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: H. Vitale
Vice-Chair: A. Pappastergion
Committee Members:
A. Blackmon
J. Carroll
K. Cotter
J. Foti
B. Pena
J. Walsh

to be held on

Wednesday, February 10, 2016

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 2016
2. Second Quarter FY16 Orange Notebook
3. Fiscal Year 2016 Mid-Year Capital Improvement Program Spending Report
4. FY16 Financial Update and Summary as of January 2016
5. Assessment Smoothing at the Utility Level
6. Preliminary FY17 Water and Sewer Assessments

B. Approvals

1. FY17 Proposed Current Expense Budget
2. Approval of the Seventy Second Supplemental Resolution
3. Assignment and Consent to Assignment, Stantec Consulting Services, Inc.

C. Contract Awards

1. Miscellaneous Fencing: Premier Fence LLC, Contract 6760X

MASSACHUSETTS WATER RESOURCES AUTHORITY

Meeting of the
Administration, Finance and Audit Committee

January 13, 2016

A meeting of the Administration, Finance and Audit Committee was held on January 13, 2016 at the Authority headquarters in Charlestown. Chairman Vitale presided. Present from the Board were Ms. Wolowicz and Messrs. Blackmon, Carroll, Cotter, Flanagan, Foti, Pappastergion and Walsh. Among those present from the Authority staff were Fred Laskey, Steve Remsberg, Mike Hornbrook, Michele Gillen, Kathy Soni, Tom Durkin, Carolyn Fiore, Matt Horan, and Bonnie Hale. The meeting was called to order at 11:10 p.m.

Information

Delegated Authority Report – December 2015

Staff gave a presentation on the Manhole Rehabilitation Program, one of the projects referenced in the report

FY16 Year-to-Date Financial Update and Summary

Staff summarized the highlights of the report, and there was general discussion and question and answer.

Contract Awards

Selection of Underwriters: Contract F237

Staff described the competitive selection process, and there was general discussion and question and answer. The Committee recommended approval of the selection of multiple underwriters, as referenced in the staff summary (ref. agenda item B.1).

The meeting adjourned at 11:40 a.m.

* Approved as recommended at January 13, 2016 Board of Directors meeting.

STAFF SUMMARY

TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director
DATE: February 10, 2016
SUBJECT: Delegated Authority Report – January 2016

COMMITTEE: Administration, Finance & Audit

X INFORMATION
___ VOTE

Michele S. Gillen
Director, Administration

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

Carolyn Francisco Murphy
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 – 31, 2016.

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, 2016

NO.	DATE OF AWARD	TITLE AND EXPLANATION	CONTRACT	AMEND/CO	COMPANY	FINANCIAL IMPACT
C-1.	01/11/16	**DAM SAFETY COMPLIANCE AND CONSULTING SERVICES** ADDITIONAL LEVEL OF EFFORT NEEDED TO DESIGN NECESSARY REPAIRS AT CHESTNUT HILL RESERVOIR GATEHOUSE #1 AND EXTEND CONTRACT TERM BY SIX MONTHS FROM FEBRUARY 26, 2016 TO AUGUST 26, 2016.	OP-228	1	GZA GEOENVIRONMENTAL, INC.	$40,000.00
C-2.	01/19/16	**NORTH MAIN PUMP STATION VARIABLE FREQUENCY DRIVE AND SYNCHRONOUS MOTOR REPLACEMENT DEER ISLAND TREATMENT PLANT** PERFORM ORIGINAL EQUIPMENT MANUFACTURER MAINTENANCE ON THE VARIABLE FREQUENCY DRIVE ELECTRICAL ROOM CHILLER SYSTEM; SAW-CUT AND REMOVE AN ADDITIONAL FOUR-INCHES OFF THE EXISTING CONCRETE SLAB FLOOR TO PLACE THE GRADE BEAMS; REPROGRAM THE MOTOR LUBE OIL SKIDS TO PROVIDE ALTERNATOR CONTROL; REPROGRAM THE ENERGY MONITORING FOR THE VFDs TO COMMUNICATE TO PICS.	6903	12	J.F. WHITE CONTRACTING COMPANY	$64,863.71

PURCHASING DELEGATED AUTHORITY ITEMS - January 1 - 31, 2016

NO.		TITLE AND EXPLANATION	CONTRACT #	AMENDMENT	COMPANY	FINANCIAL IMPACT
P-1.	1/4/16	**PHARMACEUTICAL ANALYSIS** AWARD OF A TWO-YEAR PURCHASE ORDER TO THE LOWEST RESPONSIVE BIDDER TO PROVIDE PHARMACEUTICAL ANALYSIS FOR THE CENTRAL LAB AT DEER ISLAND. FOR THE PERIOD OF FEBRUARY 9, 2016 TO FEBRUARY 8, 2018. AS PART OF THE TOXIC REDUCTION AND CONTROL'S (TRAC) INDUSTRIAL PRETREATMENT PROGRAM, INDUSTRIAL WASTEWATER SAMPLES ARE COLLECTED FROM SIGNIFICANT DISCHARGERS INTO MWRA'S SEWER SYSTEM. THE SPECIFIC LIST OF CHEMICALS AND THE LABORATORY METHODS ARE REQUIRED BY EPA PHARMACEUTICAL REGULATION. DUE TO THE RELATIVELY SMALL NUMBER OF SAMPLES AND THE COMPLEXITY OF THE LABORATORY METHODS, MWRA HAS CHOSEN TO CONTRACT OUT THIS WORK TO A LABORATORY WITH THIS SPECIFIC CAPABILITY.	WRA-4126Q		TEKLAB, INC.	$26,250.00
P-2.	1/4/16	**TWO 24-INCH HORIZONTAL GATE VALVES** AWARD OF A PURCHASE ORDER TO THE LOWEST RESPONSIVE BIDDER FOR TWO 24-INCH, HORIZONTAL GATE VALVES. AS PART OF ITS OVERALL MAINTENANCE AND OPERATION OF THE METROPOLITAN WATER SYSTEM, MWRA REPLACES APPROXIMATELY 20 MAIN LINE VALVES OF VARYING SIZE EACH YEAR. TO ENSURE THAT THE PROPER SIZED VALVE IS ALWAYS AVAILABLE TO MINIMIZE DOWN TIME AND TO BE ABLE TO IMMEDIATELY RESPOND IN THE EVENT OF A SUDDEN BREAK IN SERVICE, VALVES OF VARIOUS DIMENSIONS ARE STOCKED AT THE CHELSEA FACILITY. THESE VALVES ARE USED AS-NEEDED TO COMPLETE PIPELINE PROJECTS.	WRA-4141Q		BILLERICA WINWATER WORKS, CO.	$28,406.00
P-3.	1/4/16	**ANNUAL MAINTENANCE AND SUPPORT OF CRYSTAL REPORTS/BUSINESS OBJECTS BUSINESS INTELLIGENCE SUITE** AWARD OF A PURCHASE ORDER TO THE LOWEST RESPONSIVE BIDDER FOR THE RENEWAL OF THE MAINTENANCE AND SUPPORT CONTRACT FOR CRYSTAL REPORTS/BUSINESS OBJECTS BUSINESS INTELLIGENCE SUITE. CRYSTAL REPORTS/BUSINESS OBJECTS BUSINESS INTELLIGENCE (BI) SUITE IS THE STANDARD REPORTING AND AD-HOC QUERY TOOL FOR THE AUTHORITY AND IS USED FOR LAWSON, MAXIMO, PLANT INFORMATION (PI) SYSTEM, HELPLINE, PRETREATMENT INFORMATION MANAGEMENT SYSTEM (PIMS) AND LABORATORY INFORMATION MANAGEMENT SYSTEM (LIMS). AS A PREMIUM REPORT WRITER, IT PROVIDES WEB-BASED REPORTING, QUERY AND ANALYSIS TOOLS AND IS USED AT THE MWRA TO GENERATE MULTIPLE CUSTOMIZED REPORTS.	WRA-4142Q		CARAHSOFT TECHNOLOGY CORP.	$45,213.86
P-4.	1/4/16	**TWO FIRE PUMP CONTROLLERS** AWARD OF A PURCHASE ORDER TO THE LOWEST RESPONSIVE BIDDER FOR TWO FIRE PUMP CONTROLLERS FOR THE THERMAL/POWER PLANT AT THE DEER ISLAND TREATMENT PLANT. THE TWO EXISTING FIRE PUMP CONTROLLERS IN THE THERMAL/POWER PLANT WERE INSTALLED IN THE MID-1990'S. THESE FIRE PUMP CONTROLLERS ARE A CRITICAL PART OF THE FIRE PROTECTION SYSTEM FOR THE THERMAL/POWER PLANT. THE MAIN CONTROL BOARDS IN THE EXISTING FIRE PUMP CONTROLLERS HAVE FAILED, WHICH PREVENT THE AUTOMATIC TRANSFER FOR "NORMAL" TO "EMERGENCY" POWER. IN ADDITION THE UNITS ARE APPROACHING THE END OF THEIR USEFUL LIFE AND REPLACEMENT PARTS ARE NO LONGER AVAILABLE BY THE ORIGINAL EQUIPMENT MANUFACTURER OR THROUGH THIRD-PARTY VENDORS. STAFF RECOMMENDED THAT BOTH FIRE PUMP CONTROLLERS BE REPLACED.	WRA-4061		VALVE INDUSTRIES, INC.	$56,508.00
P-5.	1/6/16	**TRASH REMOVAL** AWARD OF A TWO-YEAR PURCHASE ORDER TO THE LOWEST RESPONSIVE BIDDER FOR TRASH REMOVAL SERVICES AT THE DEER ISLAND TREATMENT PLANT. FOR THE PERIOD OF JANUARY 1, 2016 TO DECEMBER 31, 2017. THE SCOPE OF WORK UNDER THIS PURCHASE ORDER CONTRACT WILL INCLUDE REMOVAL AND DISPOSAL OF ALL WASTE MATERIAL THAT IS NOT RECYCLED. IN ADDITION TO TRASH REMOVAL, MWRA ACTIVELY PARTICIPATES IN RECYCLING EFFORTS AT DEER ISLAND. THE WASTE COLLECTED IS DISPOSED OF IN A LANDFILL LICENSED TO RECEIVE NON-HAZARDOUS WASTE; HAZARDOUS WASTE MATERIALS ARE REMOVED FROM DEER ISLAND UNDER A SEPARATE CONTRACT.	WRA-4132		CASELLA WASTE SYSTEMS	$141,402.05
P-6.	1/11/16	**PROVIDE TOTAL PETROLEUM HYDROCARBONS TESTING** AWARD OF A PURCHASE ORDER TO THE LOWEST RESPONSIVE BIDDER TO PROVIDE TOTAL PETROLEUM HYDROCARBONS TESTING FOR THE CENTRAL LABORATORY AT THE DEER ISLAND TREATMENT PLANT. AQUEOUS SAMPLES OF VARYING TYPES (SURFACE WATER, LANDFILL WELL WATER, WASTEWATER, ETC.) ARE ANALYZED FOR PETROLEUM HYDROCARBONS UTILIZING MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION METHODS. DUE TO THE LIMITED VOLUME OF SAMPLES FOR PETROLEUM HYDROCARBONS, LABORATORY MANAGEMENT CONTINUES TO RECOMMEND THAT THIS TESTING BE CONTRACTED OUT BECAUSE IT CANNOT BE PERFORMED IN-HOUSE IN A COST-EFFECTIVE MANNER.	WRA-4151Q		EUROFINS SPECTRUM ANALYTICAL, INC.	$26,361.00
P-7.	1/11/16	**DIVER ASSISTED SUCTION HARVESTING** AWARD OF A PURCHASE ORDER TO THE LOWEST RESPONSIVE BIDDER FOR DIVER ASSISTED SUCTION HARVESTING OF INVASIVE AQUATIC PLANTS AT STILLWATER BASIN IN THE WACHUSETT RESERVOIR. MWRA HAS UTILIZED DIVER ASSISTED SUCTION HARVESTING (DASH) CONTRACT SERVICES IN THE STILLWATER BASIN OF THE WACHUSETT RESERVOIR SINCE 2013 TO CONTROL THE GROWTH OF EURASION WATERMILFOIL AND FANWORT, TWO EXOTIC INVASIVE AQUATIC SPECIES OF MACROPHYTE KNOWN TO AGGRESSIVELY DISPLACE NATIVE VEGETATION AND GROW TO NUISANCE DENSITIES WITH ASSOCIATED IMPAIRMENTS TO WATER QUALITY. THIS CONTRACT REQUIRES DASH SERVICES FOR TWO COMPLETE PHASES OF THE STILLWATER BASIN TO REMOVE EURASION WATERMILFOIL AND FANWORT IN THE EARLY SEASONAL GROWTH PHASE AND AGAIN IN THE LATER SEASON REGROWTH PHASE. STAFF WILL PROCURE A SEPARATE QUALITY ASSURANCE DIVING CONTRACTOR (QA DIVER) TO INSPECT THE DASH WORK ZONES WEEKLY AFTER THIS CONTRACTOR HAS REPORTED WORK COMPLETION IN THESE AREAS.	WRA-4143		AE COMMERCIAL DIVING SERVICES	$203,250.00
P-8.	1/19/16	**SKALAR AUTOANALYZER SOFTWARE UPGRADES AND DETECTOR REPLACEMENT** AWARD OF A SOLE SOURCE PURCHASE FOR SOFTWARE UPGRADES AND DETECTORS REPLACEMENT FOR THE DEPARTMENT OF LABORATORY SERVICES AUTOANALYZERS. THE DLS USES AUTOANALYZER INSTRUMENTS FOR A VARIETY OF INORGANIC PARAMETERS. DLS PERFORMS APPROXIMATELY 20,000 TESTS PER YEAR USING AN AUTOANALYZER. THE LABORATORY HAS THREE SKALAR AUTOANALYZERS, THE OLDEST OF WHICH WAS PURCHASED IN 1994. TWO ADDITIONAL SKALAR UNITS WERE PURCHASED IN 1999. ALL THREE SKALAR AUTOANALYZERS ARE CURRENTLY OPERATING ON OUTDATED 32-BIT COMPUTER SYSTEMS AND IN ORDER TO UTILIZE THE NW WINDOWS 7 64-BIT COMPUTER OPERATING SYSTEM, THE INSTRUMENTS MUST BE UPGRADED TO NEW DIGITAL DETECTORS, SOFTWARE, AND COMPUTER HARDWARE FOR EACH OF THE THREE INSTRUMENTS.			SKALAR, INC.	$135,910.00

PURCHASING DELEGATED AUTHORITY ITEMS - January 1 - 31, 2016

NO.		TITLE AND EXPLANATION	CONTRACT #	AMENDMENT	COMPANY	FINANCIAL IMPACT
P-9.	1/19/16	**ONE SPARE PUMP PULL-OUT ASSEMBLY** AWARD OF A SOLE SOURCE PURCHASE ORDER FOR ONE SPARE PUMP PULL-OUT ASSEMBLY FOR THE DELAURI PUMP STATION. THE DELAURI PUMP STATION HAS THREE MAIN WASTEWATER PUMPS, EACH WITH A CAPACITY TO PUMP 46.5 MILLION GALLONS PER DAY. THE NORMAL EXPECTED DESIGN LIFE FOR MECHANICAL EQUIPMENT IN WASTEWATER PUMPING STATIONS IS 20 YEARS. THESE PUMPS HAVE NOT BEEN REBUILT SINCE THEY WERE PLACED INTO SERVICE IN 1992. STAFF RECOMMENDED THAT MWRA PURCHASE ONE COMPLETE SPARE PUMP PULL-OUT ASSEMBLY TO HAVE ON HAND IN THE EVENT THAT A PUMP REBUILD IS REQUIRED.			HAYES PUMP COMPNAY	$238,500.00
P-10.	1/20/16	**VMWARE VSPHERE MAINTENANCE AND SUPPORT** AWARD OF A PURCHASE ORDER TO THE LOWEST RESPONSIVE BIDDER FOR MAINTENANCE AND SUPPORT OF VMWARE VSPHERE LICENSES. SINCE 2009, IN AN EFFORT TO STANDARDIZE ON A SINGLE VIRTUALIZATION ENVIRONMENT, THE MWRA HAS PURCHASED SEVENTY-SIX VMWARE LICENSES, AT DIFFERENT TIMES WITH DIFFERENT SUPPORT PERIODS. THE GOAL NOW IS TO CONSOLIDATE ALL SUPPORT PERIODS TO CO-TERMINATE ON JUNE 21, 2017 SO THAT ONE AGREEMENT CAN BE PROCESSED ANNUALLY. THE MAINTENANCE AGREEMENT FOR THE 30 LICENSES PURCHASED IN DECEMBER 2014 IS UP FOR RENEWAL AND MUST BE MAINTAINED IN ORDER TO CONTINUE TO SUPPORT MIS' VIRTUAL ENVIRONMENT. THE SERVICE PERIOD IS DECEMBER 24, 2015 THROUGH JUNE 21, 2017.	WRA-4107Q ITSSB		SHI INTERNATIONAL CORP.	$41,050.00
P-11.	1/20/16	**TEN LUBE OIL SYSTEMS** AWARD OF A PURCHASE ORDER TO THE LOWEST RESPONSIVE BIDDER FOR TEN LUBE OIL SYSTEMS FOR THE DEER ISLAND TREATMENT PLANT. EACH OF THE TEN RAW WASTEWATER PUMPS IN THE NORTH MAIN PUMP STATION IS EQUIPPED WITH THREE BEARINGS. THESE BEARINGS ARE CRITICAL TO THE OPERATION AND LIFE CYCLE OF THE PUMPS. THE LUBE OIL SKIDS ARE SELF CONTAINED UNITS THAT CIRCULATE LUBRICATING OIL FROM THE OIL RESERVOIR TO EACH OF THE BEARINGS. THE EXISTING LUBE OIL SKIDS WERE PROVIDED BY FAIRBANKS MORSE PUMPS AS PART OF THE ORIGINAL RAW WASTEWATER PUMP PACKAGE UNDER THE BOSTON HARBOR PROJECT AND ARE NOW MORE THAN 20 YEARS OLD. IN RECENT YEARS, FAILURES OF THE LUBE OIL PUMPS AND INSTRUMENTS ON THE SKIDS HAVE LED TO DOWNTIME. A FAILURE OF A LUBE OIL SKID TRANSLATES TO A PUMP BEING OUT OF SERVICE. THE NEW LUBE OIL SKIDS WILL HAVE THE PUMPS MOUNTED ON THE TOP WHICH WILL PROVIDE BETTER ACCESS FOR ROUTINE MAINTENANCE. IN ADDITION, THE INSTRUMENTATION WILL BE BETTER LOCATED FOR EASE OF INSPECTION AND MAINTENANCE.	WRA-4101		COBEY, INC.	$477,950.00
P-12.	1/29/16	**16 FLAME ARRESTER AND RELIEF VALVE INSULATION BLANKETS** AWARD OF A PURCHASE ORDER TO THE LOWEST RESPONSIVE BIDDER FOR 16 FLAME ARRESTER AND RELIEF VALVE INSULATION BLANKETS FOR THE DEER ISLAND TREATMENT PLANT. FLAME ARRESTORS AND PRESSURE/VACUUM RELIEF VALVES ARE SAFETY DEVICES THAT ARE INSTALLED IN THE DIGESTER RELIEF PIPING AND ARE DESIGNED TO PREVENT A FLAME FROM MIGRATING BACK INTO THE DIGESTER. TO PREVENT MOISTURE IN THE GAS FROM FREEZING IN THE WINTER, EACH FLAME ARRESTER AND PRESSURE/VACUUM RELIEF VALVE IS EQUIPPED WITH HEAT TRACING AND IS WRAPPED WITH A FORM-FITTED INSULATION BLANKET. BECAUSE OF THE MANY YEARS OF USE, COUPLED WITH THE EXPOSURE TO THE ELEMENTS, THE INSULATION BLANKETS HAVE, OVER TIME BECOME DEGRADED AND TORN, AND THEY HAVE LOST THEIR SPECIFIED INSULATING PROPERTIES.	WRA-4136		BROCK SERVICES, LLC	$26,381.00
P-13.	1/29/16	**ADDITIONAL PARTS FOR MWRA'S KRING SHORING SYSTEM** AWARD OF A PURCHASE ORDER TO THE LOWEST RESPONSIVE BIDDER FOR ADDITIONAL PARTS FOR MWRA'S KRING SHORING SYSTEM. AS PART OF ITS OVERALL MAINTENANCE AND OPERATION OF THE METROPOLITAN WATER SYSTEM, MWRA'S WATER PIPELINE UNIT PERFORMS APPROXIMATELY 50 EXCAVATIONS ANNUALLY. THESE EXCAVATIONS MUST BE PROTECTED AND SUPPORTED BY TRENCH BOXES, WOOD SHORING, OR AN ENGINEERED TRENCH SUPPORT SYSTEM, REFERRED TO AS THE KRING SHORING SYSTEM. THE KRING SHORING SYSTEM IS COMPRISED OF A SERIES OF SLIDE RAILS, LONG CORNER POST, AND DIFFERENT SIZED PANELS THAT HOLD BACK THE SOIL. MWRA'S CURRENT KRING SHORING SYSTEM WAS FIRST PURCHASED IN 1995, AND SINCE THAT TIME HAS BEEN USED EXTENSIVELY. NORMAL WEAR HAS TAKEN ITS TOLL ON MUCH OF THE EXISTING PIECES OF THE SYSTEM. BID WRA-4131 IS FOR THE PURCHASE OF FOUR 14-FOOT CORNER RAILS, FOUR 18-FOOT CORNER RAILS, AND TWENTY-FOUR 20-FOOT BY 20-FOOT PANELS, WHICH WILL AFFORD STAFF GREATER FLEXIBILITY WHEN SUPPORTING LARGER EXCAVATIONS.	WRA-4131		UNITED RENTALS NA, INC.	$83,232.00

STAFF SUMMARY

TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director
DATE: February 10, 2016
SUBJECT: FY16 Second Quarter Orange Notebook

COMMITTEE: Administration, Finance & Audit

X INFORMATION
___ VOTE

Carolyn M. Fiore, Deputy Chief Operating Officer
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.

Water Distribution Pipeline Leak Detection

Over the past several quarters, staff have noted efforts to improve the leak detection program, and in January noted the impacts of the difficult winter on community and MWRA leaks. Both factors can be seen in this quarter's report. Progress is close to on target over the first six months of the fiscal year, and staff anticipate achieving targets over the next two quarters. The backlog of MWRA leak repairs has declined, although there are several leaks in the backlog which will remain unrepaired (but isolated and not leaking) until community or other construction projects allow access. For example, two leaks are within the area affected by a major on-going MassDOT roadway project near Forest Hills in Boston. Of note this quarter is the large amount of community technical assistance for leak location. MWRA metering staff will alert communities if there is an unexpected increase in flows, and if the community is unable to easily locate the suspected leak, MWRA leak detection or pipeline crews will provide assistance. MWRA staff provided technical assistance to Lexington, Chelsea, Revere, Swampscott, Somerville, Quincy, Malden, Brookline, Marlborough, and Waltham during the second quarter. (Page 6)

Water Distribution System Valves

Progress toward valve exercising and valve replacement goals over the first two quarters has fallen behind, due to primarily to higher priority work supporting construction and capital projects, including activation of the Spot Pond tank, the temporary connection for Lynn Water and Sewer Commission, and assistance for the Deer Island Valve Replacement project. In addition, there has been a temporary reduction of two foremen: one due to a non-work related injury who is now back on the job, and another vacancy due to an internal promotion and that position has been posted. (Pages 7 and 13)

Deer Island and Clinton Wastewater Treatment Plants Awards

The National Association of Clean Water Agencies (NACWA) has awarded the Deer Island Wastewater Treatment Plant its fifth consecutive Platinum Award for another year of violation free operation. The last permit violation of any kind at Deer Island was in August of 2006.

The Clinton Advanced Wastewater Treatment Plant received the NACWA Gold Award for having no permit violations during 2015.

STAFF SUMMARY

TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director
DATE: February 10, 2016
SUBJECT: FY16 Financial Update and Summary

COMMITTEE: Administration, Finance & Audit

X INFORMATION
__ VOTE

Kathy Soni, Budget Director
Preparer/Title

Thomas J. Durkin
Director, Finance

RECOMMENDATION:

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

DISCUSSION:

Total year-to-date expenses are lower than budget by $2.8 million or 0.7% mainly due to lower direct expenses of $2.2 million, indirect expenses of $558,000, and higher revenues of $2.3 million or 0.6% for a total variance of $5.0 million.

In January, $2.1 million was transferred to the Defeasance Account as result of continued low variable rate environment, the effect of last year's reserves release, and the timing of new money borrowing which brought the defeasance account balance to $14.3 million. Should these favorable trends continue the balance is projected at $27.4 million. Without the transfer of the $14.3 million in debt service savings to the Defeasance Account, the total year-to-date budget variance through January would have been $19.3 million.

Beyond debt service savings, staff project a surplus of approximately $7.2 million at year-end of which $4.1 million would be for direct expenses, mainly due to conservative budgeting for wages and utilities both of which are lower than anticipated, $648,000 for lower indirect expenses, and $2.4 million for greater than budgeted revenues.

Staff have already identified candidates for the FY16 defeasance and built into the FY17 Proposed Budget $25.0 million in debt service savings, targeting mostly FY20.

As the year progresses and more actual spending information becomes available, staff will continue to refine the year-end projections and update the Board accordingly.

Please refer to Attachment 4 for a more detailed year-end projection by line item.

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

	FY16 Budget	FY16 Actual	$ Variance	% Variance
Direct Expenses	$121.7	$119.5	-$2.2	-1.8%
Indirect Expenses	$27.6	$27.0	-$0.6	-2.0%
Debt Service	$243.9	$243.9	$0.0	0.0%
Total	**$393.2**	**$390.5**	**-$2.8**	**-0.7%**

The major variances through January by categories were:

- Lower Direct Expenses of $2.2 million for Wages and Salaries, Utilities, Workers' Compensation, Chemicals, Other Services, Fringe Benefits, and Professional Services. This is offset by higher spending for Maintenance, and Other Material;

- Lower Indirect Expenses of $558,000 for lower Watershed reimbursements; lower insurance costs, mostly for claims; and lower HEEC capacity charges.

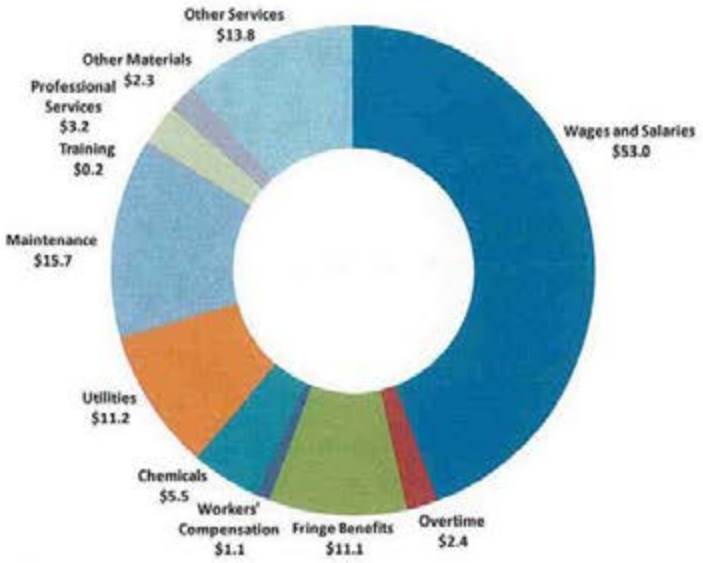
- Revenues exceeded budget by $2.3 million due to higher non-rate revenue related to higher than expected TRAC penalty fees, unbudgeted water revenues, US Treasury rebate and energy rebates.

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

Direct Expenses

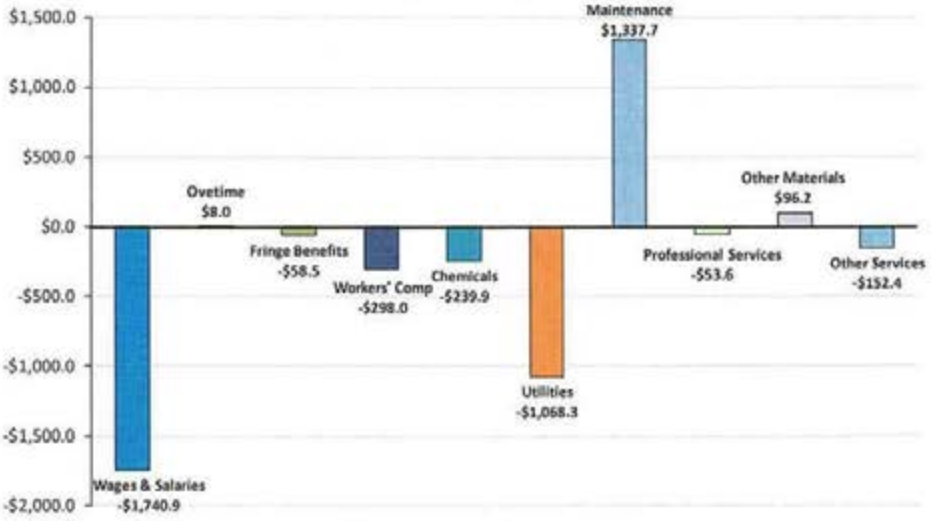
Year-to-date direct expenses totaled $119.5 million, $2.2 million or 1.8% less than budgeted.

FY16 Direct Expenses-YTD
(in millions)



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

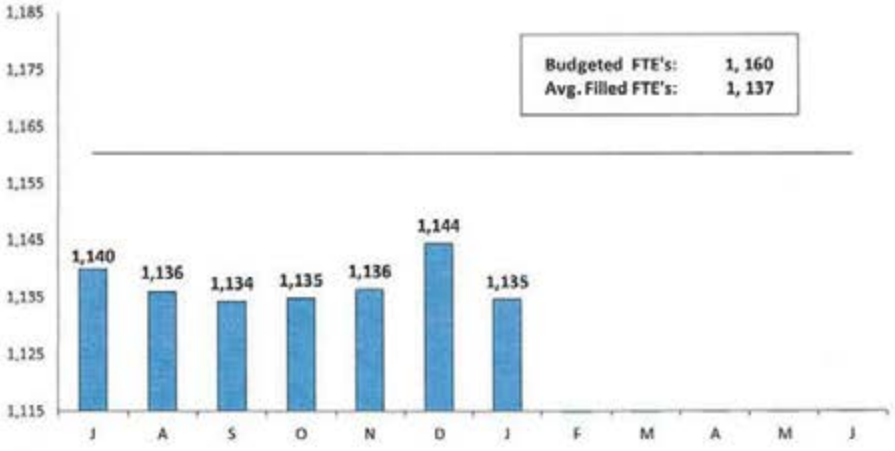
FY16 Direct Expense Variance
(in 000's)



Wages and Salaries

Wages and Salaries were underspent by $1.7 million or 3.2% mainly as a result of lower average Full Time Equivalent positions (FTEs) than budgeted and the timing of back filling vacant positions and the salary mix differential between staff retiring and new hires. The average FTEs through January were 1,137, which was 23 positions lower than the 1,160 FTEs budgeted. Additionally, the Authority had one temporary employee.

FY16 MWRA Full Time Equivalent (FTE) Position Trend



In January 2015, the Authority had 1,144 filled positions vs. 1,170 budgeted positions.

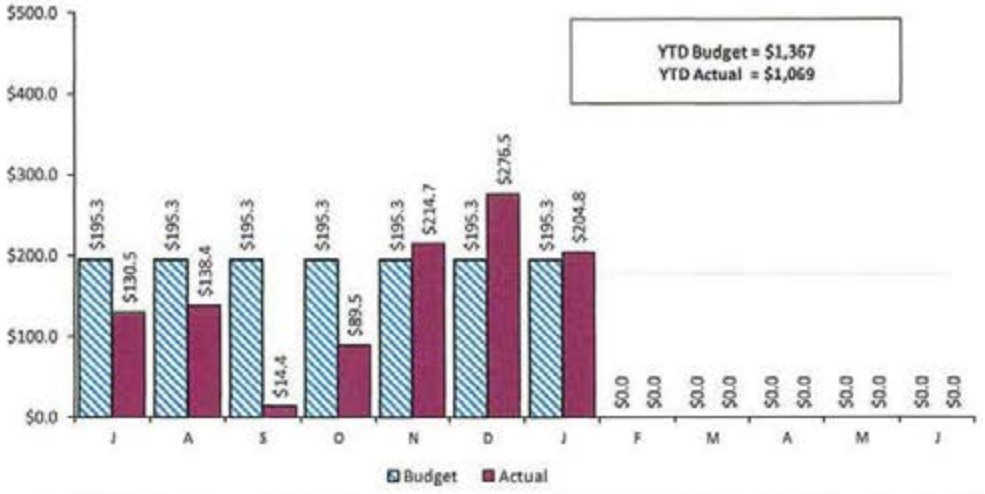
Utilities

Utilities were underspent $1.1 million or 8.7% for lower Electricity of $963,000 mainly due to underspending at Deer Island of $898,000 for lower commodity and transmission and distribution costs, lower flows which resulted in less pumping demand, and an over accrual at the end of FY15. There has also been underspending in Natural Gas of $77,000, Diesel Fuel of $67,000, and Propane of $30,000.

