BOND REDEMPTION	(6,745,598)	(6,745,598)	-	
<b>TOTAL DEBT SERVICE</b>	<b>\$ 409,825,128</b>	<b>\$ 409,825,128</b>	<b>\$ -</b>	<b>0.0%</b>
<b>TOTAL EXPENSES</b>	<b>\$ 674,485,386</b>	<b>\$ 671,604,196</b>	<b>\$ (2,881,187)</b>	<b>-0.4%</b>
<b>REVENUE &amp; INCOME</b>				
RATE REVENUE	\$ 650,315,782	\$ 650,315,782	\$ -	0.0%
OTHER USER CHARGES	8,259,693	8,259,693	-	0.0%
OTHER REVENUE	6,180,451	7,978,838	1,798,387	29.1%
RATE STABILIZATION	-	-	-	#DIV/0!
INVESTMENT INCOME	9,729,458	9,579,458	(150,000)	-1.5%
<b>TOTAL REVENUE &amp; INCOME</b>	<b>\$ 674,485,384</b>	<b>\$ 676,133,769</b>	<b>\$ 1,648,387</b>	<b>0.2%</b>
VARIANCE		\$ (4,529,573)	\$ 4,529,573	

**STAFF SUMMARY**

**TO:** Board of Directors  
**FROM:** Frederick A. Laskey, Executive Director *F. Laskey*  
**DATE:** February 11, 2015  
**SUBJECT:** FY2015 Sewer Assessment Adjustment

COMMITTEE: Administration, Finance & Audit

X INFORMATION  
VOTE

*Michael J. Hornbrook*  
Michael J. Hornbrook  
Chief Operating Officer

Stephen Estes-Smargiassi,  
Director, Planning and Sustainability  
Kathy Som, Budget Director  
*Leo Norton*  
Leo Norton, Asst. Mgr. Rates, Revenue & Finance  
Preparer/Title

*Thomas J. Durkin*  
Thomas J. Durkin  
Director, Finance

**RECOMMENDATION:**

For information only. This staff summary provides information on a minor change to CY2013 sewer meter data used to calculate FY2015 community sewer assessments. The assessment adjustment resulting from this change is included in the preliminary FY2016 assessments being presented at today's Board of Directors' meeting.

**DISCUSSION:**

MWRA annually determines preliminary water and sewer assessments in February and final assessments in June. As part of MWRA's Rate Basis Review and Comment Process, approved by the Board of Directors in 1996, water and sewer customers can challenge rate basis data through the current fiscal year. MWRA staff also conduct supplementary quality assurance reviews of meter data during this time period which could result in changes to the rate basis data.

**Town of Winthrop Sewer Flow**

A Quality Assurance/Quality Control review of sewer flow data indicated that Winthrop Calendar Year (CY) 2013 wastewater flows were not reduced to reflect actual temporary field measurements of two unmetered areas in Winthrop performed in late CY2012. The temporary meters indicated that flows from these two unmetered areas were slightly less than previously estimated. These tests measured 193,999 gallons per day rather than the 291,000 gallons per day previously measured for these two areas.

This adjustment was made for CY2012 flows and CY2014 flows. Since the CY2013 flow adjustment was not made at the time FY2015 sewer assessments were calculated, the adjusted

CY2013 flow will lower Winthrop's FY2015 sewer assessment by \$21,808. This adjustment will be applied to Winthrop's FY2016 assessments.

*Attachment 1* summarizes the FY2015 sewer assessment adjustment and the impact for each community.

**BUDGET/FISCAL IMPACT:**

Based on MWRA's zero based assessment methodology, FY2015 sewer assessments for all other sewer communities will increase proportionally and will be applied to each community's FY2016 sewer assessment.

**ATTACHMENTS:**


1. Sewer Utility: Fiscal Year 2015 Assessment Adjustments








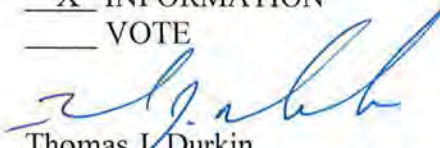
**STAFF SUMMARY**

**TO:** Board of Directors  
**FROM:** Frederick A. Laskey, Executive Director   
**DATE:** February 11, 2015  
**SUBJECT:** Preliminary FY16 Water and Sewer Assessments

COMMITTEE: Administration, Finance & Audit

INFORMATION  
 VOTE

  
 Kathy Somi, Budget Director  
 Leo Norton, Asst. Mgr. Rates, Revenue and Finance  
 Preparer/Title

  
 Thomas J. Durkin  
 Director, Finance

*Consistent with the Proposed FY16 Current Expense Budget (CEB), preliminary FY16 water and sewer assessments are based on a Rate Revenue Requirement of \$676,995,000, a 4.1% increase over the FY15 Rate Revenue Requirement.*

*The FY15 Rate Revenue Requirement will be allocated to MWRA communities based on their respective shares of CY14 MWRA water use, the average of CY12-CY14 wastewater flows, corresponding strength of flows, and population.*

**RECOMMENDATION:**

For information only. This staff summary provides information on preliminary FY16 wholesale water and sewer assessments. Staff plan to transmit preliminary FY16 assessments to MWRA communities on or before Thursday, February 12, 2015.

**DISCUSSION:**

The Proposed FY16 CEB recommends a Rate Revenue Requirement of \$676,995,000, an increase of 4.1% over the final FY15 requirement.

	<b>FY16 Preliminary</b>	<b>FY15 Approved</b>	<b>\$ Change from FY15</b>	<b>% Change from FY15</b>
<b>Water</b>	\$226,372,877	\$210,233,607	\$16,139,270	7.7%
<b>Sewer</b>	\$450,622,123	440,082,175	\$10,539,948	2.4%
<b>Total</b>	\$676,995,000	\$650,315,782	\$26,679,218	4.1%

*Attachment 1* summarizes preliminary FY16 wholesale water and sewer charges for each MWRA community.

The estimated impact of the FY16 assessment increase on the MWRA portion of the average household bill for water and sewer service in a fully served MWRA community that uses close to the system average of 61,000 gallons of water per year is less than \$21.

## Water Assessments

MWRA calculates water assessments for customer communities by apportioning the water rate revenue requirement according to each community's share of total water use for the most recent calendar year. Preliminary FY16 assessments are based on each community's share of CY14 water use of 64.900 billion gallons, a 0.1% increase compared to CY13 water use of 64.894 billion gallons. Changes in FY16 water assessments for customer communities compared to FY15 assessments will vary considerably, depending on each community's use of water and how that use factors into their share of the water system in CY14 compared to CY13. This is particularly true for communities that receive only part of their water from MWRA.

The graph below illustrates the water Rate Revenue Requirement for the past 5 years. The changes from FY15 to PFY16 are primarily the result of increased debt service related to water utility rehabilitation and improvements.

**MWRA Water Rate Revenue Requirement**



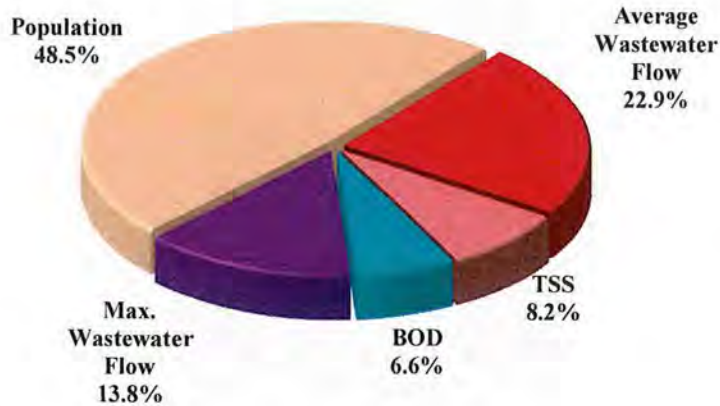
## Sewer Assessments

MWRA allocates sewer assessments based on each community's share of the following allocation parameters: annual wastewater flow, maximum month flow, strength of flow, census population, and sewer population.

On average, approximately 51% of a community's preliminary FY16 sewer assessment is based on each community's share of wastewater flow and strength of flow (total suspended solids-TSS and biochemical oxygen demand-BOD), and approximately 49% is based on population as illustrated in the next graph.



**Allocation of Total MWRA Sewer Utility Assessment**



Both the preliminary and final FY16 assessment for population will be calculated using the most recent (July 2013) community population estimates from the U.S. Census Bureau, as well as the percentage of total population receiving municipal sewer service reported by each MWRA community.

Preliminary FY16 assessments have been calculated using the average of CY12, CY13 and CY14 wastewater flows. Ongoing review of meter data may result in revised flows prior to issuing final assessments in June.

In addition, staff have revised CY13 wastewater flows for the towns of Winthrop resulting in adjusted FY14 sewer assessments. A separate Staff Summary detailing this adjustment is being presented at this meeting.

The graph below illustrates the sewer Rate Revenue Requirement for the past 5 years. As with the water utility, the annual changes continue to be primarily the result of increased debt service related to sewer utility rehabilitation and improvements.

**MWRA Sewer Rate Revenue Requirement**



## **Clinton and Lancaster Sewer Assessments**

Proposed FY16 operating and maintenance (O&M) and capital expenses attributable to the Clinton Wastewater Treatment Plant are \$3,108,108, an increase of 20.1% over FY15 expenses. This includes a 15% increase in operating costs, and a 39% increase in capital expenses related primarily to the digester cleaning/rehabilitation project.

In accordance with the agreement that allows the City of Worcester to take water from the Wachusett watershed, Worcester is charged approximately 7.9% of the direct operating expenses for the Clinton Wastewater Treatment Plant. Proposed FY16 direct operating expenses for the plant total \$1,915,746, resulting in a preliminary FY16 charge of \$151,554 for the City of Worcester. Worcester has been paying this annual charge to MWRA or its predecessors since 1914.

The Town of Clinton and the Lancaster Sewer District are allocated proportional shares of the remaining expenses based on annual metered wastewater flow to the Clinton Plant. Based on proposed FY16 expenses and CY14 wastewater flows, preliminary FY16 charges are \$295,877 for the Lancaster Sewer District and \$2,660,677 for the Town of Clinton. However, pursuant to Chapter 307, Section 8 of the Acts of 1987, Clinton is only liable for the first \$500,000 of its share of O&M and capital costs.

*Attachment 2* details the expenses and corresponding charges for the Clinton Sewer Service Area.

## **CVA Water Assessments**

Based on the Proposed FY16 CIP and CEB for the Chicopee Valley Aqueduct (CVA) water system, the preliminary FY16 system assessment is \$4,832,074, an increase of 3.7% from FY15 assessments.

MWRA's CVA water assessment methodology allocates CVA assessments to the three communities served by the CVA system based on their share of prior calendar year water use. Based on CY14 water use, preliminary FY16 assessments are as follows:

- City of Chicopee: \$3,409,662 (+3.5%)
- South Hadley Fire District #1: \$ 691,599 (+2.0%)
- Town of Wilbraham: \$ 730,813 (+6.4%)

As with the metropolitan water system, changes in FY16 water assessments for each CVA community compared to FY15 assessments vary depending on their water use and how that use factors into their share of the CVA water system in CY14 compared to CY13.

*Attachment 3* details the expenses and corresponding assessments for the CVA Water Service Area.



### **Wholesale Water Rate**

MWRA's wholesale water rate per million gallons is applied to customers purchasing MWRA water on a pay-as-you-go basis (including customers with emergency agreements). Examples include the Department of Conservation and Recreation, the Department of Youth Services, and the Walter E. Fernald State School. The preliminary wholesale water rate for FY16 is \$3,488.04 per million gallons. The proposed FY16 CEB includes revenue of \$160,607 from these customers.

### **Retail Sewer Rate**

MWRA provides direct retail sewer service to Regis College in Weston and the New England Center for Children in Southborough. In accordance with MWRA Policy #OP.11, "Admission of New Community to MWRA Sewer System and Other Requests for Sewer Service to Locations Outside MWRA Sewer Service Area", both entities are charged a modified per million gallon "retail" rate that captures both sanitary and non-sanitary flows. Based on preliminary FY16 sewer assessments, the FY16 retail sewer rate will be \$6,949.62 per million gallons. The Proposed FY16 CEB includes revenue of \$76,359 from these customers.

### **ATTACHMENTS:**

1. Preliminary FY16 Water and Sewer Assessments
2. Clinton Wastewater Treatment Plant Sewer User Charge Determination
3. Chicopee Valley Aqueduct System Assessment



MWRA Fully Served Water and Sewer Customers	Final FY15 Water Assessment	Preliminary FY16 Water Assessment	Percent Change from FY15	Final FY15 Sewer Assessment	Preliminary FY16 Sewer Assessment	Percent Change from FY15	Final FY15 Combined Assessment	Preliminary FY16 Combined Assessment	Dollar Change from FY15	Percent Change from FY15
ARLINGTON	\$4,555,760	\$4,724,970	3.7%	\$7,726,704	\$7,777,963	0.7%	\$12,282,464	\$12,502,933	\$220,469	1.8%
BELMONT	2,582,348	2,674,576	3.6%	4,664,723	4,672,173	0.2%	7,247,071	7,346,749	99,678	1.4%
BOSTON (BWSC)	75,628,730	80,205,208	6.1%	128,143,674	131,031,021	2.3%	203,772,404	211,236,229	7,463,825	3.7%
BROOKLINE	6,529,438	6,910,863	5.8%	12,542,458	12,766,668	1.8%	19,071,896	19,677,531	605,635	3.2%
CHELSEA	3,782,023	4,155,184	9.9%	7,256,657	7,532,951	3.8%	11,038,680	11,688,135	649,455	5.9%
EVERETT	4,611,174	4,636,654	0.6%	7,816,187	8,086,149	3.5%	12,427,361	12,722,803	295,442	2.4%
FRAMINGHAM	7,583,720	8,243,826	8.7%	11,278,349	12,015,537	6.5%	18,862,069	20,259,363	1,397,294	7.4%
LEXINGTON	6,035,866	6,695,144	10.9%	7,177,414	7,041,716	-1.9%	13,213,280	13,736,860	523,580	4.0%
MALDEN	6,273,748	6,941,818	10.6%	12,260,112	12,566,842	2.5%	18,533,860	19,508,660	974,800	5.3%
MEDFORD	5,979,858	6,432,009	7.6%	11,075,116	11,471,905	3.6%	17,054,974	17,903,914	848,940	5.0%
MELROSE	2,650,477	2,853,930	7.7%	5,945,198	6,117,066	2.9%	8,595,675	8,970,996	375,321	4.4%
MILTON	2,854,051	3,156,824	10.6%	5,025,212	5,070,253	0.9%	7,879,263	8,227,077	347,814	4.4%
NEWTON	10,437,524	12,205,271	16.9%	20,176,404	19,913,184	-1.3%	30,613,928	32,118,455	1,504,527	4.9%
NORWOOD	3,277,568	3,755,101	14.6%	6,492,751	6,789,515	4.6%	9,770,319	10,544,616	774,297	7.9%
QUINCY	10,605,214	11,918,042	12.4%	19,001,720	19,686,485	3.6%	29,606,934	31,604,527	1,997,593	6.7%
READING	1,931,410	2,032,766	5.2%	4,642,124	4,671,679	0.6%	6,573,534	6,704,445	130,911	2.0%
REVERE	4,484,031	5,013,281	11.8%	10,193,891	10,366,795	1.7%	14,677,922	15,380,076	702,154	4.8%
SOMERVILLE	6,896,106	7,060,400	2.4%	14,845,808	15,745,677	6.1%	21,741,914	22,806,077	1,064,163	4.9%
STONEHAM	3,490,972	3,381,301	-3.1%	4,477,065	4,474,659	-0.1%	7,968,037	7,855,960	(112,077)	-1.4%
WALTHAM	8,061,502	8,631,171	7.1%	12,953,820	12,810,555	-1.1%	21,015,322	21,441,726	426,404	2.0%
WATERTOWN	3,096,347	3,392,382	9.6%	5,774,673	5,818,931	0.8%	8,871,020	9,211,313	340,293	3.8%
WINTHROP	1,454,285	1,629,550	12.1%	3,221,355	3,216,131	-0.2%	4,675,640	4,845,681	170,041	3.6%
<b>TOTAL</b>	<b>\$182,802,152</b>	<b>\$196,650,271</b>	<b>7.6%</b>	<b>\$322,691,415</b>	<b>\$329,643,855</b>	<b>2.2%</b>	<b>\$505,493,567</b>	<b>\$526,294,126</b>	<b>\$20,800,559</b>	<b>4.1%</b>

MWRA Sewer and Partial Water Customers	Final FY15 Water Assessment	Preliminary FY16 Water Assessment	Percent Change from FY15	Final FY15 Sewer Assessment	Preliminary FY16 Sewer Assessment	Percent Change from FY15	Final FY15 Combined Assessment	Preliminary FY16 Combined Assessment	Dollar Change from FY15	Percent Change from FY15
CANTON	\$991,292	\$1,286,728	29.8%	\$3,547,316	\$3,974,315	12.0%	\$4,538,608	\$5,261,043	\$722,435	15.9%
NEEDHAM	1,193,697	1,012,962	-15.1%	5,466,144	5,462,757	-0.1%	6,659,841	6,475,719	(184,122)	-2.8%
STOUGHTON	931,975	1,106,344	18.7%	4,391,426	4,437,776	1.1%	5,323,401	5,544,120	220,719	4.1%
WAKEFIELD	1,611,741	1,855,071	15.1%	5,594,367	5,620,371	0.5%	7,206,108	7,475,442	269,334	3.7%
WELLESLEY	1,379,407	852,477	-38.2%	5,333,992	5,332,301	0.0%	6,713,399	6,184,778	(528,621)	-7.9%
WILMINGTON	363,646	353,379	-2.8%	2,353,306	2,511,204	6.7%	2,716,952	2,864,583	147,631	5.4%
WINCHESTER	1,253,400	1,234,222	-1.5%	3,867,732	3,907,978	1.0%	5,121,132	5,142,200	21,068	0.4%
WOBURN	3,032,534	3,091,283	1.9%	9,535,730	9,607,871	0.8%	12,568,264	12,699,154	130,890	1.0%
<b>TOTAL</b>	<b>\$10,757,692</b>	<b>\$10,792,466</b>	<b>0.3%</b>	<b>\$40,090,013</b>	<b>\$40,854,573</b>	<b>1.9%</b>	<b>\$50,847,705</b>	<b>\$51,647,039</b>	<b>\$799,334</b>	<b>1.6%</b>

MWRA Sewer-only Customers	Final FY15 Water Assessment	Preliminary FY16 Water Assessment	Percent Change from FY15	Final FY15 Sewer Assessment	Preliminary FY16 Sewer Assessment	Percent Change from FY15	Final FY15 Combined Assessment	Preliminary FY16 Combined Assessment	Dollar Change from FY15	Percent Change from FY15
ASHLAND				\$2,310,206	\$2,402,805	4.0%	\$2,310,206	\$2,402,805	\$92,599	4.0%
BEDFORD				3,085,246	3,233,248	4.8%	3,085,246	3,233,248	148,002	4.8%
BRAINTREE				8,363,839	8,594,900	2.8%	8,363,839	8,594,900	231,061	2.8%
BURLINGTON				4,943,181	4,955,626	0.3%	4,943,181	4,955,626	12,445	0.3%
CAMBRIDGE				22,157,757	23,516,196	6.1%	22,157,757	23,516,196	1,358,439	6.1%
DEDHAM				5,024,472	5,115,876	1.8%	5,024,472	5,115,876	91,404	1.8%
HINGHAM SEWER DISTRICT				1,651,545	1,700,751	3.0%	1,651,545	1,700,751	49,206	3.0%
HOLBROOK				1,594,287	1,674,563	5.0%	1,594,287	1,674,563	80,276	5.0%
NATICK				5,330,710	5,583,012	4.7%	5,330,710	5,583,012	252,302	4.7%
RANDOLPH				5,931,064	6,073,281	2.4%	5,931,064	6,073,281	142,217	2.4%
WALPOLE				3,509,806	3,595,218	2.4%	3,509,806	3,595,218	85,412	2.4%
WESTWOOD				2,426,073	2,477,036	2.1%	2,426,073	2,477,036	50,963	2.1%
WEYMOUTH				10,972,561	11,201,183	2.1%	10,972,561	11,201,183	228,622	2.1%
<b>TOTAL</b>				<b>\$77,300,747</b>	<b>\$80,123,695</b>	<b>3.7%</b>	<b>\$77,300,747</b>	<b>\$80,123,695</b>	<b>\$2,822,948</b>	<b>3.7%</b>

MWRA Water-only Customers	Final FY15 Water Assessment	Preliminary FY16 Water Assessment	Percent Change from FY15	Final FY15 Sewer Assessment	Preliminary FY16 Sewer Assessment	Percent Change from FY15	Final FY15 Combined Assessment	Preliminary FY16 Combined Assessment	Dollar Change from FY15	Percent Change from FY15
LYNNFIELD WATER DISTRICT	\$490,333	\$614,185	25.3%				\$490,333	\$614,185	\$123,852	25.3%
MARBLEHEAD	2,101,639	2,278,325	8.4%				2,101,639	2,278,325	176,686	8.4%
NAHANT	382,274	425,527	11.3%				382,274	425,527	43,253	11.3%
SAUGUS	3,202,440	3,645,083	13.8%				3,202,440	3,645,083	442,643	13.8%
SOUTHBOROUGH	765,656	850,020	11.0%				765,656	850,020	84,364	11.0%
SWAMPSCOTT	1,782,932	1,827,959	2.5%				1,782,932	1,827,959	45,027	2.5%
WESTON	1,993,015	2,240,675	12.4%				1,993,015	2,240,675	247,660	12.4%
<b>TOTAL</b>	<b>\$10,718,289</b>	<b>\$11,881,774</b>	<b>10.9%</b>				<b>\$10,718,289</b>	<b>\$11,881,774</b>	<b>\$1,163,485</b>	<b>10.9%</b>

MWRA Partial Water-only Customers	Final FY15 Water Assessment	Preliminary FY16 Water Assessment	Percent Change from FY15	Final FY15 Sewer Assessment	Preliminary FY16 Sewer Assessment	Percent Change from FY15	Final FY15 Combined Assessment	Preliminary FY16 Combined Assessment	Dollar Change from FY15	Percent Change from FY15
DEDHAM-WESTWOOD WATER DISTRICT	\$49,042	\$305,532	523.0%				\$49,042	\$305,532	\$256,490	523.0%
LYNN (LWSC)	209,723	264,873	26.3%				209,723	264,873	55,150	26.3%
MARLBOROUGH	3,433,407	3,894,026	13.4%				3,433,407	3,894,026	460,619	13.4%
NORTHBOROUGH	1,044,206	1,103,542	5.7%				1,044,206	1,103,542	59,336	5.7%
PEABODY	1,219,096	1,480,393	21.4%				1,219,096	1,480,393	261,297	21.4%
<b>TOTAL</b>	<b>\$5,955,474</b>	<b>\$7,048,366</b>	<b>18.4%</b>				<b>\$5,955,474</b>	<b>\$7,048,366</b>	<b>\$1,092,892</b>	<b>18.4%</b>
<b>SYSTEMS TOTAL</b>	<b>\$210,233,607</b>	<b>\$226,372,877</b>	<b>7.7%</b>	<b>\$440,082,175</b>	<b>\$450,622,123</b>	<b>2.4%</b>	<b>\$650,315,782</b>	<b>\$676,995,000</b>	<b>\$26,679,218</b>	<b>4.1%</b>



Massachusetts Water Resources Authority  
Clinton Wastewater Treatment Plant  
Sewer User Charge Determination

BUDGETED EXPENSES: Final FY2015	
Clinton Direct Operating Expenses:	\$1,915,746
MWRA Support Allocation:	435,791
Subtotal O&M Expenses:	\$2,351,537
Total Debt Service Expenses:	\$756,571
Total Clinton Service Area Expenses	\$3,108,108
Less Revenue (City of Worcester Payment)	-151,554
Clinton WWTP Rate Revenue Requirement:	\$2,956,553

WASTEWATER FLOW and FLOW SHARES:	CY2014		
	Town of Clinton Flow	Lancaster Sewer District Flow	Total Wastewater Flow
Average Daily Flow (MGD)	2.351	0.261	2.612
Average Flow (MG/YR)	857.954	95.407	953.361
Proportional Share of Flow	89.99%	10.01%	100.0%

Sewer User Charge Determination

TOWN OF CLINTON

O&M Expenses	\$2,351,537
Less Revenue (City of Worcester Payment)	-151,554
O&M Expenses to be Recovered	\$2,199,982
Clinton's Share of Flow	89.99%
Clinton's Share of O&M Costs	\$1,979,820

Total Clinton O&M Charge	\$1,979,820
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Debt Service Costs to be Recovered	\$756,571
Clinton's Share of Wastewater Flow	89.99%

Total Clinton Debt Service Charge	\$680,857
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Total Clinton O&M and Debt Service Charge	\$2,660,677
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Less MWRA Water Ratepayer Subsidy	-52,160,677
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Billable Charge to the Town of Clinton as per CH. 307, Section 8 The Acts of 1987	\$500,000
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LANCASTER SEWER DISTRICT

O&M Expenses	\$2,351,537
Less Revenue (City of Worcester Payment)	-151,554
O&M Expenses to be Recovered	\$2,199,982
Lancaster's Share of Flow	10.01%
Lancaster's Share of O&M Costs	\$220,163

Total Lancaster Sewer District O&M Charge	\$220,163
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Debt Service Costs to be Recovered	\$756,571
Lancaster's Share of Wastewater Flow	10.01%

Total Lancaster Sewer District Debt Service Charge	\$75,714
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Total Lancaster O&M and Debt Service Charge	\$295,877
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Billable Charge to Lancaster Sewer District	\$295,877
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Billable Sewer User Charges and Payment Schedule

Sewer Customer	Billable Charges
Town of Clinton	\$500,000
Lancaster Sewer District	\$295,877
<b>Total Sewer Charges</b>	<b>\$795,877</b>

Payment 1 on or before Sept 15, 2015	Payment 2 on or before Nov 15, 2015	Payment 3 on or before Feb 15, 2016	Payment 4 on or before May 15, 2016
\$125,000	\$125,000	\$125,000	\$125,000
\$73,969	\$73,969	\$73,969	\$73,969
<b>\$198,969</b>	<b>\$198,969</b>	<b>\$198,969</b>	<b>\$198,969</b>

**Massachusetts Water Resources Authority**  
*Chicopee Valley Aqueduct Water System Assessment*  
**Preliminary Fiscal Year 2016**

<b>CVA Operating Budget</b>	<b>FY15</b>	<b>PFY16</b>
CVA Cost Center Expenses	\$726,566	\$814,072
Allocated Waterworks Expenses	115,941	129,957
Allocated Watershed/PILOT	460,660	512,232
Allocated Watershed Land Acquisition	19,962	22,180
Allocated MWRA Indirect Expenses	463,605	538,216
<b>SUBTOTAL OPERATING BUDGET</b>	<b>\$1,786,735</b>	<b>\$2,016,657</b>

<b>Change from Prior Year</b>	
<b>Dollars</b>	<b>Percent</b>
\$87,506	12.0%
14,015	12.1%
51,572	11.2%
2,217	11.1%
74,611	16.1%
<b>\$229,922</b>	<b>12.9%</b>

<b>CVA Capital Budget</b>	<b>FY15</b>	<b>PFY16</b>
Capital Expenses	\$3,035,572	\$2,930,265
<b>TOTAL CVA BUDGET</b>	<b>\$4,822,306</b>	<b>\$4,946,921</b>

<b>Change from Prior Year</b>	
<b>Dollars</b>	<b>Percent</b>
-\$105,307	-3.5%
<b>\$124,615</b>	<b>2.6%</b>

<b>BASE COMMUNITY ASSESSMENT</b>	<b>FY15<sup>1</sup></b>	<b>PFY16<sup>2</sup></b>
Chicopee	\$3,409,702	\$3,490,926
South Hadley Fire District #1	702,629	709,021
Wilbraham	709,975	746,975
<b>CVA BASE SYSTEM ASSESSMENT</b>	<b>\$4,822,306</b>	<b>\$4,946,921</b>

<b>Change from Prior Year</b>	
<b>Dollars</b>	<b>Percent</b>
\$81,223	2.4%
6,392	0.9%
37,000	5.2%
<b>\$124,615</b>	<b>2.6%</b>

<b>PRIOR PERIOD ADJUSTMENTS</b>	<b>FY13<sup>3</sup></b>	<b>FY13<sup>4</sup></b>
Chicopee	-\$115,117	-\$81,264
South Hadley Fire District #1	-24,680	-17,422
Wilbraham	-22,895	-16,162
<b>TOTAL ADJUSTMENTS</b>	<b>-\$162,691</b>	<b>-\$114,848</b>

<b>Change from Prior Year</b>	
<b>Dollars</b>	<b>Percent</b>
\$33,853	-29.4%
7,258	-29.4%
6,733	-29.4%
<b>\$47,843</b>	<b>-29.4%</b>

<b>ADJUSTED ASSESSMENT</b>	<b>FY15</b>	<b>PFY16</b>
Chicopee	\$3,294,586	\$3,409,662
South Hadley Fire District #1	677,949	691,599
Wilbraham	687,080	730,813
<b>ADJUSTED ASSESSMENT</b>	<b>\$4,659,615</b>	<b>\$4,832,074</b>

<b>Change from Prior Year</b>	
<b>Dollars</b>	<b>Percent</b>
\$115,076	3.5%
13,650	2.0%
43,733	6.4%
<b>\$172,458</b>	<b>3.7%</b>

<sup>1</sup> Based on CY2013 water use and before prior period adjustments to account for a portion of budget to actual expenses for FY13.

<sup>2</sup> Based on CY2014 water use and before prior period adjustments to account for a portion of budget to actual expenses for FY13.

<sup>3</sup> Portion of prior period adjustment to account for budget to actual expenses for FY13. Applied to FY15 assessments.

<sup>4</sup> Portion of prior period adjustment to account for budget to actual expenses for FY13. Applied to PFY16 assessments.



STAFF SUMMARY

TO: Board of Directors  
FROM: Frederick A. Laskey, Executive Director  
DATE: February 11, 2015  
SUBJECT: FY16 Proposed Current Expense Budget



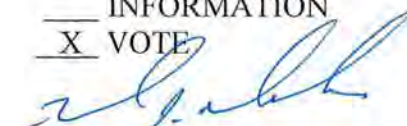
COMMITTEE Administration, Finance & Audit

     INFORMATION  
  X   VOTE

  
Kathy Soni, Budget Director

David Whelan, Budget Manager  
Preparer/Title



  
Thomas J. Durkin  
Director, Finance

*MWRA utilizes a multi-year rates management strategy to provide sustainable and predictable assessment increases to its member communities. To achieve this goal again this year, MWRA has continued to employ conservative budgeting and fiscal discipline which includes controlled spending and use of historical variable rate assumptions. This strategy allows continuing the practice of targeted debt defeasance for the most challenging years.*

*The FY16 Proposed Budget puts forth a 4.1% combined assessment increase, which is slightly lower than the 4.3% increase projected for FY16 last year.*

*The FY16 Proposed Budget reflects the benefits of a proposed \$20 million defeasance in FY15 with targeted savings primarily in FY17 and FY18. The amount of capital expenditures scheduled for fiscal year 2016 is less than scheduled principal payments contributing to the decrease in outstanding debt.*

*The major highlights of the FY16 Proposed Budget include:*

- *Capital Financing increase of \$25.9 million, or 6.3%, remaining the largest component of the budget, accounting for more than 61.6% of total expenses;*
- *Funding of 1,170 positions, 5 fewer than FY15 and 212 fewer positions than in FY02;*
- *Combined Direct and Indirect Expenses increase of 2.6%;*
- *\$13.3 million for Pension Fund based on \$8.2 million minimum required contribution and \$5.1 million as an optional payment consistent with the Authority's strategy to pay down its pension liability first and then address its Other Post Employment Benefits (OPEB) liability;*
- *Use of \$3.5 million in Bond Redemption funds; \$8.5 million lower than planned;*
- *Debt Service savings of \$902,750 in FY16 from a proposed \$20 million defeasance;*
- *\$5.6 million in higher Other Revenue due to a one-time revenue for water provided during the community managed CSO project to Cambridge;*
- *The projected release of the debt service reserves component of the reserves related to the upcoming amendments to Bond Indenture is included in the planning estimates; and*
- *No State Debt Service Assistance.*

## **RECOMMENDATION:**

To approve transmittal of the FY16 Proposed Current Expense Budget to the MWRA Advisory Board for its 60 day review and comment period.

## **DISCUSSION:**

This staff summary presents an overview of the FY16 Proposed Current Expense Budget (CEB) and projects the Rate Revenue Requirement for the next ten years.

### **Summary**

The FY16 Proposed Budget recommends a combined increase in rates and charges of 4.1%. Capital financing costs remain the largest component of the CEB and account for 61.6% of total expenses. Total expenses are \$707.2 million, an increase of \$32.7 million or 4.8% over the FY15 Budget. There are no offsets from Debt Service Assistance (DSA) assumed for FY16 or in any future years.

Total expenses include \$435.7 million for capital financing costs and \$271.5 million for operating expenses, of which \$223.8 million is for Direct Expenses and \$47.8 million is for Indirect Expenses. Of the \$32.7 million overall increase, \$25.9 million is for Capital Financing, \$6.6 million is for Direct Expenses, and \$241,000 is for Indirect Expenses. It is important to note that Operating Expenses increased 2.6% versus FY15, slightly lower than the 2.7% target, due to on-going cost improvements initiatives.

The FY16 Proposed Budget revenues, excluding rate revenue, total \$30.2 million, an increase of \$6.0 million or 24.9% from the FY15 Budget. The FY16 Proposed Budget non-rate revenue budget includes \$20.7 million in Other User Charges and Other Revenue and \$9.5 million for Investment Income. The majority of the increase is due to recognizing a one-time water revenue for water provided to the City of Cambridge during an FY14 Combined Sewer Overflow (CSO) project.

The FY16 Proposed Budget Rate Revenue Requirement is \$677.0 million, an increase of \$26.7 million or 4.1% over the FY15 Budget.

Table 1 on the next page provides a comparison of the FY16 Proposed Current Expense Budget and the FY15 Budget. Additional detail by line item and by division is provided in Attachments A and B.

Also, please refer to Attachment C for a comparison of the FY16 Proposed Budget to the FY15 Projection. Staff will continue to refine the FY15 year-end projection in the coming months as part of the monthly financial update to the Board.



**Table 1**

**MWRA Current Expense Budget  
FY16 Proposed versus FY15 Approved Budget**

(\$ in Millions)	FY15 Budget	FY16 Proposed	\$ Change	% Change
Directs	\$ 217.1	\$ 223.8	\$ 6.6	3.0%
Indirects	47.5	47.8	0.2	0.5%
<b>Sub-Total Operating Expenses</b>	<b>\$ 264.7</b>	<b>\$ 271.5</b>	<b>\$ 6.8</b>	<b>2.6%</b>
Capital Financing (before Offsets)	417.4	439.2	21.8	5.2%
<i>Offsets:</i> Bond Redemption <sup>1</sup>	(6.7)	(3.5)	3.2	
Variable Debt Savings	-	-	-	
Debt Service Assistance	(0.9)	-	0.9	0.0%
<b>Sub-Total Capital Financing</b>	<b>\$ 409.8</b>	<b>\$ 435.7</b>	<b>\$ 25.9</b>	<b>6.3%</b>
<b>Total Expenses</b>	<b>\$ 674.5</b>	<b>\$ 707.2</b>	<b>\$ 32.7</b>	<b>4.8%</b>
Investment Income	\$ 9.7	\$ 9.5	\$ (0.2)	-2.4%
Non-Rate Revenue	14.4	20.7	6.3	43.4%
Rate Stabilization <sup>1</sup>	-	-	-	
<b>Sub-Total Non-Rate Revenue</b>	<b>\$ 24.2</b>	<b>\$ 30.2</b>	<b>\$ 6.0</b>	<b>24.9%</b>
Rate Revenue	650.3	677.0	26.7	4.1%
<b>Total Revenue &amp; Income</b>	<b>\$ 674.5</b>	<b>\$ 707.2</b>	<b>\$ 32.7</b>	<b>4.8%</b>
<b>FY16 Rate Revenue Increase</b>		<b>4.1%</b>		
<b>Combined Use of Reserves</b>	<b>\$ 6.7</b>	<b>\$ 3.5</b>		

<sup>1</sup> MWRA has two reserve funds (Bond Redemption and Rate Stabilization) which can be used at the discretion of the Authority to manage the rate revenue requirement. Use of the Bond Redemption reduces total expenses and Rate Stabilization increases total revenue. Under the terms of the General Bond Resolution the annual use of Rate Stabilization funds cannot exceed 10% of the year's senior debt service. Bond Redemption funds can be used only to retire or prepay outstanding debt. There is no annual limit on the amount of Bond Redemption funds used in a year, however the use is tied to the bonds' maturity dates and it is utility specific.

## EXPENSES:

### Direct Expenses

FY16 Direct Expenses total \$223.8 million, an increase of \$6.6 million, or 3.0%, from the FY15 Budget.

- *Wages and Salaries* – The proposed budget includes \$99.2 million for Wages and Salaries as compared to \$96.6 million in the FY15 Budget, an increase of \$2.6 million or 2.7%. Regular Pay, which is 98.4% of total Wages and Salaries, increased \$2.6 million mostly for COLA increases. The proposed budget funds 1,170 positions, 5 fewer positions than FY15 Budget. As always, new hires and backfills of vacant positions will be managed at the agency level and addressed on a case-by-case basis by senior management.
- *Overtime* – The proposed budget includes \$4.2 million for Overtime, \$599,000 or 16.5% above the FY15 Budget. The main reason for the large increase is funding is associated with the planned overtime activities for the North Main Pump Station and Winthrop Terminal Facility Butterfly Valve Replacement project which will require 62 overnight shutdowns.
- *Fringe Benefits* – The proposed budget includes \$19.0 million for Fringe Benefits, an increase of \$707,000 or 3.9% from the FY15 Budget. Health Insurance premiums total \$16.5 million, an increase of \$706,000 or 4.5% from the FY15 Budget largely due to anticipated cost increases.
- *Workers' Compensation* – The proposed budget includes \$2.3 million for Workers' Compensation, an increase of \$143,000 or 6.5% from the FY15 Budget and is based on a three-year average of actual spending.
- *Chemicals* – The proposed budget includes \$10.1 million for Chemicals, which is primarily level funded with the FY15 Budget. The FY16 Budget does not include any funding for the new Deer Island National Pollutant Discharge Elimination System (NPDES) permit which is projected to have more stringent requirements for enterococcus treatment compliance.
- *Utilities* – The proposed budget includes \$24.9 million for Utilities, which is an increase of \$1.4 million or 5.9% from the FY15 Budget. The increase is mainly for increased unit pricing for Electricity based on most recent contracts and estimated congestion pricing of \$1.6 million and increased Diesel Fuel volume mainly at Deer Island of \$131,000. These increases are offset by lower electricity volume of \$463,000 mainly due to increased self-generation and lower Diesel Fuel pricing of \$93,000. The budget funds \$18.1 million for Electricity, \$3.8 million for Diesel Fuel, \$2.2 million for Water, and \$486,000 for Natural Gas.



- *Maintenance* – The proposed budget includes \$28.6 million for Maintenance projects, an increase of \$639,000 or 2.3% from the FY15 budget. The FY16 Proposed Maintenance request is in line with FY14 actual spending of \$29.5 million.
- *Training and Meetings* – The proposed budget includes \$414,000 for Training and Meetings, an increase of \$53,000 or 14.6% from the FY15 Budget.
- *Professional Services* – The proposed budget includes \$5.7 million for Professional Services, a decrease of \$276,000 or 4.6% from the FY15 Budget. The budget reflects funding of \$1.8 million for Security, \$1.5 million for Regulatory Monitoring, and \$1.4 million for Other Professional Services to support items such as the professional staff development and as-needed professional services.
- *Other Materials* – The proposed budget includes \$5.9 million for Other Materials, a decrease of \$71,000 or 1.2% from the FY15 Budget. The budget includes funding of \$1.7 million for Vehicle Purchases, \$1.0 million for Vehicle Expenses mostly for gasoline purchases, \$840,000 for Lab and Testing Supplies, \$425,000 for Computer Hardware needs, Work Clothes of \$377,000, and \$375,000 for Equipment/Furniture.
- *Other Services* – The proposed budget includes \$23.4 million for Other Services, an increase of \$860,000 or 3.8% from the FY15 Budget. The budget includes funding of \$14.3 million for Sludge Pelletization, \$3.6 million for Space/Lease Rentals and related expenses for the CNY and Chelsea facilities, \$1.7 million for Voice and Data costs, and \$1.2 million for Other Services. The largest increase is for Sludge Pelletization of \$406,000 due to increases in inflation indices, Telecommunications of \$267,000 for increased lines for security initiatives, and Space/Lease Rentals of \$144,000 for contractual increases.

### Indirect Expenses

Indirect Expenses for FY16 total \$47.8 million, an increase of \$241,000 or 0.5% more than the FY15 Budget. Below are the highlights of major changes:

- The FY16 Proposed Budget includes \$28.1 million for the Division of Water Supply Protection (formerly MDC Division of Watershed Management), an increase of \$594,000 or 2.2% over the FY15 Budget. The budget is comprised of \$14.1 million for reimbursement of operating expenses net of revenues, \$8.3 million for Payment in Lieu of Taxes (PILOT), and \$5.6 million for debt service expenses on prior land purchases financed by the Commonwealth. The largest increases are for operating expenses net of revenues of \$394,000 mainly for contractual increases and Payment in Lieu of Taxes of \$200,000.
- The FY16 Proposed Budget includes \$8.2 million for the Retirement Fund, an increase of \$351,000 or 4.5% over the FY15 required contribution. This funding of \$8.2 million represents the minimum required contribution for FY16 based on the most recent actuarial evaluation of January 1, 2013.

- The FY16 Proposed Budget includes \$1.9 million for the Harbor Energy Electric Company (HEEC), a decrease of \$1.3 million or 39.1% from the FY15 Budget. This funding is for the repayment of the capital investment for the Deer Island electric cable and substation which provides electric power to the treatment plant. The significant decrease is due to contractual obligations which expire in May 2015.
- The FY16 Proposed Budget includes \$2.2 million for Insurance, an increase of \$33,000 or 1.5% from the FY15 Budget. The FY16 Proposed Budget was based on actual average spending for the past five years, FY10-14.
- The Authority has complied with the GASB 45, *Accounting and Financial Reporting by Employers for Postemployment Benefits Other than Pensions (OPEB)*, by disclosing this liability in the year-end Financial Statements. As part of the multi-year strategy to address its unfunded liabilities for OPEB and pension holistically, the Board approved a plan to pay down our pension liability and upon reaching full funding, move to address the OPEB obligation. This strategy was employed in the FY08-15 budgets (although temporarily halted in FY11 to achieve a 1.5% rate increase). In continuation of the Authority's long-term commitment to address its liabilities, \$5.1 million is included for OPEB/Additional Pension Fund deposit in the FY16 Proposed Budget. Staff will be recommending the establishment of an OPEB Trust during the FY16 Final budget process.
- Funding for the Operating Reserve for FY16 is \$962,000, an increase of \$479,000 from the FY15 Budget. The Operating Reserve balance is in compliance with MWRA General Bond Resolution which requires a balance of one-sixth of annual operating expenses. Based on the FY16 Proposed Budget, the required balance is \$40.4 million versus the \$39.5 million required in FY15.

### Capital Financing

As a result of the Authority's Capital Improvement Program, debt service as a percent of total expenses (before offsets) has increased steadily from 36% in 1990 to over 61% in the FY16 Proposed Current Expense Budget. Much of this debt service is for completed projects, primarily the Boston Harbor Project and the Integrated Water Supply Improvement Program. The MWRA's capital spending, from its inception, has been dominated by projects mandated by court ordered or regulatory requirements, which in total have accounted for ~80% of capital spending to date. Going forward, and as the Combined Sewer Overflow (CSO) projects wind down, the majority of spending will be focused on asset protection and water redundancy initiatives. The amount of capital expenditures scheduled for fiscal year 2016 is less than scheduled principal payments contributing to the decrease in outstanding debt.

The Authority has actively managed its debt structure to take advantage of favorable interest rates. Tools used by the MWRA to lower borrowing costs and manage rates include current and advanced refunding of outstanding debt, maximizing the use of the subsidized State Revolving Fund (SRF) debt, issuance of variable rate debt, swap agreements, and the use of surplus

revenues to defease debt. The MWRA also uses tax exempt commercial paper to minimize the financing cost of construction in process.

The FY16 Proposed Budget capital financing costs total \$435.7 million and remain the largest portion of the MWRA's budget, accounting for 61.6% of total expenses.

The FY16 Proposed Budget includes a targeted defeasance which will reduce debt service by approximately \$902,750 in FY16, \$8.6 million in FY17, \$9.6 million in FY18, and \$1.4 million in FY19.

The FY16 Proposed Budget assumes a 3.25% interest rate for variable rate debt which is the same level as in FY15. The Authority's variable rate debt assumption is comprised of three separate elements: the interest rate for the daily and weekly series; liquidity fees for the Standby Bond Purchase Agreement, Letter of Credit, and Direct Purchase providers; and remarketing fees. While MWRA continues to experience unusually low interest rates, they are not reflective of historical averages and there is no guarantee that rates will stay low.

The FY16 Proposed Budget capital financing costs increased by \$25.9 million or 6.3% compared to the FY15 Budget. This increase in the MWRA's debt service is the result of projected FY16 issuances and the additional \$6.7 million CORE fund deposit requirement partially offset by the impact of the projected defeasance. The FY16 Proposed capital financing budget includes:

- \$283.4 million in principal and interest payments on MWRA's senior fixed rate bonds. This amount includes \$6.5 million to support issuances of \$100 million in June 2015 and \$1.8 million to support issuances of \$100 million of new money in June 2016. Also includes a reduction of \$902,750 for the effect of the planned FY15 defeasance;
- \$49.2 million in principal and interest payments on subordinate bonds;
- \$81.4 million in principal and interest payments on SRF loans. This amount includes \$5.4 million to support issuances of \$12.0 million in Spring 2015 and \$42.5 million in 2016;
- \$11.2 million to fund ongoing capital projects with current revenue and to meet coverage requirements;
- \$4.1 million to fund the interest expense related to the Local Water Pipeline Assistance Program;
- \$3.2 million for the Chelsea Lease; and,
- \$6.7 million for FY16 additional CORE deposit. The CORE fund requirement is equal to 10% of the Senior Debt Service for the fiscal year per the Bond Resolution.

## Revenue

FY16 non-rate revenue totals \$30.2 million, an increase of \$6.0 million or 24.9% more than the FY15 Budget. The FY16 Proposed non-rate revenue budget includes:

- \$12.0 million in Other Revenue including \$5.6 million due to increased water utility related revenue, \$3.1 million from the sale of the Authority's Renewable Portfolio Credits, sale of generated power, and revenue from the demand response program as well as \$2.2 million in permit fees and penalties. Other Revenue increased \$5.7 million from the FY15 Budget.
- \$9.5 million in Investment Income, a decrease of \$233,000 or 2.4% from the FY15 Budget. The FY16 Proposed Budget will have fewer funds invested long-term due to liquidity needs for the reserve releases based on the amendments to the Bond Indenture anticipated for FY16. The Short-term interest rate assumption is at 0.20% which is at the FY15 Budget level.
- \$8.8 million in Other User Charges, including \$4.8 million for Chicopee Valley Aqueduct (CVA) communities, \$1.7 million for Deer Island water usage, \$753,000 for entrance fees from member communities, and \$500,000 for the Commonwealth's partial reimbursement for Clinton Wastewater Treatment Plant expenses. Other User Charges are \$492,000 or 6.0% more than the FY15 Budget which is mainly due to assessment increases related to Deer Island, Chicopee, and Lancaster as well as increased entrance fees.

The Rate Revenue Requirement for FY16 is \$677.0 million, an increase \$26.7 million or 4.1% over the FY15 Budget. The Rate Revenue Requirement is the difference between total expenses of \$707.2 million, less non-rate revenue of \$30.2 million.

## Planning Estimates and Future Rate Increases

MWRA's planning estimates are projections based on a series of assumptions about future spending (operating and capital), interest rates, inflation, and other factors. MWRA uses the planning estimates to model and project what future rate increases might be based upon these assumptions, as well as to test the impact of changes to assumptions on future rate increases. The planning estimates are not predictions of what rate increases will be but rather they provide the context and framework for guiding MWRA financial policy and management decision making that ultimately determine the level of actual rate increases on an annual basis.

Historically, the planning estimates were based on conservative financial assumptions. Conservative projections of future rate increases benefit the MWRA by providing assurance to the rating agencies that MWRA anticipates to raise revenues sufficient to pay for its operations and outstanding debt obligations now and over the long-term. Additionally, conservative forecasts of rate revenue increases enable member communities to adequately plan and budget for future payments to MWRA. In FY14 the Authority tightened certain planning estimate



assumptions such as inflation on direct expenses and limiting the annual capital improvement spending to \$160 million after FY18.

Table 2 below presents the combined estimated future rate increases and household charges based on the FY16 Proposed Budget. The planning estimates shown below assume no Debt Service Assistance from the Commonwealth and use of Rate Stabilization and Bond Redemption reserves through FY22 to manage the rate increases. For planning purposes, the yearly use of combined reserves is currently limited to a maximum of \$12 million. MWRA anticipates the release of additional reserves starting in FY16 as a result of Bond Indenture changes. The debt service reserves released are included in these projections. However, there are additional cash reserves releases anticipated that are not included in the projections that might be available to mitigate rate increases in future years.

**Table 2**

Rates & Budget Projections											
FY16 Proposed CEB	FY2015	FY2016	FY2017	FY2018	FY2019	FY2020	FY2021	FY2022	FY2023	FY2024	FY2025
Total Rate Revenue (\$000)	\$ 650,316	\$ 676,995	\$ 703,325	\$ 731,881	\$ 763,887	\$ 813,625	\$ 828,382	\$ 868,695	\$ 840,074	\$ 825,613	\$ 804,628
Rate Revenue Change from Prior Year (\$000)	\$ 21,595	\$ 26,679	\$ 26,330	\$ 28,556	\$ 32,006	\$ 49,738	\$ 14,757	\$ 40,313	\$ (28,621)	\$ (14,460)	\$ (20,986)
Rate Revenue Increase	3.4%	4.1%	3.9%	4.1%	4.4%	6.5%	1.8%	4.9%	-3.3%	-1.7%	-2.5%
Use of Reserves (\$000)	\$ 6,746	\$ 3,547	\$ 7,951	\$ 10,003	\$ 5,981	\$ 12,000	\$ 11,138	\$ 12,000	\$ -	\$ -	\$ -
<i>Estimated Household Bill</i>											
Based on annual water usage of 61,000 gallons	\$1,007	\$1,057	\$1,103	\$1,158	\$1,211	\$1,278	\$1,330	\$1,397	\$1,429	\$1,463	\$1,492
Based on annual water usage of 90,000 gallons	\$1,486	\$1,560	\$1,627	\$1,709	\$1,786	\$1,886	\$1,963	\$2,061	\$2,108	\$2,159	\$2,201

### CEB Review and Adoption Process

The Advisory Board has 60 days from the transmittal of the FY16 Proposed Budget to review the budget and prepare comments and recommendations. During the review period, Advisory Board and MWRA staff will continue to meet and evaluate the impact of changing circumstances as they arise. Following the receipt of the Advisory Board's comments and recommendations, MWRA presents its official responses to the Board of Directors at budget hearings. Staff will present the final budget and the final assessments and for Fiscal Year 2016 to the Board for approval in June 2015.

### Attachments

- Attachment A FY16 Proposed Current Expense Budget compared to FY15 Budget
- Attachment B FY16 Proposed Current Expense Budget by Division vs. FY15 Budget
- Attachment C FY16 Proposed Current Expense Budget compared to FY15 Projection

**ATTACHMENT A**

**FY16 Proposed vs FY15 Budget**

TOTAL MWRA	FY14 Actual	FY15 Budget	FY16 Proposed	Change FY16 Proposed vs FY15 Budget	
				\$	%
<b>EXPENSES</b>					
WAGES AND SALARIES	\$ 91,751,235	\$ 96,554,749	\$ 99,185,938	\$ 2,631,189	2.7%
OVERTIME	3,400,247	3,620,600	4,219,293	598,693	16.5%
FRINGE BENEFITS	18,074,366	18,299,405	19,006,475	707,070	3.9%
WORKERS' COMPENSATION	2,311,448	2,200,000	2,343,000	143,000	6.5%
CHEMICALS	10,226,458	10,219,580	10,149,911	(69,669)	-0.7%
ENERGY AND UTILITIES	23,396,747	23,472,354	24,864,554	1,392,200	5.9%
MAINTENANCE	29,453,365	27,972,607	28,611,968	639,361	2.3%
TRAINING AND MEETINGS	328,782	361,019	413,714	52,695	14.6%
PROFESSIONAL SERVICES	4,900,235	5,957,201	5,681,504	(275,697)	-4.6%
OTHER MATERIALS	5,986,021	5,952,729	5,881,553	(71,176)	-1.2%
OTHER SERVICES	21,736,151	22,538,498	23,398,351	859,853	3.8%
<b>TOTAL DIRECT EXPENSES</b>	<b>\$ 211,565,054</b>	<b>\$ 217,148,742</b>	<b>\$ 223,756,261</b>	<b>\$ 6,607,519</b>	<b>3.0%</b>
INSURANCE	\$ 2,050,555	\$ 2,128,155	\$ 2,160,797	\$ 32,642	1.5%
WATERSHED/PILOT	26,640,877	27,466,790	28,061,183	594,393	2.2%
HEEC PAYMENT	3,525,799	3,198,174	1,946,157	(1,252,017)	-39.1%
MITIGATION	1,494,900	1,605,967	1,400,000	(205,967)	-12.8%
ADDITIONS TO RESERVES *	169,304	482,953	962,449	479,496	99.3%
RETIREMENT FUND	7,470,927	7,808,155	8,159,521	351,366	4.5%
POSTEMPLOYMENT BENEFITS/ ADDITIONAL PENSION DEPOSIT	4,976,411	4,821,320	5,062,470	241,150	5.0%
<b>TOTAL INDIRECT EXPENSES</b>	<b>\$ 46,328,773</b>	<b>\$ 47,511,514</b>	<b>\$ 47,752,576</b>	<b>\$ 241,063</b>	<b>0.5%</b>
STATE REVOLVING FUND	\$ 72,684,514	\$ 78,460,635	\$ 81,365,988	\$ 2,905,353	3.7%
SENIOR DEBT	229,505,983	220,835,626	283,413,656	62,578,030	28.3%
SUBORDINATE MWRA DEBT	100,117,241	99,686,105	49,222,442	(50,463,663)	-50.6%
LOCAL WATER PIPELINE CP	316,440	4,148,453	4,149,242	789	0.0%
CURRENT REVENUE/CAPITAL	9,200,000	10,200,000	11,200,000	1,000,000	9.8%
CAPITAL LEASE	3,217,060	3,217,060	3,217,060	-	0.0%
CORE FUND DEPOSIT	132,238	876,507	6,663,030	5,786,523	660.2%
BOND REDEMPTION	-	(6,745,598)	(3,546,984)	3,198,614	-47.4%
VARIABLE RATE DEBT SAVINGS	(12,770,132)	-	-	-	-
DEFEASANCE ACCOUNT	-	-	-	-	-
DEBT SERVICE ASSISTANCE	(853,660)	(853,660)	-	853,660	-100.0%
<b>TOTAL DEBT SERVICE</b>	<b>\$ 401,549,684</b>	<b>\$ 409,825,128</b>	<b>\$ 435,684,435</b>	<b>\$ 25,859,306</b>	<b>6.3%</b>
<b>TOTAL EXPENSES</b>	<b>\$ 659,443,511</b>	<b>\$ 674,485,384</b>	<b>\$ 707,193,272</b>	<b>\$ 32,707,888</b>	<b>4.8%</b>
<b>REVENUE &amp; INCOME</b>					
RATE REVENUE	\$ 628,721,000	\$ 650,315,782	\$ 676,995,000	\$ 26,679,218	4.1%
OTHER USER CHARGES	8,030,020	8,259,693	8,751,391	491,698	6.0%
OTHER REVENUE	11,266,436	6,180,451	11,950,563	5,770,112	93.4%
RATE STABILIZATION	3,500,000	-	-	-	-
INVESTMENT INCOME	12,129,653	9,729,458	9,496,318	(233,140)	-2.4%
<b>TOTAL REVENUE &amp; INCOME</b>	<b>\$ 663,647,109</b>	<b>\$ 674,485,384</b>	<b>\$ 707,193,272</b>	<b>\$ 32,707,888</b>	<b>4.8%</b>

\* Reserves estimated based on OPEB being deposited into the Pension fund



**ATTACHMENT B**

**FY16 Proposed Direct Expense Budget by Division**

Division	FY15 Budget	FY16 Proposed	Change FY16 Proposed vs FY15 Budget	
			\$	%
Executive	\$1,228,621	\$1,282,232	\$53,611	4.4%
Emergency Preparedness	2,681,758	3,125,379	\$443,621	16.5%
Administration	41,978,750	43,239,357	\$1,260,607	3.0%
Finance	4,267,437	4,299,535	\$32,098	0.8%
Law	1,732,256	1,900,601	\$168,345	9.7%
Affirmative Action	578,752	534,332	-\$44,420	-7.7%
Internal Audit	701,437	755,720	\$54,283	7.7%
Public Affairs	1,125,052	1,212,328	\$87,276	7.8%
Operations/Planning	162,854,680	167,406,778	\$4,552,098	2.8%
<b>Total Authority</b>	<b>\$217,148,742</b>	<b>\$223,756,261</b>	<b>\$6,607,519</b>	<b>3.0%</b>

**ATTACHMENT C**

**FY16 Proposed vs FY15 Projection**

TOTAL MWRA	FY15 Budget	FY15 Projection	FY16 Proposed	Change FY16 Proposed vs FY15 Projection	
				\$	%
<b>EXPENSES</b>					
WAGES AND SALARIES	\$ 96,554,749	\$ 94,094,681	\$ 99,185,938	\$ 5,091,257	5.4%
OVERTIME	3,620,600	3,996,570	4,219,293	222,723	5.6%
FRINGE BENEFITS	18,299,405	17,993,119	19,006,475	1,013,356	5.6%
WORKERS' COMPENSATION	2,200,000	2,600,000	2,343,000	(257,000)	-9.9%
CHEMICALS	10,219,580	9,902,400	10,149,911	247,511	2.5%
ENERGY AND UTILITIES	23,472,354	22,682,386	24,864,554	2,182,168	9.6%
MAINTENANCE	27,972,607	28,887,376	28,611,968	(275,408)	-1.0%
TRAINING AND MEETINGS	361,019	379,552	413,714	34,162	9.0%
PROFESSIONAL SERVICES	5,957,201	5,692,061	5,681,504	(10,557)	-0.2%
OTHER MATERIALS	5,952,729	6,169,475	5,881,553	(287,922)	-4.7%
OTHER SERVICES	22,538,498	22,804,030	23,398,351	594,321	2.6%
<b>TOTAL DIRECT EXPENSES</b>	<b>\$ 217,148,743</b>	<b>\$ 215,201,650</b>	<b>\$ 223,756,261</b>	<b>\$ 8,554,611</b>	<b>4.0%</b>
INSURANCE	\$ 2,128,155	\$ 1,931,155	\$ 2,160,797	\$ 229,642	11.9%
WATERSHED/PILOT	27,466,790	27,197,961	28,061,183	863,222	3.2%
HEEC PAYMENT	3,198,174	2,798,174	1,946,157	(852,017)	-30.4%
MITIGATION	1,605,967	1,521,699	1,400,000	(121,699)	-8.0%
ADDITIONS TO RESERVES *	482,953	482,953	962,449	479,496	99.3%
RETIREMENT FUND	7,808,155	7,824,155	8,159,521	335,366	4.3%
POSTEMPLOYMENT BENEFITS/ ADDITIONAL PENSION DEPOSIT	4,821,320	4,821,320	5,062,470	241,150	5.0%
<b>TOTAL INDIRECT EXPENSES</b>	<b>\$ 47,511,514</b>	<b>\$ 46,577,418</b>	<b>\$ 47,752,576</b>	<b>\$ 1,175,160</b>	<b>2.5%</b>
STATE REVOLVING FUND	\$ 78,460,635	\$ 77,683,363	\$ 81,365,989	\$ 3,682,626	4.7%
SENIOR DEBT	220,835,626	216,661,284	283,413,656	66,752,372	30.8%
SUBORDINATE MWRA DEBT	99,686,105	99,686,105	49,222,442	(50,463,663)	-50.6%
LOCAL WATER PIPELINE CP	4,148,453	341,921	4,149,242	3,807,321	1113.5%
CURRENT REVENUE/CAPITAL	10,200,000	10,200,000	11,200,000	1,000,000	9.8%
CAPITAL LEASE	3,217,060	3,217,060	3,217,060	-	0.0%
VARIABLE DEBT	-	(12,416,923)	-	12,416,923	-100.0%
CORE FUND DEPOSIT	876,507	876,507	6,663,030	5,786,523	660.2%
DEFEASANCE ACCOUNT	-	21,175,069	-	(21,175,069)	-100.0%
BOND REDEMPTION	(6,745,598)	(6,745,598)	(3,546,984)	3,198,614	-47.4%
DEBT SERVICE ASSISTANCE	(853,660)	(853,660)	-	853,660	-100.0%
<b>TOTAL DEBT SERVICE</b>	<b>\$ 409,825,128</b>	<b>\$ 409,825,128</b>	<b>\$ 435,684,435</b>	<b>\$ 25,859,307</b>	<b>6.3%</b>
<b>TOTAL EXPENSES</b>	<b>\$ 674,485,385</b>	<b>\$ 671,604,196</b>	<b>\$ 707,193,272</b>	<b>\$ 35,589,078</b>	<b>5.3%</b>
<b>REVENUE &amp; INCOME</b>					
RATE REVENUE	\$ 650,315,782	\$ 650,315,782	\$ 676,995,000	\$ 26,679,218	4.1%
OTHER USER CHARGES	8,259,693	8,259,693	8,751,391	491,698	6.0%
OTHER REVENUE	6,180,451	7,978,838	11,950,563	3,971,725	49.8%
RATE STABILIZATION	-	-	-	-	-
INVESTMENT INCOME	9,729,458	9,579,458	9,496,318	(83,140)	-0.9%
<b>TOTAL REVENUE &amp; INCOME</b>	<b>\$ 674,485,384</b>	<b>\$ 676,133,769</b>	<b>\$ 707,193,272</b>	<b>\$ 31,059,501</b>	<b>4.6%</b>

VARIANCE \$ (4,529,574) \$ (4,529,574)

\* Reserves estimated based on OPEB being deposited into the Pension fund



**STAFF SUMMARY**


**TO:** Board of Directors  
**FROM:** Frederick A. Laskey, Executive Director  
**DATE:** March 11, 2015  
**SUBJECT:** Amendments to Investment Policy



**COMMITTEE:** Administration, Finance & Audit

VOTE  
 INFORMATION

Matthew R. Horan, Treasurer *mt*  
Christina C. DiLibero, Investment Manager  
Preparer/Title

  
Thomas J. Durkin,  
Director of Finance

*As part of the State Finance and Governance Board's (SFGB) regulations, all state entities are required to formally adopt an Investment Policy. The Board of Directors first approved that policy on February 13, 2013. The SFGB's regulations further require state entities to review their policy and present it to their governing body for adoption every two years. After review by MWRA's Financial Advisor, Bond Counsel and staff, there are minor edits proposed but no substantial changes to Investment Policy.*

**RECOMMENDATION:**

That in compliance with the State Finance and Governance Board's regulations (976 CMR 2.03), the Board adopts the amendments to the Investment Policy substantially in the form attached hereto.

**DISCUSSION:**

In February 2013, the Board approved the Investment Policy ("Policy") to provide a framework for the management of MWRA's investment portfolio. It was not designed to replace or revise the requirements found in the General Revenue Bond Resolution but rather to codify those requirements in a separate document that may be approved by the Board in order to comply with the Commonwealth's State Finance and Governance Board's (SFGB) regulations. In addition to the requirements of the General Bond Resolution, the policy also discusses many of MWRA's practices related to safety of principal, liquidity and yield for its investments. The Policy also indicates that MWRA will invest and manage assets under its control accordance with the "Prudent Investor Rule" set forth in MGL Ch. 203C.