Workers' Compensation

Workers' Compensation expenses were lower than budget by $298,000 or 21.8% based on lower medical expenses of $185,000 and compensation payments of $154,000. In January, actual spending was $10,000 over budget. The year to date favorable variance is the result of lump sum settlements in prior periods, thus lowering reserves. It is important to note that spending on this line item can change significantly depending on future claims and severity of cases.

FY16 Workers' Compensation Spending
(in 000's)

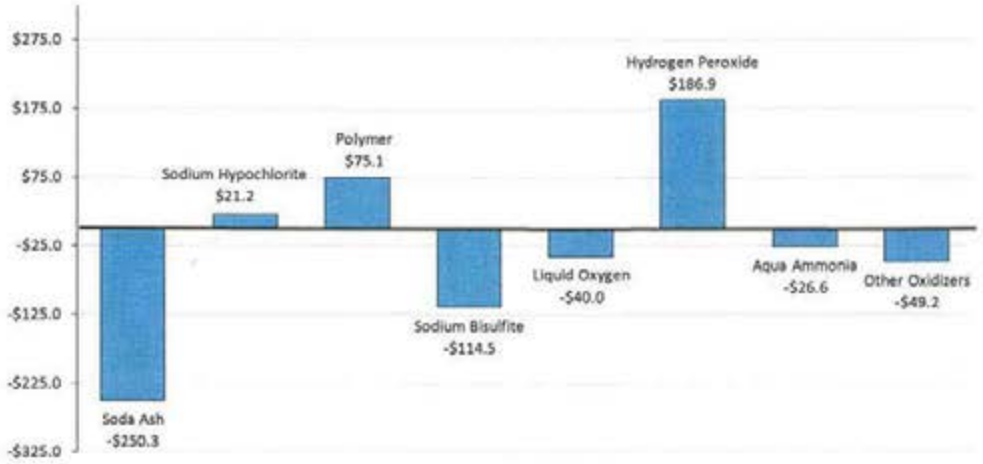


# of Open Claims-Lost Time	62	61	62	62	63	58	64	0	0	0	0	0
# of Open Claims-Medical Only	22	17	23	23	23	21	26	0	0	0	0	0

Chemicals

Chemical expenses were lower than budgeted by $240,000 or 4.2% year-to-date mainly due to lower than budgeted spending on Soda Ash of $250,000 and Carbon Dioxide of $17,000 due to lower usage to meet corrosion control targets and timing of deliveries for Soda Ash; Sodium Bisulfite of $114,000 due to time of deliveries at DITP and lower usage at the Carroll Water Treatment Plant for Ozone residual removal; Other Oxidizers of $49,000 due to timing of deliveries and lower pricing for the new contract; and Ozone of $40,000 due to higher water quality and change in operating target resulting from UV disinfection. This is offset by overspending on Hydrogen Peroxide of $187,000 due to increased need for pretreatment of hydrogen sulfide gas due to plant flows; Polymer of $75,000 due to treating high volume of sludge.

FY16 Chemical Expense Variances
(in 000's)



Other Services

Other Services spending was lower than budget by $152,000 or 1.1% due to lower spending of $106,000 for sludge pelletization services for lower year to date tonnage; $98,000 for Grit and Screenings disposal services primarily due to lower quantities; $65,000 for Space Lease Rentals for the Chelsea facility lease due to an overpayment of escrow for insurance; $44,000 for Other Rentals; and $24,000 for Health & Safety Services. The underspending is offset by higher spending on Telephone Services of $101,000 associated with Field Operations SCADA lines for the water and wastewater facilities; Other Services of $61,000 for Ward Street Headworks radio tower demolition.

Fringe Benefits

Fringe Benefits spending was lower than budgeted by $59,000 or 0.5% for Health Insurance of $82,000 and Dental Insurance of $48,000 due to fewer than budgeted filled positions. This was offset by higher spending in Unemployment Insurance of $17,000, Medicare costs of $23,000 and Tuition Reimbursement of $23,000.

Professional Services

Professional Services spending was lower than budget by $54,000 or 1.7% primarily associated with Lab Testing and Analysis of $63,000 in ENQUAL-Wastewater and Engineering of $46,000 at Deer Island and Reservoir Operations. This is offset by higher spending in Treasury of $58,000.

Maintenance

Maintenance expenses were higher than budgeted by $1.3 million or 9.3% year-to-date. Materials were overspent by $1.4 million. Higher spending for energy efficiency projects totaling $712,000 of which a portion of the overspending is related to timing. The remainder of the projects were unbudgeted but were completed to take advantage of incentives from the utility companies. Unbudgeted replacement of electric maintenance carts at Deer Island Treatment Plant of $145,000. Services were underspent by $73,000 primarily due to schedule shifts for projects planned for this year.

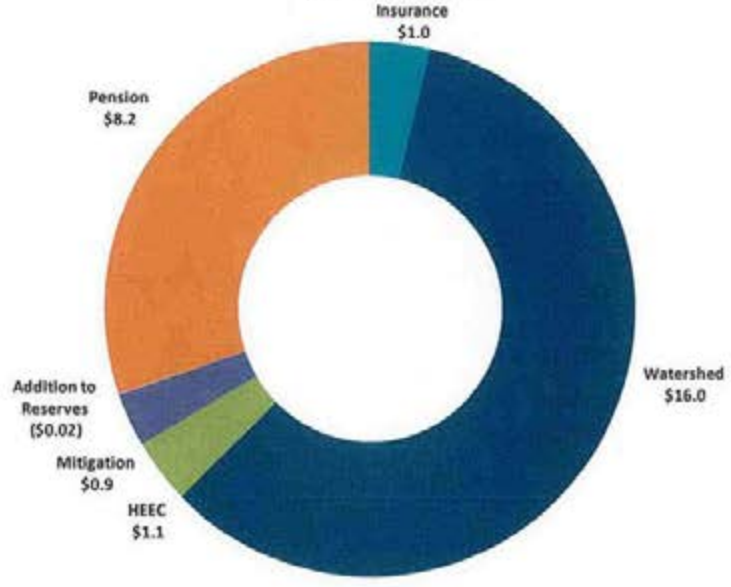
Other Materials

Other Materials were higher than budget by $96,000 or 4.3% mainly due to the timing of Vehicle Purchases of $190,000; Lab and Testing Supplies of $53,000 mainly due to receipt of equipment ordered in FY15 and received in the first Quarter of FY16; Health and Safety of $37,000; Equipment/Furniture of $35,000; and Computer Hardware of $32,000. The overspending is offset by lower spending for Vehicle Expenses of $199,000 mostly due to lower fuel prices; and Postage of $41,000 due to timing of filling the postage meter.

Indirect Expenses

Through January Indirect expenses total $27.0 million, $537,000 or 2.0% lower than budget. The majority of the FY16 underspending is related to lower Watershed Reimbursement of $255,000 for FY15 over accrual; lower Insurance costs of $237,000 mostly related to claims; and lower HEEC Agreement cost of $135,000 due to timing of payments versus budget. This is offset by higher spending of $69,000 for Winthrop and Quincy mitigation.

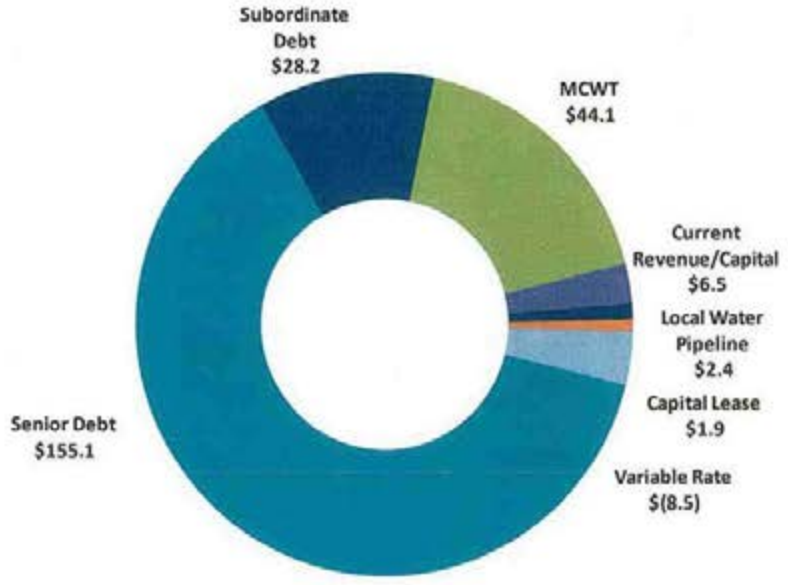
FY16 Indirect Expenses-YTD
(in millions)



Debt Service Expenses

Debt Service expenses include the principal and interest payment for fixed debt, the variable subordinate debt, and the Massachusetts Clean Water Trust (MCWT) obligation, the commercial paper program for the local water pipeline projects, current revenue for capital, and the Chelsea facility lease payment.

FY16 Debt Expenses-YTD
(in millions)



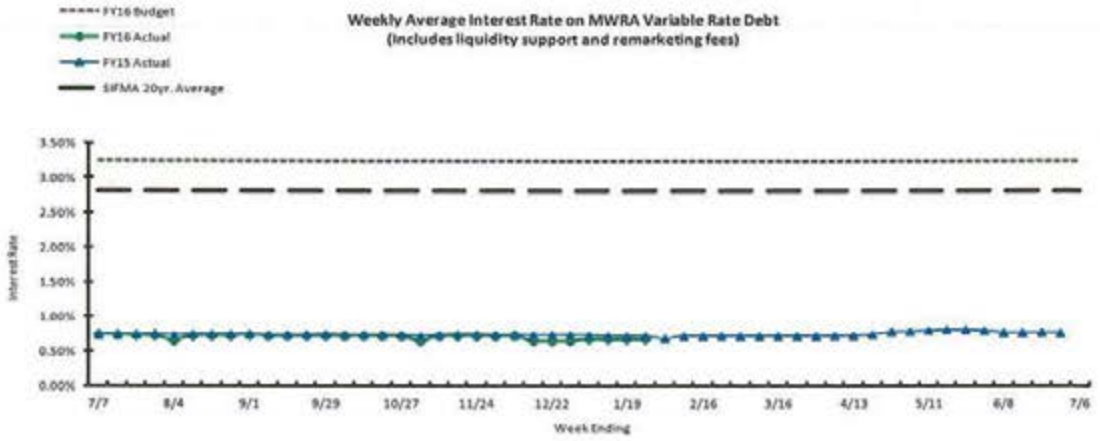
Debt Service expenses through January totaled $243.9 million which is at budgeted level after the transfer of $14.3 million of a favorable year-to-date variance to the Defeasance Account. The short-term rates related variance is $8.5 million year-to-date. Additionally, the Authority recognized $5.8 million in year-to-date underspending that is the result of the favorable impact of defeasances related to reserve releases and for not borrowing senior debt scheduled for November.

The graph below reflects the FY16 actual variable rate trend by month over the past year and the FY16 Budget.

Revenue

Revenue for year to date through January totaled $411.2 million which was $2.3 million or 0.6% higher than budget.

The higher non-rate Revenue is due to Other Revenue of $2.0 million of which, $593,000 is for City of Lynn MWRA water use while they completed maintenance work on their water system, $561,000 for TRAC Penalties attributed to a large settlement with a company who had a series of discharge violations to the MWRA sewer, which since then has been addressed and corrective measures were implemented; US Treasury rebate of $296,000; higher surplus equipment sales of $216,000, energy rebates of $158,000, and greater Investment Income of $194,000.



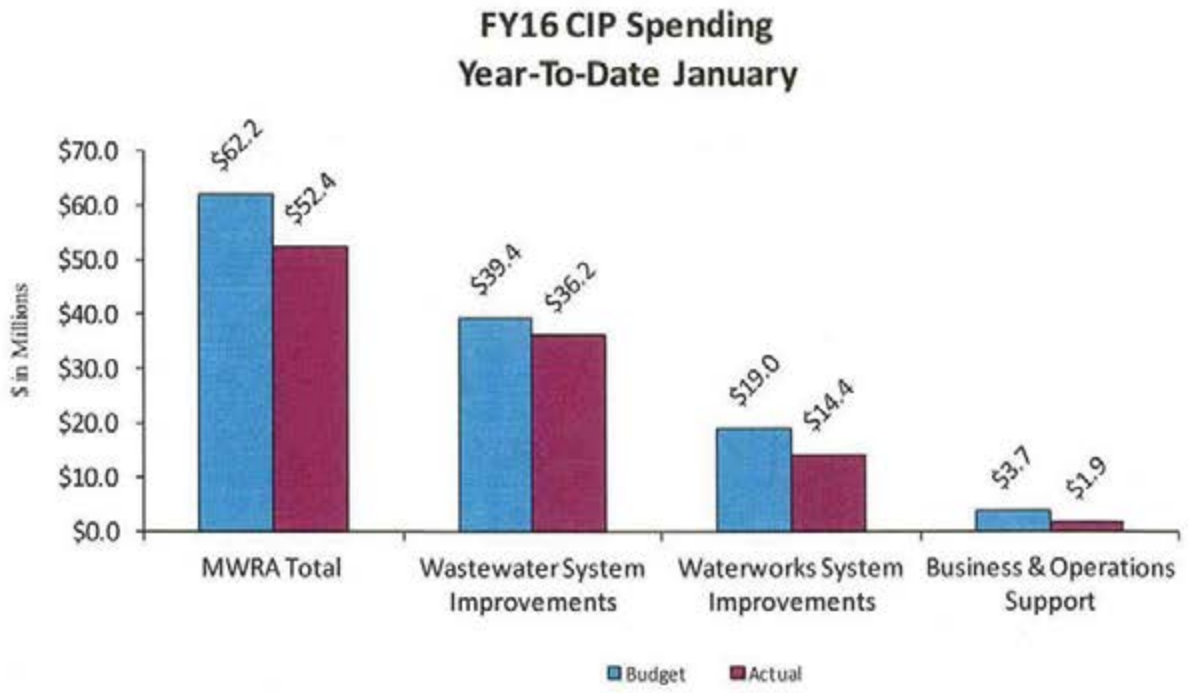
The higher Investment Income of $194,000 is due to investments called sooner than projected that provided gains on investments not budgeted. This positive variance will erode as long-term funds are reinvested at lower rates than the called investments. Short-term interest rates are higher than budgeted which also have favorable impact on the investment income variance.

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

FY16 Capital Improvement Program

Spending year-to-date in FY16 totals $52.4 million, $9.7 million or 15.7% below 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, underspending totals $12.8 million or 27.3%. Underspending was reported across all three programs with Waterworks underspent by $4.7 million and Wastewater posting underspending of $3.2 million and Business and Operations Support and $1.8 million, respectively.

Spending By Program:



$ in Millions	Budget	Actuals	$ Var.	% Var.
Wastewater System Improvements				
Interception & Pumping	4.3	2.0	-2.3	-53.4%
Treatment	19.6	15.6	-4.0	-20.6%
Residuals	0.0	0.0	0.0	N/A
CSO	7.8	14.0	6.2	79.0%
Other	7.7	4.6	-3.1	-39.9%
Total Wastewater System Improvements	**$39.4**	**$36.2**	**-$3.2**	**-8.2%**
Waterworks System Improvements				
Drinking Water Quality Improvements	4.0	4.7	0.7	18.4%
Transmission	5.9	0.8	-5.1	-86.8%
Distribution & Pumping	8.2	8.6	0.3	3.8%
Other	0.9	0.3	-0.6	-66.7%
Total Waterworks System Improvements	**$19.0**	**$14.4**	**-$4.7**	**-24.5%**
Business & Operations Support	**$3.7**	**$1.9**	**-$1.8**	**-49.4%**
Total MWRA	**$62.2**	**$52.4**	**-$9.7**	**-15.7%**

The main reasons for the program variances in order of magnitude:

Combined Sewer Overflow: (CSO) Net overspending of $6.2 million due to the Cambridge water use of $5.6M and updated cost estimates of approximately $2.1 million due to unforeseen utility locations and private utility coordination, subsurface conditions, and additional engineering services during construction, partially offset by Reserved Channel Sewer Separation of $969,000 due to updated cost estimates and MWR003 Gate & Siphon of $471,000 due to timing.

Waterworks Transmission: Net underspending of $5.1 million reflects the combination of underspending for Long Term Redundancy of $4.3M due to schedule change for Wachusett Aqueduct Pump Station and ongoing tunnel alternatives review for metropolitan redundancy, and Watershed Land of $902,000 due to the timing of land acquisitions. Offset by Hatchery Pipeline Design/Engineering Services During Construction/Resident Engineer Inspection of $149,000 due to consultant progress and scope changes.

Wastewater Treatment: Underspending of $4.0 million reflects underspending on As-Needed Design 7-2 and 7-3 of $1.1M, North Main Pump Station VFD Replacement of $987,000, Thermal Power Plant Boiler Control Replacement of $734,000, Scum Skimmer Replacement of $734,000, Electrical Equipment Upgrade-Construction 4 of $704,000, Clinton Digester Cleaning & Rehab of $227,000, and Clarifier Rehab Phase 2 - Design of $106,000 due to timing, Steam Turbine Generator System Modifications Construction of $450,000 due to energy efficiency rebate, and Barge Berth and Facility Replacement of $225,000 due to schedule change. Offset by overspending on Butterfly Valve Replacement of $874,000 and HVAC Equipment Replacement Design/Engineering Services During Construction of $295,000 due to timing.

Wastewater Other: Underspending of $3.1 million primarily due to less than anticipated community requests for grants and loans.

Interception & Pumping: Underspending of $2.3 million reflecting underspending on Chelsea Creek Screen House Upgrades of $1.3 million due to timing, and Alewife Brook Pump Station Rehab Final Design/CA/REI and Construction of $1.0M due to schedule change, and Chelsea Creek Upgrade Design of $124,000 due to extended document review. Offset by Nut Island Headworks Electric, Grit & Screenings Conveyance Design and Construction of $237,000 due to progress.

Business and Operations Support: Underspending of $1.8 million due to underspending on MIS-related projects of $906,000 due to timing of IT Strategic Plan implementation, Security Equipment of $493,000 due to delay in award of monitoring equipment contracts, and $395,000 due to lower than projected use of as-needed technical assistance contracts.

Drinking Water Quality Improvements: Overspending of $0.7 million due to Existing Facilities CP-7 of $444,000 and Carroll Water Treatment Plant's Ultraviolet Disinfection - Design/Engineering Services During Construction/Resident Engineer Inspection of $161,000 due to timing, and Brutsch Treatment Facility of $344,000 reflecting additional construction administration and resident engineering services.

Waterworks Other: Net underspending of $0.6 million reflects lower community requests for Local Water System Loans and fewer community repayments.

Water Distribution and Pumping: Net overspending of $0.3 million due to overspending on Weston Aqueduct Supply Mains Section 36/C/S9-A11 Valve of $1.2 million and Spot Pond Supply Mains Rehab of $453,000 for Section 4 Webster Avenue Bridge Pipe Rehabilitation - Construction due to contractor progress in the summer months, and Southern Extra High Redundancy & Storage Final Design/CA/Rl of $346,000 due to timing. Offset by NIH Redundancy & Storage of $859,000 and WASM 3 - MEPA/Design/CA/RI of $433,000 due to schedule shift, and Valve Replacement of $279,000 due to timing.

Construction Fund Balance

The construction fund balance was at $38.5 million as of the end of January. Commercial Paper availability was at $201.0 million to fund construction projects.

Attachment 1 – Variance Summary January 2016
Attachment 2 – Current Expense Variance Explanations
Attachment 3 – Capital Improvement Program Variance Explanations

ATTACHMENT 1

	January 2016 Year-to-Date					
	Period 7 YTD Budget	Period 7 YTD Actual	Period 7 YTD Variance	%	FY16 Approved	% Expended
EXPENSES						
WAGES AND SALARIES	$ 54,780,138	$ 53,039,264	$ (1,740,874)	-3.2%	$ 99,363,168	53.4%
OVERTIME	2,437,657	2,445,627	7,970	0.3%	4,219,293	58.0%
FRINGE BENEFITS	11,168,982	11,110,442	(58,540)	-0.5%	19,326,756	57.5%
WORKERS' COMPENSATION	1,366,750	1,068,764	(297,986)	-21.8%	2,343,000	45.6%
CHEMICALS	5,746,374	5,506,442	(239,932)	-4.2%	9,790,848	56.2%
ENERGY AND UTILITIES	12,262,967	11,194,680	(1,068,287)	-8.7%	23,164,822	48.3%
MAINTENANCE	14,351,186	15,688,903	1,337,717	9.3%	28,698,772	54.7%
TRAINING AND MEETINGS	193,159	157,668	(35,491)	-18.4%	413,714	38.1%
PROFESSIONAL SERVICES	3,219,442	3,165,826	(53,616)	-1.7%	5,819,611	54.4%
OTHER MATERIALS	2,252,298	2,348,534	96,236	4.3%	6,164,589	38.1%
OTHER SERVICES	13,906,561	13,754,127	(152,434)	-1.1%	23,529,902	58.5%
TOTAL DIRECT EXPENSES	**$ 121,685,514**	**$ 119,480,277**	**$ (2,205,239)**	**-1.8%**	**$ 222,834,475**	**53.6%**
INSURANCE	$ 1,246,614	$ 1,009,918	$ (236,696)	-19.0%	$ 2,160,797	46.7%
WATERSHED/PILOT	16,209,365	15,954,253	(255,112)	-1.6%	28,096,233	56.8%
BECo PAYMENT	1,198,413	1,063,015	(135,398)	-11.3%	1,946,157	54.6%
MITIGATION	807,692	876,923	69,231	8.6%	1,400,000	62.6%
ADDITIONS TO RESERVES	(20,150)	(20,150)	-	0.0%	(34,927)	57.7%
RETIREMENT FUND	8,159,521	8,159,521	-	0.0%	8,159,521	100.0%
POST EMPLOYEE BENEFITS	-	-	-	---	5,224,848	0.0%
TOTAL INDIRECT EXPENSES	**$ 27,601,455**	**$ 27,043,480**	**$ (557,975)**	**-2.0%**	**$ 46,952,629**	**57.6%**
STATE REVOLVING FUND	$ 44,095,970	$ 44,095,970	$ -	0.0%	$ 81,876,277	53.9%
SENIOR DEBT	160,908,122	155,109,366	(5,798,756)	-3.6%	283,024,431	54.8%
CORD FUND	-	-	-	---	-	---
DEBT SERVICE ASSISTANCE	-	-	-	---	-	---
CURRENT REVENUE/CAPITAL	6,461,538	6,461,538	-	0.0%	11,200,000	57.7%
SUBORDINATE MWRA DEBT	28,223,564	28,223,564	-	0.0%	49,222,442	57.3%
LOCAL WATER PIPELINE CP	2,393,792	2,393,792	-	0.0%	4,149,240	57.7%
CAPITAL LEASE	1,855,996	1,855,996	-	0.0%	3,217,060	57.7%
VARIABLE DEBT	-	(8,524,641)	(8,524,641)	---	-	0.0%
BOND REDEMPTION SAVINGS	-	-	-	---	-	---
DEFEASANCE ACCOUNT	-	14,323,397	14,323,397	---	-	0.0%
TOTAL DEBT SERVICE	**$ 243,938,982**	**$ 243,938,982**	**$ -**	**0.0%**	**$ 432,689,450**	**56.4%**
TOTAL EXPENSES	**$ 393,225,951**	**$ 390,462,739**	**$ (2,763,214)**	**-0.7%**	**$ 702,476,554**	**55.6%**
REVENUE & INCOME						
RATE REVENUE	$ 387,946,154	$ 387,946,154	$ -	0.0%	$ 672,440,000	57.7%
OTHER USER CHARGES	5,775,388	5,845,176	69,788	1.2%	8,683,898	67.3%
OTHER REVENUE	9,975,040	11,963,233	1,988,193	19.9%	12,000,066	99.7%
RATE STABILIZATION	-		-	---	-	---
INVESTMENT INCOME	5,264,289	5,458,045	193,756	3.7%	9,352,590	58.4%
TOTAL REVENUE & INCOME	**$ 408,960,871**	**$ 411,212,608**	**$ 2,251,738**	**0.6%**	**$ 702,476,554**	**58.5%**

ATTACHMENT 2
Current Expense Variance Explanations

Total MWRA	FY16 Budget YTD January	FY16 Actuals YTD January	FY16 YTD Actual vs. FY16 Budget		Explanations
			$	%	
Direct Expenses					
Wages & Salaries	54,780,138	53,039,264	(1,740,874)	-3.2%	Underspending is mainly the result of lower average Full Time Equivalent positions (FTEs) than budgeted and the timing of backfilling vacant positions and the salary mix differential between staff retiring and new hires. The average FTEs through January was 1,137, which was 23 positions lower than the 1,160 FTEs budgeted. Additionally, the Authority had one temporary employee.
Overtime	2,437,657	2,445,627	7,970	0.3%	Overspending mainly in Treatment & Transmission Operations for planned operator half plant maintenance, Water Valve Maintenance to reconfigure system flows associated with providing Lynn water, responding to a Cambridge water main break, and start-up at Spot Pond, and Treatment and Transmission Operation for half plant maintenance at Carroll Water Treatment Plant. This is offset by fewer wet weather events and shutdowns related to the North Main Pump Station valve replacement project.
Fringe Benefits	11,168,982	11,110,442	(58,540)	-0.5%	Lower than budget mainly due to Health Insurance of $82,000 and Dental Insurance of $48,000 due to lower headcount, offset by overspending for Medicare of $23,000, Tuition Reimbursement of $23,000, and Unemployment Insurance of $17,000.
Worker's Compensation	1,366,750	1,068,764	(297,986)	-21.8%	Underspending due to lower compensation payments of $185,000 and medical expenses of $154,000. In January, actual spending was $10,000 over budget. The year to date favorable variance is the result of lump sum settlements in prior periods, thus lowering reserves. It is important to note that spending on this line item can change significantly depending on future claims and severity of cases.
Chemicals	5,746,374	5,506,442	(239,932)	-4.2%	Lower year-to-date spending primarily due to lower than budgeted spending on Soda Ash of $250,000 and Carbon Dioxide of $17,000 due to lower usage to meet corrosion control targets and timing of deliveries for Soda Ash; Sodium Bisulfite of $114,000 due to time of deliveries at DITP and lower usage at the Carroll Water Treatment Plant for Ozone residual removal; Other Oxidizers of $49,000 due to timing of deliveries and lower pricing for the new contract; and Liquid Oxygen of $40,000 due to higher water quality and change in operating target resulting from UV disinfection. This is offset by overspending on Hydrogen Peroxide of $187,000 due to increased need for pretreatment of hydrogen sulfide gas due to lower than budgeted plant flows; and Polymer of $75,000 due to treating high volume of sludge.

ATTACHMENT 2
Current Expense Variance Explanations

Total MWRA	FY16 Budget YTD January	FY16 Actuals YTD January	FY16 YTD Actual vs. FY16 Budget		Explanations
			$	%	
Utilities	12,262,967	11,194,680	(1,068,287)	-8.7%	Underspending due to lower Electricity of $963,000 mainly due to underspending at Deer Island of $898,000 for lower commodity and transmission and distribution costs, lower flows which resulted in less pumping demand, and an over accrual at the end of FY15. There has also been underspending in Natural Gas of $77,000, Diesel Fuel of $67,000, Propane of $30,000 and #2 Fuel Oil of $18,000. This is offset by higher water usage of $90,000 at DITP, NI Headworks and JCWTP.
Maintenance	14,351,186	15,688,903	1,337,717	9.3%	Materials were overspent by $1.3 million. Higher spending for energy efficiency projects totaling $712,000 of which a portion of the overspending is related to timing. The remainder of the projects were unbudgeted but were completed to take advantage of incentives from the utility companies. Unbudgeted replacement of electric maintenance carts at Deer Island Treatment Plant of $145,000.Services were underspent by $73,000 primarily due to schedule shifts for projects planned for this year.
Training & Meetings	193,159	157,668	(35,490)	-18.4%	Lower spending primarily associated with timing of MIS Amd FOD training initiatives.
Professional Services	3,219,442	3,165,826	(53,616)	-1.7%	Lower spending on Lab Testing & Analysis of $63,000 in ENQUAL-Wastewater; and Engineering of $46,000 at Deer Island and Reservoir Operations. This is offset by offset by overspending in Other Professional Services in Treasury
Other Materials	2,252,298	2,348,534	96,236	4.3%	Higher than budget mainly due to timing of Vehicle Purchase of $190,000 funds are budgeted in May and June; Lab and Testing Supplies of $53,000 mainly due to receipt of equipment ordered in FY15 and received in the first Quarter of FY16; Health & Safety of $37,000; Equipment/Furniture of $35,000, and Computer Hardware of $32,000. The overspending is offset by lower spending for Vehicle Expense of $199,000 mostly due to lower fuel prices and Postage of $41,000 due to filling the postage meter.

ATTACHMENT 2
Current Expense Variance Explanations

Total MWRA	FY16 Budget YTD January	FY16 Actuals YTD January	FY16 YTD Actual vs. FY16 Budget		Explanations
			$	%	
Other Services	13,906,561	13,754,127	(152,434)	-1.1%	Lower than budgeted spending of $106,000 for Sludge Pelletization for lower year to date tonnage; $98,000 for Grit and Screenings disposal services primarily due to lower quantities; $65,000 for Space Lease Rentals for the Chelsea facility lease due to an overpayment of escrow for insurance; $44,000 for Other Rentals; $24,000 for Health & Safety Services; and $12,000 for Printing/Duplicating. This is offset by higher spending of $101,000 for Telephone Services associated with Field Operations SCADA lines for the water and wastewater facilities; $61,000 for Other Services for Ward Street Headworks radio tower demolition; $22,000 for permit fees due to DEP fees for Water Pipe Maint for street opening permits; and $21,000 for Membership/Dues/Subscriptions.
Total Direct Expenses	**121,685,514**	**119,480,277**	**(2,205,235)**	**-1.8%**	
Indirect Expenses					
Insurance	1,246,614	1,009,918	(236,696)	-19.0%	Lower Payments/Claims of $174,000 and Premiums of $63,000.
Watershed/PILOT	16,209,365	15,954,253	(255,112)	-1.6%	Underspending due to lower Reimbursement expenses of $255k due to FY15 overaccrual.
HEEC Payment	1,198,413	1,063,015	(135,398)	-11.3%	Lower spending due to timing of actual billing.
Mitigation	807,692	876,923	69,231	8.6%	
Addition to Reserves	(20,150)	(20,150)	-	0.0%	
Pension Expense	8,159,521	8,159,521	(0)	0.0%	
Post Employee Benefits	-	-	-		
Total Indirect Expenses	**27,601,455**	**27,043,480**	**(557,975)**	**-2.0%**	
Debt Service					
Debt Service	243,938,982	243,938,982	-	0.0%	Through January staff have transferred $14.3 million of a favorable YTD variance to the Defeasance Account. The short-term rates related variance is $8.5 million YTD. Additionally, the Authority recognized $5.8 million YTD underspending that is the result of the favorable impact of defeasances related to reserve releases and for not borrowing senior debt scheduled for November.
Debt Service Assistance	-	-	-		
Total Debt Service Expenses	**243,938,982**	**243,938,982**	**-**	**0.0%**	
Total Expenses	**393,225,951**	**390,462,739**	**(2,763,211)**	**-0.7%**	

ATTACHMENT 2
Current Expense Variance Explanations

Total MWRA	FY16 Budget YTD January	FY16 Actuals YTD January	FY16 YTD Actual vs. FY16 Budget		Explanations
			$	%	
Revenue & Income					
Rate Revenue	387,946,154	387,946,154	-	0.0%	
Other User Charges	5,775,388	5,845,176	69,788	1.2%	
Other Revenue	9,975,040	11,963,233	1,988,193	19.9%	City of Lynn water non-rate revenue of $594,000 for use of MWRA water while they completed maintenance work on their water system; TRAC penalty payment of $602,000, US Treasury rebates of $296,000, sale of surplus equipment of $216,000, and energy rebates of $158,000.
Rate Stabilization	-	-	-		
Investment Income	5,264,289	5,458,045	193,757	3.7%	The higher Investment Income of $193,000 is due to investments called sooner than projected that provided gains on investments not budgeted. This positive variance will erode as long-term funds are reinvested at lower rates than the called investments. Short-term interest rates are higher than budgeted which also have favorable impact on the investment income variance.
Total Revenue	**408,960,871**	**411,212,608**	**2,251,738**	**0.6%**	
Net Revenue in Excess of Expenses	**15,734,920**	**20,749,869**	**5,014,949**		

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

	FY16 Budget YTD January	FY16 Actuals YTD January	YTD Actuals vs. Budget		Explanations
			$	%	
Interception & Pumping (I&P)	$4,317	$2,012	($2,305)	-53.4%	Underspending mainly due to Chelsea Screenhouse Upgrades of $1.3M due to timing, Alewife Brook Pump Station Rehab Final Design/CA/REI and Construction of $1.0M due to schedule change. Offset by Nut Island Headworks Electric, Grit & Screenings Conveyance Design and Construction of $237,000 due to progress.
Treatment	$19,594	$15,563	($4,031)	-20.6%	Underspending on As-Needed Design 7-2 and 7-3 of $1.1M, North Main Pump Station VFD Replacement of $987,000, Thermal Power Plant Boiler Control Replacement of $734,000, Scum Skimmer Replacement of $734,000, Electrical Equipment Upgrade - Construction 4 of $704,000, Clinton Digester Cleaning & Rehab of $227,000, and Clarifier Rehab Phase 2 - Design of $106,000 due to timing, Steam Turbine Generator System Modifications Construction of $450,000 due to energy efficiency rebate, and Barge Berth and Facility Replacement of $225,000 due to schedule change. Offset by overspending on Butterfly Valve Replacement of $874,000 and HVAC Equipment Replacement Design/Engineering Services During Construction of $295,000 due to timing.
Residuals	$0	$0	$0	-	
CSO	$7,809	$13,975	$6,166	79.0%	Overspending on Cambridge Sewer Separation of $7.7M due to water use during construction activities and updated cost estimates as a result of additional unforeseen conditions. Offset by Reserved Channel Sewer Separation of $969,000 due to updated cost estimates, and MWR003 Gate & Siphon of $471,000 and Dorchester Bay Sewer Separation (Commercial Point) of $125,000 due to timing.
Other Wastewater	$7,718	$4,643	($3,076)	-39.9%	Underspending on Infiltration and Inflow (I/I) due to community requests for grants and loans being less than budgeted.
Total Wastewater	**$39,438**	**$36,192**	**($3,246)**	**-8.2%**	

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

	FY16 Budget YTD January	FY16 Actuals YTD January	YTD Actuals vs. Budget		Explanations
			$	%	
Drinking Water Quality Improvements	$3,995	$4,730	$735	18.4%	Overspending due to Existing Facilities CP-7 of $444,000 and Carroll Water Treatment Plant's Ultraviolet Disinfection - Design/Engineering Services During Construction/Resident Engineer Inspection of $161,000 due to timing, and Brutsch Treatment Facility of $344,000 due to additional construction administration and resident engineering services.
Transmission	$5,899	$780	($5,118)	-86.8%	Underspending for Long Term Redundancy of $4.3M due to schedule change for Wachusett Aqueduct Pump Station and ongoing tunnel alternatives review for metropolitan redundancy, and Watershed Land of $902,000 due to the timing of land acquisitions. Offset by Hatchery Pipeline Design/Engineering Services During Construction/Resident Engineer Inspection of $149,000 due to consultant progress and scope changes.
Distribution & Pumping	$8,240	$8,552	$312	3.8%	Overspending on Weston Aqueduct Supply Mains Section 36/C/S9 - A11 Valve of $1.2M and Spot Pond Supply Mains Rehab of $453,000 for Section 4 Webster Avenue Bridge Pipe Rehabilitation - Construction due to contractor progress, and Southern Extra High Redundancy & Storage Final Design/CA/RI of $346,000 due to timing. Offset by NIH Redundancy & Storage of $859,000 and WASM 3 - MEPA/Design/CA/RI of $433,000 due to schedule shift, and Valve Replacement of $279,000 due to timing.
Other Waterworks	$889	$296	($593)	-66.7%	Underspending due to lower community requests for Local Water System Loans and fewer community repayments.
Total Waterworks	**$19,023**	**$14,359**	**($4,664)**	**-24.5%**	
Business & Operations Support	$3,697	$1,869	($1,828)	-49.4%	Underspending on MIS-related projects of $906,000 due to timing of IT Strategic Plan implementation, Security Equipment of $493,000 due to delay in award of equipment monitoring contracts, and $395,000 due to lower than projected use of as-needed technical assistance.
Total MWRA	**$62,159**	**$52,421**	**($9,738)**	**-15.7%**	

ATTACHMENT 4

FY16 Budget vs FY16 Projection

TOTAL MWRA	FY16 Budget	FY16 Projection	Change FY16 Budget vs FY16 Projection	
			$	%
EXPENSES				
WAGES AND SALARIES	$ 99,363,168	$ 96,948,377	$ (2,414,791)	-2.4%
OVERTIME	4,219,293	4,211,968	(7,325)	-0.2%
FRINGE BENEFITS	19,326,756	19,336,831	10,075	0.1%
WORKERS' COMPENSATION	2,343,000	2,204,000	(139,000)	-5.9%
CHEMICALS	9,790,849	9,568,186	(222,663)	-2.3%
ENERGY AND UTILITIES	23,164,822	21,131,015	(2,033,807)	-8.8%
MAINTENANCE	28,698,772	29,962,886	1,264,114	4.4%
TRAINING AND MEETINGS	413,714	414,086	372	0.1%
PROFESSIONAL SERVICES	5,819,611	5,632,283	(187,328)	-3.2%
OTHER MATERIALS	6,164,588	5,975,209	(189,379)	-3.1%
OTHER SERVICES	23,529,902	23,393,431	(136,471)	-0.6%
TOTAL DIRECT EXPENSES	**$ 222,834,475**	**$ 218,778,272**	**$ (4,056,203)**	**-1.8%**
INSURANCE	$ 2,160,797	$ 1,955,320	(205,477)	-9.5%
WATERSHED/PILOT	28,096,233	27,669,959	(426,274)	-1.5%
HEEC PAYMENT	1,946,157	1,810,106	(136,051)	-7.0%
MITIGATION	1,400,000	1,520,000	120,000	8.6%
ADDITIONS TO RESERVES	(34,927)	(34,927)	-	0.0%
RETIREMENT FUND	8,159,521	8,159,521	-	0.0%
ADDITIONAL PENSION DEPOSIT	-	-	-	
POSTEMPLOYMENT BENEFITS	5,224,848	5,224,848	-	0.0%
TOTAL INDIRECT EXPENSES	**$ 46,952,629**	**$ 46,304,827**	**$ (647,802)**	**-1.4%**
STATE REVOLVING FUND	$ 81,876,277	$ 81,876,277	-	0.0%
SENIOR DEBT	283,024,431	273,217,759	(9,806,672)	-3.5%
SUBORDINATE DEBT	49,222,442	49,222,442	-	0.0%
LOCAL WATER PIPELINE CP	4,149,242	500,000	(3,649,242)	-87.9%
CURRENT REVENUE/CAPITAL	11,200,000	11,200,000	-	0.0%
CAPITAL LEASE	3,217,060	3,217,060	-	0.0%
CORE FUND DEPOSIT	-	-	-	
BOND REDEMPTION	-	-	-	
VARIABLE RATE SAVINGS	-	(13,923,790)	(13,923,790)	
DEFEASANCE ACCOUNT	-	27,379,702	27,379,702	
DEBT SERVICE ASSISTANCE	-	-	-	
TOTAL DEBT SERVICE	**$ 432,689,450**	**$ 432,689,450**	**$ -**	**0.0%**
TOTAL EXPENSES	**$ 702,476,554**	**$ 697,772,549**	**$ (4,704,005)**	**-0.7%**
REVENUE & INCOME				
RATE REVENUE	$ 672,439,999	$ 672,439,999	-	0.0%
OTHER USER CHARGES	8,683,898	8,683,898	-	0.0%
OTHER REVENUE	12,000,066	14,147,443	2,147,377	17.9%
RATE STABILIZATION	-	-	-	
INVESTMENT INCOME	9,352,590	9,652,590	300,000	3.2%
TOTAL REVENUE & INCOME	**$ 702,476,554**	**$ 704,923,931**	**$ 2,447,377**	**0.3%**
VARIANCE:		$ (7,151,382)	$ (7,151,382)	

STAFF SUMMARY

TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director
DATE: February 10, 2016
SUBJECT: Assessment Smoothing at the Utility Level

COMMITTEE: Administration, Finance & Audit

___VOTE
_X_INFORMATION

Kathy Soni, Budget Director
Matthew R. Horan, Treasurer
Preparer/Title

Thomas J. Durkin
Director of Finance

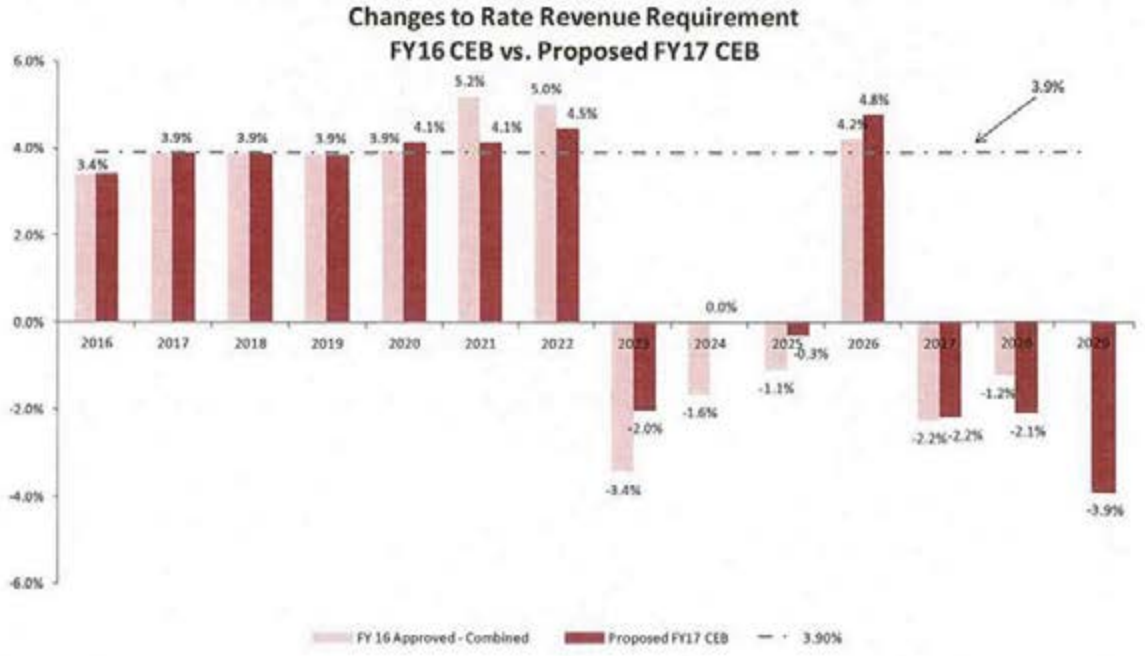
This staff summary provides an overview of a proposed method to smooth the rate revenue requirement changes on the utility level which is presented as part of the Proposed FY17 CEB. As discussed in more detail in the staff summary, even as the combined rate change has leveled off there are still large annual variations on the utility level. Staff are recommending that the Long-Term Rates Management Committee reconvene to review the increases on the utility level and provide a recommendation to the full Board of Directors prior to the approval of the FY17 CEB in June 2016.

RECOMMENDATION:

For information only.

DISCUSSION:

As part of the long term rates management strategy, MWRA in conjunction with Advisory Board staff, has actively worked to meet the goal of leveling off rate revenue increases and in the near term limiting those increases to less than 4%. As a result of controlled spending, the prudent application of reserve funds made available by the amendments to the General Bond Resolution and the reduction of debt service achieved through the defeasance strategy, the Proposed FY17 CEB is able to continue to work towards that goal. The following graph shows the projected changes to the rate revenue requirement based on the final FY16 CEB and the Proposed FY17 CEB.



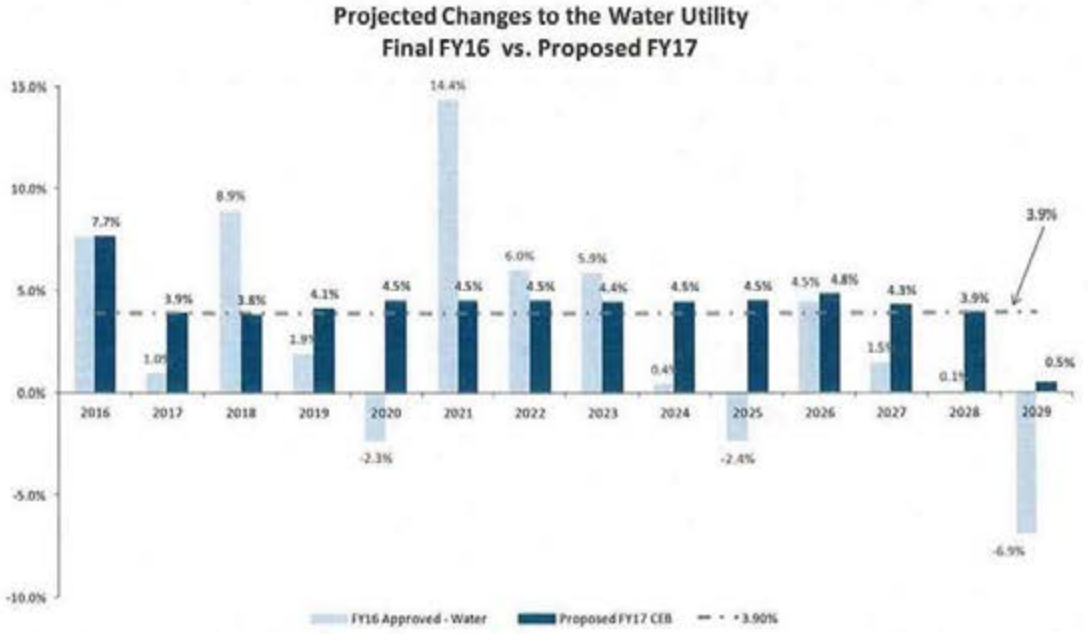
While MWRA has been successful in leveling off the dramatic percentage changes to the rate revenue requirement on a combined level, the increases on the utility level have varied significantly through the years. The following graph shows the changes to the rate revenue requirement on the combined and utility level between FY07 and FY16.

The next graph shows the projected changes to the rate revenue requirement on the combined and utility levels between FY17 and FY29 based on the Final FY16 CEB.

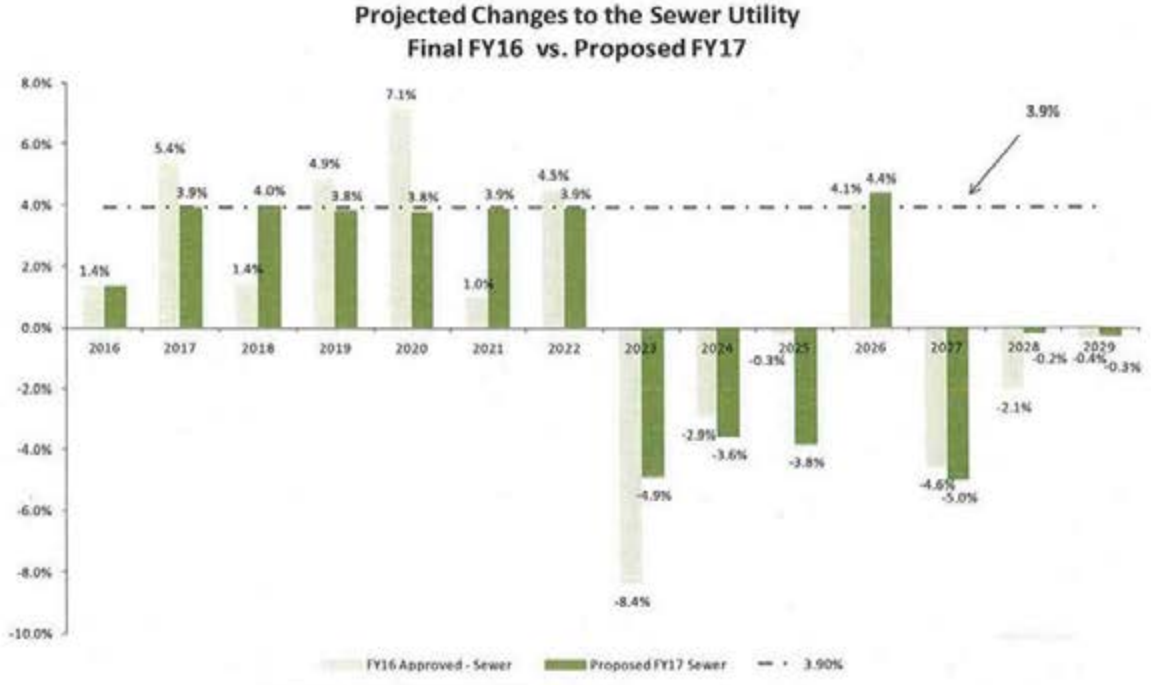
As can be seen from the graph, similar to the historical changes, the projected annual rate revenue requirement changes from the Final FY16 CEB vary greatly on the utility level. Similar to the budget certainty provided with smooth combined rate increases, leveling off of the increases on the utility level will also assist member communities, particularly those that are only a water or sewer member with their budget projections. Also, providing more predictable rates for the water utility may make water system expansion more attractive.

The increases in the year to year changes in each utilities debt service payments are one of the largest causes of the annual variation. When MWRA issues a series of new money bonds to fund construction, the proceeds are deposited into either sewer or water construction accounts based on need. These deposits determine the percentage share that each utility must pay over the life of the bonds. Since each utility's need for capital funds vary from year to year their share of the debt service also changes. As a result, the amount of debt service which a utility has to pay can vary greatly from year to year. For example between FY17 and FY18 the sewer utility's debt service decreased by $5.5 million and then between FY18 and FY19 it increases by $14.9 million. These increase and decreases to the amount paid by each utility have a significant impact on the percentage change.

Debt service payments made to bondholders by MWRA are not designated as either sewer or water, so it does not matter to them which utility is paying in any given year. With that in mind staff looked at the feasibility of smoothing the annual changes on the utility level by making adjustments to each utility's annual share of the capital finance expenses. These changes were accomplished primarily by adjusting the time of debt service paid by the different utilities. It is important to note that over the course of the twelve years examined here both utilities would pay the same amount of total debt service as they would have without the adjustment. The only change is the year the utility makes the payments. The following graph shows the percentage change to the projected water rate revenue requirement between the final FY16 CEB and the proposed FY17 CEB.



Similar to the graph above the shows the impact to the water utility, the following graph shows the impact of smoothing to the sewer utility.



It is important to note that since these changes only impact the timing of payments by the utility there is no change to the combined rate increase. While the concept of smoothing the increases to the rate revenue requirement on the utility level was incorporated into the Proposed FY17 CEB, staff are proposing that the Long-Term Rates Management Committee be convened to review the smoothing of the utility rates and make a recommendation to the Board of Directors for inclusion into the final FY17 CEB in June 2016.

STAFF SUMMARY

TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director
DATE: February 10, 2016
SUBJECT: Preliminary FY17 Water and Sewer Assessments

COMMITTEE: Administration, Finance & Audit

X INFORMATION
___ VOTE

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

Thomas J. Durkin
Director, Finance

Consistent with the Proposed FY17 Current Expense Budget (CEB), preliminary FY16 water and sewer assessments are based on a Rate Revenue Requirement of $698,700,000, a 3.9% increase over the FY16 Rate Revenue Requirement.

The FY17 Rate Revenue Requirement will be allocated to MWRA communities based on their respective shares of CY15 MWRA water use, the average of CY13-CY15 wastewater flows, corresponding strength of flows, and population.

RECOMMENDATION:

For information only. This staff summary provides information on preliminary FY17 wholesale water and sewer assessments. Staff plan to transmit preliminary FY17 assessments to MWRA communities on or before Thursday, February 11, 2016.

DISCUSSION:

The Proposed FY17 CEB recommends a Rate Revenue Requirement of $698,700,000, an increase of 3.9% over the final FY16 requirement.

	FY17 Preliminary	FY16 Approved	$ Change from FY16	% Change from FY16
Water	$235,204,023	$226,372,877	$ 8,831,146	3.9%
Sewer	$463,495,977	446,067,123	$17,428,854	3.9%
Total	$698,700,000	$672,440,000	$26,260,000	3.9%

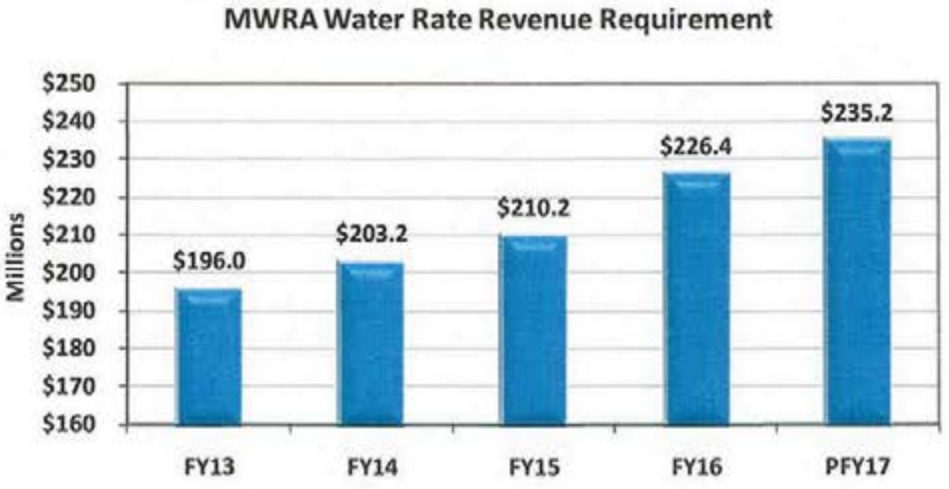
Attachment 1 summarizes preliminary FY17 wholesale water and sewer charges for each MWRA community.

The estimated impact of the FY17 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 approximately $19.

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 FY17 assessments are based on each community's share of CY15 water use of 67.484 billion gallons, a 4.0% increase compared to CY14 water use of 64.900 billion gallons. Changes in FY17 water assessments for customer communities compared to FY16 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 CY15 compared to CY14. 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 FY16 to PFY17 are primarily the result of increased debt service related to water utility rehabilitation and improvements.

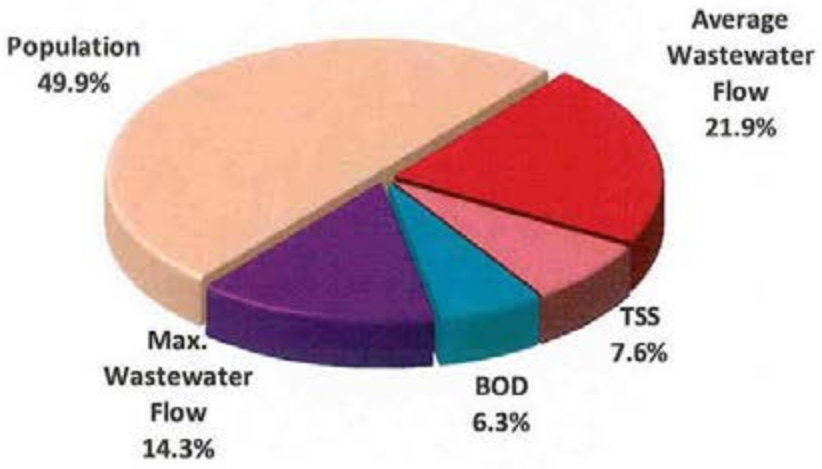


Sewer Assessments

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 sewered population.

On average, approximately 50% of a community's preliminary FY17 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 50% is based on population as illustrated in the next graph.

Allocation of Total MWRA Sewer Utility Assessment



Both the preliminary and final FY17 assessment for population will be calculated using the most recent (July 2014) 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 FY17 assessments have been calculated using the average of CY13, CY14 and CY15 wastewater flows. Ongoing review of meter data may result in revised flows prior to issuing final assessments in June.

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 FY17 operating and maintenance (O&M) and capital expenses attributable to the Clinton Wastewater Treatment Plant are $3,336,677, an increase of 11.3% over FY16 expenses. This includes a 3.6% increase in operating costs, and a 37.7% increase in capital expenses related primarily to the phosphorous removal 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 FY17 direct operating expenses for the plant total $1,949,110, resulting in a preliminary FY17 charge of $154,194 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 FY17 expenses and CY15 wastewater flows, preliminary FY17 charges are $334,139 for the Lancaster Sewer District and $2,848,344 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 FY17 CIP and CEB for the Chicopee Valley Aqueduct (CVA) water system, the preliminary FY17 system assessment is $4,917,722, an increase of 1.8% from FY16 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 CY15 water use, preliminary FY17 assessments are as follows:

- City of Chicopee: $3,427,456 (+0.5%)
- South Hadley Fire District #1: $ 708,380 (+2.4%)
- Town of Wilbraham: $ 781,886 (+7.1%)

As with the metropolitan water system, changes in FY17 water assessments for each CVA community compared to FY16 assessments vary depending on their water use and how that use factors into their share of the CVA water system in CY15 compared to CY14.

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 and the Department of Youth Services. The preliminary wholesale water rate for FY17 is $3,485.33 per million gallons. The proposed FY17 CEB includes revenue of $108,405 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 FY17 sewer assessments, the FY17 retail sewer rate will be $7,169.03 per million gallons. The Proposed FY17 CEB includes revenue of $86,997 from these customers.

ATTACHMENTS:

1. Preliminary FY17 Water and Sewer Assessments
2. Clinton Wastewater Treatment Plant Sewer User Charge Determination
3. Chicopee Valley Aqueduct System Assessment

Massachusetts Water Resources Authority
Preliminary FY17 Water and Sewer Assessments

5-Feb-16

MWRA Fully Served Water and Sewer Customers	Final FY16 Water Assessment	Preliminary FY17 Water Assessment	Percent Change from FY16	Final FY16 Sewer Assessment	Preliminary FY17 Sewer Assessment	Percent Change from FY16	Final FY16 Combined Assessment	Preliminary FY17 Combined Assessment	Dollar Change from FY16	Percent Change from FY16
ARLINGTON	$4,724,970	$4,996,174	5.7%	$7,699,278	$8,040,018	4.4%	$12,424,248	$13,036,192	$611,944	4.9%
BELMONT	2,674,576	2,839,801	6.2%	4,624,861	4,854,094	5.0%	7,299,437	7,693,895	394,458	5.4%
BOSTON (BWSC)	80,205,208	83,116,046	3.6%	129,701,392	133,108,935	2.6%	209,906,600	216,224,981	6,318,381	3.0%
BROOKLINE	6,910,883	7,074,458	2.4%	12,639,575	12,974,353	2.6%	19,550,438	20,048,811	498,373	2.5%
CHELSEA	4,155,184	4,231,690	1.8%	7,435,243	7,710,925	3.7%	11,590,427	11,942,615	352,188	3.0%
EVERETT	4,636,654	4,967,690	7.1%	8,056,404	8,173,297	1.5%	12,693,058	13,140,987	447,929	3.5%
FRAMINGHAM	8,243,826	8,191,962	-0.6%	11,893,982	12,901,859	8.5%	20,137,808	21,093,821	956,013	4.7%
LEXINGTON	6,695,144	7,378,622	10.2%	6,970,176	7,311,103	4.9%	13,666,320	14,689,725	1,024,405	7.5%
MALDEN	6,941,818	6,978,197	0.5%	12,439,049	13,022,132	4.7%	19,380,867	20,000,289	619,422	3.2%
MEDFORD	6,432,009	6,457,565	0.4%	11,355,458	11,948,484	5.2%	17,787,467	18,406,049	618,582	3.5%
MELROSE	2,853,930	2,927,124	2.6%	6,084,878	6,291,182	3.9%	8,908,805	9,218,306	309,501	3.5%
MILTON	3,156,824	3,373,637	6.9%	5,018,915	5,395,001	7.5%	8,175,739	8,768,638	592,899	7.3%
NEWTON	12,205,271	13,001,583	6.5%	19,710,607	20,648,755	4.8%	31,915,878	33,650,338	1,734,460	5.4%
NORWOOD	3,755,101	3,667,261	-2.3%	6,718,885	7,068,382	5.2%	10,473,986	10,735,643	261,657	2.5%
QUINCY	11,918,042	11,822,715	-0.8%	19,481,076	20,097,713	3.2%	31,399,118	31,920,428	521,310	1.7%
READING	2,032,766	2,117,862	4.2%	4,624,378	4,798,386	3.8%	6,657,144	6,916,248	259,104	3.9%
REVERE	5,013,281	4,963,446	-1.0%	10,261,623	10,676,230	4.0%	15,274,904	15,639,676	364,772	2.4%
SOMERVILLE	7,060,400	7,688,467	8.9%	15,585,894	16,020,502	2.8%	22,646,294	23,708,969	1,062,675	4.7%
STONEHAM	3,381,301	3,187,200	-5.7%	4,429,220	4,570,084	3.2%	7,810,521	7,757,284	(53,237)	-0.7%
WALTHAM	8,631,171	9,421,137	9.2%	12,680,425	13,203,950	4.1%	21,311,596	22,625,087	1,313,491	6.2%
WATERTOWN	3,392,382	3,303,955	-2.6%	5,760,051	6,066,615	4.3%	9,152,433	9,310,570	158,137	1.7%
WINTHROP	1,629,550	1,650,092	1.3%	3,183,339	3,339,880	4.9%	4,812,889	4,989,972	177,083	3.7%
TOTAL	$196,650,271	$203,356,444	3.4%	$326,324,706	$338,161,880	3.6%	$522,974,977	$541,518,324	$18,543,347	3.5%

MWRA Sewer and Partial Water Customers	Final FY16 Water Assessment	Preliminary FY17 Water Assessment	Percent Change from FY16	Final FY16 Sewer Assessment	Preliminary FY17 Sewer Assessment	Percent Change from FY16	Final FY16 Combined Assessment	Preliminary FY17 Combined Assessment	Dollar Change from FY16	Percent Change from FY16
CANTON	$1,266,728	$1,680,349	30.6%	$3,933,960	$4,178,270	6.2%	$5,220,688	$5,858,619	$637,931	12.2%
NEEDHAM	1,012,962	1,043,468	3.0%	5,408,445	5,718,107	5.7%	6,421,407	6,761,575	340,168	5.3%
STOUGHTON	1,106,344	1,148,754	3.8%	4,392,863	4,776,102	8.7%	5,499,207	5,924,856	425,649	7.7%
WAKEFIELD	1,855,071	1,859,516	0.2%	5,563,282	5,849,953	5.2%	7,418,353	7,709,469	291,116	3.9%
WELLESLEY	852,477	1,060,456	24.4%	5,278,300	5,492,441	4.1%	6,130,777	6,552,897	422,120	6.9%
WILMINGTON	353,379	705,846	99.7%	2,476,867	2,612,734	5.5%	2,830,246	3,318,580	488,334	17.3%
WINCHESTER	1,234,222	1,550,435	25.6%	3,868,461	4,057,343	4.9%	5,102,683	5,607,778	505,095	9.9%
WOBURN	3,091,283	3,366,527	9.0%	9,492,994	9,435,302	-0.6%	12,584,277	12,803,829	219,552	1.7%
TOTAL	$10,792,466	$12,417,351	15.1%	$40,415,172	$42,120,252	4.2%	$51,207,638	$54,537,603	$3,329,965	6.5%

MWRA Sewer-only Customers	Final FY16 Water Assessment	Preliminary FY17 Water Assessment	Percent Change from FY16	Final FY16 Sewer Assessment	Preliminary FY17 Sewer Assessment	Percent Change from FY16	Final FY16 Combined Assessment	Preliminary FY17 Combined Assessment	Dollar Change from FY16	Percent Change from FY16
ASHLAND				$2,380,635	$2,499,256	5.0%	$2,380,635	$2,499,256	$118,621	5.0%
BEDFORD				3,199,185	3,390,016	6.0%	3,199,185	3,390,016	190,831	6.0%
BRAINTREE				8,507,387	9,159,033	7.7%	8,507,387	9,159,033	651,646	7.7%
BURLINGTON				4,905,353	5,109,626	4.2%	4,905,353	5,109,626	204,273	4.2%
CAMBRIDGE				23,259,670	23,898,854	2.7%	23,259,670	23,898,854	639,184	2.7%
DEDHAM				5,063,931	5,346,896	5.6%	5,063,931	5,346,896	282,965	5.6%
HINGHAM SEWER DISTRICT				1,695,098	1,809,609	6.8%	1,695,098	1,809,609	114,513	6.8%
HOLBROOK				1,657,660	1,770,134	6.8%	1,657,660	1,770,134	112,474	6.8%
NATICK				5,526,614	5,748,874	4.0%	5,526,614	5,748,874	222,260	4.0%
RANDOLPH				6,011,817	6,309,225	4.9%	6,011,817	6,309,225	297,408	4.9%
WALPOLE				3,559,098	3,735,603	5.0%	3,559,098	3,735,603	176,505	5.0%
WESTWOOD				2,473,296	2,598,290	5.1%	2,473,296	2,598,290	124,994	5.1%
WEYMOUTH				11,087,503	11,838,429	6.8%	11,087,503	11,838,429	750,926	6.8%
TOTAL				$79,327,245	$83,213,845	4.9%	$79,327,245	$83,213,845	$3,886,600	4.9%