A copy of the approved Policy was provided to the SFGB in 2013 to comply with its regulations (976 CMR 2.04). The SFGB's regulations require that a state entity's investment policy be formally adopted by its governing board no later than March 31 in

every odd numbered year. As part of the review of the Investment Policy, staff requested that MWRA's Financial Advisor and Bond Counsel review the existing draft and provide any recommended updates. After review of the document there were a few minor typographical edits (pages 3 and 4) and the name of the Finance Advisory Board was changed to reflect it becoming the State Finance and Governance Board (page 5).

There are currently no changes to Appendix A which details the investment requirements outlined in the General Bond Resolution. In 2007, MWRA's Board of Directors approved modifications to the General Bond Resolution which included some changes to the investment requirements. These changes included the addition of one new type of investment, clarifications to the lists of permissible investments by Fund, and removing the 15 year cap on the investment of money in the Debt Service Reserve Funds. These changes are planned to become effective along with the other amendments to the General Bond Resolution this spring. Acceptance of this Policy does not constitute a change to the Authority's long standing procedures.



MWRA  
INVESTMENT  
POLICY

# MASSACHUSETTS WATER RESOURCES AUTHORITY

## INVESTMENT POLICY

- I. Purpose
  - II. Scope
  - III. Statements of Objectives
  - IV. Standards of Care
  - V. Suitable & Permitted Investments
  - VI. Investment Monitoring and Reporting
  - VII. Review of Policy
- Appendix A Excerpts from MWRA's General Bond Resolution



# MASSACHUSETTS WATER RESOURCES AUTHORITY

## INVESTMENT POLICY

### I. Purpose:

The purpose of this document is to establish policies for governing the investment of the funds of the Massachusetts Water Resources Authority ("Authority"). The Investment Policy ("Policy") is designed to ensure the prudent management of funds, and the availability of operating and capital funds when required, while earning a competitive return within the Policy framework. The Policy will serve to further codify the permitted investment restrictions and requirements defined by the Authority's General Bond Resolution.

### II. Scope:

This Investment Policy applies to activities of the Authority with regard to investing all of the Authority's funds, which is specifically governed by Sections 522 and 523 of the General Bond Resolution. The funds covered by this Policy, described in more detail in Appendix A, includes the following:

Per the General Bond Resolution:

1. Construction Fund
2. Revenue Fund
3. Operating Fund
4. Debt Service Fund
5. Subordinated Debt Service Fund
6. Debt Service Reserve Fund
7. Subordinated Debt Service Reserve Fund
8. Revenue Bond Redemption Account
9. Community Obligation and Revenue Enhancement Fund (CORE)
10. Rate Stabilization Fund
11. Rebate Fund
12. Commonwealth Obligation Fund
13. Operating Reserve Fund
14. Insurance Reserve Fund
15. Renewal and Replacement Reserve Fund

### III. Statements of Objectives:

The portfolio shall be structured with the objective of maximizing return on investments considering the risk constraints and the cash flow requirements of Authority. Preservation of principal is the foremost objective of the Investment Policy where investment safety is defined as the certainty of receiving principal plus accrued interest at a security's maturity.

Funds are invested in vehicles that provide the liquidity necessary to enable the Authority to meet operating, debt service, and other cash flow requirements. Portfolio liquidity is defined as the ability to sell a security on short notice near the security's par value. An adequate

amount of funds will be kept in short-term money market investments to accommodate the reasonable cash needs of the Authority.

The primary objectives, in order of priority, of investment activity shall be safety, liquidity, and yield.

Safety: Safety of principal is the foremost objective of the investment program. Investments shall be undertaken in a manner that seeks to ensure the preservation of capital in the overall portfolio. The objective will be to mitigate credit risk and interest rate risk.

*Credit Risk*: The Authority will minimize credit risk, the risk of loss due to the failure of the security issuer or backer, by:

- i) Limiting investments to securities listed in the General Bond Resolution;
- ii) Diversifying the investment portfolio to minimize the impact of potential losses from one type of security or individual issuer, excluding U.S. Treasuries, Federally Guaranteed Obligations, Government Sponsored Enterprises and the Massachusetts Municipal Depository Trust "MMDT".

*Interest Rate Risk*: The Authority will minimize interest rate risk, which is the risk that the market value of securities in the portfolio will fall due to changes in market interest rates.

Liquidity: The investment portfolio shall remain sufficiently liquid to meet all operating, debt service, and other cash flow requirements that may be reasonably anticipated.

Yield: The investment portfolio shall be designed with the objective of attaining an optimal market rate of return considering the investment risk constraints and liquidity needs outlined in the General Bond Resolution and this Policy. Return on investment is of secondary importance compared to the safety and liquidity objectives described above. With respect to the investment of funds under the Authority's General Bond Resolution, such investment portfolios shall be designed with the objective of maintaining compliance with all yield restrictions imposed under applicable federal tax law.

#### IV. Standards of Care:

All participants in the investment process shall act responsibly and professionally. The Authority's portfolio shall be invested and managed in accordance with the "Prudent Investor Rule" set forth in MGL Ch. 203C. In general, the Authority will invest and manage the assets under its control as a prudent investor would, considering the purposes of the Authority and the terms under which such assets are held by the Authority, exercising reasonable care, skill, and caution.

V. Suitable and Permitted Investments:

Funds shall be invested in the securities permitted under the definition of Investment Securities and other applicable sections of the General Bond Resolution. Appendix A contains an excerpt from the General Bond Resolution listing the permitted investments.

VI. Investment Monitoring and Reporting:

On a continuing basis the Treasury department will monitor the market trends of instruments, prepare a monthly market valuation of all long-term investments and report results for use in preparing financial statements. These reports shall include a schedule showing principal amount, description of investment, maturity date, yield rate, and market value.

VII. Review of Policy

The Investment Policy shall be reviewed periodically, but in no case less than every two years as required by the Commonwealth's ~~Finance Advisory~~ State Finance and Governance Board's Regulation. Any changes to the Investment Policy shall be adopted by the Board of Directors.

## **Appendix A**

### **Excerpts from MWRA's General Bond Resolution:**

**Section 101. Definitions** (pages 7-9)

**Section 521. Depositories** (page 49)

**Section 522. Deposits** (page 50)

**Section 523. Investment of Certain Funds** (pages 50-52)

**Section 524. Valuation and Sale of Investments** (page 52)



Commonwealth, or any agency, department, bureau, commission or other instrumentality of either thereof, all as the same may be amended or supplemented from time to time, providing for or relating to the provision of Grant Receipts to the Authority.

"Grant Receipts" shall mean any money received by or on behalf of the Authority under or pursuant to a Grant Agreement as or on account of a grant or contribution, heretofore or hereafter made, in aid of or with respect to any Project (including without limitation any such moneys received by the Commonwealth or the MDC in trust for the Authority pursuant to Sections 4 and 5 of the Act as or on account of a grant or contribution, heretofore made, in aid of or with respect to any improvement to the System).

"Indebtedness" shall mean any indebtedness for borrowed money of the Authority, including without limitation all Bonds, Subordinated Bonds, Bond Anticipation Notes, Reimbursement Obligations, Special Subordinated Indebtedness and the Prior Notes but shall not include Special Payment Obligations.

"Insurance Reserve Fund" shall mean the Insurance Reserve Fund established pursuant to Section 502(a).

"Insurance Reserve Fund Requirement" shall mean the amount recommended to the Authority by a Consulting Engineer or an insurance consultant pursuant to Section 515(d) as necessary to adequately reserve against risks for which the Authority does not currently maintain insurance in compliance with Section 708(a).

"Investment Securities" shall mean and include any of the following securities, if and to the extent the same are at the time legal investments by the Authority of the funds to be invested therein and conform to the policies set forth in any investment guidelines adopted by the Authority or by a duly appointed subcommittee of its Board of Directors and in effect at the time of the making of such investment:

(a) Government Obligations;

(b) Certificates or receipts representing direct ownership of future interest or principal payments on Government Obligations or any obligations of agencies or instrumentalities of the United States of America which are backed by the full faith and credit of the United States, which obligations are held by a custodian in safekeeping on behalf of the holders of such receipts;

(c) Bonds, debentures, notes or other evidences of indebtedness issued by any of the following: Federal Home Loan Mortgage Corporation; Student Loan Marketing Association; Federal Home Loan Banks; Federal National Mortgage Association; Government National Mortgage Association; Bank for Cooperatives; Federal Intermediate Credit Banks; Federal Financing Bank; Export-Import Bank of the United States; Federal Land Banks; or any other agency or instrumentality of the United States of America; or the International Reconstruction Development Bank;

(d) All other obligations issued or unconditionally guaranteed as to the timely payment of principal and interest by an agency or person controlled or supervised by and acting as an instrumentality of the United States of America pursuant to authority granted by Congress;

(e) (i) Interest-bearing time or demand deposits, certificates of deposit, or other similar banking arrangements with any government securities dealer, bank, trust company, savings and loan association, national banking association or other savings institution (including the Trustee), provided that such

deposits, certificates, and other arrangements are fully insured by the Federal Deposit Insurance Corporation or the Federal Savings and Loan Insurance Corporation or (ii) interest-bearing time or demand deposits or certificates of deposit with any bank, trust company, national banking association or other savings institution (including the Trustee), provided such deposits and certificates are in or with a bank, trust company, national banking association or other savings institution whose long-term unsecured debt is rated in one of the three highest long-term rating categories by S&P and Moody's (if such rating agencies are Rating Agencies) and, if rated by any other Rating Agency, rated in the three highest rating categories of such Rating Agency, and provided further that with respect to (i) and (ii) any such obligations are held by the Trustee or a bank, trust company or national banking association (other than the issuer of such obligations, unless the issuer is the Trustee):

(f) Repurchase agreements collateralized by securities described in subparagraphs (a), (b), (c) or (d) above with any registered broker/dealer or with any commercial bank, provided that (1) a specific written repurchase agreement governs the transaction, (2) the securities are held, free and clear of any lien, by the Trustee or an independent third party acting solely as agent for the Trustee, and such third party is (a) a Federal Reserve Bank, or (b) a bank which is a member of the Federal Deposit Insurance Corporation and which has combined capital, surplus and undivided profits of not less than \$25 million, and the Trustee shall have received written confirmation from such third party that it holds such securities, free and clear of any lien, as agent for the Trustee, (3) the repurchase agreement has a term of thirty days or less, or the Trustee will value the collateral securities no less frequently than monthly and will liquidate the collateral securities if any deficiency in the required collateral percentage is not restored within five business days of such valuation, and (4) the fair market value of the collateral securities in relation to the amount of the repurchase obligation, including principal and interest, is equal to at least 102%;

(g) Money market funds rated in the highest rating category by S&P and Moody's (if such rating agencies are Rating Agencies) and, if rated by any other Rating Agency, rated in the highest category of such Rating Agency;

(h) Commercial paper rated in the highest rating category by S&P and Moody's (if such rating agencies are Rating Agencies) and, if rated by any other Rating Agency, rated in the highest category of such Rating Agency;

(i) Shares of investment companies or cash equivalent investments which are authorized to invest only in assets or securities described in subparagraphs (a), (b), (c), (d) and (f) above;

G) Advance-Refunded Municipal Bonds;

(k) Short-term or long-term obligations the interest on which is excludable from gross income for Federal income tax purposes and that are rated in the three highest rating categories by S&P and Moody's (if such rating agencies are Rating Agencies) and if rated by any other Rating Agency, rated in the three highest rating categories of such Rating Agency, or shares of investment companies or cash equivalents which are authorized to invest primarily in such obligations;

(l) participation units in a combined investment fund created under Section 38A of Chapter 29 of the General Laws of the Commonwealth;

(m) investment contracts with, or guaranteed by, banks or other financial institutions whose long-term unsecured debt or claims-paying ability is rated in one of the three highest rating categories by

S&P and Moody's (if such rating agencies are Rating Agencies) and, if rated by any other Rating Agency, rated in the three highest rating categories of such Rating Agency; and

(n) any other investment authorized pursuant to an amendment or supplement hereto pursuant to Section 801(i).

Obligations of any Fiduciary or an affiliate thereof may be Investment Securities, provided that they otherwise qualify.

"Local Body" shall mean, a city, town, district, commission or other political subdivision or instrumentality of the Commonwealth receiving water supply or sewer services from the Authority and responsible for providing by itself or through an officer, board, department or division thereof local water supply or local sewer services; provided that in any case where local water supply or local sewer services within the territorial boundaries of a Local Body are provided in whole or in part by a political subdivision or public instrumentality of the Commonwealth separate from such Local Body, the term Local Body shall mean, within the service area thereof, that political subdivision or public instrumentality.

"Local Body Default" shall mean a default in the payment of any Rates and Charges due to the Authority by a Local Body, as certified by an Authorized Representative of the Authority in accordance with the provisions of Section 716(a).

"MDC" shall mean the Metropolitan District Commission.

"Moody's" shall mean Moody's Investors Service, Inc.

"Net Revenues" shall mean with respect to a period of time all Revenues accrued in such period in accordance with generally accepted accounting principles less the Operating Expenses incurred or payable during such period in accordance with generally accepted accounting principles; provided, however, that the proceeds of revenue anticipation notes shall not constitute Revenues and the principal amount of such notes shall not constitute Operating Expenses for the purpose of calculating Net Revenues.

"Note Payment Fund" shall mean the Note Payment Fund established pursuant to Section 502(a).

"Operating Budget" shall mean the Operating Budget duly adopted by the Authority in the same manner as its Current Expense Budget, except as provided in Section 712, as amended from time to time, in accordance with Section 712 hereof, which Operating Budget may constitute a portion of, or an exhibit or appendix to, such Current Expense Budget.

"Operating Expenses" shall mean the Authority's expenses, whether or not annually recurring, of maintaining, repairing and operating the System and engaging in other activities authorized by the Act including, without limiting the generality of the foregoing, amounts for administrative expenses including costs of salaries and benefits and amounts required to finance pension benefits earned by employees of the Authority, as provided in the Act; cost of insurance, payments for engineering, financial, accounting, legal and other services rendered to the Authority; payments under any interest rate exchange, cap, or other hedge agreement which have been designated by the Authority as Operating Expenses for purposes of this Resolution in such agreement; costs incurred or payable by the Authority with respect to the System Real Property (as defined in the Act); costs of issuance not financed in the Costs of a Project paid by the Authority; and payments of interest on revenue anticipation notes and other Current Expenses; but



(a) The Authority shall deposit into a separate account of the Note Payment Fund the proceeds of any Secured Bonds issued to provide for the payment of Bond Anticipation Notes of the Authority as directed by the Supplemental Resolution for such Secured Bonds and shall deposit amounts transferred pursuant to Sections 509(a), 517 and 519(a).

(b) Moneys on deposit in a subaccount of the Note Payment Fund shall be applied to the payment of the Bond Anticipation Notes with respect to which such subaccount was established upon receipt by the Trustee of a Certificate of the Authority stating:

- (i) the subaccount of the Note Payment Fund from which such payment is to be made;
- (ii) the name of the paying agent of the Bond Anticipation Notes with respect to which the payment is to be made; and
- (iii) the amount to be paid and the Project or Projects with respect to which such payment relates.

(c) Any moneys remaining in a subaccount of the Note Payment Fund after payment of the Bond Anticipation Notes with respect to which such account was established shall be transferred to and deposited in a separate subaccount established within the Construction Fund.

#### SECTION 521. Depositaries.

(a) All moneys or securities held by the Trustee under the provisions of this Resolution shall constitute trust funds and the Trustee may, and shall, if directed in writing by an Authorized Representative of the Authority, deposit such moneys or securities with one or more Depositaries in trust for the Trustee. Moneys or securities in the Operating Fund shall be deposited by the Authority with one or more Depositaries in trust for the Authority. All moneys or securities deposited under the provisions of this Resolution with the Trustee or any Depositary shall be held in trust and applied only in accordance with the provisions of this Resolution, and each of such Funds established by this Resolution shall be a trust fund for the purposes thereof. The Authority and the Trustee shall instruct each Depositary that any moneys or securities credited to a Fund or an Account hereunder which are deposited with such Depositary shall be identified to be part of such Fund or Account and subject to the pledge in favor of the Trustee created under this Resolution. Prior to the first deposit of any moneys or securities with each Depositary, the Authority and the Trustee shall obtain from such Depositary its agreement to serve as agent of the Trustee in holding such moneys or securities in trust in favor of the Trustee and the contract or other written instrument between the Authority and such Depositary governing the establishment and operation of such account shall provide the moneys or securities from time to time deposited with such Depositary shall be held by such Depositary as such agent in trust in favor of the Trustee; provided that, except as otherwise expressly provided herein, the Authority shall be permitted at any time to make withdrawals from and write checks or other drafts against any account held by the Authority and established with such Depositary and apply the same for the purposes specified in this Resolution and, subject to Section 523 hereof, the Authority shall be permitted to invest amounts in any such account in Investment Securities.

(b) Each Depositary holding moneys or securities in trust for the Trustee shall be a bank or trust company organized under the laws of the Commonwealth or a national banking association (having its principal office within the Commonwealth), having capital stock, surplus and undivided earnings aggregating at least \$100,000,000 (or such greater amount as set forth in a Supplemental Resolution) and



willing and able to accept the office on reasonable and customary terms and authorized by law to act in accordance with the provisions of this Resolution.

(c) Moneys and securities credited to any Fund or Account may be commingled with moneys and securities credited to other Funds or Accounts for the purposes of establishing checking or other bank accounts for purposes of investing funds or otherwise; provided, however, the Trustee and the Authority shall at all times maintain or cause to be maintained accurate books and records reflecting the amounts credited to the respective Funds and Accounts held by each of them. All withdrawals from any commingled moneys or securities shall be charged against the proper Fund or Account and no moneys shall be withdrawn from commingled moneys if there is not on credit to the Fund or Account to be charged sufficient funds to cover such withdrawal.

#### SECTION 522. Deposits.

(a) All Revenues and other moneys held by any Depository under this Resolution may be placed in a demand or time deposit, if and as directed by the Authority, provided that such deposits shall permit the moneys so held to be available for use at the time when needed. All such moneys deposited with a Fiduciary, acting as a Depository, may be made in the commercial banking department of any Fiduciary which may honor checks and drafts on such deposit with the same force and effect as if it were not such Fiduciary. All moneys held by any Fiduciary, as such, may be deposited by such Fiduciary in its banking department on demand or, if and to the extent directed by the Authority and acceptable to such Fiduciary, on time deposit, provided that such moneys on deposit be available for use at the time when needed.

(b) All moneys deposited with the Trustee and each Depository shall be credited to the particular Fund or Account to which such moneys belong.

#### SECTION 523. Investment of Certain Funds.

(a) Moneys held in the Debt Service Fund, the Subordinated Debt Service Fund, and the Note Payment Fund shall be invested and reinvested by the Trustee to the fullest extent practicable in Investment Securities of the type described in clauses (a), (b), (c), (d), (f), (h), (i), (j), (k), (l) or (m) of the definition of Investment Securities in Section 101, which mature not later than at such times as shall be necessary to provide moneys when needed for payments to be made from such Funds. Subject to Section 510(d) and 511(d) hereof, moneys held in the Debt Service Reserve Fund, the Subordinated Debt Service Reserve Fund, and the Community Obligation and Revenue Enhancement Fund, shall be invested and reinvested by the Trustee to the fullest extent practicable in Investment Securities of the type described in clauses (a), (b), (c), (d), (i), (j), (k), (l) or (m) of the definition of Investment Securities which mature not later than at such times as shall be necessary to provide moneys when needed for payment to be made from such Fund, but in no event later than fifteen years from the date of such investment. Moneys held in any other Fund or Account established under this Resolution may be invested and reinvested in Investment Securities which mature not later than such times as shall be necessary to provide moneys when needed for payments to be made from such Funds. The Trustee shall make all such investments of moneys held by it in accordance with written instructions from any Authorized Representative of the Authority, which may for this purpose include one or more investment advisors designated in writing by such Representative from time to time. In making any investment in any Investment Securities with moneys in any Fund or Account established under this Resolution, the Authority may, and may instruct the Trustee to, combine such moneys with moneys in any other Fund or Account, but solely for purposes of making such investment in such Investment Securities.

(b) Interest (net of that which represents a return of accrued interest paid in connection with the purchase of any investment) and other investment earnings on any moneys or investments in the Funds and Accounts, other than the Construction Fund, the Cost of Issuance Fund, the Operating Fund, the Note Payment Fund, the Debt Service Fund, the Debt Service Reserve Fund, the Subordinated Debt Service Reserve Fund and the Community Obligation and Revenue Enhancement Fund shall be paid into the Revenue Fund on the last Business Day of each month. Interest (net of that which represents a return of accrued interest paid in connection with the purchase of any investment) and other investment earnings on any moneys or investments in the Cost of Issuance Fund, the Operating Fund, the Debt Service Fund, the Subordinated Debt Service Fund and the Note Payment Fund shall be retained in the Fund in which such earnings accrued; provided that the Authority may direct that the earnings on moneys in the Operating Fund may be deposited in the Revenue Fund. Interest (net of that which represents a return of accrued interest paid in connection with the purchase of any investment) and other investment earnings on any moneys or investments in the Construction Fund attributable to the first series of Secured Bonds issued hereunder shall be retained in the Construction Fund. Interest (net of that which represents a return of accrued interest paid in connection with the purchase of any investment) and other investment earnings on any other moneys or investments in the Construction Fund attributable to any subsequent series of Secured Bonds shall be paid on the last Business Day of each month, to the related Subaccounts of the Debt Service Fund (or the Subordinated Debt Service Fund if so specified in the applicable Supplemental Resolution) first to the Interest Account and second to the Principal Account; provided, however, that the Authority may from time to time direct that all or a portion of such earnings may be retained in the Construction Fund for any period of time if there shall be provided to the Trustee a Certificate of an Authorized Officer of the Authority on the date of such direction and on each July 1 thereafter, so long as such direction remains in effect, (i) certifying for the most recent preceding period of twelve consecutive months, Revenues Available for Bond Debt Service were at least equal to the Combined Bond Coverage Requirement and (ii) projecting that Revenues Available for Bond Debt Service will be at least equal to the Combined Bond Coverage Requirement for both the current and, if the period so directed by Authority includes it, the following Fiscal Year. Earnings retained in the Construction Fund will not be included in the calculation of Revenues Available for Bond Debt Service. Interest (net of that which represents a return of accrued interest paid in connection with the purchase of any investment) and other investment earnings on any moneys or investments in the Debt Service Fund, the Debt Service Reserve Fund, and the Community Obligation and Revenue Enhancement Fund shall be paid on the last Business Day of each month, on a pro rata basis based on the required deposits to each Series Subaccount therein pursuant to Section 506(a), first to the Interest Account of the Debt Service Fund and second to the Principal Account of the Debt Service Fund; provided however, that the Authority may direct that investment earnings on any moneys or investments in the Debt Service Reserve Fund or the Community Obligation and Revenue Enhancement Fund may be deposited for such period of time as the Authority may determine in the Revenue Fund or the Construction Fund if the Authority shall obtain a Bond Counsel's Opinion to the effect that such application of earnings shall not adversely affect the exclusion of interest on any Tax Exempt Indebtedness from gross income of the holder for federal income tax purposes. Interest (net of that which represents a return of accrued interest paid in connection with the purchase of any investment) and any other investment earnings on the Subordinated Debt Service Reserve Fund shall be paid on the last Business Day of each month, on a pro rata basis based on the required deposits to each Series Subaccount therein pursuant to Section 506(a), first to the Interest Account of the Subordinated Debt Service Fund and second to the Principal Account of the Subordinated Debt Service Fund; provided, however, that the Authority may direct that investment earnings on any moneys or investments in the Subordinated Debt Service Fund may be deposited for such period of time as the Authority may determine in the Revenue Fund or the Construction Fund if the Authority shall obtain a Bond Counsel's Opinion to the effect that such application of earnings shall not adversely affect the exclusion of interest on any Tax Exempt Indebtedness from gross income of the holder for federal income tax purposes.

(c) Notwithstanding the foregoing provisions of this Section 523, the Authority may direct that investment earnings reasonably expected to be subject to the requirements of Section 148(f) of the Code or the Treasury Regulations applicable thereto may be deposited directly to the Rebate Fund to the extent desirable to comply with the requirements of section 148(f) of the Code or the Treasury Regulations applicable thereto.

(d) All Investment Securities acquired with moneys in any Fund or Account, shall be held by the Trustee in pledge or by a Depositary as agent in pledge in favor of the Trustee in accordance with Section 522 hereof.

(e) Nothing in this Resolution shall prevent any Investment Securities acquired as investments of Funds held under this Resolution from being issued or held in book-entry form on the books of the Department of the Treasury of the United States or the Federal Reserve Bank.


SECTION 524. Valuation and Sale of Investments. Obligations purchased as an investment of moneys in any Fund created under the provisions of this Resolution shall be deemed at all times to be a part of such Fund and any profit realized from the liquidation of such investment shall be credited to such Fund and any loss resulting from the liquidation of such investment shall be charged to such Fund.

In computing the amount in any Fund created under the provisions of this Resolution for any purpose provided in this Resolution, obligations purchased as an investment of moneys therein shall be valued at the amortized cost of such obligations or the market value thereof, whichever is lower. As used herein the term "amortized cost", when used with respect to an obligation purchased at a premium above or a discount below par, means the value as of any given time obtained by dividing the total premium or discount at which such obligation was purchased by the number of days remaining to maturity on such obligation at the date of such purchase and by multiplying the amount thus calculated by the number of days having passed since such purchase; and (i) in the case of an obligation purchased at a premium by deducting the product thus obtained from the purchase price, and (ii) in the case of an obligation purchased at a discount by adding the product thus obtained to the purchase price. Any deficiency resulting from a decrease in the valuation of investments held in the Debt Service Reserve Fund may be disregarded for purposes of calculating deposits required pursuant to Section 506 (but not for purposes of deposits required pursuant to Section 401(b)) provided that the amount on deposit in the Debt Service Reserve Fund is at least 95% of the Debt Service Reserve Fund Requirement. The accrued interest paid in connection with the purchase of any obligation shall be included in the value thereof until interest on such obligation is paid. Such computation shall be made annually on June 30 for all Funds and at such other times as the Authority shall determine or as may be required by this Resolution.

Except as otherwise provided in this Resolution, the Trustee shall sell at the best price obtainable, or present for redemption, any obligation so purchased as an investment whenever it shall be requested in writing by an Authorized Representative of the Authority so to do. Whenever it shall be necessary in order to provide moneys to meet any payment or transfer from any Fund held by the Trustee, the Trustee shall sell at the best price obtainable or present for redemption such obligation or obligations designated by an Authorized Representative of the Authority necessary to provide sufficient moneys for such payment or transfer; provided, however, that if the Authority fails to provide such designation promptly after request thereof by the Trustee, the Trustee may in its discretion select the obligation or obligations to be sold or presented for redemption. The Trustee shall not be liable or responsible for any loss resulting from the making of any such investment or the sale or redemption of any obligation in the manner provided above.



### STAFF SUMMARY

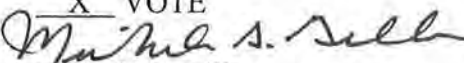
**TO:** Board of Directors  
**FROM:** Frederick A. Laskey, Executive Director   
**DATE:** March 11, 2015  
**SUBJECT:** Adams Street Grade Crossing and Cattlepass Bridge Replacement  
Fore River Railroad  
LM Heavy Civil Construction, LLC  
Contract FRR29

COMMITTEE: Administration, Finance & Audit

Sean R. Cordy, Financial Planner *src*  
Matthew R. Horan, Treasurer *mhr*  
Preparer/Title

           INFORMATION

  X   VOTE

  
Michele S. Gillen

Director of Administration

  
Michael J. Hornbrook

Chief Operating Officer

### RECOMMENDATION:

To approve the award of Contract FRR29, Fore River Railroad Adams Street Grade Crossing and Cattlepass Bridge Replacement, to the lowest responsible and eligible bidder, LM Heavy Civil Construction, LLC, and to authorize the Executive Director, on behalf of the Authority, to execute said contract in the bid amount of \$1,467,000, with a contract term of 555 calendar days from the Notice to Proceed.

### DISCUSSION:

The Fore River Railroad Corporation (FRRC) is a Massachusetts corporation, wholly owned by MWRA, which was acquired in 1987 as part of the purchase of former General Dynamics Quincy Shipyard. The FRRC has been providing freight rail services to the Quincy Point area since 1903 and its current primary customers are the Pelletizing Plant and Twin Rivers Technologies Manufacturing.

Operations on the railroad are conducted by Fore River Transportation Corporation under an agreement with the FRRC. Under the terms of the operating agreement, Fore River Transportation Corporation pays the FRRC 50.5% of its gross revenue. The FRRC uses this revenue to cover its operating and capital costs. The FRRC's revenue in 2014 was approximately \$920,000.

Contract FRR29 contains three projects which are replacement of the Adams Street grade crossing, removal of the Cattlepass Bridge, and repaving at the Quincy Avenue grade crossing.



The Adams Street grade crossing (shown on the right) was put into service in the 1970s and has reached the end of its useful life. The work under this contract will result in a completely new grade crossing, including a new road surface and warning system. The new warning system will include all new signal equipment, such as LED warning lights and crossing gates, which will be a significant safety upgrade. Since the current crossing lacks gates, the train stops prior to crossing Adams Street and a member of the train crew walks into the roadway to ensure traffic has stopped.



This presents a hazard to the train crew member, particularly at night or in stormy weather. The work will also include drainage improvements, adjustments to the profile of the roadway, and utility sleeves to carry Braintree's water and sewer lines under the tracks.

The Cattlepass Bridge (shown in two different views below) was constructed more than 100 years ago and has reached the end of its useful life. The bridge was originally put in place to allow a farmer to access both sides of the property, which had been divided by the railroad right of way. Since there is no longer a need for the original purpose of the bridge, it makes sense to remove it for several reasons. The primary reason is the bridge limits the weight of railcars that can be brought into the shipyard. As railcars are getting larger, this weight limitation could make the current customers less competitive and limit the ability to attract new customers. In addition, there are maintenance and inspection costs and safety concerns associated with the maintenance of the bridge structure. Under this contract, the bridge will be removed and replaced with a culvert. MWRA and the FRRC were awarded a \$324,000 grant from the Massachusetts Department of Transportation's Industrial Rail Access Program to fund a portion of the work.





The remaining portion of this contract is associated with repaving work at the Quincy Avenue grade crossing. The road surface was installed in 2001 and is in need of repair due to wear from the heavy traffic and plowing. Under this contract, the rubber rail seal and pavement within the crossing limits will be replaced. All three of these projects were identified as areas of needed work in the FRRC's most recent track inspection and maintenance work plan.

### **Procurement Process**

Contract FRR29 was advertised and competitively bid in accordance with Massachusetts General Laws, Chapter 30. Bids were received from two contractors and opened on March 4, 2015 with the following results:

<u>Bidders</u>	<u>Bid Price</u>
LM Heavy Civil Construction, LLC	\$ 1,467,000.00
<i>Engineer's Estimate</i>	<i>\$ 1,470,658.00</i>
J.F. White Contracting Co.	\$ 1,636,000.00

The bid price submitted by LM Heavy Civil Construction is \$3,658 or 0.2% lower than the Engineer's Estimate. LM Heavy Civil Construction's qualifications were reviewed, references were checked, and the firm's performance was reviewed on a variety of projects. All reference checks conducted were found to be favorable. LM Heavy Civil Construction, LLC is currently working as a subcontractor for site work on MWRA's Spot Pond Covered Storage project.

MWRA and STV, Inc., the Design Engineer, have determined that LM Heavy Civil Construction's bid meets all requirements of the bid documents, and that the bid price is reasonable, complete, and includes the payment of prevailing wage rates. MWRA and STV, Inc. are of the opinion that LM Heavy Civil Construction possesses the skill, ability, and integrity necessary to perform the work under this contract, and is qualified to do so. Therefore, staff recommend the award of this contract to LM Heavy Civil Construction, LLC as the lowest responsible and eligible bidder.

### **BUDGET/FISCAL IMPACT:**

These projects will be constructed using a combination of grant and FRRC funds. Funding for this project is included in the FRRC's approved 2015 Capital Improvement Plan.

### **MBE/WBE PARTICIPATION:**

There were no MBE/WBE requirements established for this contract due to the specialized nature of the work



# MASSACHUSETTS WATER RESOURCES AUTHORITY

Charlestown Navy Yard  
100 First Avenue, Building 39  
Boston, MA 02129

Frederick A. Laskey  
Executive Director

Telephone: (617) 242-6000  
Fax: (617) 788-4899  
TTY: (617) 788-4971

## **WASTEWATER POLICY & OVERSIGHT COMMITTEE MEETING**

*Chair:* J. Walsh  
*Vice-Chair:* P. Flanagan  
*Committee Members:*  
J. Carroll  
J. Foti  
A. Pappastergion  
H. Vitale

to be held on

Wednesday, March 11, 2015

Location: 100 First Avenue, 2nd Floor  
Charlestown Navy Yard  
Boston, MA 02129

Time: Immediately following AF&A Comm.

### **AGENDA**

#### **A. Information**

1. Progress of Cambridge-Implemented CSO Projects and Projected Financial Assistance through September 2015

#### **B. Approvals**

1. Final CSO Annual Progress Report for 2014

#### **C. Contract Awards**

1. Modeling Massachusetts Bay Water Quality 2014-2016: University of Massachusetts/Dartmouth, Contract OP-272
2. Purchase Order for Three Jet/Sewer Cleaning Machines: Boston Freightliner, Inc., Bid WRA-3971

#### **D. Contract Amendments/Change Orders**

1. Pump, Gear Box, and Diesel Engine Upgrade, Prison Point and Cottage Farm CSO Facilities: IPC Lydon, LLC, Contract 7452, Change Order 7
2. Operation and Maintenance of Sludge Processing Facility - Fore River Pelletizing Plant: New England Fertilizer Co., Contract S345, Amendment 1



MASSACHUSETTS WATER RESOURCES AUTHORITY

Meeting of the  
Wastewater Policy and Oversight Committee

January 14, 2015

A meeting of the Wastewater Policy and Oversight Committee was held on January 14, 2015 at the Authority headquarters in Charlestown. Chairman Walsh presided. Present from the Board were Ms. Wolowicz and Messrs. Cotter, Flanagan, Foti, Pappastergion and Vitale. Among those present from the Authority staff were Fred Laskey, Steve Remsberg, Carolyn Fiore, John Riccio, Steve Rhode, Cori Barrett, John Vetere, and Bonnie Hale. The meeting was called to order at 11:00 a.m.

**Information**

2013 Deer Island Outfall Monitoring Overview

This presentation was referred to the full Board.

Ebola Preparedness Update

Staff briefed the Board on events that had taken place and additional information learned regarding preparedness for a potential Ebola virus outbreak since the last update in the Fall of 2014.

Co-Digestion Update (verbal)

Staff reported that the program was currently in limbo and that MWRA was in the process of setting up a meeting with the new head of the state Department of Environmental Protection concerning the details of processing food waste in the Deer Island digesters.

**Contract Amendments/Change Orders**

\*Nut Island Headworks Electrical and Conveyors Improvements: J.F. White Contracting Co., Contract 7313, Change Order 5


Staff gave a presentation on the project, and there was question and answer. The Committee recommended approval of Change Order 5 (ref. agenda item B.1).

The meeting adjourned at 11:20 a.m.

\* Approved as recommended at January 14, 2015 Board of Directors meeting.



## STAFF SUMMARY

**TO:** Board of Directors  
**FROM:** Frederick A. Laskey, Executive Director   
**DATE:** March 11, 2015  
**SUBJECT:** Progress of Cambridge-Implemented CSO Projects and Projected Financial Assistance through September 2015

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COMMITTEE: Wastewater Policy & Oversight

Anandan Navanandan, P.E., Chief Engineer  
David A. Kubiak, P.E., Sr. Program Manager  
Preparer/Title

X INFORMATION  
VOTE

  
Michael J. Hornbrook  
Chief Operating Officer

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### RECOMMENDATION:

For information only. This staff summary presents the status of the projects in the Long-Term CSO Control Plan that are funded in part by MWRA and implemented by the City of Cambridge. Staff plan to transfer \$8,846,510.02 into the City of Cambridge CSO account to cover MWRA's cost share of eligible work scheduled by Cambridge in the period April 2015 through September 2015, bringing the total amount of MWRA funds transferred into the Cambridge CSO account to \$80,531,490.

### DISCUSSION:

Pursuant to the terms of the CSO Memorandum of Understanding and Financial Assistance Agreement ("MOU" and "FAA"), Cambridge is responsible for implementing four of the six projects that comprise the MWRA's long-term control plan for Alewife Brook (see maps, Attachments 2 and 3), as well as a project Cambridge completed in 2007 that eliminated CSO discharges or provided floatables control for remaining discharges at the City's CSO outfalls along the Charles River. The MOU and FAA were originally executed in 1996, and the total award amount in the agreements through Amendment 11, executed on January 2, 2014, is \$93,403,787. Table 1, on the following page, presents a description of each of the six Alewife Brook CSO projects, as well as implementation status.

CAM004 Sewer Separation is the only Cambridge-implemented CSO project that is not yet complete. This project is the core of MWRA's plan to control CSO discharges to Alewife Brook. It will remove large quantities of stormwater from Cambridge's and MWRA's sewer systems, allow Cambridge to close Outfall CAM004 and, together with the other five Alewife Brook CSO projects, reduce annual CSO volume to the Alewife Brook by 85% in a typical year, from 50 million gallons under 1997 system conditions to 7.3 million gallons. CSO activations in a typical year will be reduced from 63 in 1997 to seven.

**Table 1: Alewife Brook CSO Control Plan Projects and Status**

Project	Cambridge Contract No.	Benefit	Project Status
CAM004 Stormwater Outfall and Wetland Basin	12	Convey stormwater flows to wetland system for attenuation and treatment.	Completed Apr 2013
CAM004 Sewer Separation	8A, 8B, 9 & Concord Lane	Remove large quantities of stormwater from the sewer system; Close Outfall CAM004.	8A: substantially complete 8B: 77% complete 9: 58% complete Concord Lane: bids received
CAM400 Manhole Separation	4/13	Remove stormwater from the sewer system; eliminate CSO at Outfall CAM400.	Completed Mar 2011
Interceptor Connection Relief and Floatables Control at CAM002 and CAM401B and Floatables Control at CAM001		Upgrade connections between Cambridge and MWRA systems to provide relief; add floatables control.	Completed Oct 2010
MWR003 Control Gate and Rindge Ave. Siphon Relief	MWRA Contracts	Optimize hydraulic conveyance; minimize overflows while controlling system flooding in large storms.	40% complete
Interconnection Relief and Floatables Control at Outfall SOM01A		Upgrade connection to MWRA system and provide floatables control.	Completed Dec 2013

CAM004 Sewer Separation Progress

Remaining work on the CAM004 Sewer Separation project involves four major construction contracts, all presently underway. The contracts primarily include the installation of new storm drains in a 211-acre area of neighborhoods along and near Huron and Concord avenues, east of Fresh Pond Parkway (see map, Attachment 2). Cambridge is managing the work of all four contracts and related extensive utility relocations and traffic management to complete all CSO-related construction by December 2015, in compliance with Schedule Seven.

Storm drain and sanitary sewer installations in Cambridge’s Contract 8A (Huron Ave. West), which commenced in September 2012, are substantially complete. Surface restoration work and plantings, not directly related to CSO control, will continue into the spring of 2015.

Cambridge issued the Notice to Proceed for Contract 8B (Huron Ave. East) in September 2013, and the contract is approximately 77% complete. The contractor has completed sewer and/or drain installations on Blakeslee, Chilton, Fayerweather, Gurney, Reservoir, Saville and Walden streets, Appleton, Dunstable and Granville roads, Lincoln and Vassal lanes and Royal Avenue. The contractor continues to install sewers and/or drains on Huron and Manassas avenues and Appleton and Hutchinson streets.

Severe winter weather in late 2013 and early 2014 and private utility relocation delays compromised the contractor’s original schedule and led to the need for a recovery schedule. The contractor’s recovery schedule and related cost increases were approved by Cambridge and MWRA in the fall of 2014, and the contractor has since been able to meet the recovery schedule. The new schedule re-sequences the remaining work to allow the contractor to complete Contract 8B’s CSO related “Milestone 1” work (primarily sewer and drain installations) by the original



contract milestone of September 20, 2015, and extends the contract term by 103 days, shifting non-CSO related Milestone 2 work (primarily surface restoration) from September 2016 to December 2016.

The CSO-related work of Contract 8B must be complete by September 2015 to allow a 3-month window for the Contract 9 contractor to complete subsequent, related sewer and storm drain work by December 2015 in compliance with Schedule Seven. NStar has completed the necessary gas line relocations in the Contract 8B area. While Cambridge believes that the contractor's ongoing progress allows for attainment of Milestone 1 by September 2015 and completion of the CAM004 sewer separation project by the Schedule Seven milestone, the contract schedule has no float, and Cambridge and MWRA are paying close attention to construction progress compared to contract time in reviewing the contractor's monthly reports.



**Reservoir Street 18-inch Sewer Installation  
CAM004 Sewer Separation Contract 8B**



**Concord Avenue Drain Installation  
Cambridge Sewer Separation Contract 9**

Cambridge issued the Notice to Proceed for Contract 9 (Concord Ave.) in February 2014, and the contract is approximately 58% complete. The contractor has completed sewer and/or drain installations on Copley, Fayerweather, Saville and Walden streets, Corporal Burns Road and Concord Avenue. The installation of sewers and/or drains remains to be completed on Bay State Road, and Alpine, Birch, Chilton, Fern, Field, Garden, Hazel and Ivy streets. NStar has completed the relocation of gas lines on most streets in the Contract 9 area, with only Garden and Walden streets remaining. Cambridge expects Contract 9 to be substantially complete by December 2015, in compliance with Schedule Seven, assuming effective implementation of the Contract 8B recovery schedule.

Cambridge had been unable to include in Contract 9 the originally planned contract work along Concord Lane, a short private way serving commercial properties, because Cambridge was unable to secure right of entry for design investigations. With assistance from MWRA, Cambridge was able to secure rights of entry that allowed it to complete field, utility and building surveys, soil borings and the installation and monitoring of observation wells and provide for a future right of entry for construction. Cambridge received construction bids in December 2014 and expects to issue the Notice to Proceed for the Concord Lane construction contract in March 2015.



Despite work delays associated with the recent severe winter weather, Cambridge continues to expect to complete all of the CSO-related work of the four CAM004 Sewer Separation contracts by December 2015, in compliance with Schedule Seven. While cost estimates for the various contracts have increased due to change orders and the recent Concord Lane low bid amount, the higher costs are covered by contingency funds in the Board authorized MOU/FAA award amount.

### **MWRA Oversight and Financial Assistance**

The FAA establishes eligible and ineligible costs. Generally, all reasonable force account and contract costs incurred by Cambridge as a direct result of implementing the CSO projects are funded by MWRA. The FAA calls for MWRA to disburse grant funds to Cambridge semiannually, based on a detailed, documented estimate of work progress and eligible costs for each projected six-month period. MWRA's review and acceptance of the spending estimate is required prior to disbursement of funds to the Cambridge CSO account.

Staff continue to review the scope and costs of engineering and construction contracts that are issued by Cambridge, including amendments and change orders. Staff also maintain regular contact with Cambridge staff, hold monthly coordination meetings, and routinely review the progress of the Cambridge projects and expenditures. Cambridge submits semi-annual reports that describe actual work progress and expenditures (force account and contract-related) for each project.

MWRA's Internal Audit Department reviews Cambridge's compliance with the terms and conditions of the FAA. The latest audit, completed in April 2013, reviewed whether force account costs claimed by the City for years 2010 through 2011 were supported by the records of the City and were eligible for MWRA funding under the terms of the FAA. The audit determined a net amount of \$1,657.95 being owed to the City from the CSO account. The Internal Audit Department is presently reviewing Cambridge's consultant and contractor invoices for years 2009 through 2013.

### Funding and Eligible Expenditures through March 2015

Cambridge pays the eligible costs of the project from a general city account and periodically reimburses its general account from the CSO account. Since execution of the MOU and FAA in 1996, MWRA has transferred a total of \$71,684,979.98 to Cambridge's CSO account to cover eligible design and construction costs through March 2015. In addition, the FAA allows Cambridge to use accumulated interest in the account to fund eligible costs.

The estimated eligible cost incurred by Cambridge from MOU/FAA inception through March 2015 is \$71,668,876.22 and the estimated available balance in the CSO account as of the end of March 2015 is \$67,512.04, which includes \$43,893.39 interest earned in the period October 2014 through March 2015.

Staff are closely monitoring Cambridge's spending and regularly coordinating the review with Cambridge staff to ensure that spending (and the work) remain on schedule to meet the December 2015 Schedule Seven milestone.



## MWRA Funding through September 2015

Cambridge recently submitted a projected work progress report and estimate of eligible contract and force account spending for the period April 2015 through September 2015. Over this period, Cambridge will continue with construction and construction supervision services for contracts 8A, 8B, 9 and Concord Lane and will closeout contracts 4/13 and 12.

Staff plan to transfer \$8,846,510.02 into the Cambridge CSO account to cover eligible costs through September 2015. This transfer amount includes Cambridge's estimate of \$8,395,172.00 for eligible work in the period April 2015 through September 2015 and \$518,850.06 in retainage on Contract 8A that Cambridge expects to release in the next few months, less the estimated balance in the account as of March 31 of \$67,512.04. Table 2, in Attachment 1, shows a breakdown of previously transferred funds and the pending transfer.

### **BUDGET/FISCAL IMPACT:**

The approved FY15 CIP budget includes \$91,973,845 for design and construction of the Cambridge CSO projects. Sufficient funds are available in the budget for this transfer payment.

### **MBE/WBE PARTICIPATION:**

In accordance with the MOU, MBE and WBE participation in the Cambridge Sewer Separation and Floatable Controls projects will comply with DEP requirements and City of Cambridge policy.

### **ATTACHMENTS:**

- Attachment 1 – Table 2: Breakdown of MWRA Fund Transfer by Contract and Activity
- Attachment 2 – Map of Alewife Brook CSO Control Plan (1 of 2)
- Attachment 3 – Map of Alewife Brook CSO Control Plan (2 of 2)

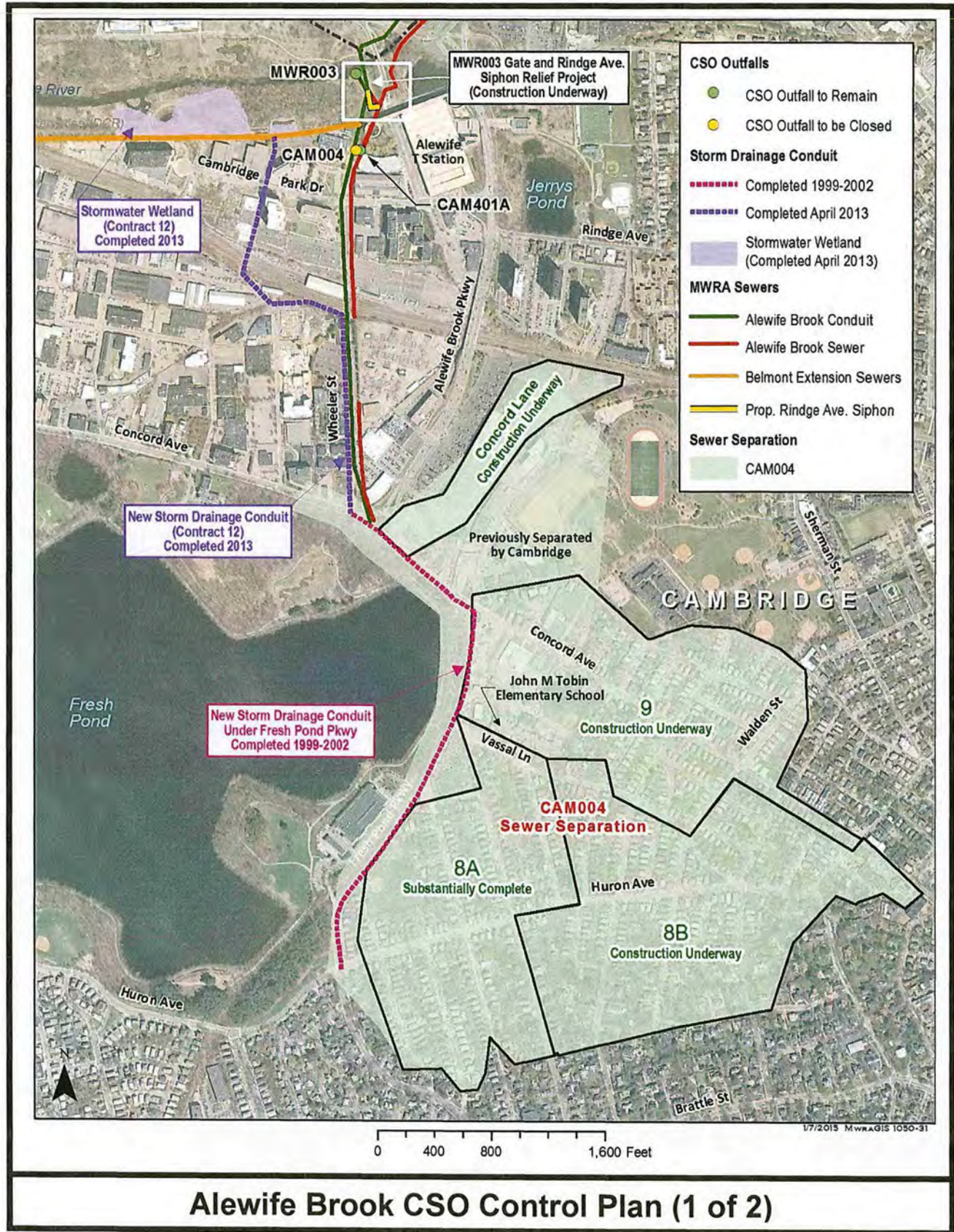
## Attachment 1

**Table 2: Breakdown of MWRA Fund Transfer by Contract and Activity**

Engineering Services and Construction Contracts	Funds Previously Provided	Pending Transfer for Apr-15 thru Sep-15	Funding through Sep-2015
Preliminary/Final Design for Contracts 1, 2A, 2B and 3	\$ 1,650,270.00		\$ 1,650,270.00
Construction Phase Services for Contracts 1, 2A, 2B and 3	\$ 1,787,068.00		\$ 1,787,068.00
CAM002-004 Sewer Separation (Contracts 1, 2A, 2B and 3)	\$ 10,411,903.37		\$ 10,411,903.37
Final Design/Field Investigations for Contracts 8, 9, and 12 (including Notice of Project Change and Supplemental Design Reports)	\$ 1,498,117.38		\$ 1,498,117.38
Design/ESDC Floatables & CAM400 Manhole Separation Contract 4/13	\$ 2,113,462.70		\$ 2,113,462.70
Design 8A, 8B, 9 & Concord Lane	\$ 4,693,067.20	\$ 113,594.00	\$ 4,806,661.20
ESDC 8A, 8B, 9 & Concord Lane	\$ 6,256,503.78	\$ 1,399,301.28	\$ 7,655,805.06
Final Design 12	\$ 3,924,885.60		\$ 3,924,885.60
ESDC Contract 12	\$ 3,884,035.59	\$ 69,197.00	\$ 3,953,232.59
Construction of Floatables Controls (Charles and partial Alewife)	\$ 658,639.00		\$ 658,639.00
Construction/Police Contract 4/13	\$ 4,931,118.39	\$ (3,693.38)	\$ 4,927,425.01
Construction/Police Contract 12	\$ 5,456,466.37	\$ 70,675.99	\$ 5,527,142.36
Easements Contract 12	\$ 289,000.00		\$ 289,000.00
Construction 8A	\$ 10,875,408.30	\$ 1,290,298.95	\$ 12,165,707.25
Construction 8B	\$ 10,213,274.32	\$ 3,831,989.52	\$ 14,045,263.84
Construction 9	\$ 779,635.22	\$ 384,475.78	\$ 1,164,111.00
Construction Concord Lane		\$ 1,488,055.00	\$ 1,488,055.00
Police 8A, 8B, 9 & Concord Lane	\$ 1,367,013.50	\$ 214,218.51	\$ 1,581,232.01
City of Cambridge Force Account/Expenses	\$ 938,489.82	\$ 32,290.76	\$ 970,780.58
Interest	\$ (43,378.56)	\$ (43,893.39)	\$ (87,271.95)
Total	\$ 71,684,979.98	\$ 8,846,510.02	\$ 80,531,490.00

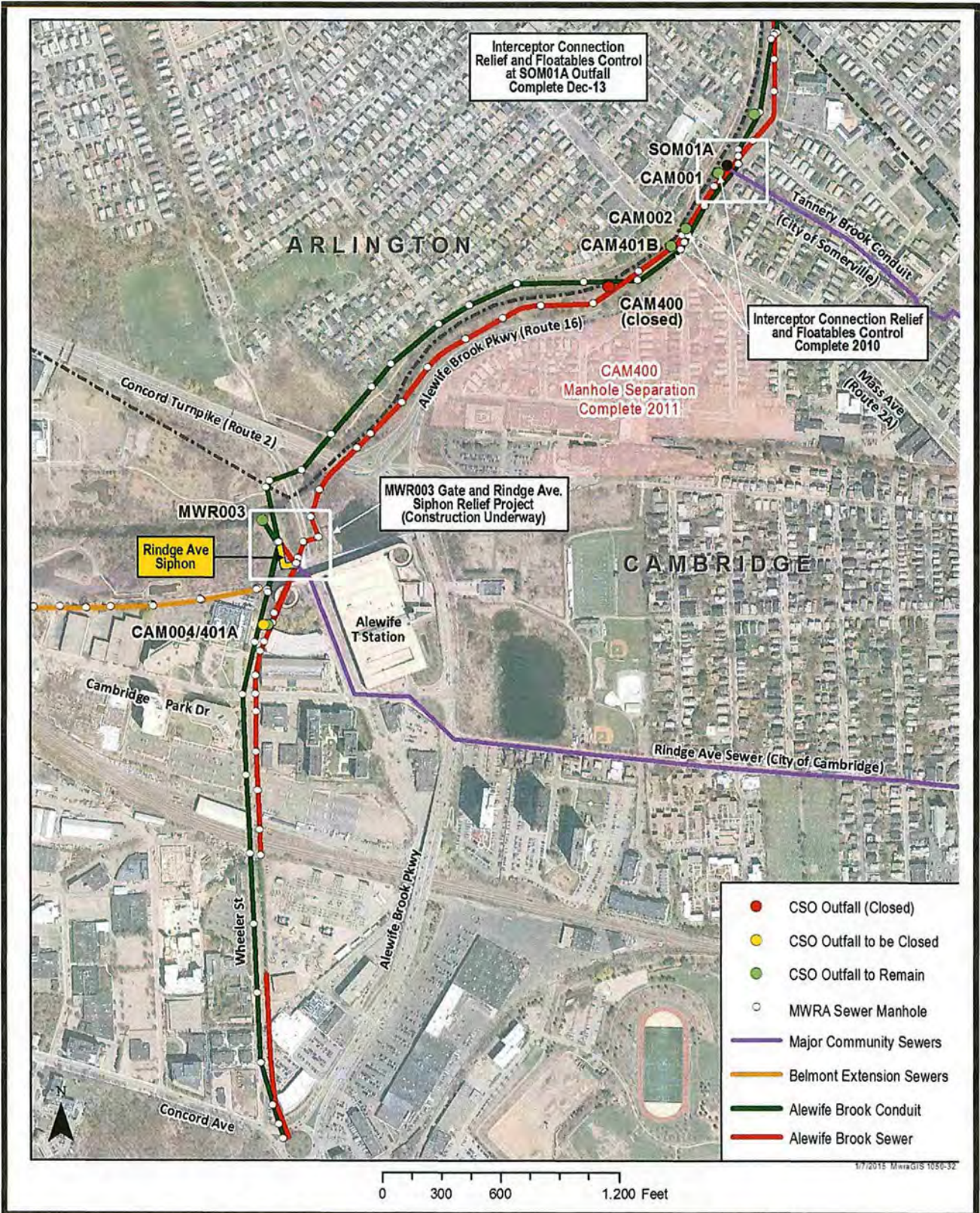


# Attachment 2





# Attachment 3



**Alewife Brook CSO Control Plan (2 of 2)**





**Commencement of construction of the Control Gate and Floatables Control at Outfall MWR003 and MWRA Rindge Avenue Siphon Relief project:** MWRA issued the Notice to Proceed for the \$2.7 million construction contract on August 28, 2014, ahead of the September milestone in Schedule Seven. This is the last of the 35 projects in the Long-Term Control Plan to move into construction. The project is located adjacent to the MBTA Alewife Station in Cambridge and is one of six projects in the plan that will control CSO discharges to Alewife Brook. Construction is 40% complete, and all work is scheduled to be complete by the October 2015 milestone in Schedule Seven.



**48-Inch Diameter Replacement Siphon  
at Outfall MWR003**



**Modifications to CSO Regulator Structure RE031  
at Outfall MWR003**

**Continued progress with construction of the \$71.8 million CAM004 Sewer Separation project:** The City of Cambridge has attained substantial completion of the CSO related work in the \$17.8 million Contract 8A (Huron A), 77% completion of the CSO related work in the \$31.2 million Contract 8B (Huron B) and 58% completion of the CSO related work in the \$24.4 million Contract 9. In December 2014, Cambridge advertised the construction contract for sewer separation along Concord Lane, the last of the sewer separation contracts to complete this project, and expects to issue the Notice to Proceed in March. All four contracts are on schedule for substantial completion by December 2015, in compliance with Schedule Seven. The project will reduce CSO discharges to the Alewife Brook and close Outfall CAM004.



**Reservoir Street 18-inch Sewer Installation  
CAM004 Sewer Separation Contract 8B**



**Blakeslee Street Drain Installation Under Water Main  
CAM004 Sewer Separation Contract 8B**





**Sheeting for Drain MH on Concord Avenue  
Cambridge Sewer Separation Contract 9**



**Concord Avenue Drain Installation  
Cambridge Sewer Separation Contract 9**

**Continued progress with construction of the \$72.6 million Reserved Channel Sewer Separation project:** This project includes nine construction contracts. BWSC attained substantial completion of the \$13.7 million Contract 3B in November 2014 and expects to attain substantial completion of the \$13.9 million Contract 4 in March. BWSC previously completed an outfall rehabilitation contract (Contract 1), two major sewer separation contracts (contracts 2 and 3A) and the first of two street paving contracts (Contract 7). Contract 8, the second street paving contract, is 50% complete. In 2014, BWSC also issued Notices to Proceed for the last two construction contracts: the \$4.8 million Contract 5 for cleaning and lining of older BWSC sewers in the Reserved Channel area and the \$210,660 Contract 6 for disconnection of roof drain downspouts from the sewer system in the project area. All remaining work is on schedule for completion by December 2015, in compliance with Schedule Seven.



**48-inch Storm Drain Installation on E. Third Street  
Reserved Channel Sewer Separation Contract 3B**



**48-inch Storm Drain Installation on L Street  
Reserved Channel Sewer Separation Contract 4**

With the work described above, MWRA and the CSO communities installed 47,554 linear feet (9.0 miles) of new storm drain and sanitary sewer in the communities of Boston and Cambridge in 2014. Since 1996, when CSO construction efforts began, approximately 497,500 linear feet (94.2 miles) of new storm drain and sanitary sewer have been installed under the Long-Term Control Plan.



Since the beginning of MWRA's CSO control planning efforts in the late 1980s, MWRA and the CSO communities have eliminated or virtually eliminated (i.e. 25-year storm level of control) CSO discharges at 38 of the 84 outfalls addressed in the Long-Term Control Plan, more than the number of outfalls recommended for closure in the plan and mandated in the Federal Court Order. On December 4, 2014, the City of Chelsea permanently closed Outfall CHE002 to CSO discharges following the City's completion of a sewer separation project that was outside the scope of the Long-Term Control Plan. The outfall now serves as a city stormwater discharge.

Four outfalls were previously closed by BWSC and the City of Cambridge – East Boston outfalls BOS006 and BOS007 to Boston Inner Harbor and Cambridge outfalls CAM009 and CAM011 to the Charles River Basin – also through efforts outside the scope of the Long-Term Control Plan. Of the 34 outfalls recommended for closure in the Long-Term Control Plan, only Outfall CAM004 to Alewife Brook remains active, and Cambridge plans to close this outfall with completion of the CAM004 Sewer Separation project in December 2015.

### **Court Schedule Compliance and Risks**

MWRA met all three of the calendar year 2014 milestones in Schedule Seven. MWRA filed the CSO Annual Progress Report for 2013 on March 14, 2014; achieved substantial completion of the Interceptor Connection Relief and Floatables Controls at Outfall SOM01A project on December 27, 2013, ahead of the June 2014 milestone; and issued Notice to Proceed for construction of the Control Gate and Floatables Control at Outfall MWR003 and MWRA Rindge Avenue Siphon Relief project on August 28, 2014, ahead of the September 2014 milestone.

As mentioned above, the three remaining CSO projects now in construction are presently on schedules that give an assurance of compliance with their respective completion milestones in 2015. At the same time, all three projects are subject to the risks commonly associated with the construction of major subsurface infrastructure projects in dense urban areas, including but not limited to unforeseen subsurface conditions and traffic impact mitigation. All three projects involve work in areas with congested utilities, and the two sewer separation projects have required extensive utility relocations and have been subject to work and cost increases due to utility conflicts discovered during construction that were not anticipated during design. Winter weather conditions have also affected production rates, but so far not seriously.

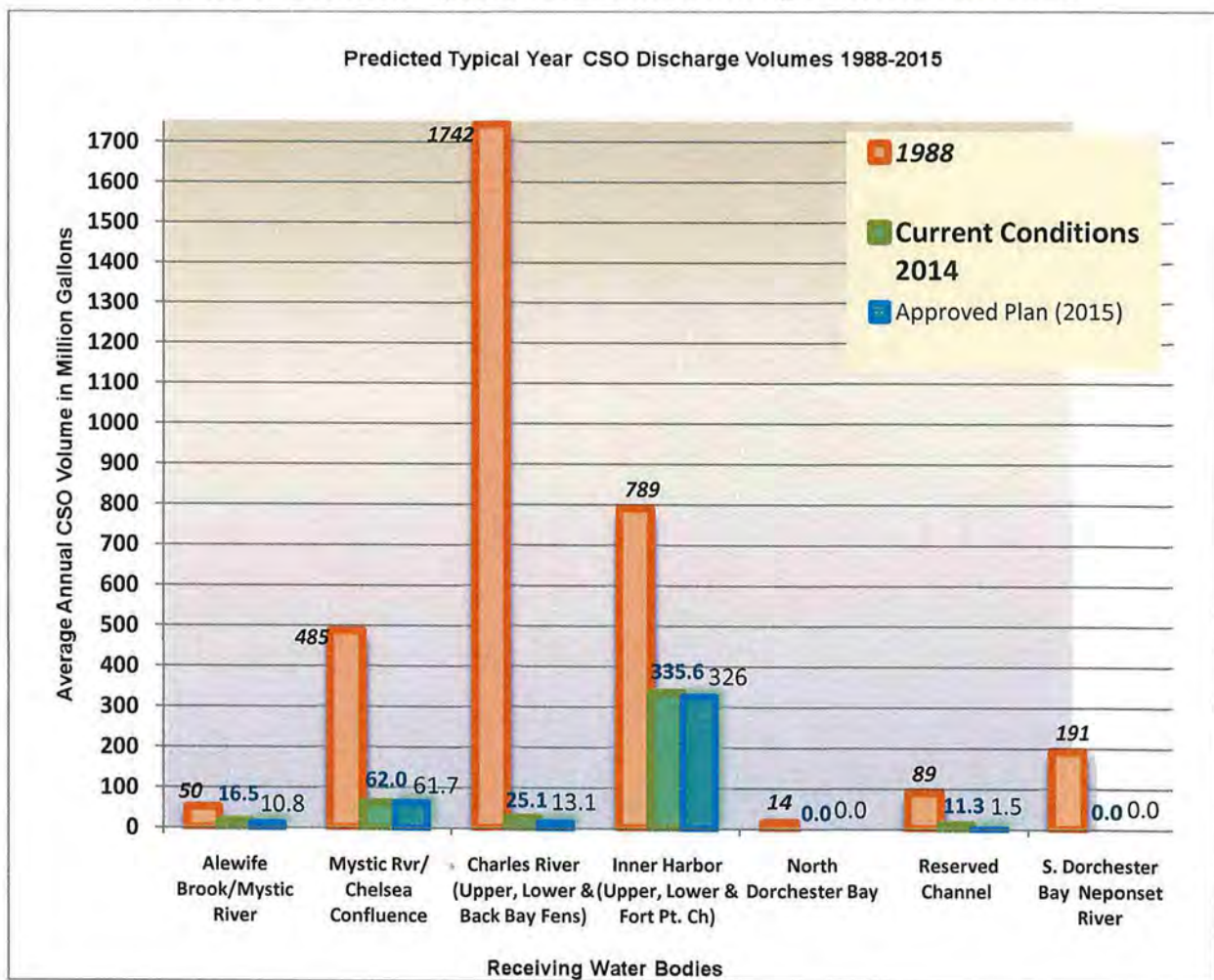
The risks are especially significant for the CAM004 sewer separation project, due to the potential for greater traffic and utility conflicts, the number of contracts and work locations simultaneously underway, and the amount of work that must be accomplished by December 2015. Furthermore, Cambridge has reported that all remaining work activities of Contract 8B, Contract 9 and Concord Lane are on the critical path, with no float time. The City of Cambridge and MWRA are jointly monitoring monthly construction progress on all three contracts in an attempt to ensure that the contract work remains on schedule. This is particularly important for Contract 8B, for which Cambridge issued, and MWRA authorized, a costly construction change order in the fall of 2014 for a recovery schedule after delays caused by Winter 2014 conditions and delays in the relocation of private utilities by others.

## Progress Toward CSO Goals

Figure 1 shows CSO reduction to date and the federal court-mandated long-term levels of control by receiving water. The levels of control to be achieved at each CSO outfall are defined in the Second CSO Stipulation in the Federal Court Order, as amended on May 7, 2008. The Long-Term CSO Control Plan is intended to reduce CSO discharge volume from 3.3 billion gallons in 1988 to 0.4 billion gallons when the plan is fully implemented in 2015, an 88% reduction, with 93% of the remaining discharge volume receiving treatment at MWRA's four CSO treatment facilities, at Cottage Farm, Prison Point, Somerville Marginal, and Union Park.

Figure 1 also shows that with 32 of 35 CSO projects already complete, along with the major improvements to MWRA's transport and treatment systems from 1989 to 2002, average annual volume of CSO discharge has been reduced from 3.3 billion gallons in 1988 to 0.45 billion gallons today, an 86% reduction, with 89% of the average annual discharge volume receiving treatment at MWRA's four long-term CSO facilities.

**Figure 1: Predicted Typical Year CSO Discharge Volumes 1988-2015**





These new discharge estimates are from MWRA's InfoWorks collection system model simulations of end-of-year 2013 system conditions that were reported to the United States Environmental Protection Agency (EPA) and the Massachusetts Department of Environmental Protection (DEP) on April 30, 2014, in compliance with conditions in the CSO variances for the Lower Charles River/Charles Basin and the Alewife Brook/Upper Mystic River.

The current estimate of remaining average annual discharge volume (0.45 billion gallons) is 50 million gallons less than last year's estimate (0.50 billion gallons), primarily due to:

- Completion of Brookline Sewer Separation by Town of Brookline and the effect it had in reducing treated discharges to the Charles River Basin at the Cottage Farm facility;
- Completion of Reserved Channel Sewer Separation Contract 3A by BWSC, which reduced CSO discharges at Outfall BOS076;
- Completion of sewer separation projects by BWSC in East Boston and Roxbury (outside the scope of MWRA's CSO plan) that reduced CSO discharges to Boston Inner Harbor Outfall BOS004 and Fort Point Channel Outfall BOS070; and
- Modification of operational protocols at the Union Park detention/treatment facility by BWSC and MWRA's contract operator that increased capture of CSO in the detention basins and lowered treated discharges to Fort Point Channel.

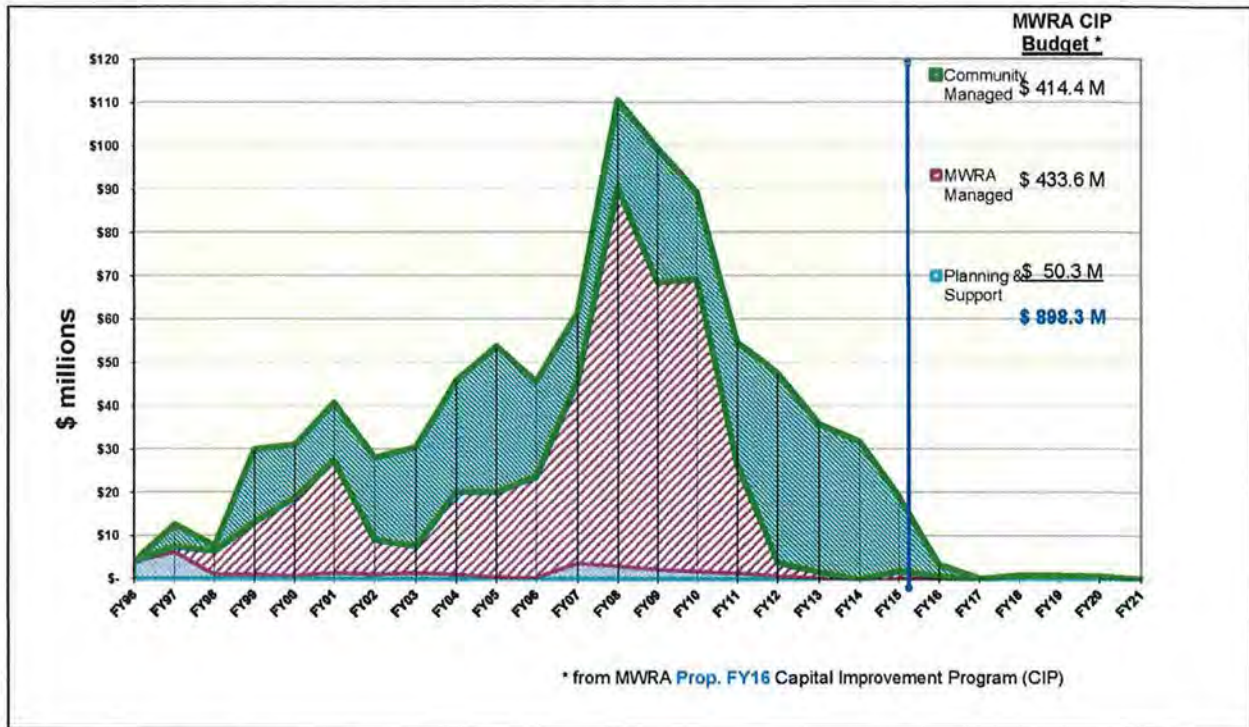
#### **CSO Spending in 2014**

MWRA spent \$22.1 million in calendar year 2014 to implement the CSO projects and fund the eligible CSO work of MWRA, BWSC, Cambridge and Brookline. All of this cost was for construction activity, except for a small amount of design spending related to Cambridge's Concord Lane sewer separation contract and completion of design for MWRA's project at Outfall MWR003.

Spending in 2014 brought MWRA's total capital expenditure for the CSO control program to \$866.4 million (96%) of the \$898.3 million CSO budget in the Proposed FY16 Capital Improvement Program (CIP). With only three of the 35 projects not yet complete and those three projects now well into construction, CSO program activity and spending will continue to wind down from the highest calendar year spending of \$128.1 million in 2008. As shown in Figure 2 on the following page, the Proposed FY16 CIP estimates fiscal year spending on CSO control of \$23.7 million in FY15, \$13.7 million in FY16 (including the completion of all three projects by December 2015), and \$4.1 million in FY17 when the last CSO construction related activity eligible for MWRA funding, primarily surface restoration work by BWSC and the City of Cambridge, is scheduled to be complete. The CIP also includes funds beyond FY17 for the court-mandated three-year verification assessment which Schedule Seven requires MWRA to commence by January 2018. Schedule Seven requires MWRA to submit a report on the results of the assessment by December 2020.



**Figure 2: MWRA CSO Program Capital Budget and Spending (1996-2021)**



**BUDGET/FISCAL IMPACT:**

The FY15 CIP and Proposed FY16 CIP include \$892.4 million and \$898.3 million, respectively, for the CSO Control Program. In the Proposed FY16 CIP, projected capital spending on the CSO control plan is \$45 million in the period FY15 through FY21, when MWRA is required by the last CSO milestone in Schedule Seven to submit a system performance assessment verifying attainment of the long-term levels of control. As shown in Figure 2 below, fiscal year spending on CSO control peaked in FY08 at \$110.5 million (calendar year spending peaked in 2008 at \$128.1 million) and will continue to wind down as the few remaining CSO projects are completed.

Most of the CSO construction contracts, managed by MWRA or the CSO communities, have been funded under the State Revolving Loan Fund program.

**MBE/WBE PARTICIPATION:**

MBE and WBE participation requirements are included in the various design and construction contracts managed by MWRA and the CSO communities.



# Massachusetts Water Resources Authority



## Combined Sewer Overflow Control Plan



## Annual Progress Report 2014

March 2015

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Prepared by: David A. Kubiak, P.E.  
Nadine S. Smoske  
Christopher Lam

Cover:

Thirty-two of the 35 projects in MWRA's approved Long-Term CSO Control Plan are complete and are performing as intended. The three remaining projects are well into construction and will be complete by December 2015, in compliance with respective milestones in the Federal District Court's Schedule Seven. They are (clockwise, from upper left): Reserved Channel Sewer Separation managed by Boston Water and Sewer Commission; Gate, Siphon Relief and Floatables Control at Outfall MWR003 managed by MWRA; and CAM004 Sewer Separation managed by City of Cambridge



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## INTRODUCTION

The Massachusetts Water Resources Authority (MWRA) files this Combined Sewer Overflow Annual Progress Report for 2014 in compliance with Schedule Seven of the Federal District Court's Boston Harbor Case (U.S. v. M.D.C, et al., No. 85-0489-RGS). Schedule Seven requires annual and quarterly reports on the progress of MWRA's approved plan to control combined sewer overflows ("CSO") to surface waters in the metropolitan Boston area (the "Long-Term Control Plan"). The reports describe the progress of work to implement the Long-Term Control Plan relative to milestones in the Court-ordered schedule.

This Annual Report reviews key CSO control accomplishments and design and construction progress in calendar year 2014 and in the quarterly period December 16, 2014, to March 13, 2015, and discusses known issues that have the potential to affect MWRA's ability to complete the CSO projects on schedule. Like previous annual CSO reports, it also presents information on the scope, goals, benefits and updated costs of the Long-Term Control Plan and its projects, as well as information on plan-wide progress to date and benefits achieved, including reductions in CSO discharges and impacts. In addition, the Annual Report presents updated general water quality conditions in Boston Harbor and other area waters affected by CSOs.

The Long-Term Control Plan as mandated by the Federal Court comprises 35 wastewater system improvement projects to bring CSO discharges at 84 outfalls in the metropolitan Boston area into compliance with the Federal Clean Water Act and Massachusetts Surface Water Quality Standards. Design and construction milestones for each of the 35 projects are set forth in Schedule Seven. Figure 1 on pages 2-3 maps the locations of the 35 projects and presents the implementation status of each project. Figure 2 on page 4 summarizes the scope, schedule and predicted benefits of the Long-Term Control Plan.

The court order also requires MWRA to achieve specific, numerical long-term levels of control at each of the CSO outfalls. For certain outfalls, such as the outlet of the Dorchester Brook Conduit to Fort Point Channel (Outfall BOS070) and the Charles River Basin outfalls related to MWRA's Cottage Farm CSO Facility (outfalls MWR201, CAM005, CAM007, CAM009 and CAM011), MWRA member communities with CSOs (Boston Water and Sewer Commission and the cities of Cambridge, Chelsea and Somerville (the "CSO communities")) are implementing system improvements that supplement the 35 stipulated projects to help bring CSO discharges into compliance with the approved long-term levels of control, further improve system wet-weather performance, and/or gain additional CSO control. These are also discussed in this report.

## 2. CSO CONTROL PROGRESS

### 2.1 2014 Progress Highlights and Accomplishments

In 2014, MWRA and its CSO communities continued to implement the Long-Term Control Plan and comply with the Federal Court-ordered obligations defined in Schedule Seven and in the March 15, 2006, Second Stipulation of the United States and the Massachusetts Water Resources Authority on Responsibility and Legal Liability for Combined Sewer Overflows, as amended by the Federal District Court on May 7, 2008<sup>1</sup> (the "Second CSO Stipulation"). MWRA spent \$22.1 million in 2014 to implement CSO projects and fund the eligible CSO work by BWSC and the City of Cambridge. Nearly all of this spending was for construction related activities. MWRA and the CSO communities achieved the following CSO control milestones and progress in 2014:

- **Commencement of construction of the Control Gate and Floatables Control at Outfall MWR003 and MWRA Rindge Avenue Siphon Relief project.** On August 28, 2014, in advance of the corresponding milestone in Schedule Seven, MWRA issued the Notice to Proceed with the construction of the \$2.7 million contract for the Control Gate and Floatables Control at Outfall MWR003 and MWRA Rindge Avenue Siphon

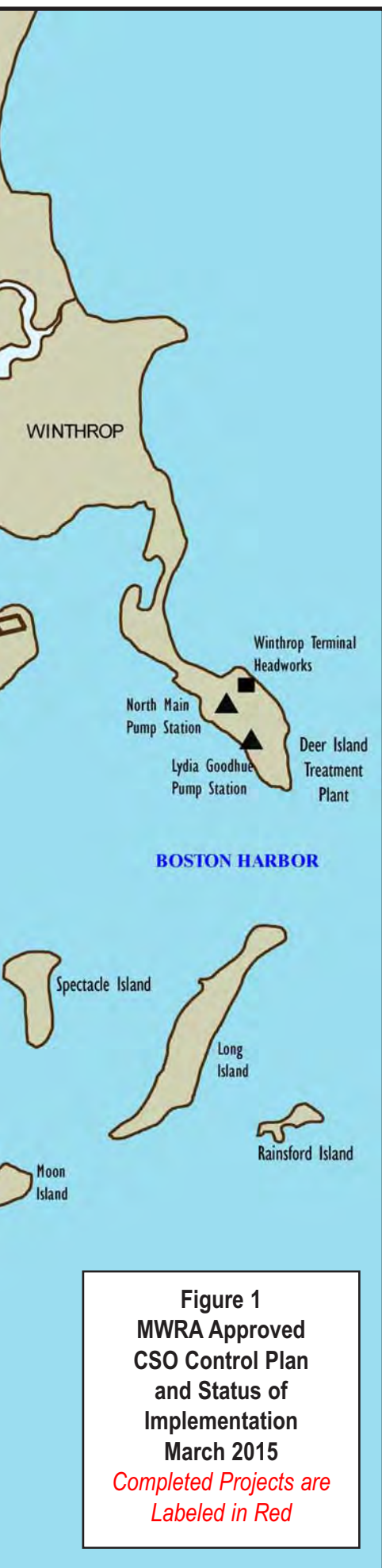
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<sup>1</sup> The amendment revised the level of control for the Prison Point CSO Facility in accordance with MWRA's letter report, "Proposed Modification of Long-Term Level of Control for the Prison Point CSO Facility, April 2008."









**Projects Completed**

**Complete<sup>(1)</sup>**

Somerville Baffle Manhole Separation	1996
Chelsea Trunk Sewer Replacement	2000
Cottage Farm CSO Facility Upgrade	2000
Hydraulic Relief at CAM005 (Cambridge)	2000
Hydraulic Relief at BOS017 (Charlestown)	2000
MWRA Floatables/Outfall Closing Projects	2000
Neponset River Sewer Separation	2000
Constitution Beach Sewer Separation	2000
Chelsea Branch Sewer Relief	2001
CHE008 Floatables Control and Outfall Repair	2001
Prison Point CSO Facility Upgrade	2001
Somerville Marginal CSO Facility Upgrade	2001
Commercial Point CSO Facility Upgrade	2001
Fox Point CSO Facility Upgrade	2001
Pleasure Bay Storm Drain Improvements	2006
Stony Brook Sewer Separation	2006
Charlestown BOS019 Storage Conduit	2007
South Dorchester Bay Sewer Separation	2007
Fort Point Channel Sewer Separation & System Optimization	2007
Union Park Detention/Treatment Facility	2007
Regionwide Floatables Controls	2007
Prison Point Facility Optimization	2008
Morrissey Boulevard Storm Drain	2009
Cottage Farm Brookline Connection and Inflow Controls	2009
Bulfinch Triangle Sewer Separation	2010
East Boston Branch Sewer Relief	2010
Alewife Interceptor Connection Relief / Floatables Controls*	2010
CAM400 Common Manhole Separation*	2011
North Dorchester Bay Storage Tunnel and Related Facilities	2011
Brookline Sewer Separation	2013
CAM004 Outfall and Wetland Basin*	2013
SOM01A Interceptor Connection Relief/Floatables Controls*	2013

**In Construction<sup>(2)</sup>**

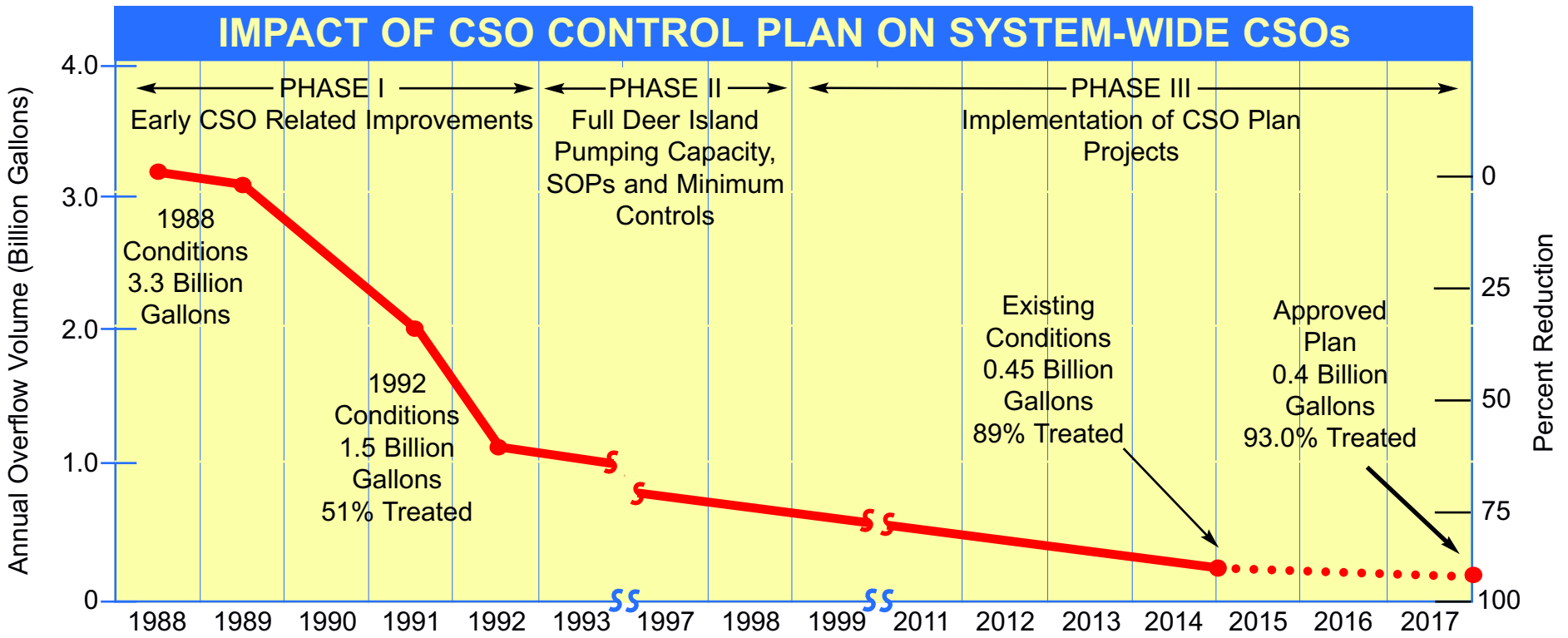
Reserved Channel Sewer Separation	2015
CAM004 Sewer Separation *	2015
MWR003 Gate and Rindge Ave. Siphon Relief *	2015

**In Design**

Design is complete for all projects

\* Part of Alewife Brook CSO Control Plan

**Figure 2: Approved Long-Term CSO Control Plan and Benefits**



- ### BENEFITS
- 84 CSO Outfalls: 34 Closed  
46 Reduced to a Minimal Number of CSO Discharges per year  
4 Treated
  - Eliminates or Reduces CSO Activations to Achieve a Level of CSO Control Consistent with Water Quality Standards
  - Treats More Frequent Discharges
  - Controls Floatable Materials at remaining active CSO Outfalls

- ### CSO CONTROL PROJECTS
- Sewer Separation
  - Existing CSO Treatment Facility Upgrades
  - New CSO Treatment Facility
  - CSO Consolidation /Storage Conduits
  - Relief Sewers
  - Localized Hydraulic Relief
  - Outfall Repairs
  - Region Wide Floatables Controls
  - System Optimization

### PROGRAM SCHEDULE

Final CSO Conceptual Plan	Dec 1994
Final Facilities Plan and EIR	Jul 1997
Final Approved Plan	Apr 2006
Design and Construction	1995 - 2015
Assessment Phase	2018 - 2020

### COSTS

Planning, Design & Construction  
 \$898.3 Million  
 Net Annual O&M  
 \$1.5 Million



Relief project, which is the last of the 35 CSO projects to enter into construction. With the commencement of construction of this project, all of the 35 projects are complete or in construction. The project is located adjacent to the MBTA Alewife Station in Cambridge and is one of six projects in the plan to control CSO discharges to Alewife Brook. The contract completion date is October 2015, in compliance with Schedule Seven, and construction is 40% complete as of February 2015.



**Installation of Steel Sheet Piling for Excavation Support  
48-inch Rindge Ave. Siphon at Outfall MWR003**



**Storm Drain Manhole, Concord Avenue  
CAM004 Sewer Separation Contract 9**

- **Continued progress with construction of the \$71.8 million CAM004 Sewer Separation project.** The City of Cambridge attained substantial completion of the CSO related work in the \$17.8 million Contract 8A (Huron A), 77% completion of the CSO related work in the \$31.2 million Contract 8B (Huron B) and 58% completion of the CSO related work in the \$24.4 million Contract 9. In December 2014, Cambridge advertised the construction contract for sewer separation along Concord Lane, the last of the sewer separation contracts for this project. Cambridge expects to issue the Notice to Proceed soon and complete all CSO related work by December 2015 in compliance with Schedule Seven. The CAM004 sewer separation project will reduce CSO discharges to the Alewife Brook and close Outfall CAM004.

- **Continued progress with construction of the \$72.6 million Reserved Channel Sewer Separation project, including recent substantial completion of two major sewer separation contracts.** BWSC attained substantial completion of the \$13.7 million Contract 3B in November 2014 and anticipates substantial completion of the \$13.9 million Contract 4 in March 2015. Contract 8, which provides for final paving as each stretch of sewer separation is completed, is 50% complete. In 2014, BWSC also issued notices to proceed for the last two construction contracts for this project: the \$4.8 million Contract 5 for cleaning and lining of the BWSC sewers in the Reserved Channel area and the \$211,000 Contract 6 for disconnection of downspouts from the sewer system in the project area. BWSC previously completed the other four construction contracts, including two major sewer separation contracts, and is on schedule to complete the project by December 2015, in compliance with Schedule Seven.



**Installation of 48-inch Drain on E. Third Street  
Reserved Channel Sewer Separation Contract 3B**

With the work described above, MWRA and the CSO communities installed 47,554 linear feet (9 miles) of new storm drain and sanitary sewer in the communities of Boston and Cambridge in 2014. Since 1996, when CSO construction efforts began, approximately 497,500 linear feet (94.2 miles) of new storm drain and sanitary sewer have been installed under the Long-Term Control plan.

MWRA and the CSO communities have completed 32 of the 35 projects in the Long-Term Control Plan. The remaining three projects – Control Gate and Floatables Control at Outfall MWR003 and MWRA Rindge Avenue Siphon Relief; CAM004 Sewer Separation; and Reserved Channel Sewer Separation – are well into construction and are on schedules for completion by December 2015 and in compliance with their respective milestones in Schedule Seven.

Since the beginning of MWRA's CSO control planning efforts in the late 1980's, MWRA and the CSO communities have eliminated or virtually eliminated (i.e., 25-year storm level of control) CSO discharges at 38 of the 84 outfalls addressed in the Long-Term Control Plan, more than the number of outfalls recommended for closure in the plan and one more than reported last year. On December 4, 2014, the City of Chelsea permanently closed Outfall CHE002 to CSO discharges following the City's completion of a sewer separation project that was outside the scope of the Long-Term Control Plan. The outfall now serves as a city stormwater discharge. Four outfalls were previously closed by BWSC and the City of Cambridge – East Boston outfalls BOS006 and BOS007 to Boston Inner Harbor and Cambridge outfalls CAM009 and CAM011 to the Charles River Basin – also through efforts outside the scope of the Long-Term Control Plan. Of the 34 outfalls recommended for closure in the Long-Term Control Plan, only Outfall CAM004 to Alewife Brook remains active, and Cambridge plans to close this outfall with completion of the CAM004 Sewer separation project in December 2015.

## **2.2 Court Schedule Compliance and Compliance Risks**

MWRA met all three of the calendar year 2014 milestones in Schedule Seven. MWRA filed the CSO Annual Progress Report for 2013 on March 14, 2014; achieved substantial completion of the Interceptor Connection Relief and Floatables Controls at Outfall SOM01A project on December 27, 2013, ahead of the of the June 2014 milestone; and issued notice to proceed for construction of the Control Gate and Floatables Control at Outfall MWR003 and MWRA Rindge Avenue Siphon Relief project on August 28, 2014, ahead of the September 2014 milestone.

Schedule Seven calls for the last of the CSO projects to be completed by December 2015 and includes three completion milestones in 2015 for the ongoing construction projects noted above. MWRA's Alewife Brook project at Outfall MWR003 is on schedule for completion by the October 2015 milestone. Cambridge's CAM004 sewer separation project and BWSC's Reserved Channel sewer separation project are on schedule for completion by the December 2015 milestones.

All three projects are subject to the risks commonly associated with the construction of major subsurface infrastructure projects in dense urban areas, including but not limited to unforeseen subsurface conditions and traffic impact mitigation. All three projects involve work in areas with congested utilities, and the two sewer separation projects have required extensive utility relocations and been subject to work and cost increases due to utility conflicts discovered during construction that were not anticipated during design. Weather conditions, especially winter conditions, have also affected production rates.

The risks are especially significant for the CAM004 sewer separation project, due to the potential for greater traffic and utility conflicts, the number of contracts and work locations simultaneously underway, and the amount of work that must be accomplished by December 2015. Furthermore, Cambridge has reported that remaining work activities of contracts 8B, 9 and Concord Lane are on the critical path, with no float time. The City of Cambridge and MWRA are jointly monitoring monthly construction progress on all contracts in an attempt to ensure that the work remains on schedule. This is particularly important for Contract 8B, for which Cambridge issued, and MWRA authorized, a costly construction change order in the fall of 2014 for a recovery schedule due to delays caused by Winter 2014 conditions and delays in the relocation of private utilities by others.

### 2.3 Ongoing Design and Construction Progress

#### Alewife Brook CSO Control Plan

The Alewife Brook CSO control plan is intended to minimize CSO discharges to the Alewife Brook primarily by separating combined sewer systems in parts of Cambridge and by upgrading hydraulic capacities at local sewer connections to the MWRA interceptors. The plan also includes a stormwater outfall and constructed wetland to accommodate the separated stormwater flows, prevent any increase in flooding along Alewife Brook, and provide a level of stormwater treatment.

The plan comprises six component projects (Table 1), each with its own design and construction milestones in Schedule Seven (Table 2 on page 8). The City of Cambridge manages the design and construction work for four of the six projects, with MWRA funding pursuant to a Memorandum of Understanding and Financial Assistance Agreement. Project locations are shown in figures 3 and 4 on pages 9 and 10.

Together, these projects are predicted to reduce annual CSO volume to the Alewife Brook by 85% in a typical year, from 50 million gallons in 1997 to 7.3 million gallons. CSO activations in a typical year will be reduced from 63 in 1997 to seven. MWRA hydraulic model and water quality model simulations predict that the recommended control levels will comply with Class B (fishing and swimming) water quality criteria 98.5% of the time.

**Table 1: Alewife Brook CSO Control Plan - Project Components**

Project	Cambridge Contract	Benefit
CAM004 Stormwater Outfall and Wetland Basin	12	Convey stormwater flows to wetland system for attenuation and treatment.
CAM004 Sewer Separation <sup>(1)</sup>	8A, 8B, 9 and Concord Lane	Remove large quantities of stormwater from the sewer system; eliminate CSO at Outfall CAM004.
CAM400 Manhole Separation	4/13	Remove stormwater from the sewer system; eliminate CSO at Outfall CAM400.
Interceptor Connection Relief and Floatables Control at CAM002 and CAM401B and Floatables Control at CAM001		Upgrade connections between Cambridge and MWRA systems to provide relief; add floatables control.
Control Gate/Floatables Control at Outfall MWR003 and MWRA Rindge Avenue Siphon Relief	MWRA Contracts	Optimize hydraulic conveyance; minimize overflows while controlling system flooding in large storms; provide floatables control.
Interconnection Relief and Floatables Control at Outfall SOM01A		Upgrade connection to MWRA system and provide floatables control.

<sup>(1)</sup> Also includes initial construction contracts completed by Cambridge in 2002



**Table 2: Alewife Brook Project Schedules and Court Milestones**

Alewife Brook CSO Project	Commence Design		Commence Construction		Complete Construction	
	Court Milestone	Project Schedule	Court Milestone	Project Schedule	Court Milestone	Project Schedule
<b>Managed by City of Cambridge</b>						
CAM004 Stormwater Outfall and Wetland Basin			Apr 11	Apr 11	Apr 13	Apr 13
CAM004 Sewer Separation	Jan 97	Jan 97	Jul 98	Jul 98	Dec 15	Dec 15
			Sep 12*	Sep 12*		
Interceptor Connection Relief and Floatables Control at CAM002 and CAM401B and Floatables Control at CAM001	Jul 06	Oct 08*	Jan 10	Jan 10	Oct 10	Oct 10
CAM400 Manhole Separation	Jul 06	Oct 08*	Jan 10	Jan 10	Mar 11	Mar 11
<b>Managed by MWRA</b>						
Control Gate/Floatables Control at Outfall MWR003 and MWRA Rindge Avenue Siphon Relief	Apr 12	Apr 12	Aug 14	Aug 14	Oct 15	Oct 15
Interceptor Connection Relief and Floatables Control at Outfall SOM01A	Apr 12	Apr 12	Sep 13	Aug 13	Jun 14	Dec 13

\* Project schedules were revised several years ago due to citizens' appeals of the wetlands permit for Contract 12.

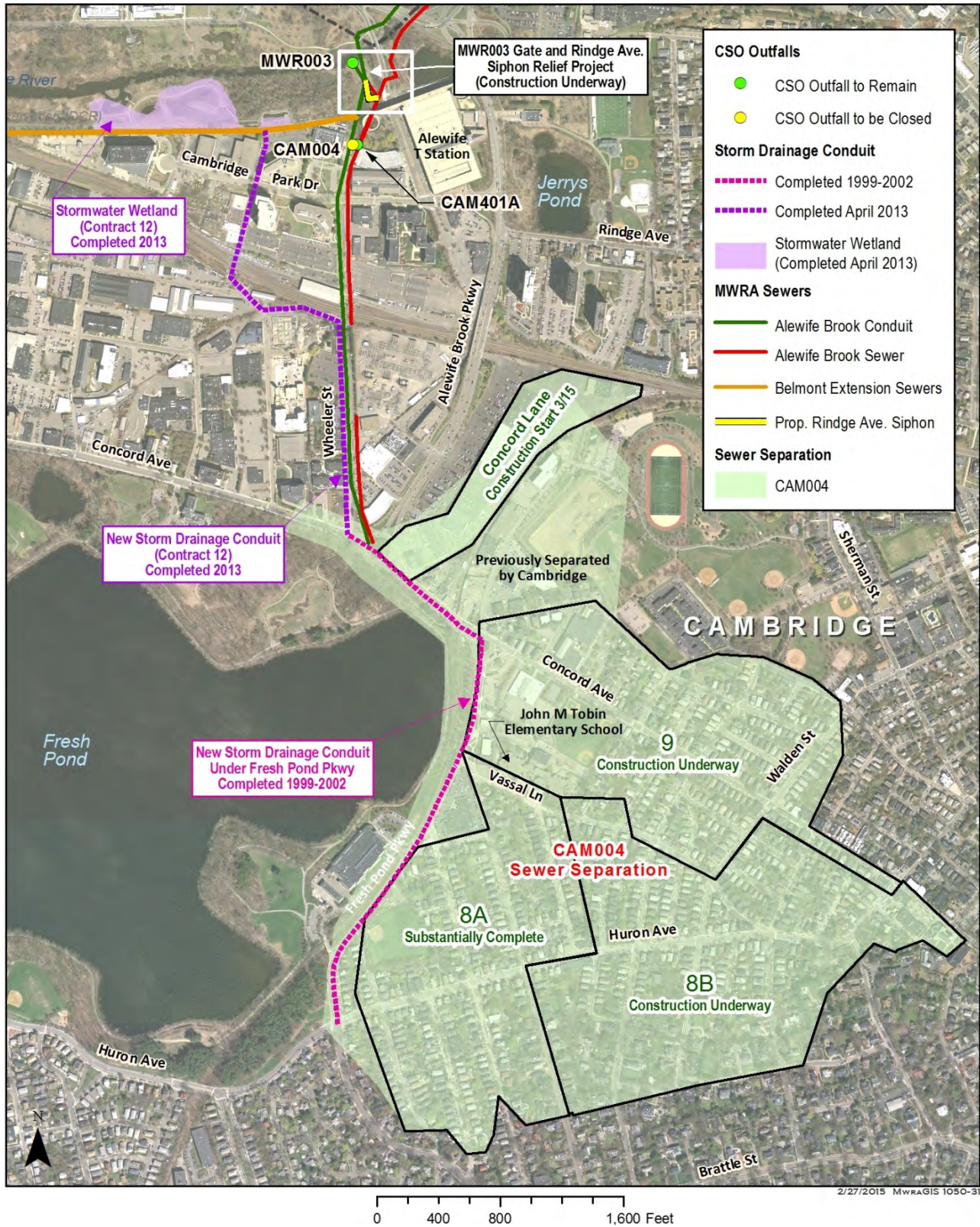
**CAM004 Sewer Separation**

Cambridge has continued to make substantial progress with the three remaining construction contracts previously reported – contracts 8A (Huron A), 8B (Huron B), and 9 (Concord) – as well as substantial progress with design and construction of a fourth, new contract, “Concord Lane,” to complete the CAM004 sewer separation project. The four contracts involve the separation of combined sewers upstream of Outfall CAM004 in a 211-acre area in the Huron Avenue and Concord Avenue neighborhoods east of Fresh Pond Parkway (see Figure 3 on page 9).

Cambridge issued the Notice to Proceed with construction of the \$17.8 million Contract 8A in September 2012, in compliance with Schedule Seven, and attained substantial completion of the sewer separation work of this contract for CSO control in the spring of 2014. Contract 8A includes the installation of approximately 20,700 linear feet of sanitary sewers and storm drains up to 54-inch diameter along Huron Avenue and several intersecting streets in a 68-acre area immediately east of Fresh Pond Parkway. The contract also includes the installation of three large storm drain vaults on Vassal Lane, 45 new or replacement catch basins with hoods and 6-foot sumps, work on private property of 58 buildings within the project area to remove roof runoff and sump pump discharges from the sewer system, and 6,700 linear feet of replacement water main ranging from 6-inch to 12-inch diameter. Surface restoration work and environmental improvements in Contract 8A, including porous pavements, stormwater bio-basins, and trees and other plantings, will continue through June 2015.

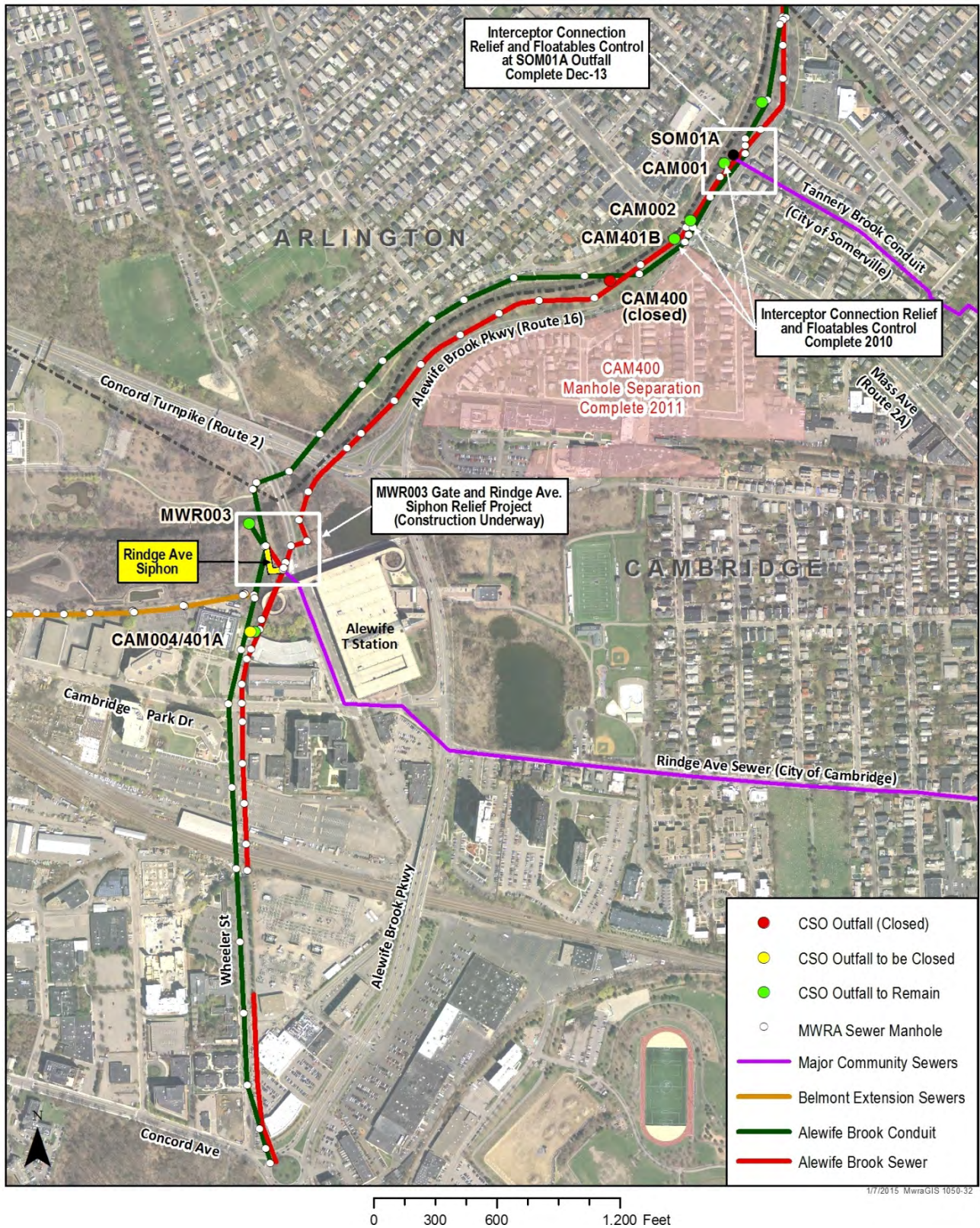
Cambridge issued the Notice to Proceed with the \$31.2 million Contract 8B in September 2013 and has attained 77% completion of the contract’s sewer separation work for CSO control. Contract 8B includes 21,000 linear feet of new sanitary sewers and storm drains from 8-inch to 30-inch diameter, 1,700 linear feet of trenchless pipe rehabilitation, and approximately 13,230 linear feet of ductile iron water main pipe from 4-inch to 24-inch diameter along Huron Avenue and several intersecting streets in an 83-acre area east of Contract 8A.

**Figure 3**  
**Alewife Brook CSO Control Plan (1 of 2)**





**Figure 4**  
**Alewife Brook CSO Control Plan (2 of 2)**





The contractor has completed sewer and/or drain installations on Blakeslee, Chilton, Fayerweather, Gurney, Reservoir, Saville and Walden streets, Appleton, Dunstable and Granville roads, Lincoln and Vassal lanes and Royal Avenue. The contractor continues to install sewers and/or drains on Huron and Manassas avenues and Appleton and Hutchinson streets.



**Reservoir Street 18-inch Sewer Installation  
CAM004 Sewer Separation Contract 8B**



**Blakeslee Street Drain Installation Under Water Main  
CAM004 Sewer Separation Contract 8B**

Severe winter weather in late 2013 and early 2014 and utility relocation delays compromised the contractor's original schedule and led to the need for a recovery schedule. The contractor's recovery schedule and related cost increases were approved by Cambridge and MWRA in the fall of 2014, and the contractor has since been able to meet the recovery schedule. The new schedule re-sequences the remaining work to allow the contractor to complete Contract 8B's CSO related "Milestone 1" work (primarily sewer and drain installations) by the original contract milestone of September 20, 2015, and extends the contract term by 103 days, shifting non-CSO related Milestone 2 work (primarily surface restoration) from September 2016 to December 2016.

The CSO-related work of Contract 8B must be complete by September 2015 to allow a 3-month window for the Contract 9 contractor to complete subsequent, related sewer and storm drain work by December 2015 in compliance with Schedule Seven. Eversource (NStar) Gas has completed the necessary gas line relocations in the Contract 8B area. While Cambridge believes that the contractor's ongoing progress allows for attainment of Milestone 1 by September 2015 and completion of the CAM004 sewer separation project by the Schedule Seven milestone, the contract schedule has no float, and Cambridge and MWRA are paying close attention to constructed facilities progress against contract time in reviewing the contractor's monthly reports.

Cambridge issued the Notice of Proceed with the \$24.4 million Contract 9 on February 11, 2014 and has attained 58% completion of the sewer separation work for CSO control. Contract 9 includes the installation 19,640 linear feet of new sanitary sewers and storm drains from 6-inch to 48-inch diameter, 4,070 linear feet of trenchless pipe rehabilitation, 10,360 linear feet of ductile iron water main pipe from 4-inch to 20-inch diameter, and 800 linear feet of 20-inch water pipe trenchless rehabilitation along Concord Avenue and several intersecting streets in a 60-acre area north of Contracts 8A and 8B.

The contractor has completed sewer and/or drain installations on Copley, Fayerweather, Saville and Walden streets, Corporal Burns Road and Concord Avenue. The installation of sewers and/or drains remains to be completed on Bay State Road, and Alpine, Birch, Chilton, Fern, Field, Garden, Hazel and Ivy streets. Eversource (NStar) has completed the relocation of gas lines on most streets in the Contract 9 area, with only Garden and Walden streets remaining.



**Sheeting for Drain MH on Concord Avenue  
Cambridge Sewer Separation Contract 9**



**Concord Avenue Drain Installation  
Cambridge Sewer Separation Contract 9**

Cambridge expects Contract 9 to be substantially complete by December 2015, in compliance with Schedule Seven, contingent upon continuing with effective implementation of the Contract 8B recovery schedule. Contract 9 calls for surface restoration work to continue through August 2016.

Cambridge was unable to include in Contract 9 the originally planned sewer separation work along Concord Lane, a short private way serving commercial properties in the Fresh Pond Mall, because Cambridge initially was unable to secure right of entry (ROE) onto the property for design investigations and construction. Negotiations between the property owner and Cambridge eventually led to a series of executed ROE's, including ROE#1 for site surveys and ROE#2 for soil borings and installation of groundwater observation wells during the summer of 2014. The completion of these investigations in turn allowed Cambridge to complete final design of the work on Concord Lane and advertise a new contract for construction bids on December 10, 2014. Cambridge opened bids on January 15 and expects to award the Concord Lane contract to the lowest responsible bidder in March. The property owner, Cambridge and the contractor have since executed ROE#3, which allows access for construction. Cambridge expects to complete the Concord Lane construction and all other CSO-related work of the CAM004 sewer separation project and close Outfall CAM004 by the December 2015 milestone in Schedule Seven.

#### Green Infrastructure for Environmental Protection and Improvement

Cambridge has included "Green Infrastructure" in the various CAM004 sewer separation contracts. The Green Infrastructure technologies consist of porous pavement, "biobasins" with overflow connections to the storm drain system, and new street trees. The biobasins are planted areas that function as part of the stormwater system by intercepting and detaining street runoff to capture some of the sediments, provide a level of removal of other pollutants such as phosphorus and nitrogen, and potentially reduce the rate and volume of stormwater runoff to the drainage system, in part by allowing some infiltration to groundwater. Remaining runoff will be collected and conveyed to the new stormwater wetland in the Alewife Reservation for further detention and natural treatment before draining to the Little River.

#### Control Gate/Floatables Control at Outfall MWR003 and MWRA Rindge Avenue Siphon Relief

MWRA issued the Notice to Proceed for the \$2.7 million construction contract for the Control Gate and Floatables Control at Outfall MWR003 and MWRA Rindge Avenue Siphon Relief project (the "MWR003 project") on August 28, 2014, ahead of the September 2014 milestone in Schedule Seven. This is the last of the six projects in MWRA's Alewife Brook CSO plan and last of the 35 projects in MWRA's regional Long-Term Control Plan to proceed into construction.









**48-Inch Replacement Siphon at Outfall MWR003**



**Modifications to CSO Regulator  
 Structure RE031 at Outfall MWR003**

With this project, MWRA has the related objective of optimizing the hydraulic performance of MWRA’s Alewife Brook interceptors under future conditions with all of the Alewife Brook CSO projects in place. MWRA’s interceptor system includes two parallel sewers that generally follow the alignment of Alewife Brook from their downstream ends at MWRA’s Alewife Brook Pumping station, located next to DCR’s Dilboy Field and the Somerville/Medford line, to their respective upstream ends at the Fresh Pond Rotary in Cambridge and the Belmont town line. The Alewife Brook Sewer was constructed in 1893 primarily to serve portions of Arlington, Cambridge and Somerville. In 1949, the Alewife Brook Conduit was constructed primarily to extend sewer service to Belmont and increase the hydraulic capacity of the Alewife system. The two interceptors are interconnected at a few locations, generally further downstream, and both interceptors share the overflow at Outfall MWR003, located behind the MBTA Alewife Station.

The MWR003 project is part of a set of completed and ongoing Alewife Brook projects, including the CAM004 sewer separation project and the improvements at Outfall SOM01A that MWRA completed in December 2013, that individually and together are altering flow make-up and optimizing flow conveyance in MWRA’s and Cambridge’s sewer systems to be able to attain long-term levels of CSO control, reduce sewer system surcharging, maintain service to the tributary communities of Arlington, Belmont, Cambridge and Somerville, and avoid worsening flooding conditions along the Alewife Brook. MWRA and the City of Cambridge continue to evaluate the expected hydraulic conditions, even as construction proceeds.

**Reserved Channel Sewer Separation**

	<u>Court Milestone</u>	<u>Project Schedule</u>
Commence Design	July 2006	July 2006
Commence Construction	May 2009	May 2009
Complete Construction	December 2015	December 2015

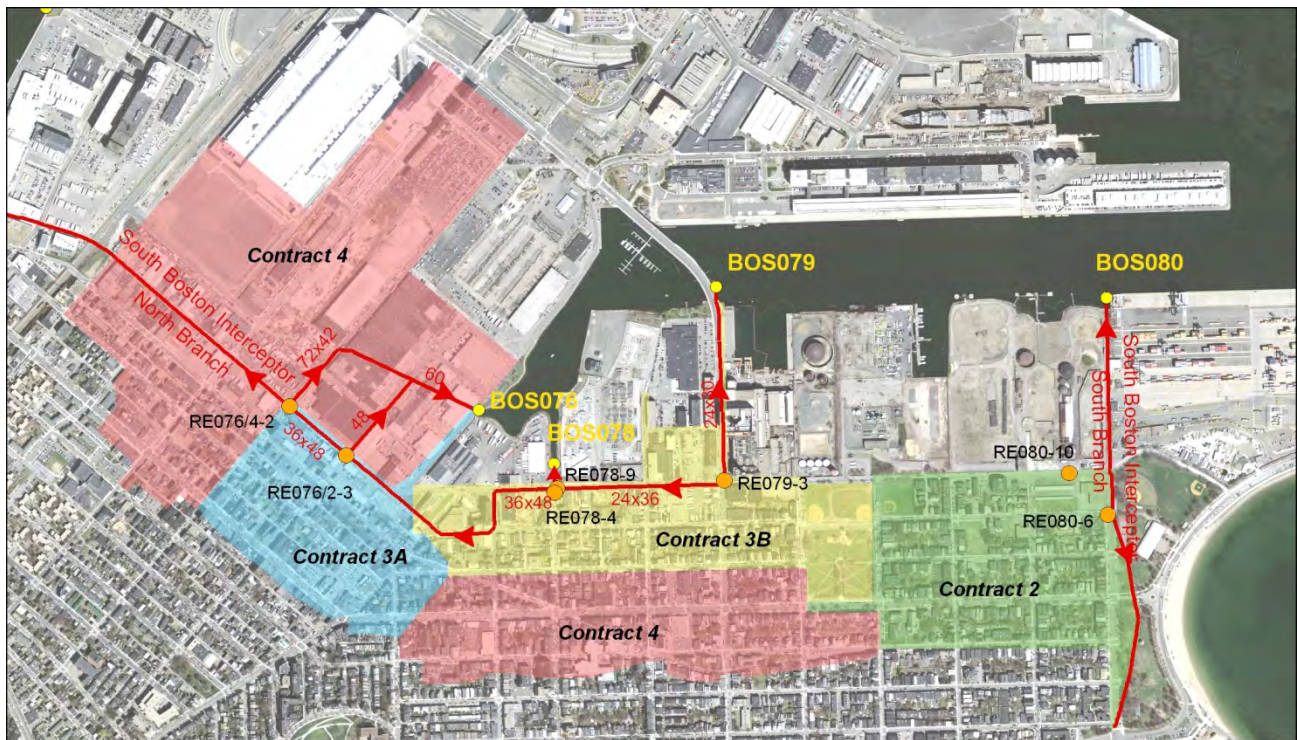
The \$72.6 million Reserved Channel sewer separation project (Figure 6 on page 15) is intended to minimize CSO discharges and impacts to the Reserved Channel by separating combined sewer systems in a portion of South Boston tributary to CSO outfalls BOS076, BOS078, BOS079 and BOS080. Implementation of the approved sewer separation plan will reduce the number of CSO activations to the Reserved Channel from 37 events to three events in a typical year and reduce total annual CSO volume to the Reserved Channel from 28 million gallons to 1.5 million gallons. The work includes the installation of approximately 42,100 linear feet of new storm drain, along with an additional 6,500 feet of minor drain primarily to connect catch basins to the new storm drains. The work also includes the installation or rehabilitation of 17,300 linear feet of sanitary sewer. To remove enough

stormwater inflow from the sewer system and attain the long-term level of CSO control, many building downspout connections and parking lot drains will also be disconnected from the sewer and tied into the new storm drains. The project also includes rehabilitation and upgrade of the four CSO outfalls to ensure they have adequate capacity to deliver the separated stormwater flows, as well as remaining, infrequent CSO flows, to the Reserved Channel for the long term.

The project area encompasses approximately 365 acres of South Boston that comprise the drainage areas tributary to the four Reserved Channel outfalls. This area is an urban mix of residential properties and extensive commercial, industrial and recreational land uses primarily along or close to the channel. East First Street is the primary roadway through the project area and is characterized by heavily congested utilities and truck traffic primarily associated with transportation of containers from Conley Terminal.

BWSC proposes nine, phased construction contracts for this project, including four sewer separation contracts (BWSC Contracts 2, 3A, 3B, and 4), an outfalls rehabilitation contract (BWSC Contract 1), a sewer cleaning and lining contract (BWSC Contract 5), a downspout disconnection contract (BWSC Contract 6), and two final paving contracts (BWSC Contracts 7 and 8). As reported last year, BWSC has completed four of the nine contracts: \$4.1 million Contract 1; \$5.9 million Contract 2; \$11.8 million Contract 3A; and \$1.2 million Contract 7.

**Figure 6: Reserved Channel Sewer Separation Contracts**



Contract 1 involved the rehabilitation of the four Reserved Channel CSO outfalls to accommodate the stormwater flows being removed from the sewer system, provide the outfalls long-term structural integrity, and provide protection to the Reserved Channel shoreline at each discharge location.

Contract 2 involved the installation of 8,402 linear feet of storm drain, approximately 3,960 linear feet of minor drain (up to 12-inch diameter) and 3,401 linear feet of sanitary sewer to separate combined sewers in a 55-acre area of South Boston approximately bounded by East First Street, Farragut Road, East Fourth Street and N Street.



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Construction Contracts		% Complete	Construction Dates
Contract 1	Outfall Rehabilitation	100%	2010-2011
Contract 2	Sewer Separation	100%	2009-2011
Contract 3A	Sewer Separation	100%	2010-2012
Contract 3B	Sewer Separation	100%	2011-2014
Contract 4	Sewer Separation	95%	2012-2015
Contract 5	Sewer Cleaning/Lining	On-going	2014-2015
Contract 6	Downspout Disconnections	On-going	2015
Contract 7	Paving	100%	2010-2012
Contract 8	Paving	50%	2012-2015

The Contract 2 work removed stormwater from the local sewers tributary to the upstream end of BWSC’s South Boston Interceptor, South Branch (“SBI-SB”), with the benefits of 1) reducing CSO overflows to the Reserved Channel at Outfall BOS080, 2) reducing surcharging within the SBI-SB, and 3) reducing CSO discharges from the SBI-SB, which are now captured by the North Dorchester Bay CSO storage tunnel.

Contract 3A involved sewer separation in a 33-acre area tributary to outfall BOS076 bounded approximately by West First Street, G Street, West Broadway and E Street. It included the installation of 8,686 linear feet of storm drain, 4,536 linear feet of sanitary sewer, 9,798 linear feet of replacement water main to avoid conflicts with the planned storm drains, and 22 new storm drain catch basins, as well as the reconnection of 76 existing catch basins from the existing sewer system to the new storm drains.

Contract 7 involved the final paving of approximately 22,000 square yards of permanent pavement for permanent trench repair and more than 20,200 linear feet of pavement markings.

In 2014 and early 2015, BWSC continued to make substantial progress with construction activities on schedules that have culminated in the substantial completion, or near completion, of the last two major sewer separation contracts, Contract 3B and Contract 4. Remaining work involves the completion of punch list items for these contracts and continuing work to complete contracts for cleaning and lining of remaining older sewers, disconnection of roof drains from the sewer system, and final paving.

- In November 2014, BWSC attained substantial completion of the \$13.7 million Contract 3B. The contract separated combined sewers in a 66-acre area of South Boston tributary to outfalls BOS078 and BOS079 and approximately bounded by East First Street, N Street, East Third Street and Dorchester Street, and including Elkins Street and Summer Street to the edge of the Reserved Channel. Contract 3B included 10,730 linear feet of new storm drain and 4,240 linear feet of new sanitary sewer to separate the combined sewers in a 66-acre area tributary to outfalls BOS078 and BOS079, as well as 10,900 linear feet of replacement water pipe to avoid conflicts with the planned sewers and storm drains. Fourteen new catch basins were installed, and 120 existing catch basins were disconnected from the sewer system and reconnected to new storm drains.
- BWSC expects to attain substantial completion of the \$13.9 million Contract 4 in March 2015. The contract has separated combined sewers in two areas totaling 182 acres tributary to outfalls BOS076, BOS078 and BOS079. One of the two areas lies south of the Reserved Channel and is approximately bounded by G Street, East Third Street, N Street, Emerson Street and East Fourth Street. The second area lies west of the Reserved Channel, close to the Boston Convention and Exposition Center (“BCEC”), and is approximately bounded by



the Reserved Channel, West Broadway, G Street and the BCEC. Contract 4 includes 12,200 linear feet of new storm drain, 1,700 linear feet of replacement sanitary sewer pipe, 9,700 linear feet of replacement water pipe, 104 new manholes, one new catch basin, and 5,400 linear feet of minor drain pipe.



**48-inch Storm Drain Installation on E. Third Street  
Reserved Channel Sewer Separation Contract 3B**



**18-inch Sewer Installation on E. Third Street  
Reserved Channel Sewer Separation Contract 3B**



**48-inch Storm Drain Installation on L Street  
Reserved Channel Sewer Separation Contract 4**



**12-inch Storm Drain Installation on East Broadway  
Reserved Channel Sewer Separation Contract 4**

- The \$4.9 million Contract 8 is the second of two pavement restoration contracts that have followed the work of the various sewer separation contracts as sections of work were completed. Contract is approximately 50% complete. While paving is suspended during the winter months, the contract will resume in the spring of 2015 to continue to restore streets affected by the work of contracts 3B and 4 and, to a lesser extent, Contract 5. BWSC expects that the paving work of Contract 8 will be complete by August 2015, earlier than originally scheduled.
- Contract 5 is funded solely by BWSC and includes pipe cleaning and lining services to rehabilitate some older sewers in the Reserved Channel project area that will remain in service for the long term. While providing sewer system reliability, Contract 5 does not directly contribute to the CSO control objectives of the Reserved Channel project. BWSC awarded Contract 5 on February 24, 2014, work is underway, and BWSC expects the contract to be substantially complete by November 2015.

- Contract 6 includes the disconnection of roof drain downspouts from the sewer system in the Reserved Channel project area. BWSC originally awarded Contract 6 on January 29, 2014, in the amount of \$661,442. Subsequently, some of the downspout disconnections were performed under sewer separation contracts 3B and 4, and BWSC reassessed its remaining downspout disconnection needs. BWSC revised the scope of work of Contract 6, reduced the contract amount to \$211,000, and issued the Notice to Proceed to the contractor on December 8, 2014. The contractor commenced the work in January 2015, and BWSC expects the contract to be substantially complete by October 2015.

#### **2.4 Other CSO Control Improvements**

In addition to the ongoing work to complete the remaining three of 35 projects in the Long-Term Control Plan and Schedule Seven, MWRA and the CSO communities have performed related work to help bring CSO discharges into compliance with the approved long-term levels of control, further improve system wet-weather performance, and/or gain additional CSO control. Some of the recent work is described below.

##### ***BWSC South Dorchester Bay Inflow Removal***

BWSC submitted a final report on sources of inflow/infiltration in the sewer systems tributary to the Dorchester Interceptor to MWRA in December 2014. The stormwater inflow removal investigations and related construction efforts follow BWSC's substantial completion of the \$119.0 million South Dorchester Bay Sewer Separation project in 2007. The purpose of the inflow removal work is to mitigate the remaining risks of sewer system surcharging in large storms as a result of the closing of all CSO regulators that previously provided hydraulic relief to the Dorchester Interceptor. The sewer separation project eliminated CSO discharges to the Commercial Point and Fox Point CSO treatment facilities and the beaches of South Dorchester Bay, allowing MWRA to decommission the two facilities in November 2007.

BWSC's final report identifies the areas of highest remaining stormwater inflow and evaluates options for providing additional removal of inflow and/or upgrading sewer system hydraulic or storage capacity in certain areas. MWRA has long included a total of \$5.4 million in its Capital Improvement Program for investigations and construction to improve the performance of the Dorchester sewers following the closing of the CSOs. BWSC and MWRA continue to discuss and evaluate the results of BWSC's investigations to determine how best to relieve the system. Meanwhile, BWSC continues with a construction contract to remove some of the remaining inflow sources from its sewer system. The contract amount is \$562,261, of which \$204,000 is eligible for MWRA funding.

##### ***BWSC Sewer Separation Program***

BWSC has been separating combined sewer systems beyond the sewer separation areas recommended in the court-approved Long-Term Control Plan and incorporated in Schedule Seven. BWSC substantially completed sewer separation projects along Massachusetts Avenue in Dorchester and Roxbury in September 2013 and in the area of West Broadway and A Street in South Boston in December 2014. BWSC is currently separating sewers in the Dudley Square area of Roxbury and expects this work to be substantially complete this year. These projects are expected to reduce CSO overflows to the Fort Point Channel.

##### ***City of Cambridge Sewer Separation Program***

The City of Cambridge continues with its decades-long program of separating the combined sewer systems that can contribute to CSO overflows to the Charles River. Construction of roadway improvements along Western Avenue is underway and includes the installation of a major new storm drain in Western Avenue and tributary area sewer separation that will reduce stormwater flows to MWRA's North Charles Metropolitan Sewer, which can overflow to MWRA's Cottage CSO facility in large storms.

In addition, Cambridge has coordinated its CSO overflow regulator modifications at Outfall CAM017 at Binney

Street and Land Boulevard with the major private redevelopment work now underway along Binney Street. The redevelopment work includes the construction of a large storm drain along Binney Street and area-wide sewer separation that will remove stormwater flows from Cambridge's Binney Street Overflow Conduit and MWRA's Cambridge Marginal Conduit and Prison Point CSO facility. Stormwater flows removed from the sewer system will be redirected to the Lower Charles River Basin through Outfall CAM017 downstream of the CSO regulator, reducing burdens on the sewer system, untreated discharges at Outfall CAM017 and treated discharges from the Prison Point facility to Boston Inner Harbor.

### ***City of Chelsea Sewer Separation Program***

The City of Chelsea continues with its program of sewer separation to reduce stormwater flows to the city and MWRA sewer systems and help control CSO discharges to the Chelsea Creek. On December 4, 2014, Chelsea permanently closed Outfall CHE002 after completing sewer separation in tributary areas along Broadway (see Figure 7 on page 20). Outfall CHE002 formerly discharged to the Mystic River/Chelsea Creek confluence in the vicinity of the Chelsea Yacht Club, immediately south of the Mystic Tobin Bridge. CHE002 remains in operation as a stormwater outfall. Elimination of CHE002 was not included in the approved Long-Term Control Plan. It is the fifth outfall to be closed in recent years beyond the recommended outfall closings in the CSO plan, the others being Charles River outfalls CAM009 and CAM011 closed by the City of Cambridge in 2007 and East Boston Inner Harbor outfalls BOS006 and BOS007 closed by BWSC in 2008.

In 2014, the City of Chelsea also commenced a construction contract to separate combined sewers in a large area along Spruce Street. Chelsea expects this project will reduce stormwater flow rate to the city and MWRA sewer systems by more than 10 million gallons per day based on a 1 year, 6 hour storm.

## **2.5 MWRA CSO Spending in 2014 and Beyond**

MWRA spent \$22.1 million in 2014 to implement the CSO projects and fund the eligible CSO work of MWRA, BWSC, Cambridge and Brookline. All of this cost funded construction activity, except for a small amount of design spending related to Cambridge's Concord Lane sewer separation contract and completion of design for MWRA's project at Outfall MWR003.

Spending in 2014 brought MWRA's total capital expenditure for the CSO Control Program to \$866.4 million, 96% of the \$898.3 million CSO budget in MWRA's Proposed FY16 Capital Improvement Program (CIP). With only three of the 35 projects not yet complete and those three projects now well into construction, CSO program activity and spending will continue to wind down from the highest calendar year spending of \$128.1 million in 2008. The Proposed FY16 CIP estimates fiscal year spending on CSO control of \$23.7 million in FY15 (July 1, 2014 thru June 30, 2015), \$13.8 million in FY16 (including the completion of all three projects by December 2015), and \$4.1 million in FY17 when the last CSO-related activity eligible for MWRA funding, primarily surface restoration work, is scheduled to be completed. MWRA has included funds in its CIP beyond FY17 for the court-mandated three-year verification assessment which Schedule Seven requires MWRA to commence by January 2018. Schedule Seven requires MWRA to submit a report on the results of the assessment by December 2020.