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

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

Attachment 1

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

BUDGETED EXPENSES: Proposed FY2017	
Clinton Direct Operating Expenses:	$1,949,110
MWRA Support Allocation:	459,666
Subtotal O&M Expenses:	$2,408,776
Total Debt Service Expenses:	$927,901
Total Clinton Service Area Expenses	$3,336,677
Less Revenue (City of Worcester Payment)	-154,194
Clinton WWTP Rate Revenue Requirement:	$3,182,483

WASTEWATER FLOW and FLOW SHARES:		CY2014	
	Town of Clinton Flow	Lancaster Sewer District Flow	Total Wastewater Flow
Average Daily Flow (MGD)	2.232	0.262	2.494
Average Flow (MG/YR)	814.769	95.581	910.350
Proportional Share of Flow	89.50%	10.50%	100.0%

Sewer User Charge Determination

TOWN OF CLINTON	
O&M Expenses	$2,408,776
Less Revenue (City of Worcester Payment)	-154,194
O&M Expenses to be Recovered	$2,254,582
Clinton's Share of Flow	89.50%
Clinton's Share of O&M Costs	$2,017,866
Total Clinton O&M Charge	$2,017,866
Debt Service Costs to be Recovered	$927,901
Clinton's Share of Wastewater Flow	89.50%
Total Clinton Debt Service Charge	$830,478
Total Clinton O&M and Debt Service Charge	$2,848,344
Less MWRA Water Ratepayer Subsidy	-$2,348,344
Billable Charge to the Town of Clinton as per CH. 307, Section 8 The Acts of 1987	$500,000

LANCASTER SEWER DISTRICT	
O&M Expenses	$2,408,776
Less Revenue (City of Worcester Payment)	-154,194
O&M Expenses to be Recovered	$2,254,582
Lancaster's Share of Flow	10.50%
Lancaster's Share of O&M Costs	$236,716
Total Lancaster Sewer District O&M Charge	$236,716
Debt Service Costs to be Recovered	$927,901
Lancaster's Share of Wastewater Flow	10.50%
Total Lancaster Sewer District Debt Service Charge	$97,423
Total Lancaster O&M and Debt Service Charge	$334,139
Billable Charge to Lancaster Sewer District	$334,139

Billable Sewer User Charges and Payment Schedule

Sewer Customer	Billable Charges	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
Town of Clinton	$500,000	$125,000	$125,000	$125,000	$125,000
Lancaster Sewer District	$334,139	$83,535	$83,535	$83,535	$83,535
Total Sewer Charges	$834,139	$208,535	$208,535	$208,535	$208,535

Massachusetts Water Resources Authority

Chicopee Valley Aqueduct Water System Assessment

Proposed FY2017

CVA Operating Budget	FY16	PFY17	Change from Prior Year Dollars	Change from Prior Year Percent
CVA Cost Center Expenses	$817,336	$824,088	$6,752	0.8%
Allocated Waterworks Expenses	131,065	136,716	5,652	4.3%
Allocated Watershed/PILOT	511,971	536,876	24,904	4.9%
Allocated Watershed Land Acquisition	22,924	22,915	-9	0.0%
Allocated MWRA Indirect Expenses	538,480	542,095	3,616	0.7%
SUBTOTAL OPERATING BUDGET	**$2,021,776**	**$2,062,690**	**$40,914**	**2.0%**

CVA Capital Budget	FY16	PFY17	Change from Prior Year Dollars	Change from Prior Year Percent
Capital Expenses	$2,875,054	$2,941,592	$66,539	2.3%
TOTAL CVA BUDGET	**$4,896,830**	**$5,004,283**	**$107,453**	**2.2%**

BASE COMMUNITY ASSESSMENT	FY16 [1]	PFY17 [2]	Change from Prior Year Dollars	Change from Prior Year Percent
Chicopee	$3,455,577	$3,490,446	$34,869	1.0%
South Hadley Fire District #1	701,841	721,675	19,834	2.8%
Wilbraham	739,411	792,162	52,750	7.1%
CVA BASE SYSTEM ASSESSMENT	**$4,896,830**	**$5,004,283**	**$107,453**	**2.2%**

PRIOR PERIOD ADJUSTMENTS	FY16 [3]	PFY17 [3]	Change from Prior Year Dollars	Change from Prior Year Percent
Chicopee	-$45,820	-$62,990	-$17,170	37.5%
South Hadley Fire District #1	-9,823	-13,295	-3,471	35.3%
Wilbraham	-9,113	-10,276	-1,163	12.8%
TOTAL ADJUSTMENTS	**-$64,756**	**-$86,561**	**-$21,805**	**33.7%**

ADJUSTED ASSESSMENT	FY16	PFY17	Change from Prior Year Dollars	Change from Prior Year Percent
Chicopee	$3,409,757	$3,427,456	$17,699	0.5%
South Hadley Fire District #1	692,018	708,380	16,362	2.4%
Wilbraham	730,299	781,886	51,587	7.1%
ADJUSTED ASSESSMENT	**$4,832,074**	**$4,917,722**	**$85,648**	**1.8%**

[1] Based on CY2014 water use and before prior period adjustments.

[2] Based on CY2015 water use and before prior period adjustments.

[3] Prior period adjustment to account for budget to actual expenses.

STAFF SUMMARY

TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director
DATE: February 10, 2016
SUBJECT: FY17 Proposed Current Expense Budget

COMMITTEE Administration, Finance & Audit

Kathy Soni, Budget Director
Preparer/Title

___ INFORMATION
_X_ VOTE

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 FY17 Proposed Budget puts forth a 3.9% combined assessment increase, matching the increase projected for FY17 last year. Furthermore, the assessment increases for FY18-19 are also estimated below 4%.

For the first time, the FY17 Proposed Budget addresses the smoothing of rate revenue increases at the utility level. In a separate staff summary to the Board, staff are describing a proposed method to address this issue and recommending the reconvening of the Long-Term Rates Management Committee with the intent of providing the Board with a recommendation prior to the approval of the Final FY17 Budget in June 2016.

The FY17 Proposed Budget reflects the benefits of a planned $25.0 million defeasance in FY16 with targeted savings primarily in FY20, deferring the use of reserves for future years. Capital expenditures scheduled for fiscal year 2017 are less than the scheduled principal payments contributing to the ongoing decrease in outstanding debt.

For the first time since 2003, the Governor's budget includes $1.1 million for Debt Service Assistance. MWRA and Advisory Board staff will continue to work with the House and Senate to ensure its inclusion in the final FY17 state budget. Any funds received will go directly to rate relief.

RECOMMENDATION:

To approve transmittal of the FY17 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 FY17 Proposed Current Expense Budget (CEB) and projects the Rate Revenue Requirement for the next ten years.

Summary

The FY17 Proposed Budget recommends a combined increase in rates and charges of 3.9%. Capital financing costs remain the largest component of the CEB and account for 62.3% of total expenses. Total expenses are $724.2 million, an increase of $21.7 million or 3.1% over the FY16 Budget. There are no offsets from Debt Service Assistance (DSA) assumed for FY17 or in any future years.

The major highlights of the FY17 Proposed Budget include:

- Capital Financing increase of $18.7 million, or 4.3%, remains the largest component of the budget and accounts for more than 62.3% of total expenses;
- Funding of 1,155 FTE's, 5 fewer than in FY16;
- Direct Expense increase of $5.8 million or 2.6% mostly for wages, health insurance and maintenance;
- Indirect Expense decrease of $2.8 million or 6.0% for lower pension contributions, the Harbor Electric Energy Corporation for the Deer Island crossharbor cable contract, offset by higher operating expenses for Watershed Management;
- $5.0 million decrease in Other Revenue due to a one-time revenue for water provided during the community managed CSO project to Cambridge in FY16; and
- No use of Rate Stabilization or Bond Redemption.

Total expenses include $451.4 million for Capital Financing costs and $272.7 million for operating expenses, of which $228.6 million is for Direct Expenses and $44.2 million is for Indirect Expenses. Total expenses increased $21.7 million or 3.1% from the FY16 Budget mainly due to a higher debt service requirement of $18.7 million, higher Direct Expenses of $5.8 million due to inclusion of Cost of Living Adjustments (COLA) for staff, higher healthcare costs, and higher projected maintenance expenses. It is important to note that Direct Expenses increased at the 2.6% targeted level.

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

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

Table 1 on the following page provides a comparison of the FY17 Proposed CEB and FY16 Budget by major categories. Additional detail by line item and by Division is provided in Attachments A and B.

Table 1

MWRA Current Expense Budget
Final FY17 Budget versus FY16 Approved Budget

($ in Millions)	FY16 Approved Budget	Final FY17 Budget	$ Change	% Change
Directs	$ 222.8	$ 228.6	$ 5.8	2.6%
Indirects	47.0	44.2	(2.8)	-6.0%
Sub-Total Operating Expenses	$ 269.8	$ 272.7	$ 3.0	1.1%
Capital Financing (before Offsets)	432.7	451.4	18.7	4.3%
Offsets: Bond Redemption[1]	-	-	-	
Variable Debt Savings	-	-	-	
Debt Service Assistance	-	-	-	0.0%
Sub-Total Capital Financing	$ 432.7	$ 451.4	$ 18.7	4.3%
Total Expenses	$ 702.5	$ 724.2	$ 21.7	3.1%
Investment Income	$ 9.4	$ 9.7	$ 0.3	3.7%
Non-Rate Revenue	20.7	15.8	(4.9)	-23.8%
Rate Stabilization[1]	-	-	-	
Sub-Total Non-Rate Revenue	$ 30.0	$ 25.5	$ (4.6)	-15.3%
Rate Revenue	672.4	698.7	26.3	3.9%
Total Revenue & Income	$ 702.5	$ 724.2	$ 21.7	3.1%
FY17 Rate Revenue Increase		**3.9%**		
Combined Use of Reserves	$ -	$ -		

1 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 $228.6 million, an increase of $5.8 million, or 2.6%, from the FY16 Budget.

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

- *Overtime* – The budget includes $4.2 million for Overtime, basically level funded with FY16 Approved Budget.

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

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

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

- *Utilities* – The budget includes $22.4 million for Utilities, which is a reduction of $747,000 or 3.2% from the FY16 Budget. The decrease reflects an ongoing decline in energy prices, most notably electricity and diesel fuel. Increased self-generation at Deer Island also contributed to a reduction in electricity demand. The budget funds $16.7 million for Electricity, $2.8 million for Diesel Fuel, $2.1 million for Water, and $590,000 for Natural Gas.

- *Maintenance* – The budget includes $30.3 million for Maintenance projects, an increase of $1.6 million or 5.7% from the FY16 budget. The FY17 Maintenance request is $2.0 million above FY15 actuals, reflecting a $1.1 million increase in MIS for software license upgrades, additional funds for energy efficient projects, a new

control valve for Weston Aqueduct, maintenance at Caruso Pump Station, and other maintenance initiatives.

- *Training and Meetings* – The budget includes $436,000 for Training and Meetings, an increase of $22,000 or 5.3% from the FY16 Budget.

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

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

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

Indirect Expenses

Indirect Expenses for FY17 total $44.2 million, a decrease of $2.8 million or 6.0% from the FY16 Budget. Below are the highlights of major changes:

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

- The budget includes $4.6 million for the Retirement Fund, a reduction of $3.5 million or 61.6% over the FY16 required contribution. The minimum required contribution for FY16 is $3.1 million based on the January 1, 2015 actuarial report. An additional

pension deposit of $1.5 million was also included in the Proposed FY17 Budget in recognition of lower than assumed returns on pension investments in CY15.

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

- The budget includes $2.1 million for Insurance, a decrease of $38,000 or 1.7% from the FY16 Budget. The FY17 Budget was based on actual average spending for the past five years, FY11-15.

- The Authority has complied with the GASB 45, *Accounting and Financial Reporting by Employers for Postemployment Benefits Other than Pensions (OPEB)*, by disclosing this liability in the year-end Financial Statements. As part of the multi-year strategy to address its unfunded liabilities for OPEB and pension holistically, the Board approved a plan to pay down our pension liability and upon reaching full funding, move to address the OPEB obligation. This strategy was employed in the FY08-16 budgets (although temporarily halted in FY11 to achieve a 1.5% rate increase). Based on the latest actuarial evaluation, MWRA's pension fund is at 98.6% funding level. In the FY17 Budget the Authority proposing to fund its OPEB liability at $4.9 million, continuing the Authority's long-term commitment to address its liabilities. Furthermore, to maximize the benefits in terms of returns and accounting treatment, an irrevocable OPEB Trust was established after Board approval and funding started on April 23rd, 2015 with $10,800,000 deposit. The source of the deposit is $10 million cash reserves which became available due to the Amended and Revised Bond Indenture, and $800,000 from funds appropriated in FY10 for funding OPEB. The $4.9 million contribution is 50% of the Actuarial Required Contribution (ARC) after the reduction of the pay-as-you-go portion budgeted under the Fringe line item, based on the January 1, 2014 actuarial report.

- Funding for the Operating Reserve for FY17 is $195,000 higher than the FY16 Budget. The Operating Reserve balance is in compliance with MWRA General Bond Resolution which requires a balance of one-sixth of annual operating expenses. Based on the FY17 Proposed Budget the required balance is $39.61 million versus the $39.42 million required in FY16.

Capital Financing

As a result of the Authority's Capital Improvement Program, debt service as a percent of total expenses (before offsets) has increased steadily from 36% in 1990 to over 62% in the FY17 Current Expense Budget. Much of this debt service is for completed projects, primarily the Boston Harbor Project and the Integrated Water Supply Improvement Program. The MWRA's capital spending, from its inception, had been dominated by projects mandated by court ordered or regulatory requirements, which in total have accounted for ~80% of capital spending to date. Going forward, and as the Combined Sewer Overflow (CSO) projects reached substantial completion in December 2015, the majority of spending will be focused on asset protection and water redundancy initiatives. The projected capital spending scheduled for fiscal year 2017 is less than scheduled principal payments which will contribute to decrease MWRA's outstanding indebtedness.

The Authority has actively managed its debt structure to take advantage of favorable interest rates. Tools used by the MWRA to lower borrowing costs and manage rates include current and advanced refunding of outstanding debt, maximizing the use of the subsidized State Revolving Fund (SRF) debt, issuance of variable rate debt, swap agreements, and the use of surplus revenues to defease debt. The MWRA also uses tax exempt commercial paper to minimize the financing cost of construction in process.

The FY17 Proposed Budget capital financing costs total $451.4 million and remain the largest portion of the MWRA's budget, accounting for 62.3% of total expenses.

The FY17 Proposed Budget includes a planned defeasance of $25.0 million which will reduce debt service by approximately $22.4 million in FY20, and $1,071,350 million in years FY17-19.

The FY17 Budget assumes a 3.25% interest rate for variable rate debt which is the same level as in FY16. The Authority's variable rate debt assumption is comprised of three separate elements: the interest rate for the daily and weekly series; liquidity fees for the Standby Bond Purchase Agreement, Letter of Credit, and Direct Purchase providers; and remarketing fees. While MWRA continues to experience unusually low interest rates, they are not reflective of historical averages and there is no guarantee that rates will remain as low as they are.

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

- $269.3 million in principal and interest payments on MWRA's senior fixed rate bonds. This amount includes $6.5 million to support issuances of $100 million in April 2016 and $5.2 million to support issuances of $125 million of new money in January 2017. Also it includes a reduction of 1.1 million for the effect of the planned FY16 defeasance;

- $70.0 million in principal and interest payments on subordinate bonds;

- $86.7 million in principal and interest payments on SRF loans. This amount includes $10.4 million to support issuances of $32.0 million of replacement loans and $96.5 million in regular loans during 2016 and 2017;

- $18.0 million to fund ongoing capital projects with current revenue and to meet coverage requirements;

- $4.1 million to fund the interest expense related to the Local Water Pipeline Assistance Program; and,

- $3.2 million for the Chelsea Lease.

Revenue

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

- $7.0 million in Other Revenue including, $3.6 million from the sale of the Authority's Renewable Portfolio Credits, sale of generated power, and revenue from the demand response program as well as $2.2 million in permit fees and penalties. Other Revenue decreased $5.0 million from the FY16 Budget due to a "one time" revenue in FY16 for water used by Cambridge during a CSO project.

- $9.7 million in Investment Income, an increase of $348,000 or 3.7% from the FY16 Budget, reflecting higher interest rate assumptions. The short-term interest rate assumption is at 0.50% which is at the 30 basis points above the FY16 Budget level.

- $8.8 million in Other User Charges, including $4.9 million for Chicopee Valley Aqueduct (CVA) communities, $1.6 million for Deer Island water usage, $753,000 for entrance fees from member communities, and $500,000 for the Commonwealth's partial reimbursement for Clinton Wastewater Treatment Plant expenses. Other User Charges are $112,000 or 1.3% more than the FY16 Budget which is mainly due to assessment increases related to increases for Deer Island, Chicopee, and Lancaster.

The Rate Revenue Requirement for FY17 is $698.7 million, an increase $26.3 million or 3.9% over the FY16 Budget. The Rate Revenue Requirement is the difference between total expenses of $724.2 million, less non-rate revenue of $25.5 million.

Planning Estimates and Future Rate Projections

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.

Table 2 below presents the combined estimated future rate increases and household charges based on the Proposed FY17 Budget. The planning estimates shown below assume no Debt Service Assistance from the Commonwealth and use of Rate Stabilization and Bond Redemption reserves through FY23 to manage the rate increases.

Table 2

Rates & Budget Projections										
Proposed FY17 Final CEB	**FY2016**	**FY2017**	**FY2018**	**FY2019**	**FY2020**	**FY2021**	**FY2022**	**FY2023**	**FY2024**	**FY2025**	**FY2026**
Total Rate Revenue ($000)	$ 672,440	$ 698,700	$ 725,693	$ 753,637	$ 784,833	$ 817,291	$ 853,700	$ 836,601	$ 836,694	$ 834,221	$ 874,134
Rate Revenue Change from Prior Year ($000)	$ 22,124	$ 26,260	$ 26,993	$ 27,945	$ 31,197	$ 32,458	$ 36,409	$ (17,099)	$ 93	$ (2,473)	$ 39,913
Rate Revenue Increase	3.4%	3.9%	3.9%	3.9%	4.1%	4.1%	4.5%	-2.0%	0.0%	-0.3%	4.8%
Use of Reserves ($000)	$ -	$ -	$ -	$ -	$ 4,273	$ 24,765	$ 24,141	$ 9,441	$ -	$ -	$ -
Estimated Household Bill											
Based on annual water usage of 61,000 gallons	$1,055	$1,102	$1,152	$1,204	$1,261	$1,319	$1,382	$1,419	$1,467	$1,516	$1,590
Based on annual water usage of 90,000 gallons	$1,556	$1,626	$1,700	$1,777	$1,860	$1,947	$2,040	$2,093	$2,164	$2,236	$2,346

CEB Review and Adoption Process

The Advisory Board has 60 days from the transmittal of the FY17 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 2017 to the Board for approval in June 2016.

Attachments

Attachment A FY17 Proposed Current Expense Budget compared to FY16 Budget
Attachment B FY17 Proposed Current Expense Budget by Division vs. FY16 Budget
Attachment C FY17 Proposed Current Expense Budget compared to FY16 Projection

ATTACHMENT A

FY17 Proposed Budget vs FY16 Approved Budget

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

ATTACHMENT B

FY17 Proposed Direct Expense Budget by Division

Division	FY16 Final Budget	FY17 Proposed Budget	Change FY17 Proposed Budget vs. FY16 Final Budget	
			$	%
Executive	$1,276,807	$1,312,656	$35,849	2.8%
Emergency Preparedness	3,125,379	3,180,757	$55,378	1.8%
Administration	43,641,893	46,813,588	$3,171,695	7.3%
Finance	4,183,045	4,325,181	$142,136	3.4%
Law	1,900,601	1,886,820	-$13,781	-0.7%
Affirmative Action	534,332	556,041	$21,709	4.1%
Internal Audit	755,720	655,128	-$100,592	-13.3%
Public Affairs	1,212,328	1,221,656	$9,328	0.8%
Operations/Planning	166,204,370	168,635,826	$2,431,456	1.5%
Total Authority	$222,834,475	$228,587,653	$5,753,179	2.6%

ATTACHMENT C

FY17 Proposed vs FY16 Budget

TOTAL MWRA	FY16 Budget	FY16 Projection	FY17 Proposed	Change FY17 Proposed Budget vs FY16 Projection	
				$	%
EXPENSES					
WAGES AND SALARIES	$ 99,363,168	$ 96,948,377	$ 102,229,030	$ 5,280,653	5.4%
OVERTIME	4,219,293	4,211,968	4,192,676	(19,292)	-0.5%
FRINGE BENEFITS	19,326,756	19,336,831	20,592,609	1,255,778	6.5%
WORKERS' COMPENSATION	2,343,000	2,204,000	2,274,190	70,190	3.2%
CHEMICALS	9,790,849	9,568,186	9,985,755	417,569	4.4%
ENERGY AND UTILITIES	23,164,822	21,131,015	22,418,027	1,287,012	6.1%
MAINTENANCE	28,698,772	29,962,886	30,320,567	357,681	1.2%
TRAINING AND MEETINGS	413,714	414,086	435,481	21,395	5.2%
PROFESSIONAL SERVICES	5,819,611	5,632,283	6,316,156	683,873	12.1%
OTHER MATERIALS	6,164,588	5,975,209	6,172,140	196,931	3.3%
OTHER SERVICES	23,529,902	23,393,431	23,651,024	257,593	1.1%
TOTAL DIRECT EXPENSES	**$ 222,834,475**	**$ 218,778,272**	**$ 228,587,653**	**$ 9,809,381**	**4.5%**
INSURANCE	$ 2,160,797	$ 1,955,320	$ 2,123,297	167,977	8.6%
WATERSHED/PILOT	28,096,233	27,669,959	29,996,321	2,326,362	8.4%
HEEC PAYMENT	1,946,157	1,810,106	773,859	(1,036,247)	-57.2%
MITIGATION	1,400,000	1,520,000	1,558,000	38,000	2.5%
ADDITIONS TO RESERVES	(34,927)	(34,927)	195,747	230,674	-660.4%
RETIREMENT FUND	8,159,521	8,159,521	3,132,624	(5,026,897)	-61.6%
ADDITIONAL PENSION DEPOSIT	-	-	1,500,000	1,500,000	
POSTEMPLOYMENT BENEFITS	5,224,848	5,224,848	4,876,050	(348,798)	-6.7%
TOTAL INDIRECT EXPENSES	**$ 46,952,629**	**$ 46,304,828**	**$ 44,155,898**	**$ (2,148,929)**	**-4.6%**
STATE REVOLVING FUND	$ 81,876,277	$ 81,876,277	$ 86,718,919	4,842,642	5.9%
SENIOR DEBT	283,024,431	273,217,759	269,326,256	(3,891,503)	-1.4%
SUBORDINATE DEBT	49,222,442	49,222,442	69,997,992	20,775,550	42.2%
LOCAL WATER PIPELINE CP	4,149,242	500,000	4,149,242	3,649,242	729.8%
CURRENT REVENUE/CAPITAL	11,200,000	11,200,000	18,000,000	6,800,000	60.7%
CAPITAL LEASE	3,217,060	3,217,060	3,217,060	-	0.0%
CORE FUND DEPOSIT	-	-		-	
BOND REDEMPTION	-	-		-	
VARIABLE RATE SAVINGS	-	(13,923,790)		13,923,790	-100.0%
DEFEASANCE ACCOUNT	-	27,379,702		(27,379,702)	-100.0%
DEBT SERVICE ASSISTANCE	-	-	-	-	
TOTAL DEBT SERVICE	**$ 432,689,450**	**$ 432,689,450**	**$ 451,409,469**	**$ 18,720,019**	**4.3%**
TOTAL EXPENSES	**$ 702,476,554**	**$ 697,772,550**	**$ 724,153,020**	**$ 26,380,471**	**3.8%**
REVENUE & INCOME					
RATE REVENUE	$ 672,440,000	$ 672,440,000	$ 698,700,000	26,260,000	3.91%
OTHER USER CHARGES	8,683,898	8,683,898	8,795,741	111,843	1.3%
OTHER REVENUE	12,000,066	14,147,443	6,956,430	(7,191,013)	-50.8%
RATE STABILIZATION	-	-		-	
INVESTMENT INCOME	9,352,590	9,652,590	9,700,849	48,259	0.5%
TOTAL REVENUE & INCOME	**$ 702,476,555**	**$ 704,923,932**	**$ 724,153,020**	**$ 19,229,089**	**2.7%**
VARIANCE:		$ 7,151,382		$ (7,151,382)	

STAFF SUMMARY

TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director
DATE: February 10, 2016
SUBJECT: Approval of the Seventy-Second Supplemental Resolution

COMMITTEE: Administration, Finance & Audit

X VOTE
INFORMATION

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

Thomas J. Durkin
Director of Finance

RECOMMENDATION:

To adopt the Seventy-Second Supplemental Resolution authorizing the issuance of up to $550,000,000 of Massachusetts Water Resources Authority General Revenue Bonds and Massachusetts Water Resources Authority General Revenue Refunding Bonds and the supporting Issuance Resolution.

DISCUSSION:

The bonds to be issued under this authorization include both new money and refunding bonds. Staff anticipate that the bonds to be issued under this authorization would be sold in late March or early April, with a closing on the transaction early in May. The new money issuance accounts for $100 million of the $550 million authorization and will be used to fund ongoing capital improvements and retire outstanding commercial paper. The new money deposited into the construction fund will be used to pay for Deer Island asset protection projects including scum skimmer replacement, and the North Main Pump Station Variable Frequency Drive replacement, as well as, water system distribution improvements including the Wachusett Aqueduct Pump Station, and the Northern Intermediate High Section 89/29 construction.

In addition to the $100 million in new money, MWRA has approximately $356.9 million in outstanding bonds which can be refunded for interest savings based on current market conditions. However, staff are seeking a total refunding authorization of up to $450 million in the event market conditions improve which would allow additional bonds to be refunded for interest savings. The $450 million for a potential refunding, plus the $100 million in new money results in the total requested authorization of $550 million. All of the potential refunding candidates will be refunded solely for interest rate savings, with the transaction meeting MWRA's refunding standards[1], with little to no change to the principal amortization.

[1] Under MWRA's debt policy refunding candidates are considered when the overall savings has a present value of 4.0% or greater; individual maturities have a 3% present value savings or an option value above 70%; and efficiency

While the amount which could be refunded for savings is currently lower than the total authorization being sought at this meeting, staff believe that this additional authorization is important to ensure that MWRA can respond to market changes. If the favorable market conditions should improve even more by the time of pricing, there may be an opportunity to refund additional candidates and staff want to ensure that they have the necessary authorization from the Board to take maximum advantage of the refunding for savings.

The following table lists the series of bond which are currently viable candidates for a refunding for interest rate savings.

Series	Refunding Par	Call Date
2005B	$ 5,045,000	August 1, 2017
2006B	$ 89,245,000	August 1, 2016
2007A	$ 188,150,000	February 1, 2017
2009A	$ 9,210,000	August 1, 2019
2009B	$ 56,620,000	Augsut 1, 2019
2010A	$ 5,970,000	August 1, 2020
2011C	$ 720,000	August 1, 2016
2012A	$ 1,910,000	August 1, 2016
Total	**$ 356,870,000**	

These series are the most advantageous for refunding primarily because the 2006 Series B, 2011 Series C and 2012 Series A bonds can be called in August 2016, and the other bonds in a relatively short period of time, thereby providing the most savings. Shorter periods of time between the issuance of the refunding and the retirement of the old bonds results in less interest expense. Typically, the cost of paying double interest for a discrete period of time would be offset by the escrow's earnings. However, given the historically low governmental securities interest rates which comprise the escrow, earnings are not sufficient to offset the additional interest. Therefore, while interest rates on the new refunding bonds are low, the lack of strong escrow earnings to fund the extra interest precludes MWRA from being able to refund additional bonds and realize adequate savings at this time.

Based on the current interest rates, staff anticipate that the refunding will yield $58.9 million in budgetary savings, with a net present value savings of $40.0 million or 11.2%. The following table details the changes in debt service as a result of the refunding by fiscal year.

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of the escrow as determined by dividing the present value savings by the negative arbitrage on the escrow is over 50%.

Fiscal Year	Prior Debt Service	Refunding Debt Service	Gross Budgetary Savings	Fiscal Year	Prior Debt Service	Refunding Debt Service	Gross Budgetary Savings
2016	$ 16,745,425	$ 16,299,838	$ 445,587	2032	$ 27,425,828	$ 25,316,461	$ 2,109,367
2017	$ 16,745,425	$ 15,854,250	$ 891,175	2033	$ 27,398,275	$ 25,289,086	$ 2,109,189
2018	$ 16,745,425	$ 15,854,250	$ 891,175	2034	$ 27,384,400	$ 25,270,211	$ 2,114,189
2019	$ 16,745,425	$ 15,854,250	$ 891,175	2035	$ 28,180,838	$ 26,071,461	$ 2,109,377
2020	$ 16,745,425	$ 15,854,250	$ 891,175	2036	$ 26,404,538	$ 24,294,586	$ 2,109,952
2021	$ 26,110,300	$ 24,001,211	$ 2,109,089	2037	$ 15,070,475	$ 12,959,586	$ 2,110,889
2022	$ 27,125,400	$ 25,012,586	$ 2,112,814	2038	$ 15,068,000	$ 12,955,711	$ 2,112,289
2023	$ 22,676,088	$ 20,563,336	$ 2,112,752	2039	$ 15,069,713	$ 12,960,336	$ 2,109,377
2024	$ 22,669,400	$ 20,557,836	$ 2,111,564	2040	$ 15,069,600	$ 12,957,336	$ 2,112,264
2025	$ 22,656,975	$ 20,547,086	$ 2,109,889	2041	$ 15,071,650	$ 12,960,586	$ 2,111,064
2026	$ 23,006,113	$ 20,896,211	$ 2,109,902	2042	$ 15,069,850	$ 12,958,836	$ 2,111,014
2027	$ 24,391,900	$ 22,278,211	$ 2,113,689	2043	$ 15,068,188	$ 12,955,961	$ 2,112,227
2028	$ 26,182,481	$ 24,072,836	$ 2,109,645	2044	$ 15,070,425	$ 12,960,461	$ 2,109,964
2029	$ 35,246,953	$ 33,137,836	$ 2,109,117	2045	$ 15,070,325	$ 12,960,836	$ 2,109,489
2030	$ 35,250,453	$ 33,138,586	$ 2,111,867	2046	$ 15,071,650	$ 12,960,711	$ 2,110,939
2031	$ 27,429,172	$ 25,318,961	$ 2,110,211	**Total**	**$663,966,113**	**$605,073,694**	**$ 58,892,419**

While the requested $450 million is a not-to-exceed amount, should market conditions change, the refunding could be smaller than the $356.9 million identified here. An increase of approximately 160 basis points in long-term fixed interest rates over the current levels would reduce the advance refunding bonds (2005B, 2007A, 2009A, 2009B and 2010A) below MWRA's typical present value savings threshold of 4.0%. Long-term fixed interest rates would have to increase by approximately 250 basis points for the currently callable bonds (2006B, 2011C and 2012B) to fall below the 4.0% threshold. Staff will continue to work with MWRA's financial advisors to determine the most appropriate size and structure for the refunding

Over the last several years, debt issuers in the Commonwealth and around the country that have projects that provide environmental benefit have issued "Green Bonds." Green Bonds are marketed to environmentally responsible investment funds, and as part of this issuance MWRA's bonds will likely be marketed as Green Bonds. While there is no required certification for Green Bonds, MWRA will be required to document that the funds are, or in the case of the refunding were, use to pay for projects that provided an environmental benefit. Given MWRA's mission its projects are green by their nature.

Under the terms of the last procurement approved by the Board in January 2016, Citigroup Global Markets will serve as the lead underwriter for this transaction.

BUDGET/FISCAL IMPACT:

There are sufficient funds available in the FY16 CEB to pay the debt service costs associated with these borrowings. Any potential refunding for savings would reduce future debt service. The amount of the potential reduction will be determined based upon market conditions and the ultimate pricing of the refunding transaction.

AF&A B.3
IV A.3
2/10/16

STAFF SUMMARY

TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director
DATE: February 10, 2016
SUBJECT: Assignment and Consent to Assignment
Stantec Consulting Services, Inc.

COMMITTEE: Administration, Finance & Audit

____ INFORMATION
X VOTE

A. Navanandan, P.E., Chief Engineer
Carolyn Francisco Murphy, Director of Procurement
Preparer/Title

Michael J. Hornbrook
Chief Operating Officer

On October 31, 2015 all assets and liabilities of and Fay Spofford & Thorndike, Inc., Fay, Spofford & Thorndike, Corp. and Fay, Spofford & Thorndike, LLC were transferred to Stantec Consulting, Inc. This vote will assign a number of MWRA contracts from FST to Stantec Consulting Services, Inc.