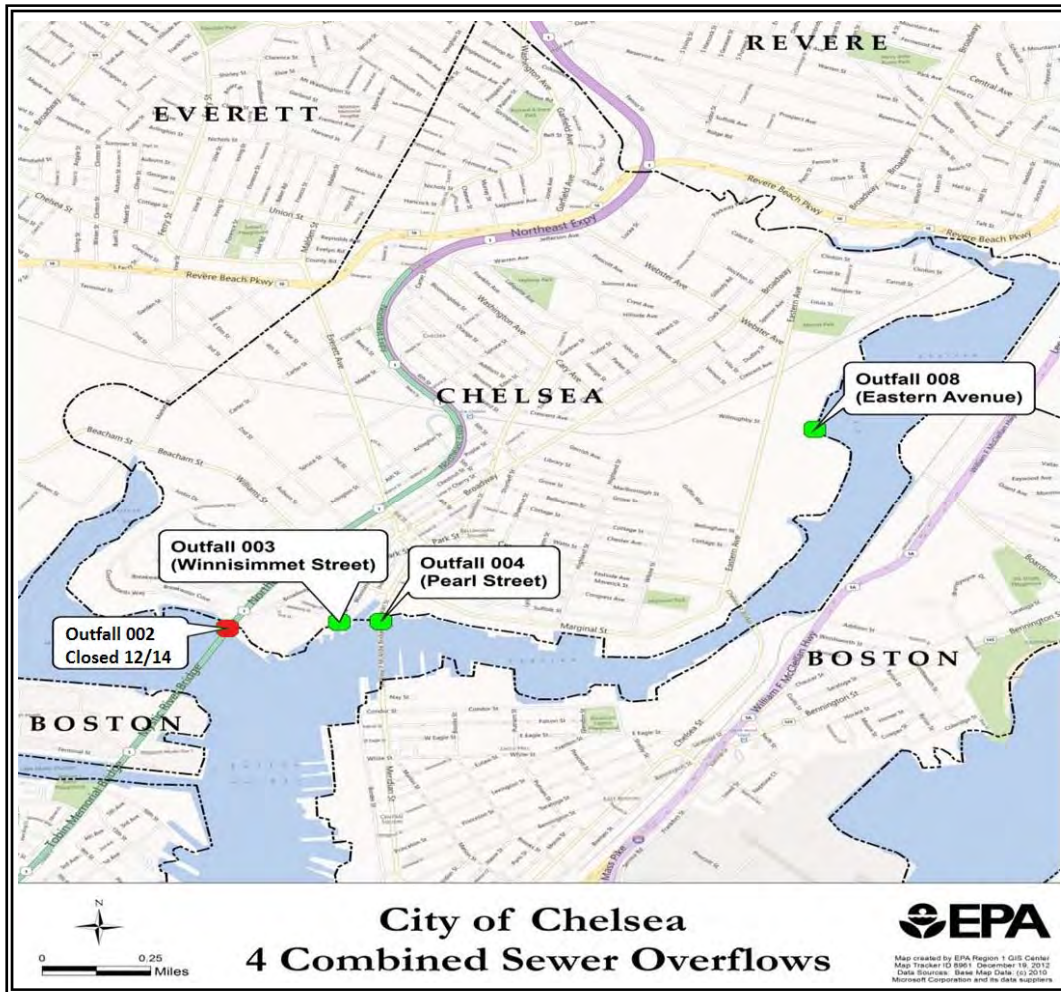
## **3. STATUS OF PLAN IMPLEMENTATION AND BENEFITS ACHIEVED**

### **3.1 Completed Work and Level of CSO Control**

With the cooperation of its CSO communities, MWRA has completed 32 of the 35 CSO projects (see Table 3 on page 21), as reported in last year's Annual Progress Report. Since 1987 when MWRA assumed responsibility for developing and implementing a regional CSO control plan, improvements to MWRA's wastewater transport and treatment systems have produced huge reductions in CSO discharges and dramatic improvement in water quality in Boston Harbor and tributary waters. The completed wastewater system improvements include MWRA's \$3.8



**Figure 7: City of Chelsea Closes Outfall CHE002**



Map of City of Chelsea's four permitted CSO outfalls. The City closed Outfall CHE002 to CSO discharges in December 2014.



Brick and mortar bulkhead of high outlet overflow in CSO regulator CHE002-3.



Outfall pipe below high tide water elevation of Mystic River/Chelsea Creek Confluence is now a stormwater outlet.

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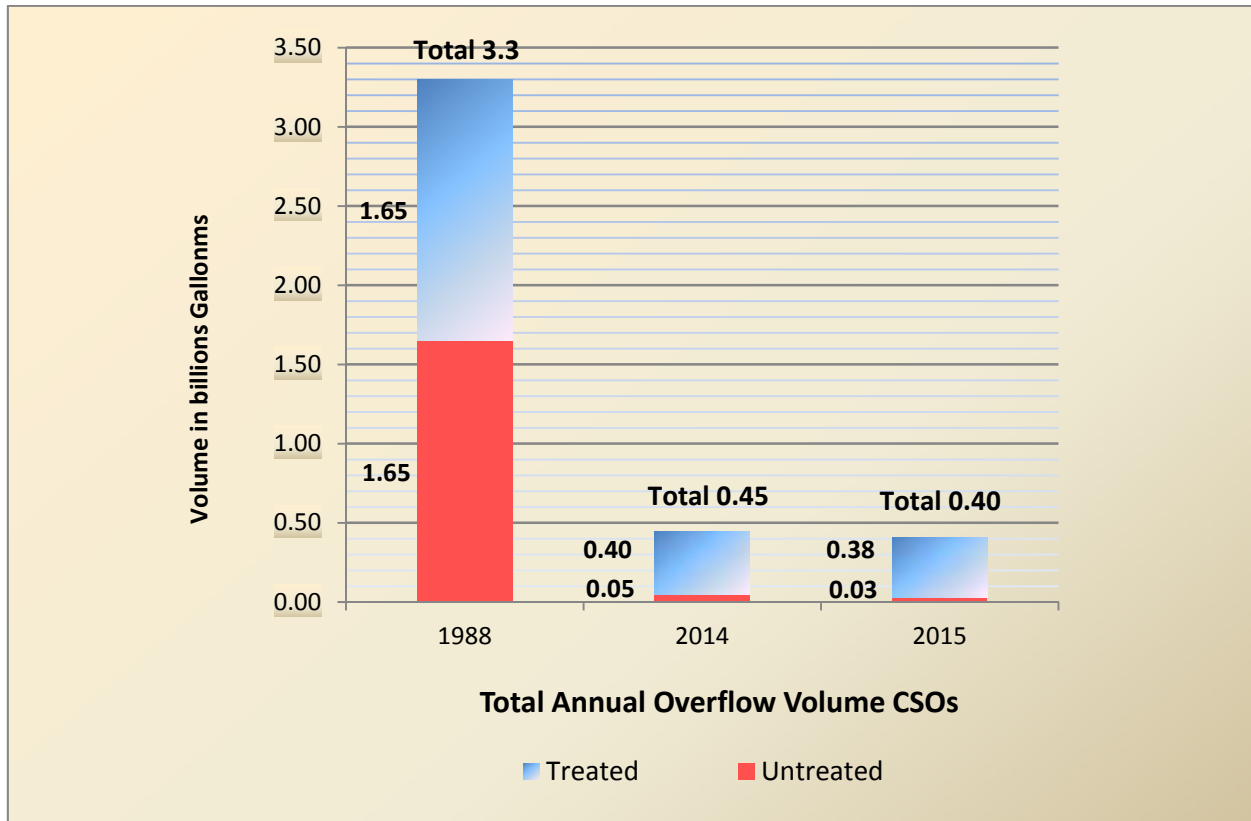
**Table 3: Status of CSO Project Implementation, March 2015**

MWRA CONTRACT	CSO PROJECTS IN SCHEDULE SEVEN	IN DESIGN	IN CONSTRUCTION	COMPLETE
<b>MWRA Managed Projects</b>				
N. Dorchester Bay Tunnel	N. Dorchester Bay CSO Storage Tunnel and Related Facilities			X
N. Dorchester Bay Facilities				
Pleasure Bay Storm Drain Improvements				X
Hydraulic Relief Projects	CAM005 Relief			X
	BOS017 Relief			X
East Boston Branch Sewer Relief				X
BOS019 CSO Storage Conduit				X
Chelsea Relief Sewers	Chelsea Trunk Sewer Relief			X
	Chelsea Branch Sewer Relief			X
	CHE008 Outfall Repairs			X
Union Park Detention/Treatment Facility				X
CSO Facility Upgrades and MWRA Floatables	Cottage Farm Upgrade			X
	Prison Point Upgrade			X
	Commercial Point Upgrade			X
	Fox Point Upgrade			X
	Somerville-Marginal Upgrade			X
	MWRA Floatables and Outfall Closings			X
Brookline Connection and Cottage Farm Overflow Interconnection and Gate				X
Optimization Study of Prison Point CSO Facility				X
<b>Community Managed Projects</b>				
South Dorchester Bay Sewer Separation				X
Stony Brook Sewer Separation				X
Neponset River Sewer Separation				X
Constitution Beach Sewer Separation				X
Fort Point Channel Sewer Separation and System Optimization				X
Morrissey Boulevard Storm Drain				X
Reserved Channel Sewer Separation			X	
Bulfinch Triangle Sewer Separation				X
Brookline Sewer Separation				X
Somerville Baffle Manhole Separation				X
Cambridge/Alewife Brook Sewer Separation	CAM004 Outfall and Wetland Basin			X
	CAM004 Sewer Separation		X	
	CAM400 Manhole Separation			X
	Interceptor Connection Relief/Floatables Control at CAM001, CAM002, and CAM401B			X
	MWR003 Gate and Rindge Avenue Siphon Relief		X	
	Interceptor Connection Relief/Floatables at SOM01A			X
<b>Region-wide Floatables Control and Outfall Closings</b>				X

billion investment in the new Deer Island Treatment Plant and associated conveyance systems, as well as the 32 CSO projects now complete.

As shown in Figure 8, estimated average annual volume of CSO discharge has dropped from 3.3 billion gallons in 1988 to 0.45 billion gallons today, an 86% reduction, with 89% of the current average annual discharge volume receiving treatment at MWRA’s four long-term CSO facilities at Cottage Farm, Prison Point, Somerville Marginal and Union Park. These new estimates are from MWRA’s InfoWorks collection system model simulations of end-of-year 2013 system conditions that were reported to the United States Environmental Protection Agency (EPA) and the Massachusetts Department of Environmental Protection (DEP) on April 30, 2014, in compliance with conditions in the CSO variances for the Lower Charles River/Charles Basin and the Alewife Brook/Upper Mystic River (see Section 4.2). The current estimate of remaining average annual discharge volume (0.45 billion gallons) is 50 million gallons less than last year’s estimate (0.50 billion gallons) primarily due to the completion of the Brookline sewer separation project in April 2013 and the effect it had in reducing treated discharges to the Charles River Basin at the Cottage Farm facility. Figure 9 on page 23 shows CSO reduction for each receiving water segment. See Figure 10 on page 23 for an identification of the waters currently or formerly affected by CSO.

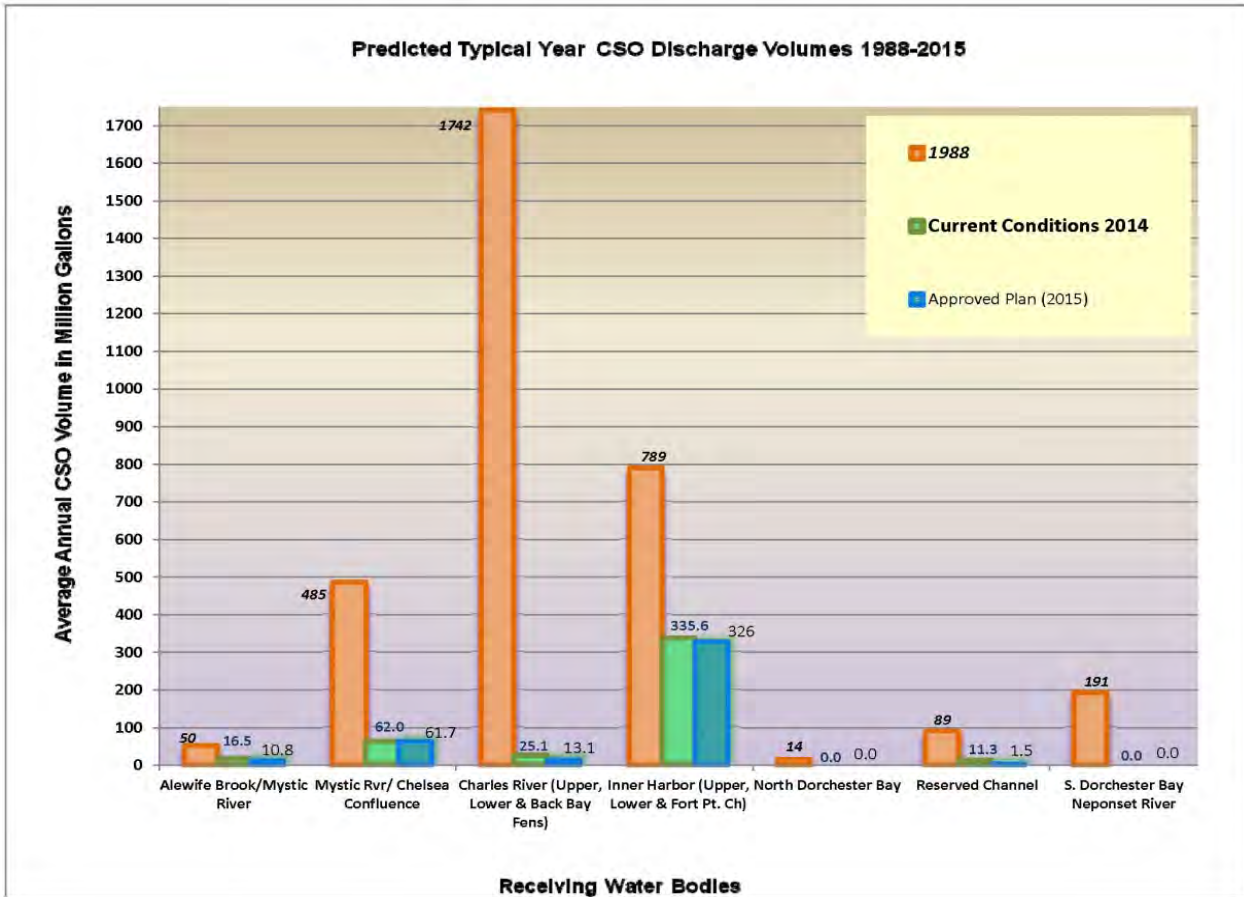
**Figure 8: Region-wide CSO Reduction and Goal**



CSO discharges have been eliminated or virtually eliminated (i.e. 25-year storm level of control) at 38 of the 84 outfalls addressed in the Long-Term Control Plan (see Figure 1 on pages 2-3). These 38 outfalls include five outfalls – two City of Cambridge outfalls, two BWSC outfalls and one City of Chelsea outfall - that the Long-Term Control Plan had assumed would remain active. The City of Cambridge closed Charles River Basin outfalls CAM009 and CAM011 in 2007 on an interim basis and continues to evaluate hydraulic conditions before making a decision to keep them closed permanently. BWSC permanently closed East Boston/Inner Harbor outfalls BOS006 and BOS007 several years ago. The City of Chelsea closed Mystic River/Chelsea Creek Confluence outfall



**Figure 9: CSO Volume Reduction by Receiving Water**



**Figure 10: Boston Harbor and its Tributaries**



CHE002 in December 2014. The Long-Term Control Plan calls for closing one additional CSO outfall, Alewife Brook Outfall CAM004, which is scheduled to be closed with completion of the CAM004 sewer separation project in December 2015.

### 3.2 Water Quality Improvement

MWRA's major improvements to its collection and treatment systems and its completed CSO control projects have been joined by community efforts to control pollutant loadings in separate urban stormwater discharges. Together, these programs have the potential to effect significant water quality improvement that in turn will enhance environmental conditions and promote safe public use. The benefits of these complementary pollution control programs are most evident in the Charles River. Tremendous water quality improvement has been observed and measured in the Charles River Basin, where average annual CSO discharge has been drastically cut from about 1.7 billion gallons in 1988 to 23 million gallons today, a greater than 98% reduction. Approximately 80% of this remaining overflow is treated at MWRA's Cottage Farm CSO facility.

These improvements are the result of major wastewater system projects, most notably the Deer Island Wastewater Treatment Plant and related conveyance and pumping systems, as well as the CSO control projects completed to date. MWRA and the CSO communities along the Charles River completed a set of improvements in the late 1980s that eliminated dry weather sewage overflows at CSO outfalls. They also completed a set of system optimization projects in the mid-1990s that maximized the wastewater system's hydraulic performance and lowered CSO discharges. MWRA and the communities have also completed six CSO control projects along the Charles River: Cottage Farm Facility Upgrade (2000), CAM005 Hydraulic Relief (2000), Independent Floatables Controls and Outfall Closings Project (2001), Stony Brook Sewer Separation (2006), Cottage Farm Brookline Connection and Inflow Controls (2009), Bulfinch Triangle Sewer Separation (2010) and Brookline Sewer Separation (2013).

In the same period, communities along the Charles River have continued programs aimed at reducing pollution in separate stormwater discharges, including identifying and removing illicit sewer connections to storm drains. The CSO and stormwater related improvements have contributed to significant and steady water quality improvement in the Charles River Basin during dry and wet weather conditions, as shown in Figure 11 on page 25.

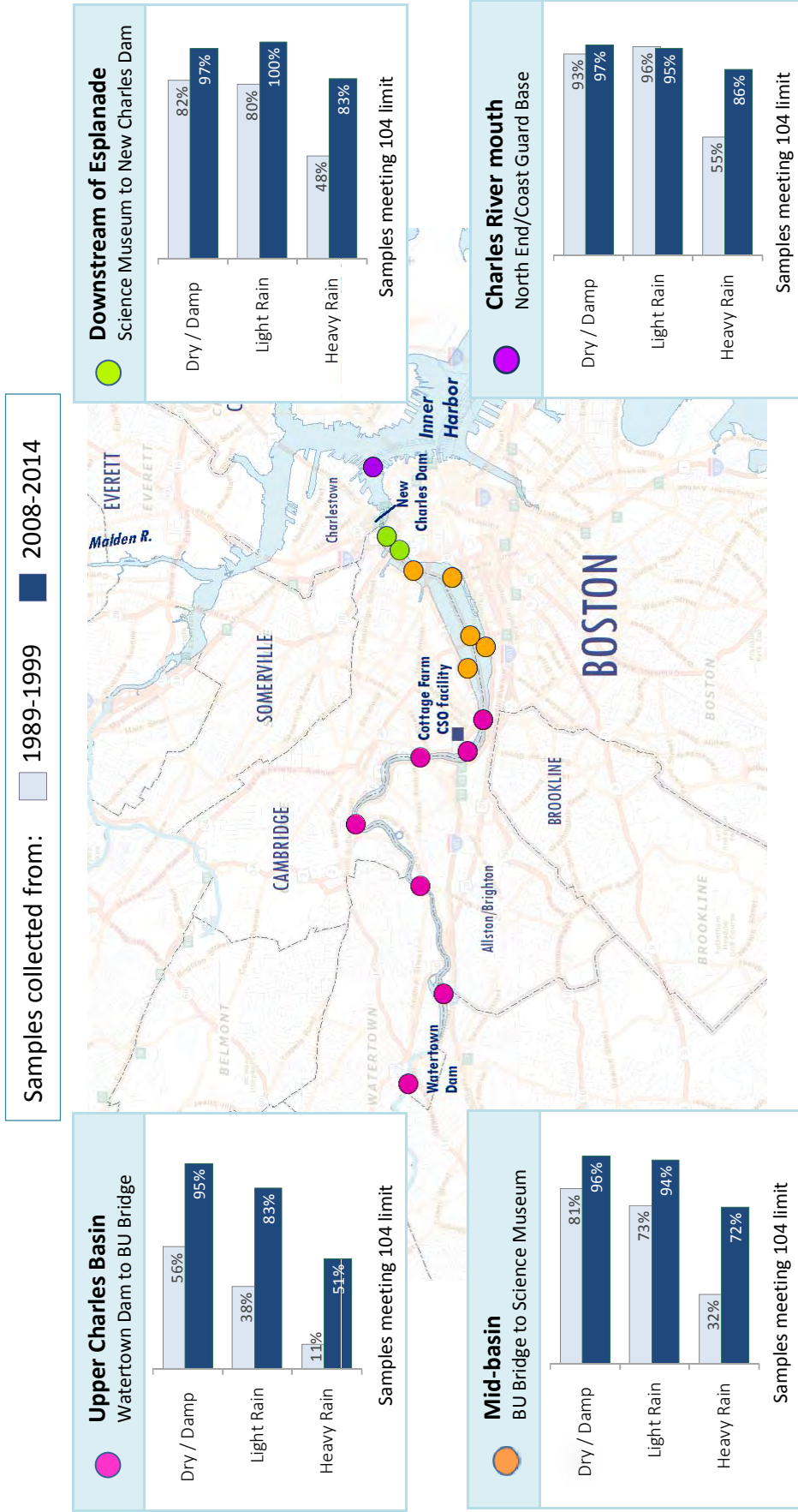
In the Mystic River, Figure 12 on page 26 shows improvement in all areas of the Mystic after 2008, with the Lower Mystic and Mystic River mouth having the best water quality. These areas meet water quality limits most of the time, with more than 90% of bacteria samples meeting the *Enterococcus* swimming standards of 104 cfu/100mL in all weather conditions for 2008 through 2014. Bacterial water quality in the Upper Mystic is also good, with bacteria meeting limits more than 90% of the time, in all but heavy rain. While conditions worsen in heavy rain events, these rainfall conditions are relatively infrequent.

Bacteria counts in Alewife Brook - where major CSO control work will be underway through 2015 - frequently fail to meet swimming limits in wet weather, and water quality is particularly poor after heavy rain. However, Alewife Brook's influence on downstream water quality conditions in the Mystic main stem is limited, with bacterial conditions downstream showing little influence from Alewife Brook.

Figure 13 on page 27 shows improvement in water quality over time in the Neponset River, though the magnitude of improvements varies by river segment, with upstream locations showing the most significant change, particularly at the Baker Dam. CSO discharges were eliminated in 2000 with completion of the Neponset River sewer separation project. Prior to the project, CSO flows were discharged at two BWSC outfalls in the Granite Ave. and Lower Neponset area. Water quality data show improvement after 1999 downstream of these former CSOs, and also further upstream at the Baker Dam, which shows improvement in dry as well as wet weather conditions. Bacteria levels generally meet swimming standards at the mouth of the Neponset River in all but heavy rainfall conditions, where there is considerable dilution with the water of South Dorchester Bay.

**Figure 11**  
**Change in Lower Charles River Water Quality Over Time**

Graphs show the percent of samples meeting the *Enterococcus* bacteria limit for swimming, 104 counts/100mL, by river reach.

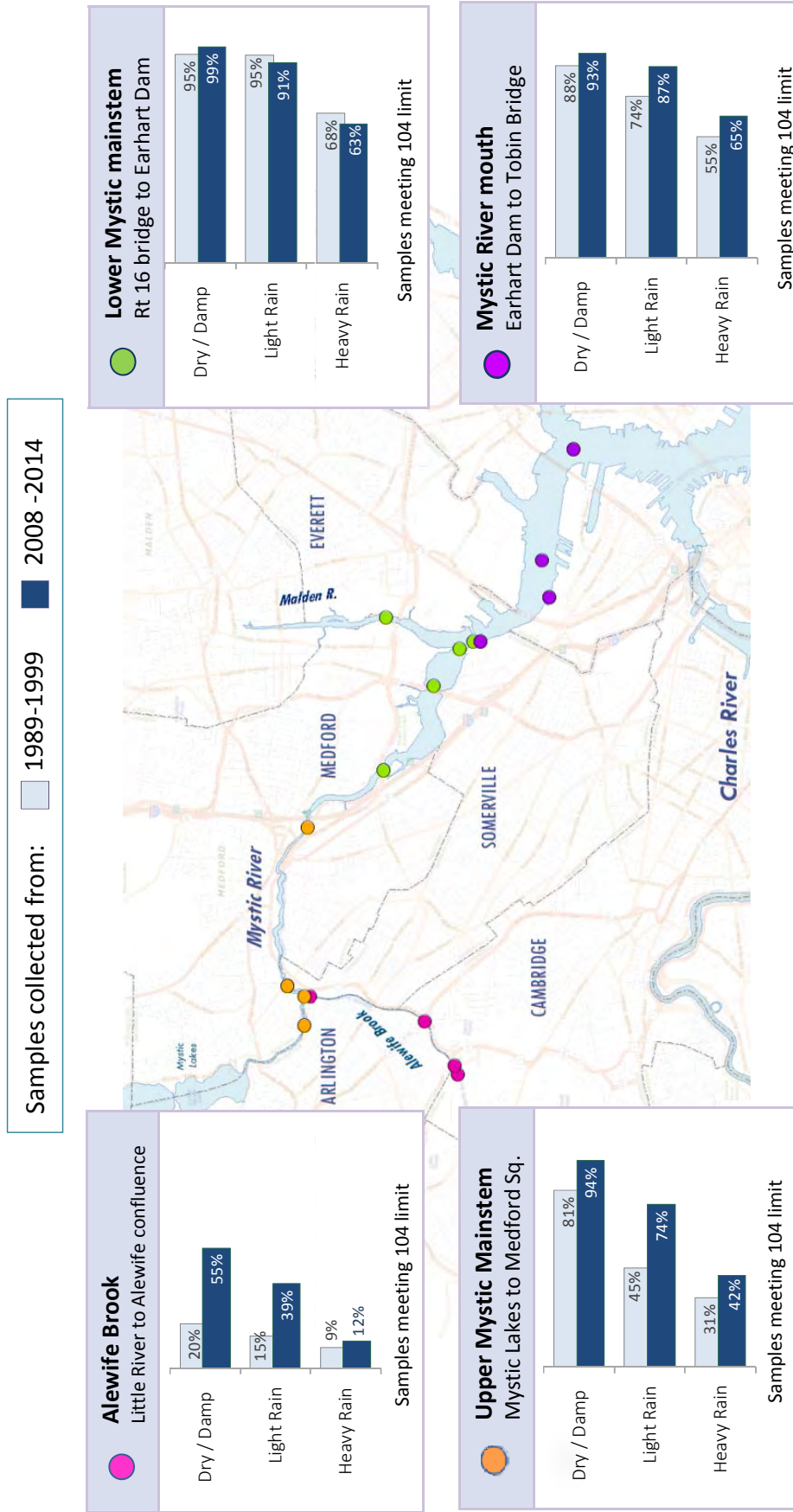


Dots are MWRA sampling locations. State swimming standards for *Enterococcus* single sample limit is 104 cfu/100 mL. Rainfall: Heavy Rain is at least 0.5 inches of rain in previous 48 hours; Light Rain is between 0.1 and 0.5 inches of rainfall in previous 48 hours. 2008 – 2014 period is considered current conditions, following substantial completion of infrastructure improvements. Data from intervening years (2000 – 2007) are excluded.



**Figure 12**  
**Change in Mystic River Water Quality Over Time**

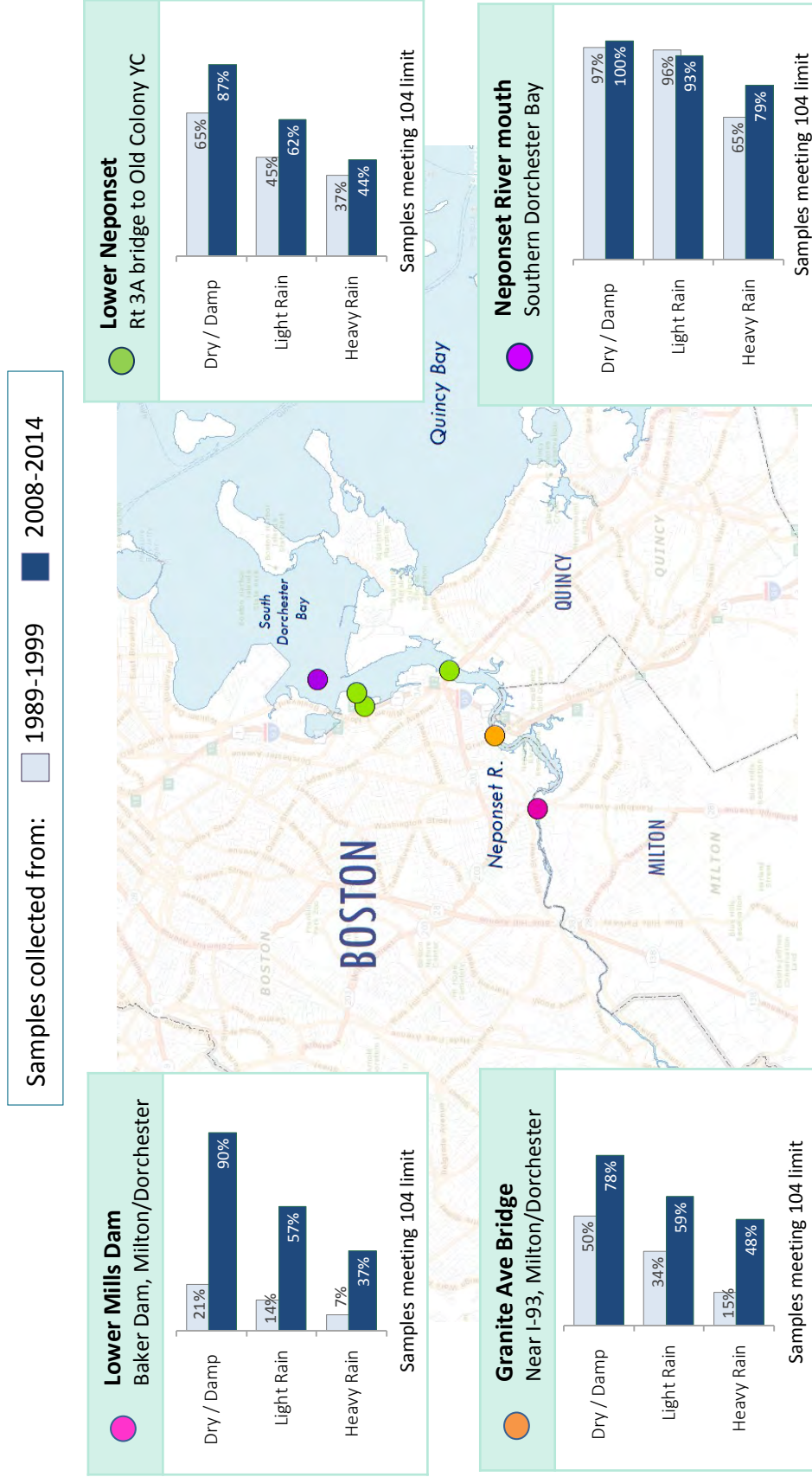
Graphs show the percent of samples meeting the *Enterococcus* bacteria limit for swimming, 104 counts/100mL, by river reach.



Dots are MWRA sampling locations. State swimming standards for *Enterococcus* single sample limit is 104 cfu/100 mL. Rainfall: Heavy Rain is at least 0.5 inches of rain in previous 48 hours; Light Rain is between 0.1 and 0.5 inches of rainfall in previous 48 hours. 2008 – 2014 period is considered current conditions, following substantial completion of infrastructure improvements. Data from intervening years (2000 – 2007) are excluded.

**Figure 13**  
**Change in Lower Neponset River Water Quality Over Time**

Graphs show the percent of samples meeting the *Enterococcus* bacteria limit for swimming, 104 counts/100mL, by river reach.



Dots are MWRRA sampling locations. State swimming standards for *Enterococcus* single sample limit is 104 cfu/100 mL. Rainfall: Heavy Rain is at least 0.5 inches of rain in previous 48 hours; Light Rain is between 0.1 and 0.5 inches of rainfall in previous 48 hours. 2008 – 2014 period is considered current conditions, following substantial completion of infrastructure improvements. Data from intervening years (2000 – 2007) are excluded.

Improvement in the quality of Boston Inner Harbor waters is also seen in the changes to *Enterococcus* bacteria counts over the period 1989 to 2010, shown in Figure 14 on page 29. Improvement was greatest in the Upper Inner Harbor and in Chelsea Creek, which had more serious wet weather pollution problems. Bacteria data presented in Figure 14 indicate that water quality conditions improved greatly with the significant increase in wastewater transport and treatment capacity (delivery to the Deer Island Treatment Plant) in the period 1989 to 1991. This increase in delivery capacity greatly reduced CSO discharges at most outfalls. Since then, wet-weather water quality continues to improve in Boston Harbor and its tributary rivers, but at a slower pace, due in part to diminishing returns on wastewater pollution investments and the dominance of other sources of pollution, including urban stormwater.

As shown in Figure 15 on page 30, wet weather water quality conditions in Boston Harbor and its tributary rivers improved after the significant increase in wastewater transport and treatment capacity in the early 1990's. Since then, wet weather conditions have continued to improve with implementation of the CSO projects. By 2008, MWRA and the CSO communities had completed many of the CSO control projects that further reduced or eliminated discharges at most CSO outfalls, including outfalls to the Charles River, Mystic River and Chelsea Creek. In the same period, community efforts to control urban stormwater pollution were underway, and these efforts have continued.

### **South Boston Beaches**

The results of water quality sampling along the beaches of South Boston (Figure 16 on page 31) show significantly improved conditions following start-up operation of the CSO storage tunnel in May 2011, just prior to the 2011 swimming season. Water quality along the beaches was excellent during the 2014 swimming season, with 100% of the Department of Conservation and Recreation's sampling results meeting bacteria limits for swimming.

The fraction of days failing to meet the bacteria limit at one or more beaches in South Boston dropped from an average of 18% in the five years prior to the tunnel opening to an average of 4% in the years following its opening. The few remaining water quality violations and related beach closings are not CSO related (there has been no CSO discharge since May 2011), and may be caused by environmental factors such as near-field overland stormwater runoff contaminated with pet waste or bird droppings.

During 2014, the storage tunnel captured approximately 203 million gallons of CSO and separate stormwater and prevented any CSO or stormwater discharge to the beaches in approximately 97 rainfall events. Since start-up in May 2011, the storage tunnel has captured 753 million gallons of CSO and stormwater, and there has been no discharge of CSO to the beaches, two discharges of stormwater to the beaches (during Hurricane Irene in August 2011 and a portion of the storm of December 9, 2014), and two transfers of stormwater to Savin Hill Cove.

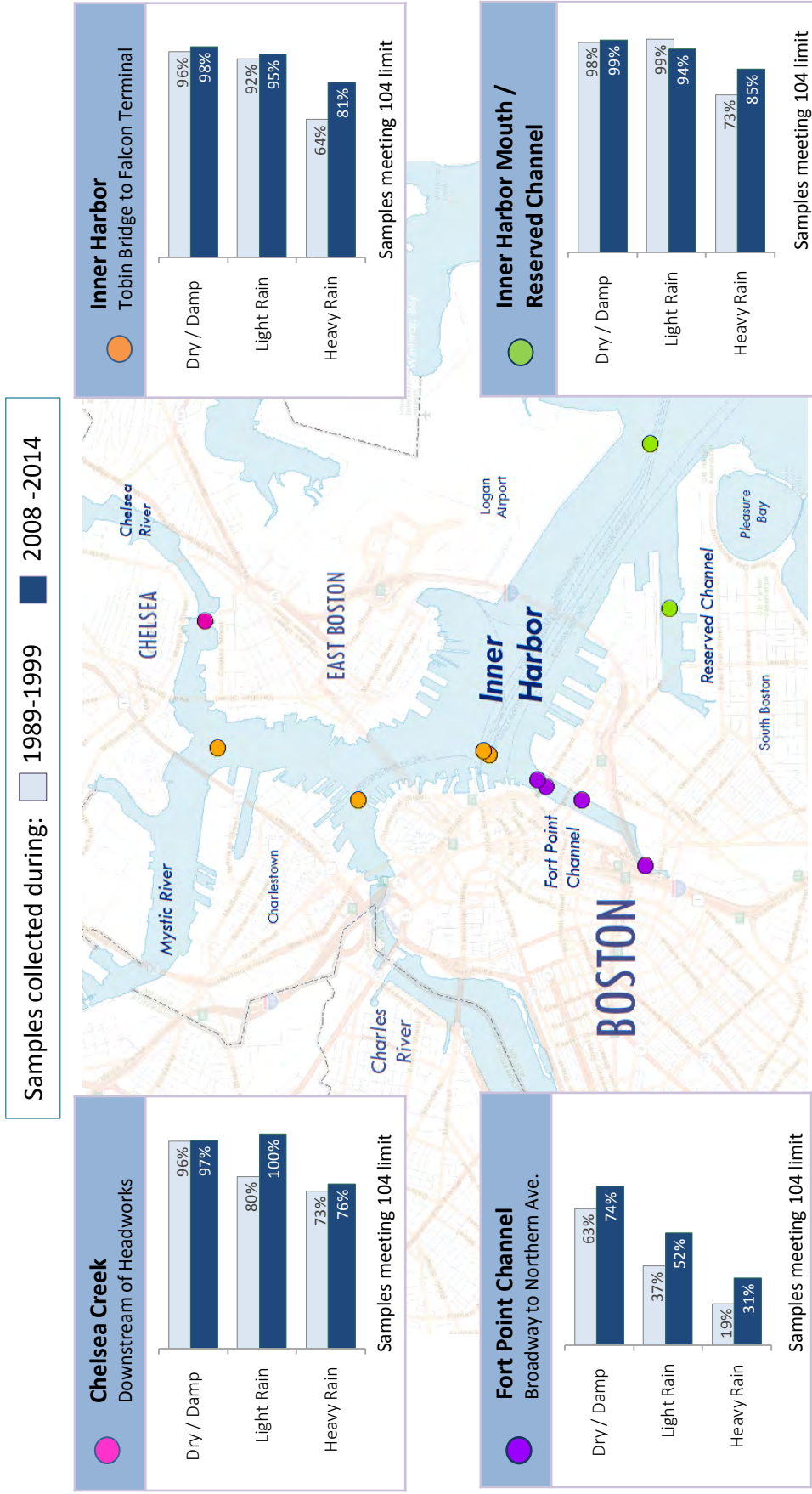


**Edward J. McCormack Boathouse, Carson Beach, South Boston**



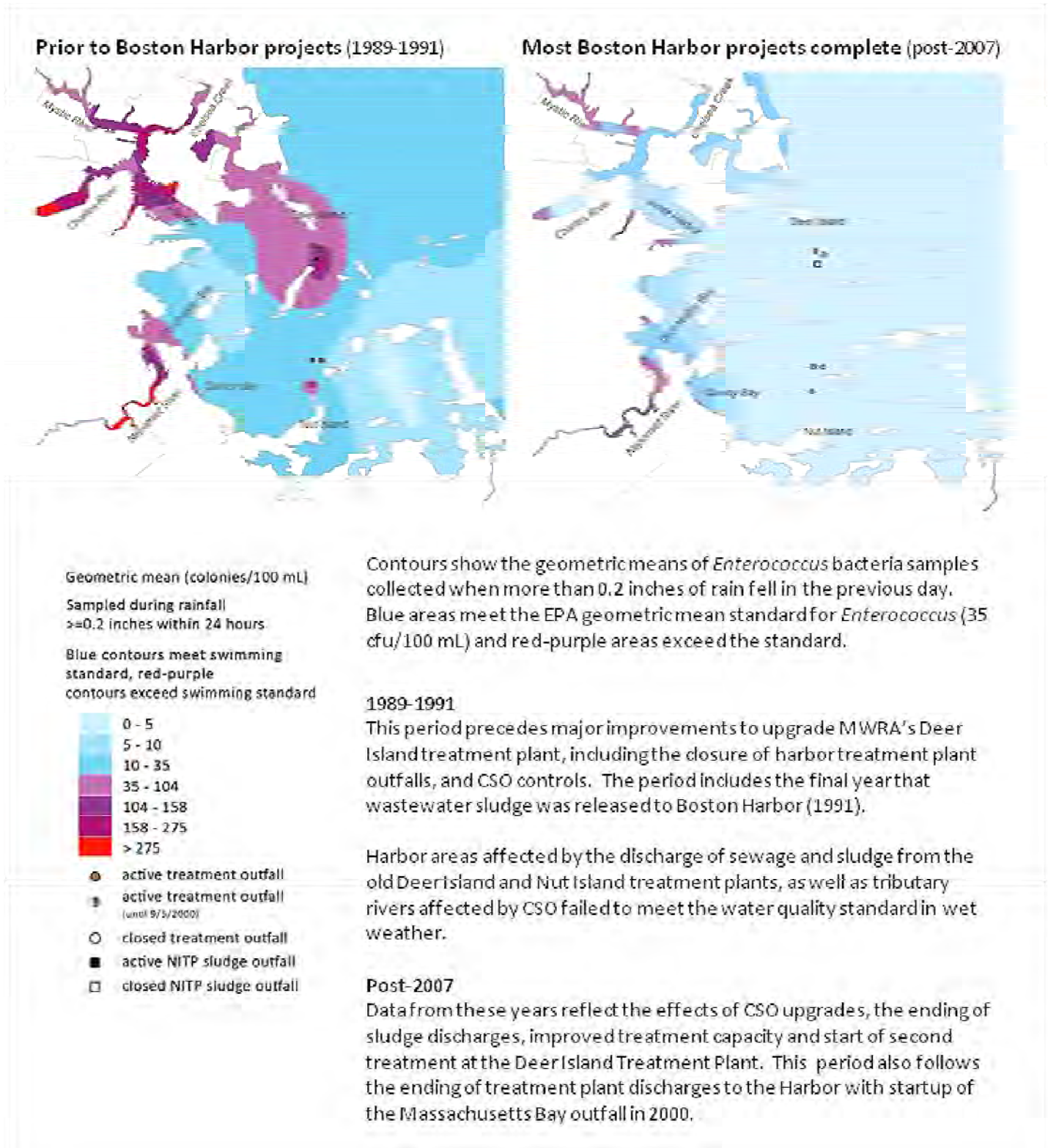
**Figure 14**  
**Change in Inner Harbor Water Quality Over Time**

Graphs show the percent of samples meeting the *Enterococcus* bacteria limit for swimming, 104 counts/100mL.



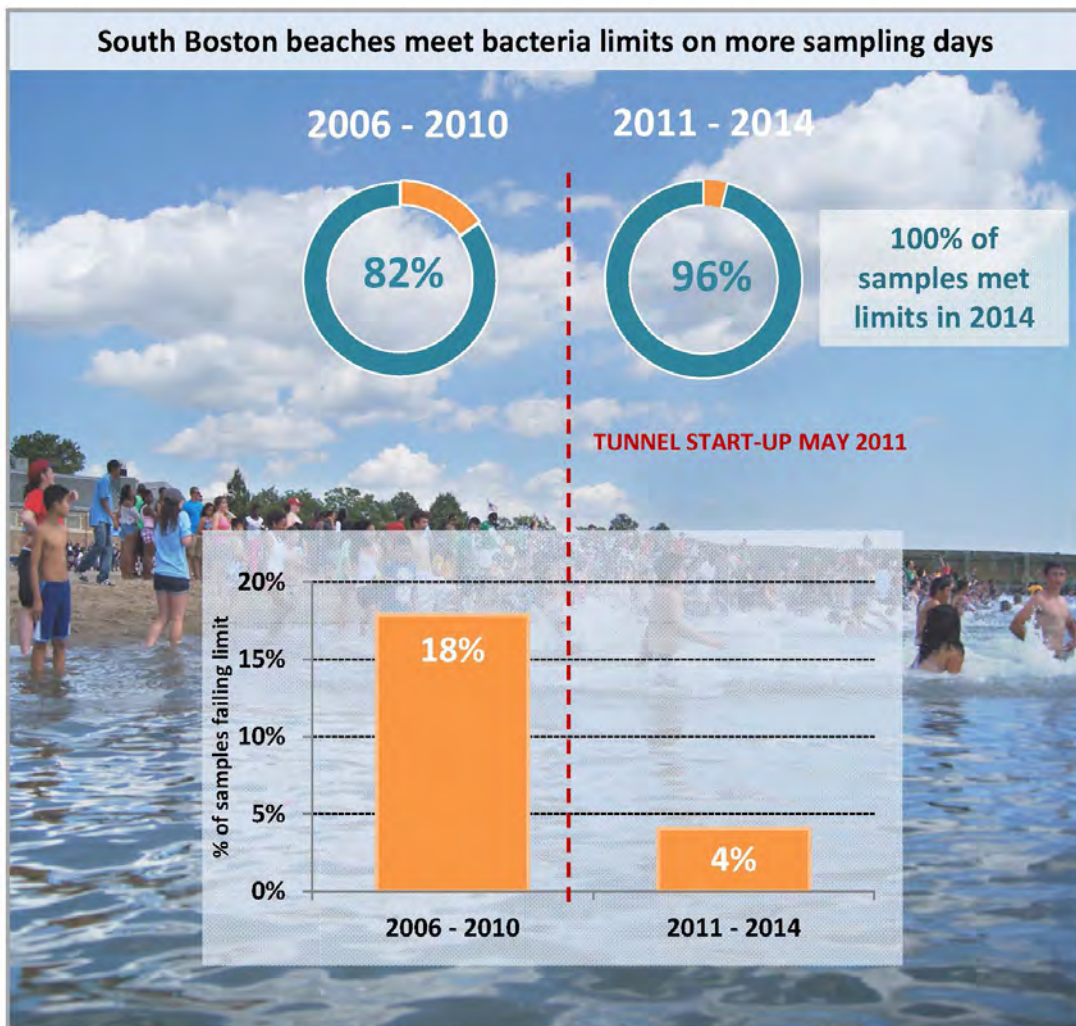
Dots are MWRA sampling locations. State swimming standards for *Enterococcus* single sample limit is 104 cfu/100 mL. Rainfall: Heavy Rain is at least 0.5 inches of rain in previous 48 hours; Light Rain is between 0.1 and 0.5 inches of rainfall in previous 48 hours. 2008 – 2014 period is considered current conditions, following substantial completion of infrastructure improvements. Data from intervening years (2000 – 2007) are excluded.

**Figure 15:**  
**Changes in Boston Harbor *Enterococcus* Bacteria in Wet Weather**





**Figure 16: Water Quality Improvements at South Boston Beaches**



Results from DCR swimming seasons for 2006 through 2010 and 2011 through 2014 were used to calculate the fraction of bacteria samples that met the posting limit of 104 cfu/100 mL Enterococcus. Pleasure Bay had no CSO discharges and is excluded.

#### 4. REGULATORY AND COURT SCHEDULE COMPLIANCE ACTIVITY

##### 4.1 Regulatory Compliance Activities

On August 29, 2013, DEP issued Final Determinations to extend the CSO-related variances to the water quality standards for Alewife Brook/Upper Mystic River and the Lower Charles River/Charles River Basin, subsequently approved by EPA in July of 2014. The variance extensions have three-year terms through September 1, 2016, and October 1, 2016, respectively. The variances apply only to the permitted CSO outfalls to these receiving waters and do not otherwise modify Class B water quality standards. In accordance with the variances, CSO discharges from permitted outfalls are not required to meet effluent limits based on the Class B criteria when flow in the collection system exceeds the system's conveyance capacity as a result of precipitation or snow melt. Through its continued implementation of the Nine Minimum Controls, MWRA maintains the conveyance capacity of its collection system and has improved the handling of wet weather flows through system optimization efforts, most



recently through improvements to the operations of influent gates at Prison Point and Cottage Farm CSO treatment facilities implemented in the last few years. The variances require continued implementation of CSO long term control measures consistent with MWRA's Long-Term Control Plan and compliance with other requirements referenced herein.

The 2013-2016 variance extensions acknowledge that it would not be feasible to fully attain the Class B bacteria criteria and associated recreational uses for these receiving waters within that three-year period. The agreement reached by EPA, DEP and MWRA in March 2006 included an understanding that DEP would reissue three-year variance extensions to 2020. This agreement was based in part on the determination that implementation of controls necessary for full attainment of the Class B bacteria criteria and associated use (i.e. elimination of CSO) would result in substantial and widespread economic and social impact. MWRA expects that DEP will reissue and EPA will approve the variance extensions through 2020 in accordance with the agreement. At that time, with information MWRA is required to provide to verify the level of CSO control attained by MWRA's completed Long-Term Control Plan, MWRA expects that DEP will reassess the feasibility of attaining Class B uses and may make long-term water quality standards determinations for these receiving waters.

In 2014, MWRA continued to respond to the CSO-related requirements and conditions in its NPDES Permit and in the CSO variances for the Alewife Brook/Upper Mystic River and the Lower Charles River Basin. Examples of MWRA's compliance responses to the permit and variance requirements include:

- By April 15th each year, in compliance with the Alewife Brook/Upper Mystic River variance, MWRA and the cities of Cambridge and Somerville issue a joint CSO press release that is also distributed to watershed advocacy groups, local health agents, and the owners of property in the Alewife Brook flood plain. The press release includes updated information describing CSOs, potential health risks of exposure to CSO discharges, locations of CSO discharges, and the status of MWRA's CSO abatement program for the Alewife Brook.
- In compliance with the Lower Charles River Basin variance, MWRA issues notice of each CSO discharge at the Cottage Farm facility to local regulatory agencies, health agents, community rowing and boat houses within 24 hours of the start of discharge. While MWRA has reduced the average annual frequency of Cottage Farm facility discharges from approximately 22 times per year for 1997 sewer system conditions to 5 times per year with current system conditions, Cottage Farm remains the most active CSO outfall on the Charles River and, therefore, an appropriate indicator of CSO impacts from other, untreated, outfalls.
- In compliance with the Alewife Brook/Upper Mystic River variance, the City of Cambridge issues notice of CSO discharge to the Alewife Brook within 24 hours of a discharge, as measured by a city meter at the most active outfall (CAM401B).
- MWRA continued to conduct its harbor and river water quality sampling and testing program in all waters affected by CSO, collect water quality data throughout the year, and report the results to EPA and DEP.
- By April 30<sup>th</sup> each year, MWRA reports its estimates of CSO discharge at every active outfall for all storms in the previous calendar year (see Section 4.2).

#### **4.2 Annual CSO Discharge Reporting and Performance Tracking**

In compliance with its NPDES permit and the CSO variances for the Charles River and Alewife Brook/Upper Mystic River, each year MWRA performs a review of facility operation records, meter data and other system performance indicators, updates its collection system hydraulic model, and produces estimates of CSO activations and discharge volume at all active outfalls during the previous calendar year. MWRA submitted the CSO discharge estimates for calendar year 2013 to EPA and DEP on April 30, 2014. The 2013 discharge report included estimates of the number of activations and discharge duration and volume per storm for each of the outfalls that were potentially active that year. MWRA has commenced the model updates for the calendar year 2014 discharge estimates and plans to model the 2014 storms and report the CSO discharge estimates by April 30, 2015.

MWRA incorporates completed sewer system improvements, such as completed CSO projects, other significant system or operational changes and any other new information about system conditions into the model. Information from facility records is used to configure the facility operational assumptions in the model for each modeled storm event. Meter data and other system performance indicators are used to compare measured conditions to the model results for selected storms, allowing MWRA to verify the model's accuracy prior to modeling the actual storms in the previous calendar year.

For 2013, MWRA modeled each of the 97 rainfall events that year, as recorded at MWRA, community and USGS rainfall gages. Data from MWRA and community rainfall gages are used to create geographical rainfall inputs to the model. The discharge estimates reported to EPA and DEP are based on the model predictions, except at CSO treatment facilities, where MWRA uses measurements from the facility records in lieu of the model predictions.

In addition to modeling all of the actual rainfall events for the previous calendar year, MWRA also models the "Typical Year" rainfall with end-of-year updated system conditions. This allows MWRA to compare the updated system performance against the levels of control in the Long-Term Control Plan and to track progress toward the CSO control goals, which are based on the Typical Year rainfall that was approved by EPA and DEP for CSO performance goals and measurement. To be able to understand and explain the estimated discharges for each calendar year, which can vary greatly from Typical Year predictions, MWRA performs a detailed review and comparison of the characteristics of the year's actual storms to the characteristics of the storms in the Typical Year.

For the 2014 CSO discharge report that MWRA will submit to EPA and DEP by April 30, 2015, updates to MWRA's collection system model from end-of-year 2013 conditions to end-of-year 2014 conditions will incorporate the stormwater inflow removal resulting from BWSC's completion of Reserved Channel sewer separation Contract 3B, the City of Chelsea's closure of Outfall CHE002, and the City of Cambridge's removal of a 10-inch orifice plate that temporarily restricted the capacity of the upgraded dry weather flow connection at Outfall CAM401B. MWRA will also incorporate any significant modifications or adjustments to the configuration or operation of the new bending weirs at Outfall CAM017 by the City of Cambridge since it installed the weirs in 2013.

### **4.3 Compliance with Remaining Court Milestones**

Schedule Seven in the Federal Court Order includes four CSO milestones in 2015 and three CSO milestones in 2016 and beyond and the last CSO milestone date in the Federal Court Order is December 2020. The last project construction completion milestone is December 2015. Table 4 on page 34 lists the remaining milestones and summarizes MWRA's plans for compliance.

## **5. LONG-TERM CONTROL PLAN AND UPDATED COST**

### **5.1 Long-Term Control Plan Approval**

In 1987, through a stipulation entered in the Boston Harbor Case (U.S. v. M.D.C., et al., No. 85-0489 MA), MWRA accepted responsibility for developing a control plan to address the discharges from all CSOs hydraulically connected to the MWRA sewer system, including outfalls owned by its member communities. Under a Court-ordered schedule, MWRA recommended a CSO Conceptual Plan in 1994 that included 25 site-specific CSO projects located in Boston, Cambridge, Chelsea and Somerville. The CSO Conceptual Plan was later refined in the 1997 Facilities Plan/EIR.

In March 2006, MWRA reached an agreement with the United States and DEP on the scope and schedule for additional CSO projects, which was filed with the Court as part of a joint motion to amend the Court Schedule. In April 2006, the Court allowed the joint motion and issued an Order with a new schedule. As a result, MWRA's Long-Term Control Plan now includes 35 projects. Under the Order, MWRA has until 2020 to complete the remaining CSO work and subsequent system performance assessment which will be used to verify that the Long-Term Control Plan goals are achieved.

**Table 4: Remaining Schedule Seven Milestones**

Milestone	Project Schedule
<b>Mar 2015</b> <i>MWRA to submit annual report which describes progress in planning, design, and construction of each CSO project, and identifies any issues which may interfere with timely completion of any project.</i>	MWRA plans to file the Annual Report for 2014 with the Court on March 13, 2015.
<b>Oct 2015</b> <i>MWRA to complete construction of control gate and floatables control at outfall MWR003, and MWRA Rindge Avenue Siphon relief.</i>	MWRA's construction schedule calls for substantial completion by October 2015.
<b>Dec 2015</b> <i>MWRA, in cooperation with Cambridge, to complete construction of CAM004 sewer separation.</i>  <i>MWRA, in cooperation with BWSC, to complete construction of Reserved Channel sewer separation.</i>	<p>The four remaining construction contracts are underway. The City of Cambridge is making every effort during construction to be able to attain substantial completion of all construction contracts by December 2015.</p> <p>BWSC plans to complete the last of nine construction contracts for this project by December 2015. Five construction contracts are substantially complete, and the remaining four are well underway.</p>
<b>Mar 2016</b> Submit Annual Report	MWRA plans to file the Annual Report for 2015 (the last required Annual Report) by March 15, 2016.
<b>Jan 2018</b> <i>MWRA to commence three-year performance assessment of its Long-Term CSO Control Plan. The assessment shall include post-construction monitoring in accordance with EPA's Combined Sewer Overflow (CSO) Policy, 59 Fed. Reg. 18688 (Apr. 19, 1994).</i>	MWRA's Capital Improvement Program includes a three-year performance assessment of its Long-Term Control Plan beginning in January 2018.
<b>Dec 2020</b> <i>MWRA to submit results of its three-year performance assessment of its Long-Term CSO Control Plan to the EPA and DEP. MWRA to demonstrate that it has achieved compliance with the levels of control (including as to frequency of CSO activation and as to volume of discharge) specified in its Long-Term CSO Control Plan.</i>	MWRA's Capital Improvement Program includes preparation of a report on the results of a three-year performance assessment of its Long-Term Control Plan to be submitted to EPA and DEP by December 2020.

The United States and MWRA also agreed to withdraw their February 27, 1987 Stipulation of the United States and the Massachusetts Water Resources Authority on Responsibility and Legal Liability for Combined Sewer Overflows and replace it with a second CSO stipulation that would require MWRA to implement the CSO requirements set forth in the Court Schedule and to meet the levels of control described in MWRA's Long-Term Control Plan. The documents that recommend MWRA's Long-Term Control Plan, including the 1997 Final CSO Facilities Plan/EIR as amended by subsequent notices of project change and supplemental plans, are identified in the March 15, 2006 Second Stipulation of the United States and the Massachusetts Water Resources Authority on Responsibility and Legal Liability For Combined Sewer Overflows, amended on May 7, 2008.



## 5.2 Scope, Benefits and Cost of the Approved Plan

The approved Long-Term Control Plan for each receiving water segment is identified in Table 5 on page 36. The CSO control costs by receiving water segment and the total plan cost of \$898.3 million (in December 2015 dollars)<sup>2</sup> are from MWRA's Proposed FY16 CIP.

MWRA's Long-Term Control Plan is predicted to reduce annual CSO discharge volume in the typical year from 3.3 billion gallons in 1988 to 0.4 billion gallons in 2015, an 88% reduction. Of the remaining discharge volume, 93% will receive treatment at MWRA's four CSO facilities: Cottage Farm, Prison Point, Somerville Marginal and Union Park. The overall performance goals of this approved plan measured as remaining CSO activations and annual discharge volume to each receiving water segment are presented in Table 5 on page 36 and in Figure 9 on page 23. The Long-Term Control Plan also calls for closing 34 of the 84 CSO outfalls addressed in the plan (33 of these are now closed and five additional outfalls have been closed by BWSC and the cities of Cambridge and Chelsea).

Schedule Seven requires MWRA to undertake a three-year, system-wide performance assessment commencing in January 2018 to verify attainment of the level of CSO control at every outfall in accordance with the plan and in compliance with water quality standards. Schedule Seven also requires MWRA to submit a report on the results of the performance assessment by December 2020. It is at that time that EPA and DEP propose to make final decisions regarding water quality standards for the Charles River and Alewife Brook. If MWRA demonstrates attainment of the levels of CSO control in its approved Long-Term Control Plan, it will have met its responsibility with respect to the implementation of CSO controls for the community owned CSO outfalls hydraulically connected to its sewer system. Thereafter, if additional CSO control beyond the levels of control in MWRA's long-term plan is deemed by EPA and DEP to be warranted at any outfall, remediation will be the individual responsibility of the respective discharge permittee i.e. MWRA, BWSC, Cambridge, Chelsea and Somerville.

The total CSO program cost has increased from \$893.8 million in the 2013 Annual Report (Proposed FY15 CIP) to \$898.3 million in this 2014 Annual Report (Proposed FY16 CIP), an increase of \$4.5 million (0.5%). While the cost estimates for several projects increased or decreased slightly, the Town of Brookline's final cost estimate for the Brookline sewer separation project decreased by \$1.2 million and BWSC's cost estimate to complete the Reserved Channel sewer separation project increased by \$5.5 million primarily due to unforeseen subsurface conditions and new information providing opportunities for higher stormwater inflow removal (with additional storm drain and sewer construction).

The approvals MWRA secured from EPA and DEP in 2006 on the revised Long-Term Control Plan, along with the associated changes to the Court Order, provide MWRA more certainty of the scope of its CSO obligations and related capital program revenue need, borrowing calculations, and determination of future rate increases. However, the remaining projects will continue to carry cost and schedule risk until they are completed. This is in part due to the engineering complexities that are faced in the historical and densely urban areas and waterfront environments in which they must be constructed. Subsurface conditions, including soil and groundwater characteristics, soil and groundwater contamination, utilities and other subsurface obstructions, as well as traffic management, are key contributors to a continuing level of risk during construction.

## 5.3 Project Schedules

Most of the CSO projects are complete, and the remaining projects are on schedules intended to meet the milestones set forth in Schedule Seven. Table 6 on page 37 presents MWRA's and the CSO communities' schedules for implementing the 35 projects in the Long-Term Control Plan. For more information about ongoing project progress and project schedules relative to the remaining milestones in Schedule Seven, see the project reports in Section 2.3.

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<sup>2</sup> MWRA's Proposed FY16 CIP anticipates a total spending for CSO control of \$901.0 million, including escalation to the midpoint of construction and contingency, to complete the plan on schedule.

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**Table 5: Long-Term CSO Control and Cost by Receiving Water Segment**

Receiving Water	CSO Discharge Goals (typical rainfall year)		Projects <sup>(1)</sup>	Capital Cost <sup>(2)</sup> (\$ million)
	Activations	Volume (million gallons)		
Alewife Brook/Upper Mystic River	7 untreated and 3 treated @ Somerville Marginal	7.3 3.5	<ul style="list-style-type: none"> <li>• Cambridge/Alewife Sewer Separation</li> <li>• MWR003 Gate and Rindge Siphon Relief</li> <li>• Interceptor Connections/Floatables</li> <li>• Connection/Floatables Control at Outfall SOM01A</li> <li>• Somerville Baffle Manhole Separation</li> <li>• Cambridge Floatables Control (portion)</li> </ul>	97.6
Mystic River/Chelsea Creek Confluence and Chelsea Creek	4 untreated and 39 treated @ Somerville Marginal	0.6 60.6	<ul style="list-style-type: none"> <li>• Somerville Marginal CSO Facility Upgrade</li> <li>• Hydraulic Relief at BOS017</li> <li>• Chelsea Trunk Sewer Replacement</li> <li>• Chelsea Branch Sewer Relief</li> <li>• CHE008 Outfall Repairs</li> <li>• East Boston Branch Sewer Relief (portion)</li> </ul>	78
Charles River (including Stony Brook and Back Bay Fens)	3 untreated and 2 treated @ Cottage Farm	6.8 6.3	<ul style="list-style-type: none"> <li>• Cottage Farm CSO Facility Upgrade</li> <li>• Stony Brook Sewer Separation</li> <li>• Hydraulic Relief at CAM005</li> <li>• Cottage Farm Brookline Connection and Inflow Controls</li> <li>• Charles R. Interceptor Gate Controls (study only)</li> <li>• Brookline Sewer Separation               <ul style="list-style-type: none"> <li>• Bulfinch Triangle Sewer Separation</li> </ul> </li> <li>• MWRA Outfall Closings and Floatables Control</li> <li>• Cambridge Floatables Control (portion)</li> </ul>	89.1
Inner Harbor	6 untreated and 17 treated @ Prison Point	9.1 243.0	<ul style="list-style-type: none"> <li>• Prison Point CSO Facility Upgrade</li> <li>• Prison Point Optimization</li> <li>• BOS019 Storage Conduit</li> <li>• East Boston Branch Sewer Relief (portion)</li> </ul>	61.6
Fort Point Channel	3 untreated and 17 treated @ Union Park	2.5 71.4	<ul style="list-style-type: none"> <li>• Union Park Treatment Facility</li> <li>• BOS072-073 Sewer Separation and System Optimization</li> <li>• BWSC Floatables Control</li> <li>• Lower Dorchester Brook Sewer Modifications</li> </ul>	62.4
Constitution Beach	Eliminate		<ul style="list-style-type: none"> <li>• Constitution Beach Sewer Separation</li> </ul>	3.7
North Dorchester Bay	Eliminate		<ul style="list-style-type: none"> <li>• N. Dorchester Bay Storage Tunnel and Related Facilities</li> <li>• Pleasure Bay Storm Drain Improvements</li> <li>• Morrissey Blvd Storm Drain</li> </ul>	253.9 <sup>(3)</sup>
Reserved Channel	3 untreated	1.5	<ul style="list-style-type: none"> <li>• Reserved Channel Sewer Separation</li> </ul>	72.6
South Dorchester Bay	Eliminate		<ul style="list-style-type: none"> <li>• Fox Point CSO Facility Upgrade (interim improvement)</li> <li>• Commercial Pt. CSO Facility Upgrade (interim improvement)</li> <li>• South Dorchester Bay Sewer Separation</li> </ul>	126.5
Neponset River	Eliminate		<ul style="list-style-type: none"> <li>• Neponset River Sewer Separation</li> </ul>	2.5
Regional			<ul style="list-style-type: none"> <li>• Planning, Technical Support and Land Acquisition</li> </ul>	50.3
<b>TOTAL Treated</b>		<b>413.3 384.8</b>		<b>\$898.3</b>

(1) Floatables controls are recommended at remaining outfalls and are included in the listed projects and capital budgets.

(2) From MWRA's Proposed FY16 Capital Improvement Program.