RECOMMENDATION:

To authorize the Executive Director, on behalf of the Authority, to approve the assignment of contracts listed below from Fay Spofford & Thorndike, LLC, Fay, Spofford & Thorndike, Inc. and Fay, Spofford & Thorndike, Corp. to Stantec Consulting Services, Inc. with no changes to the contracts and to further authorize the Executive Director to execute an Assignment and Consent to Assignment Agreement.

Contract No.	Contract Name	Completed
6273	Water Transmission Redundancy Plan	2011
6453	Section 111 – Southern Extra High Redundancy Pipeline	Ongoing
6539	Weston Aqueduct Supply Main 3: Design, Construction Administration and Resident Engineering Services	Ongoing
6722	Technical Assistance Consulting Services – Deer Island Treatment Plant	2012
6905	Lynnfield/Saugus Pipelines Design/CA/RI	2013
6906	Northern Intermediate High Redundant Pipeline Design, Construction Administration and Resident Inspection Services	Ongoing
6952	Alewife Brook CSO Improvements Design, Construction Administration and Resident Engineering Services	Ongoing
6954	Northern Intermediate High Assessment and Concept Plan	2010
6968	Electrical Upgrade 3 – Resident Engineering and Inspection Deer Island Treatment Plant	2011
7009	Cottage Farm Brookline Connection and Inflow Controls	2010
7010	Charles River CSO Interceptor Optimization Evaluation	2011
7013	North Dorchester Bay Combined Sewer Overflow Facilities	2012
7017A	Hatchery Pipeline and Hydroelectric Design, Construction Administration	Ongoing

	and Resident Inspection Services	
7032	North Dorchester Bay Outfall Dredging	2013
7034	Alewife Brook Pump Station Rehabilitation	Ongoing
7062	Engineering Services During Construction and Resident Engineering/Inspection Services for the North Main Pump Station Variable Frequency Drive and Synchronous Motor Replacement Project	Ongoing
7063A	Engineering Services During Construction and Resident Engineering Inspection Services – Heat Loop Construction 3	2011
7156	Wachusett Aqueduct Pumping Station Design, Construction Administration and Resident Inspection Services	Ongoing
7208	Technical Assistance Consulting Services for the John J. Carroll Water Treatment Plant	2010
7229	Oakdale Facility – Phase 1A Electrical Upgrade Design, Construction Administration and Resident Engineering Services	2014
7274	Renewable Energy Technical Assistance Consulting Services	2013
7274A	Renewable Energy Technical Assistance Consulting Services	2013
7277B	Engineering Services During Construction for Rehabilitation of Anaerobic Digesters, Primary Clarifiers and New Influent Gates at the Clinton Wastewater Treatment Plant	Ongoing
7315	Technical Assistance Consulting Services for the John J. Carroll Water Treatment Plant	2013
7330	Engineering Services During Construction for Pump, Gear Box and Diesel Engine Upgrades at Cottage Farm and Prison Point	Ongoing
7377	Clinton Wastewater Treatment Plant Phosphorus Reduction Design, Construction Administration and Resident Engineering Services	Ongoing
7390	Technical Assistance Consulting Services	2013
7400	Technical Assistance Consulting Services – Deer Island Treatment Plant	Ongoing
7406	Technical Assistance Consulting Services for the John J. Carroll Water Treatment Plant	Ongoing
7437	Agency-Wide Technical Assistance Consulting Services	Ongoing

DISCUSSION:

On October 30, 2015, a merger took place between Fay, Spofford & Thorndike (FST) Inc and Stantec Consulting Services, Inc. On October 31, 2015, FST Corp. was dissolved; on November 4, 2015 FST LLC was dissolved and on November 2, 2015 FST Inc. was dissolved. Articles of Voluntary Dissolution and Certificate of Cancellation were filed with the Massachusetts Secretary of the Commonwealth and all assets and liabilities were transferred to Stantec Consulting Services, Inc.

An Assignment and Consent to Assignment Agreement has been prepared. Execution of the Agreement will not impact the contracts listed as there will be no changes to cost, key personnel or level of service to be provided to MWRA. All terms and conditions, liabilities, and performance obligations of the original contracts will remain in full force and effect.

MWRA contract terms include a provision under "Professional Liability Insurance Coverage" that the insurance shall be maintained for a period of six years after completion of services; therefore the above list includes contracts completed within the past six years.

BUDGET/FISCAL IMPACT:

There is no budgetary impact to MWRA due to this assignment.

MBE/WBE PARTICIPATION:

The minimum MBE and WBE participation requirements for each contract will remain in effect.

STAFF SUMMARY

TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director
DATE: February 10, 2016
SUBJECT: Miscellaneous Fencing
Premier Fence, LLC
Contract 6760X

COMMITTEE: Admininistration, Finance and Audit Committee ___ INFORMATION
_X_ VOTE

Michele S. Gillen
Director of Administration

John P. Vetere, Deputy Chief Operating Officer
Andrew Hidick-Smith, Director of OEP
Carmine De Maria, Project Manager
Preparer/Title

Michael J. Hornbrook
Chief Operating Officer

RECOMMENDATION:

To approve the award of Contract 6760X, Miscellaneous Fencing, to the lowest responsible and eligible bidder, Premier Fence LLC., and to authorize the Executive Director, on behalf of the Authority, to execute said contract in the bid amount of $708,000, for a contract term of 730 calendar days from the Notice to Proceed.

DISCUSSION:

MWRA's Security and Emergency Preparedness Task Force meets regularly to ensure that all of MWRA's facilities are appropriately secured and makes recommendations for additional hardening wherever improvements can be made. One component of facility security is fencing. MWRA has had several successive on-call fencing maintenace contracts, under which either new fencing and gates, barbed wire, guardrails, bollards and pipe gates were installed or old fencing and gates and guard rails were repaired or replaced.

Contract 6760X includes the installation and repairing of fencing and gates, barbed wire, pipe gates, bollards and guardrails as identified on an as-needed basis for the contract term of two years.

Procurement Process

Contract 6760X was advertised and bid utilizing MWRA's e-procurement system (Event #2144) in accordance with Massachusetts General Laws, Chapter 30. Bids were received on November 5, 2015 from three contractors as follows:

Bidder	Bid Amount
G. A. Fence Company	$690,000.00
Engineer's Estimate	*$700,000.00*
Premier Fence, LLC	$708,432.00
DeLucca Fence Company, Inc.	$726,000.00

G. A. Fence was the apparent low bidder with a bid price that was $10,000 (1.4%) lower than the Engineer's Estimate and $18,432 (2.6%) lower than the second lowest bidder. After conducting reference checks on G. A. Fencing, it was determined that the company, although they had experience in fence installations for ballparks, athletic fields and playgrounds, did not have the required experience with the installation of security fencing, interior building security cages, gates, bollards, pipe gates, and guard rails. G.A. Fence has not done projects of comparable value and do not have the staffing capacity required of this contract.

Staff reviewed the next lowest bidder, Premier Fence, LLC. Reference checks were done and the findings were that Premier Fence, LLC met the required experience needed for this contract. Premier is MWRA's current and past fence and gates contractor and has experience in all types of fence installations both security and parameter fencing as well as pipe gates, bollards, barbed wire, security gates and guard rails. Premier Fence has done work of comparable value and has the staffing capacity needed to carry out the work required of this contract. They have proven their abilities in the current and past as-needed fencing contracts for the MWRA.

The bid price of Premier Fence, LLC is $8,432.00 (1.2%) higher than the Engineer's Estimate and $18,432 (2.6%) higher than the lowest bidder. Premier Fence's bid price is reasonable, complete, and includes the payment of prevailing wages.

Based on the information above, it is the MWRA's recommendation that the contract be awarded to Premier Fence LLC as the lowest responsible, qualified and eligible bidder.

BUDGET/FISCAL IMPACT:

The FY16 CIP includes $473,000 for Contract 6760X. The proposed FY17 CIP was updated to include $700,000 for this contract.

MBE/WBE PARTICIPATION:

There were no MBE or WBE participation requirements established for this contract due to the specialized nature of the work and limited opportunities for subcontracting.

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: P. Flanagan
Vice-Chair: J. Walsh
Committee Members:
A. Blackmon
J. Carroll
J. Foti
A. Pappastergion
B. Pena
H. Vitale

to be held on

Wednesday, February 10, 2016

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

Time: Immediately following AF&A Comm.

AGENDA

A. Information

1. Nut Island Odor Control Fire Update

B. Approvals

1. CSO Annual Progress Report for 2015

C. Contract Awards

1. Supply and Delivery of Hydrogen Peroxide for the Deer Island Treatment Plant: U.S. Peroxide, LLC, Bid WRA-4147
2. Clinton Wastewater Treatment Plant Phosphorus Reduction Facility: Daniel O'Connell's Sons, Inc., Contract 7411
3. Caruso Pump Station Improvements Waterline Industries Corp., Contract 7362
4. Nut Island Demolition and Other Related Services **(materials to follow)**

MASSACHUSETTS WATER RESOURCES AUTHORITY

Meeting of the
Wastewater Policy and Oversight Committee

January 13, 2016

A meeting of the Wastewater Policy and Oversight Committee was held on January 13, 2016 at the Authority headquarters in Charlestown. Chairman Flanagan presided. Present from the Board were Ms. Wolowicz and Messrs. Blackmon, Carroll, Cotter, Foti, Pappastergion, Vitale and Walsh. Among those present from the Authority staff were Fred Laskey, Steve Remsberg, Nava Navanandan, Meredith Norton, Mike Hornbrook, Dave Duest, Rick Adams, and Bonnie Hale. The meeting was called to order at 11:40 a.m.

Contract Awards

*Agency-Wide Technical Assistance Consulting Services: Stantec Consulting Services Inc., Contract 7496 and Hazen and Sawyer, P.C., Contract 7497

Staff summarized the types of tasks to be performed as part of these technical assistance contracts, and there was general discussion and question and answer. The Committee recommended approval of the two contract awards (ref. agenda item A.1).

**Sodium Hypochlorite & Sodium Bisulfite Tank Farm Rehabilitation, Design, Construction Administration & Resident Engineering Services, DITP: Stantec Consulting Services, Inc., Contract 6853

Mr. Carroll had a number of concerns about the proposed contract award, primarily its large cost and the fact that there was only one bidder. Staff noted that this was the second time the project was bid and discussed various aspects of the work to be performed. The Committee recommended that the item be postponed until the next meeting and requested that staff attempt to renegotiate the price down to the engineers estimate (ref. agenda item B.2).

The meeting adjourned at 11:55 a.m.

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* Approved as recommended at January 13, 2016 Board of Directors meeting.
** Postponed at January 13, 2016 Board of Directors meeting.

STAFF SUMMARY

TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director
DATE: February 10, 2016
SUBJECT: Nut Island Fire

COMMITTEE: Wastewater Policy & Oversight

X INFORMATION
_____ VOTE

John P. Vetere, Deputy Chief Operating Officer
A. Navanandan, P.E., Chief Engineer
John P. Colbert, P.E. Deputy Chief Engineer
Preparer/Title

Michael J. Hornbrook
Chief Operating Officer

On January 25, 2016 at approximately 12:45PM, the Nut Island Headworks Facility experienced an explosion and a subsequent fire that started in the Odor Control area located at the lowest level of the facility. The fire was difficult to control due to the distance from the ground access to the fire, the thickness of the smoke and the amount of water on the floor from the sprinkler system and Quincy Fire Department hoses. The fire was completely extinguished the next day, January 26, 2016 at 4:00 PM.

Five MWRA staff were performing maintenance in Odor Control when the explosion occurred. These staff were brought by ambulance to the hospital with eye and throat irritation. Staff remained in the hospital overnight and then four were released the following day and the fifth was released the second day. These employees have not yet returned to work.

There was no impact to the upstream wastewater communities as all wastewater flow continued to pass through the facility to the Deer Island Wastewater Facility.

The smoke, soot, heat, fire and water from the sprinklers and firefighting affected nearly all systems in the Odor Control Room and adjacent areas. There was two feet of water on the floor of the facility at the conclusion of fire fighting with equipment under the sprinklers being soaked with water. The adjacent Pump and Blower Room did not experience fire damage, but was exposed to smoke and two feet of water flooding. The smoke reached all areas of the facility including the grit and screening area, electrical MCC room, control room and community room.

The Odor Control System and its mechanical and electrical equipment must be inspected and repaired or replaced where needed prior to restart. The Massachusetts DEP was been notified as the facility air permit requirements will not be met until repairs are completed. Staff, consultants, and contractors are working in multiple areas to safely restore the facility to operation. These activities include inspections of areas with water damage, testing of electrical and HVAC components, repair of elevators, demolition of Odor Control Scrubber #4, and cleaning of odor control ductwork and ventilation ductwork in the odor control area.

RECOMMENDATION:

For information only.

DISCUSSION:

The Nut Island Headworks (pictured on the right),constructed in 1998 as part of the Boston Harbor Project is located on Nut Island, a 17-acre peninsula that projects out into the Boston Harbor from the northeast end of Quincy. The Nut Island Headworks Facility is located in the middle of the property and consists of two main facilities, the Headworks Facility, and the Odor Control Facility.

The Odor Control Facility is designed to treat odors and volatile organic carbons (often referred to as VOCs) contained in the air ventilated from the screenings and grit removal areas, truck bay, and junction channel areas in the Headworks Facility. Odorous air from these areas is exhausted to ducts in two flow streams (or trains) to the Odor Control Facility. The Odor Control Facility consists of four wet scrubbers and five carbon adsorbers that split up into two trains that treat approximately 108,000 cubic feet per minute (cfm).

The wet scrubbers are typically run during the summer months when there are more odors (hydrogen sulfide gas) and the carbon absorbers are used during lower odorous periods. The system duct configuration requires all air to pass through the wet scrubbers even when not in use (chemicals not being fed to the scrubber) to supply the carbon absorbers.

<u>Event Description</u>
On January 25th, two HVAC technicians, a laborer, and two operators were working to repair an outlet damper on Odor Control Scrubber #4. The odor control system was shut down so that the repair could be safely completed. The shear pin on the damper shaft was replaced, the damper operated from open to close several times, and the inspection cover bolted back in place. The scrubber fan was then started to check that the damper operated properly and to return the odor control system to operation. At approximately 12:45PM, when the odor control fan reached full speed, the scrubber blew apart and smoke and dust was expelled into the air. Staff were able to safely leave the area using the stairs and were sent for treatment at an area hospital.

The odor control area sprinklers worked as designed to deluge the area with water and initiated a fire alarm to the Quincy Fire Department. The Quincy Fire Department immediately responded to explosion/fire and began fighting the fire. The Odor Control area is located approximately 45 feet below ground and smoke exiting the stairways and a ventilation unit was very thick. To enter the facility to fight the fire, Quincy firefighters were required to wear self contained breathing devices. Electricity to the underground room was shut off. All these conditions contributed to the difficulty in fighting the fire.

In order to provide more direct access to the fire, MWRA staff excavated the soil over the buried odor control roof to expose concrete planks above the fire area. Staff initially cored two four inch holes between 2:00AM and 4:00AM on January 26 into the concrete planks to provide Quincy Fire additional locations to pump water above the fire.

On January 26, a 50 ton crane was mobilized by Barletta Heavy to assist the MWRA in lifting off a concrete plank above the odor control area. The plank was successfully removed at 2:00PM and the additional access allowed Quincy Fire to successfully extinguish the fire. Staff dewatered the remaining two feet of water from the bottom of the facility. By the morning of January 27, the standing water had been drained from the facility.

Cause of the Fire

The cause of the initiation of the fire has been determined by the State Fire Marshall to be a mechanical failure followed by a dust explosion from the sulfur residue in the odor control scrubber. A dust explosion can occur when dust made of flammable material becomes airborne in a closed space and is exposed to an ignition source. Elemental sulfur is one such flammable material, either in the pure state, or when mixed with chlorates, nitrates or other oxidizing materials. The lower explosive limit (LEL) of sulfur is very low; 35 grams (about a tablespoon) in a cubic meter of air can be enough to react explosively. Sulfur dust clouds are also capable of developing a static charge, which can then self-ignite when the cloud comes into contact with ground. Dust explosions are also capable of propagating, as the shock wave of the initial ignition raises more dust, which is subsequently ignited by the residual heat from the initial explosion.

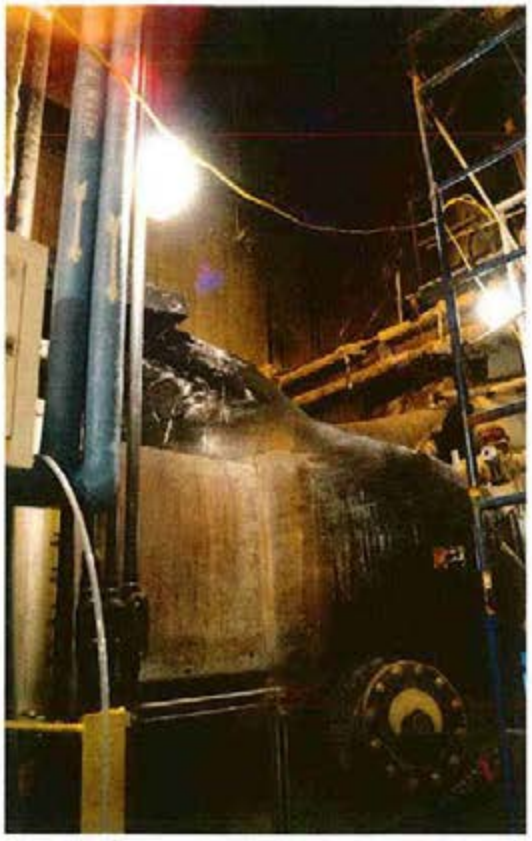
Fire Damage

The damage to the facility was extensive from the fire, sprinkler system operation and fire fighting response. The lower level of the facility had two to three feet of water which damaged all equipment and motors at the lower floor level. Soot and ash spread to all areas of the facility on the walls, floors, ceilings, beams, and equipment. Scrubber #4 and associated ductwork and components were destroyed as shown in the pictures on page 4 of this staff summary.

Short Term Response

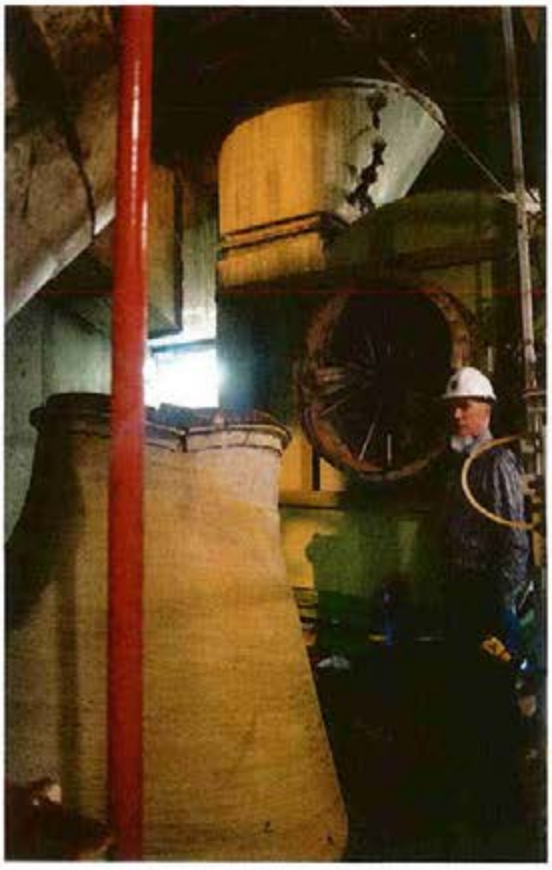
Several concerns are being immediately addressed by in house staff and contractors as follows:

- The odor control system equipment which the vents the air from the grit, screenings, and truck bay needs to be operational to ensure adequate air changes in these areas. Currently, partial portable ventilation units are in service to protect employees' health.

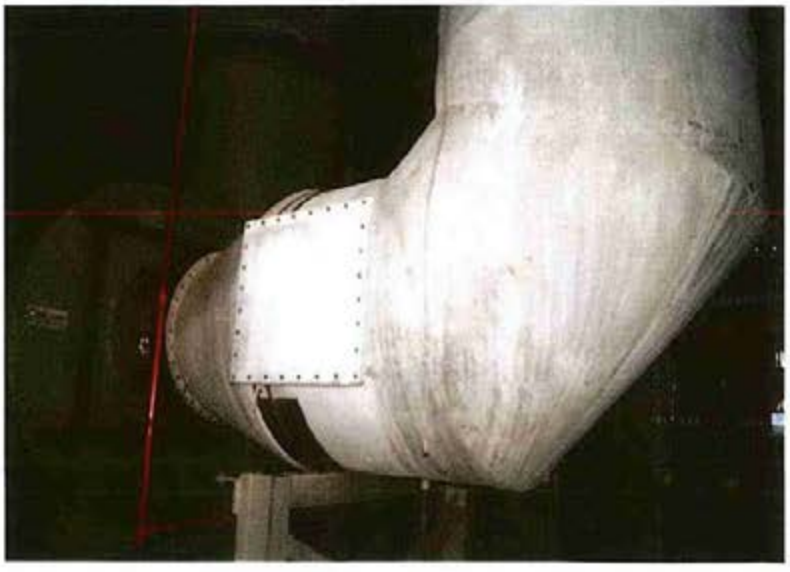


Scrubber #4 Fire

Undamaged Scrubber and Inlet Duct Work



Scrubber #4 Exhaust Fan Inlet Damage



Undamaged Fan Ducting

- There is soot and odorous fire smell remaining throughout the facility. These areas and the internal ventilation ductwork needs to be cleaned to provide a safe working environment for staff.
- Nut Island Headworks Facility has an air permit with Massachusetts DEP for odor control. DEP has been notified of the fire and associated equipment failures.

The following activities have been initiated to address these issues:

- On January 27th, a cleaning company (SERVPRO) was given a purchase order in the amount of $27,500 to immediately clean soot and install portable air filter units in the control room, lunch room and community room at Nut Island so that staff were not negatively impacted from smoke odors and soot. All areas of the second floor and the main entry and restrooms were cleaned.

- Heavy smoke damage and soot are on the walls, ceilings, floors, duct work, equipment, and beams in the lower level, mid level, and ground level of the operational/industrial areas of Nut Island. These areas were not included in the initial limited purchase order described above. A scope of services and drawings for an emergency clean-up contract were provided to four vendors to begin the heavy industrial cleaning required in these remaining areas of the facility. All four vendors participated in a lengthy site visit and provided four quotes. In accordance with MWRA policies and procedures, the Executive Director received approval from the Chairman of the Board and notified all Board members of the emergency award of a purchase order to SERVPRO of Weymouth/SERVPRO Extreme Response Team, which proposed the lowest guaranteed maximum price of $1,301,051. Cleaning will occur six days per week, ten hours per day.

- Odor Control Scrubber # 4 and associated ductwork, fan and motor require removal so that restoration activities can be safely completed. To restore the odor control system and the odor control area ventilation system, the internal surfaces of the ductwork needs to be cleaned of soot, smoke, and sulfur dust. A scope of services and drawings were prepared by in house staff. A DCAM emergency waiver was approved to have this work completed immediately. A site visit was completed on February 3rd and bids will be received on February 10, 2016.

- Independent of the fire event, Hazen and Sawyer was already under contract to perform an assessment of the Nut Island Odor Control, HVAC and EMS systems (see discussion below) for any necessary long-term replacement. As such, Hazen and Sawyer is familiar with the equipment and systems at the facility. To address the water and fire damage on the short-term, a separate task order under MWRA's Technical Assistance contract was issued to Hazen and Sawyer. Their scope was to identify immediate actions necessary to restore equipment impacted by fire and the high water levels, work required to restore the odor control system to operation, and work to restore the heating, air conditioning and ventilation (HVAC) in the odor control room. Hazen and Sawyer engineers inspected

equipment and reviewed facility plans January 27th through 29th. A draft report with specific action required to restore equipment was provided on February 2nd. The specific work is being implemented by in house and contractor staff.

- In house electricians and MWRA's electrical service contractors, HVAC technicians, and mechanics are working daily and on overtime at Nut Island to restore equipment to service that were impacted by the fire. All plant process equipment is back in service excluding equipment in the odor control room. Staff will continue to work daily at the facility following the Hazen and Sawyer recommendations to restore the odor control and HVAC systems to operation.

The short-term goal is to demolish Scrubber # 4, clean all interior ventilation, clean the entire facility, and test and safely restart the Odor Control ventilation and granular carbon units. This will allow air flow through the existing ventilation system (rather than current temporary means) throughout the facility and reestablish odor control with the activated carbon units.

Long Term

The Nut Island Odor Control system after the short term repairs will not have the full redundancy previously available with odor control scrubber and fan #4 removed. It is important to move forward with planned improvements to the Nut Island Odor Control system as soon as possible.

Hazen and Sawyer, P.C. is currently working on Contract 7494, Nut Island Headworks Odor Control, HVAC, and Energy Management Systems (EMS) Evaluation Services, which was awarded at the July 15, 2015 board meeting for an amount of $536,310 for a period of 365 calendar days. This contract was to perform a comprehensive evaluation of the condition and performance of the Nut Island Odor Control, HVAC, and EMS systems, including physically inspecting and testing these systems and equipment, and then providing recommendations on modifications or replacements to the systems to improve reliability, operations and maintenance, and facility energy efficiency. One consideration to be determined by this evaluation is if carbon absorbers at this facility can be used exclusively for odor control as actual hydrogen sulfide levels at Nut Island are lower than were anticipated with the original design. The recommendations will then to be reviewed and approved and used in the final design.

Hazen and Sawyer, P.C. has completed their initial testing and were working on delivering a draft assessment report in April 2016. MWRA has requested this report to be expedited within one month to be used as input into a final design contract. As of January 29th, approximately $132,000 has been spent on this contract.

MWRA Engineering is preparing a new scope of services for long-term repair/rehabilitation/enhancement to Nut Island Odor Control system and facility. This scope will also include an evaluation of replacement of fire and non-fire damaged equipment and systems deemed appropriate (e.g. nearing end of useful life) to replace. The scope will include evaluations, recommendations and the preparation of final design documents.

BUDGET FISCAL IMPACT:

The Authority purchases and maintains property insurance coverage (including Boiler and Machinery) as part of its overall property and casualty insurance program. Our current insurance carrier for FY16 is FM Global Insurance Company. The policy includes various limits of coverage with a $2.5 million self-insured retention (SIR).

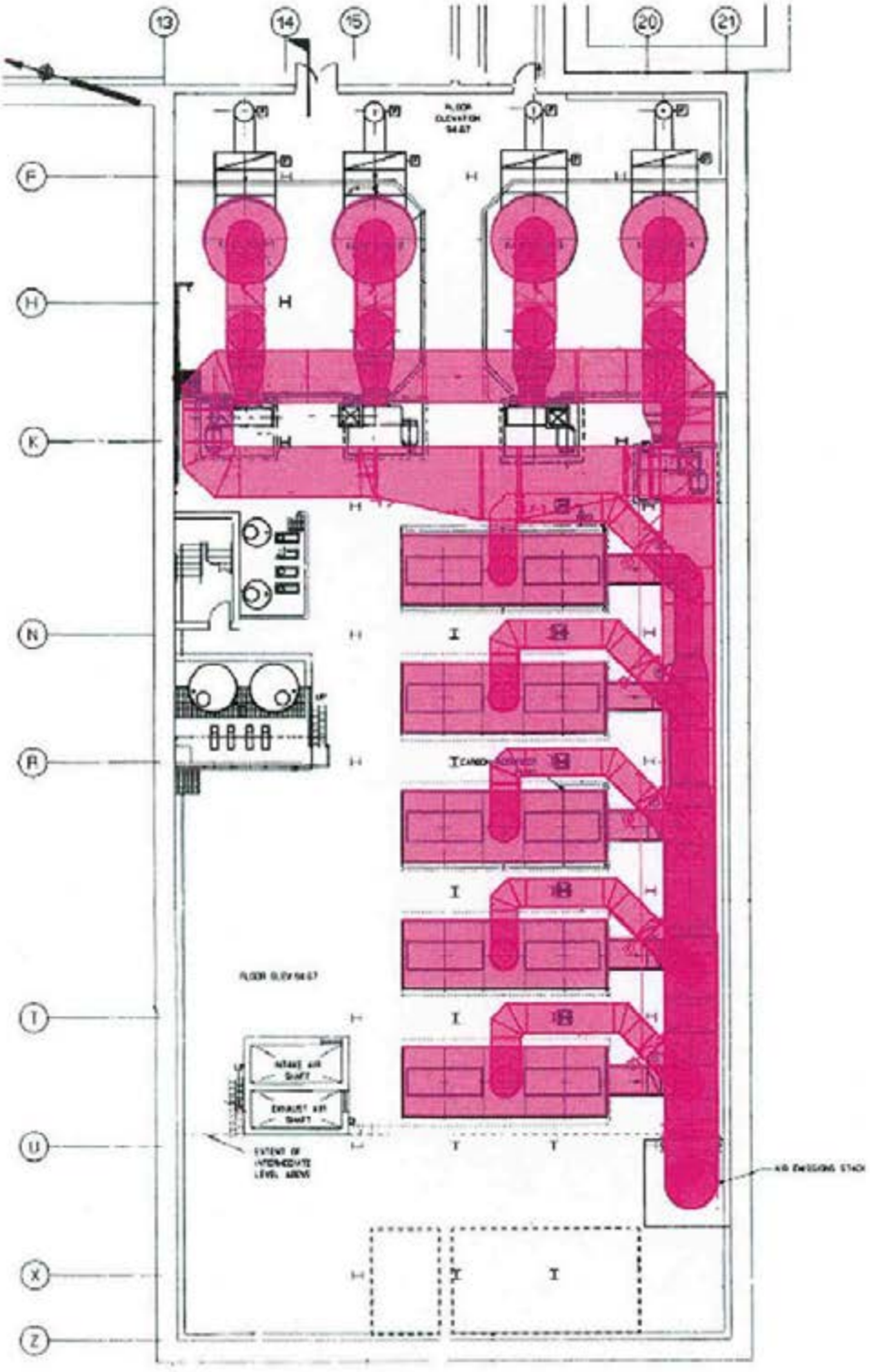
The Nut Island Fire event has been reported to FM Global as an event triggering coverage under the policy and Risk Management has received written acknowledgement of coverage for this event from FM Global. Damage to Real and Personal Property resulting from the fire will be covered subject to the terms and conditions of the policy and the self-insured retention mentioned above.

FM Global is a full service global property insurance company with ample resources and expertise in the area of fire damage remediation and restoration at its finger tips. FM Global provides support services in these areas to its members at no additional premium or cost. Communications with FM Global representatives has been established and support services have already begun. FM Global representatives have been on-site at Nut Island and have provided support for scoping, vendor site walk through and proposal evaluation assistance for industrial cleaning and remediation service proposals. FM Global representatives will be on-site for all damage remediation activities and will provide support and services as needed.

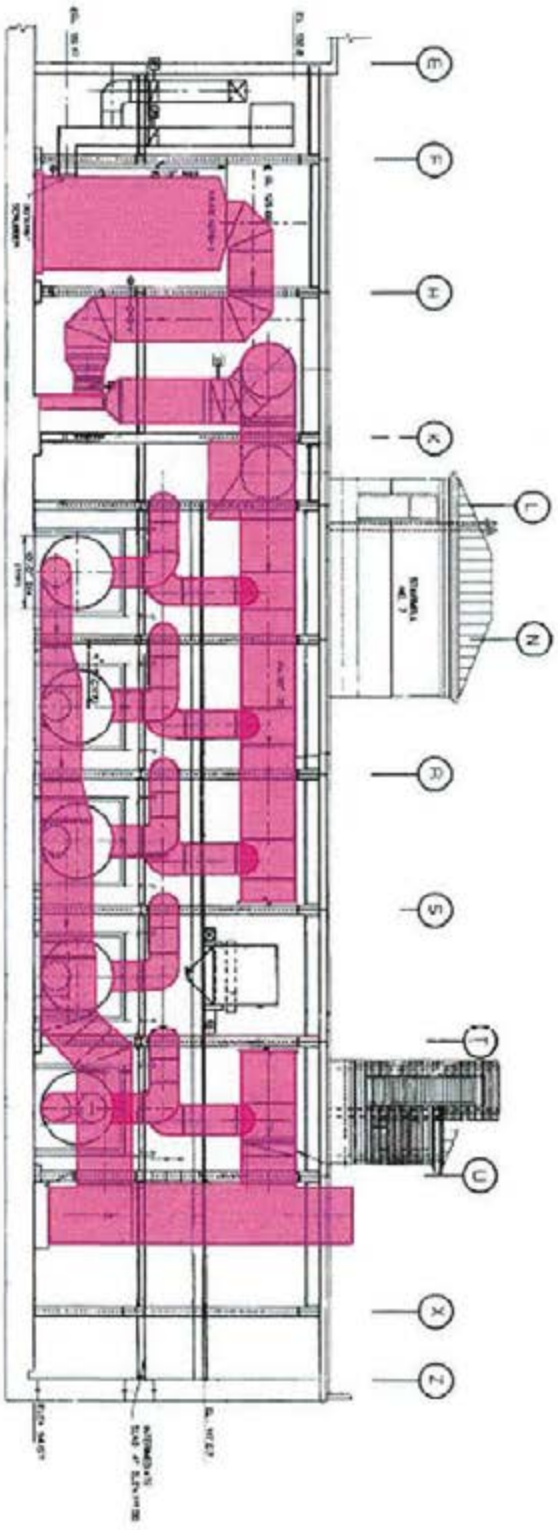
FM Global adjusters were contacted, visited the site, and have been notified of all plans to repair and clean the facility. It is expected that the total costs of repair will exceed the insurance value of $2.5 million. Their total estimated repair cost has not yet been determined and will be provided in a future update to the Board.