(3) Not including approximately \$9 million for land, easements and permits, carried in the budget for "Planning, Technical Support and Land Acquisition"

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**Table 6: CSO Project Cost and Schedules**

Shading indicates completed project.

Project		Cost <sup>(1)</sup> (\$million)	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 Floatables 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	Jan-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 <sup>(3)</sup>				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			
<b>Total Cost</b>		898.3			

<sup>(1)</sup> From MWRA Proposed FY16 Capital Improvement Program.

<sup>(2)</sup> Construction of this project was deleted from the CSO Plan and Schedule Seven in April 2011.

<sup>(3)</sup> Cost in "Planning & Support," below.



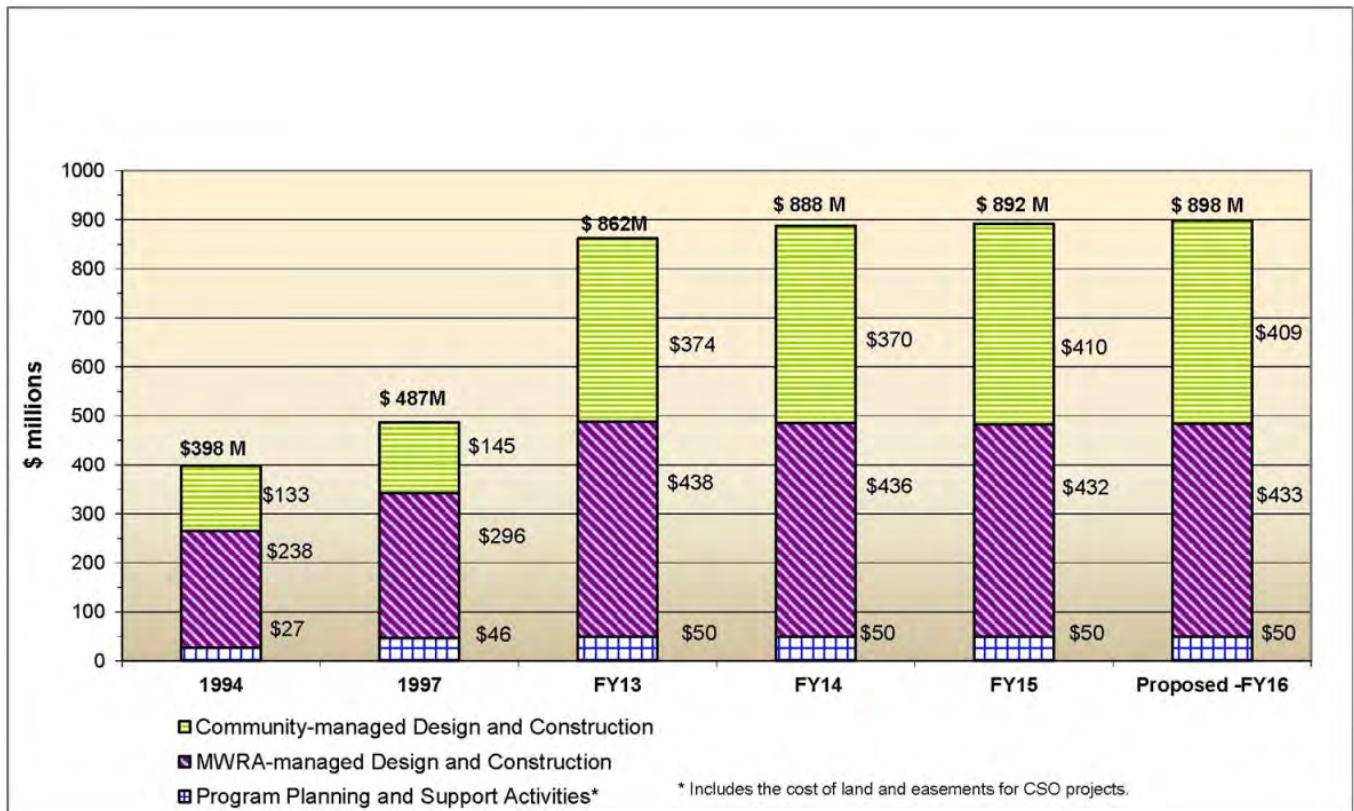
### 5.4 Capital Budget and Spending Projections

As shown in Figure 17, the total cost of the Long-Term Control Plan (planning, design and construction) rose from \$398 million when MWRA issued the Final CSO Conceptual Plan in 1994, to \$487 million when EPA and DEP approved the Final CSO Facilities Plan and Environmental Impact Report in 1997, to \$894 million in MWRA’s Proposed FY16 CIP (December 2015 dollars). With escalation of the CIP budget estimate to the mid-point of construction and contingency, MWRA projects in its Proposed FY16 CIP that it will spend a total \$901 million to complete the plan on its current schedule. As shown in Figure 18 on page 39, MWRA’s annual spending on CSO control peaked in FY08 at \$110.5 million and will continue to wind down as the few remaining CSO projects are completed.

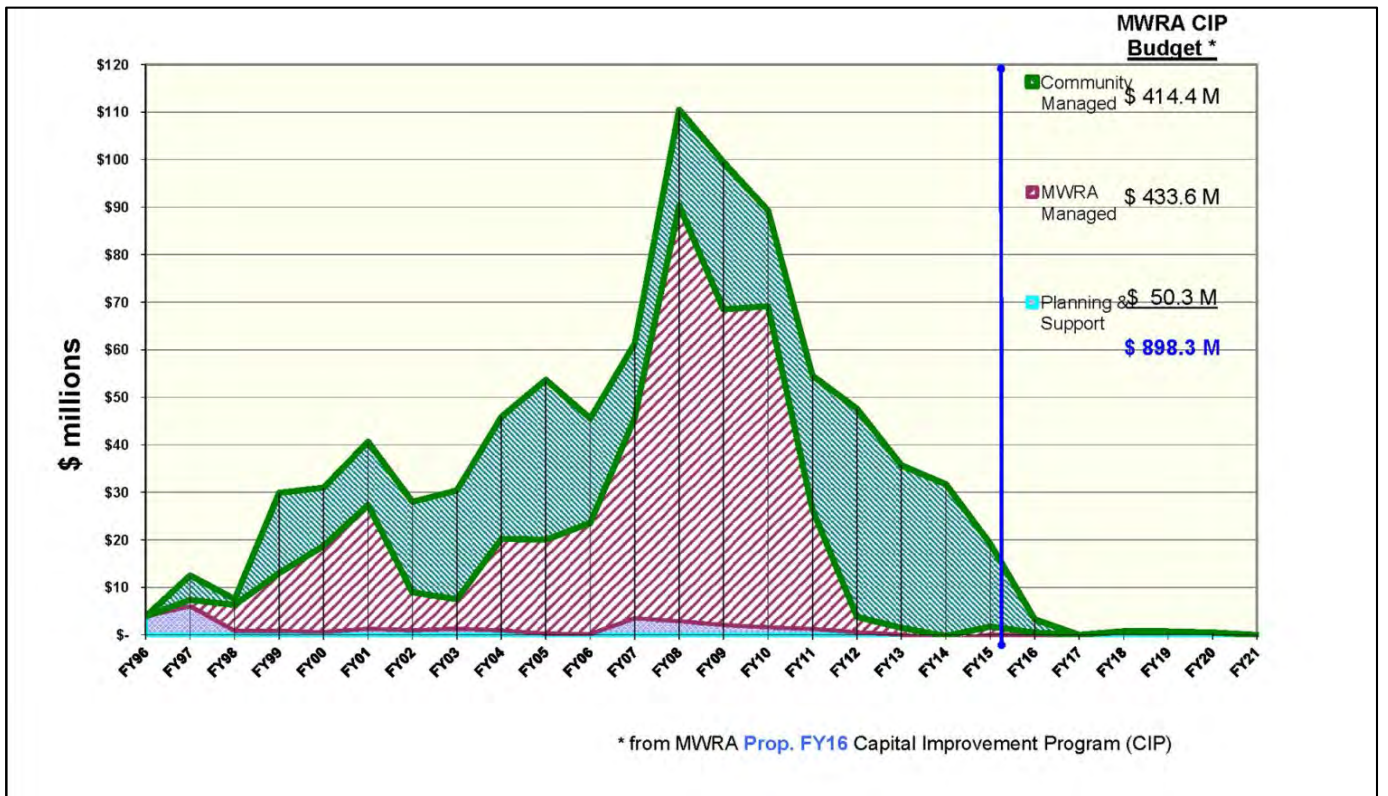
MWRA met the qualification requirements for federal stimulus funding for four CSO Program contracts: North Dorchester Bay pumping station and force main, North Dorchester Bay ventilation building, East Boston Branch Sewer Relief Contract 3, and Reserved Channel sewer separation Contract 2. The federal stimulus funding is provided to MWRA through the State Revolving Fund (SRF) program, which is administered by the Massachusetts Pollution Abatement Trust and DEP. With the stimulus funding, MWRA received \$13.8 million in forgiveness of the principle on the SRF loans for these four construction contracts.

CSO spending is scheduled to continue through FY21, when MWRA will complete a sewer system performance assessment verifying attainment of the long-term levels of CSO control. CSO spending levels will drop after December 2015 when the last two CSO projects, BWSC’s Reserved Channel sewer separation and Cambridge’s Alewife Brook CAM004 sewer separation, are scheduled to be complete.

**Figure 17: MWRA CSO Capital Budget History**





**Figure 18: MWRA CSO Program Capital Spending**





6. COMPLETED CSO PROJECTS

1. SOMERVILLE BAFFLE MANHOLE SEPARATION		
	<p><b>Receiving Water:</b> Alewife Brook, Upper Mystic River</p> <p><b>Completed:</b> 1996</p> <p><b>Capital Cost:</b> \$400,000</p> <p><b>Description:</b> Separated common manholes connecting local sewer and storm drain systems. City of Somerville performed design and construction with MWRA financial assistance.</p>	<p style="text-align: center;"><b>CSO Control</b></p> <p><b>Water Quality Benefit:</b> Eliminated CSO discharges at three City of Somerville outfalls.</p> <p><b>CSO Outfalls:</b> SOM001, SOM006, SOM007</p> <p><b>Frequency of Discharge (typical year):</b>  <b>Before project:</b> 2  <b>With project:</b> Eliminated</p> <p><b>Annual Discharge Volume (typical year):</b>  <b>Before project:</b> 0.04 million gallons  <b>With project:</b> Eliminated</p> <p><b>CSO Reduction by Volume: 100%</b></p>

2. CONSTITUTION BEACH SEWER SEPARATION		
 <p>MWRA decommissioned its Constitution Beach CSO Facility after CSO flows were eliminated by BWSC sewer separation.</p>	<p><b>Receiving Water:</b> Boston Harbor/Constitution Beach</p> <p><b>Completed:</b> 2000</p> <p><b>Capital Cost:</b> \$3,769,000</p> <p><b>Description:</b> Installed 14,000 linear feet of storm drain to separate the combined sewer system, remove stormwater flows from area sewers, and eliminate CSO discharges to Constitution Beach, allowing MWRA to decommission the Constitution Beach CSO treatment facility.</p>	<p style="text-align: center;"><b>CSO Control</b></p> <p><b>Water Quality Benefit:</b> Eliminated CSO discharges to Constitution Beach to comply with Class B water quality standards.</p> <p><b>CSO Outfalls:</b> MWR207(BOS002)</p> <p><b>Frequency of Discharge (typical year):</b>  <b>Before project:</b> 16 (treated)  <b>With project:</b> Eliminated</p> <p><b>Annual Discharge Volume (typical year):</b>  <b>Before project:</b> 1.35 million gallons  <b>With project:</b> Eliminated</p> <p><b>CSO Reduction by Volume: 100%</b></p>



**Completed CSO Projects (continued)**

**3. HYDRAULIC RELIEF AT OUTFALL CAM005  
 4. HYDRAULIC RELIEF AT OUTFALL BOS017**



**Receiving Water:**  
 CAM005: Upper Charles River Basin  
 BOS017: Mystic River/Chelsea Creek Confluence

**Completed:**  
 2000

**Capital Cost:**  
 \$2,295,000

**Description:**  
 CAM005: In Cambridge, relieved the 40-foot long, 24-inch diameter dry weather connection between the CAM005 regulator and MWRA's North Charles Metropolitan Sewer with a 54-inch additional connection.

BOS017: In Charlestown, installed 190 feet of 36-inch diameter pipe in Sullivan Square to divert two local (BWSC) combined sewers to a direct connection with MWRA's Cambridge Branch Sewer. In addition, eliminated a 10-foot long restriction between the Charlestown and Cambridge Branch Sewers, adjacent to Sullivan Square.

**CSO Control**

**Water Quality Benefit:**  
 Minimized CSO discharges to meet B(cso) water quality standards (>95% compliance with Class B).

**CSO Outfalls:**  
 CAM005, BOS017

**CAM005:**  
**Frequency of Discharge (typical year):**  
 Before project: 11  
 With project: 3

**Annual Discharge Volume (typical year):**  
 Before project: 3.8 million gallons  
 With project: 0.84 million gallons

**CSO Reduction by Volume: 78%**

**BOS017:**  
**Frequency of Discharge (typical year):**  
 Before project: 18  
 With project: 1

**Annual Discharge Volume (typical year):**  
 Before project: 2.5 million gallons  
 With project: 0.02 million gallons

**CSO Reduction by Volume: 99%**

**Completed CSO Projects (continued)**

**5. NEPONSET RIVER SEWER SEPARATION**



**Receiving Water:**  
Neponset River

**Completed:**  
2000

**Capital Cost:**  
\$2,445,000

**Description:**  
Installed 8,000 linear feet of storm drain to separate the combined sewer system, remove stormwater flows from area sewers, and close CSO regulators, eliminating CSO discharges at the two remaining CSO outfalls to the Neponset River.

**CSO Control**

**Water Quality Benefit:**  
Eliminated CSO discharges to Neponset River to comply with Class B water quality standards and protect South Dorchester Bay beaches (Tenean Beach).

**CSO Outfalls:**  
BOS093, BOS095

**Frequency of Discharge (typical year):**  
**Before project:** 17  
**With project:** Eliminated

**Annual Discharge Volume (typical year):**  
**Before project:** 5.8 million gallons  
**With project:** Eliminated

**CSO Reduction by Volume: 100%**

**6. CHELSEA TRUNK SEWER REPLACEMENT**  
**7. CHELSEA BRANCH SEWER RELIEF**  
**8. CHE008 OUTFALL REPAIRS**



**Receiving Water:**  
Mystic River/Chelsea Creek Confluence  
Chelsea Creek

**Completed:**  
2000-2001

**Capital Cost:**  
\$29,778,000

**Description:**  
Replaced 18-inch diameter city-owned trunk sewer with 30-inch pipe, relieved MWRA's Chelsea Branch and Revere Extension Sewers with 48-inch to 66-inch diameter pipe, rehabilitated Outfall CHE008, and installed underflow baffles for floatables control at all outfalls.

**CSO Control**

**Water Quality Benefit:**  
Minimized CSO discharges to meet B(cso) water quality standards (>95% compliance with Class B).


**CSO Outfalls:**  
CHE002, CHE003, CHE004, CHE008


**Frequency of Discharge (typical year):**  
**Before project:** 8  
**With project:** 4

**Annual Discharge Volume (typical year):**  
**Before project:** 9.0 million gallons  
**With project:** 0.6 million gallons

**CSO Reduction by Volume: 93%**

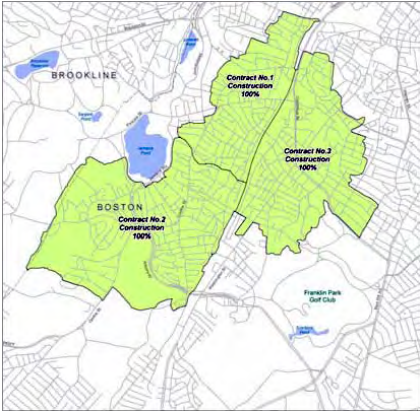
**Completed CSO Projects (continued)**

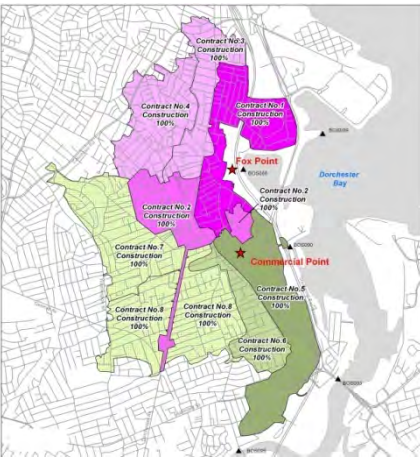
<b>9. UPGRADE COTTAGE FARM CSO FACILITY</b> <b>10. UPGRADE PRISON POINT CSO FACILITY</b> <b>11. UPGRADE SOMERVILLE MARGINAL CSO FACILITY</b> <b>12. UPGRADE FOX POINT CSO FACILITY</b> <b>13. UPGRADE COMMERCIAL POINT CSO FACILITY</b>		
	<p><b>Receiving Water:</b>          Lower Charles River Basin          Upper Inner Harbor          Upper Mystic River          Mystic River/Chelsea Creek Confluence          South Dorchester Bay</p> <p><b>Completed:</b>          2001</p> <p><b>Capital Cost:</b>          \$22,261,000</p> <p><b>Description:</b>          Upgraded chlorine disinfection systems, added dechlorination systems, process control and safety improvements.</p>	<b>CSO Control</b>
<p><b>Water Quality Benefit:</b>          Upgrade treatment to meet water quality standards criteria, including residual chlorine limits.</p> <p><b>CSO Outfalls:</b>          MWR201 (Cottage Farm Facility)          MWR203 (Prison Point Facility)          MWR205, MWR205A(SOM007A) (Somerville Marginal Facility)          MWR209(BOS088/BOS089) (Fox Point Facility)          MWR211(BOS090) (Commercial Point Facility)</p> <p>These projects improved treatment performance, with no effect on discharge frequency or volume.</p>		

<b>14. PLEASURE BAY STORM DRAIN IMPROVEMENTS</b>		
	<p><b>Receiving Water:</b>          North Dorchester Bay</p> <p><b>Completed:</b>          2006</p> <p><b>Capital Cost:</b>          \$3,195,000</p> <p><b>Description (cont):</b>          Constructed a new storm drain system to relocate stormwater discharge from Pleasure Bay to Reserved Channel.</p>	<b>CSO Control</b>
<p><b>Water Quality Benefit:</b>          Eliminated storm water discharges to Pleasure Bay Beach.</p>		



**Completed CSO Projects (continued)**

15. STONY BROOK SEWER SEPARATION		
	<p><b>Receiving Water:</b> Lower Charles River Basin</p> <p><b>Completed:</b> 2006</p> <p><b>Capital Cost:</b> \$44,333,000</p> <p><b>Description:</b> Installed a total of 107,175 linear feet of storm drain and sanitary sewer to remove stormwater from local sewers serving a 609-acre area in Jamaica Plain, Mission Hill and Roxbury, and disconnected an already-separated storm drain system serving an adjacent 548-acre area from the sewer system.</p>	<p style="text-align: center;"><b>CSO Control</b></p> <p><b>Water Quality Benefit:</b> Minimizes CSO discharges to meet B(cso) water quality standards (&gt;95% compliance with Class B).</p> <p><b>CSO Outfalls:</b> MWR023 (Stony Brook Conduit)</p> <p><b>Frequency of Discharge (typical year):</b>  <b>Before project:</b> 22  <b>With project:</b> 2</p> <p><b>Annual Discharge Volume (typical year):</b>  <b>Before project:</b> 44.5 million gallons  <b>With project:</b> 0.13 million gallons</p> <p><b>CSO Reduction by Volume: 99.7%</b></p>


16. SOUTH DORCHESTER BAY SEWER SEPARATION		
	<p><b>Receiving Water:</b> South Dorchester Bay</p> <p><b>Completed:</b> 2007</p> <p><b>Capital Cost:</b> \$118,999,000</p> <p><b>Description:</b> Installed a total of 150,000 linear feet of storm drain and sanitary sewer to remove stormwater from local sewers serving a 1,750-acre area in Dorchester. Closed all CSO regulators, allowing MWRA to decommission its Fox Point and Commercial Point CSO facilities.</p>	<p style="text-align: center;"><b>CSO Control</b></p> <p><b>Water Quality Benefit:</b> Eliminated CSO discharges to Savin Hill, Malibu and Tenean beaches, in compliance with Class B water quality standards.</p> <p><b>CSO Outfalls:</b> MWR209 (BOS088/BOS089) MWR211 (BOS090)</p> <p><b>Frequency of Discharge (typical year):</b>  <b>Before project:</b> 20 (treated)  <b>With project:</b> Eliminated</p> <p><b>Annual Discharge Volume (typical year):</b>  <b>Before project:</b> 30 million gallons  <b>With project:</b> Eliminated</p> <p><b>CSO Reduction by Volume: 100%</b></p>


**Completed CSO Projects (continued)**

17. FORT POINT CHANNEL SEWER SEPARATION		
	<p><b>Receiving Water:</b> Fort Point Channel</p> <p><b>Completed:</b> 2007</p> <p><b>Capital Cost:</b> \$12,007,000</p> <p><b>Description:</b> Installed 4,260 feet of storm drain and 4,300 feet of sanitary sewer to remove stormwater from local sewers serving 55 acres in the Fort Point Channel area. Raised overflow weirs at outfalls BOS072 and BOS073. Replaced tide gates and installed underflow baffles for floatables control at both outfalls.</p>	<p style="text-align: center;"><b>CSO Control</b></p> <p><b>Water Quality Benefit:</b> Minimizes CSO discharges to meet B(cso) water quality standards (&gt;95% compliance with Class B).</p> <p><b>CSO Outfalls:</b> BOS072, BOS073</p> <p><b>Frequency of Discharge (typical year):</b>  <b>Before project:</b> 9  <b>With project:</b> 0</p> <p><b>Annual Discharge Volume (typical year):</b>  <b>Before project:</b> 3.0 million gallons  <b>With project:</b> 0.0</p> <p><b>CSO Reduction by Volume: 100%</b></p>

18. REGIONWIDE FLOATABLES CONTROL 19. MWRA FLOATABLES CONTROL AND OUTFALL CLOSING PROJECTS		
	<p><b>Receiving Water:</b> Region-wide</p> <p><b>Completed:</b> 2007</p> <p><b>Capital Cost:</b> \$1,216,000</p> <p><b>Description:</b> Installed underflow baffles for floatables controls and closed several regulators and outfalls.</p> <p>In March 2000, MWRA closed Outfalls MWR021 and MWR022 to CSO discharges.</p>	<p style="text-align: center;"><b>CSO Control</b></p> <p><b>Water Quality Benefit:</b> Complies with EPA Policy Nine Minimum Controls requirement to control solid and floatable material. Eliminated CSO discharges at certain outfalls.</p> <p><b>CSO Outfalls:</b> Various outfalls system-wide.</p> <p><b>CSO Control:</b> The floatables controls do not affect CSO discharge frequency or volume.</p>


**Completed CSO Projects (continued)**


20. UNION PARK DETENTION/TREATMENT FACILITY		
	<p><b>Receiving Water:</b> Fort Point Channel</p> <p><b>Completed:</b> 2007</p> <p><b>Capital Cost:</b> \$49,583,000</p> <p><b>Description:</b> Added CSO treatment facility to existing BWSC Union Park Pumping Station with fine screens, chlorine disinfection, dechlorination, and 2 million gallons of detention storage.</p>	<p style="text-align: center;"><b>CSO Control</b></p> <p><b>Water Quality Benefit:</b> Provides treatment of Union Park pumping station discharges to Fort Point Channel to meet Class B water quality criteria, including residual chlorine limits, and lowers discharge frequency and volume with on-site detention basins.</p> <p><b>CSO Outfall:</b> BOS 070</p> <p><b>Frequency of Discharge (typical year):</b>  <b>Before project:</b> 25 (untreated)  <b>With project:</b> 17 (treated)</p> <p><b>Annual Discharge Volume (typical year):</b>  <b>Before project:</b> 132.0 million gallons  <b>With project:</b> 71.4 million gallons/year</p> <p><b>CSO Reduction by Volume: 46%</b></p>

21. BOS019 CSO STORAGE CONDUIT		
	<p><b>Receiving Water:</b> Upper Inner Harbor (Little Mystic Channel)</p> <p><b>Completed:</b> 2007</p> <p><b>Capital Cost:</b> \$14,288,000</p> <p><b>Description:</b> Installed twin-barrel 10'x17' box conduit to provide 670,000 gallons of off-line storage, between Chelsea St. and the Mystic Tobin Bridge, Charlestown. Included above-ground dewatering pump station.</p>	<p style="text-align: center;"><b>CSO Control</b></p> <p><b>Water Quality Benefit:</b> Minimizes CSO discharges to meet B(cso) water quality standards (&gt;95% compliance with Class B).</p> <p><b>CSO Outfall:</b> BOS019</p> <p><b>Frequency of Discharge (typical year):</b>  <b>Before project:</b> 13  <b>With project:</b> 2</p> <p><b>Annual Discharge Volume (typical year):</b>  <b>Before project:</b> 4.4 million gallons  <b>With project:</b> 0.6 million gallons</p> <p><b>CSO Reduction by Volume: 86%</b></p>





**Completed CSO Projects (continued)**

22. PRISON POINT CSO FACILITY OPTIMIZATION		
	<p><b>Receiving Water:</b> Upper Inner Harbor</p> <p><b>Completed:</b> 2008</p> <p><b>Capital Cost:</b> \$50,000</p> <p><b>Description:</b> Minimizes treated CSO discharges to the Inner Harbor by optimizing the operation of existing facility gates and pumps to maximize in-system storage and convey more flow to Deer Island</p>	<p style="text-align: center;"><b>CSO Control</b></p> <p><b>Water Quality Benefit:</b> Reduces treated CSO discharges to Upper Inner Harbor.</p> <p><b>CSO Outfall:</b> MWR203 (Prison Point Facility)</p> <p><b>Frequency of Discharge (typical year):</b>  <b>Before project:</b> 30 (treated)  <b>With project:</b> 17 (treated)</p> <p><b>Annual Discharge Volume (typical year):</b>  <b>Before project:</b> 335 million gallons  <b>With project:</b> 243 million gallons</p> <p><b>CSO Reduction by Volume: 27%</b> (with Bulfinch Triangle Sewer Separation)</p>


23. COTTAGE FARM BROOKLINE CONNECTION AND INFLOW CONTROLS		
 <p>Figure 12              - Sewer Interceptors              - Tunnels              - CSO Outfalls              - Overflow Weir Chambers (NTS)</p>	<p><b>Receiving Water:</b> Lower Charles River Basin</p> <p><b>Completed:</b> 2009</p> <p><b>Capital Cost:</b> \$3,000,000</p> <p><b>Description:</b> Optimizes the combined conveyance capacity of the two MWRA sewers that carry flows across the Charles River by interconnecting overflow chambers outside the Cottage Farm CSO facility; increases this conveyance capacity by bringing into service a parallel, previously unutilized 54-inch diameter sewer (the "Brookline Connection").</p>	<p style="text-align: center;"><b>CSO Control</b></p> <p><b>Water Quality Benefit:</b> Minimizes treated CSO discharges from the Cottage Farm CSO Facility to the Lower Charles River Basin.</p> <p><b>CSO Outfall:</b> MWR201 (Cottage Farm Facility)</p> <p><b>Frequency of discharges (typical year):</b>  <b>Before project:</b> 7 (treated)  <b>With project:</b> 7 (treated)</p> <p><b>Annual Discharge Volume (typical year):</b>  <b>Before project:</b> 44.5 million gallons  <b>With project:</b> 24.0 million gallons</p> <p><b>CSO Reduction by Volume: 46%</b></p>


**Completed CSO Projects (continued)**

24. MORRISSEY BOULEVARD STORM DRAIN		
	<p><b>Receiving Water:</b> North Dorchester Bay</p> <p><b>Completed:</b> 2009</p> <p><b>Capital Cost:</b> \$32,815,000</p> <p><b>Description:</b> Installed 2,800 linear feet of 12-foot by 12-foot and 8-foot by 8-foot box conduit for stormwater conveyance, with gated connection to North Dorchester Bay CSO Storage Tunnel at upstream end, new outfall to Savin Hill Cove, and pollution prevention measures.</p>	<p><b>CSO Control</b></p>
	<p><b>Water Quality Benefit:</b> Maximizes level of stormwater control along the South Boston beaches by redirecting some stormwater to Savin Hill Cove in large storms.</p>	

25. EAST BOSTON BRANCH SEWER RELIEF		
	<p><b>Receiving Water:</b> Boston Harbor and Chelsea Creek</p> <p><b>Completed:</b> 2010</p> <p><b>Capital Cost:</b> \$85,638,000</p> <p><b>Description:</b> Upgraded MWRA's 115-year-old interceptor system serving most of East Boston, using a combination of construction methods: micro-tunneling, pipe-bursting, open-cut excavation and pipe relining.</p>	<p><b>CSO Control</b></p>
	<p><b>Water Quality Benefit:</b> Minimizes CSO discharges to meet B(cso) water quality standards (&gt;95% compliance with Class B).</p> <p><b>CSO Outfalls:</b> BOS003, BOS004, BOS005, BOS009, BOS010, BOS012, BOS013, BOS014 (BOS006 and BOS007 closed by BWSC)</p> <p><b>Frequency of discharges (typical year):</b>                      Before project: 31                      With project: 6</p> <p><b>Annual Discharge Volume (typical year):</b>                      Before project: 41.0 million gallons                      With project: 8.6 million gallons</p> <p><b>CSO Reduction by Volume: 79%</b></p>	

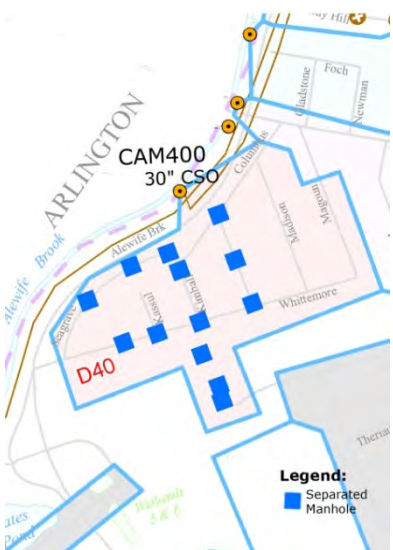
**Completed CSO Projects (continued)**


26. BULFINCH TRIANGLE SEWER SEPARATION		
 <p>The map shows the Bulfinch Triangle area in Boston, Massachusetts. A yellow-shaded region indicates the project area, which includes the Government Center and North Station. Labels on the map include 'Bulfinch Sewer Separation Total area: 613 acres' and '2010 Project, 147,000 sq. ft. Area'.</p>	<p><b>Receiving Water:</b>                  Boston Inner Harbor and Lower Charles River Basin</p> <p><b>Completed:</b>                  2010</p> <p><b>Capital Cost:</b>                  \$9,944,000</p> <p><b>Description:</b>                  Installed a total of 5,290 feet of storm drain and sanitary sewer to remove stormwater from local sewers in a 14-acre area of Bulfinch Triangle/North Station, allowing already-separated storm drains serving an additional 47-acre area of Government Center to be removed from the sewer system, as well. Closed Outfall BOS049 to CSO discharges.</p>	<p style="text-align: center;"><b>CSO Control</b></p> <p><b>Water Quality Benefit:</b>                  Reduces treated CSO discharges from the Prison Point CSO Facility to Boston Upper Inner Harbor. Eliminated CSO discharges at Outfall BOS049 to Lower Charles River Basin.</p> <p><b>CSO Outfalls:</b>                  MWR203 (Prison Point Facility) and BOS049</p> <p><b>Frequency of discharges (typical year):</b>                  MWR203 before project: 18 (treated)                  MWR203 with project: 17 (treated)</p> <p><b>Annual Discharge Volume (typical year):</b>                  MWR203 before project: 282 mil. gals.                  MWR203 with project: 243 mil. gals.</p> <p><b>CSO Reduction by Volume</b>                  Prison Point Facility: 14%                  BOS049: 100%</p>

27. INTERCEPTOR CONNECTION RELIEF AND FLOATABLES CONTROL AT CAM002 AND CAM401B AND FLOATABLES CONTROL AT CAM001		
 <p>The photograph shows a concrete inlet structure for a sewer pipe. A large, flat steel plate is bolted across the top of the structure, acting as a baffle. The structure is situated in a trench or underground chamber.</p>	<p><b>Receiving Water:</b>                  Alewife Brook</p> <p><b>Completed:</b>                  2010</p> <p><b>Capital Cost:</b>                  \$3,500,000</p> <p><b>Description:</b>                  Upgraded the hydraulic capacities of City of Cambridge connections to MWRA interceptors and installed underflow baffles for floatables control.</p>	<p style="text-align: center;"><b>CSO Control</b></p> <p><b>Water Quality Benefit:</b>                  Together with other Alewife Brook CSO projects (not yet complete), minimizes CSO discharges and their impacts to meet "fishable/swimmable" criteria 98% of the time.</p> <p><b>CSO Outfalls:</b>                  CAM002, CAM401B, CAM001</p>





**Completed CSO Projects (continued)**

28. CAM400 COMMON MANHOLE SEPARATION		
	<p><b>Receiving Water:</b> Alewife Brook</p> <p><b>Completed:</b> March 2011</p> <p><b>Capital Cost:</b> \$3,300,000</p> <p><b>Description:</b> Replaced common storm drain and sewer manholes with separate manholes and associated piping in the local, mostly residential streets bounded by Alewife Brook Parkway, Massachusetts Avenue, Magoun Street and Whittemore Avenue, as well as a portion of the WR Grace property off Whittemore Avenue</p>	<p style="text-align: center;"><b>CSO Control</b></p> <p><b>Water Quality Benefit:</b> Eliminated CSO discharges to Alewife Brook at Outfall CAM400.</p> <p><b>CSO Outfalls:</b> CAM400</p> <p><b>Frequency of Discharge (typical year)</b> Before project: 8 After project: 0</p> <p><b>Annual Discharge Volume (typical year)</b> Before project: 0.63 million gallon After project: 0</p> <p><b>CSO Reduction by Volume: 100%</b></p>

29. NORTH DORCHESTER BAY STORAGE TUNNEL & RELATED FACILITIES		
	<p><b>Receiving Water:</b> North Dorchester Bay</p> <p><b>Capital Cost:</b> \$237,241,000 (not including the cost of Morrissey Boulevard storm drain (Project 24))</p> <p><b>Completed:</b> May 2011</p> <p><b>Description:</b> Constructed a 10,832-ft., 17-ft. diameter soft-ground tunnel, drop shafts and CSO and stormwater diversion structures along outfalls BOS081-BOS087; 15-mgd tunnel dewatering pump station at Massport's Conley Terminal; 24-inch force main; and below-ground tunnel ventilation and odor control facility at the upstream end of the tunnel. Eliminated outfalls BOS083 and BOS087.</p>	<p style="text-align: center;"><b>CSO Control</b></p> <p><b>Water Quality Benefit:</b> Eliminated CSO and separate stormwater discharges up to the 25-year storm and 5-year storm, respectively.</p> <p><b>CSO Outfalls:</b> BOS081 BOS083 BOS085 BOS087 BOS082 BOS084 BOS086</p> <p><b>Frequency of Discharge (typical year)</b> CSO: Before project: 17 After project: 0 Stormwater: Before project: 93 After project: 0</p> <p><b>Annual Discharge Volume (typical year)</b> CSO: Before project: 8.6 million gals After project: 0 Stormwater: Before project: 144 million gals After project: 0</p> <p><b>CSO Reduction by Volume: 100%</b> <b>Stormwater Reduction by Volume: 100%</b></p>

**Completed CSO Projects (continued)**

30. Brookline Sewer Separation		
	<p><b>Receiving Water:</b> Lower Charles River Basin</p> <p><b>Capital Cost:</b> \$26,652,000</p> <p><b>Completed:</b> April 2013</p> <p><b>Description:</b>  <b>Total area separated: &gt;70 acres</b>  <u>Construction contracts:</u>                      Brookline Phase I: \$1.4 M                      Nov 2008 - Jan 2010                      5,658 lf of storm drain</p> <p>Brookline Phase II: \$17.0 M                      Jan 2011 - April 2013                      3,790 lf of storm drain                      1,290 lf of sewer (open trench)                      4,550 lf of sewer (microtunneling)</p> <p>MWRA Outfall Cleaning: \$1.1 M                      Apr 2012 – Aug</p>	<p style="background-color: #e0f7fa; text-align: center;"><b>CSO Control</b></p> <p><b>Water Quality Benefit:</b> Supports the attainment of long term CSO control at the Cottage Farm CSO facility.</p>
31. CAM004 Stormwater Outfall and Wetland Basin		
	<p><b>Receiving Water:</b> Alewife Brook</p> <p><b>Capital Cost:</b> \$15,503,000</p> <p><b>Completed:</b> April 2013</p> <p><b>Description:</b> Constructed a new 6-foot by 8-foot box culvert storm drain to convey the separated stormwater to a new 3.4 acre wetland in the Alewife Brook Reservation. The wetland will provide 10.3 acre-feet of detention storage of stormwater flows and the attenuation of stormwater flow rate to the Little River and Alewife Brook.</p>	<p style="background-color: #e0f7fa; text-align: center;"><b>CSO Control</b></p> <p><b>Water Quality Benefit:</b> Supports the CSO benefits of CAM004 Sewer Separation</p>

**Completed CSO Projects (continued)**

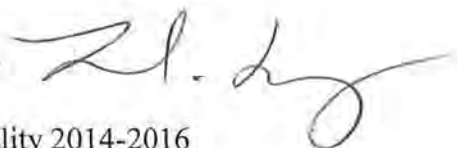
32. SOM01A Interceptor Connection Relief/Floatables Controls		
	<p><b>Receiving Water:</b> Alewife Brook</p> <p><b>Capital Cost:</b> \$0.8 M</p> <p><b>Completed:</b> December 2013</p> <p><b>Description:</b> Upgraded the size of the local sewer connection between City of Somerville's Tannery Brook Conduit and MWRA's interceptor system and installed an underflow baffle to control the discharge of floatable materials.</p>	<p style="text-align: center;"><b>CSO Control</b></p> <p><b>Water Quality Benefit:</b> Reduces CSO discharges to the Alewife Brook and provides floatables control for remaining discharges at the City of Somerville's Outfall SOM01A.</p>



-The End-



**STAFF SUMMARY**

**TO:** Board of Directors  
**FROM:** Frederick A. Laskey, Executive Director   
**DATE:** March 11, 2015  
**SUBJECT:** Modeling Massachusetts Bay Water Quality 2014-2016  
University of Massachusetts at Dartmouth  
Contract OP-272

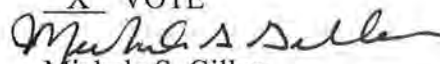
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COMMITTEE: Wastewater Policy & Oversight

Carolyn M. Fiore, Deputy Chief Operating Officer  
Betsy Reilley, Ph.D., Director, Environmental Quality  
Dan Codiga, Ph.D., Project Manager  
Preparer/Title

     INFORMATION

  X   VOTE

  
Michele S. Gillen

Director of Administration

  
Michael J. Hornbrook

Chief Operating Officer

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**RECOMMENDATION:**

To approve the award of Contract OP-272, a cooperative research contract with the University of Massachusetts/Dartmouth to conduct computer modeling of water quality in Massachusetts Bay, and authorize the Executive Director, on behalf of the Authority, to execute said contract in the amount of \$217,115 (to be matched by \$140,000 from the University of Massachusetts at Dartmouth), for a contract term of three years from the Notice to Proceed.

**BACKGROUND:**

Specific, detailed, requirements for environmental monitoring and modeling of the potential effects of MWRA's Deer Island Outfall discharges are incorporated into Deer Island's National Pollutant Discharge Elimination System (NPDES) permit and are thus, enforceable. The environmental monitoring requirements reflect the history of negotiations on several critical issues related to the planning and construction of the Deer Island Treatment Plant and the outfall. These issues include questions about environmental impacts of nutrients in MWRA's effluent, the environmental effects of the elimination of Secondary Treatment Battery D, endangered species issues raised by Cape Cod groups and the National Marine Fisheries Service, and EPA's decision to incorporate into the permit the provisions of the Contingency Plan that MWRA prepared in response to the National Marine Fisheries Service's review of the project under the Endangered Species Act.

Contract OP-272 will fulfill the permit requirement to regularly conduct model simulations of marine water quality in Massachusetts and Cape Cod Bays in order to better understand potential effects of discharging nutrient-rich effluent through the outfall.

Environmental models are often used to compare the possible effects of decisions about infrastructure. The water quality model this contract will support was helpful, before the outfall start-up in 2000, in demonstrating to the public and regulators that improving the level of treatment and moving the discharge from Boston Harbor into Massachusetts Bay would lead to recovery in the Harbor with only small effects on the Massachusetts Bay ecosystem confined to the area near the new outfall. Monitoring since then has confirmed this prediction. EPA required ongoing modeling in the NPDES permit so the model would continue to be available to support any future decisions, such as the need for nutrient removal.

Section 7.a.2 of the permit requires MWRA to:

“...update, maintain, and run the three dimensional hydrodynamic water quality ‘Bays Eutrophication Model’ developed in 1995 by Hydroqual and the USGS, on a routine basis (at least every year), for the purpose of predicting conditions caused by nutrient loading and in order to support decisions about the need for nutrient limits and the appropriate level of any such limit for the discharge...”

Revisions to MWRA’s Effluent Outfall Ambient Monitoring Plan in 2010 did not change this permit requirement.

Following the development of the original model in the mid-1990s by Hydroqual, Inc. and the U.S. Geological Survey, the University of Massachusetts/Boston conducted the modeling for calendar years 2000-2005, primarily under a jointly-funded cooperative research agreement. Subsequently, the University of Massachusetts/Dartmouth (UMass Dartmouth) was selected through a competitive procurement process to conduct the modeling for calendar years 2006-2007. That contract was later extended three times to cover modeling for 2008-2010. Most recently, UMass Dartmouth has simulated years 2011-2013 under Contract S507.

Key uses and benefits of the model simulations include:

- First, because the simulations include continuous uninterrupted temporal coverage and spatial coverage throughout the region, they augment marine observations that are made by MWRA’s monitoring program, particularly in locations and/or time periods that are not directly sampled;
- Second, when unusual conditions are observed, simulations enable investigations and assessments to evaluate the seriousness and causes of the conditions that are more complete than could otherwise be accomplished using the field measurements alone; and
- Finally, modeling includes scenario simulations predicting the system response under different sets of conditions. An example would be comparisons that have been completed between the full-realism case for past years and scenario runs that differ only in that the outfall effluent and associated nutrient inputs are removed from the simulation. In this way, potential influences of the outfall on the marine ecosystem during that year can be isolated.



## **DISCUSSION:**

MWRA's cost for three years of modeling services, for simulations of conditions during calendar years 2014-2016, will be \$217,115. The recommended agreement would begin in April 2015 and end in December 2017. Tasks include acquiring observational datasets collected by MWRA and other organizations and preparing them as inputs to the model, improving and documenting modeling methods, running the simulations, developing and providing online access to model products, synthesizing findings, and assessing and reporting on the results. Specific deliverables include model output products and a detailed analytical report on each year's results. The three-year duration of the contract is aligned with the current NPDES permit-required Harbor and Outfall Monitoring Contracts OP-216A and OP-216B, such that the years to be simulated (2014-2016) are the same as those for which ambient monitoring observations will be collected.

The model simulates the effects of wind, weather, rivers, offshore conditions, and wastewater discharges on Massachusetts Bay environmental conditions. It consists of a water quality component (including algae, carbon, nitrogen, and oxygen) coupled to a physical component (including temperature, salinity, and currents). Figure 1 on the following page shows the areas covered by the water quality and physical components (top panel) and how they fit into the larger Gulf of Maine model (bottom panel) maintained by UMass Dartmouth using federal funding. Water quality variables are simulated for the smaller region west of a boundary running from Cape Ann to Cape Cod; the physical model includes an area north to the Merrimack River mouth, because the flow of this river has a large effect on the movement of water in Massachusetts Bay. Because an important factor influencing model performance is conditions at the model domain offshore boundary, the Massachusetts Bay model grid is "nested" in the larger grid of a separate simulation that covers the entire Gulf of Maine and Georges Bank (bottom panel of Figure 1). This larger model is funded by federal agency grants to UMass Dartmouth.

### **Procurement Process**

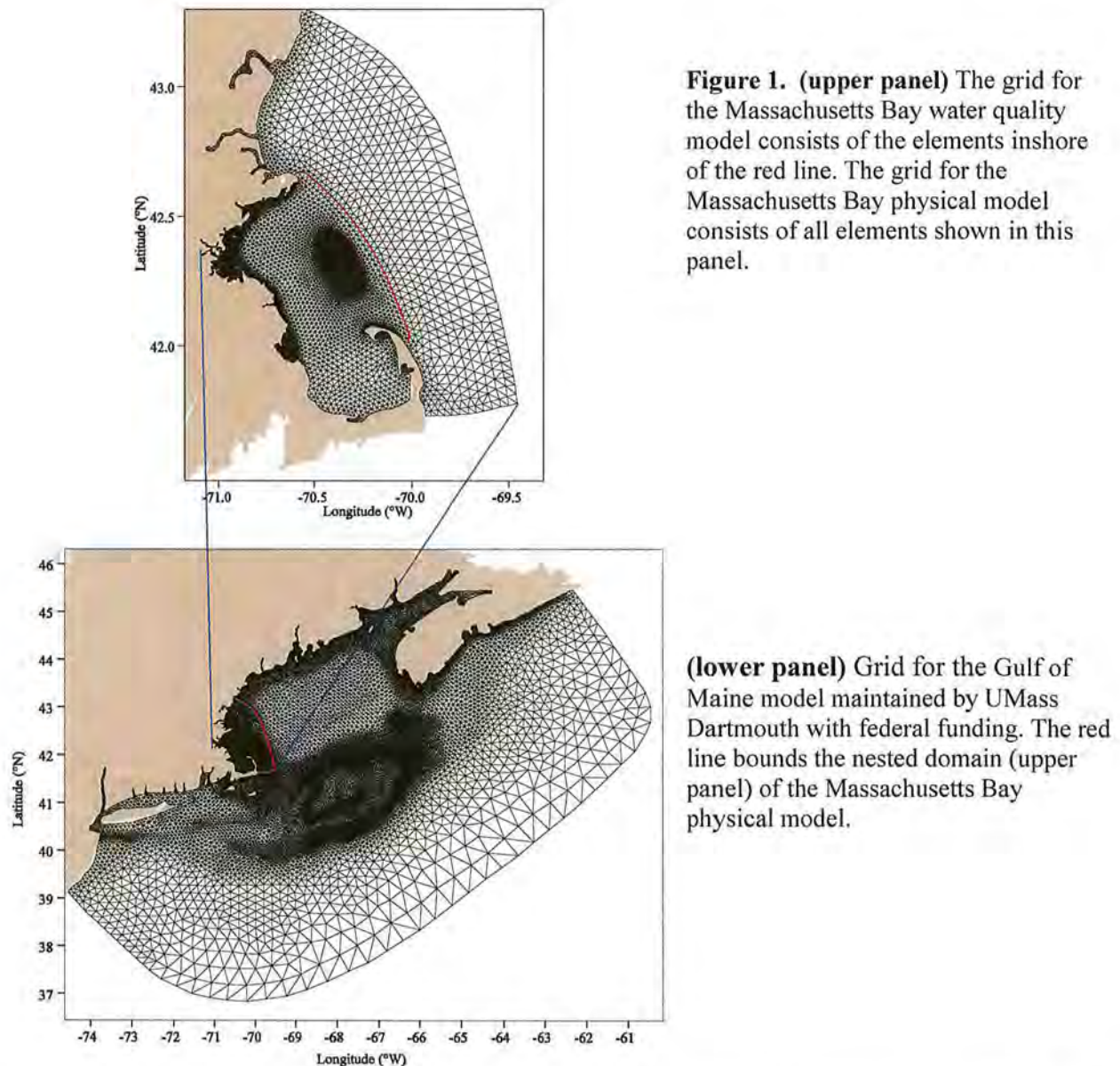
Because of the value of the existing modeling resources already established at UMass Dartmouth, and the proposed matching funding provided by the University, staff recommend that MWRA enter into a sole-source cooperative agreement with UMass Dartmouth.

MWRA's total cost of the contract will be \$217,115 for three years of modeling. UMass Dartmouth, through matching funds, will provide resources of \$140,000, approximately 39% of the total project cost, to support the project. The match consists of \$90,000 from NERACOOS (Northeast Regional Association for Coastal and Ocean Observing Systems, [www.neracoos.org](http://www.neracoos.org)) and \$50,000 from the Coastal Forecast Laboratory of NOAA (National Oceanic and Atmospheric Administration). In addition, UMass Dartmouth is in the process of investing \$100,000 to upgrade the computing facility used for this work. Finally, the personnel team lead is committing one month per year of his time to this project at no cost to MWRA.

The cost includes an increase of 8.3 percent in the first year, relative to the final year of the current contract, which is the first increase in five years. In the second and third years, there are annual increases of three percent. In FY16, an additional one-time amount of \$16,206 is budgeted for creating new software that will translate the model results, currently in an obscure format, into a commonly-used format, which will allow MWRA to download and complete



further analyses with the model results. Therefore, the total proposed cost for this contract is \$217,115, compared with \$180,000 for the previous three-year contract (S507, Modeling Services for 2011-2013). Through this agreement MWRA will meet its NPDES permit requirement for modeling at minimal cost to ratepayers.



UMass Dartmouth is uniquely qualified to conduct this work under a cooperative agreement with MWRA. In addition to the considerable matching funds, UMass Dartmouth's coastal modeling research group is the recognized leader in environmental modeling in New England. With primarily federal funding, the University has built an efficient, accurate Northeast Coastal Ocean Forecast System. Because MWRA's model has been integrated into this system, the costs of running it are minimized. The investment of UMass Dartmouth and federal agencies in the forecasting system is considerable; essentially MWRA can "run its train" (model) on the tracks (modeling system) built/paid for by others.

Having a state university “home” for MWRA’s Massachusetts Bay water quality model also allows other state agencies to easily leverage the investments of MWRA, UMass, and federal agencies to address other environmental questions in Massachusetts and Cape Cod Bays.

**BUDGET/FISCAL IMPACT:**

Funding for this contract will be included in the FY15, FY16, FY17, and FY18 Current Expense Budgets, as shown in the table below.

<b>Fiscal Year</b>	<b>Amount in ENQUAL CEB for modeling</b>	<b>This Project</b>	<b>Other</b>
FY15	\$60,000	\$32,768	\$27,232 (to complete Contract S507)
FY16*	\$84,000	\$84,000	
FY17*	\$70,000	\$70,000	
FY18*	\$72,000	\$30,347	\$41,653 (follow-on contract as needed)
Total		\$217,115	

\*proposed

**MBE/WBE PARTICIPATION:**

No MBE or WBE participation requirements were established for this sole-source contract.



### STAFF SUMMARY

**TO:** Board of Directors  
**FROM:** Frederick A. Laskey, Executive Director *F. A. Laskey*  
**DATE:** March 11, 2015  
**SUBJECT:** Purchase Order for Three Combination Jet/Sewer Cleaning Machines  
Boston Freightliner, Inc.  
Bid WRA-3971

COMMITTEE: Wastewater Policy & Oversight

INFORMATION

VOTE

*Michele S. Gillen*  
Michele S. Gillen  
Director of Administration

Charles Fino, Manager, Vehicle Maintenance  
John Sabino, Director of Procurement  
Preparer/Title

*Michael J. Hornbrook*  
Michael J. Hornbrook  
Chief Operating Officer

### RECOMMENDATION:

To approve the award of a purchase order for three vacator jet/sewer cleaning machines to the lowest responsive bidder under bid WRA-3971, Boston Freightliner, Inc., and authorize the Executive Director to execute said purchase order in the bid amount of \$1,050,832.

### BACKGROUND:

A significant component of MWRA's wastewater pipeline maintenance program involves the use of jet/sewer cleaners. Staff use these sewer cleaning trucks to clean 6-inch- to 60-inch-diameter sewer and drain lines, inverted siphon barrels, catch basins, manholes, meter and vault chambers, wastewater facility wet wells, and to vacuum soil excavations. The trucks are also dispatched, when available, as part of MWRA's Community Assistance Program to help member communities during emergencies, or when major sewer line maintenance exceeds a member community's capabilities. Miles/numbers of pipeline and siphons cleaned, and community assistance provided, are tracked and reported in the Orange Notebook.





At Deer Island, staff use a jet/sewer cleaner to clean severe blockages and the build-up of scum, sludge, and grit found in a number of process areas of the plant. Staff have found blockages in the gravity thickeners, primary clarifiers, influent channels, and scum receiving wells. Removal of this material is necessary to ensure that the treatment processes continue uninterrupted.

MWRA currently has five jet/sewer cleaning trucks (often referred to by the Manufacturer's name, "Vactor" jet trucks) in its fleet, four in Chelsea and one at the Deer Island Treatment Plant. However, only three of the five trucks are currently operational. (This issue is discussed in more detail below.)

MWRA's Vactor trucks are of differing sizes. In some instances that involve small or tight locations, a 500-gallon-capacity truck is required. In instances that do not require the most heavy duty use, or when there are concerns relative to weight loading, such as on the clarifier decks at the Deer Island Treatment Plant, a 1,000-gallon-capacity truck is used. MWRA's largest Vactor trucks are 1,500-gallon-capacity, and are used when the largest diameter pipelines require cleaning – more water, higher water pressure, and a larger horsepower motor for maximum suction.

The following pictures depict a couple of the projects that have been completed utilizing these Vactor jet trucks:



MWRA staff removing grit and sediment from a blocked septage collection tank in Randolph in March 2013. The vactor jet is vacuuming up sediment and grit into the truck's tank.





MWRA staff using a Vactor jet to clean and vacuum debris from a blocked City of Waltham 12-inch sewer line in March 2013. Also pictured in background is MWRA's television inspection crew/truck to verify cleaning.



MWRA staff jetting and vacuuming the upstream siphon headhouse structure in MWRA's 30-inch-diameter Section 532 of the Neponset Valley Relief Sewer.

## DISCUSSION:

As mentioned above, two of MWRA's three oldest Vactor trucks are not currently operational, and the three oldest have experienced significant, increasingly frequent and costly repair issues. Staff recommend that all three be replaced. Upon delivery of the new trucks, all three existing units (WRA-264, WRA-597, and WRA-479) will be declared surplus and disposed of in accordance with MWRA's surplus equipment policy via a publicly advertised auction or bid.

The table below lists MWRA's five Vactor trucks, date purchased, primary garaging location, and operational status.

PLATE	YEAR	TYPE	LOCATION	STATUS
WRA-264	1998	INTERNATIONAL VACTOR SEWER CLEANING TUCK	CHELSEA	IN SERVICE
WRA-597	2001	INTERNATIONAL 2674 VAC CON SEWER CLEANING TRUCK	DEER ISLAND	OUT OF SERVICE
WRA-479	2004	STERLING LT7500 VACTOR SEWER CLEANING TRUCK	CHELSEA	OUT OF SERVICE
WRA-165	2012	FREIGHTLINER M2 VACTOR SEWER CLEANING TRUCK	CHELSEA	IN SERVICE
WRA-087	2012	FREIGHTLINER M2 VACTOR SEWER CLEANING TRUCK	CHELSEA	IN SERVICE

MWRA's oldest and smallest Vactor truck is WRA-264. Although this truck, purchased in 1998, is still in service, it needs a new cyclone unit, which is the major component of the vacuum system used to suck up the debris. Efficiency is greatly impacted because of the current reduced suction capacity. WRA-597, purchased in 2001, is used on Deer Island but it is currently out of service. It needs major repair work that includes a new computer module to control the operation of the vehicle. Due to its age, this technology is no longer utilized and the controller is not readily available. WRA-597 also requires patching of multiple holes in the debris storage body. If Deer Island needs a Vactor truck for a project, one of the available Chelsea trucks is used. WRA-479 is also currently out of service. It requires a new pressure pump and clutch system, replacement of the primary and secondary fan units, and repair of the "rodger pump," which is the main pump that pressurizes the on-board water system to 2,500psi.

WRA-264 will be replaced with a 350-horsepower (HP) diesel engine truck, with a 6-wheel cab and chassis, a 188-inch wheel base, and a gross vehicle weight of 37,000 pounds. WRA-597 and WRA-479 will be replaced with 450-HP diesel engine trucks, with 10-wheel cabs and chassis and gross vehicle weights of 56,000 pounds. WRA-597's replacement will have a wheel base of 262 inches and WRA-479's replacement will have a larger 292-inch wheel base.

### Procurement Process

Bid WRA-3971 was advertised in the following publications: Boston Herald, Goods and Services Bulletin, El Mundo, and Banner Publications. In addition, bids were made available for public downloading on MWRA's e-procurement system (Event 1478) and staff solicited 10 potential bidders through the e-portal. Specifications were provided by Operations staff.



On January 27, 2015, Event 1478 closed, with the following results:

<b>Vendor</b>	<b>Model</b>	<b>Total Bid</b>
<b>Boston Freightliner</b>	<b>Freightliner Truck w/ Aquatech System</b>	<b>\$1,050,832.00</b>
Minuteman Truck	International Truck w/ Aquatech System	\$1,060,051.74
NE Municipal Equipment	Freightliner Truck w/ Vac-Con Equipment	\$1,088,780.88
Donovan Equipment	Freightliner Truck w/ Aquatech System	\$1,090,749.00

After a detailed review, staff have determined that Boston Freightliner's bid meets all of the requirements of the specifications described above. Therefore, staff recommend the award of this purchase order to Boston Freightliner as the lowest responsive bidder.

**BUDGET/FISCAL IMPACT:**

Funding for these vehicles is included in the FY15 Capital Improvement Program Budget.

**MBE/WBE PARTICIPATION:**

Boston Freightliner is not a certified Minority- or Women-owned business.

**STAFF SUMMARY**


**TO:** Board of Directors  
**FROM:** Frederick A. Laskey, Executive Director  
**DATE:** March 11, 2015  
**SUBJECT:** Pump, Gear Box, and Diesel Engine Upgrade  
Prison Point and Cottage Farm CSO Facilities  
IPC Lydon, LLC  
Contract 7452, Change Order 7



COMMITTEE: Wastewater Policy & Oversight

INFORMATION  
 VOTE

Jeremiah Sheehan, Construction Coordinator  
Corinne M. Barrett, Director, Construction  
Preparer/Title

  
Michael J. Hornbrook  
Chief Operating Officer

**RECOMMENDATION:**

To authorize the Executive Director, on behalf of the Authority, to approve Change Order 7 to Contract 7452, Pump, Gear Box, and Diesel Upgrade, Prison Point and Cottage Farm CSO Facilities, with IPC Lydon, LLC, for an amount not to exceed \$115,000, increasing the contract amount from \$6,295,131.01 to \$6,410,131.01, with no increase in contract term.

Further, to authorize the Executive Director to approve additional change orders as may be needed to Contract 7452 in an amount not to exceed the aggregate of \$250,000 in accordance with the Management Policies and Procedures of the Board of Directors.

**DISCUSSION:**

Under Contract 7452, the Contractor is performing rehabilitation and upgrade work at two CSO facilities in Cambridge, Prison Point (pictured below left) and Cottage Farm (below right). Location maps of both facilities are attached.





The Prison Point CSO facility was constructed in 1978 to receive combined sewer flow during large wet-weather events from the Boston Marginal Conduit, Cambridge Marginal Conduit and Miller's River Overflow Interceptor. It has a maximum capacity of 323 million gallons per day. Prior to discharge into the upper harbor, flows are screened, disinfected, and dechlorinated. The facility also includes 1.8 million gallons of storage capacity and activates approximately 17 times in a typical year. Although the facility has been upgraded several times since it was brought on line, the large pumps and gear boxes are original equipment.

The Cottage Farm CSO facility was constructed in 1971 to receive combined sewer flows during large wet-weather events from the North and South Charles River Relief Sewers and discharges screened, disinfected, and dechlorinated flow into the Charles River. It has a maximum capacity of 210 million gallons per day and the facility also includes 1.3 million gallons of storage capacity. In a typical year, the facility activates two times. Similar to Prison Point, Cottage Farm's pumping equipment is original.

On September 18, 2013, the Board approved the award of Contract 7452 to IPC Lydon, LLC in the bid amount of \$6,126,126, for a contract term of 650 calendar days from the Notice to Proceed. Work on this contract is approximately 75% complete.

The work under this contract includes rehabilitation of the pumps and right angle drive gear boxes, and replacement of a gearbox and exhaust silencers on the diesel engines at Prison Point. Work at Cottage Farm includes rebuilding the diesel engines. Further, to comply with EPA regulations, the contract includes the installation of diesel oxidation catalysts and monitoring equipment on engine exhausts at both facilities.

**This Change Order**

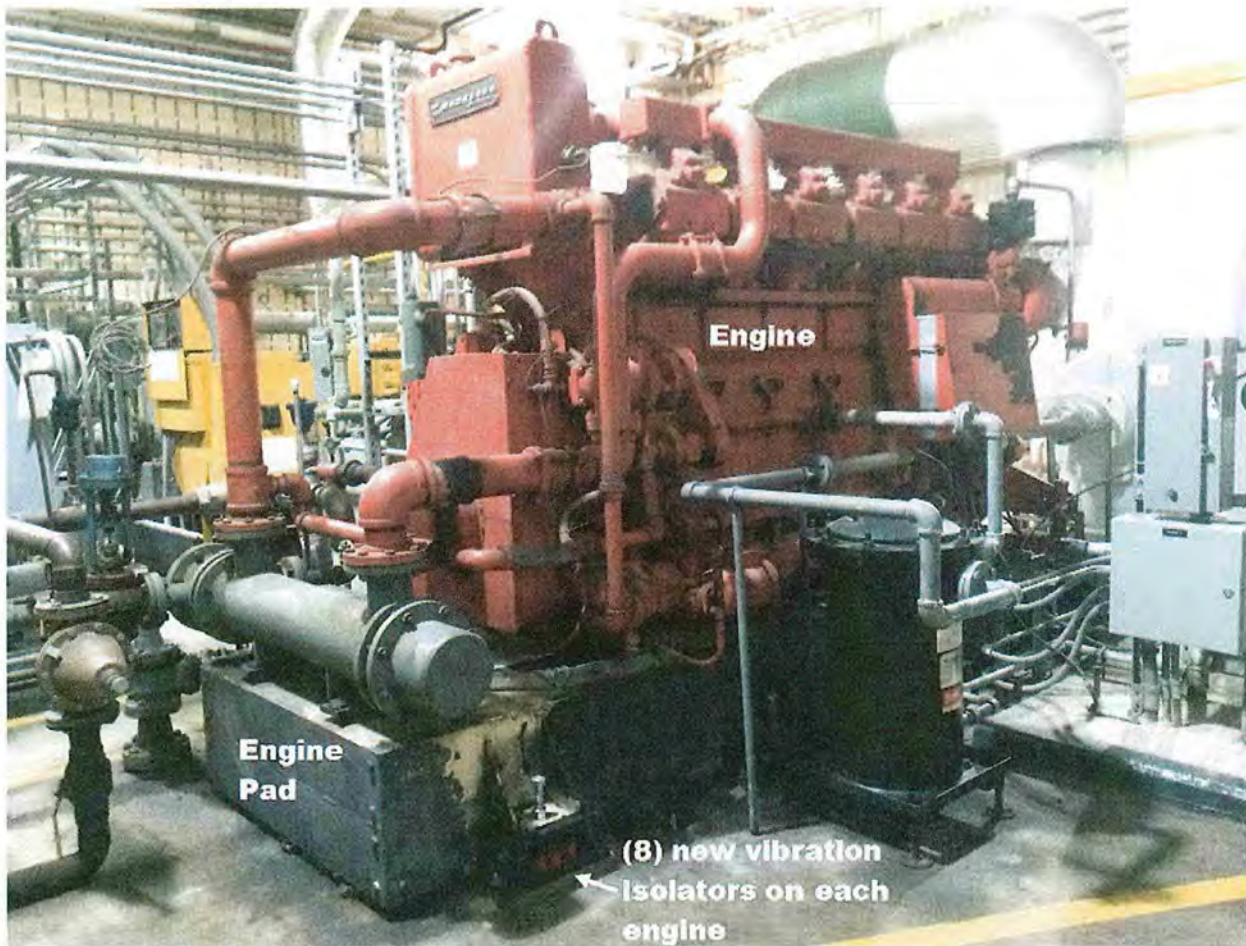
Change Order 7 consists of the following two items:

Furnish and Install New Vibration Isolators \$80,000

The Contractor is required to remove, rehabilitate, and reinstall four right angle gears and the shafts between the gears and the existing engines at Prison Point. The shafts were assumed to be in alignment during design because the engines were operating properly. The Contractor discovered that the shafts were misaligned, which required adjustments to the engines using existing vibrator isolators (one example is shown on the far right). The condition of the isolators prevented adjustments so it was necessary for the Contractor to install new vibration isolators on all four existing engines (a total of 32) to adjust the engines and realign the shafts (also see picture on the following page).





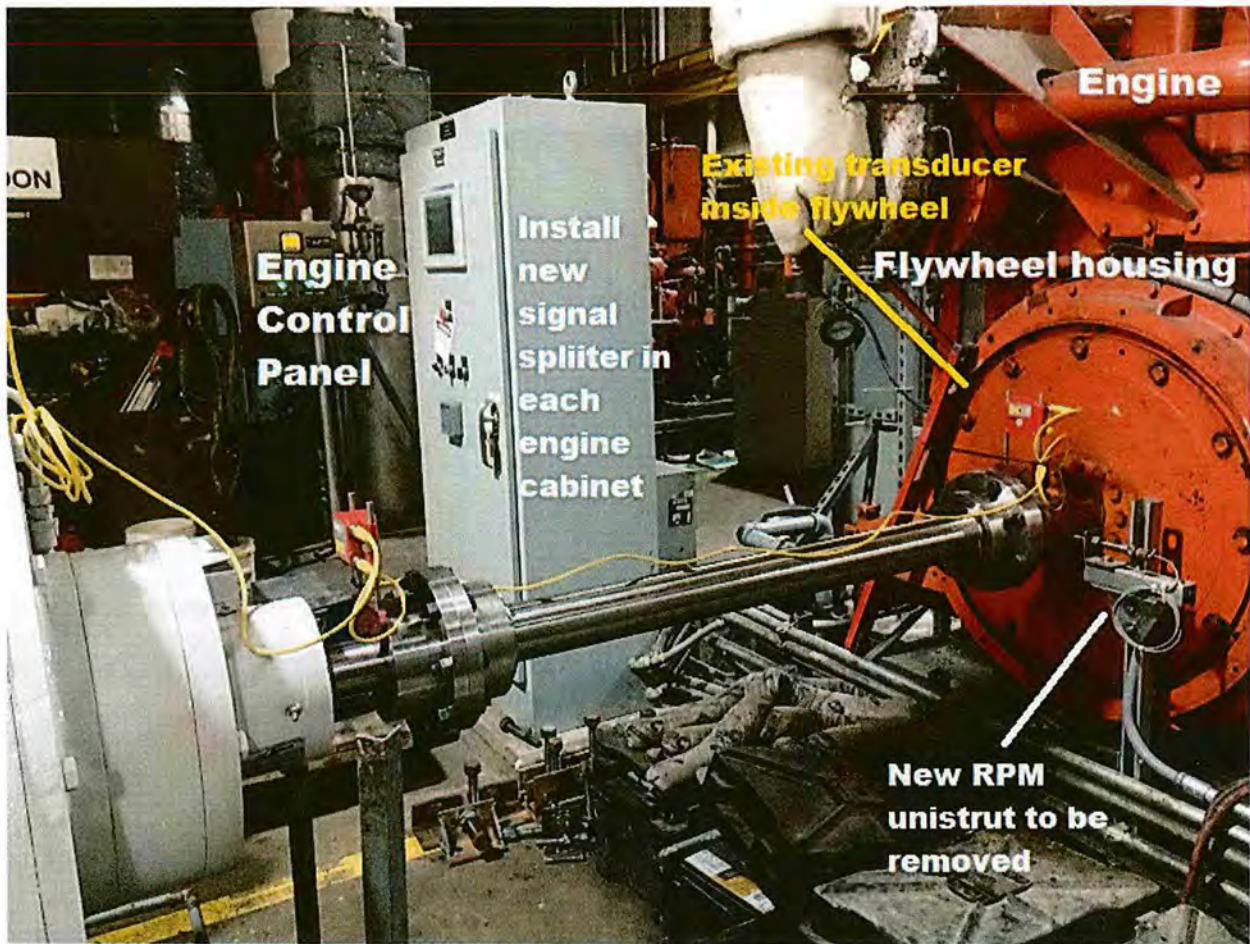


The approved Proposed Change Order (PCO) for this item has been identified by MWRA staff as an unforeseen condition. The Design Consultant, Fay, Spofford & Thorndike, LLC, MWRA staff and the Contractor have agreed to an amount not to exceed \$80,000 for this additional work with no increase in contract term. The Contractor has proceeded with this work at its own risk in order to proceed with the remainder of the contract work.

Modify the Speed Instrumentation on the Four Engines at Prison Point and Three Engines at Cottage Farm \$35,000

All engines at both Prison Point and Cottage Farm have existing instrumentation, which records the speed (or RPMs) of each engine shaft and transmits the information back to MWRA's SCADA system through a transducer connected through a small steel port located on the engine flywheel housing. (It is necessary to measure the speed of the engines' shafts to be in compliance with EPA reporting requirements related to the newly installed diesel oxidation catalysts.) The existing steel port on the flywheel housing could not be utilized to collect the speed information because the additional signal wire might interfere with the information transmitted to SCADA. As a result, an additional transducer was designed for this contract and installed on a unistrut metal stand adjacent to each engine shaft (see picture on the following page).





However, vibration from the engine, as well as dust and grease from the shaft, caused numerous recording problems rendering this instrument inaccurate.

As the diesel oxidation catalysts start collecting data based on the engines' speed, it is imperative to obtain an accurate shaft speed. Therefore, the Contractor is required to remove the unistrut stands and a section of conduit on each shaft, install signal splitters in each of the seven SCADA cabinets, re-route the signal to the diesel oxidation catalyst cabinet, and be present during witness testing by MWRA to validate that the instrumentation is operating correctly.

The approved PCO for this item has been identified by MWRA staff as a design omission. FS&T, MWRA staff, and the Contractor have agreed to an amount not to exceed \$35,000 for this additional work, with no increase in contract term. The Contractor has proceeded with this work at its own risk in order to proceed with the remainder of the contract work.

**CONTRACT SUMMARY:**

	<u>Amount</u>	<u>Time</u>	<u>Dated</u>
Original Contract:	\$6,126,126.00	650 Days	10/08/13
Change Orders:			
Change Order 1*	\$22,788.25	0 Days	03/10/14
Change Order 2*	\$23,972.00	0 Days	05/15/14
Change Order 3*	\$17,315.66	0 Days	08/28/14
Change Order 4*	\$62,339.02	0 Days	01/09/15
Change Order 5*	\$20,090.08	0 Days	01/12/15
Change Order 6*	\$22,500.00	0 Days	03/05/15
Change Order 7	<u>\$115,000.00</u>	<u>0 Days</u>	Pending
Total of Change Orders:	\$284,005.01	0 Days	
Adjusted Contract:	\$6,410,131.01	650 Days	

\*Approved under delegated authority

If Change Order 7 is approved, the cumulative total value of all change orders to this contract will be \$284,005.01 or 4.6% of the original contract amount. Work on this contract is approximately 75% complete.

**BUDGET/FISCAL IMPACT:**

The FY15 CIP includes a budget of \$6,175,414 for Contract 7452. Including this change order for an amount not to exceed \$115,000, the adjusted subphase total will be \$6,410,131.01 or \$234,717.01 over budget. This amount will be included in the five-year CIP spending cap.

**MBE/WBE PARTICIPATION:**


There were no MBE or WBE participation requirements established for this contract due to the limited opportunities for subcontracting.

**ATTACHMENTS:**

Locus Map of Prison Point CSO Facility  
Locus Map of Cottage Farm CSO Facility



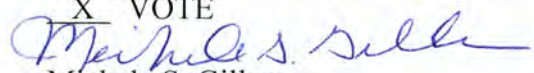
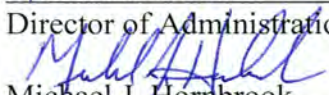
**STAFF SUMMARY**

**TO:** Board of Directors  
**FROM:** Frederick A. Laskey, Executive Director   
**DATE:** March 11, 2015  
**SUBJECT:** Agreement for Operations and & Maintenance of the Fore River Pelletizing Plant  
New England Fertilizer Company  
Contract S345, Amendment 1

COMMITTEE: Wastewater Policy & Oversight

John P. Vetere, Deputy Chief Operating Officer  
David F. Duest, Director, Deer Island WWTP  
Carl Pawlowski, Manager, Residuals Operations  
Preparer/Title

           INFORMATION

VOTE  
  
Michele S. Gillen  
Director of Administration  
  
Michael J. Hornbrook  
Chief Operating Officer

*On May 14, 2014, staff presented to the Board three options that were being evaluating for the continued operations and maintenance of MWRA's Pelletizing Plant at the Fore River Shipyard. The three options were: a new competitively bid long-term contract; a competitively bid five-year contract; and a five-year contract extension with the current operator, New England Fertilizer Company (NEFCo) followed by a future, long-term, competitively bid contract.*

*Staff are recommending a negotiated five-year contract extension with NEFCo followed by a future long-term competitive procurement. The negotiated extension with NEFCo will result in a savings of approximately \$1.25 million compared to the current contract pricing and the extension will allow for continued use of an asset that is in very good condition, with a well-proven, reliable contractor. The five-year extension period will also 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.*

**RECOMMENDATION:**

To authorize the Executive Director to approve Amendment 1 to Contract S345, Operations and & Maintenance of the Fore River Pelletizing Plant with New England Fertilizer Company, in the amount of \$63,260,721 plus escalation, excess quantity charges, and a 15% design and administration payment for capital improvement projects entered into by MWRA, and extending the contract term for five years, from January 1, 2016 through December 31, 2020.



**DISCUSSION:**

MWRA paid for, constructed and owns the Pelletizing Plant in Quincy (shown in Figure 1 on the following page). Construction was completed in 1991, which allowed MWRA to stop the decades-old practice of discharging sludge directly into Boston Harbor. The plant was subsequently expanded in 2001. Following a competitive procurement process, MWRA awarded the first Operations and Maintenance contract to NEFCo. The successor contract, also competitively bid and awarded to NEFCo, Contract S345, began in 2001 and runs to the end of 2015. NEFCo has been the only contract operator of the facility since it went on-line.

In preparation for the expiration of the existing contract, MWRA staff began preliminary planning in mid-2009 and completed a Condition Assessment of the Residuals Processing Facility (Pelletizing Plant) in July 2010 under Contract 7147. The study showed that the Pelletizing Plant is generally in excellent condition, with no significant capital expenditures required over the next 20 years or longer with continued maintenance. The study recommended only minor improvements, mostly to outdated electronic equipment. NEFCo has completed all of the recommended modifications resulting from Contract 7147.



Figure 1: MWRA Pelletizing Plant in Quincy

**Existing Solids Process Flow Diagram**

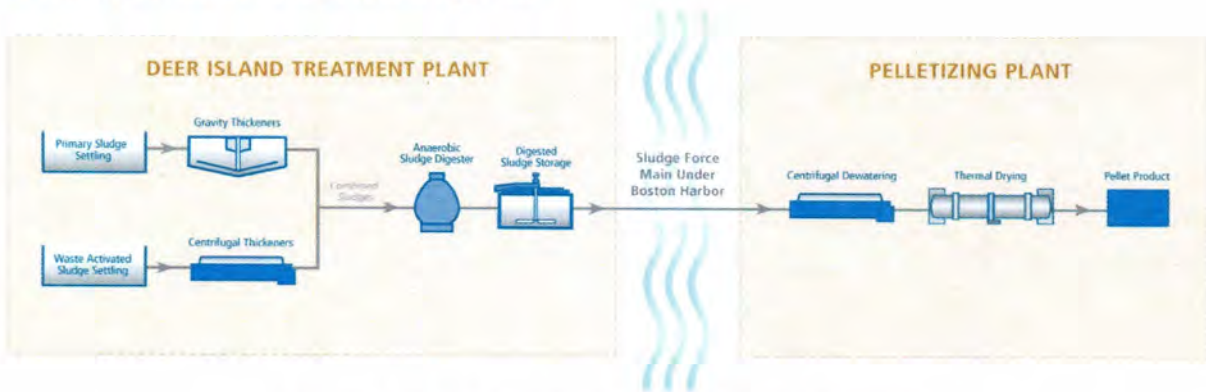


Figure 2: MWRA Wastewater Residuals Processing Overview

The next step began in 2012 with Contract 7147A, Technology Options Assessment, which involved a review of MWRA’s past decisions for residuals processing (DITP through the Pellet Plant as shown in Figure 2 above). Prior to any potential future major capital expenditures, staff wanted to review the existing operation, optimize the use of existing facilities, and recommend



changes that may improve green energy production and/or reduce sludge production. The study was completed in January 2014. That study recommended a few potential changes at Deer Island and only a few longer-term improvements for the Pelletizing Plant were suggested. Staff are still evaluating those recommendations.

The Technology Options Assessment recommendations primarily pertaining to Deer Island were specific to the areas of digestion and digester gas utilization. The long-range recommended improvements to the Pelletizing Plant included replacing several smaller drying trains (as shown in Figure 3 to the right) with a fewer number of larger drying trains (without increasing the current capacity of the facility) to achieve energy efficiency gains. This recommendation would require a substantial capital investment for a facility with a long remaining life. Any changes of this type would have to be made with an estimated payback period in mind. Only one larger treatment plant currently utilizes these larger dryer trains, and another is currently under construction in Detroit. Staff will follow the performance of these facilities to determine whether the technology is cost beneficial. In order to extend the life of the facility beyond 25 years, staff anticipate that other mechanical, instrumental, HVAC, and electrical systems would need evaluation and some replacement due to age or obsolescence and these factors would need to be evaluated in planning a new contract.



Figure 1: Dryer Furnace Trains

The final step included incorporating the recommendations that prove worthy of implementation and contracting within the next phase of an operations and maintenance agreement. Staff are of the opinion that a competitively bid, long-term agreement for the operations and maintenance of the Pelletizing Plant provides the agency with the most cost-effective means for biosolids processing beyond 2015. However, timing the long-term agreement correctly will provide MWRA with the best chance of getting the best value. Staff considered factors, including the level of competition, risk, pending projects that impact biosolids quantity and quality, data from similar projects at other facilities, potential for any emerging technologies, potential upgrades for the Pelletizing Plant, and scope of services improvements, to develop a comprehensive bid package for a cost-effective, long-term operations and maintenance agreement.

Heat drying and pelletization is fast becoming the method of choice for many publically owned treatment works seeking alternatives for sludge disposal needs. Air permit requirements for incinerators and landfill policy changes regarding organics are leading this push. At this time, only two or three larger firms are bidding on proposals similar to the size and scope of MWRA's contract. One of these firms was near bankruptcy less than two years ago but has been recovering. Staff expect competition to grow in the near future as more and more projects come on line.



A comprehensive bid for a 15-year contract would be best if MWRA operated in a steady state with well-defined, planned capital expenses and process efficiency plans going into the future. Given the timing of the recommendations of the Residuals Technology Assessment, there is more uncertainty in the near future, including the potential lack of competition and this uncertainty impacts how MWRA may want to revise/update the future contract. Given that, staff are of the opinion that it is best to recommend a five-year extension of the existing contract with NEFCo to better define the options for the next longer-term contract.

### **Contract Extension Negotiations**

MWRA's negotiating team was lead by the Director of Deer Island and supported by representatives from MWRA's Procurement Department, Budget Department, Internal Audit Department, Residuals Department, Deer Island Maintenance, and the Law Division.

The existing contract structure has a fixed fee for Operations and Maintenance (O&M) services, plus a variable fee for any additional sludge above the base quantity (90 dry tons per day) and index adjustments for all line items. The existing contract also includes provision and budgeting for capital improvements required for maintaining the plant at full operating conditions. NEFCo is responsible for all expenses above budgeted amounts and is required to return a fully operational plant at the end of the contract.

Contract negotiations were structured to ensure that MWRA would continue to receive the same level of service at a better price. The main components of the negotiated contract extension are:

- NEFCo will still be responsible for processing and distributing all sludge Deer Island produces while complying with the performance provisions of the existing contract;
- MWRA will realize a savings of approximately \$1.25 million over the five-year extension by increasing the base sludge quantity from 90 dry tons per day (dtpd) to 92.5 dtpd, at the existing contract base price. Through this negotiation NEFCo is processing and disposing 2.5 dtpd more sludge at no additional cost to MWRA compared to the original contract;
- The capital program contained in the existing contract for improvements to the Pellet Plant will be modified for the five-year extension period as follows:
  - Under the existing NEFCo contract, capital costs for maintenance and repairs are a component of annual payments made to NEFCo. This extension will remove the capital component from the operating contract. During the five-year extension, any capital project deemed necessary will be separately bid and awarded by MWRA subject to Board approval. This changes payment from a fixed, contractually required annual amount to payment of actual capital costs only;
  - A \$7 million budget for potential capital projects is established, which includes a 15% payment (of the construction contract award amount) to NEFCo for design and contract administration of these projects. The 15% payment will be made within 30 days of award of the construction contract;

- “Full drum replacement” is not included in the \$7.0 million budget. NEFCo proposed three out of six full drum replacements during the five-year extension period with capital costs paid for by MWRA. MWRA staff do not recommend replacing the drums at this time due to their good operational condition. In addition, due to energy-efficiency improvements, MWRA staff recommend this replacement be done as part of the longer-term procurement in five years. If MWRA decides to undertake some or the entire project, it will be performed in accordance with the terms of the Operation and Maintenance Agreement, but the costs will not be applied to the \$7.0 million budget. A 10% payment for Capital Project Management and a 15% payment for design and contract administration (both of the construction contract amount) will be paid to the Contractor if the drum replacement needs to occur in the five-year period;
- Except for drum replacement, NEFCo will be responsible for costs in excess of the \$7 million budget and remains responsible for maintaining an operational plant;
  - Clarifies that NEFCo shall capture not less than 90% of the suspended solids each calendar month and not more than 10% of the suspended solids may be discharged to the sewer system each calendar month; and
  - The back-up landfill requirements remain (court order and DEP policy guidance).

In summary, extending the contract for five years will result in a cost savings of \$1.25 million and will allow MWRA to solidify its long-term contract strategy. It will allow additional time to evaluate newer potential energy efficiency changes (larger dryer trains with new operating data from Detroit). It will allow for potential increased competition and could stabilize sludge production to more predictable levels (status of co-digestion). All these factors will impact the structure of the next long-term contract.

**BUDGET/FISCAL IMPACT:**

The FY15 Current Expense Budget includes \$14,562,235 for operating and capital costs under Contract S345. In calendar year 2014, MWRA paid NEFCo a total of \$14,090,65, which included processing and disposal of 100.2 dtpd of sludge and \$508,300 for planned capital expenses. MWRA will budget accordingly for future fiscal years to fund the operation of the Pelletizing Plant. All future capital projects identified under this contract negotiation will be competitively bid and will be the subject of future board approvals.



# MASSACHUSETTS WATER RESOURCES AUTHORITY

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Boston, MA 02129

Frederick A. Laskey  
Executive Director

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## **WATER POLICY AND OVERSIGHT COMMITTEE MEETING**

*Chair:* A. Pappastergion

*Vice-Chair:* (vacant)

*Committee Members:*

J. Carroll

J. Foti

H. Vitale

J. Walsh

J. Wolowicz

to be held on

Wednesday, March 11, 2015

Location: 100 First Avenue, 2nd Floor  
Charlestown Navy Yard  
Boston, MA 02129

Time: Immediately following Wastewater Comm.

## **AGENDA**

### **A. Contract Awards**

1. Community Leak Detection Task Order Services: Liston Utility Services, Contract W298; and Wachs Water Services, Contract W298A



MASSACHUSETTS WATER RESOURCES AUTHORITY

Meeting of the  
Water Policy and Oversight Committee

January 14, 2015

A meeting of the Water Policy and Oversight Committee was held on January 14, 2015 at the Authority headquarters in Charlestown. Chairman Pappastergion presided. Present from the Board were Ms. Wolowicz and Messrs. Cotter, Flanagan, Foti, Vitale and Walsh. Among those present from the Authority staff were Fred Laskey, Steve Remsberg, Steve Estes-Smargiassi, Dave Coppes, and Bonnie Hale. The meeting was called to order at 11:20 a.m.

**Information**

Report on 2014 Water Use Trends

Staff gave a presentation summarizing the 2014 water use trends, and there was general discussion and question and answer.

Annual Update on Invasive Aquatic Plant Management at MWRA Reservoirs


Staff gave a presentation on invasive aquatic plant management.

Quabbin Spillway Fence Repair Completion

Staff gave a presentation depicting the repair and rehabilitation of the Quabbin spillway fence originally installed in 1940-41.

The meeting adjourned at 12:00 p.m.

## STAFF SUMMARY

**TO:** Board of Directors  
**FROM:** Frederick A. Laskey, Executive Director   
**DATE:** March 11, 2015  
**SUBJECT:** Community Leak Detection Task Order Services  
Contract W298 – Liston Utility Services  
Contract W298A – Wachs Water Services

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COMMITTEE: Water Policy & Oversight

Carolyn M. Fiore, Deputy Chief Operating Officer  
Kristen M. Hall, Project Manager, Planning  
Carl H. Leone, Senior Program Manager, Planning  
Preparer/Title

     INFORMATION

  X   VOTE

  
Michele S. Gillen

Director of Administration

  
Michael J. Hornbrook

Chief Operating Officer

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*This staff summary was included in the February Board package and it originally recommended awarding three contracts. However, since that time, one of the proposers subsequently requested that it be removed from consideration for award. The revised staff summary recommends award of only two contracts.*

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### RECOMMENDATION:

To approve the recommendation of the Selection Committee to select two separate contractors to provide leak detection task order services for MWRA's member communities, and to authorize the Executive Director, on behalf of the Authority, to execute the following two task order contracts, each for a not-to-exceed amount of \$500,000 and a contract term of three years, from April 1, 2015 through March 31, 2018:

- Contract W298, Leak Correlation Surveys, Liston Utility Services; and,
- Contract W298A, Comprehensive Listening and Leak Correlation Surveys, Wachs Water Services.

### BACKGROUND:

As part of the Long-Range Water Supply Program (1988-1990), MWRA funded a leak detection survey of the 6,000+ miles of water mains owned and operated by MWRA's customer communities. The survey resulted in locating 2,374 leaks, which were wasting more than 30 million gallons of water per day. Since water system leakage can recur rapidly in the absence of an active leak detection program, it was important to maintain the progress made through the initial survey effort. It should be noted that MWRA has an active leak detection program for its



water distribution system, performed by in-house staff. The activity of the program, including mileage of water mains inspected, leaks detected, and leaks repairs is tracked and reported in the Orange Notebook.

On July 1, 1991, leak detection regulations (360 CMR 12.00) were promulgated by MWRA requiring that each community purchasing MWRA water conduct a leak detection and repair program covering its entire water distribution system not less than once every two years. To perform local water leak detection work, communities can: (1) use their in-house staff, (2) procure their own contractor, or (3) use one of MWRA's task order services contracts. The task order contracts provide communities with access to competitively procured leak detection services without the need for individual local procurement processes, making it easy to comply with the leak detection requirement. Each community using an MWRA task order contract must execute an agreement to repay MWRA the cost of the survey in the following fiscal year. The leak detection regulations and procurement of community leak detection contracts support MWRA's efforts to comply with Massachusetts's Water Conservation Standards.

From July 1991 through February 2015, MWRA has procured leak detection services eight times. Under those contracts, over 30,100 miles of water main were inspected through 231 separate community leak detection surveys. This work resulted in the location of 5,712 water main leaks accounting for more than 53 million gallons per day of water loss from the distribution system. During the most recent three-year contract period (March 2012 through February 2015), 19 customer communities utilized MWRA's contracts to perform 39 leak detection surveys. Five separate contractors had agreements with MWRA to perform community leak detection services. These five task order contracts recently expired on February 28, 2015. Additional information on the most recent leak detection contracts is provided as Attachment A.

## **DISCUSSION:**

### **Procurement Process**

In order to provide customer communities flexibility in their choice of leak detection contractors, and provide communities a choice as to the type of leak detection survey to be performed, staff utilized a procurement process designed to select multiple qualified leak detection contractors. Qualifications and bid prices for two different methods of leak detection work were sought: Part A - Comprehensive Listening Survey and Part B - Leak Correlation Survey. Each method is described below.

- **Part A - Comprehensive Listening Survey**

This type of survey is performed using sound-intensifying equipment capable of detecting small amounts of leakage during periods of low water use and low background noise (generally performed at night). Sonic leak detection equipment is used to "sound" available points of direct contact to the water distribution system, including hydrants, valves, service connections, etc. In addition, a ground microphone is used to listen over the water main at short intervals (every 6 to 10 feet). Leak sites identified



Leak Detection Technician  
"sounding" at a fire hydrant



using sonic leak detection equipment are verified with leak correlation equipment. The ability and experience of the leak detection technician to systematically sound every water main are key aspects of an effective comprehensive listening survey.

- **Part B - Leak Correlation Survey**

This type of survey is performed using accelerometer equipment (computerized sound data loggers) placed directly on hydrants, valves, service connections, etc. Computer software is used to evaluate the logged sound data files and perform a correlation between the points of contact to determine the location of potential water leaks. Water leaks are identified via a graphic representation of sound frequency.

A water leak is represented as a sharp discontinuity or spike in the sound frequency graph and the location of the leak is pinpointed as the distance between the points of contact within the water system to the identified spike. Leak sites identified using leak correlation equipment are verified with sonic ground sounding equipment. The capabilities of the leak correlation equipment and ability of the technician to properly utilize the equipment are key aspects of an effective survey.



Correlation survey accelerometer (datalogger) and placed on a hydrant

Staff advertised the request for Statements of Qualifications and Cost Proposals in October 2014 and directly e-mailed notice of the opportunity to 15 leak detection contractors. A one-step, two-envelope process was utilized. Proposers were permitted to submit Proposals for either Comprehensive Listening Survey work, Leak Correlation Survey work, or for both. The Selection Committee separately evaluated the contractors' qualifications in the first envelope on a pass/fail basis. The following evaluation criteria were used: (1) similar experience/past performance; (2) capacity/qualifications/key personnel; and (3) organization, management, and technical approach. Once the pass/fail selection of qualified firms was complete, the second envelopes containing the cost proposals of all qualified firms were opened to determine the lowest to highest cost ranking based on the comprehensive per-mile rate proposed for each of the two separate methods of leak detection surveys. MWRA's plan was to select up to three qualified contractors that submitted the lowest three cost proposals for the three-year term of the contract on a per-mile basis for each of the two different methods of leak detection.

The procurement process resulted in three contractors submitting proposals. Two proposals were submitted for both Comprehensive Listening Survey and Leak Correlation Survey work, and one proposal was submitted for only Leak Correlation Survey work. The Selection Committee voted all three of the proposals as "qualified" under the first stage pass/fail criteria.

In the second stage, the Selection Committee ranked each contractor's proposed comprehensive per-mile rate (second envelope) for each of the two separate methods of leak detection surveys from lowest to highest. The results are presented on the following page.

### Part A - Comprehensive Listening Survey

<u>Contractor</u>	<u>Bid Cost per Mile</u>	<u>Cost Ranking</u>
Prowler Water Conservation Systems*	\$ 70.00	1
Wachs Water Services	\$147.00	2

The Selection Committee reviewed the per-mile rates proposed and voted to recommend selection of both contractors to perform task order Comprehensive Listening Survey work.

### Part B - Leak Correlation Survey

<u>Contractor</u>	<u>Bid Cost per Mile</u>	<u>Cost Ranking</u>
Prowler Water Conservation Systems*	\$ 95.00	1
Liston Utility Services	\$145.00	2
Wachs Water Services	\$288.00	3

The Selection Committee reviewed the per-mile rates proposed and voted to recommend selection of all three contractors to perform task order Leak Correlation Survey work.

\*After completion of the Selection Committee process, proposers were contacted and asked to submit insurance information to confirm compliance with the requirements of the contract. Information was obtained and submitted to MWRA's Risk Management Department for review. The submission received from Prowler Water Conservation Systems, a new contractor to the MWRA, was lacking in various regards. After numerous correspondence back and forth, the contractor indicated that it did not carry the required \$1.0 million Professional Liability coverage as attested to in its cover letter, and further, that the cost to procure such coverage was not included in its proposal. As shown above, Prowler's "Bid Cost per Mile" for each category of work was substantially less than the other two proposers. This coverage, which protects against monetary claims arising from errors and omissions in the contractor's performance of work, was confirmed for the other two proposers without question and has been provided by the five incumbent contractors for the past three years. Subsequently, Prowler requested that it be removed from consideration for this contract. In light of this issue, Prowler is not being recommended for award.

A brief overview of the remaining two contractors that submitted proposals is provided below.

**Liston Utility Services** - This contractor is a small company that has a local office in Stoneham and generally performs one leak detection survey at a time utilizing one leak detection technician that has more than 30 years of experience. For the past ten years, the company has specialized in only leak correlation survey work. Liston Utility Services has performed leak correlation surveys in at least 16 MWRA communities and many non-MWRA communities in Massachusetts. Liston's references were excellent. Liston Utility Services' proposed per-mile rate for leak correlation survey is the same rate as under its current task order contract with MWRA.

**Wachs Water Services** - This contractor is a large national company headquartered in Buffalo Grove, Illinois with more than 200 employees. Wachs Water Services performs both



comprehensive listening survey and leak correlation survey work. The company also provides a variety of water and sewer system asset management services. This contractor has performed numerous leak detection surveys throughout the United States. However, the only leak detection work performed in Massachusetts that was noted in the proposal was in Springfield. Wachs' references were excellent. Wachs Water Services has not worked directly for MWRA in the past.

To provide flexibility for member communities in their choice of leak detection services, staff recommend the award of two leak detection task order contracts to: (1) Liston Utility Services and (2) Wachs Water Services. Member communities will continue to be able to select the contractor and leak detection method they would like to utilize via MWRA or procure their own contractor. The contractors are not guaranteed any minimum amount of work and each contractor will only be paid for services provided under each task order based on its proposed per-mile rate up to the not-to-exceed contract limit. Although the previous procurement produced five bidders, only three participated in this procurement and, ultimately, only two contractors are recommended for community task order contracts. Attachment A provides additional information regarding the reasons for the decrease in contractor participation. Staff are confident the procurement process was fair and allowed for sufficient opportunity for competition.

**BUDGET/FISCAL IMPACT:**

MWRA expenditures for Community Leak Detection Task Order Services are posted to a deferred billing account until reimbursement is received from each participating community the following fiscal year. This deferred billing account allows MWRA to incur community-related expenses until reimbursement is received without any impact on the Current Expense Budget.

**MBE/WBE PARTICIPATION:**

There were no MBE or WBE participation requirements established for this procurement due to limited opportunities for subcontracting.

**ATTACHMENTS:**

Attachment A – Additional Information Regarding the Most Recent Leak Detection Contracts



**ATTACHMENT A**  
**Additional Information Regarding the Most Recent Leak Detection Contracts**

The five most recent task order contracts expired on February 28, 2015. Only one of the five most recent contractors submitted a proposal for community leak detection work for the next three-year period. In an effort to explain why, the additional information in this attachment has been included.

**Summary of Most Recent Leak Detection Contract**

Contractor	Type of Leak Survey	Bid Cost per Mile	Contract Limit	Task Order Surveys Performed	Actual Cost
New York Leak Detection	Listening	\$110.00	\$200,000	0	\$0
Heath Consultants	Listening	\$112.55	\$200,000	12	\$165,111
Water & Waste Pipe Testing	Listening	\$117.00	\$200,000	6	\$124,722
Heath Consultants	Correlator	\$132.12	\$200,000	8	\$112,767
Liston Utility Services	Correlator	\$145.00	\$250,000*	12	\$249,879
ADS Environmental Services	Correlator	\$169.01	\$200,000	1	\$34,647
<b>TOTAL</b>			<b>\$1,250,000</b>	<b>39</b>	<b>\$687,125</b>

\* Liston Utility Services original contract limit of \$200,000 was increased by \$50,000 via contract amendment

**New York Leak Detection** received no requests for community leak detection work under the most recent contract despite having the lowest cost per mile for Comprehensive Listening Surveys.

**Heath Consultants** received significant requests for community leak detection work under the most recent contract. However, during the procurement process, the company notified MWRA that it would not be submitting a proposal due to a business decision to exit the water leak detection services industry to focus on leak detection in the natural gas industry.

**Water and Waste Pipe Testing** received significant requests for community leak detection work under the most recent contract. However, the company did not submit a proposal under the new procurement. Staff contacted Water and Waste Pipe Testing to determine why the firm did not propose. The company indicated that it was comfortable with its existing client base and workload and was not interested in taking on the additional commitment of MWRA's task order contract at this time.

**Liston Utility Services** received significant requests for community leak detection work under the most recent contract. Liston Utility Services was the only one of the five most recent contractors that submitted a proposal for community leak detection work for the next three-year period. Liston is recommended for award as one of the three bidders for Leak Correlation Survey work.

**ADS Environmental Services** received only one request for community leak detection work under the most recent contract. ADS's cost per mile was the highest of the three existing contractors for Leak Correlation Surveys at 28% above the lowest cost per mile.



# MASSACHUSETTS WATER RESOURCES AUTHORITY

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## PERSONNEL & COMPENSATION COMMITTEE MEETING

*Chair:* K. Cotter  
*Vice-Chair:* J. Wolowicz  
*Committee Members:*  
J. Carroll  
P. Flanagan  
J. Foti  
A. Pappastergion  
H. Vitale  
J. Walsh

to be held on

Wednesday, March 11, 2015

Location: 100 First Avenue, 2nd Floor  
Charlestown Navy Yard  
Boston, MA 02129

Time: Immediately following Water Comm.

### **A. Information**

1. Compliance with New Federal Regulations on Veterans and Individuals with Disabilities

### **B. Approvals**

1. 2015 Affirmative Action Plan
2. PCR Amendments – March 2015
3. Appointment of Director, Internal Audit
4. Appointment of Manager, Benefits and HRIS
5. Appointment of Senior Program Manager, Valves, Operations Division
6. Appointment of Manager, Maintenance, Metro East, Operations Division

MASSACHUSETTS WATER RESOURCES AUTHORITY

Meeting of the  
Personnel and Compensation Committee

January 14, 2015

A meeting of the Personnel and Compensation Committee was held on January 14, 2015 at the Authority headquarters in Charlestown. Chairman Cotter presided. Present from the Board were Ms. Wolowicz and Messrs. Flanagan, Foti, Pappastergion, Vitale and Walsh. Among those present from the Authority staff were Fred Laskey, Steve Remsberg, Karen Gay-Valente, Andrea Murphy, and Bonnie Hale. The meeting was called to order at 12:00 p.m.

**Information**

Organizational Changes in Administration and Finance

Staff summarized the history of the formation of the Administration and Finance Division in 2009 headed by Rachel Madden as its Director. After Ms. Madden announced her resignation from MWRA to serve as Gov. Baker's Undersecretary of Administration and Finance, and after careful consideration, a decision was made to split A&F back into two separate divisions and appoint a Director of each division. The following approval items reflect the related PCR amendments and personnel appointments recommended in order to implement the reorganization, as well as other PCR amendments to address salary equity issues and appointments in the Operations Division and MIS Department.

**Approvals**

An omnibus motion was made to recommend approval of the following eight agenda items, and it was unanimously voted (see Vote/Extracts/Board minutes for details).

\*PCR Amendments – January 2015  
(ref. agenda item A.1)

\*Appointment of Director, Finance  
(ref. agenda item A.2)

\*Appointment of Director, Administration  
(ref. agenda item A.3)

\*Appointment of Treasurer  
(ref. agenda item A.4)

\*Appointment of Director, Procurement  
(ref. agenda item A.5)

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\* Approved as recommended at January 14, 2015 Board of Directors meeting.



\*Appointment of Program Manager, Engineering and Construction  
(ref. agenda item A.6)

\*Appointment of Senior Program Manager, Western Operations  
(ref. agenda item A.7)

\*Appointment of System Administrator III, MIS  
(ref. agenda item A.8).

The meeting adjourned at 12:15 p.m.

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\* Approved as recommended at January 14, 2015 Board of Directors meeting.

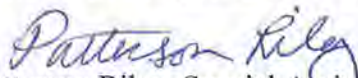
STAFF SUMMARY

~~P&C.A.1  
2/11/15~~  
P&C.A.1  
3/11/15

**To:** Board of Directors  
**From:** Patterson Riley, Special Assistant, Affirmative Action & Compliance Unit  
**Date:** February 11, 2015  
**Subject:** Expanded Affirmative Action Requirements for Veterans and Individuals with Disabilities

COMMITTEE: Personnel & Compensation

X  INFORMATION  
  VOTE



Patterson Riley, Special Assistant, AACU  
Preparer/Title

**RECOMMENDATION:**

For information only. This staff summary provides a listing of actions undertaken by the MWRA as a federal government contractor to comply with expanded Affirmative Action requirements for veterans and individuals with disabilities.

**BACKGROUND:**

The MWRA's annual Affirmative Action Plan (AAP) is developed to be compliant and consistent with applicable federal and state laws. On September 24, 2013, the U.S. Department of Labor's Office of Federal Contract Compliance Programs (OFCCP) issued new regulations requiring government contractors to undertake greater efforts to employ veterans and individuals with disabilities. The regulations implement the Vietnam Era Veteran's Readjustment and Assistance Act ("VEVRAA"), as amended, and Section 503 of the Rehabilitation Act of 1973 ("Section 503"), which prohibit discrimination against and require affirmative action in employment for veterans and for individuals with disabilities.

MWRA, pursuant to Section 7 (g) of the MWRA's Enabling Act has developed policies and plans for affirmative action in accordance with laws and consistent with general policies and plans for the Commonwealth, and has included in its Plan, programs for veterans and for individuals with disabilities. The most significant aspect of the new requirements, hiring benchmarks for the employment of veterans in the civilian workforce, currently set at eight (8%) percent, and utilization goals for the employment of qualified individuals with disabilities, set at seven (7%) percent for each job group, are the centerpiece of the new regulations.

The effective date of the regulations is March 24, 2014, with Subpart C governing the Affirmative Action Plans of covered contractors. OFCCP is permitting MWRA and other federal contractors to delay their compliance until after the start of each of their next AAP cycle due to the fact effective dates of annual Plans varies from contractor to contractor. The MWRA's next Affirmative Action Plan year commences January 1, 2015. See separate staff summary being presented at this meeting.)

Internal Audit staff conducted an audit review of applicable federal regulations and discussed program changes with the Director, Administration & Finance, the Director of Human Resources, the Manager of Employment, the Contracts Manager and the Special Assistant for Affirmative Action. Crosswalk tables issued by OFCCP were used to highlight the new regulations in order to identify changes requiring action by the MWRA. The review by Internal Audit identified the need for an action plan to ensure that the new requirements were put in place in a timely manner and that affected Departments were accountable and responsible for activities within their span of control.

The OFCCP has encouraged contractors to bring their employment practices and Human Resources Information Systems into compliance as soon as possible and in compliance with all parts of the regulations within the completion of the AAP year. As a result of this, MWRA has undertaken the implementation of all of the new federal regulations designed to promote our numerous efforts at increasing employment of protected veterans and individuals with disabilities with the MWRA's workforce.

<b><u>March 24, 2014 Requirements</u></b>	<b><u>Status</u></b>
• Modify MWRA contract language to incorporate new Affirmative Action requirements into covered subcontracts and purchase orders	Completed 12/31/2014
• Display the new EEO/AA poster in conspicuous places for employees/applicants in an electronic format	Completed 12/31/2014
• Modify the EEO tagline in job solicitations and advertisements to include disability and protected veteran status	Completed 12/31/2014
• List all positions with state employment delivery systems and provide to them our contact information	Completed 12/31/2014
• Notify our unions of our federal contractor status as covered government contractor	Completed 12/31/2014
• Modify the EEO tagline in job solicitations and advertisements to include disability and protected veteran status	Completed 12/31/2014
• List all positions with state employment delivery systems and provide to them our contact information	Completed 12/31/2014
• Notify our unions of our federal contractor status as covered government contractor	Completed 12/31/2014



**Phased-in Compliance - First AAP Cycle**

**Status**

- Pre-and Post-employment solicitation of disability and veteran status from applicants Completed 12/31/2014
- Establish disability “goals” by job group and monitor progress Completed 12/31/2014
- Establish hiring “benchmark” for veterans of eight (8%) percent Completed 12/31/2014
- Completed changes to employment forms, intake processes, job advertisements, purchase orders, vendor agreements Completed 12/31/2014
- Track applicant and hire data for individuals with disabilities and veterans Completed 12/31/2014
- Identify problem areas impacting disabled employees and take corrective action Completed 12/31/2014
- Conducted an initial self-identification survey of employees regarding disability status Completed 12/31/2014
- Include an EEO policy statement in the new AAP that shows top executive support for protected veterans and individuals with disabilities Completed 12/31/2014
- Conducted a meeting with executive, management and supervisory personnel to explain the intent of the new regulations and responsibility for effective implementation, reinforcing the Executive Director’s clear support of the program Completed 12/31/2014
- Complete communication and notification to all MWRA Subcontractors, in writing, of MWRA policy related to its Affirmative Action efforts and request appropriate action and adherence to these new regulations on their part. 3/31/2015
- Complete annual written assessment of MWRA’s outreach program On-going

AACU staff will include a comprehensive special report to the Board of Directors at the end of the current 2015 Affirmative Action Plan year to highlight plans, progress and achievements regarding MWRA compliance to the expanded federal regulations for the employment of veterans and individuals with disabilities.

STAFF SUMMARY

~~P&C B.1~~  
~~IV A.2~~  
~~2/11/15~~  
P&C B.1  
IV A.4  
3/11/15

**To:** Board of Directors  
**From:** Patterson Riley, Special Assistant, Affirmative Action & Compliance Unit  
**Date:** February 11, 2015  
**Subject:** Approval of the Affirmative Action Plan

COMMITTEE: Personnel & Compensation

           INFORMATION  
  X   VOTE

*Patterson Riley*

Patterson Riley, Special Assistant, AACU  
Preparer/Title

**RECOMMENDATION:**

That the Board of Directors approve the Massachusetts Water Resources Authority’s (MWRA) Affirmative Action Plan effective for a one-year period from January 1, 2015 through December 31, 2015.

**DISCUSSION:**

The Affirmative Action Plan sets out the basic parameters of MWRA’s commitment to Equal Opportunity in the areas of Employment (EEO) and Minority/Women Business Enterprise (M/WBE) participation in MWRA procurements and contracted services. The Plan has been prepared pursuant to Section 7(g) of the Authority’s Enabling Act, which states:

“The Authority shall develop policies and plans for affirmative action in employment, procurement, and contracting in accordance with laws and consistent with general policies and plans for the Commonwealth.”

MWRA updates its Affirmative Action Plan annually and provides information on the development, implementation and monitoring of the various plan elements in accordance with guidelines of the U.S. Department of Labor, Office of Federal Contract Compliance Programs (OFCCP). Since 2002, MWRA utilized PeopleClick, a nationally known computer software package, to produce the required workforce staffing summary reports for each Affirmative Action Plan. Affirmative Action and Compliance Unit staff works with staff from the MIS and Human Resources departments to convert personnel transaction data from the MWRA’s Human Resources Information System and to validate the proposed workforce goals for CY2015.

The text of the plan is attached (Attachment A). Copies of the full plan including appendices will be available in the Board Lounge on February 11, 2015. Attachment B, “MWRA Job Group Representation,” shows the actual number of minority and female employees currently, along with the numbers over-and under-utilized. The underutilized job groups denote areas for AACU recruitment focus if positions become available. This report is included in the MWRA Orange Notebook presented to the Board on a quarterly basis.



During the 2014 Affirmative Action Plan year, MWRA hired a total of 51 new employees, including 11 (22%) females and 15 (29%) minorities. There were 49 employees promoted during this period, including 7 (14%) female and 10 (20%) minority. MWRA is in full compliance with all aspects and requirements of its federally approved affirmative action program and in following those strict guidelines with its Affirmative Action Plan, a promotion only occurs when the individual employee moves from a position within one job group to a new position within a different job group. However, as an employer, the MWRA considers an employee to be promoted at such time that the individual moves into a new position within the same job group, with an increase in pay, grade, different and new job duties. In addition, to enhance upward mobility and avail all employees of a career track where one exists, there were 37 such promotions during the 2014 Affirmative Action Plan year and of these, 6 (16%) were minority and 9 (24%) were females.

A total of 66 terminations occurred during CY2014. Of the total number of terminations, 11 (17%) were women and 19 (29%) were minorities. Of the total number of terminations, 83% left voluntarily, and of those, 68% were employees who retired and 14% were employees who resigned.

In comparison, during the 2013 Affirmative Action Program year, a total of 61 terminations occurred, including 11 (25%) females and 10 (16%) minorities. Of the total number of terminations, 23% were employees who resigned and 67% were employees who retired. A review of the total number of termination statistics for calendar years 2012, 2013 and 2014 is included in Table A below.

**Table A**

Termination Statistics	Employee Count	Minority		Female	
Total Terminations CY2012	51	7	14%	6	11%
Total Terminations CY2013	61	10	16%	15	25%
Total Terminations CY2014	66	19	29%	11	17%

The race/sex composition of the workforce did not change significantly during the 2014 Affirmative Action Plan year, particularly as compared to Plan years 2012 and 2013.

The current overall MWRA affirmative action workforce staffing goal for females is 25.6% in the aggregate and workforce staffing at the end of the 2014 Plan Year was 22.6% for females. The current overall MWRA affirmative action workforce staffing goal for minorities is 20.0% in the aggregate and workforce staffing at the end of 2014 Plan Year was 20.0%.



A review of MWRA workforce staffing statistics for calendar years 2012, 2013, and 2014 is included in Table B below:

**Table B**

<b>Calendar Year</b>	<b>Minority</b>	<b>Female</b>
12/31/12	19.2%	22.9%
12/31/13	19.9%	22.3%
12/31/14	20.1%	22.8%

The 2015 Affirmative Action Plan documents include detailed workforce data for the reporting period December 1, 2013 through November 30, 2014. The data indicate that the number of underutilized job groups for females has decreased. In calendar year 2014, there were 12 job groups underutilized by women and this number has decreased to 6 job groups for 2014. In calendar year 2014, there were 10 job groups underutilized by minorities and this number has decreased to 9 job groups for 2015.

MWRA will continue its good faith efforts to maintain minority and female workforce staffing representation and to further reduce the number of job groups underutilized by women and minorities. There may be opportunities to fill critical positions through promotions of qualified internal candidates, including women and minority employees. The Affirmative Action and Compliance Unit will continue to focus its efforts to assist senior management to fill vacancies through the promotion of qualified women and minorities in the Management, Skilled Crafts, Operator, and Professional job groups. In addition, where external recruitment efforts are necessitated by the absence of qualified internal candidates, and senior management deem that the need exists to fill critical position vacancies, AACU will work with MWRA hiring managers and Human Resources to source qualified minority and female candidates.

It is the policy of the Massachusetts Water Resources Authority (MWRA) to ensure the equitable participation of Minority Business Enterprises (MBEs) and Women Business Enterprises (WBEs) in the award of all contracts including contracts for construction, goods/non-professional services and professional services. As required by Massachusetts Department of Environmental Protection via Environmental Protection Agency, the program will also include Disadvantaged Business Enterprises (DBEs) which means an ongoing, independent small business concern which is at least 51% owned and controlled by one or more individual(s) who are both socially and economically disadvantaged and meets the U.S. Department of Transportation eligibility criteria specified under 49 CFR Part 23 and 26 and has certification issued by the federal government or the Massachusetts Supplier Diversity Office. The D/MBE and D/WBE goals are 3.4% and 3.8% respectively in both the construction and professional services categories.

The Plan also includes information on the MBE/WBE/DBE Procurement Program. The MWRA spent \$5.9 million and \$8.2 million respectively with minority and women owned businesses in the last fiscal year. These amounts were 32.1% and 127.4% of the respective MBE and WBE targets, which reflect the achievements of the last fiscal year.

**ATTACHMENT A**

**MASSACHUSETTS WATER RESOURCES AUTHORITY**



**AFFIRMATIVE ACTION PROGRAM**

**JANUARY 1, 2015 - DECEMBER 31, 2015**

Frederick A. Laskey  
Executive Director

Patterson A. Riley  
Special Assistant  
Affirmative Action & Compliance Unit

Affirmative Action Program

Massachusetts Water Resources Authority  
Charlestown Navy Yard  
100 First Avenue  
Boston, Massachusetts 02129

AAP Completed by: Patterson Riley 1/20/2015  
Patterson A. Riley Date  
(Special Assistant for Affirmative Action)

Telephone Number: (617) 788-4070

Approved by: F. A. Laskey 1-22-2015  
Frederick A. Laskey Date  
(Executive Director)

Inclusive Dates of the AAP: January 1, 2015 - December 31, 2015



**Massachusetts Water Resources Authority  
Affirmative Action Plan**

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## INTRODUCTION

The Affirmative Action Plan for the Massachusetts Water Resources Authority (the "MWRA" or "Authority"), is prepared and adopted under Section 7(g) of the Enabling Act, which states:

"The Authority shall develop policies and programs for Affirmative Action in employment, procurement and contracting in accordance with law and consistent with general policies and programs of the Commonwealth."

The AA Plan was developed to be consistent with federal and state laws and regulations:

Federal Executive Order 11246, as amended.

41 CFR Parts 60-1, 60-2, 60-20, 60-50, 60-250, 60-300, 60-741; Office of Federal Contract Compliance Programs (OFCCP): Affirmative Action Requirements.

The Rehabilitation Act of 1973, as amended.

The Vietnam-era Veterans' Readjustment Assistance Act of 1974, as amended.

In addition, MWRA's policies and personnel practices adhere to the nondiscrimination provisions of all applicable federal and state laws, as amended, including the following:

- Title VII of the Civil Rights Act of 1964.
- Civil Rights Act of 1991.
- Age Discrimination in Employment Act of 1967.
- Equal Pay Act of 1963.
- Americans with Disabilities Act of 1990
- Massachusetts General Laws, Chapter 151B.
- Massachusetts Comparable Pay Act.

The AA Plan has been developed by the Affirmative Action and Compliance Unit (AACU) to cover the time period January 1 through December 31, 2015. The Plan includes a results-oriented set of procedures designed to achieve the full utilization of minorities and women in all levels of the MWRA's workforce and to promote job opportunities for individuals with disabilities and covered veterans. The Plan has been reviewed by the MWRA Board of Directors, voted on and approved for full implementation.

The Massachusetts Legislature created the Massachusetts Water Resources Authority in December 1984 to manage water and sewer services for 2.5 million people and 5,500 businesses in 61 communities. While the Boston Harbor Clean-up is the best known of its projects, MWRA has also completed a modernization of the drinking water system. MWRA also maintains 400 miles of water pipes, aqueducts, and tunnels and 228 miles of sewers. Also, nearly completed are projects to control combined sewer overflows, provide adequate water delivery and meet all federal, state and local water and wastewater standards.



## **II. POLICY STATEMENT**

### **Executive Director's Statement**

Our agency serves citizens in every neighborhood, economic class and cultural group in our service area. MWRA will be in harmony with its social role only when our work environment reflects our broader social aspirations for equal opportunity, justice, personal dignity and cross-cultural respect. To that end, we must take personal responsibility for diversity in our organization and in our community.

All of us at the Massachusetts Water Resources Authority recognize that we must take affirmative action to prevent and to remedy any discriminatory effects of business or employment practices based on race, color, religion, sex, sexual orientation, gender identity and expression, genetic information, national origin, age, ancestry, citizenship, disability, veteran and marital status.

On behalf of the MWRA, its managers and employees, I am committed to taking those steps which ensure equitable participation in our employment opportunities by the members of any protected class group without regard to race, color, religion, sex, sexual orientation, gender identity and expression, genetic information, national origin, age, ancestry, citizenship, disability, veteran status and marital status. We are committed to achieving equal opportunity for all through fair and effective implementation of our affirmative action plan.

Frederick A. Laskey  
Executive Director

## **Board of Directors' Statement**

We, the Board of Directors of the Massachusetts Water Resources Authority, take great pride in our diverse and talented workforce. We recognize that our continued success depends largely on the collective strengths of our employees. Developing the right mix of skills, ideas and individuals requires an unwavering commitment to Equal Employment Opportunity and Affirmative Action. Accordingly, it is our policy to recruit, hire, and advance individuals without regard to their race, color, religion, sex, sexual orientation, gender identity and expression, genetic information, national origin, age, ancestry, citizenship, disability, veteran and marital status.

Our commitment to the principles of Affirmative Action and Equal Employment Opportunity is reflected in all of our policies and procedures from recruitment and hiring to training, compensation, benefits, transfers and promotions. This commitment is based on sound management and business practices, as well as legal requirements.

In keeping with fair employment practices, we will maintain a positive and productive work environment which calls for the highest standard of personal conduct. In accordance with this standard, any type of harassment or discrimination directed toward any employee or applicant for employment on the basis of race, color, religion, sex, sexual orientation, gender identity and expression, genetic information, national origin, age, ancestry, citizenship, disability, veteran and marital status will not be tolerated.

MWRA is committed to Equal Employment Opportunity and Affirmative Action. We expect each employee to be an active partner in this effort by supporting, in word and deed, the spirit and principles of Equal Employment Opportunity and Affirmative Action. Further, we expect that these values will govern the relationships we establish with communities we serve and others with whom we do business. Working together, we can build upon this commitment and create an environment that reflects diversity in its fullest and truest sense.

The Special Assistant, Affirmative Action and Compliance Unit has responsibility for implementing and monitoring the Authority's Affirmative Action and Compliance Plan. Employees are encouraged to contact the Affirmative Action & Compliance Unit directly in order to obtain a copy of the Authority's Policy on Equal Employment Opportunity and Affirmative Action.

### **III. RESPONSIBILITY FOR IMPLEMENTATION**

#### **Senior Management Responsibilities**

The responsibility for achieving affirmative action goals and objectives rests with the Executive Director, the Special Assistant of Affirmative Action and Compliance Unit, the Director of Human Resources, Division/Department Directors and other managers and supervisors.

#### **Affirmative Action and Compliance Staff**

The Special Assistant, AACU is provided with sufficient authority, senior management support, and staff to execute these responsibilities, and is identified in all internal and external communications regarding the AAP. The Special Assistant may propose additional programs and activities to strengthen the MWRA's commitment to equal employment opportunity and affirmative action and to effectively address AAP/EEO matters.

The Special Assistant, AACU in conjunction with the appropriate staff, is responsible for:

- Implementing affirmative action programs.
- Developing policy statements.
- Designing and conducting audit and reporting systems to monitor protected class status for the following:
  - Recruiting
  - Hiring
  - Promotions
  - Transfer
  - Terminations
  - Demotions
- Periodically reviewing, with the Chairman of the Board of Directors and the Executive Director, the progress of senior managers in furthering the achievement of the Authority's goals.
- Serving as a liaison between MWRA and enforcement agencies.
- Acting as a liaison between MWRA and minority organizations, women's organizations and community action groups concerned with employment opportunities of minorities and women.
- Reviewing the MWRA's AAP with managers and supervisors to ensure the policy is understood and followed.

The MBE/WBE Program Manager in conjunction with the appropriate staff is responsible for:

- Administration and monitoring of the MWRA's MBE/WBE/DBE Plan.
- Assisting divisions in the implementation of the MWRA's MBE/WBE/DBE Program.



- Ensuring that the program is consistent with the MWRA's Supplementary Provision for Equal Employment Opportunity, Anti-Discrimination, and Affirmative Action.

### **Line Management Responsibilities**

Managers and supervisors will implement the program in the following ways:

- Assist in identifying problem areas, establishing goals, and developing time lines.
- Maintain open door policy for employees to discuss issues of equal opportunity and affirmative action.
- Meet with other managers, supervisors, and employees to adhere to MWRA EEO/AA policies.
- Assist in the performance of internal audits to determine compliance.
- Evaluate the performance of subordinate managers and supervisors in achieving affirmative action plan objectives.

### **Other Key Staff**

The Director, Human Resources, has developed and implemented appropriate mechanisms to ensure equal employment opportunity for all applicants and employees.

The General Counsel and the Associate General Counsel for Labor & Employment provide legal advice regarding equal employment opportunity and affirmative action as they affect the Authority.

## **IV. EQUAL EMPLOYMENT OPPORTUNITY**

### **Dissemination of the Plan**

MWRA will communicate its equal employment opportunity policies and affirmative action programs to all relevant audiences in the following manner:

#### **Internally**

Communicate to employees the existence of the Affirmative Action Plan and make it available for inspection. Prominently display EEO/AA posters throughout all business locations identifying appropriate staff to contact.

Conduct special meetings with managers, supervisors and employees to explain the intent of the equal employment opportunity policies, discuss individual responsibility for implementation and make clear the Executive Director's support of the policies.

Discuss the policies in employee orientation sessions and reference it in management training sessions.

Include the policies in the Policies and Procedures Manual.

Publicize the policy on the MWRA's internal and external websites, reports and other media.

Publish articles covering EEO programs, updates, and promotions in newsletters and other publications.

Include non-discrimination clauses in union agreements, and work to eliminate contract provisions that may have discriminating effects.

**Externally**

Communicate to applicants for employment the existence of the Affirmative Action Plan, and make it available for review if requested.

Incorporate the EEO clause in all purchase orders, leases and contracts.

Ensure that both minority and non-minority men and women, and persons with disabilities are represented in recruitment advertisements.

Communicate to all recruitment sources the existence of the Affirmative Action Plan.

## Development and Execution of The Plan

### Development

#### Workforce Analysis

As of November 30, 2014, MWRA employed 1163 people. The MWRA divides its workforce into 30 organizational units in Executive, Administration & Finance (A & F) and Operations as follows:

Board of Directors	A & F - Procurement
Executive - Office of the Executive Director	A & F - Real Property & Environmental Mngmt
Executive - Affirmative Action	Law
Executive - Office of Emergency Preparedness	Operations - A & F
Executive - Internal Audit	Operations - ENQUAD
Executive - Public Affairs	Operations - Facilities Mngmt
A & F - Director's Office	Operations - Laboratory Services
A & F - Rates & Budget	Operations - Planning
A & F - Treasury	Operations - Toxic Reduction & Control
A & F - Controller	Operations - Engineering & Construction
A & F - Risk Management	Operations - Wastewater Operations
A & F - Human Resources	Operations - Water Distribution & Pumping
A & F - MIS	
A & F - Facilities	
A & F - Fleet Services	
Operations - Water & Wastewater O&M	
Operations - Water Treatment & Transmission	
Operations - Operations Support	

Office of Federal Contract Compliance Programs requires that non-construction contracts maintain an organizational profile or a workforce analysis to depict staffing patterns. It is a method to determine whether barriers to equal opportunity exist within an organization.

Pursuant to 41 C.F.R. § 60-2.11(a), the Workforce Analysis Report (Appendix A) lists each job title as it appears in the applicable collective bargaining agreements or payroll records, ranked from the highest paid to the lowest paid within each of the 30 organizational units.

The reports display within each organizational unit for each job title, the total number of incumbents, the total number of male and female incumbents, and the total number of male and female incumbents who are Black, Hispanic, Native American, and Asian. Finally, the reports also supply a wage rate code for each job title.



## Employment Activities December, 2013 - November, 2014

From December 1, 2013 through November 30, 2014, there were a total of 51 new hires at the MWRA, including 11 (22%) females and 15 (29%) minorities. The current race/sex composition of the workforce for minorities of 20.0% is equal to the overall 2014 MWRA workforce staffing goal of 20.0%; however, the current race/sex composition of the workforce for females of 22.6% is below the overall 2014 workforce staffing goal of 25.6%.

A total of 49 promotions occurred within this period, including 7 (14%) female and 10 (20%) minorities. For Affirmative Action Plan reporting purposes, the 49 promotions reflect employee promotions where there has been a change in Job Group as described herein under "Availability Analysis." For the Plan reporting period, there were a total of 86 promotions, including the 49 reflective of a job group change and of that total number, 16 (19%) minorities and 16 (19%) females, were promoted.

A total of 66 terminations occurred within the period, and of these, 11 (17%) were females and 19 (29%) were minorities. Of the total number of terminations, 83% left voluntarily, and of those, 82% were employees who retired and 16% were employees who resigned.

### Availability Analysis

Pursuant to 41 C.F. R. 60-2.11(b), an analysis of all major Job Groups is included in the Plan (see Appendix B Job Group Analysis Report). Those jobs having similar content, wage rates and opportunities had been grouped together into 18 Job Groups:

Administrator A	Management A
Administrator B	Management B
Clerical A	Operator A
Clerical B	Operator B
Engineers A	ParaProfessional
Engineers B	Professional A
Craft A	Professional B
Craft B	Technical A
Laborers	Technical B

Moreover, the 18 Job Groups have been kept sufficiently large enough to make for meaningful statistical analyses. The grouping avoids placing job titles from different EEO-4 categories within the same Job Group, wherever possible. Alternative job groupings were reflected because they do not make substantial differences and do not mask any potential underutilization of minorities or women. This analysis of the major Job Groups on the Availability Analysis forms is shown in Appendix C.

### Action-Oriented Program for Affirmative Employment Opportunities

MWRA is committed to a strong policy of equal employment opportunity and affirmative action and this commitment is clearly expressed in its Affirmative Action Plan, which covers all aspects of the employment process from recruiting and hiring to training and promotion.

MWRA takes affirmative action to ensure that applicants for employment and employees are treated fairly during employment, without regard to their race, color, religion, sex and national origin. MWRA also takes affirmative action steps and make good faith efforts to develop and implement action-oriented programs designed to remove any employment barriers, expand employment opportunities and strive to achieve established workforce staffing goals and objectives.

During the 2015 Affirmative Action Plan year and continuing, MWRA will make good faith efforts to continue to develop and implement an action-oriented program designed to increase employment opportunities, while tailoring the size of its workforce to meet its future mission and maintain organizational efficiency.

The Special Assistant of the Affirmative Action and Compliance Unit, working in conjunction with MWRA Division Directors, will take affirmative steps to establish the following joint accountability good faith efforts to direct their attention toward employee development programs and career counseling initiatives to prepare all interested employees including individuals in targeted EEO groups for consideration of future promotional opportunities, as follows:

- Assist Divisions in efforts to promote qualified employees including minorities and females to fill current or unanticipated vacancies, particularly those positions in underutilized job groups.
- Review the appropriate education, experience and skill requirements for successful job performance.
- Participate in programs, which may impact protected group members, especially in the areas of the development of training and recruitment.
- Schedule confidential meetings with employees who request information on MWRA affirmative action policies, including promotion and training.
- Encourage current employees to take advantage of the above listed training and developmental opportunities, as well as opportunities for promotion.
- Monitor and review, where appropriate, the qualifications of all employees to assure that protected group members are given full opportunities for training and promotion.
- Implement strategic recruitment strategies for underutilized positions likely to require external recruitment.
- Ensure that all promotional opportunities are posted.

Identification of Areas for Special Attention/Goals

Underutilization exists in the following job groups: Administrator A, Administrator B, Clerical B, Engineer A, Craft A, Craft B, Management A, Management B, Operator A, Operator B, and Professional A. Special attention is required to increase the representation of minority and/or females in these job groups by the following:

- Identify any applicable barriers to equal employment opportunity and
- Conduct training/awareness sessions with managers and continue to make them aware of the Affirmative Action Plan elements designed to ensure that the Authority policy and affirmative action program objectives are being followed.

During this affirmative action plan period, there may be 80 opportunities to fill vacant positions. These positions may be filled by new hires, promotions or transfers. For unanticipated position vacancies that occur in other job groups, good faith efforts will be made to attain the established goals for women and minorities. Based on the two-factor availability analysis, the following goals have been set. The chart listed below identifies the goals for those projected vacancies.