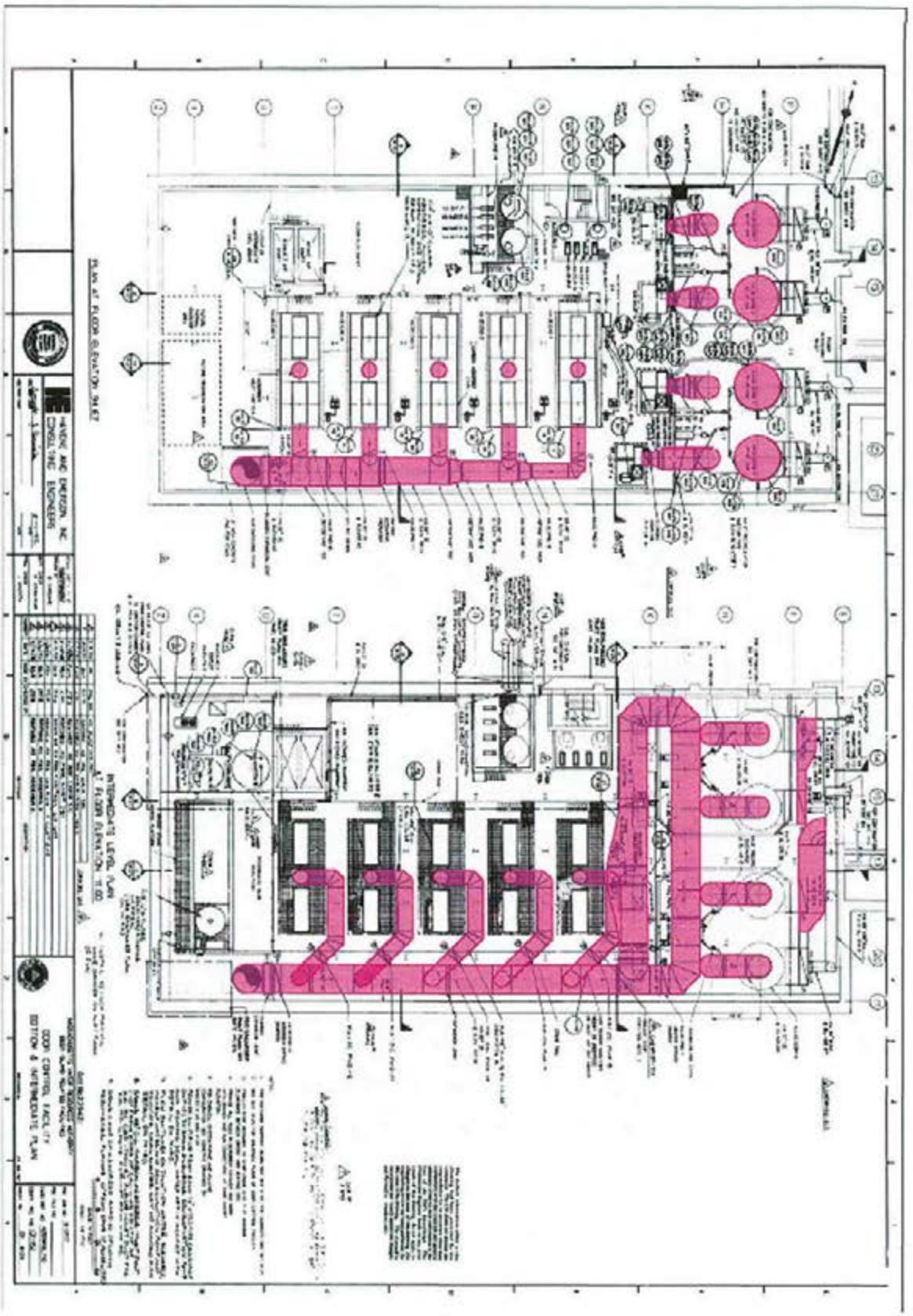
ATTACHMENT:

Plan and Section view of Odor Control System



PLAN AT FLOOR ELEVATION 94.67





STAFF SUMMARY

TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director
DATE: February 10, 2016
SUBJECT: CSO Annual Progress Report 2015

COMMITTEE: Wastewater Policy & Oversight

X INFORMATION
__ VOTE

Anandan Navanandan, P.E., Chief Engineer
David A. Kubiak, P.E., Sr. Program Manager
Preparer/Title

Michael J. Hornbrook
Chief Operating Officer

In December 2015, the last combined sewer overflow ("CSO") construction milestones in the Federal District Court Order (Schedule Seven) were achieved, capping a nearly 30-year effort by MWRA, its member communities and ratepayers to bring this last construction program in the Boston Harbor Cleanup to successful completion. Federal Judge Richard G. Stearns and his predecessor, Federal Judge A. David Mazzone, have provided hands-on oversight and direction of this program over three decades. Their direct involvement was the driving force in maintaining the timely progress of these large and complex programs. MWRA and its CSO communities effectively responded to more than 180 CSO-related court milestones.

The last construction milestone of the CSO Control Program was achieved with the support of MWRA's Board of Directors, the MWRA Advisory Board and most importantly the MWRA ratepayers, as well as the skill and contributions of MWRA staff, the staff from Boston Water Sewer Commission, the communities of Brookline, Cambridge, Chelsea and Somerville.

Schedule Seven requires MWRA to submit a CSO annual progress report for calendar year 2015 by March 15, 2016. This is the twentieth CSO annual progress report and the last annual report required by the court schedule. With this staff summary, staff have provided a copy of the CSO Annual Progress Report 2015 for Board review, and for authorization to file. Staff will make a presentation to the Board on the construction progress in 2015 that culminated in completion of the last three of the 35 CSO projects in MWRA's approved Long-Term CSO Control plan; the CSO control achievements and benefits accrued since 1987 when MWRA assumed responsibility in Federal District Court for a regional CSO control plan; and a look-ahead at remaining CSO-related court and regulatory obligations, as well as remaining CSO capital spending.

The draft report will be distributed to the Board at the meeting.

RECOMMENDATION:

To authorize staff to submit the *Combined Sewer Overflow Annual Progress Report 2015* to the Federal District Court by March 15, 2016, in compliance with Schedule Seven of the Boston Harbor Case.

DISCUSSION:

Completion of MWRA's Long-Term CSO Control Plan

At the beginning of 2015, 32 of the 35 projects in MWRA's Long-Term CSO Control Plan and Schedule Seven were complete, and the last three projects were well into construction. On October 28, 2015, MWRA attained substantial completion and beneficial use of the $2.7 million contract for the Control Gate and Floatables Control at Outfall MWR003 and MWRA Rindge Avenue Siphon Relief project, in compliance with Schedule Seven. On December 11, 2015, BWSC attained substantial completion of the last of its nine construction contracts for the $70.6 million Reserved Channel Sewer Separation project, effectively removing stormwater from its South Boston combined sewer systems tributary to the four CSO outfalls that discharge to the Reserved Channel and greatly reducing CSO discharges. And on December 23, 2015, the City of Cambridge attained substantial completion of the remaining CSO related work in its construction contracts for the $100 million CAM004 Sewer Separation project (of which $54 million is funded by MWRA), effectively removing stormwater from its combined sewer systems tributary to Outfall CAM004, permanently closing the outfall to CSO discharges, and greatly reducing CSO discharges to the Alewife Brook at the other permitted outfalls. With the completion of these CSO projects in 2015, MWRA met the last three construction milestones in the Federal District Court Order in the Boston Harbor Case.

30 Years of CSO Achievements

MWRA's CSO control program began with the incorporation of the First CSO Stipulation into the Federal Court Order in 1987, by which MWRA accepted responsibility for region-wide control of CSOs hydraulically related to its wastewater system including the CSO outfalls permitted to Cambridge, Chelsea, Somerville, BWSC and MWRA. Since then, MWRA, with the cooperation of its CSO communities, has effectively responded to more than 180 CSO related milestones in the court order.

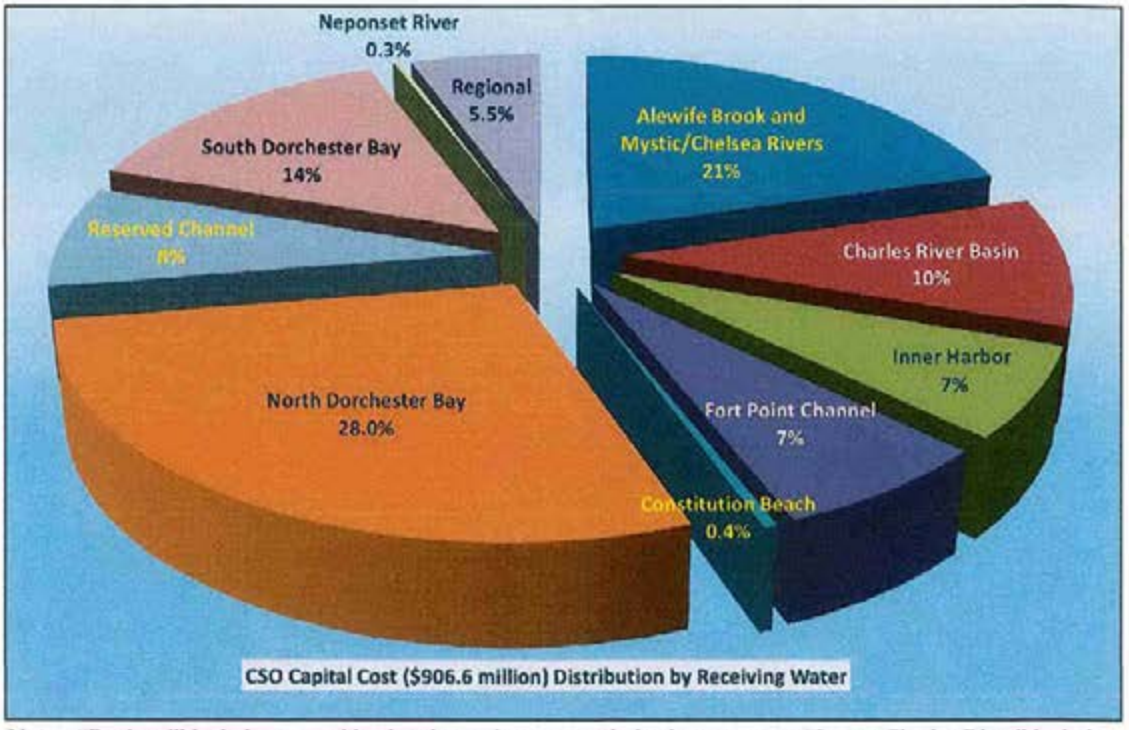
MWRA's CSO efforts included development and implementation of projects to eliminate dry weather overflows and development of a first recommended CSO control plan (the Deep Rock Tunnel Plan*) (1987 to 1991); development and implementation of more than 100 system optimization improvements that reduced average annual CSO discharge volume by nearly 25% (1992-6); development of the Long-Term CSO Control Plan (1992-97); reassessment and refinement of several CSO projects recommended in the 1997 plan, including the addition of several CSO projects to increase level of control for the Charles River (2006); and design and construction of the 35 CSO projects (1996-2015) in compliance with Schedule Seven. MWRA's efforts also included additional system optimization strategies that further reduced CSO discharges, including enhancements to the operational protocols for the Cottage Farm, Prison Point and Somerville Marginal CSO treatment facilities (2007-8).

* In 1990, MWRA recommended a Deep Rock Tunnel Plan for CSO control, at an estimated capital cost of $1.2 billion in 1990 dollars (approx. $2.5 billion today), that conformed to the 1989 EPA CSO Strategy. In 1992, with the prospect of EPA regulatory changes that led in the more flexible 1994 National CSO Policy, MWRA began a new planning effort that culminated in the current Long-Term CSO Control Plan.

The MWRA and community CSO efforts included the management of 125 contracts, including 82 construction contracts, 33 engineering contracts and 10 planning and technical support contracts, as well as six community financial assistance agreements with a total award value of $425 million. To date, MWRA has spent $891 million on the CSO control efforts, 98% of the $907 million budget in MWRA's Proposed FY17 CIP. The allocation of those dollars to accomplish the approved levels of CSO control for the various receiving waters is shown in Figure 1 on the following page.

Design and construction of the 35 CSO projects was accomplished in just 20 years – a very short timeframe relative to other CSO control plans of comparable size nationwide – beginning with

Figure 1: CSO Capital Cost Allocation by Receiving Water



Notes: "Regional" includes area-wide planning and system optimization measures. "Lower Charles River" includes Stony Brook and Back Bay Fens.

the City of Somerville's construction (and completion) of the Somerville Baffle Manhole Separation project in 1996. In two decades, MWRA constructed the $260.6 million South Boston CSO storage tunnel and related facilities, the $14.3 million BOS019 CSO storage facility at Little Mystic Channel and the $49.6 million Union Park CSO treatment facility. MWRA upgraded its treatment facilities at Cottage Farm, Prison Point and Somerville Marginal and was able to decommission its treatment facilities at Commercial Point, Fox Point and Constitution Beach following BWSC's elimination of CSO to those facilities with completion of major sewer separation projects.

MWRA, BWSC, the City of Cambridge and the Town of Brookline installed nearly 100 miles of new storm drain and sewer pipe with the CSO sewer separation, interceptor relief, hydraulic relief and storage projects in the Long-Term Control Plan. The sewer separation projects involved street-by-street separate storm drain or sewer construction that removed more than 4,300 acres of stormwater runoff from sewer systems in Boston, Brookline and Cambridge.

In accordance with the Plan and in compliance with the court order, MWRA and the CSO communities eliminated CSO discharges at 34 of the 84 CSO outfalls and virtually eliminated, i.e., 25-year storm level of control, CSO discharges (along with 5-year storm level of control of separate stormwater discharges) at the five remaining outfalls along the South Boston beaches. BWSC and the cities of Cambridge and Chelsea have, with their own wastewater system programs, eliminated CSO discharges at 5 additional outfalls to the Charles River Basin, Mystic Chelsea Confluence and Boston Inner Harbor.

In accordance with the Plan, region-wide CSO discharge volume in a typical rainfall year ("Typical Year") has been reduced from 3.3 billion gallons to 0.4 billion gallons, an 88% reduction, with at least 93% of the remaining CSO volume treated at MWRA's four remaining CSO facilities (see Figures 2 and 3 on the following page).

Together with major improvements to the pumping and treatment facilities at Deer Island beginning in 1989, the Long-Term CSO Control Plan has eliminated CSO discharges to sensitive receiving waters (swimming and shell fishing), including the beaches of South Dorchester Bay and Neponset River (Savin Hill, Malibu and Tenean beaches) and Constitution Beach. For the South Boston beaches (North Dorchester Bay), MWRA's CSO storage tunnel provides a 25-year storm level of CSO control and at least 5-year storm level of stormwater control.

The water quality of Boston Harbor and the Charles, Mystic and Neponset rivers has steadily improved as MWRA and the CSO communities completed the CSO projects and as communities along these waters have also implemented programs to control pollutant loadings from storm drains. Beach closings are down, and safe swimming days are up, at all beaches. In South Boston, the fraction of days failing to meet the bacteria limit at one or more beaches has dropped from an average of 18% in the five years prior to start-up of the South Boston CSO storage tunnel to an average of 3% in the nearly five years that MWRA has operated the tunnel.

Federal and State Approvals and Remaining Regulatory Compliance

In 1998, the U.S. Environmental Protection Agency (EPA) and the Massachusetts Department of Environmental Protection (DEP) approved MWRA's 1997 recommended CSO plan, which then included 25 CSO control projects, and DEP issued water quality standards determinations that effectively brought the plan into compliance with state Water Quality Standards for most of the affected waters. DEP did not change the Class B designations for the Charles River and the Alewife Brook/Upper Mystic River, but instead made the determination that it would issue temporary variances to Class B standards for CSO, only. DEP has since issued a series of 3-year CSO variances that allow MWRA and the CSO communities to continue to discharge CSO to these waters.

Following the 1998 regulatory approvals, MWRA recommended several changes to the plan. MWRA revised its projects and schedules for Alewife Brook Sewer Separation (2001), East Boston Branch Sewer Relief (2003), North Dorchester Bay CSO Storage Tunnel (2004) and Reserved Channel Sewer Separation (2004) based on new information gained during the design phases of these projects. During this same time, MWRA filed variance-required reports that evaluated higher levels of CSO control for the Charles River/Cottage Farm (2004) and the Alewife Brook/Upper Mystic River (2003). The only additional control recommended in these reports was inflow control and operational optimization at the Cottage Farm facility.

Key 2006 Agreement

In April 2006, the Court allowed a joint motion (MWRA, EPA, and DOJ) and issued an Order (July 2006) incorporating changes to the Long-Term Control Plan and schedule. This Order was the result of extensive negotiations and eventual agreement by the parties that resolved remaining outstanding issues associated with the Long Term Control Plan. The 2006 agreement resulted in: increased CSO control for the Charles River Basin; a revised recommended plan for CSO control for North Dorchester Bay (South Boston Beaches CSO Control); provided MWRA a five year period after achievement of the last construction milestone (2015) during which MWRA would have no additional construction responsibilities would conduct a three year post-construction assessment in 2020. This was keeping with MWRA's Advisory Board and Board of Directors requirement that in exchange for the additional Charles River CSO projects, MWRA would be allowed a five year period (2015-2020) of no additional CSO obligations and capital project spending. With this agreement, approvals and court orders, MWRA gained greater, necessary certainty in managing its capital program and rate increases over the 15-year period through 2020.

Prior to the 2006 agreement, MWRA and EPA had differences over the appropriate level of CSO control and related additional investment for the Charles River. EPA's proposed position on the Charles River controls had put significant risk on the scope of MWRA's obligations for CSO control and cost to MWRA ratepayers for which MWRA determined did not resulting in significant environmental benefits. To reach agreement on its recommended changes and secure a higher level of certainty of its long-term CSO obligations, MWRA offered and EPA agreed with new additional capital construction projects (Bullfinch Triangle Sewer Separation, Brookline Sewer Separation, and Cottage Farm Brookline Connection) that would increase the level of CSO control for the Charles River.

MWRA's CSO control plan for the South Boston Beaches also had hit roadblocks with local resident opposition to the siting and construction of a proposed large treatment and pump facility (400 million gallons per day) included in the originally approved plan. MWRA proposed enlarging the tunnel component of the project and replacing the large pump and treatment facility with a relocated smaller CSO pump facility at Massport's Connelly Terminal. In addition, DEP and EPA agreed upon the level of CSO control (25-year or "virtual elimination") provided by MWRA's recommend project for the South Boston Beaches.

Under the Order, MWRA has five years following construction of the last CSO project in 2015 to complete, by December 2020, post-construction monitoring and a performance assessment to verify the approved long-term levels of CSO control are achieved. Also as part of the agreement, DEP agreed to continue to reissue, and EPA agreed to continue to approve, the Charles River and

Alewife Brook/ Upper Mystic River CSO variances through 2020 without additional CSO controls beyond the approved plan. The current variances end in October and September, 2016, respectively. MWRA recently met with DEP to begin the process of reissuing the variances for the period 2013-2016.

The United States and MWRA agreed to withdraw the 1987 First CSO Stipulation and replace it with a Second Stipulation that requires MWRA to implement the CSO requirements on the Court's schedule and to meet the agreed upon levels of CSO, as to annual activation frequency and volume of discharge at each CSO outfall, which are appended to the Second Stipulation. In July, 2006, the Court accepted the schedule revisions and incorporated a new schedule (Schedule Seven).

Figure 2: Region-wide CSO Reduction

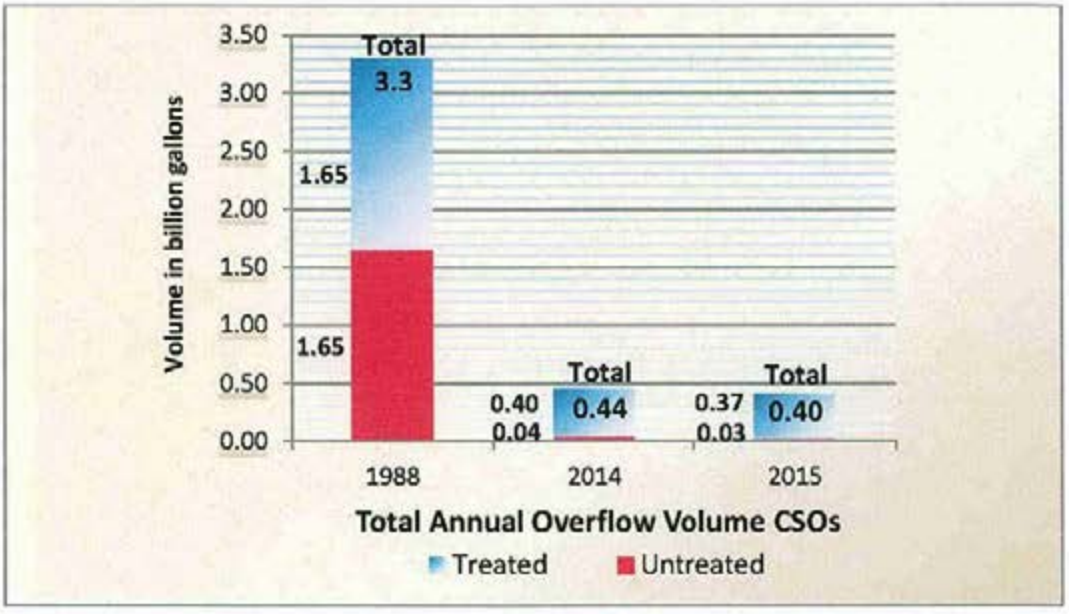
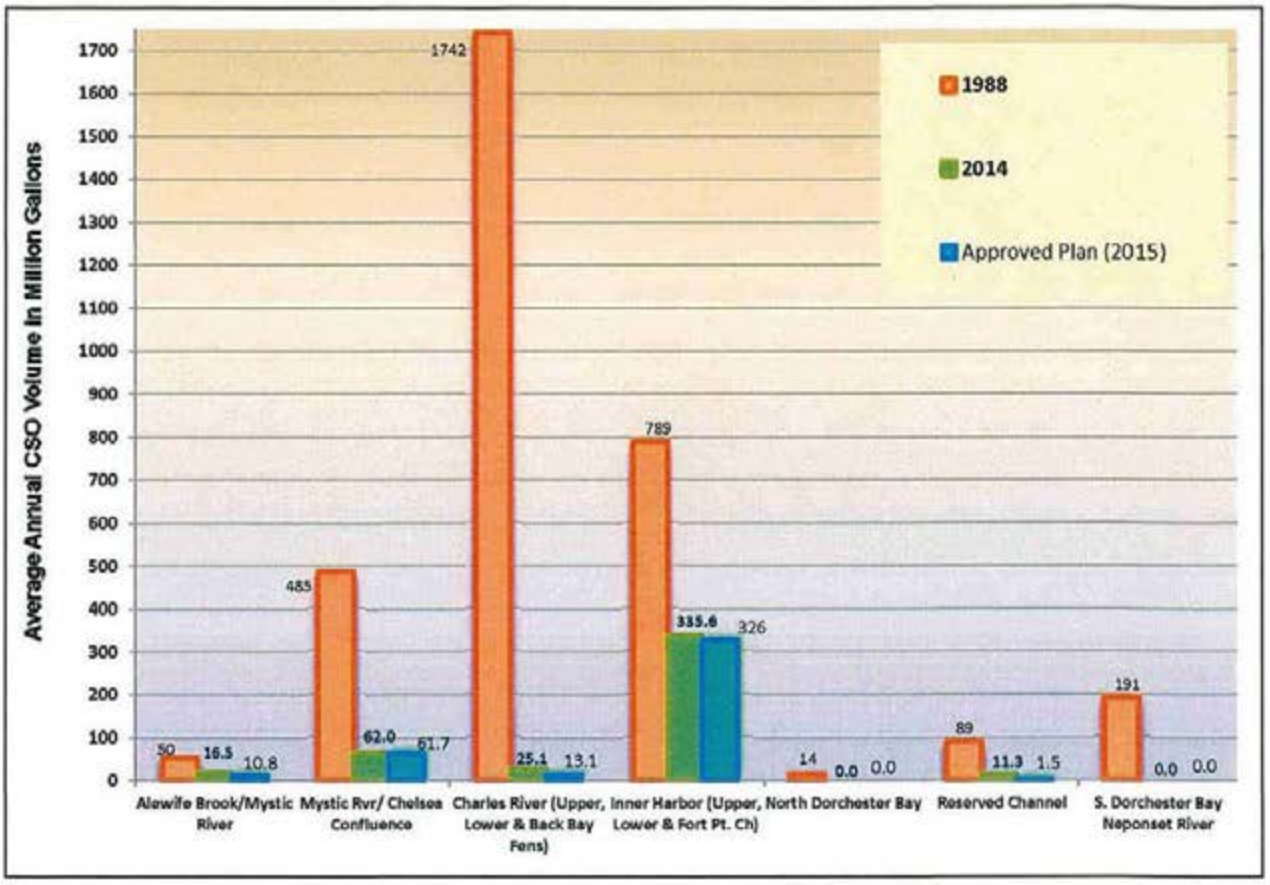


Figure 3: CSO Reduction by Receiving Water



Implementation of MWRA's CSO plan has eliminated CSO discharges to Class B waters, where CSO discharges are prohibited primarily to protect beaches and shellfish beds. Full implementation of the plan will meet standards for waters that DEP designated Class $B_{(cso)}$, where CSO discharges must meet strict limits in accordance with the approved long-term plan, including Boston Harbor, Chelsea Creek, and the Lower Mystic River.

The variances include conditions that MWRA and the CSO communities have complied with for these waters, including implementation of the long-term plan, continued implementation of operation and maintenance measures that can minimize CSO discharges and impacts, dissemination of public information on CSO discharges and potential public health impacts, 24-hour public notification of a treated CSO discharge to the Charles River from the Cottage Farm CSO Facility, continuation of MWRA's (ENQUAL) water quality monitoring program, and annual reporting of rainfall events and estimates of CSO activations and discharge volumes at each outfall.

After MWRA's CSO performance assessment is complete in December 2020, DEP expects to determine whether the levels of CSO control achieved by MWRA's Long-Term CSO Control Plan support B(cso) designations for the Charles River and the Alewife Brook/Upper Mystic River.

Remaining Court Order Compliance

In addition to submission of the CSO Annual Progress Report for 2015 to the Court next month, there are two remaining milestones in Schedule Seven, related to verifying the long-term levels of CSO control at every outfall.

Jan 2018 *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).*

Dec 2020 *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.*

Staff have begun to develop the post-construction monitoring program and performance assessment, which will incorporate the requirements in EPA's May 2012 "CSO Post-Construction Compliance Monitoring Guidance." The MWRA's Final FY16 and Proposed FY17 Capital Improvement Program budgets for the CSO Program include a placeholder budget for the three-year assessment.

Capital Spending on CSO Control

Remaining CSO work includes the completion of punch list items, extensive surface restorations in the Huron Avenue and Concord Avenue neighborhoods of Cambridge, preparation of as-built documents for the later construction contracts, and contract close-outs. Staff are continuing to perform final eligible funding reviews of the completed community construction contracts toward eventual close-out of the CSO Memorandum of Understanding and Financial Assistance Agreement with each community (BWSC, Cambridge, and Brookline).

The Proposed FY17 CIP includes $906.6 million for the CSO Control Program, including past planning, design and construction, financial assistance to communities to implement components of the plan, and the required 3-year CSO performance assessment. MWRA has spent approximately $891.0 million (98%). The remaining $15.6 million in scheduled CSO spending is for the following remaining activities: extensive eligible surface restoration work by Cambridge with the CAM004 Sewer Separation project (anticipated spending of $9.6 million through June 2017); close-out of BWSC Reserved Channel contracts ($164,000 through 2016); removal of additional stormwater inflow by BWSC in Dorchester, following completion of the South Dorchester Bay sewer separation project and closing of related CSO outfalls in 2007 (anticipated spending of $3.6 million, with schedule under review); and a $2.0 million placeholder for the court mandated CSO performance assessment in 2018-2020.

BUDGET/FISCAL IMPACT:

The Proposed FY17 CIP includes $906,603,000 for the CSO Control Program.

MBE/WBE PARTICIPATION:

MBE and WBE participation requirements are included in the various planning, design and construction contracts managed by MWRA and the CSO communities.

STAFF SUMMARY

TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director
DATE: February 10, 2016
SUBJECT: Supply and Delivery of Hydrogen Peroxide to the Deer Island Treatment Plant
U.S. Peroxide, LLC
Bid WRA-4147

COMMITTEE: Wastewater Policy & Oversight

_____ INFORMATION
_X_ VOTE

Michele S. Gillen
Director of Administration

David F. Duest, Director, Deer Island WWTP
Carolyn Francisco-Murphy, Director of Procurement
Preparer/Title

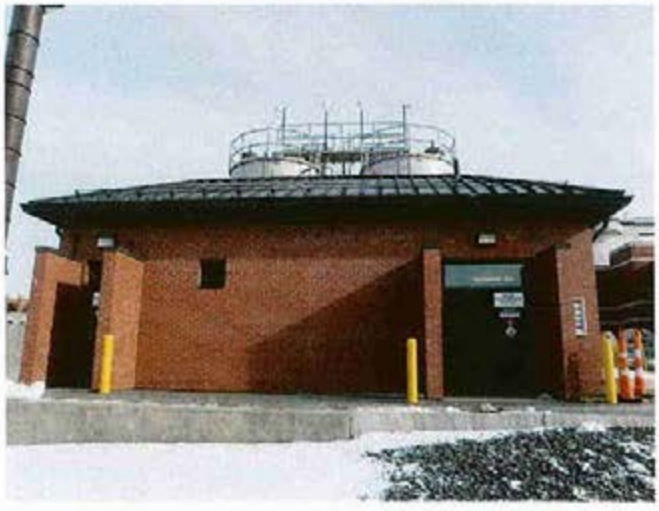
Michael J. Hornbrook
Chief Operating Officer

RECOMMENDATION:

To approve the award of Purchase Order Contract WRA-4147, for the supply and delivery of hydrogen peroxide to the Deer Island Treatment Plant, to the lowest responsive bidder, U.S. Peroxide, LLC, and to authorize the Director of Administration to execute said purchase order contract in an amount not to exceed $1,122,000 for a period of two years, from April 1, 2016 through March 31, 2018.

DISCUSSION:

MWRA uses hydrogen peroxide to control hydrogen sulfide levels in Deer Island's influent, which most typically become elevated during the warmer summer and fall months (June through November). Hydrogen peroxide destroys hydrogen sulfide and reduces the need for additional odor control chemicals and equipment in other areas of the plant.



There are two pretreatment facilities on Deer Island, one to treat flows from the North System and one to treat flows from the South System. A picture of the South System Pretreatment Facility is shown on the right.

Each facility has two associated 20,000-gallon storage tanks for a total on-island capacity of 80,000 gallons.

When hydrogen sulfide levels exceed 50 parts per million, staff pump a solution of 50% hydrogen peroxide from the North and South System Pretreatment Facilities into the influent at each location as needed.

South System Hydrogen Peroxide Pump Room

North System Storage Tanks

Based upon reasonable assumptions and historic usage, staff estimate that Deer Island will use approximately 300,000 gallons of hydrogen peroxide in each year of this two-year contract. Actual usage is largely dependent on weather conditions during summer months. During an extremely hot and dry season, usage could increase dramatically. The anticipated usage is an estimate only. MWRA will only pay for chemical that is received.

Procurement Process

Bid WRA-4147 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 2229), and six potential bidders were solicited through the e-Portal.

On January 6, 2016, Event 2229 closed with the following results:

Description	U.S. Peroxide, LLC	Mann Distribution, LLC	Evoqua Water Technologies, LLC
YEAR ONE (4/1/16 – 3/31/17) 300,000 Gallons of Hydrogen Peroxide	**$1.83 per gallon x 300,000 = $549,000**	$1.8962 per gallon x 300,000 = $568,860	$2.40 per gallon x 300,000 = $720,000
YEAR TWO (4/1/17 – 3/31/18) 300,000 Gallons of Hydrogen Peroxide	**$1.91 per gallon x 300,000 = $573,000**	$1.926 per gallon x 300,000 = $577,800	$2.46 per gallon x 300,000 = $738,000
TOTAL	**$1,122,000.00**	$1,146,660.00	$1,458,000.00

Bid WRA-4147 was structured as a two-year contract similar to the existing contract with Mann Distribution, LLC, which expires on March 31, 2016. Under the existing contract, MWRA is paying is $1.92 per gallon (Year Two Pricing). Mann Distribution, LLC's Year One unit bid price was $1.82 per gallon.

Purchasing staff contacted U.S. Peroxide, LLC after the bid opening to confirm pricing. U.S. Peroxide confirmed the unit bid prices and informed MWRA that it offered what it considered aggressive pricing in hopes of regaining the contract that it lost to Mann Distribution, LLC in 2014.

Staff have reviewed U.S. Peroxide, LLC's bid and have determined that it meets all of the requirements of the bid specifications. Therefore, staff recommend the award of this contract to U.S. Peroxide, LLC as the lowest responsive bidder.

BUDGET/FISCAL IMPACT:

There are sufficient funds available for the first portion of this contract in the FY16 Current Expense Budget. Appropriate funding will be included in subsequent Proposed CEB Requests for the remaining term of the contract.

MBE/WBE/PARTICIPATION:

U.S. Peroxide, LLC is not a certified Minority- or Women-owned business.

STAFF SUMMARY

TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director
DATE: February 10, 2016
SUBJECT: Clinton Wastewater Treatment Plant Phosphorus Reduction Facility
Daniel O'Connell's Sons, Inc.
Contract 7411

COMMITTEE: Wastewater Policy & Oversight

___ INFORMATION
_X_ VOTE

Michele S. Gillen
Director of Administration

John P. Vetere, Deputy Chief Operating Officer
A. Navanandan, P.E., Chief Engineer
Milan A. Horbaczewski, P.E., Program Manager
Preparer/Title

Michael J. Hornbrook
Chief Operating Officer

RECOMMENDATION:

To approve the award of Contract 7411, Clinton Wastewater Treatment Plant Phosphorus Reduction Facility, to the lowest responsible bidder, Daniel O'Connell's Sons, Inc., and to authorize the Executive Director, on behalf of the Authority, to execute said contract with Daniel O'Connell's Sons, Inc., in the bid amount of $7,272,432 for a contract term of 540 calendar days from the Notice to Proceed.

BACKGROUND:

The Clinton Wastewater Treatment Plant (the "Clinton Plant") is owned and operated by MWRA to provide advanced wastewater treatment, including nutrient removal for phosphorus and nitrogen, for the towns of Clinton and Lancaster, prior to discharging the effluent to the South Nashua River. The treatment facility is designed to treat an average flow of 3.0 million gallons per day (mgd), a maximum daily flow of 8.0 mgd, and a peak hourly flow of 12.0 mgd.

MWRA assumed formal operational responsibility for the Clinton Wastewater Treatment Plant in 1987. Since then, MWRA has designed and constructed new primary, secondary, and advanced treatment facilities that incorporate rehabilitated portions of the existing plant with new construction. The new facilities, completed in 1992, were designed to meet all current and projected National Pollutant Discharge Elimination System (NPDES) discharge limits in place or projected at that time.

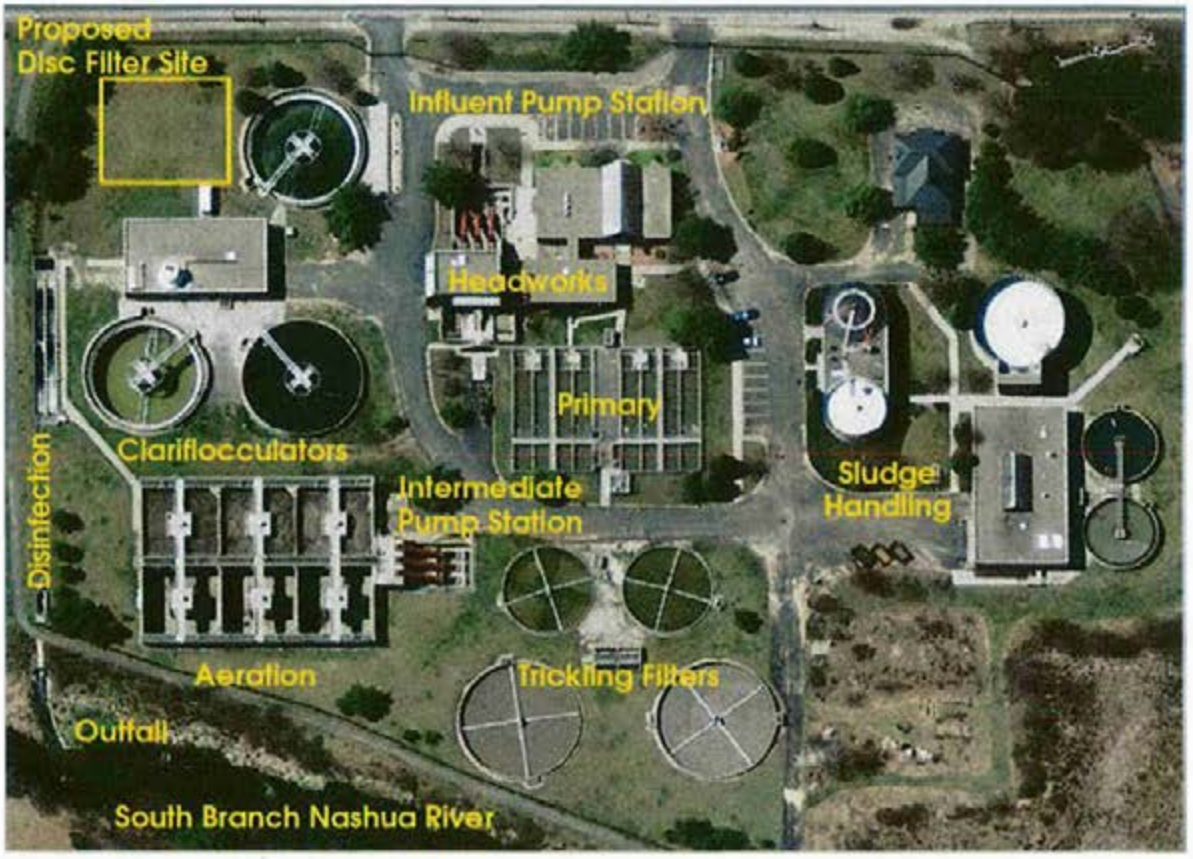
The Clinton Plant is able to meet the current NPDES effluent limit for total phosphorus. However, the draft NPDES permit, anticipated to become final in the near future, will require more stringent effluent limits. In order to consistently comply with these lower total phosphorus concentrations,

concentrations, additional phosphorus reduction facilities are needed at the Clinton Plant. The draft NPDES permit, which EPA Region 1 issued in 2010 was reissued in September 2013.

Staff first briefed the Board on the regulatory requirement for this project in September 2010, and have provided other project and NPDES permit updates since that time.

In 2010, MWRA completed a technical report that evaluated twelve phosphorus reduction technologies applicable to the Clinton Plant. The three most applicable technologies were evaluated in detail, and disc filtration was recommended based on process design criteria, operation, reliability, flexibility, and capital and O&M costs. MWRA conducted a pilot program at the Clinton Plant in 2011, which concluded that the disc filtration process was able to consistently reduce the total phosphorus concentration to meet the draft NPDES limits. In 2012, MWRA completed a Preliminary Design Report, which established the design criteria for all components of the project in order to meet the permit conditions under the full range of flows at the Clinton Plant. The Final Design phase of the project was initiated in December 2013.

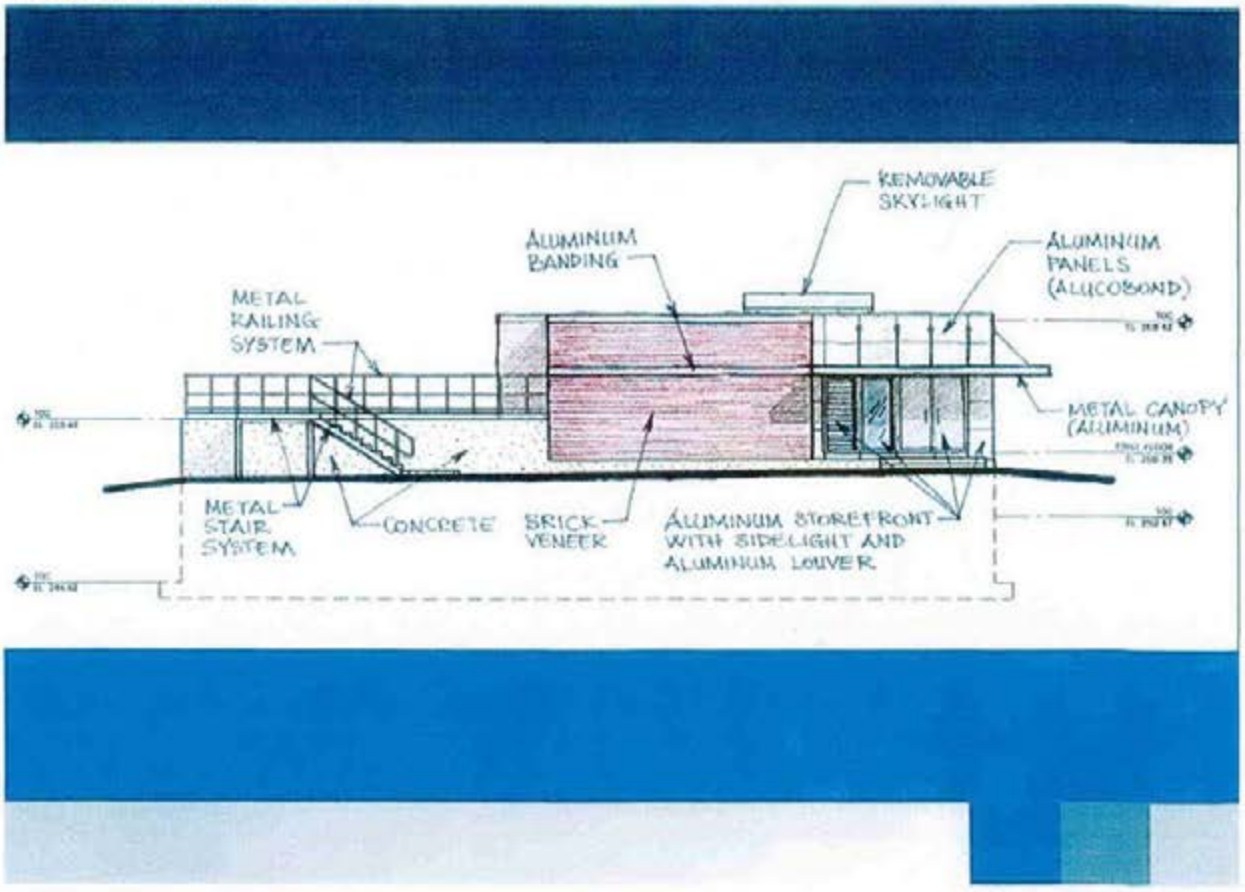
The proposed disc filter phosphorus reduction facility site is depicted below in an aerial photograph of the Clinton Plant.



DISCUSSION:

Contract 7411 includes: a new flow diversion structure, four influent pumps, two rapid mix, coagulation, and flocculation basins, three disc filters, a new chemical feed system, a new plant water system, bypass lines, a new masonry building to house the disc filters and other equipment, natural gas yard piping, emergency generators, and associated electrical, instrumentation, and SCADA components.

NORTH ELEVATION



Procurement Process

Contract 7411, designed by Stantec (formerly Fay, Spofford & Thorndike), was advertised and bid in accordance with Chapter 149 of Massachusetts General Laws. General bids were received and opened on February 3, 2016. Five contractors submitted bids and the results are presented below:

Bidders	Bid Amount
Daniel O'Connell's Sons, Inc.	$7,272,432
R.H. White Construction Co., Inc.	$7,298,160
Engineer's Estimate	*$7,500,000*
Wes Construction Corporation	$8,215,640
Waterline Industries Corporation	$8,547,677
Carlin Contracting Co., Inc.	$9,100,000

The two lowest bids are within $26,000 of one another, an indication of the reasonableness of the low bid, which is 3% below the Engineer's Estimate. Staff reviewed the scope of work with Daniel O'Connell's Sons, Inc., and determined that Daniel O'Connell's Sons, Inc. understood all of the various elements and types of work under this contract. References for Daniel O'Connell's Sons, Inc. were checked and found to be satisfactory.

Staff have concluded that Daniel O'Connell's Sons, Inc., possesses the skill, ability, and integrity necessary to perform the work under this contract and is qualified to do so. Staff have further determined that the bid price is reasonable, complete, and includes payment of prevailing wages, as required. Therefore, staff recommend that Contract 7411 be awarded to Daniel O'Connell's Sons, Inc., as the lowest responsible and eligible bidder.

BUDGET/FISCAL IMPACT:

The FY16 CIP includes a budget of $7,091,932 for Contract 7411. The contract award amount is $7,272,432 or $180,500 over budget. This amount will be covered within the five-year CIP spending cap.

MBE/WBE PARTICIPATION:

The MBE and WBE participation requirements for this project were established at 3.4% and 3.8%, respectively. The Affirmative Action & Compliance Unit has reviewed the bids and has determined that Daniel O'Connell's Sons, Inc.'s bid is responsive to these requirements.

STAFF SUMMARY

TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director
DATE: February 10, 2016
SUBJECT: Caruso Pump Station Improvements
Waterline Industries Corporation
Contract 7362

COMMITTEE: Wastewater Policy & Oversight

____ INFORMATION
X VOTE

Michele S. Gillen
Director of Administration

John P. Vetere, Deputy Chief Operating Officer
A. Navanandan, P.E., Chief Engineer
Patrick E. Smith, P.E., Program Manager
Preparer/Title

Michael J. Hornbrook
Chief Operating Officer

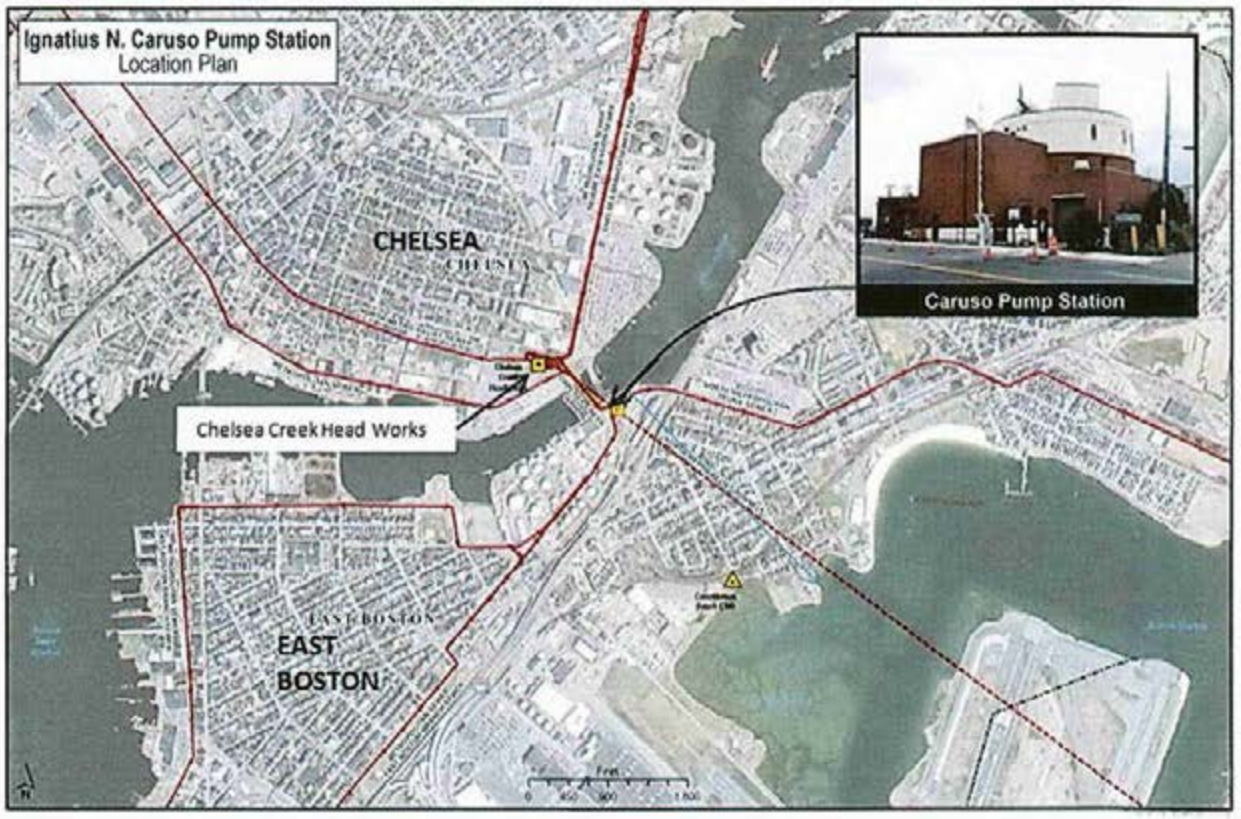
RECOMMENDATION:

To approve the award of Contract 7362, Caruso Pump Station Improvements, to the lowest responsible and eligible bidder, Waterline Industries Corp., and to authorize the Executive Director, on behalf of the Authority, to execute said contract in the bid amount of $4,097,097.00 for a contract term of 365 calendar days from the Notice to Proceed.

DISCUSSION:

The Ignatius N. Caruso Pump Station in East Boston was constructed in 1991 and has a designed wastewater flow capacity of 125 million gallons per day. The facility receives flow from East Boston, the Chelsea Branch Sewer, and the Revere Extension Sewer via the Chelsea Screen House, as well as wet-weather flow from the Chelsea Creek Headworks (see Attachment A). The screened flows are pumped to the Winthrop Terminal Facility on Deer Island via the North Metropolitan Trunk Sewer. After 24 years, several of the pump station's operating systems are near the end of their useful life and require replacement and/or upgrades.

The existing generator has reliability issues and performing timely maintenance/repairs has been challenging due to the increasing difficulty obtaining parts for this one-of-a-kind generator, with its antiquated compressed-air start system (picture on page 2). The heating, ventilation and air conditioning (HVAC) and fire detection/suppression systems require improvements based on observations and the numerous repairs required to maintain them. In addition, the existing security system is outdated and does not meet current post-9/11 MWRA requirements.



Location Plan –Caruso Pump Station

Work under Contract 7362 includes: replacement of the stand-by emergency generator with a 1,000-kW, diesel-driven, radiator-cooled generator designed to meet emission requirements and station design capacity of 125 mgd; HVAC improvements, including a new control system, air-change compliant air handling units, air conditioning units, exhaust and roof fans, dual-fuel heating, and rehabilitation of a heat recovery unit; fire detection/ suppression replacement of a compliant dry gas system, sensors and detectors, main control panel and breaker; and security system improvements of card readers, intrusion and motion detectors, fencing, and a telecommunications link.

MWRA staff evaluated all MWRA coastal water and wastewater facilities and determined that the Caruso Pump Station elevation is above the 2.5 feet over the 100-year storm elevation, so no further protection against climate change and sea rise is recommended at this time for the Caruso facility.

Procurement Process

Contract 7362, designed by Dewberry Engineers, Inc., was advertised and bid in accordance with Chapter 149 of Massachusetts General Laws. General bids were received and opened on January 28, 2016. Four contractors submitted general bids and the results are presented below:

Bidders	Bid Amount
Engineer's Estimate	*$ 3,620,856*
Waterline Industries Corp.	$4,097,097
Delta Control Engineers, Inc. (DBA Harding & Smith)	$4,267,000
Wes Construction Corp.	$4,387,000
Barletta Heavy Division, Inc.	$4,749,000

The three lowest bids are within 8% of each other, an indication of the reasonableness of the low bid, which is 13% above the Engineer's Estimate. MWRA staff and Dewberry have reviewed Waterline's cost estimate and attributes the differences to: higher contractor costs for markups on subcontractors work and temporary services to maintain HVAC and generator operations during construction, vendor training and other services of approximately $190,000; omitted bonds and insurance costs in the Engineer's Estimate of approximately $140,000; higher filed sub-bid costs for HVAC of approximately $110,000 and Masonry of approximately $50,000 due in part to a stronger economy for the trades and actual contractor costs compared to vendor quotes; and in addition, General Contractor costs for carpentry and thermal & moisture protection work is approximately $70,000 higher than estimated due to higher material and additional labor costs.

Staff reviewed the scope of work with Waterline Industries Corporation and determined that it understood all of the various elements and types of work required in this contract. References for Waterline were checked and found to be satisfactory.

Staff have concluded that Waterline Industries Corporation possesses the skill, ability, and integrity necessary to perform the work under this contract and is qualified to do so. Staff have further determined that the bid price is reasonable, complete, and includes payment of prevailing wages, as required. Therefore, staff recommend that Contract 7362 be awarded Waterline Industries Corp. as the lowest responsible and eligible bidder.

BUDGET/FISCAL IMPACT:

The approved FY16 CIP includes a budget of $2,926,359 for Contract 7362. The contract award amount is $4,097,097 or $1,170,838 over budget. This amount will be covered within the five-year CIP spending cap. Contract 7362 budget was increased to $3,529,000 in the Proposed FY17 CIP due to design changes in FY16.

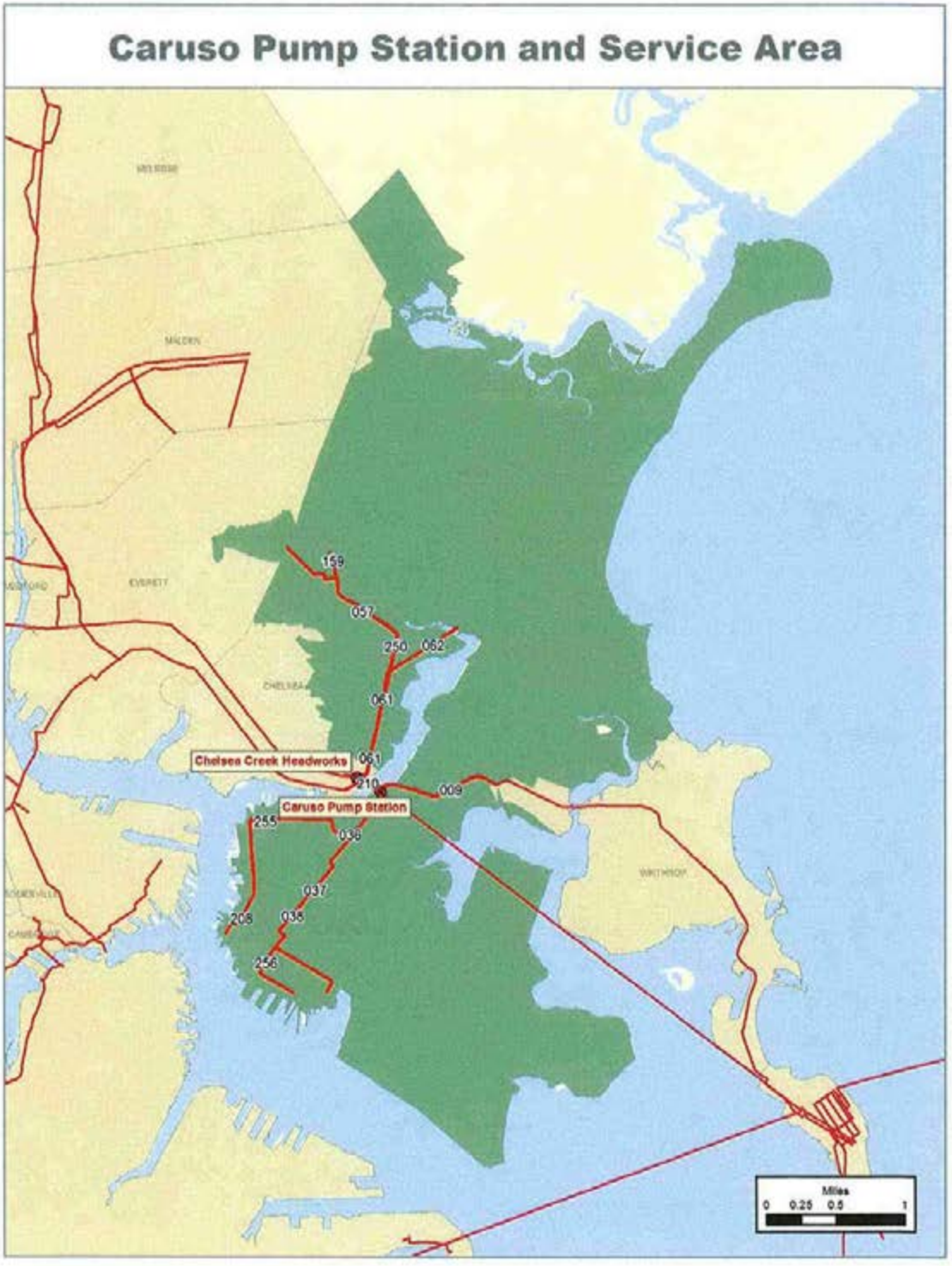
MBE/WBE PARTICIPATION:

The MBE/WBE participation requirements for this project were established at 3.4% and 3.8%, respectively. The Affirmative Action and Compliance Unit has reviewed the bids and has determined that Waterline Industries Corp.'s bid is responsive to these requirements.

ATTACHMENT:

Attachment A, Caruso Pump Station Service Area

ATTACHMENT A
Attachment A –Caruso Pump Station Service Area



STAFF SUMMARY

TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director
DATE: February 10, 2016
SUBJECT: MWRA Nut Island Emergency Demolition and Duct Cleaning
Daniel O'Connell's Sons
Contract OP-320

COMMITTEE: Wastewater Policy & Oversight

____ INFORMATION
__X__ VOTE

Michele S. Gillen
Director of Administration

Patrick T. Barrett, Program Manager
A. Navanandan, P.E., Chief Engineer
Preparer/Title

Michael J. Hornbrook
Chief Operating Officer

RECOMMENDATION:

To approve the award of Contract OP-320, MWRA Nut Island Emergency Demolition and Duct Cleaning to the lowest responsible and eligible bidder, Daniel O'Connell's Sons and to authorize the Executive Director, on behalf of the Authority, to execute said contract in the bid amount of $723,400, for a contract term of 30 calendar days from the Notice to Proceed.

DISCUSSION:

Nut Island is a Remote Headworks Facility which performs screening and grit removal for sewage flows to the Deer Island South Pumping Station. The Odor Control Facility of Nut Island experienced a fire in the Odor Control System associated with Scrubber No.4 commencing on January 25, 2016 and being fully extinguished on January 26, 2016. The fire and extinguishing effort resulted in damaged and/or burned fiberglass scrubber and ductwork, PVC chemical piping, chemical recirculation pumps and water damage to electrical controls/conduits.

Contract Components and Schedule

The emergency contract includes demolition/removal and disposal of fire damaged odor control equipment, and chemical recirculation pumps/piping. Where equipment is removed the opening will be sealed to allow for the safe operation of remaining equipment.

This emergency contract shall also provide for the internal cleaning of scrubber units No.1, No.2 and No.3 and associated suction and discharge duct work and cleaning of Odor Control Ventilation Building HVAC duct work of all residual soot, ash, and sulfur.

Procurement Process

On January 29, 2016, MWRA's procurement staff submitted a written request to the Division of Capital Asset Management and Maintenance (DCAMM) for an emergency waiver of the bidding and advertising requirements of G.L. c. 149. DCAMM verbally approved the request on the 29th. Staff solicited bids from four DCAMM certified contractors who have demonstrated reliable and competent performance on previous MWRA construction projects.

Three bids were received on February 10, 2016 as follows:

Daniel O'Connell's Sons	$723,400
Barletta Heavy Division	$1,078,000
Walsh Construction	$1,715,000

Staff reviewed the bid and determined that Daniel O'Connell's Sons bid is reasonable, complete, and meets all requirements of the specifications, including the payment of prevailing wage rates. Staff are of the opinion that Daniel O'Connell's Sons possesses the skill, ability, and integrity necessary to perform the required work and is qualified to do so. Therefore, staff recommend the award of this contract to Daniel O'Connell's Sons as the lowest responsible and qualified bidder.

BUDGET/FISCAL IMPACT:

The cost of this contract will be absorbed within the FY16 Current Expense Budget.

MBE/WBE PARTICIPATION:

Due to the emergency nature of this work, no MBE or WBE participation requirements were established for this contract.

MASSACHUSETTS WATER RESOURCES AUTHORITY

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

Frederick A. Laskey
Executive Director

Telephone: (617) 242-6000
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WATER POLICY AND OVERSIGHT COMMITTEE MEETING

Chair: A. Blackmon
Vice-Chair: B. Pena
Committee Members:
J. Carroll
J. Foti
A. Pappastergion
H. Vitale
J. Walsh
J. Wolowicz

to be held on

Wednesday, February 10, 2016

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

Time: Immediately following Wastewater Comm.

AGENDA

A. Information

1. The Need for Metropolitan Tunnel Redundancy
2. Update on Unregulated Contaminants Monitoring Rule Sampling

B. Contract Awards

1. Rosemary Brook Siphon Buildings Repair and Stabilization: Calhess Restoration and Waterproofing Corp., Contract 7472
2. Hatchery Pipeline and Hydroelectric Project: Waterline Industries Corp, Contract 7235

MASSACHUSETTS WATER RESOURCES AUTHORITY

Meeting of the
Water Policy and Oversight Committee

January 13, 2016

A meeting of the Water Policy and Oversight Committee was held on January 13, 2016 at the Authority headquarters in Charlestown. Chairman Blackmon presided. Present from the Board were Ms. Wolowicz and Messrs. Carroll, Cotter, Flanagan Foti, Pappastergion, Vitale and Walsh. Among those present from the Authority staff were Fred Laskey, Steve Remsberg, Dave Coppes, John Gregoire, Steve Estes-Smargiassi, and Bonnie Hale. The meeting was called to order at 11:55 a.m.

Information

Update on MWRA/DCR Invasive Aquatic Plant Management at Source and Emergency Reservoirs

MWRA staff and Jonathon Yeo from DCR gave a presentation on the aquatic plant management projects.

Staff described the following two information items, and there was general discussion:

- Update on Potential Lead and Copper Rule Revisions
- Report on 2015 Water Use Trends.

Wachusett Watershed Railroad

A presentation on this item was referred to the full Board meeting.

The meeting adjourned at 12:45 a.m.

STAFF SUMMARY

TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director
DATE: February 10, 2016
SUBJECT: The Need for Metropolitan Tunnel Redundancy

COMMITTEE: Water Policy & Oversight

X INFORMATION
___ VOTE

Stephen Estes-Smargiassi, Director, Planning & Sustainability
David Coppes, P.E., Director, Waterworks
Preparer/Title

Michael J. Hornbrook
Chief Operating Officer

Over the next several months staff will present three major aspects of initial planning for that project. This staff summary is the first, and will look at why redundancy for the Metropolitan Tunnels is essential, including the condition of the system, potential failure scenarios, the difficulty of recovering from any failure and restoring service, and the inability to shut down the system for either inspection or maintenance. The second, in March, will review work done over the past several years examining a wide range of alternatives to provide full or partial redundancy, including their costs, reliability of operation, constructability issues and environmental impacts. The third staff summary, in May, will examine whether and how the costs can be accommodated within the framework of maintaining predictable and sustainable rates.

RECOMMENDATION:

For information only.

DISCUSSION:

The Water Transmission System can be divided into five major segments as shown in Figure 1. Completed or ongoing projects to achieve system redundancy for segments 1 through 4 are discussed below. The fifth segment, the Metropolitan Tunnels represents the next challenge for the agency in improving the reliability of this great water system. Further detail on MWRA's and its predecessors' efforts to build redundancy into the water delivery system are contained in the attached White Paper.