Goals for Projected Vacancies							
JOB GROUP ENGINEER A	# Opportunities	% Availability		% Workforce		Goal	
		Minority	Female	Minority	Female	Minority	Female
Total	7	25.75	40.77	25.00	13.89	1	2
JOB GROUP CRAFT A	# Opportunities	% Availability		% Workforce		Goal	
		Minority	Female	Minority	Female	Minority	Female
Total	5	18.62	4.48	11.30	0.00	1	1
JOB GROUP CRAFT B	# Opportunities	% Availability		Workforce		Goal	
		Minority	Female	Minority	Female	Minority	Female
Total	5	24.12	3.78	19.18	2.05	1	1
JOB GROUP MANAGEMENT A	# Opportunities	% Availability		Workforce		Goal	
		Minority	Female	Minority	Female	Minority	Female
Total	3	22.57	19.90	13.89	33.33	1	
JOB GROUP MANAGEMENT B	# Opportunities	% Availability		Workforce		Goal	
		Minority	Female	Minority	Female	Minority	Female
Total	4	25.00	13.89	11.43	20.00	1	
JOB GROUP OPERATOR A	# Opportunities	% Availability		Workforce		Goal	
		Minority	Female	Minority	Female	Minority	Female
Total	1	11.71	6.86	7.69	1.54		1
JOB GROUP OPERATOR B	# Opportunities	% Availability		Workforce		Goal	
		Minority	Female	Minority	Female	Minority	Female
Total	5	27.43	3.77	10.77	4.62		2
JOB GROUP PROFESSIONAL A	# Opportunities	% Availability		Workforce		Goal	
		Minority	Female	Minority	Female	Minority	Female
Total	1	21.30	43.23	11.43	65.71	1	



## **Execution**

### Advertising and Recruitment

- The Special Assistant, AACU, annually submits an ad specifically targeted at a publication that has a high minority and female readership.
- The Director, Human Resources ensures that reasonable recruiting and advertising dollars are being targeted to reach minority and female candidates and conducts an analysis to determine the effectiveness of the employment advertisements.
- Recruiters send vacancy announcements to over 50 public and private recruitment sources. The sources included state employment offices, community organizations, interest groups, and other sources.
- Recruiters distribute literature, attend career fairs, and maintain contact with referral sources to assure a steady flow of qualified protected class applicants.

### Selection

- Human Resources and Affirmative Action staff review existing promotion, transfer, training and selection procedures to ensure equal opportunity.
- Human Resources, Affirmative Action, and Division staff develop selection criteria that do not discriminate or tend to screen out women, minorities, covered veterans and/or individuals with disabilities.
- Human Resources and Affirmative Action staff monitor the selection process to ensure equal opportunity and the absence of adverse impact on protected class applicants.
- Human Resources and Affirmative Action staff review application forms to ensure non-discrimination.
- Managers and Supervisors ensure that employees in protected classes receive equal consideration in all selections.

### Promotion, Transfer, Layoff and Recall

Promotions and transfer policies are designed to provide equal opportunity to all employees regardless of race, color, religion, sex, sexual orientation, gender identity and expression, national origin, age, ancestry, citizenship, disability, veteran and marital status. All employees who demonstrate management potential are encouraged to seek advancement into supervisory or other managerial positions. All employees are encouraged to take advantage of the benefits and financial support provided to them for professional development and continuing education, which may enhance their promotional opportunities.

## Compensation

The principle of equal pay for equal work for all employees is a reality. All employees, including females and minorities, receive compensation in accordance with the same standards. Opportunities for overtime work or otherwise earning increased compensation, when available, is afforded to qualified employees without discrimination based on race, color, religion, sex, sexual orientation, gender identity and expression, genetic information, national origin, age, ancestry, citizenship, disability, veteran and marital status. MWRA does not reduce the amount of compensation offered because of any disability income, pension or other benefit the applicant or employee receives from another source.

## Facilities

MWRA maintains all of its facilities on a non-segregated basis. MWRA maintains appropriate facilities for both sexes and handicapped individuals unless the construction of such facilities would create an undue burden on the Authority, its facilities or its operations.

## Training/Career Development

MWRA assures that training programs and seminars are offered to all employees, including members of protected classes on the basis of appropriate and realistic need. All eligible employees are encouraged to participate in the Authority's tuition reimbursement and tuition remission benefit for continued education, career development and job advancement. Training programs are monitored to assure equal opportunity for protected class employees in all training opportunities.

Training needs are re-evaluated annually to determine the areas of highest priority. Emphasis is on programs to increase productivity and meet job requirements.

Human Resources and Division staff have conducted cross-functional training, to facilitate reorganizations and reassignments. This training often requires new skills, licenses and/or certifications.

During calendar year 2015 the Authority will continue to offer, as needed, a series of 6 classes which make up the training component of the Unit 2 and Unit 3 Productivity Improvement Program (PIP) and a series of 12 classes which make up the Unit 1 Administrative Certificate Program (ACP). While PIP and ACP classes are required for employees in designated job titles, classes are available for general enrollment by individuals developing their qualifications for future job openings.

## Consideration of Minorities and Females not Currently in the Workforce

MWRA recruits minorities and women, not currently in our workforce, who have the qualifications and requisite skill for employment. All employees engaged in recruiting are committed to the development of sources of minorities and females from organizations, institutions, community agencies, training schools and colleges.

## Support for Community Action Programs

### School Education Program

The MWRA offers School Education Program presentations for grades K-12. The MWRA School Education Program has provided meaningful educational experiences to a number of students of the MWRA service community, including those in the urban communities of the metropolitan area.

Subjects range from the Quabbin Reservoir and the water distribution system to Deer Island and the transformation of wastewater into effluent. One of the School Education Program's goals and objectives is to increase outreach to the schools in the communities that reflect the diverse population of the MWRA service area. The School Education Program has been instrumental in informing students, and by extension, the general public of these communities, of the operation and work of the MWRA.



## **Sex Discrimination Guidelines**

MWRA does not discriminate against any applicant or employee on the basis of sex in hiring, recruiting, promoting, transferring, layoff, termination, compensation or in selecting employees for training or other related programs.

### Recruiting and Advertising

Job advertisements placed by the MWRA in newspapers and other media for employment do not express a sex preference.

### Job Policies and Practices

- Written personnel policies for affirmative action expressly indicate that there shall be no discrimination against employees on account of sex.
- Employees of both sexes have equal opportunity to any available position which the individuals are qualified to perform.
- MWRA does not make any distinction based upon sex in employment opportunities, wages, hours or other conditions of employment. MWRA contribution for insurance, pension, welfare programs and other fringe benefits is the same for men and women, resulting in equal benefits.
- MWRA does not support distinctions between married and unmarried persons of one sex that are not made between married and unmarried persons of the other sex.
- MWRA provides appropriate and comparable physical facilities to both sexes.
- MWRA does not deny a female employee the right to any job which she is qualified to perform.
- MWRA does not penalize women in their conditions of employment because they require time away from work on account of child bearing.
- MWRA does not specify differences for male or female employees on the basis of sex in either involuntary or optional retirement age.

### Wages

- MWRA's wage schedules do not relate to and are not based on the sex of its employees.
- MWRA does not discriminatorily restrict one sex to certain job classifications.

## **Sexual Harassment**

Acts of harassment by employees are prohibited employment practices under Title VII of the Civil Rights Act of 1964, Massachusetts General Laws, Chapter 151(B) and MWRA policy and are subject to sanctions and disciplinary measures.

It is the goal of the MWRA to promote a workplace that is free from sexual harassment. Sexual harassment means sexual advances, requests for sexual favors, and verbal or physical conduct of a sexual nature when:

- Submission to or rejection of such advances, requests or conduct is made explicitly or implicitly a term or condition of employment or as a basis for employment decisions; or
- Such advances, requests or conduct have the purpose or effect of unreasonably interfering with an individual's work performance by creating an intimidating, hostile, humiliating or sexually offensive work environment.

MWRA's Harassment Prevention Policy, policy HR.21, re-issued January 1, 2014, sets forth procedures for employees to follow and notify management of any sexual harassment violations.

MWRA personnel investigate complaints of sexual harassment in a prompt, thorough and confidential manner, and recommend appropriate discipline up to and including termination for offenders. Employees should feel confident that retaliation against an individual who has complained about sexual harassment and retaliation against individuals for cooperating with an investigation of a sexual harassment complaint is unlawful and will not be tolerated by this organization.

## **Religion and National Origin Discrimination Guidelines**

MWRA's affirmative action policy prohibits discrimination against employees or applicants for employment on the basis of religion or national origin.

MWRA makes every effort to accommodate the religious observances and practices of employees and prospective employees who regularly observe Friday evening or some other day of the week as their day of religious observance, and/or who observe certain religious holidays during the year and who are conscientiously opposed to performing work or engaging in similar activity on such days when such accommodations can be made without undue hardship on the operation of the Authority's business.

In determining the extent of its obligations under this section, MWRA considers the following factors:

- Business necessity;
- Financial cost and expenses; and
- Resultant personnel problems.

To assure non-discrimination based on religion or national origin, MWRA is engaged in the following activities:

- Internal communications;
- Development of internal procedures described previously;
- Regular notification to employees of EEO policy regarding religion or national origin;
- Utilization of external recruitment sources, including those educational institutions with substantial enrollments of students from various religious and ethnic groups;
- Utilization of religious and ethnic media for institutional and employment advertising.



## **Affirmative Action Program For Individuals With Disabilities**

### **Policy Statement**

The MWRA is committed to take affirmative action to assure equal employment opportunity for qualified individuals with disabilities.

### Definition of Qualified Individual with Disability

A “qualified individual with a disability” is a person who:

- Has a physical or mental impairment that substantially limits a “major life activity”;
- Has a record of such an impairment, or
- Is regarded as having such an impairment and
- Is capable of performing the essential functions of the job with or without reasonable accommodation to his or her disability.

### Pregnancy and Childbirth

Disabilities caused or contributed to by pregnancy, childbirth or other related medical conditions, will be treated the same as disabilities caused or contributed to by other medical conditions.

### Definition of Reasonable Accommodation

A “reasonable accommodation” for a qualified individual with a disability may include, but is not limited to,

- Making existing facilities readily accessible;
- Job restructuring; part-time or modified work schedules; reassignment to a vacant position; modification of equipment or devices; or other similar accommodations.

Note: An accommodation must be reasonable and is not required if it would impose an “undue hardship” on the MWRA.

### Request for Reasonable Accommodations

MWRA commits to making reasonable accommodations to the limitations of qualified individuals with disabilities and qualified disabled veterans, unless such an accommodation would impose on undue hardship on the MWRA’s business.

An employee with a disability may make a request for reasonable accommodations at any time to their supervisor or directly to the Affirmative Action and Compliance Unit or the Director of Human Resources. The Special Assistant of Affirmative Action & Compliance or his or her designee shall be notified of all reasonable accommodation requests by supervisors or managers and shall ensure that reasonable accommodation records are kept separate from individual employee files.

### Communication of Policy

- The Executive Director or his designee will communicate to Division and Department Directors and other managers the MWRA's policy statement concerning employment of qualified individuals with disabilities.
- Where the MWRA conducts employment activities, posters will be prominently displayed setting forth such information regarding the employment of individuals with disabilities as may be required by government agencies.
- The MWRA will ensure that a list of schools, private and state placement agencies and community and social service organizations receive job listings which are externally posted and advertised by the Authority and that the list is reviewed annually.
- The MWRA will continue to notify relevant organizations as well as appropriate public employment agencies and unions, of MWRA's commitment to equal employment opportunity and affirmative action for individuals with disabilities, including veterans.
- A clause concerning the commitment to equal employment opportunity and affirmative action for individuals with disabilities will continue to be included in contracts and purchase orders of \$2,500 or more.
- The MWRA will continue to notify labor unions and (sub) contractors of the commitment to equal employment opportunity and affirmative action for individuals with disabilities and will seek their cooperation and assistance.

### Voluntary Disclosure

An individual may voluntarily self-identify himself/herself as an individual with disabilities by completing the Affirmative Action Data Form, at any time.

Information submitted will be kept confidential, except that (i) supervisors and managers may be informed regarding restrictions on the work or duties of individuals with disabilities, and regarding necessary accommodations; (ii) first aid and safety personnel may be informed, when and to the extent appropriate, if the individual has a condition that might require emergency treatment; and (iii) Government officials engaged in enforcing laws administered by OFCCP, or enforcing the Americans with Disabilities Act, as amended, may be informed.

### Review of Selection Process

All human resources processes shall be reviewed to determine whether present procedures assure careful, thorough and systematic consideration of the job qualifications of disabled applicants and employees for job vacancies filled either by hiring or promotion, and for all training opportunities offered or available.

### Consideration of Qualifications

Records are kept by the Human Resources Department identifying those vacancies, including promotions, for which known disabled persons has been considered. Should any known disabled person be rejected for employment, promotion, or training, a record is made and kept of the reason. If such reason is medically related, the record is treated as a confidential medical record.

Where applicants or employees are selected for hire, promotion, or training, MWRA will undertake any reasonable accommodation which makes it possible to place a disabled person on the job. Records are maintained to describe the accommodation; such records are treated as confidential medical records.

### Miscellaneous

- All MWRA job descriptions reflect the essential qualifications and requirements of each job.
- When an opportunity for hiring or promotion occurs, the MWRA will review the applicable job descriptions to ensure that the qualifications are job related and consistent with business necessity and the safe performance of the job.



# Affirmative Action Program for Protected Veterans

## Policy Statement

The Authority is committed to take affirmative action to assure equal employment opportunity in every respect for disabled veterans, Armed Forces service medal veterans, recently separated veterans, or other veterans who served during a war, or in a campaign or expedition for which a badge has been authorized.

## Communication of Policy

- The Executive Director or his designee will communicate to Division and Department Directors and other managers the Authority's policy statement concerning employment of qualified protected veterans.
- The MWRA will ensure that a list of established veteran's organizations and public and private recruitment services, included in Appendix D of this Plan, including the appropriate local employment service offices, will receive copies of all positions, which are externally posted and advertised by the MWRA, and that this list will be reviewed annually and MWRA will continue to notify veteran's service organizations as well as appropriate public employment agencies of the commitment to equal employment opportunity and affirmative action for protected veterans.
- A clause concerning the commitment to equal employment opportunity and affirmative action for protected veterans will continue to be included in contracts and purchase orders of \$10,000 or more.
- The MWRA will continue to notify labor unions and contractors of the commitment to equal employment opportunity and affirmative action for protected veterans and will seek their cooperation and assistance.
- The MWRA will use the outreach measures it uses for others covered by MWRA's Affirmative Action Program to recruit and employ veterans also covered by this program.
- The MWRA will submit to the Office of the Assistant Secretary of Veterans Employment and Training no later than March 31<sup>st</sup> of each year, a form titled Federal Contract Veterans Employment Report, which shall contain a list of new employees, and those individuals who have self-identified as protected veterans hired during the period covered by the Report.

## Voluntary Disclosure

- Subsequent to making a job offer, but prior to commencing duties, a prospective employee will be offered the opportunity to self-identify as a special disabled veteran, disabled veteran, a veteran of the Vietnam Era or other protected veteran. The MWRA will consider only that portion of the veteran's military record that is relevant to the job for which the veteran is being considered. After beginning employment, an employee may voluntarily self-identify him/herself at any time as a protected veteran.
- Information submitted will be kept confidential, except that (i) supervisors and managers may be informed regarding restrictions on the work or duties of disabled veterans, and regarding necessary accommodations; (ii) first aid and safety personnel may be informed, when and to the extent appropriate, if a veteran has a condition that might require emergency treatment; and (iii) Government officials engaged in enforcing laws administered by OFCCP, or enforcing the Americans with Disabilities Act, as amended, may be informed.

## Review of Selection Process

All human resources processes shall be reviewed to determine whether present procedures assure careful, thorough and systematic consideration of the job qualifications of protected veteran applicants and employees for job vacancies filled either by hiring or promotion, and for all training opportunities offered or available.

## Consideration of Qualifications

In determining the qualifications of a covered veteran, MWRA will consider only that portion of the military record, including discharge papers, relevant to the specific job qualifications for which the veteran is being considered.

Records are kept by the Human Resources Department identifying those vacancies, including promotions, for which known disabled persons and protected veterans have been considered. Should any known disabled person or protected veteran be rejected for employment, promotion, or training, a record is made and kept of the reason. If such reason is medically related, the record is treated as a confidential medical record.

Where applicants or employees are selected for hire, promotion, or training, MWRA will undertake any reasonable accommodation which makes it possible to place a disabled person or veteran on the job, that is not an undue hardship. Records are maintained to describe the accommodation; such records are treated as confidential medical records.

## Miscellaneous

- All MWRA job descriptions reflect the essential qualifications and requirements of each job.
- When an opportunity for hiring or promotion occurs, the MWRA will review the applicable job descriptions to ensure that the qualifications are job related and consistent with business necessity and the safe performance of the job.

- The MWRA will not reduce the amount of compensation to veterans by the amount the veteran receives from disability income, pension or other benefits related to his or her status as a veteran.

## **Internal Auditing and Reporting Systems**

Internal auditing and reporting for Affirmative Action is managed through the use of monthly, quarterly, and annual reports generated by AACU and shared with management. Reports reflecting workforce compensation, promotions, transfers and terminations are reviewed to ensure that the policy of non-discrimination and equal employment opportunity is carried out. State and local government information reports (EEO-4) are prepared and submitted in accordance with regulation and written instructions.

## **Internal Complaint Procedure**

The internal complaint procedure provides the opportunity for any individual (employee or applicant) who believes that she or he has been harassed, discriminated against or unfairly treated by the MWRA to file a complaint using the procedures set forth below.

### Filing a Complaint

- The individual alleging discrimination should file a written and signed complaint with the Special Assistant of Affirmative Action and Compliance Unit (form available in AACU), or the Director of Human Resources. Detailed and specific allegations must be provided along with an indication of the action(s) or resolution the individual is seeking.
- The complaint must be filed in as timely a fashion as possible.

### Procedure

- The Special Assistant of Affirmative Action and Compliance Unit and/or Director of Human Resources, will be responsible for accepting complaints of discrimination in writing.
- Upon receiving a complaint of discrimination, a complaint investigator will be assigned, who shall attempt to determine through preliminary fact finding if a formal investigation is warranted.
- Upon determination that an investigation is warranted, a date will be scheduled for an in-depth interview with the complainant and other relevant parties. The complaint investigator shall attempt to bring about a satisfactory resolution with the complainant and appropriate management and make recommendations accordingly.



- Any agreement or resolution may be in writing and if in writing, copies provided to all appropriate parties.
- The complaint resolution process shall be concluded in an expeditious manner. It is the MWRA's intention to resolve all complaints internally and every effort will be made to maintain confidentiality to the extent practicable.
- The complaint investigator will advise the complainant of his or her administrative rights and the right to file a formal charge with a state or federal agency and the time limits imposed on the exercise of these rights.

#### Rejection or Cancellation of the Complaint

The MWRA will indicate when a complaint has been rejected for further processing.

In the event an individual files an external complaint, the MWRA's legal counsel will handle all communications. All investigations shall be conducted in a confidential manner to the extent practicable.

In addition to the above, you may file a formal complaint with the government agencies listed below. Using MWRA's complaint process does not prohibit you from filing a complaint with these agencies.

Massachusetts Commission Against  
Discrimination (MCAD)  
One Ashburton Place, 6<sup>th</sup> Floor  
Boston, MA 02108

Massachusetts Office of Diversity and Equal  
Opportunity  
One Ashburton Place - Rm. 213  
Boston, MA 02108

Springfield Office  
MCAD  
436 Dwight Street - Rm. 220  
Springfield, MA 01103

U.S. Equal Employment Opportunity  
Commission  
JFK Federal Building  
475 Government Center  
Boston, MA 02203

Worcester Office  
MCAD  
455 Main Street - Rm. 101  
Worcester, MA 01608

U.S. Department of Labor  
Office of Federal Contract  
Compliance Programs  
JFK Federal Building - Rm. E235  
Boston, MA 02203

New Bedford Office  
MCAD  
800 Purchase Street - Rm. 501  
New Bedford, MA 02740

## **V. MBE/WBE/DBE Program**

### **Policy Statement**

It is the policy of the Massachusetts Water Resources Authority (Authority) to ensure the equitable participation of Minority Business Enterprises (MBEs) and Women Business Enterprises (WBEs) and Disadvantaged Business Enterprise (DBEs) in the award of all contracts including contracts for construction, goods/non-professional services (supplies and equipment) and professional services (design selection and consultants).

### **Definitions**

- Minority Business Enterprise (MBE) means an ongoing and independent business enterprise which is owned and controlled by one or more minority persons and meets the Massachusetts Supplier Diversity Office (SDO) criteria specified under 425 CMR 2.03 (d) (and, if applicable, one or more of the provisions of 425 CMR 2.06).
- Women Business Enterprise (WBE) means an ongoing and independent business enterprise which is owned and controlled by one or more women and meets SDO certification criteria specified under 425 CMR 2.03 (d) (and, if applicable, one or more of the provisions of 425 CMR 2.06).
- Disadvantaged Business Enterprise (DBE) means an ongoing, independent small business concern which is at least 51% owned and controlled by one or more individual(s) who are both socially and economically disadvantaged and meets the U.S. DOT eligibility criteria specified under 49 CFR Part 23 and 26 and has certification issued by the federal government or the SDO.

### **Outreach**

The Authority communicates with appropriate advocacy groups and representatives such as SDO, New England Minority Supplier Development Council, Massachusetts Minority Contractors, and National Association of Minority and Women Owned Law Firms, as well as others, to develop new sources of supply, discuss the M/W/DBE Program and develop initiatives designed to enhance the Plan's effectiveness.

### **Monitoring and Reporting**

The Affirmative Action and Compliance Unit will maintain such records, data and information as may be required to document compliance with Authority policies and procedures, and applicable federal, state and local laws and regulations.

### MassDEP Procurement Goals

Based upon the Massachusetts Department of Environmental Protection and the Massachusetts Water Pollution Abatement Trust's 2010 Availability Study, the D/MBE and D/WBE procurement goals for EPA assisted contracts are as follows:

<b>Procurement Categories</b>		
	Construction Goals	Professional Goals
D/MBE	3.4%	3.4%
D/WBE	3.8%	3.8%

Nearly 90 percent of EPA-assisted contracts were for construction with the balance related to engineering, environmental consulting and other services. On this basis MassDEP has utilized the same goals for both construction and professional services. The specific sub-industries such as water and wastewater engineering, etc. accounted for most of the dollars of these prime contracts and subcontracts.

### MWRA Procurement Goals

Based upon the Authority's 2002 Availability Study, the MBE and WBE procurement goals are as follows:

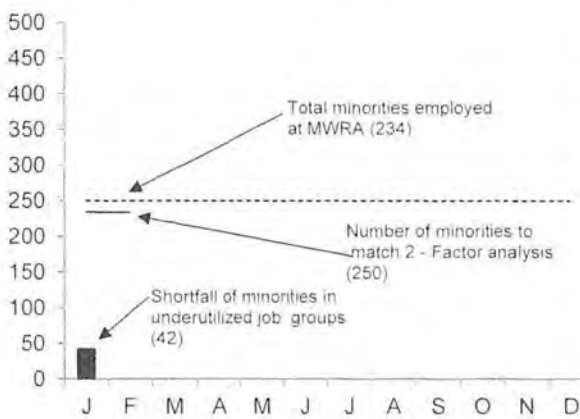
<b>Procurement Categories</b>			
	Construction Goals	Professional Goals	NonProfessional Goals
MBE	7.24%	7.18%	5.61%
WBE	3.60%	5.67%	4.88%

For FY13 the MWRA spent \$7.9 million and \$5.7 million respectively with minority and women owned business. These amounts were 137% and 170% of the respective MBE and WBE targets.

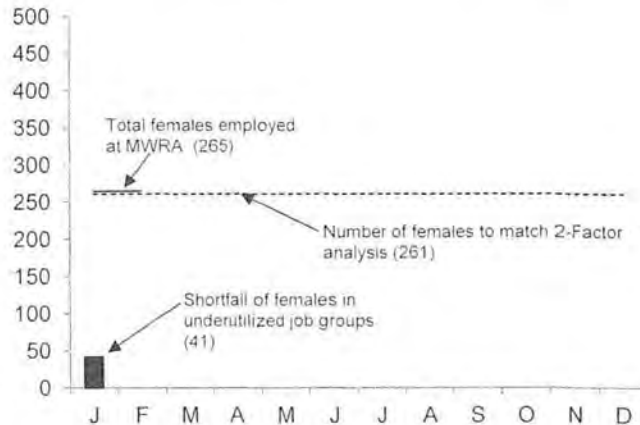


## Attachment B MWRA Job Group Representation CY15

Minority - Affirmative Action Plan Goals



Female - Affirmative Action Plan Goals



### Underutilized Job Groups - Workforce Representation

Job Group	Total Employees as of 1/1/2015	Actual Minorities as of 1/1/2015	Achievement Level	Minority Over or Under utilized	Actual Females As of 1/1/2015	Achievement Level	Female Over or Under utilized
Administrator A	19	2	3	-1	6	6	0
Administrator B	21	0	5	-5	2	3	-1
Clerical A	38	17	5	12	33	34	-1
Clerical B	32	7	8	-1	11	14	-3
Engineer A	82	19	21	-2	14	33	-19
Engineer B	51	14	10	4	7	11	-4
Craft A	115	14	21	-7	0	5	-5
Craft B	148	29	36	-7	3	6	-3
Laborer	65	23	10	13	3	3	0
Management A	104	15	24	-9	36	21	15
Management B	43	6	11	-5	11	6	5
Operator A	67	5	8	-3	1	5	-4
Operator B	65	7	18	-11	3	2	1
Para Professional	56	12	7	5	26	20	6
Professional A	35	4	7	-3	23	15	8
Professional B	167	43	37	6	81	71	10
Technical A	51	16	10	6	5	6	-1
Technical B	5	1	1	0	0	0	0
<b>Total</b>	<b>1164</b>	<b>234</b>	<b>242.0</b>	<b>41/-42</b>	<b>265</b>	<b>261</b>	<b>45/-41</b>

**STAFF SUMMARY**

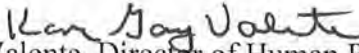
**TO:** Board of Directors  
**FROM:** Frederick A. Laskey, Executive Director  
**DATE:** March 11, 2015  
**SUBJECT:** March PCR Amendments

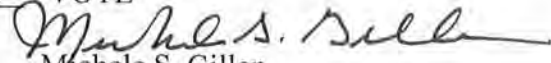


COMMITTEE: Personnel and Compensation

     INFORMATION

  X   VOTE

  
Karen Gay-Valente, Director of Human Resources  
Joan C. Carroll, Manager Compensation  
Preparer/Title

  
Michele S. Gillen  
Director, Administration

**RECOMMENDATION:**

To approve amendments to the Position Control Register (PCR) included in the attached chart.

**DISCUSSION:**

The Position Control Register lists all positions of the Authority, filled and vacant. It is updated as changes occur and it is published at the end of each month. Any changes to positions during the year are proposed as amendments to the PCR. All amendments to the PCR must be approved by the Personnel Committee of the Board of Directors. All amendments resulting in an upgrade of a position by more than one grade level, and/or an amendment which creates a position increasing annual cost by \$10,000 or more, must be approved by the Board of Directors after review by the Personnel Committee.

**March PCR Amendments**

There are three PCR amendments related to changes in the organizational structure within the MIS Department as recommended in the MIS 5 Year Strategic Plan in association with the realignment of job duties and technologies being implemented.

The amendments are:

1. Title change to a vacant position in the MIS Department, Administration Division (Program Manager, Network Services to Network Administrator III).
2. Title change to a vacant position in the MIS Department, Administration Division (Database Analyst/Programmer to Systems Analyst Programmer III).
3. Title and location change to a vacant position in the Materials Management Department, Administration Division (Administrative Services Manager to IT Asset and Configuration Manager MIS Department, Administrative Division).

These amendments require approval by the Personnel and Compensation Committee.

**BUDGET/FISCAL IMPACT:**

There is no budget impact for these PCR amendments.

**ATTACHMENTS:**

New/Old Job Descriptions



MASSACHUSETTS WATER RESOURCES AUTHORITY  
 POSITION CONTROL REGISTER AMENDMENTS  
 FISCAL YEAR 2015

PCR AMENDMENTS REQUIRING PERSONNEL & COMPENSATION COMMITTEE APPROVAL - March 11, 2015

Number	Current PCR #	V/F	Type	Current Title	UN	GR	Amended Title	UN	GR	Current/Budget Salary	Estimated New Salary	Estimated Annual \$ Impact	Reason For Amendment
P17	Administration MIS 8610058	V	T	Program Manager, Network Services	6	12	Network Administrator III	6	12	N/A	N/A - N/A	N/A - N/A	To align title with organizational structure as recommended in the MIS 5 Year Strategic Plan
P18	Administration MIS 8610045	V	T	Database Analyst/ Programmer	6	11	Systems Analyst / Programmer III	6	11	N/A	N/A - N/A	N/A - N/A	To align title with organizational structure as recommended in the MIS 5 Year Strategic Plan
P 19	Administration Materials Management 8820037	V	T,L	Administrative Services Manager	6	12	IT Asset & Configuration Manager	6	12	N/A	N/A - N/A	N/A - N/A	To address staffing need in MIS Department as recommended in the MIS 5 Year Strategic Plan.
<b>PERSONNEL &amp; COMP COMMITTEE TOTAL=</b>					<b>3</b>						<b>TOTAL:</b>	<b>\$0 - \$0</b>	

PCR AMENDMENTS REQUIRING BOARD APPROVAL-March 2015

<b>BOARD TOTAL =</b>	<b>0</b>	<b>SUBTOTAL:</b>	<b>\$0 - \$0</b>
<b>GRAND TOTAL =</b>	<b>3</b>	<b>TOTAL ESTIMATED COSTS:</b>	<b>\$0 - \$0</b>



**MWRA**  
**POSITION DESCRIPTION**

**POSITION:** Program Manager, Network Services

**DEPARTMENT:** MIS

**DIVISION:** Administration & Finance

**PCR #:**

**BASIC PURPOSE:**

Senior network systems manager responsible for servers running Microsoft windows operating system and a variety of Network devices. Design and implement secure LAN & WAN solutions to meet MWRA's business goals and emerging industry standards.

**SUPERVISION RECEIVED:**

Works under the general supervision of the Network & Systems Manager and/or Technical Operations Manager as responsibilities dictate.

**SUPERVISION EXERCISED:**

Exercises project supervision of system managers, technical support analysts, and contract resources.

**ESSENTIAL DUTIES AND RESPONSIBILITIES:**

- Designs, develops plans and leads implementation of LAN and WAN solutions utilizing Cisco and Nortel routing and switching technologies for the MWRA network.
- Keeps abreast of the latest technologies and solutions, and provides expertise to the Network and System Manager in evaluating and selecting appropriate solutions.
- Provides senior technical expertise for MWRA enterprise-wide Microsoft network operating system.
- Provides research in support of Information Technology Responsibility and Security Policy issues; maintains confidentiality.
- Develops and implements standards and procedures, for system design, system integration and migration. Performs system management functions, proactive monitoring, and performance tuning of enterprise wide Microsoft Operating systems.

- Tests and deploys system and network security updates and patches.
- Provides proactive management of variety of network devices that includes assigned Nortel and CISCO equipment, Blackberry services, Websense web filtering, Surf Control email filtering, VPN Boxes, e-Mail Gateway Exchange e-Mail system, and hardware technologies.
- Identifies and troubleshoots Microsoft operating system issues as well as network problems to ensure stable and healthy systems and network.
- Supports and maintains backup solution for assigned Microsoft systems and optimizes the available resources through management of backup jobs, bandwidth and hardware devices.
- Documents operating procedures to conform to MWRA standards.
- Manages assigned staff which may include systems supervisors, technical support analysts, IS Project leaders, and other staff.
- Leads vendor contact for assigned network products including as well as review of maintenance contracts.
- Trains and supports Computer Center and junior staff on Microsoft products and network device functions

**OTHER RESPONSIBILITIES:**

- Participates in occasional off-site travel, extended hours and weekend work.
- Shares in on-call and emergency response tasks.
- Performs related duties as required.

**MINIMUM QUALIFICATIONS:**

Education and Experience:

- (A) A two (2) year college degree in computer science or related field is required. A current MCSE certification is required. A four (4) year college degree in computer science or related field, Advanced Degree and Master CNE, Nortel or CISCO product certifications are preferred.
- (B) Seven (7) to nine (9) years experience designing, implementing, and maintaining a large-scale enterprise network environment; three (3) years experience in a supervisory or project management capacity.

Necessary Knowledge, Skills and Abilities:

- (A) Technical knowledge of and demonstrated experience with: a large network (LANS, WANS and VLAN); Nortel and/or CISCO network devices; Microsoft Network Operating System



- (including NT-security, Active Directory, Domain models./trusts, NT Profiles, Registry Editor, WINS, IIS, and ISA); Routing protocols (including PPP and RIP); Remote access technologies (including RAS, VPN, SSI, IPsec, TCP/I, SNMP Protocols, Browsers and Firewalls); DNS; DHCP; PCs; and HP Hardware products/technologies (such as RAID, SANS, NAS, and HP system Insight Manger, and fiber channel devices).
- (B) Proficiency with the following is required: Blackberry services; Exchange e-mail system and security; e-mail filtering (Surf Control or similar product); Virus Protection products and management solutions (McAfee and Trend Micro or similar products); Patch management solutions (Shavlik netchkpro or similar product); Web filtering (Websence or similar product), Network Management products (Sniffer network analyzer and HP Open view or similar products); and Enterprise Backup Solutions (Vertias backupexec or similar product).
  - (C) Experience with SONET, Managed Frame Relay Services, Video Conferencing, cabling standard and Fiber Optics, LINUX is preferred.
  - (D) Ability to diagnose effectively and interpret problems on a variety of Microsoft-NT and network devices.
  - (E) Excellent technical project management, interpersonal, written and oral communication skills are required.

**TOOLS AND EQUIPMENT USED:**

Mini-computer consoles, tape and disk storage systems, various network and peripheral devices and office equipment as normally associated with the use of telephone, personal computers including word processing and other software, copy and fax machines.

**PHYSICAL DEMANDS:**

The physical demands described here are representative of those that must be met by an employee to successfully perform the essential functions of this job. Reasonable accommodations may be made to enable individuals with disabilities to perform essential functions.

While performing the duties of this job, the employee works is regularly required to use hands to finger, handle, feel or operate objects, tools or controls and reach with hands and arms. The employee frequently is required to sit and talk or hear. The employee is occasionally required to walk; stand; climb or balance; stoop, kneel, crouch, or crawl; taste or smell.

The employee must frequently lift and/or move up to 25 pounds and occasionally lift and/or move up to 50 pounds. Specific vision abilities required by this job include close vision and color vision, and the ability to adjust focus.

**WORK ENVIRONMENT:**

The work characteristics described here are representative of those an employee encounters while performing the essential functions of this job.

While performing the duties of this job, the employee works in a computer center, network closets and occasionally works in various field settings. The employee regularly works near moving mechanical parts, and is occasionally exposed to risk of vibration and electromagnetic radiation. The employee is occasionally exposed to risk of electrical shock. The Computer Center also uses automatically discharging chemicals to suppress fire.

The noise level in the work environment is a moderately loud office setting.

**October 2005**

**MWRA**  
**POSITION DESCRIPTION**

**NEW**

**POSITION:** Network Administrator III

**PCR #:**

**DEPARTMENT:** MIS

**DIVISION:** Administration

**BASIC PURPOSE:**

Responsible for development, configuration, implementation, and support of MWRA's Local and Wide Area Network solutions to meet MWRA's business goals and emerging industry standards.

**SUPERVISION RECEIVED:**

Works under the general supervision of the Network & Systems Manager.

**SUPERVISION EXERCISED:**

Exercises project supervision of assigned vendor and contract resources, and may provide lead supervision to subordinate staff.

**ESSENTIAL DUTIES AND RESPONSIBILITIES:**

- Develops plans and leads implementation of solutions in all areas of networking including LAN, WAN, and enterprise-wide Microsoft Network operating system solutions.
- Keeps abreast of the latest technologies and solutions, and provides expertise to the Network and System Manager for evaluation and selection of appropriate solutions.
- Setup and configures complex switching, routing, and VPN environment utilizing Cisco routing and switching technologies for the MWRA network.
- Maintains a multi-site network operations and troubleshoots malfunctions of network hardware and software to resolve operational issues and restore services.
- Maintains a thorough understanding of the basics behind the Internet and its workings (DNS, IP routing, HTTP, VPN, Email routing and filtering and Spam management).



- Provides proactive management of variety of network devices that includes Cisco routers and switches, SonicWALL, Juniper, Netscaler, Websense Web Filtering, Ironport eMail Gateway and hardware Technologies such as Data Domain, EMC and 3Par.
- Maximizes network performance by monitoring performance, troubleshooting network problems and outages, scheduling upgrades, and implementing solutions developed by Network Architect.
- Recommends appropriate tools required to measure network performance and capacity. Conducts Network monitoring and testing
- Identifies and troubleshoots Microsoft operating system issues as well as network problems to ensure stable and healthy systems and network.
- Develops and implements process and procedures, for system integration and migration. Performs system management functions, proactive monitoring, and performance tuning of enterprise wide Microsoft Operating systems.
- Tests and deploys system and network updates and security patches.
- Supports and maintains backup solution for assigned Microsoft systems and optimizes the available resources through management of backup jobs, bandwidth and hardware devices.
- Documents operating procedures to conform to MWRA standards.
- Manages assigned staff which may include supervising junior System and Network Administrators, or train and supporting junior staff.
- Leads vendor contact for assigned network products well as review of maintenance contracts.

**OTHER RESPONSIBILITIES:**

- Participates in occasional off-site travel, extended hours and weekend work.
- Shares in on-call and emergency response tasks.
- Performs related duties as required.

**MINIMUM QUALIFICATIONS:**

**Education and Experience:**

- (A) A four (4) year college degree in computer science or related field is required.
- (B) Seven (7) to nine (9) years of experience implementing and maintaining a large-scale enterprise network environment is required.

### **Necessary Knowledge, Skills and Abilities:**

- (A) Technical knowledge of and demonstrated experience with: a large network (LANS, WANS and VLAN); and CISCO network devices; Microsoft Network Operating System including NT-security, Active Directory, Domain models/trusts, NT Profiles, Registry Editor, WINS, IIS; Routing protocols (including BGP and OSPF); Remote access technologies (including VPN, SSL, IPsec, TCP/IP, SNMP Protocols, Browsers and Firewalls); DNS; DHCP; PCs; and HP Hardware products/technologies (such as RAID, SANS, NAS, and HP system Insight Manger, and fiber channel devices).
- (B) Proficiency with the following is required: Exchange e-mail system; e-mail filtering (Cisco Ironport or similar product); Virus Protection products and management solutions (McAfee, Symantec or similar products); Patch management solutions (Shavlik Netchkpro or similar product); Web filtering (Websence or similar product), Network Management products (Sniffer network analyzer and HP Open view or similar products); Enterprise Backup Solutions (EMC Networker or similar product) and Storage system administration and vSphere ESX/ESXi.
- (C) Experience with SONET, MPLS, Video Conferencing, QOS, cabling standard and Fiber Optics, is desirable.
- (D) Ability to diagnose effectively and interpret problems on a variety of Microsoft-NT and network devices.
- (E) Excellent technical project management, interpersonal, written and oral communication skills are required.

### **SPECIAL REQUIREMENTS:**

A current MCSE certification and CISCO product certifications, or otherwise required to be obtained within 1 year.

### **TOOLS AND EQUIPMENT USED:**

Mini-computer consoles, tape and disk storage systems, various network and peripheral devices and office equipment as normally associated with the use of telephone, personal computers including word processing and other software, copy and fax machines.

### **PHYSICAL DEMANDS:**

The physical demands described here are representative of those that must be met by an employee to successfully perform the essential functions of this job. Reasonable accommodations may be made to enable individuals with disabilities to perform essential functions.

While performing the duties of this job, the employee works is regularly required to use hands to finger, handle, feel or operate objects, tools or controls and reach with hands and arms. The employee frequently is required to sit and talk or hear. The employee is occasionally required to walk; stand; climb or balance; stoop, kneel, crouch, or crawl; taste or smell.

The employee must frequently lift and/or move up to 25 pounds and occasionally lift and/or move up to 50 pounds. Specific vision abilities required by this job include close vision and color vision, and the ability to adjust focus.

### **WORK ENVIRONMENT:**

The work characteristics described here are representative of those an employee encounters while performing the essential functions of this job.

While performing the duties of this job, the employee works in a computer center, network closets and occasionally works in various field settings. The employee regularly works near moving mechanical parts, and is occasionally exposed to risk of vibration and electromagnetic radiation. The employee is occasionally exposed to risk of electrical shock. The Computer Center also uses automatically discharging chemicals to suppress fire.

The noise level in the work environment is a moderately loud office setting.

**January 2015**



**MWRA**  
**POSITION DESCRIPTION**



**JOB TITLE:** Database Analyst Programmer

**DEPARTMENT:** MIS

**DIVISION:** Administration & Finance

**BASIC PURPOSE:**

Primary technical lead in support of assigned applications including, senior level programming, systems project management, application maintenance and database integrity. Defines and develops new functionality, database structures, application interfaces and the critically shared data elements through a comprehensive understanding of the MWRA's business functions.

**SUPERVISION RECEIVED:**

Works under the general supervision of the Data Resources Manager.

**SUPERVISION EXERCISED:**

Exercises close supervision of assigned project staff and technical resources.

**ESSENTIAL DUTIES AND RESPONSIBILITIES:**

- Assures the quality and integrity of the production version of assigned applications in compliance with SDM and Change Control Procedures.
- Manages new release and maintenance support activities provided by the assigned applications vendor.
- Identifies new business functions and defines information technology solutions to address the new functions.
- Defines the logical and physical organization of assigned application related data which support targeted business functions.
- Develops database definition and program code required to implement new modules, reports, and interfaces with other systems.

- Coordinates and executes quality assurance and system acceptance procedures.
- Validates the content of data structures for data security and data accuracy.
- Manages assigned technical staff resources and combined user and MIS implementation task forces.
- Analyzes and specifies the operational requirements of assigned applications.
- Participates in the identification and evaluation of the storage medium organization techniques and access methods.

**SECONDARY DUTIES:**

Performs related duties as required.

**DESIRED MINIMUM QUALIFICATIONS:**

- (A) A four (4) year college program in computer science or related field. Advance degree preferred.
- (B) Six (6) to eight (8) years of experience with assigned systems and/or environmental software, preferably with vendor supplied packages. Expertise in minicomputer/server application and database programming.
- (C) Any equivalent combination of education and/or experience.

Necessary Knowledge, Skills and Abilities:

- (A) Knowledge of information system design and programming.
- (B) Proficiency with the following required: 3rd and 4th generation languages, Oracle Discover, Crystal Reports, Oracle DBMS, and SQL.
- (C) Proficiency with several of the following preferred: Pretreatment Information Management Systems (IPS), Black and Veatch Legacy PIMS, Beckman Lab Manager, LabWare LIMS, SAMS, Crystal Enterprise XI and GIS. Experience in SQL Server, J2EE, ASP.NET, and Power Builder development methodology is preferred .
- (D) Demonstrated experience in project management techniques and the ability to establish

effective relationships with users.

**SPECIAL REQUIREMENTS:**

None

**TOOLS AND EQUIPMENT USED:**

Office equipment as normally associated with the use of telephone, personal computers including word processing and other software, copy and fax machines.

**PHYSICAL DEMANDS:**

The physical demands described here are representative of those that must be met by an employee to successfully perform the essential functions of this job. Reasonable accommodations may be made to enable individuals with disabilities to perform essential functions.

While performing the duties of this job, the employee is regularly required to use hands to finger, handle, feel or operate objects, tools or controls and reach with hands and arms. The employee frequently is required to sit and talk or hear. The employee is occasionally required to walk; stand; climb or balance; stoop, kneel, crouch, or crawl; taste or smell.

The employee must frequently lift and/or move up to 25 pounds and occasionally lift and/or move up to 50 pounds. Specific vision abilities required by this job include close vision and color vision, and the ability to adjust focus.

**WORK ENVIRONMENT:**

The work characteristics described here are representative of those an employee encounters while performing the essential functions of this job.

While performing the duties of this job, the employee occasionally works in various field settings and in an office environment.

The noise level in the work environment is a moderately quiet office setting.

**June 2008**



**MWRA**  
**POSITION DESCRIPTION**

**NEW**

**POSITION:** Systems Analyst/Programmer III

**PCR#:**

**DIVISION:** Administration & Finance

**DEPARTMENT:** Management Information System (MIS)

**BASIC PURPOSE:**

This position is responsible for analyzing, designing, developing, testing, implementing and maintaining, software applications. This position is also responsible for the post implementation support including incident, performance, capacity, continuity and problem management activities. The Systems Analyst/Programmer III is responsible for the preparation, and maintenance of system documentation to be used by the IT staff and user community.

The Systems Analyst/Programmer III also serves as a team lead for assigned projects, maintains and upgrades project plans and schedules and ensures IT testing is scheduled and documented

**SUPERVISION RECEIVED:**

Works under the general supervision of the group supervisor. On specific IT projects may be supervised by a team lead or project manager.

**SUPERVISION EXERCISED:**

Exercises supervision of assigned vendor resources and IT project team.

**ESSENTIAL DUTIES AND RESPONSIBILITIES:**

**Application Development**

- Reviews application design prior to buy or build decision to ensure service levels can be met and recommend any performance enhancements prior to implementation.
- Codes, configures, implements, maintains and supports, new and upgrades to software applications (in-house and third party software) and interfaces to ensure processes and functionality of the applications comply with the organization's requirements, processes and standards.

- Develops and maintains technical documentation for applications as follows:
  - Design Model - Description of the system design. Comprised of a variety of work products, potentially including a deployment model, an object model, a physical data model (PDM), a security threat model, a system overview document, and a user interface model.
  - Source Code – The program code for the system.
  - Regression Test Suite - Collection of test cases, and the code to run them in the appropriate order. The regression test suite will include a wide range of tests, including acceptance tests, unit tests, system tests, etc.
  - Installation Scripts - Code for installing the system into pre- and post-production environments.
  - Release Notes - Summarize the things to know pertaining to the current release of the system.
  - Operations Procedure - Procedures and supporting information to operate the system once it is in production including continuity and disaster recovery procedures.
  - Support Reference- Used by support staff, such as trouble shooting guides, contact information for the development team, which enables them to support end users
- Responsible for developing a release package for all systems changes when transitioning to the production environments.

### **Post Implementation Support**

- Supports the resolution of incidents and problems with software application functionality.
- Researches and corrects problems with the system applications code during production processing in an efficient and timely manner ensuring system recovery and integrity.
- Is available to execute and carry out IT Continuity and Disaster Recovery Plans
- Is a Technical Member of the Change Advisory Board (CAB) as needed.
- Serves as team lead for assigned projects and updates/maintains project plans and schedules as required.

### **Mentoring & Professionalism**

- Maintains professional interaction with the application development staff, user and extended IT community (i.e. project teams) to ensure adequate system functionality, promote team participation and encourage user confidence in the Application Development Staff's quality of service.



- Provides assistance to Systems Analysts/Programmer I and II personnel ensuring that all technical design work, coding and testing are done in a manner that meets or exceeds design and testing requirements and standards.

**SECONDARY DUTIES:**

- Performs related duties as required.

**MINIMUM QUALIFICATIONS:**

**Education and Experience:**

- (A) A four (4) year college program in management science, engineering management, computer science or related fields; and
- (B) Five (5) to seven (7) years experience supporting enterprise wide applications as well as tier two applications.
- (C) Any equivalent combination of education or experience.

**Necessary Knowledge, Skills and Abilities:**

- (A) Extensive knowledge of programming languages, troubleshooting techniques, database structures, triggers and procedures, application server platforms, middleware and operating systems.
- (B) Knowledge of the following is desirable: MS .Net, J2EE, Crystal Reporting, ORACLE 11i, SQL Server and PL/SQL.

**SPECIAL REQUIREMENTS:**

- Information Technology Infrastructure Library (ITIL) Foundation Certification is required or the ability to obtain within 6 months.
- Formal training or certification in programming methodologies and System Development Life Cycle methodologies

**TOOLS AND EQUIPMENT USED:**

Office equipment as normally associated with the use of telephone, personal computers including word processing and other software, copy and fax machines.

**PHYSICAL DEMANDS:**

The physical demands described here are representative of those that must be met by an



employee to successfully perform the essential functions of this job. Reasonable accommodations may be made to enable individuals with disabilities to perform essential functions.

While performing the duties of this job, the employee is regularly required to use hands to finger, handle, feel or operate objects, tools or controls and reach with hands and arms. The employee frequently is required to sit and talk or hear. The employee is occasionally required to walk and stand.

The employee must frequently lift and/or move up to 25 pounds and occasionally lift and/or move up to 50 pounds. Specific vision abilities required by this job include close vision and color vision, and the ability to adjust focus.

### **WORK ENVIRONMENT:**

The work characteristics described here are representative of those an employee encounters while performing the essential functions of this job.

While performing the duties of this job, the employee occasionally works in various field settings and in an office environment. The employee regularly works near moving mechanical parts, and is occasionally exposed to risk of vibration.

The noise level in the work environment is very loud in field settings, moderately loud at other work locations and moderately quiet at office settings.

**October 2013**

**MWRA**  
**POSITION DESCRIPTION**

**OLD**

**POSITION:** Administrative Services Manager

**PCR#:**

**DIVISION:** Administration

**DEPARTMENT:** Materials Management

**BASIC PURPOSE:**

Performs administrative duties requiring a high degree of decisions for conformance with Authority regulations and policies including budget, financial control, personnel, industrial accidents, payroll, collecting bargaining agreements, equipment purchasing and inter-divisional billing.

**SUPERVISION RECEIVED:**

Works under the general supervision of the Department Director.

**SUPERVISION EXERCISED:**

Exercises supervision the planning, organizing and directing the work of an administrative staff.

**ESSENTIAL DUTIES AND RESPONSIBILITIES:**

- Assists the Director in the communications and implementation of MWRA policies and procedures relative to personnel, affirmative action, budget, finance, purchasing and other administrative procedures, which may be established.
- Coordinates administrative activities between departments of the Division, and the Administration and Finance Division.
- Advises on administrative matters pertaining to collective bargaining agreements.
- Supervises the preparation of the Division's fiscal budget, capital budget, financial controls, personnel and payroll matters.
- Supervises miscellaneous administrative functions such as the maintenance of division accounting and personnel records, the preparation of administrative reports, the processing of

invoices and the approval of personnel hiring and salary step-rate increases.

- Handles routine correspondence and inquiries directed to the Division Director.

**SECONDARY DUTIES:**

- Performs related duties as required.

**MINIMUM QUALIFICATIONS:**

Education and Experience:

- (A) A four (4) year college program in business administration, public administration or a related field; and
- (B) Seven (7) to nine (9) years of progressively responsible experience in administration, coordination and organizational management, including two (2) years experience working with a public agency; or
- (C) Any equivalent combination of education and experience.

Necessary Knowledge, Skills and Abilities:

- (A) Familiarity with the operations and procedures of a public water and/or sewer facility.
- (B) Demonstrated strong organizational, verbal, and written communications skills required.

**SPECIAL REQUIREMENTS:**

None.

**TOOLS AND EQUIPMENT USED:**

Office equipment as normally associated with the use of telephone, personal computer including word processing and other software, copy and fax machine.

**PHYSICAL DEMANDS:**

The physical demands described here are representative of those that must be met by an employee to successfully perform the essential functions of this job. Reasonable accommodations may be made to enable individuals with disabilities to perform the essential functions.

While performing the duties of this job, the employee is regularly required to use hands to finger,



handle, feel or operate objects, tools or controls and reach with hands and arms. The employee frequently is required to sit and talk or hear. The employee is occasionally required to walk; stand; climb or balance; stoop, kneel, crouch, or crawl; taste or smell.

The employee must frequently lift and/or move up to 10 pounds and occasionally lift and/or move up to 50 pounds. Specific vision abilities required by this job include close vision, distance vision, depth perception, peripheral vision and the ability to adjust focus.

**WORK ENVIRONMENT:**

The work environment characteristics described here are representative of those an employee encounters while performing the essential functions of this job.

While performing the duties of this job, the employee frequently works in outside weather conditions. The employee occasionally works near moving mechanical parts, and is occasionally exposed to wet and/or humid conditions and vibration. The employee occasionally works in high precarious places and is occasionally exposed to fumes or airborne particles, toxic or caustic chemicals and risk of electrical shock.

The noise level in the work environment is usually loud in field settings and moderately quiet in an office setting.

**December, 1999**

**MWRA**  
**POSITION DESCRIPTION**

**NEW**

**POSITION:** IT Asset & Configuration Manager

**PCR#:**

**DIVISION:** Administration

**DEPARTMENT:** Management Information Systems (MIS)

**BASIC PURPOSE:**

Functions as the Service Asset & Configuration Manager for the MIS organization and interfaces with the respective MIS functional areas. Maintains the integrity of MWRA's IT Asset Repository and Configuration Management System. Responsible for the management of IT assets throughout their lifecycle from needs assessment and procurement to decommission and disposal. Responsible for translating business case analysis into functional requirements. Identifies potential opportunities to enhance business processes, improve efficiencies and reduce costs. Require a broad knowledge of the organization, business functions, IT Asset Management Lifecycle, Configuration Management and ITIL.

**SUPERVISION RECEIVED:**

Works under the general supervision of the group supervisor. On specific IT projects may be supervised by a team lead or project manager.

**SUPERVISION EXERCISED:**

None

**ESSENTIAL DUTIES AND RESPONSIBILITIES:**

Asset Management

- Maintain integrity of MWRA's IT Asset Repository for all HW/SW assets.
- Responsible for the operational management of the IT Asset Management Lifecycle throughout MIS.
- Manage IT Asset Repository data accuracy.
- Ensures gaps in asset repository data are remediated.
- Resolves discrepancies between IT Asset repository and all discovery tools.
- Develop, implement, and enhance policies and procedures for tracking company assets

throughout their lifecycle.

- Work with IT Financial Management to ensure that all assets are under contract for support.
- Understanding our 3<sup>rd</sup> party/non-warranty support to make sure it covers any security risks.
- Aggregate software purchasing and license data.
- Supervise data normalization and audit/verification activities.
- Identify candidate licenses for harvesting from retired or repurposed assets.
- Identify non-compliant software.
- Implement and manage production of IT Asset Lifecycle Management status reporting and metrics.

#### Configuration Management

- Responsible for the operational management of the Configuration Management process.
- Plan and coordinate all activities required to execute, monitor, and report on the Configuration Management process.
- Manage day-to-day activities of the process.
- Gather and report on process metrics.
- Tracking compliance to the process.
- Maintain the Configuration Management System.

#### **SECONDARY DUTIES:**

- Performs related duties as required.

#### **MINIMUM QUALIFICATIONS:**

##### **Education and Experience:**

- (A) A Bachelor degree in Management Information Systems, Information Technology, Business Management, Finance or a related field.
- (B) Seven (7) to nine (9) years in IT procurement/asset management experience including managing contracts, software licenses and maintenance agreements.
- (C) Any equivalent combination of education or experience.

##### **Necessary Knowledge, Skills and Abilities:**

- (A) Possesses a working knowledge of ITIL.
- (B) Proven ability to communicate effectively with staff and management at all levels of the organization in writing and verbally.
- (C) Possesses an understanding of license models, software delivery and metrics and



hardware lifecycle management.

(D) High level understanding of technologies and enterprise architecture.

(E) Strong organization skills and the ability to manage multiple priorities with competing demands for resources.

(F) Strong analytical, data processing and problem solving skills.

(G) Understands the basic principles of financial management.

**SPECIAL REQUIREMENTS:**

- Information Technology Infrastructure Library (ITIL) Foundation Certification is required or the ability to obtain within 6 months.
- ITAM certification in at least two of the following areas or the ability to obtain within 12 months.
  - Software
  - Hardware
  - Mobility

**TOOLS AND EQUIPMENT USED:**

Office machines as normally associated with the use of telephone, personal computer including word processing and other spreadsheet database software, copy and fax machine.

**PHYSICAL DEMANDS:**

The physical demands described here are representative of those that must be met by an employee to successfully perform the essential functions of this job. Reasonable accommodations may be made to enable individuals with disabilities to perform the essential functions.

While performing the duties of this job, the employee is regularly required to use hands to finger, handle, feel or operate objects, tools or controls and reach with hands and arms. The employee is frequently required to sit, talk or hear. The employee is occasionally required to stand and walk.

The employee must frequently lift and/or move up to 25 pounds and occasionally lift and/or move up to 50 pounds. Specific vision abilities required by this job include close vision and color vision, and the ability to adjust focus.

**WORK ENVIRONMENT:**

The work environment characteristics described here are representative of those an employee encounters while performing the essential functions of this job.

While performing the duties of this job, the employee occasionally works in various field settings and in an office environment. The employee regularly works near moving mechanical parts and is occasionally exposed to risk of vibration.

The noise level in the work environment is very loud in field settings, moderately loud at other work locations and moderately quiet in office settings.

March 2015

~~P&C B.2  
IV A.3  
7/11/15~~  
P&C B.3  
IV A.6  
3/11/15

**STAFF SUMMARY**

**TO:** Board of Directors  
**FROM:** Frederick A. Laskey, Executive Director  
**DATE:** February 11, 2015  
**SUBJECT:** Appointment, Director, Internal Audit



COMMITTEE: Personnel & Compensation

INFORMATION  
 VOTE

Frederick A. Laskey, Executive Director  
Preparer/Title

**RECOMMENDATION:**

To approve the appointment of Brian Rozowsky to the position of Director, Internal Audit, (Non-Union Grade 16), at an annual salary of \$122,000 commencing on a date to be determined by the Executive Director.

**DISCUSSION:**

MWRA's Internal Audit Department is responsible for directing independent reviews of the Authority's operations and capital programs to give reasonable assurance that internal management controls are functioning as intended and that only reasonable, allowable and allocable costs are paid to consultants, contractors and vendors. Performance audits are also conducted to analyze and evaluate MWRA programs and activities to determine if they are being carried out effectively and efficiently, compliance audits that focus on adherence to MWRA policies and procedures, contractual requirements, rules or regulations and management advisory services.

The Director, Internal Audit reports to the Executive Director and supervises a staff of seven. This position will become vacant upon the retirement of John Mahoney in March.

Staff recommend the appointment of Brian Rozowsky to fill this position. Mr. Rozowsky has more than thirty years experience in the auditing field. Since coming to the MWRA in 1992, Mr. Rozowsky has held various positions within the Internal Audit Department, each subsequent position with increased responsibility. He began as the Supervisory Auditor and was promoted to the Senior Supervisory Auditor in 1999. In 2001, Mr. Rozowsky was promoted to the Assistant Director of Internal Audit. In this role, Mr. Rozowsky assists in the management of the Internal Audit Department, including the preparation and presentation of the annual audit plan.

During his career at MWRA, Mr. Rozowsky has been instrumental in the recovery of millions of dollars from consultant incurred cost audits, consultant preliminary reviews and construction



labor burden reviews. He is a diligent and capable manager who is well-respected across the agency.

Prior to his employment at the MWRA, Mr. Rozowsky worked for Fantasia & Company, an audit firm in Framingham as well as Horwath & Horwath, an international audit firm in Cape Town, South Africa.

Mr. Rozowsky possesses a Bachelor of Commerce and Certificate in the Theory of Accountancy from the University of Cape Town. Mr. Rozowsky is also a Certified Public Accountant.

**BUDGET/FISCAL IMPACT:**

There are sufficient funds for this position in the FY15 Current Expense Budget.

**ATTACHMENTS:**

Resume of Brian Rozowsky  
Position Description  
Organization Chart

## Brian A. Rozowsky, CPA

### Experience

#### **2001 to Present:** Assistant Director, Internal Audit at MWRA

- Responsible for the contract audit program, performing and supervising audits of professional service firms and vendors, and construction change orders and claims.
- Responsible for significant cost savings and recoveries.
- Managed the contract audit staff including contract employees.
- Assists other MWRA departments with contract negotiations and reviews.
- Meets regularly with other state agencies on contract audit and internal audit matters.
- Supervised, assisted and worked on numerous internal audit assignments including asset verification, vehicle and related usage and reviews of the CSO program.

#### **1992 to 2000:** Supervisory and Senior Supervisory Auditor at MWRA

- Supervised and performed contract, construction and vendor audits whose records are maintained on various computerized systems.
- Started the in-house incurred cost audit program for consultants and trained staff in field audit procedures.
- Provided the lead in many cost saving initiatives.

#### **1989 to 1991:** Audit Manager at Fantasia & Company, a CPA firm in Framingham

- Performed and managed audits, reviews, compilations and tax returns for clients ranging from a hotel designer to an ambulance company, non-profits, an Indian tribe and contract audit work for MWRA.
- Prepared monthly management accounts and consulted for many of the clients.

#### **1985 to 1989:** Partner in the Cape Town office of the international audit firm of Horwath & Horwath

- Conducted and managed audits and prepared financial statements for several large building contractors and real estate developers.
- Preparing, reviewed and analyzed monthly financial statements for many firms.
- Consulted for clients in the areas of steel manufacturing, wholesalers and distributors, and contractors and real estate developers.
- Successfully listed two clients on the Johannesburg Stock Exchange.
- Provided tax services for family owned businesses and individuals.

**1983 to 1985:** Chief Financial Officer at Rabie Property Developers

- Responsible for financing and closing of sales, preparing monthly and annual financial statements, preparing and managing budgets, supervising the accounting staff and managing the commercial property portfolio.

**1978 to 1983:** Worked for a CPA firm as a trainee accountant, progressing to audit manager at the firm where I later became a partner.

**Qualifications:** Certified Public Accountant  
Chartered Accountant of South Africa  
Bachelor of Commerce and Certificate in the Theory of Accountancy (CTA) – University of Cape Town

**Accomplishments:** Received MWRA Excellence in Performance Award in 1994.  
Certificate of Recognition for participation in Pelletizing contract.  
Listed two companies on the Johannesburg Stock Exchange.

**Other Involvements:** Former Treasurer of Framingham United Soccer Club and Trustee  
Soccer coach for many years for youth travel teams  
Former age group director of a basketball program  
Former Chairman and Treasurer of a cub-scout pack



**MWRA  
POSITION DESCRIPTION**

**POSITION:** Director, Internal Audit

**PCR#:**

**DIVISION:** Internal Audit

**DEPARTMENT:** Internal Audit

**BASIC PURPOSE:**

Directs independent reviews of the Authority's operations and capital programs and supervises the audit of related management systems and outside contracts which encompass these operations and programs, as defined in Section 7(h) of the Authority's enabling legislation. Provides written reports to the Board of Directors and the senior management team.

**SUPERVISION RECEIVED:**

Reports to the Executive Director.

**SUPERVISION EXERCISED:**

Supervises the Department's staff of professionals and administrative staff and oversees all audit activities conducted within the Authority's operating budget and capital program.

**ESSENTIAL DUTIES AND RESPONSIBILITIES:**

- Develops an annual audit plan, which includes the specific operating and capital studies that will be conducted.
- Develops audit policies and procedures.
- Directs, recruits, trains and evaluates Department staff.
- Manages the development and implementation of comprehensive and effective audit programs.
- Directs each audit.
- Ensures proper reporting of audit findings, reviews management's response to the audit observations and recommendations and conducts follow-up to obtain management's corrective action.
- Evaluates the Authority's policies and procedures.

- Counsels all levels of management on appropriate management systems and control matters and responds appropriately to requests for advisory services.
- Services as primary liaison to outside investigative and audit agencies involved with the Authority's activities.

**SECONDARY DUTIES:**

- Performs related duties as required.

**MINIMUM QUALIFICATIONS:**

Education and Experience:

- (A) A four- (4) year college program in business or public administration, or a related field. Advanced degree preferred; and
- (B) Ten (10) to twelve (12) years of experience in auditing, program evaluation, and management analysis, of which at least five (5) years must be in a supervisory or managerial capacity; and
- (C) Certification in one of the following categories is required: Certified Public Accountant (CPA), Certified Internal Auditor (CIA), or Certified Information Systems Auditor (CISA); or
- (D) Any equivalent combination of education or experience.

Necessary Knowledge, Skills and Abilities:

- (A) General knowledge of construction, engineering and procurement practices preferred.
- (B) Excellent verbal and written communication skills and interpersonal skills are required.

**SPECIAL REQUIREMENTS:**

A valid Massachusetts Class D Motor Vehicle Operators License.

CPA, CIA or CISA designation based on a written examination.

**TOOLS AND EQUIPMENT USED:**

Office machines as normally associated with the use of multiple-line telephone, personal computer, including word processing and other software, copy, and fax machine.

### **PHYSICAL DEMANDS:**

The physical demands described here are representative of those that must be met by an employee to successfully perform the essential functions of this job. Reasonable accommodations may be made to enable individuals with disabilities to perform the essential functions.

While performing the duties of this job, the employee is regularly required to sit and talk or hear, to use hands to feel, finger, handle or operate objects, including office equipment or controls and reach with hands and arms. The employee is frequently required to stand and walk; an occasionally climb or balance; stoop, kneel, crouch, crawl, or smell.

The employee must frequently lift and/or move up to 10 pounds, occasionally lift and/or move up to 50 pounds. Specific vision abilities required by this job include close vision, peripheral vision, distance vision, depth perception and the ability to adjust focus.

### **WORK ENVIRONMENT:**

The work environment characteristics described here are representative of those an employee encounters while performing the essential functions of this job.

While performing the duties of this job, the employee regularly works in an office environment. The employee occasionally makes visits to operating facilities and construction sites. In these situations the employee is occasionally exposed to outdoor weather conditions, extreme heat or cold and wet, humid conditions (non-weather) and vibration. The employee occasionally works near moving mechanical parts, and in high precarious places. The employee is occasionally exposed to fumes, toxic or caustic chemicals and airborne particles. The employee occasionally exposed to risk of electrical shock and radiation.

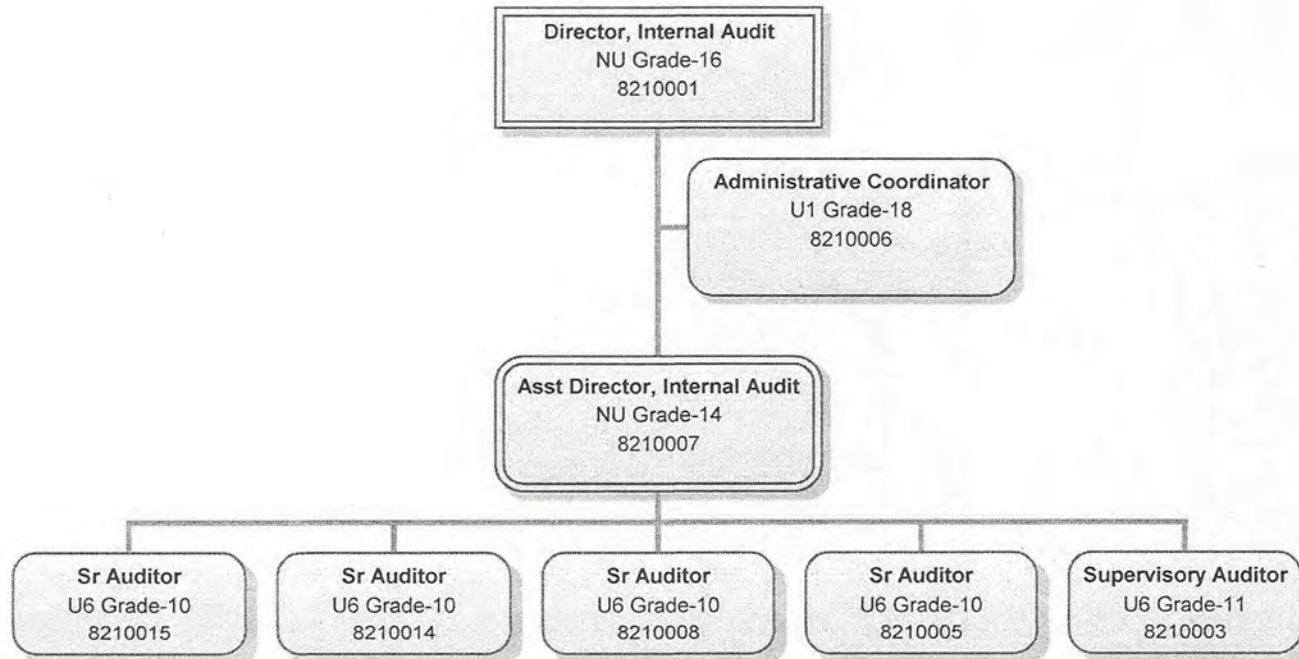
The noise level in the normal work environment is moderately quiet. Visits made to operating facilities and construction sites include noise levels at the site that could range from loud to very loud.

**January, 2015**



# Internal Audit Division

February 2015



**STAFF SUMMARY**


**TO:** Board of Directors  
**FROM:** Frederick A. Laskey, Executive Director  
**DATE:** February 11, 2015  
**SUBJECT:** Appointment of Manager, Benefits & HRIS  
Human Resources Department

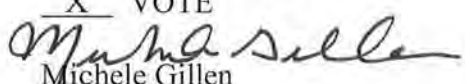


COMMITTEE: Personnel & Compensation

     INFORMATION

  X   VOTE

  
Karen Gay-Valente, Director of Human Resources  
Preparer/Title

  
Michele Gillen  
Director, Administration

**RECOMMENDATION:**

To approve the appointment of Raymond Wagner to the position of Manager, Benefits & HRIS, Human Resources (Non-Union Grade 14), at an annual salary of \$107,633.00 commencing on a date to be determined by the Executive Director.

**DISCUSSION:**

The position of Manager, Benefits & HRIS became vacant upon the appointment of Andrea Murphy to the Manager, Employment position in the Human Resources Department.

The Manager of Benefits & HRIS is responsible for overseeing all facets of the MWRA benefits program including health, life, dental and disability insurances, flexible spending accounts, leave time and deferred compensation programs. The Manager of Benefits & HRIS is also responsible for the MWRA HRIS system and maintaining all programs and actions affecting employee's pay, benefits, collective bargaining settlements and personnel records. Additionally, the Manager, Benefits & HRIS is intricately involved in all other Human Resources functions and works closely with Employment, Compensation, Labor Relations and Affirmative Action staff. The position reports directly to the Director of Human Resources.

**SELECTION PROCESS:**

The position was posted internally. Three qualified candidates were referred for interviews and one candidate subsequently withdrew from the process. Each candidate was interviewed by a panel consisting of the Director, Human Resources; Special Assistant for Affirmative Action and the IS Customer Support Manager. At the conclusion of interviews, Mr. Wagner was recommended for selection as the best candidate for the position.

Raymond Wagner began working for the MWRA in 1995 in the MIS Department as a Senior Systems Analyst and was promoted to a Database Analyst/Application Developer in 1996 where



he became part of the Lawson HR and Payroll team. As the Database Analyst/Application Developer, Mr. Wagner has daily interaction with the Human Resources Department and in doing so has become very familiar with all Human Resources policies of the Authority. In this capacity, Mr. Wagner has been the team leader responsible for the implementation of the Lawson System's Human Resources modules. Mr. Wagner has developed HR and payroll programs and has been responsible for designing subsequent system changes and upgrades. Mr. Wagner has also implemented system changes necessary from benefit program enhancements and collective bargaining settlement changes. Mr. Wagner has worked directly with the Manager, Benefits & HRIS to implement system changes for benefit programs and therefore has a solid working knowledge of MWRA benefit programs, collective bargaining pay and benefit provisions, and leave provision policies and procedures. Mr. Wagner is also intricately involved with weekly and year end benefit and payroll processing, affirmative action reporting, database management and HR ad hoc reporting. Before working at the MWRA, Mr. Wagner worked at Tufts Associated Health Plans as a Senior Programmer/Analyst and for M/A-Com for twelve years where he held progressively more responsible positions including nine years as a Senior Programmer/Analyst for the Payroll/Human Resource systems.

Mr. Wagner's background in information systems and system efficiencies and upgrades will also be an asset to the Human Resources Department as MWRA looks to enhance the use of technology to update its employment, training and compensation systems to better support succession planning, recruitment and replacement needs. Mr. Wagner is widely respected by his colleagues and is known for his strong work ethic, attention to detail and resourcefulness in ensuring that the MWRA HRIS modules are maintained.

Mr. Wagner completed programming, database and management courses at the University of Lowell and has completed training provided by Lawson consultants both at the MWRA and at the Lawson facility.

**BUDGET/FISCAL IMPACT:**

There are sufficient funds for this position in the FY15 Current Expense Budget.

**ATTACHMENTS:**

Resume of Raymond Wagner  
Position Description  
Organization Chart



## Raymond R. Wagner

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### EXPERIENCE

Massachusetts Water Resources Authority

1995 -Present

Database Analyst/Application Developer  
Senior Systems Analyst/Application Developer

- Team leader for Lawson HR/Payroll implementation and projects.
- Worked with Human Resources Department to analyze, develop, test and implement system modifications as a result of negotiated collective bargaining agreements, changes to MWRA benefit programs and benefit leave time updates.
- Customized over 100 programs within the Lawson HR/PR modules required for benefits updates and collective bargaining agreements.
- Developed conversion programs during HR/Payroll system upgrades.
- Revamped and automated month end Human Resources processes to gain better efficiencies and accuracy.
- Performed tasks related to HR year end processing including W2s, 1099s, granting earned time leave accruals and loading employee flex spending deductions.
- Tested and installed Critical Patches to the Lawson HR/Payroll modules as needed.
- Created ad-hoc reporting and data downloading for Human Resources Department.

1994 -1995

Tufts Associated Health Plans  
333 Wyman Street, Waltham, MA

Senior Programmer Analyst

- Responsible for the Fee & Pricing applications.
- Successfully automated the year end fee loading processes.
- Developed fee schedule features within the current system which eliminated the need for thousands of records.

1982 -1994

M/A -COM (a subsidiary of Tyco Inc.)  
1011 Pawtucket Boulevard, Lowell, MA

Senior Programmer/Analyst

- Responsible for Payroll/ Human Resource, Job/Contract Cost, Labor Distribution and Corporate Hierarchy systems.

Computer Programmer/Analyst

- Supported the Order, Sales, Backlog and Accounts Receivable systems.

Junior Programmer/Analyst

- Supported the General Ledger & Accounts Payable systems.

Computer Operator

- Successfully maintained & enhanced the Payroll/Human Resource systems.
- Verified weekly/monthly payroll processes.
- Developed employee attendance/pay history subsystems.
- Designed and programmed a job function system for over 2,000 job descriptions.

### EDUCATION

University of Lowell, Lowell, MA

Courses included Advanced COBOL programming, Database Concepts, Principles of Management, Pascal Programming

January 2008 - April 2008

Lawson 9.0 Apps and Technical Training  
Taught by Certified Lawson Consultants

September 2000 - August 2001

Lawson 8.01 Apps and Technical Training  
Lawson Training Facility  
Waltham, MA

January 1997- October 1999

Received Oracle Developers Master Certificate  
Oracle Training Facility  
Waltham, MA

PLATFORMS/LANGUAGES

Lawson/Info-HR Payroll/Financial Apps (version 9.0.1), Lawson LSF9 security, MicroFocus COBOL, HP-Unix, Oracle DB version11, Microsoft Office Word Excel Access/Outlook, FTP scripting, Oracle PL/SQL, Windows 7 and XP, Bottomline Pay base and C-Series Apps., ODBC, BSI Tax Factory

CLUBS

2009 - Present

Tribal Elder of Greater Lowell Indian Cultural Association (G.L.I.C.A ) and inter-tribal Native American organization which host Pow Wows, cultural and education events throughout the year.

2000- Present

Member of the Massachusetts Baseball Umpires Association. Secretary of the Lowell local board from 2009-2012.

REFERENCES

Available upon request.

**MWRA  
POSITION DESCRIPTION**

**POSITION:** Manager, Benefits & HRIS

**PCR#:**

**DIVISION:** Administration

**DEPARTMENT:** Human Resources

**BASIC PURPOSE:**

Researches and recommends changes and improvements to the MWRA Benefits Program and Policies and oversees data, information and systems coordination for the department. Oversees and administrates the MWRA Benefits Program. Develops and maintains personnel systems relative to employee records, personnel actions and benefits administration. Oversees the prioritization and implementation of decisions regarding hardware allocation, application systems, database management, systems upgrades, software applications and staff training. Oversees the development, maintenance and use of information and tracking systems used by the department.

**SUPERVISION RECEIVED:**

Works under the general supervision of the Director of Human Resources.

**SUPERVISION EXERCISED:**

Exercises general supervision over the Benefits & HRIS Coordinator and Sr. Human Resources Analyst.

**ESSENTIAL DUTIES AND RESPONSIBILITIES:**

- Manages the MWRA Benefits Program including health, life, disability and dental insurances and unemployment program.
- Formulates, recommends and manages the implementation of benefits and data collection and maintenance programs, policies and procedures.
- Evaluates the adequacy and appropriateness of existing levels and types of benefits and recommends adjustments as may be required.
- Researches, develops and recommends proposals for new or improved benefits.



- Manages procurement of benefit providers.
- Manages employee information programs on benefits policies and procedures.
- Proposes long-range compensation and benefits objectives along with the Manager of Compensation.
- Supervises the maintenance of the automated personnel database for the MWRA ensuring the quality and timeliness of all salary and position changes.
- Manages employee leave programs.
- Monitors and recommends improvements for personnel data collection and maintenance programs.
- Represents the department in all Management Information Systems (MIS) development projects and serves as the primary liaison in the development of specifications and in planning the implementation of a new Human Resources/Payroll system.
- Oversees the maintenance of all electronic and hard copy personnel files for the MWRA in compliance with applicable state and federal laws. Oversees responses to all public information requests and legal requests with electronic and hard copy information.
- Participates in the negotiations with benefits carriers and consultants to ensure maximum coverage with the resources available.
- Manages the MWRA's drug testing program and drug testing contract.
- Oversees and prepares the department's current expense budget and variance reporting.
- Supervises department procurement functions and oversees expenditure tracking and cost code system.
- Participates in collective bargaining negotiations, prepares costing information and analysis.

**SECONDARY DUTIES:**

- Performs other related duties as required.

**MINIMUM QUALIFICATIONS:**

Education and Experience:

- (A) Analytical and writing skills as normally attained through a four (4) year college program in business, human resources or a related field. ; and
- (B) Understanding of benefits theory, personnel administration and records maintenance as acquired by a minimum of seven (7) to ten (10) years experience, with at least three (3) years in a supervisory and/or managerial capacity. Public sector experience preferred; or
- (C) Any equivalent combination of education or experience.

Necessary Knowledge, Skills and Abilities:

- (A) Excellent interpersonal, written and oral communication skills are required.
- (B) Demonstrated proficiency with Lawson HRIS System.
- (C) Knowledge of the MWRA procurement process.
- (D) Demonstrated proficiency in Microsoft Office Suite.

**SPECIAL REQUIREMENTS:**

None.

**TOOLS AND EQUIPMENT USED:**

Office machines as normally associated with the use of telephone, personal computer, including word processing and other software, copy and fax machine.

**PHYSICAL DEMANDS:**

The physical demands described here are representative of those that must be met by an employee to successfully perform the essential functions of the job. Reasonable accommodations may be made to enable individuals with disabilities to perform the essential functions.

While performing the duties of this job, the employee is required to sit, talk or hear. The employee is frequently required to use hands to finger, handle or operate objects including office equipment, controls and reach with hands and arms. The employee is occasionally required to stand and walk.

There are no requirements that weight be lifted or force be exerted in performing the duties of this job. Specific vision abilities required by this job include close vision and the ability to focus.

**WORK ENVIRONMENT:**

The work environment characteristics described here are representative of those an employee encounters while performing the essential functions of this job. While performing the duties of this job the employees regularly works in an office environment.

The noise level in the work environment is a moderately quiet office setting.

**December 2014**

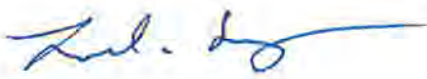


# Human Resources Department

February 2015



## STAFF SUMMARY

**TO:** Board of Directors  
**FROM:** Frederick A. Laskey, Executive Director   
**DATE:** March 11, 2015  
**SUBJECT:** Appointment of Senior Program Manager, Valves  
Operations Division

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COMMITTEE: Personnel & Compensation

INFORMATION  
 VOTE

Karen Gay-Valente, Director, Human Resources  
John P. Vetere, Deputy Chief Operating Officer  
David W. Coppes, P.E., Director of Waterworks  
Preparer/Title

  
Michael J. Hornbrook  
Chief Operating Officer

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### RECOMMENDATION:

To approve the appointment of Mr. Steven Considine (Unit 2, Grade 21) to the position of Senior Program Manager, Valves (Unit 9, Grade 30) at the recommended annual salary of \$89,999.72, to be effective March 14, 2015.

### DISCUSSION:

The position of Senior Program Manager, Valves, became vacant at the end of February 2015 upon the retirement of the previous incumbent. This position reports to the Director, Metropolitan Operations, and supervises 11 staff that comprise the eastern Valve Program, including one general foreman and four valve foremen. The Senior Program Manager, Valves is responsible for managing all aspects of the Valve Program, including operations, maintenance, and repair of approximately 5,000 valves in the Metropolitan service area. The position is also required to be part of the rotating, on-call, 24/7 emergency response team. The Valve Program also provides community assistance when customer communities request MWRA's assistance in resolving complex or difficult valve operations, or as part of an emergency response.

### Selection Process

The position was posted internally and a total of five candidates applied; four of the candidates were identified as meeting the qualifications for the position. All four candidates were interviewed by the Director of Waterworks, the Director of Metropolitan Operations, and a representative from MWRA's Affirmative Action and Compliance Unit. Upon completion of the interviews, Mr. Steven Considine was selected as the best candidate to fill the position.

Mr. Considine has 26 years of experience in the water industry, all at MWRA as a member of the Valve Program. He began his career at MWRA in 1988 as a Laborer and has been promoted several times to positions of increasing responsibility. In 1991, he was promoted to the position of Specialty Valve Installer where he assisted with the installation of taps on live water mains and participated in the operation and maintenance of various types of valves. In 1993, he was promoted to Specialty Valve Foreman, supervising a crew of two other staff. He participated in water system operations focusing on water main isolations and activations, disinfection, and dechlorination activities, tapping of live water mains, and valve exercising, maintenance and repair. He attended training regarding the operation and maintenance of pressure-reducing valves.

In 2001, Mr. Considine was promoted to his current position of General Foreman, Valves, where he supervises four valve foremen. He assists the crews with specific challenging work tasks when required and is thoroughly knowledgeable and experienced in all aspects of the Valve Program. As the General Foreman, he reported directly to the Senior Program Manager, Valves and assumed the responsibilities of the position whenever the previous incumbent was on leave. Mr. Considine has participated in many MWRA and community water system emergency response scenarios, including the May 2010 Shaft 5 water main break. He has operated and repaired thousands of valves in MWRA's water system and knows the system well. He is well respected by managers, peers, and customer community water distribution management staff.

Mr. Considine holds a Grade 4D full operator water distribution license from the Commonwealth of Massachusetts.

**BUDGET/FISCAL IMPACT:**

There are sufficient funds available for this position in the FY15 Current Expense Budget. The recommended salary is in accordance with Unit 9's current collective bargaining agreement.

**ATTACHMENTS:**

- Resume of Steven Considine
- Position Description
- Organizational Chart for Metropolitan Operations



# **STEVEN CONSIDINE**

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## **SUMMARY**

Skilled valve foreman with 26 years experience at the Massachusetts Water Resource Authority. Licensed Commercial Driver and Drinking Water Supply Facility Operator in the Commonwealth of Massachusetts.

## **LICENSES**

**Drinking Water Supply Facility Operator**, Commonwealth of Massachusetts, Licensed Grade 4D Full Operator #22210

**Commercial Driver's License**, Commonwealth of Massachusetts, Class B #S89729974

## **SKILLS**

Proficient in Microsoft Word and Excel; Working knowledge of occupational safety precautions and Maximo work order system including creating work order request and tracking data.; Ability to multitask and prioritize projects; Works well independently or as a team member

## **CAREER HISTORY**

*MASSACHUSETTS WATER RESOURCES AUTHORITY, Boston, MA* *November 2001 – Present*

### **Water Distribution System, General Foreman/Valves**

- Supervises daily operations of the Valve Department's four Valve Crews making daily adjustments to work and staff assignments as needed.
- Participates with and assists Sr. Program Manager/Valve on a daily basis with future operations plans and work schedule and preparing operation plans for shutdowns of main and equipment and acts as Sr. Program Manager when current Manager is unavailable due to vacation or time off.
- Experience working with Engineering and Construction staff with operation plans and equipment needs on current and future projects and Planner/Scheduler and Purchasing Department with material acquisition for ongoing repairs includes putting together list on materials and price quotes for purchase.
- Coordinates with various Departments including OCC, SCADA, Engineering and Meter Maintenance so that work on the Distribution system is done with little or no impact on daily operations.
- Works with Operations Engineering and Department of Safety and Security with the development of the Mobile Disinfection Unit (MPU) including the makeup of Standard Operating Procedures (SOPs) and design layout of the trailer that stores the equipment.
- Coordinates with Operations Engineering with the development of the Mobile Pumping Units including the makeup of Standard Operating Procedures (SOPs) and design layout of trailers and equipment.
- Handled and managed the repair of DV-20, a division valve between Suction and Discharge mains at Gillis Pump Station. The repair of this valve allowed remote operations of valve to fill HiFells Tanks by gravity from Norumbega Covered Storage saving cost of running pumps and energy.
- Assisted with VMM on purchasing new improved Valve crew trucks and new automatic valve turner mounted in trucks.

- Supervises safe chlorination of water mains by valve department staff and contractors working on the water system with special intention going to the de-chlorination of the water discharging.
- Interacts with Member Communities Water Departments accessing system problems and assisting with operations in emergency and non-emergency situations.
- Required to be on-call for emergencies twenty-four (24) hours a day, seven (7) days a week on a regular rotating schedule.

*MASSACHUSETTS WATER RESOURCES AUTHORITY, Boston, MA November 1993 – November 2001*

**Specialty Valve Foreman**

- Participated in the preparation of major water system operations plan including work sequencing, scheduling and cost estimating, and assisted in assembling work order packages.
- Produced written work plan for each water system operations planner and prepared daily and weekly job status and time utilization reports to track execution of written work plan.
- Supervised operation and maintenance of valves to empty, chlorinate, flush, fill, de-chlorinate and place into service pipelines, reservoirs, aqueducts and standpipes.
- Supervised work crew exercising, maintenance, repair or alteration of air valves, mainline valves, blow offs and control valves.
- Supervised and assisted special pipe laying and valve installation crews in cutting and laying of pipes ranging from 6" to 60" diameter, caulking of joints in new construction or repair of water lines within the MWRA system.
- Supervised and assisted in the installation of: taps up to 2" on live and dry mains up to 60" on diameter using the Mueller B-100 and D-5 tapping machines or equivalent, tapping sleeves and valves up to 12" on MWRA pipeline, new gate and butterfly valves.
- Oversaw and assisted in the replacement of parts such as pinion gears, stuffing box glands, cleaning oiling and greasing of related parts as well as manual and automatic air vales.

*MASSACHUSETTS WATER RESOURCES AUTHORITY, Boston, MA October 1991 – November 1993*

**Specialty Valve Installer**

- Installed up to to 2" diameter wet and dry taps on MWRA mains with diameters up to 60" wide using the Mueller B-100 and D-5 taping machines or similar equipment.
- Installed tapping sleeves and valves on MWRA mains up to 60" in size.
- Replaced valve parts such as stems, pinion gears, stuffing box glands, cleaning, oiling and greasing of related parts.

*MASSACHUSETTS WATER RESOURCES AUTHORITY, Boston, MA November 1988 – October 1991*

**Skilled Laborer**

- Worked on a valve crew performing duties as assigned.

**EDUCATION**

**Christopher Columbus High School, Boston, MA, 1988**

**MWRA  
POSITION DESCRIPTION**

**POSITION:** Senior Program Manager, Valves

**PCR#:**

**DIVISION:** Operations

**DEPARTMENT:** Valve Maintenance - Inspection

**BASIC PURPOSE:**

Oversees the planning, operations, maintenance and repair of Metropolitan system valves, including air valves, mainline valves, pressure reducing valves, blow-offs, altitude valves and special appurtenances. Required to be on-call for emergencies twenty-four (24) hours a day, seven (7) days a week.

**SUPERVISION RECEIVED:**

Works under the supervision of the Director, Metropolitan

**SUPERVISION EXERCISED:**

Supervises the valves crews and valve program support staff.

**ESSENTIAL DUTIES AND RESPONSIBILITIES:**

- Oversees the operation, maintenance and repair of all valves in the Metropolitan water system.
- Oversees valve maintenance and rehabilitation program to maximize valve operability and to continuously improve staff productivity to achieve competitive costs.
- Oversees material planning and procurement; oversees all valve-related aspects of computerized maintenance management system.
- Participates in preparing and monitoring valve program CEB budget; participates in weekly maintenance coordination meetings and otherwise facilitates timely and effective communication among supervisors and operations engineering regarding all major operations, scheduled and non-scheduled.
- Monitors valve program productivity, identifies on-going improvement opportunities and makes SOPs changes to improve productivity.



- Coordinates with other operations department staff, other divisions of MWRA and with member communities to receive work requests and provide information and support as appropriate.
- Coordinates with operations engineering on, review and finalization of operations plans for all major operations.
- Supervises chlorinating of water mains; supervises de-chlorinating of water from MWRA system.
- Ensures that the unit's SOPs effectively communicate the unit's proper operating procedures and are being utilized by staff. Develops, documents and continually evaluates effectiveness of the SOPs and facility manuals.
- Monitors, reports and continually works to improve staff productivity through staff skills development, strategic planning, standard operating procedures (SOPs) improvements and research and implementation of technology advances.
- Identifies training needs and implements appropriate in-house or consultant-led training programs.
- Ensures that all staff is properly trained. Ensures that all staff is familiar with, has been trained on and is utilizing MWRA Safety Policies and Procedures.
- Works towards harmonious personnel relations and positive staff morale. Performs performance reviews, investigates employee complaints, addresses employee conflicts, initiates disciplinary actions, prepares for collective bargaining and identifies and proposes organizational changes to address changing needs.
- Participates in preparing for collective bargaining and hears Step One grievances.
- Manages unit budget. Assesses resources needed to effectively manage unit, prepares budget requests and in-depth justification, explains budget variances and controls unit spending to ensure overall budget compliance.
- Provides twenty-four (24) hour emergency coverage as required.
- Serves as back-up for the Program Manager of Pipelines in his/her absence.

**SECONDARY DUTIES:**

- Performs related duties as required.

## **MINIMUM QUALIFICATIONS:**

### Education and Experience:

- (A) Knowledge of operations, maintenance and pipeline construction systems as normally attained through a four (4) year college program in civil or mechanical engineering or related field; and
- (B) Understanding of operations and maintenance of distribution systems as acquired by seven (7) to nine (9) years experience, including at least three (3) years in a supervisory capacity; or
- (C) Any equivalent combination of education and experience.

### Necessary Knowledge, Skills and Abilities:

- (A) Excellent administrative, interpersonal, management and written and oral communication skills required.
- (B) Proficiency in the use of PC software for word processing, spreadsheets and databases required.

## **SPECIAL REQUIREMENTS:**

A valid Class 4D Drinking Water Supply Facilities operator license is required.

## **TOOLS AND EQUIPMENT USED:**

Office machines as normally associated with the use of telephone, personal computer including word processing and other software, copy and fax machine.

## **PHYSICAL DEMANDS:**

The physical demands described here are representative of those that must be met by an employee to successfully perform the essential functions of this job. Reasonable accommodations may be made to enable individuals with disabilities to perform the essential duties.

While performing the duties of this job, the employee is regularly required to use hands to finger, handle, feel or operate objects, tools, or controls and reach with hands and arms. The employee is regularly required to stand and walk. The employee is frequently required to sit and talk or hear.

The employee must frequently lift and/or move up to 10 pounds and occasionally lift and/or move more than 50 pounds. Specific vision abilities required by this job include close, distance, color and peripheral vision, depth perception, and the ability to adjust focus.

## **WORK ENVIRONMENT:**

The work environment characteristics described here are representative of those an employee encounters while performing the essential functions of this job.

While performing the duties of this job, the employee regularly works in a field/office environment. The employee regularly works near moving mechanical parts, is frequently exposed to wet and/or humid conditions, and is occasionally exposed to fumes and airborne particles, toxic or caustic chemicals and the risk of electric shock.

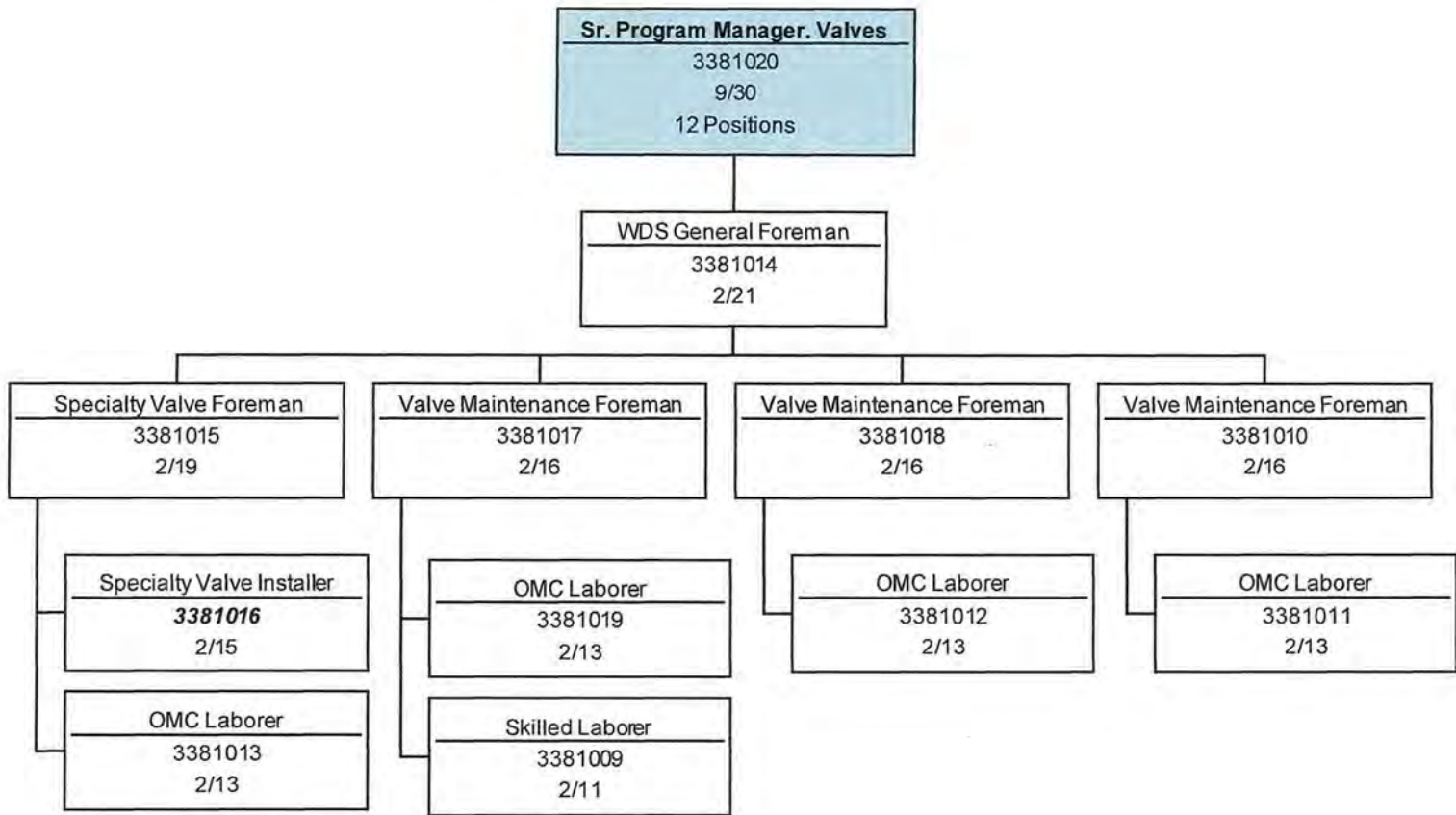
The job is hearing protection required and the noise level in the work environment is very loud in field settings and moderately loud at treatment facilities.



Operations-Metro Water Operations

**Valve Maintenance**

March 2015



## STAFF SUMMARY

**TO:** Board of Directors  
**FROM:** Frederick A. Laskey, Executive Director  
**DATE:** March 11, 2015  
**SUBJECT:** Appointment of Manager, Maintenance  
Metropolitan East, Operations Division

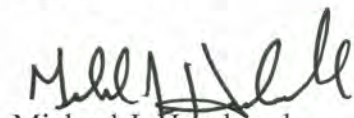


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COMMITTEE: Personnel & Compensation

     INFORMATION  
  X   VOTE

Karen Gay Valente, Director, Human Resources  
Stephen D. Cullen, Director, Wastewater O & M  
John P. Vetere, Deputy Chief Operating Officer  
Preparer/Title



Michael J. Hornbrook  
Chief Operating Officer

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### RECOMMENDATION:

To approve the appointment of Mr. Daniel P. Keough (Unit 9 Grade 29) to the position of Manager, Maintenance, (Non-Union, Grade 14), at the recommended annual salary of \$118,000, to be effective on March 14, 2015.

### DISCUSSION:

The position of Manager, Maintenance, for the Metropolitan East maintenance area became vacant upon the recent promotion of the previous incumbent. This position, which reports to the Director of Wastewater Operations and Maintenance, is responsible for the maintenance of all water and wastewater facilities (except the treatment plants), including the headworks, water and wastewater pumping stations, and combined sewer overflow facilities in eastern Massachusetts, directing the work of 117 trades staff. The trades groups includes HVAC technicians, Electricians, M&O specialists, Machinists, Welders, Plumbers, Building and Grounds, Painters, Carpenters, Masons, and Metering field staff.

### Selection Process

The position was posted both internally and externally and a total of 11 candidates applied, nine internal and two external. Of the 11, five internal candidates were identified as meeting the qualifications for the position and all five were referred for interviews. The five candidates were interviewed by the Deputy Chief Operating Officer, the Director of Metro Operations, the Director of Wastewater O & M, and a representative from MWRA's Affirmative Action and Compliance Unit. Upon completion of the interviews, Mr. Daniel P. Keough was selected as the best candidate for the position based upon his, knowledge, skills, experience, and education.



Mr. Keough has more than 31 years of experience in the operations and maintenance field, 23 of which have been at MWRA. He began his tenure at MWRA in 1991 as a Diesel Power Plant Operator, and since that time has held a number of other positions of increasing responsibility, including Power and Pump Plant Operating Engineer, Maintenance Specialist, Planning/Scheduling Coordinator, and Area Manager.

Mr. Keough spent a significant portion of his time as a key member of the maintenance team at the Deer Island Treatment Plant. As an Area Manager, Mr. Keough managed all aspects of the maintenance program relative to preventative, corrective, predictive, and emergency-based maintenance activities in the Residuals and Liquid Train areas of the plant. As a Planner/Scheduler he developed an extensive knowledge of MWRA's computerized maintenance management system (MAXIMO). He has demonstrated a good understanding of the maintenance work flow (work orders) utilizing MAXIMO to electronically monitor maintenance activities. His understanding of the importance of monitoring and tracking metrics, such as backlog, kitting, and compliance, is an important component of leading a productive, motivated maintenance department.

Mr. Keough currently holds the position of Program Manager, Trades Maintenance in the Metropolitan (East) Maintenance Department, where he manages mechanical trades whose primary responsibilities focus on preventative, corrective, predictive, and emergency maintenance. He is responsible for implementing maintenance efficiency improvements, supporting operational needs, staff assignments, staff training, and budget management.

Mr. Keough earned a Bachelor of Science degree in Project Management from Wentworth Institute of Technology. He is a Certified Reliability Centered Maintenance Facilitator, and is certified in MAXIMO Computerized Maintenance Management Software applications.

**BUDGET/FISCAL IMPACT:**

There are sufficient funds for this position in the FY15 Current Expense Budget. Mr. Keough's current salary as Program Manager, Trades Maintenance (Unit 9, Grade 29) is \$111,299; the recommended salary of \$118,000 is commensurate with this important position, its accompanying broad maintenance responsibilities, and Mr. Keough's skill, abilities and experience.

**ATTACHMENTS:**

Resume of Daniel P. Keough  
Position Description  
Organization Chart



## DANIEL P. KEOUGH

### PROFILE:

- Experienced Operations & Maintenance professional with over 31 years experience in both the public and private domain, including the military
- 2014 Graduate, Magna Cum Laude, Bachelor of Science, Project Management, Wentworth Institute of Technology
- Strong Facilitation, Communication Verbal and Written skills
- Former Reliability Centered Maintenance Coordinator for The Deer Island Treatment supporting the overall Facility Assets Management Program (FAMP) Initiative
- Experienced Reliability Centered Maintenance Facilitator at the Massachusetts Water Resources Authority
- Manage, coordinate and direct staff consisting of one Water and Wastewater Supervisor, one Plumbing Operations Supervisor, three Unit Supervisors, fifteen M&O Specialists, eight Plumber/Pipefitters, one Tool Maker, one Master Welder, one Welder/Metal Fabricator
- Extensive supervisory experience at Deer Island Treatment Plant, Massachusetts Water Resources Authority (MWRA), Field Operations Division, MWRA and in the United States Coast Guard
- Highly developed application skills in reading schematics, diagrams, blueprints, manuals, and utilizing them to perform troubleshooting operational tasks
- Highly developed cross-functional ability as demonstrated through both operations and maintenance assignments at the Deer Island Treatment Plant MWRA, and the Field Operations Division MWRA
- Computer experience in Microsoft Word, Access, Excel, MAXIMO (CMMS), Reliability Centered Maintenance software, and Condition Monitoring Program

### PROFESSIONAL EXPERIENCE:

#### **Massachusetts Water Resources Authority, Field Operations Division**

##### *Program Manager Trades Maintenance*

*October, 2008 – Present*

- Manages all aspects of the Maintenance Program relative to preventive, predictive, corrective, emergency, project, condition based maintenance activities for the Field Operations Division
- Manage the efficient and effective maintenance of MWRA's water pumping stations, wastewater pumping stations, combined sewer overflow (CSO) facilities, and headworks facilities
- Manage, train and assign maintenance personnel who perform tasks related to maintenance and construction
- Review assigned employee performance according to MWRA procedures
- Prepare, manage, and oversee contracts and purchase orders for the repair and purchase of maintenance equipment
- Develop the Current Expense Budget (CEB) for project work, training, and material purchases
- Approve and track spending, justify variances from budget
- Oversee expansion and proper utilization of spare parts inventory
- Support efforts of the Facility Assets Management System (FAMP)
- Support The Reliability Centered Maintenance (RCM) process
- Generate inspection lists and maintenance reporting through the Computerized Maintenance Management System (CMMS)
- Assist in the development and administration of condition monitoring programs such as vibration analysis, load bank testing, thermography, oil analysis, acoustic ultrasonic testing
- Provide technical input for major maintenance projects and review new construction proposals to ensure maintainability
- Follow established Safety, Operating and Emergency Response procedures and policies

##### *Area Manager*

*October, 2003 – October, 2008*

- Manage all aspects of the Maintenance Program relative to preventive, predictive, corrective, project, and condition based maintenance activities at the Deer Island Treatment Plant Residuals and Liquid Train Areas, Digester Complex, Gravity Thickener Complex, Scum Screening Complex, Centrifuge Thickening Complex, Primary Clarifier Complex, Secondary Clarifier Complex, Grit Removal Complex, Odor Control Facilities, Cryogenic Oxygen Generation Facility, Oxygen Reactor Facility, Disinfection Facility
- Complete assigned employee performance reviews
- Manage maintenance activities (labor, materials, services), monitor performance against operational needs and requests

- Manage, train and assign maintenance personnel who perform tasks related to maintenance and construction
- Prepared budget for assigned operational area, and monitor performance against approved budget of \$2.7 million.
- Approve and track spending, justify variances from budget
- Oversee selection and proper utilization of spare parts inventory
- Review, monitor, evaluate work performed, and recommend improvements on systems, equipment, techniques, and procedures
- Manage and coordinate contracts of outside contract services including Cryogenics Facility, Disinfection Basin Mixer Replacement, and Oxygen Reactor Aerator Gear Box Refurbishment
- Provide technical input for major maintenance projects and review new construction proposals to ensure maintainability
- Recommend upgrades to plant equipment and facilities to ensure continued optimal operation
- Complete assigned employee performance reviews
- Follow established Safety, Operating and Emergency Response procedures and policies
- Design, write, review and implement policies and procedures with maintenance, operations and the Massachusetts Water Resources Authority

**Planning/Scheduling Coordinator**

*January, 2002 – October, 2003*

- Manage/Facilitate planning meetings to plan critical work with Unit Supervisors and Area Manager to support plant operational needs
- Coordinate and implement Reliability Centered Maintenance recommendations in the field and in MAXIMO (CMMS)
- Coordinate the availability of necessary staff, equipment, materials and facility operational availability to complete the necessary Preventive/Corrective maintenance
- Follow established Safety, Operating and Emergency Response procedures and policies
- Initiates, purchase requests for tools, parts, and service utilizing MAXIMO (CMMS) Lawson interface
- Monitor work order backlog, staffing requirements, staffing capabilities and prepare work schedules based upon priorities and available staff and materials
- Implement special instructions and considerations, review work completion status, and review future job plans for future job planning
- Record, document, track, trend and report results for MAXIMO (CMMS) to Senior Management
- Assist Engineering, Maintenance, Operational and Central Support staff with preparation of Preventive Maintenance and Predictive Maintenance work orders
- Design, write, review and implement policies and procedures with maintenance, operations and the Massachusetts Water Resources Authority
- Coordinate design/operational recommendations for ongoing system improvements

**Maintenance Specialist**

*December, 1996 - January, 2002*

- Inspect, maintain, troubleshoot, repair and install mechanical, pneumatic, and hydraulic equipment working from manufacturer's manuals and specifications, blueprints, schematics, and verbal instructions in various process areas of the Deer Island Treatment Plant
- Perform preventive, predictive, and corrective maintenance on equipment, documenting/reporting results in MAXIMO (CMMS)
- Work with the operations and maintenance teams in the Residuals Area, ensure that equipment is available for plant operations

**Power and Pump Plant Operating Engineer**

*September, 1993 – December, 1996*

- Supervised four diesel power plant operators, prepared and submitted operational logs, including reports of engine malfunctions together with observations and recommendations
- Supervised and participated in operating the appropriate number of units required to meet the pumping and power demands of the plant
- Executed necessary action in emergencies to avert any shut downs or equipment damage
- Operated large dual-fuel engines for power and pumping
- Synchronized newly started generating units and divided the load among operating generators
- Trained subordinates in plant power distribution and generating equipment, and operational principles of pumps, boilers, air compressors, pneumatic controls and valves

**Diesel Power Plant Operator**

*December, 1991 – September, 1993*

- Responsible for the oversight of the major pumping station for the Metropolitan Boston Sewer System
- Started, stopped and operated 16 cylinder Delavall diesel engine generators for power distribution, 1800 H.P. electric motors for proper sewage flow maintenance, and 12 cylinder Nordberg diesel engines
- Inspected all assigned equipment, i.e. air compressors, air driers, Cleaver Brooks boilers, condensate tanks and pumps, deaerator tanks and pumps, feed water pumps, chemical feed
- Transferred fuel oil from fuel farm to underground fuel tank
- Thorough knowledge of all related systems with ability to take immediate corrective action during normal and emergency operations

**TRAINING AND EDUCATION:**

- 2014 Graduate, Magna Cum Laude, Bachelor of Science, Project Management, Wentworth Institute of Technology
- Member Tau Alpha Phi, National Honors Society, Wentworth Institute of Technology
- Dean's list Wentworth Institute of Technology
- Certified Reliability Centered Maintenance Facilitator
- Completed 10 day 100 hour course on Reliability Centered Maintenance Facilitator Course provided by Spearhead Associates
- Completed 3 day 24 hour course on Reliability Centered Maintenance team course provided by Spearhead Associates
- Certified in MAXIMO Computerized Maintenance Management Software applications
- Certified Machinery Technician, United States Coast Guard

**United States Coast Guard – Active Duty and Reserves**

*April, 1983 – April, 1992*

**ACCOMPLISHMENTS**

- Prepared and presented paper and PowerPoint presentation on Reliability Centered Maintenance/Best Practices at SMRP Conference, Nashville, Tenn.
- Prepared and presented paper and PowerPoint presentation on Reliability Centered Maintenance/Best Practices at NEWEA Conference, Boston, Ma.
- Initiated the Thickened Primary Sludge (TPS) pump replacement project Deer Island Treatment Plant
- Initiated and implemented the upgrade of the Chemical delivery piping systems in the Residuals Gas Handling Facility, Residuals Odor Control Facility, East Odor Control Facility, and West Odor Control Facility Deer Island Treatment Plant
- Initiated and implemented the upgrade and overhaul of the Gravity Thickener tank scum system Deer Island Treatment Plant
- Initiated and implemented the replacement of Emergency Eyewash showers in the Sodium Hypochlorite Tank Farm, the work included converting an abandoned W3 piping system into a Tempered Water system Deer Island Treatment Plant
- Initiated and implemented installation of Sodium Hypochlorite bypass delivery piping system Deer Island Treatment Plant
- Initiated and Implemented Contract S-457 Disinfection Mixer Replacement Project, Wrote Scope of Services, reviewed bid proposals, Wrote Qualification memo and Staff Summary Deer Island Treatment Plant
- Completed the Primary Clarifier Wear Shoe replacement project Deer Island Treatment Plant
- Initiated and implemented the upgrade and overhaul of the Grit Collection System at Sewerage Headworks of the MWRA service area in Boston
- Initiated and implemented the upgrade of the chemical delivery piping systems at the Chelsea Creek and the Nut Island Headworks Odor Control Facilities, Field Operations Division, Metro East



**MWRA  
POSITION DESCRIPTION**

**POSITION:** Manager, Maintenance

**PCR#:**

**DIVISION:** Operations

**DEPARTMENT:** Field Operations, Wastewater O&M

**BASIC PURPOSE:**

Manages the maintenance group's activities to ensure proper planning and completion of maintenance work necessary to meet operational needs and asset preservation requirements of the 45 water and wastewater facilities in the Metropolitan-Boston area. Required to be on-call for emergencies.

**SUPERVISION RECEIVED:**

Works under the general supervision of the Director, Wastewater Operations and Maintenance.

**SUPERVISION EXERCISED:**

Exercises close supervision over the assigned Program Managers, Work Coordination Manager, Contract Services Group and maintenance line staff. In his/her absence, Acts as Director, Wastewater O&M.

**ESSENTIAL DUTIES AND RESPONSIBILITIES:**

- Manages Program Managers and maintenance line staff to ensure proper assignment and functioning of the work unit.
- Reviews, monitors and evaluates work performed in facilities and recommends appropriate improvements in equipment, techniques and procedures.
- Manages the Work Coordination Group. Ensures that the MAXIMO system and Work Coordination Group are delivering the necessary information and services required to meet day-to-day maintenance planning and work needs for Field Operations.
- Works with the Directors, Senior. Program Managers, Program Managers and Engineering groups to develop long range maintenance strategies, capital program projects expenses and required maintenance projects.

- Works closely with the Work Coordination, Operations, Engineering, and other FOD Managers to provide cost effective maintenance services ensuring optimum facility performance.
- Manages department-wide efforts to track and improve crew efficiency and accountability in Field Operations.
- Manages the Maintenance staff implementation of the Reliability Centered Maintenance strategy.
- Submits annual organizational and personnel recommendations for the maintenance group to the Director, Wastewater O&M and Director FOD.
- Continually reviews staff training requirements and takes the necessary steps to insure proper development and delivery of the training programs by the Training group; assists with managerial and supervisory training.
- Manages the development of the Maintenance Group's budget, audits individual manager's performance to budget, identifies variances and works with individuals to explain variances and take corrective action to minimize.
- Advises engineering personnel relative to the resolution of technical maintenance problems within the Facility.
- Approves daily allocation of personnel based on priorities established by the planning and scheduling group, and Water and Wastewater Operations.
- Reviews work back log and takes corrective action to minimize.
- Establishes accountability and efficiency programs, goals and benchmarks for the metropolitan maintenance unit.
- Uses Maximo to the fullest extent possible to plan, track and evaluate work efforts.
- With the assistance of the Snr. Program Manager and Work Coordination Manager, obtains, reviews and analyzes data on work performed by staff; develops appropriate benchmarks and reports on significant trends with recommendations for appropriate action.
- With the assistance of the Senior Program Manager, establishes maintenance service contract requirements, develops the appropriate Scope of Services and budgets, and manages contracted maintenance services as required.
- Develops and audits standard work procedures.
- Utilizes personal computers, data terminals, and special applications software to perform related duties such as work scheduling, inventory maintenance, etc.

- Promotes the MWRA safety program by supporting the supervisors' weekly safety meetings, attending/supporting the monthly safety committee meetings, keeping informed of the crews' safety records and formally investigating accidents with the assistance of the Safety Group.
- Reviews assigned employees' performance per MWRA procedures.
- Acts as liaison and promotes harmonious relations with other maintenance units, vendors and MWRA departments.
- Administers the application of collective bargaining provisions and personnel policies in the work place. Serves as Step I grievance Hearing Officer.
- Participates in the Emergency Operations Center (EOC) staffing for emergency response as required.
- Acts as a back-up to the Director, Wastewater O&M in his absence.

**SECONDARY DUTIES:**

- Assists employees with preparation of injury/illness reports, safety and maintenance work orders, and assure that they keep high quality, accurate related documents and records.
- Assists in maintaining harmonious labor management relations through proper applications of collective bargaining agreement provisions and established personnel policies.
- Promotes and participates in the cross-functional work practices.
- Performs other related duties as required.

**MINIMUM QUALIFICATIONS:**

Education and Experience:

- (A) A BS in Engineering, Facilities Management or related discipline; and
- (B) Ten (10) to twelve (12) years of maintenance management experience of which five (5) to seven (7) years must be in the management of a large maintenance workforce.
- (C) Any equivalent combination of education and experience.

Necessary Knowledge, Skills and Abilities:

- (A) Working knowledge of the maintenance, repair, and replacement of equipment with a large water or wastewater treatment plant or liquid processing facility.



- (B) Ability to plan, organize, direct, train and assign work through subordinate supervisors, and to maintain a harmonious work environment.
- (C) Ability to learn and use maintenance related computer software.

**SPECIAL REQUIREMENTS:**

A valid Massachusetts Class D Motor Vehicle Operators License.

A valid Grade 6 wastewater operator's license or 4D Drinking Water Supply Facilities Operators license preferred.

**TOOLS AND EQUIPMENT USED:**

Mobile radio, telephone, personal computer including word processing and other software, copy and fax machine.

**PHYSICAL DEMANDS:**

The physical demands described here are representative of those that must be met by an employee to successfully perform the essential functions of this job. Reasonable accommodations may be made to enable individuals with disabilities to perform the essential functions.

While performing the duties of this job, the employee is regularly required to use hands to finger, handle, feel or operate objects, tools, or controls and reach with hands and arms. The employee occasionally is required to sit, stand and walk. The employee is frequently required to climb or balance; stoop, kneel, crouch, or crawl; taste or smell.

The employee must frequently lift and/or move up to 10 pounds and occasionally lift and/or move up to 25 pounds. Specific vision abilities required by this job include close vision, distance, color vision, peripheral vision, depth perception, and the ability to adjust focus.

**WORK ENVIRONMENT:**

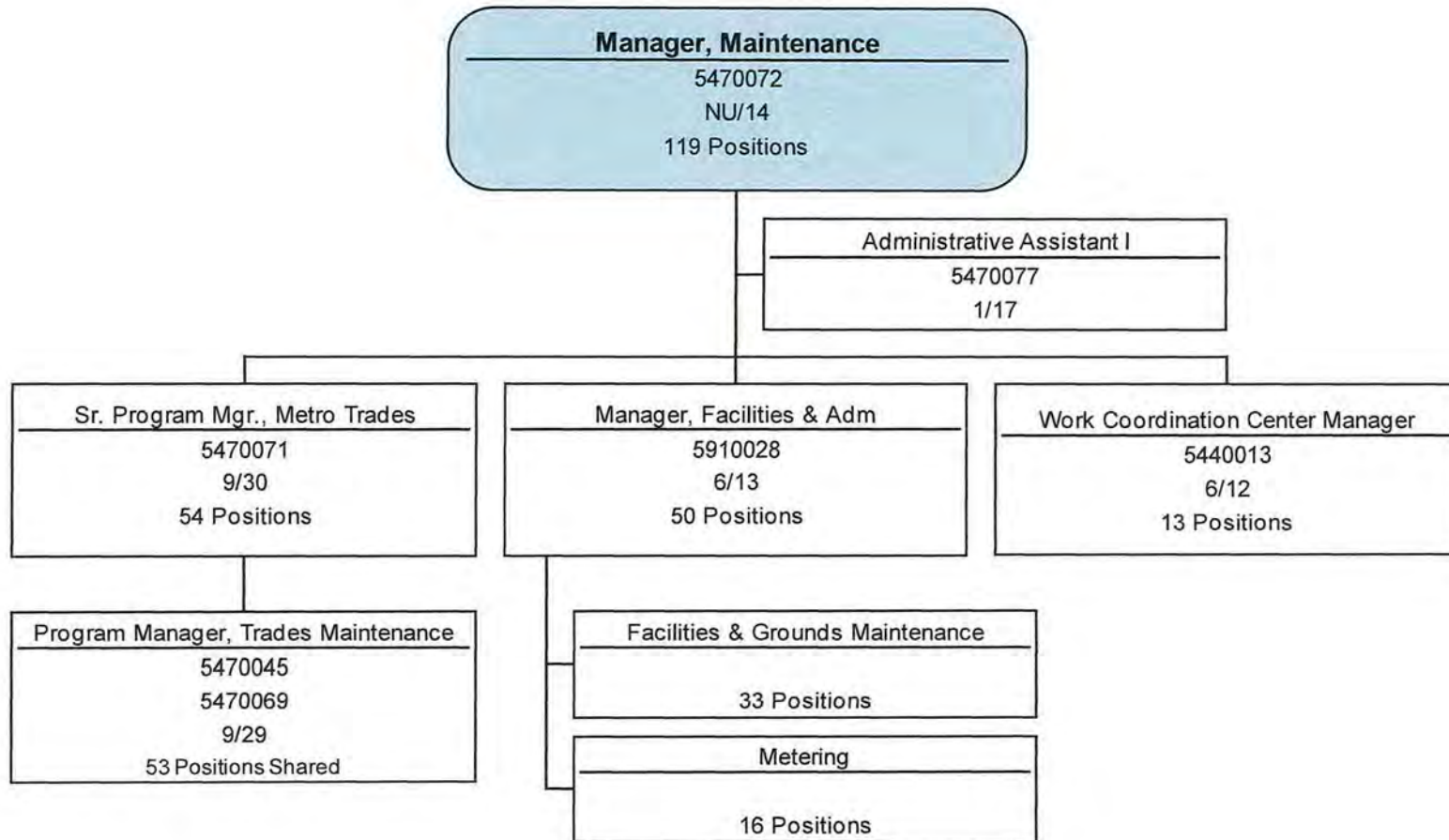
The work environment characteristics described here are representative of those an employee encounters while performing the essential functions of this job.

While performing the duties of this job, the employee regularly works in an office environment. The employee occasionally works in outside weather conditions. The employee occasionally works near moving mechanical parts and is occasionally exposed to wet and/or humid conditions and vibration. The employee occasionally works in high, precarious places and is occasionally exposed to fumes or airborne particles, toxic or caustic chemicals, and risk of electrical shock.

The noise level in the work environment is usually loud in field settings and moderately quiet in office settings.

Operations - Wastewater O&M  
Metro Maintenance - Summary

March 2015





# MASSACHUSETTS WATER RESOURCES AUTHORITY

Charlestown Navy Yard  
100 First Avenue, Building 39  
Boston, MA 02129

Frederick A. Laskey  
Executive Director

Telephone: (617) 242-6000  
Fax: (617) 788-4899  
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*Chair:* M. Beaton  
*Vice-Chair:* J. Carroll  
*Secretary:* J. Foti  
*Board Members:*  
K. Cotter  
P. Flanagan  
A. Pappastergion  
H. Vitale  
J. Walsh  
J. Wolowicz

## **BOARD OF DIRECTORS' MEETING**

to be held on

Wednesday, March 11, 2015

Location: 100 First Avenue, 2nd Floor  
Charlestown Navy Yard  
Boston, MA 02129

Time: 1:00 p.m.

## **AGENDA**

- I. **APPROVAL OF MINUTES**
- II. **REPORT OF THE CHAIR**
- III. **REPORT OF THE EXECUTIVE DIRECTOR**
  - A. **Presentation:** MWRA's Dam Safety Program
- IV. **BOARD ACTIONS**
  - A. **Approvals**
    1. Transmittal of Proposed FY16 Current Expense Budget (ref. AF&A B.1)
    2. Approval of Investment Policy (ref. AF&A B.2)
    3. Final CSO Annual Progress Report for 2014 (ref. WW B.1)
    4. 2015 Affirmative Action Plan (ref. P&C B.1)
    5. PCR Amendments – March 2015 (ref. P&C B.2)
    6. Appointment of Director, Internal Audit (ref. P&C B.3)
    7. Appointment of Manager, Benefits and HRIS (ref. P&C B.4)
    8. Appointment of Senior Program Manager, Valves, Operations Division (ref. P&C B.5)
    9. Appointment of Manager, Maintenance, Metro East, Operations Division (ref. P&C B.6)



**B. Contract Awards**

1. Adams Street Grade Crossing and Cattlepass Bridge: Contract FRR29, LM Heavy Civil Construction, LLC (ref. AF&A C.1)
2. Modeling Massachusetts Bay Water Quality 2014-2016: University of Massachusetts/Dartmouth, Contract OP-272 (ref. WW C.1)
3. Purchase Order for Three Jet/Sewer Cleaning Machines: Boston Freightliner, Inc., Bid WRA-3971 (ref. WW C.2)
4. Community Leak Detection Task Order Services: Liston Utility Services, Contract W298; and Wachs Water Services, Contract W298A (ref. W B.1)

**C. Contract Amendments/Change Orders**

1. Pump, Gear Box, and Diesel Engine Upgrade, Prison Point and Cottage Farm CSO Facilities: IPC Lydon, LLC, Contract 7452, Change Order 7 (ref. WW D.1)
2. Operation and Maintenance of Sludge Processing Facility - Fore River Pelletizing Plant: New England Fertilizer Co., Contract S345, Amendment 1 (ref. WW D.2)

**V. CORRESPONDENCE TO THE BOARD**

**VI. OTHER BUSINESS**

**VII. EXECUTIVE SESSION**

**A. Litigation:**

1. Estate of Marie Stewart: Mediation Update

**VIII. ADJOURNMENT**

MASSACHUSETTS WATER RESOURCES AUTHORITY

**Meeting of the Board of Directors**

**January 14, 2015**

A meeting of the Board of Directors of the Massachusetts Water Resources Authority was held on January 14, 2015 at the Authority headquarters in Charlestown. Chairman Beaton presided. Present from the Board were Ms. Wolowicz and Messrs. Barrera, Cotter, Flanagan, Foti, Pappastergion, Vitale, and Walsh. Mr. Carroll was absent. Among those present from the Authority staff were Frederick Laskey, Executive Director, Steven Remsberg, General Counsel, Michael Hornbrook, Chief Operating Officer, Elizabeth Reilly, Director of Environmental Quality, Kenneth Keay, Program Manager, Water Quality, and Bonnie Hale, Assistant Secretary. The meeting was called to order at 1:00 p.m.

**APPROVAL OF MINUTES**

Upon a motion duly made and seconded, it was

Voted to approve the minutes of the Board of Directors' meeting of December 17, 2014, as presented and filed with the records of the meeting.

**REPORT OF THE CHAIR**

Chairman Beaton introduced himself, said he was honored to be serving on the Board of Directors, and looked forward to working with fellow Board members.

**REPORT OF THE EXECUTIVE DIRECTOR**

Mr. Laskey presented a plaque to departing Board member Joel Barrera, who was leaving MAPC to serve as Governor Baker's Deputy Chief of Staff. He noted in particular the Aqueduct Trails Program as a great achievement and one of Mr. Barrera's

biggest legacies. Next, Mr. Laskey noted the departure of Rachel Madden who would also be serving on Governor Baker's staff as Undersecretary of Administration and Finance. He noted how highly regarded MWRA was in the financial world, and said that much of that was due to Ms. Madden's acumen and integrity. Board members and staff joined Mr. Laskey in thanking Mr. Barrera and Ms. Madden for their service and wishing them well in their future endeavors.

## BOARD ACTIONS

### APPROVALS

Upon an omnibus motion duly made and seconded, the following eight personnel-related actions were unanimously approved.

#### PCR Amendments – January 2015

Voted to approve amendments to the Position Control Register, as presented and filed with the records of the meeting.

#### Appointment of Director, Finance

Voted to approve the Executive Director's recommendation to appoint Mr. Thomas J. Durkin to the position of Director of Finance (Non-Union, Grade 17) at an annual salary of \$150,000 to be effective on the date designated by the Executive Director.

#### Appointment of Director, Administration

Voted to approve the Executive Director's recommendation to appoint Ms. Michele S. Gillen to the position of Director of Administration, Administration Division (Non-Union, Grade 17) at an annual salary of \$144,000 to be effective on the date designated by the Executive Director.



Appointment of Treasurer

Voted to approve the Executive Director's recommendation to appoint Mr. Matthew Horan to the position of Treasurer (Non-Union, Grade 16) at an annual salary of \$117,000 to be effective on the date designated by the Executive Director. Further, in accordance with Article IV, Section 1 of the by-laws, to appoint Matthew Horan as Treasurer of the Authority.

Appointment of Director, Procurement

Voted to approve the Executive Director's recommendation to appoint Mr. John E. Sabino to the position of Director of Procurement, Administration Division (Non-Union, Grade 16) at an annual salary of \$140,000 to be effective on the date designated by the Executive Director.

Appointment of Program Manager, Engineering and Construction

Voted to approve the Executive Director's recommendation to appoint Ms. Geetha Mathiyalakan, Ph.D., P.E. to the position of Program Manager in the Engineering and Construction Department (Unit 9, Grade 29) at an annual salary of \$111,298.86, to be effective on the date designated by the Executive Director.

Appointment of Senior Program Manager, Western Operations

Voted to approve the Executive Director's recommendation to appoint Mr. George C. Norregaard (Unit 6, Grade 12) to the position of Senior Program Manager, Western Operations, Operations Division (Unit 9, Grade 30) at an annual salary \$115,942.44, effective January 17, 2015.

Appointment of System Administrator III, MIS

Voted to approve the Executive Director's recommendation to appoint Mr. Syrus Ataii to the position of Systems Administrator III, MIS Department (Unit 6,

Grade 12) at an annual salary of \$101,615.86, to be effective on the date designated by the Executive Director.

CONTRACT AMENDMENTS/CHANGE ORDERS

Nut Island Headworks Electrical and Conveyors Improvements: J.F. White Contracting Co., Contract 7313, Change Order 5

Upon a motion duly made and seconded, it was

Voted to authorize the Executive Director, on behalf of the Authority, to approve Change Order 5 to increase the amount of Contract 7313 with J.F. White Contracting Co., Nut Island Headworks Electrical and Conveyors Improvements, for a lump sum amount of \$28,364, with no increase in contract term; and to authorize the Executive Director to approve additional change orders as may be needed to Contract 7313 in amounts not to exceed the aggregate of \$250,000, in accordance with the Management Policies and Procedures of the Board of Directors.

OTHER BUSINESS

2013 Deer Island Outfall Monitoring Overview

Staff from the Environmental Quality Department gave a presentation depicting and summarizing MWRA's monitoring of the environmental effects of the effluent discharges from the Deer Island Treatment Plant for 2013. The monitoring plan continued to capture important ecological events in Massachusetts and Cape Cod Bays, and no adverse impacts from the outfall were found.

EXECUTIVE SESSION

It was moved to enter executive session to discuss litigation and real estate.

Upon a motion duly made and seconded, it was, upon a roll call vote in which the members were recorded as follows:

Yes

No

Abstain

Barrera  
Cotter  
Flanagan  
Foti  
Pappastergion  
Vitale  
Walsh  
Wolowicz  
Beaton

Voted to enter executive session for the purpose of discussing strategy with respect to litigation and to consider the purchase, exchange, lease or value of real property, in that such discussions in open session may have a detrimental effect on the litigating and negotiating positions of the Authority.

It was stated that the meeting would return to open session solely for the consideration of adjournment.

\* \* \* \*

EXECUTIVE SESSION

\* \* \* \*

The meeting returned to open session at 1:55 p.m. and adjourned.