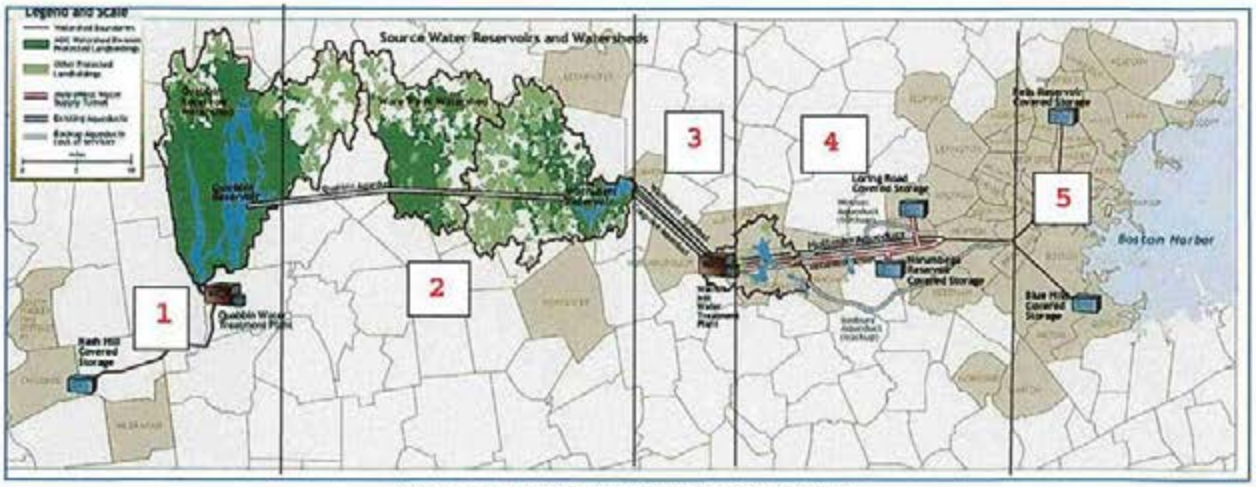


Figure 1. MWRA Water Transmission System

1. Chicopee Valley Aqueduct. In 2007, MWRA completed construction of 8,100 feet of 30-inch diameter pipeline; 2,400 feet of 20-inch pipeline; and 3,100 feet of 16-inch pipeline to provide redundant supply for critical sections of the 14.8 mile long aqueduct. Emergency connection points to the Springfield water system were created to allow connection of MWRA's mobile pumping unit to supplement Springfield's supply.

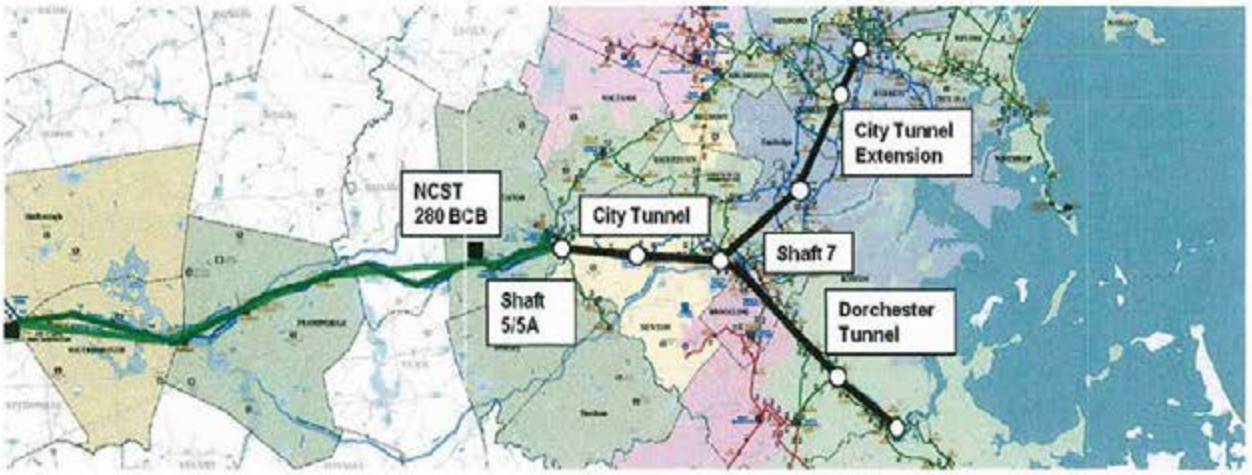
2. Quabbin Aqueduct. The Quabbin Aqueduct brings water from the Ware River to Quabbin and from Quabbin to Wachusett Reservoir. The CIP includes development of an inspection plan for this tunnel. The system can rely on the Wachusett Reservoir during winter/spring months in years with normal precipitation and staff believe that this tunnel can be inspected with minimal risk or disruption.

Wachusett Aqueduct Pump Station

3. Cosgrove Tunnel/Wachusett Aqueduct. The Cosgrove Tunnel supplies water from Wachusett Reservoir to the John J. Carroll Water Treatment Plant (CWTP). The recently awarded Wachusett Aqueduct pump station project will allow the gravity aqueduct to supply the plant allowing the Cosgrove Tunnel to be taken out of service without impacting water quality. The 240 mgd capacity would allow for unrestricted supply for at least eight months during the lower demand fall/winter/spring period.

4. MetroWest Tunnel/Hultman Aqueduct. Providing the link between the CWTP and Shaft 5 of the City Tunnel, the MetroWest Water Supply Tunnel was completed in 2003 and the Hultman Aqueduct was rehabilitated in 2013. These projects provide a second means of water conveyance to the Norumbega Covered Storage Facility and ultimately the City Tunnel and Metropolitan distribution system.

5. Metropolitan Tunnels. The tunnel system to the east of the Hultman and Metrowest Tunnel includes the City Tunnel, the City Tunnel Extension, and, to the south, the Dorchester Tunnel. These three tunnels come together at Shaft 7 at Chestnut Hill.

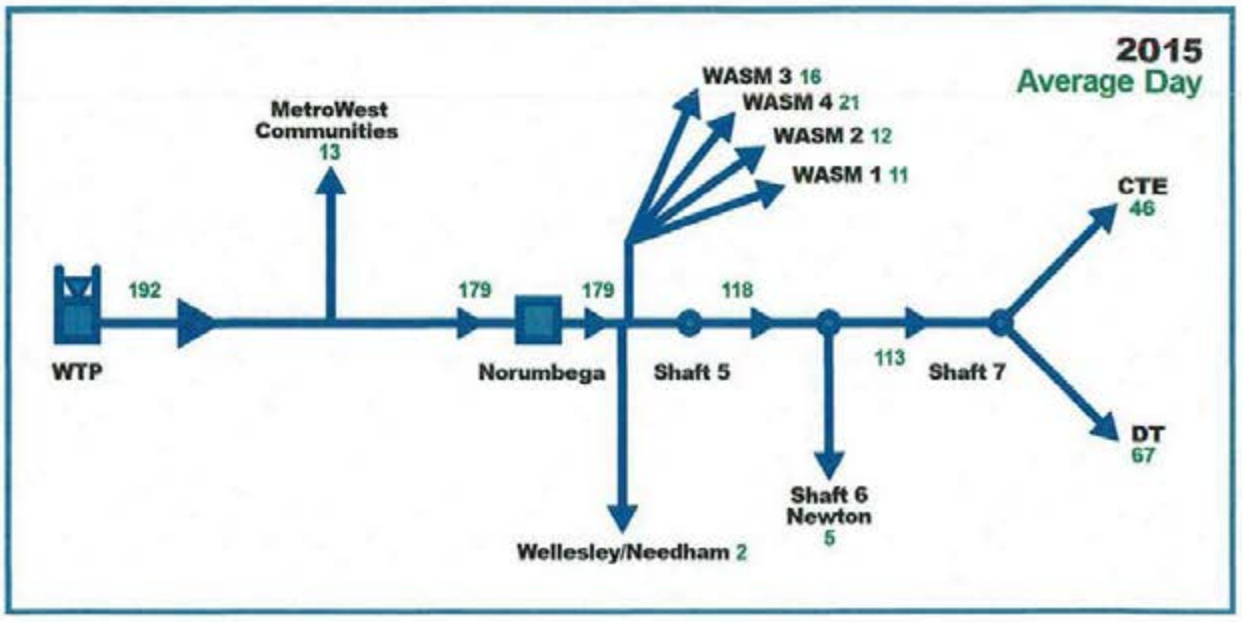


Metropolitan Tunnels

The City Tunnel is a deep rock tunnel, 5.4-miles in length, from Route 128 to Chestnut Hill that brings more than 60% of Wachusett system water to customers in the Metropolitan area. Built in 1950, it starts at Shaft 5 on the banks of the Charles River in Weston connected to the ends of the MetroWest Tunnel and Hultman Aqueduct. At Shaft 5, four 60-inch isolation valves (two for the Hultman and two for the MetroWest tunnel) are contained in a brick and concrete structure that also houses dewatering equipment, a shaft to a subsurface dewatering chamber over 300 feet underground with valves, pipes and pumps that are connected to the pressurized tunnel, and a pressurized dead-end tunnel shaft built for a future redundant tunnel. During the Shaft 5 pipe break in May 2010, one of the 60-inch gate valves used to isolate supply to the tunnel failed to open when the repaired pipe section was reactivated. This valve cannot be repaired without shutting down the City Tunnel. In Newton a riser shaft connects to the suction piping of the Commonwealth Avenue Pump Station and provides 75% of the City of Newton's water supply. The tunnel terminates at Shaft 7 at Chestnut Hill in a 25-foot-deep chamber which houses connections to the City Tunnel Extension to the north and the Dorchester Tunnel to the south. Six hydraulically activated isolation valves and three 20-inch supply lines for the Chestnut Hill area are located in this chamber.

The City Tunnel Extension brings water from the City Tunnel north to Malden and supplies water to the entire northern high pressure zone. Constructed in 1963, it is 7 miles long with surface connections in Brighton and Somerville and a dewatering shaft and subsurface chamber in Somerville similar to the structure at Shaft 5 in Weston. In Somerville there is also a hydraulically actuated valve in a subsurface chamber for isolating the tunnel north of the shaft location and another connected to a pressurized tunnel stub. This chamber and associated piping has been submerged for decades and cannot be readily accessed without increasing the risk of failure or shutting down the tunnel.

Dewatering chamber at bottom of shaft



The Dorchester Tunnel supplies the Southern High and Southern Extra High service areas through a 6.4 mile deep rock tunnel constructed in 1976. The tunnel has surface piping and valves at Chestnut Hill, West Roxbury and Dorchester.

Scenarios Requiring Shut-Down

There are many events that might require a shut-down of any or all of the Metropolitan tunnels. A leak or rupture in any of the piping at the surface locations or in the deep dewatering chambers (caused, for example, from material fatigue, corrosion, water hammer, freezing, etc.) would necessitate a shut down. There have been a number of near misses over the years. For example, in 2000 an air valve on the top of Shaft 9 froze and ruptured, filling the shaft house with water. Fortunately, staff were able to close an isolation valve and make a repair without shutting down the tunnel. After the incident, heat tracing was added to similar air valves on the system to prevent a similar occurrence. In another example, a recent as 2012, the bonnet on a small diameter by-pass valve at Shaft 9A broke on the right side of the tunnel isolation valve due to corroding bolts. Had the failure been on the other side of the isolation valve, the City Tunnel Extension would have needed to be shut down to repair. Staff have since replaced bolts on other by-pass valves to prevent a similar failure.

Leaking valve bonnet in 2012

Inspection of the internal condition of the tunnel liners cannot be readily made with the tunnels in service.

Replacement, repair, or exercising of the valves at any of the surface connections might require a complete shut-down. Unlike the current Deer Island valve replacement program where the plant is being shut down over night to allow strategic replacement of valves while wastewater backs up in the collection system, the water system consists of pressurized pipes that can only be shut down when a fully redundant pipeline can achieve supply. Since the MetroWest Tunnel went into service, staff have been able to shut down and isolate sections of the Hultman Aqueduct in order to do regular exercising of the valves, full inspection, and repairs. This was not possible before for fear of breaking a valve closed and shutting off water to nearly 2 million customers.

Shaft 8 Isolation valves and PRVs

Shaft 7 Hydraulic Valve Operators

For much of the MWRA system, that kind of redundancy exists (see attached White Paper for a history of MWRA's efforts to improve system reliability and redundancy). For the Metropolitan Tunnels, use of the existing back-up supply results in a major impact on the current quality and level of service.

Existing Back-up Supply

While back-up systems for these tunnels exist, they rely on pumping from open distribution reservoirs (Sudbury, Spot Pond and Chestnut Hill), back-up aqueducts (Sudbury), and undersized surface mains to distribute water of inferior quality and inadequate pressure to customers (and possible water use restrictions during periods of high seasonal demand). Use of any of these systems would require a boil order. Partially supplied communities would be encouraged to maximize production of their own sources of supply to reduce demand on the system.

To the south, in any scenario in which the Dorchester Tunnel is out of service, supply would be pumped from the Chestnut Hill reservoir to the Blue Hills Tanks using the Chestnut Hill Emergency Pump Station with electric pumps and no back-up power supply. This is very different from the situation when the station was utilized in the Shaft 5 break in 2010 during which the Dorchester tunnel was available and in service. In order to push enough water through the surface mains (with the tunnel shut down) to meet demand, pressures in the vicinity of the pump station would greatly exceed current operating pressures and the possibility of leaks and breaks in MWRA and local community's systems is high. Pumping would need to run continuously to Blue Hills Tanks as the level in Blue Hills is inadequate to back feed through those small surface mains without a large drop in pressure. Hence, large swings in pressure would occur. The Chestnut Hill Reservoir would be replenished from the Sudbury Aqueduct.

To the north, with the City Tunnel and/or the City Tunnel Extension out of service, supply would be partly from the 60-inch WASM 3 line, though most would be pumped from Spot Pond from either the Gillis Pump Station or the new Spot Pond Pump Station via Fells Reservoir to the Northern High service area. Spot Pond would be replenished by the northern low system though supply would likely not keep pace with demand and the level in the reservoir would drop requiring water restrictions. Many pipe and valve closures would be required to reconfigure the system to operate in this manner.

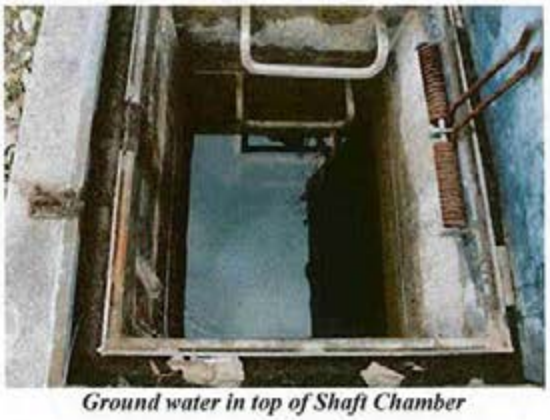
Emergency Shut Down

A failure could be a leak in a small pipe that allows an orderly shut-down or it could be large and uncontrollable requiring immediate shut down without benefit of pre-activation of back-up systems. For example, the failure at Shaft 5 released 250 million gallons per day of water through a gap in the pipe as small as about ¾ inch.

Shaft 5 Break. May 1, 2010

Shut-down and isolation of the Metropolitan Tunnel system requires closure of numerous valves located through-out the metropolitan area. Some of these valves have not been exercised in decades for fear that they may break in the closed position, shutting down supply to customers and/or necessitating a shut down and transition to the back-up system. Valves that can be operated without impacting service are exercised regularly. In an emergency shut-down valve crews would be stretched thin, the turn counts for closing the valves are extraordinarily high, and shut-down would take many hours.

MWRA has conducted training for various water operations, engineering and construction staff on emergency response requiring tunnel isolation and system reconfiguration in order to increase the pool of staff that can assist in such an emergency. However, the scope of the work to be done would be overwhelming. In many ways, the Shaft 5 failure was relatively easy in comparison. The number of valves required for isolation and the amount of system reconfiguration required was much simpler than would be required in a Metropolitan tunnel failure and still it took many hours to get all of the pieces into place before the pipe could be shut down.



Ground water in top of Shaft Chamber

A large drain on the system would put large areas served by these tunnels completely out of water. Once isolated, the process of activating the back-up systems would begin which would also take a long time and further stretch crews thin. Additional areas would go without water during this time as local storage tanks drain and pump station suction pressures drop. Restoration of service would require refilling of pipes and evacuating air in both MWRA and community mains which would occupy MWRA and community water department staff for weeks.

To accomplish this, staff would be flushing hydrants to waste while areas of the system have no water at all. A large part of the MWRA service area would be totally out of water for days, if not weeks. Areas with water would remain on a boil order.

Need for "Seamless" Redundancy

In contrast, the great water main break of 2010 at Shaft 5 allowed an orderly transition to the back-up systems. The City Tunnel was able to remain in service, supplemented from Chestnut Hill. The break was able to continue to flow until everything was ready due to the proximity to the Charles River. A smaller break at one of the Metropolitan Tunnel shaft locations could be devastating. The boil order that affected our system for three days had a major impact on the service area. Shut down of the Metropolitan Tunnels utilizing existing back up supplies could result in a boil order for months with wide swings in service pressure and intermittent service.

Staff have studied this problem and reported on the need to address it in the past (see attached chronology/summary of redundancy presentations). As an agency, MWRA has greatly reduced risk and improved the ability for seamless transitions through many parts of the water system. The Chicopee Valley Aqueduct improvements, the MetroWest Tunnel, Spot Pond Storage Tanks and Pump Station, and the recently awarded Wachusett Aqueduct Pump Station among other efforts improve this capability. However, this part of the system still requires a major level of effort. The CIP has several projects that have been developed to increase operational response capabilities for the Metropolitan Tunnels. However, implementation would be more than 10 years from now and the existing valves and surface piping would be that much closer to needing repair or replacement. Next month, staff will brief the Board on specific alternatives to address this part of the transmission system.

BUDGET/FISCAL IMPACT:

Budget for the Metropolitan Tunnel redundancy plan in the amount of $1.4 billion has been included in the Draft FY17 CIP as a placeholder.

ATTACHMENTS:

White Paper on Redundancy in Waterworks
Chronology of Briefings to the Board of Directors on Redundancy Projects

Redundancy in the MWRA Waterworks System

Reliable delivery of water is critical to protecting public health, providing sanitation, fire protection and is necessary for a viable economy. Redundancy is important in achieving a high degree of reliability for a water system. One key way that redundancy achieves this is by allowing major equipment, pipelines and appurtenant structures to be taken off line for regular inspection and rehabilitation. Redundancy is reflected in different ways in different circumstances but generally, it means eliminating or managing 'single points of failure' within a system. Depending on the configuration of a water system, different means of providing redundancy or creating operational flexibility allows the utility to respond to emergencies or unforeseen conditions. For example, for utilities like MWRA, where there is a single water source and treatment facility that feeds the metropolitan Boston area, redundant transmission mains are critically important. Intake and treatment systems are designed following an 'N+1'[1] philosophy to limit the impact of equipment failures on the ability to continue to deliver water.

Water system redundancy is not a new idea

Examples of redundancy principles in the metropolitan water system are sprinkled throughout the history of our great water system. In the late 1800s there were two basins at the Chestnut Hill reservoir (the former Lawrence Basin, now the site of Boston College's Alumni Stadium and Bradley Basin the sole remaining reservoir – see 1949 photograph showing the two basins with Lawrence Basin in foreground, Shaft 7 construction and the Chestnut Hill pump station in the background); one to settle water from the Cochituate Aqueduct and the other the Sudbury Aqueduct but both somewhat interchangeable. At the outlet of the pump station at Chestnut Hill two (east and west) supply lines carried water to Spot Pond. There were initially two Weston Aqueduct supply lines for the Boston low service system; each taking a different route with redundancy being one of the benefits provided. The Cordaville pipeline was built in 1928 to bring water in from the south Sudbury (Ashland and Hopkinton) reservoirs while Quabbin reservoir was being planned and constructed.

1 The 'N+1' strategy has a long history in waterworks and is now mandated in Department of Environmental Protection design guidelines. It provides the required number of pieces of equipment (for example chemical feed pumps) to meet the design maximum output of the facility with any (or in case of varying size equipment – the largest) piece of equipment out of service.

The Quabbin intake was constructed with two independent intake lines, one used for releases to the Swift River and the other used decades later for the Chicopee Valley Aqueduct (CVA); at Winsor power station the ability to cross over from either pipeline provided operational flexibility. The Hultman Aqueduct was completed in 1940 with plans and infrastructure left behind for a second barrel. This 1940 photo shows concrete placement for a future aqueduct connection at Shaft 4 of the Hultman Aqueduct. The onset of World War II prevented completion of the second pipeline. The Chicopee Valley Aqueduct was built on one side of its easement to make room for a second future barrel.

The MWRA's metropolitan distribution system has many examples of redundant pipelines and multiple community connections. The Northern Extra high service area has two pump stations (Brattle Court constructed in 1907 and Spring Street constructed in 1958) to serve it. Similarly, the Southern Extra High has Hyde Park (1912) and Newton Street (1954) pump stations. The practice of having parallel pump stations operating in each service area allows facilities to be taken off line for maintenance and rehabilitation and also allows service to continue in the event of a more significant equipment failure. In 1994, a catastrophic pipeline failure shut down the Spring Street Pump Station and the system was able to shift to use of the Brattle Court Pump Station, avoiding major system disruptions to Arlington, Bedford, Belmont, Lexington, Waltham and Winchester. All of the metropolitan pump stations were designed with N+1 pumps and each has emergency backup power supply or redundant hydraulic supply (pressure reducing valves from a higher service area) to supply water in the event of a power loss.

<u>MWRA's approach is not unique and is reflected in key national guidance documents.</u>
The Recommended Standards for Water Works (the "10 States Standards" which was the basis for development of the Massachusetts Department of Environmental Protection's Guidelines for Public Water Systems) says that designs should *"...identify and evaluate single points of failure that could render a system unable to meet its design basis. Redundancy (geographically separated) and enhanced security features should be incorporated into the design to eliminate single points of failure when possible, or to protect them when they cannot be eliminated."*

The Environmental Protection Agency's Vulnerability Assessment Guidance recommends redundancy development as a strategy to decrease the criticality of specific facilities, processes and assets. "In assessing those assets that are critical, consider...single points of failure (e.g. critical aqueducts, transmission systems, aquifers, etc.)..."

Other major utilities across the United States have taken varied approaches to this guidance. One example is San Francisco where the focus has been on being able to maintain and/or quickly recover service in the event of an earthquake. This has meant the need to develop redundant tunnels in parts of their system. The San Francisco Public Utilities Commission (SFPUC) recently completed the last of three new tunnels, creating a water lifeline able to withstand earthquakes on three different faults (Hayward, Calaveras, and San Andreas). The project was part of the agency's $4.8 billion Water System Improvement Program (WSIP) which has

completed all but one its 83 total projects. The New Irvington Tunnel measures 8.5 feet in diameter and was constructed parallel to the existing Irvington Tunnel completed in 1932, with a goal of restoring water deliveries within 24 hours after a major earthquake in the Bay Area. This placement allows the SFPUC to take either tunnel out of service for maintenance and inspections. For more information on San Francisco redundancy projects, see Attachment 2.

New York City essentially operates three separate supply and aqueduct systems which gives the City great flexibility if one needs to be shut down for any reason. Most recently, the focus has been on improving interconnections between the Catskill and Delaware aqueducts and on maximizing capacity to deliver water from the Catskill/Delaware system. In 2013, DEP broke ground on the Shaft 4 connection of the Delaware and Catskill Aqueducts and expects to complete construction in 2016. Activation of the Manhattan Section of City Water Tunnel No.3 took place in October 2013, providing redundancy for the older Water Tunnel No.1 in Manhattan. The construction of Water Tunnel No.3 is intended to provide the City with a critical third connection to its Upstate New York water supply system, allowing for the repair of tunnels No.1 and No.2 for the first time in their history. Construction on Tunnel No.3 began in 1970, and its first phase is now completed. The tunnel will eventually measure more than 60 miles long, though completion of all phases is not expected until at least 2020.

MWRA Track Record

Since MWRA's inception, there has been an ongoing effort to improve water system operation and reliability through the MWRA capital improvement program and Master Plan process. Many of the projects that have been completed, that are underway, or are proposed provide an improvement in system redundancy in part, if not in total. Clearly, any project whose sole purpose was elimination of a single point of failure could be considered a redundancy project. It is also useful to think about projects that address redundancy in other ways, so staff have sorted completed projects that have a redundancy component into the following three categories.

A. Elimination of Single Points of Failure. Projects constructed specifically to allow continuation of service in the event of a failure of an asset (pipeline, tunnel, storage tank, pump station, etc). Equally important, these projects may allow other assets, that otherwise could not, be taken out of service for inspection, maintenance, rehabilitation, or replacement. Types of projects in category A and representative examples include:

   - System improvements necessary to allow construction of redundancy projects (example: The Dorchester Corridor Valve Installation project allowed isolation of key sections of pipelines so that the Southern Spine projects, including construction of Section 107 to back up Section 22, could be completed.
   - New storage where pipeline redundancy is limited or that greatly increases operational flexibility (Blue Hills, Spot Pond)
   - Improvements in pump station suction and discharge piping (Section 99-Redundant suction line to Gillis PS; Section 96-redundant discharge line from Newton Street PS)
   - Redundant transmission system projects (MetroWest Tunnel and Hultman Interconnections, Chicopee Valley Aqueduct redundancy project)
   - Redundant distribution system pipelines (Section 91, 91B and 92 in the Northern High system)

B. Preserving viability of existing back-up systems. Projects that are necessary to maintain an existing back-up system and ensure its availability. Most of these projects involve rehabilitation of existing transmission system assets or condition assessments designed to monitor the asset on an ongoing basis. This would include projects such as the lining of Wachusett Aqueduct and the tunnel inspections recommended for the Cosgrove Tunnel and the Quabbin Tunnel. However, this category also includes those projects done to increase operational flexibility in an emergency. For example, Safe Drinking Water Act requirements mandated the removal of open distribution storage reservoirs and, in order to comply, MWRA took such reservoirs off-line throughout the system. New covered storage at Fells Reservoir, Loring Road, Norumbega and Spot Pond have been constructed with the ability to bring those off-line reservoirs back into service in the event of a major system failure. This photo shows the new valve chamber constructed at Norumbega Reservoir which would allow the Reservoir to be re-connected to the system in the event of an emergency.

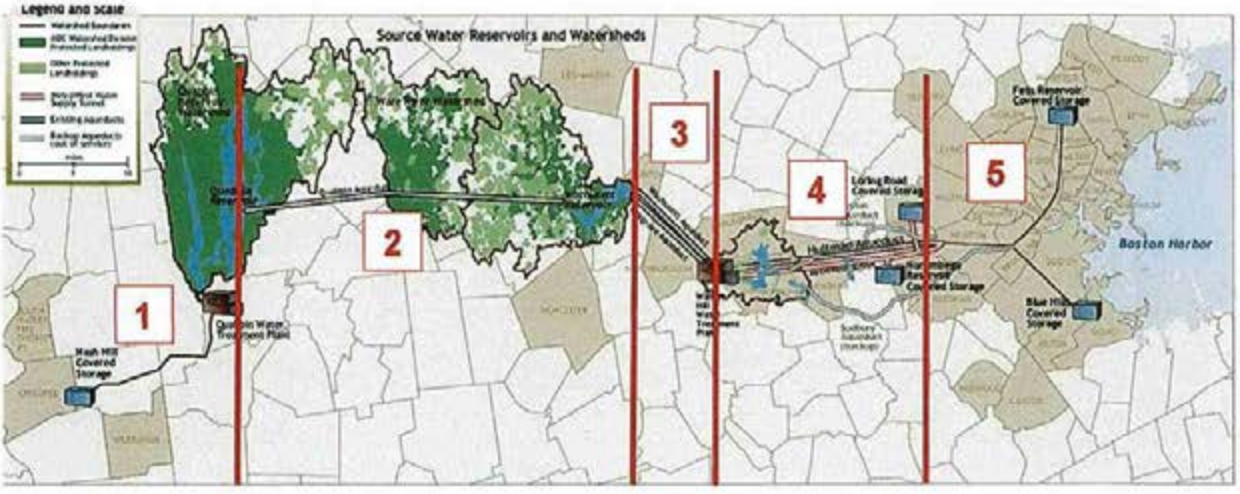
C. Preventing loss of redundancy. Projects to rehabilitate or replace assets that provide an existing level of redundancy in order to avoid unintended single points of failure through assets failing. Many of MWRA's capital projects identified and completed in the past 30 years fall into this category given the age and deteriorated condition of much of the infrastructure inherited by MWRA. These vary from small projects such as repairs to the Beacon Street Line in the Boston Low Service area to major rehabilitation projects spanning many communities such as the East-West Spot Pond Mains project which restored major pipelines and connecting "ladder rungs" in the Low Service pressure zone. This photo shows the location of the replacement turbine by-pass valve at the Oakdale Power Station which preserves the ability for Quabbin to Wachusett water transfers in the event of a hydro turbine failure. The previous valve had failed repeatedly, creating damaging water hammer that had threatened the station piping system.

Examples of Completed Projects that Eliminated Single Points of Failure:

MetroWest/Hultman Aqueduct Interconnections: Probably the most important accomplishment in terms of elimination of single points of failure of the water transmission system is construction of the MetroWest Water Supply Tunnel and the Hultman Aqueduct interconnections projects. After decades of planning, design and construction the tunnel came on line in November, 2003 to provide a second means of water conveyance from the John J. Carroll Water Treatment Plant to the Norumbega Covered Storage Facility and ultimately the City Tunnel and Metropolitan distribution system at Shaft 5. The tunnel is a 17.6 mile long, 14-foot diameter deep rock tunnel

(with a 14-foot diameter connection to the Loring Road Covered Storage Facility) and it was constructed to ensure that there was a redundant means of providing water to the metropolitan area in the event of a failure along the Hultman Aqueduct. The Hultman Aqueduct was then rehabilitated after 70+ years of continuous service and interconnecting structures created to provide the ability to isolate sections of either transmission main while continuing to provide water service to the Metropolitan area. The final Hultman interconnecting mains project was completed in 2013. This photo shows the new valve chamber at Shaft 5 which provides an interconnection between the MetroWest Tunnel and the rehabilitated Hultman Aqueduct.

Chicopee Valley Aqueduct: Also in the transmission system, in 2007, MWRA completed construction of a 30-inch diameter 8,100 foot long second barrel of the CVA from Nash Hill Covered Storage to the City of Chicopee; 3,100 feet of 16-inch redundant pipeline between Nash Hill Covered Storage and the take-off point for South Hadley; and 2,400 feet of 20-inch redundant pipeline between the Route 21 valve chamber and the Wilbraham takeoff. These pipelines provide redundant supply for critical sections of the 14.8 mile long aqueduct. With these new pipelines in place, the communities will be connected to Quabbin Reservoir, Nash Hill Covered Storage or both in the event of a failure along the Aqueduct. In addition, emergency connection points to the Springfield water system were created to allow connection of MWRA's mobile pumping unit to supplement supply in the event of a prolonged interruption.



These 2 projects address single points of failure in segments 1 and 4 of the 5 MWRA water transmission system segments shown in the figure above. Segment 2 shows the Quabbin Aqueduct between Quabbin and Wachusett Reservoirs. Although the assumption is that tunnels have a useful life of 100 years, risk of failure considers both major subsurface issues, such as structural vulnerabilities due to earthquake or faults and the potential for failure due to pipe failures at the surface connections. The Quabbin Aqueduct has not been recently inspected and

the CIP includes development of an inspection plan for this tunnel. Because the system can rely on the Wachusett Reservoir during winter/spring months in years with normal precipitation if necessary, staff believes that this tunnel can be inspected with minimal risk or disruption. The remaining two segments are described here but further information is provided below. Segment 3, from Wachusett Reservoir to the John J Carroll Water Treatment Plant will be strengthened with the upcoming Wachusett Aqueduct Pump Station project. Segment 5, the City Tunnel, Dorchester Tunnel and City Tunnel Extension will be addressed in a series of staff summaries in 2016.

Other completed transmission and distribution projects include the following:

The Chestnut Hill Emergency Pump Station was constructed in 2001 to supply the Southern High and Southern Extra High in an emergency by taking water from the Sudbury Aqueduct via the Chestnut Hill Reservoir or by taking water from the Low Pressure system. The 90 mgd capacity reflects the station taking non-potable water from the Chestnut Hill Reservoir. This station was instrumental to the success of MWRA's response to the break at Shaft 5 in 2010.

Section 97A was completed in 2009. This project installed approximately 2,000 feet of 20-inch water main, a rehabilitated metering station and a new PRV. This project also addressed existing pressure deficiencies in the Orient Heights area. The PRV allows the line to serve critical parts of the Boston Low (Logan airport) in emergencies. The completion of 97A improves the MWRA's operational flexibility for moving ahead with Section 8 work in the Northern Low system.

For Lynnfield, the new Lynnfield Pipeline was completed in 2013. This addressed the insufficient capacity of the existing 8-inch MWRA line feeding the District. The project connects Lynnfield's Meter 169 to Section 70 in Saugus and includes 4,700 linear feet of new 24-inch main and 1,800 linear feet of 36" main.

The recently completed Spot Pond Pump Station and Storage Tank project (shown in this photo) provides back-up capabilities to the Gillis pump station, similar to the back-up stations constructed in the 1950's in the Northern Extra High and Southern Extra High service areas. Gillis Pump Station currently supplies the Northern Intermediate High/Bear Hill (NIH) service area and the Northern High Service/Fells (NHS/Fells) service area. The new Spot Pond Pump Station and Storage Tank provides terminal low service storage which provides operational flexibility for supply to the NIH and Fells service areas and critical storage for the Northern Low (NL) service area in the event of service interruption. The Spot Pond Pump Station is capable of drawing water from either the low service or high service zones and will pump to the high and intermediate high zones providing much needed redundancy to Gillis Pump Station.

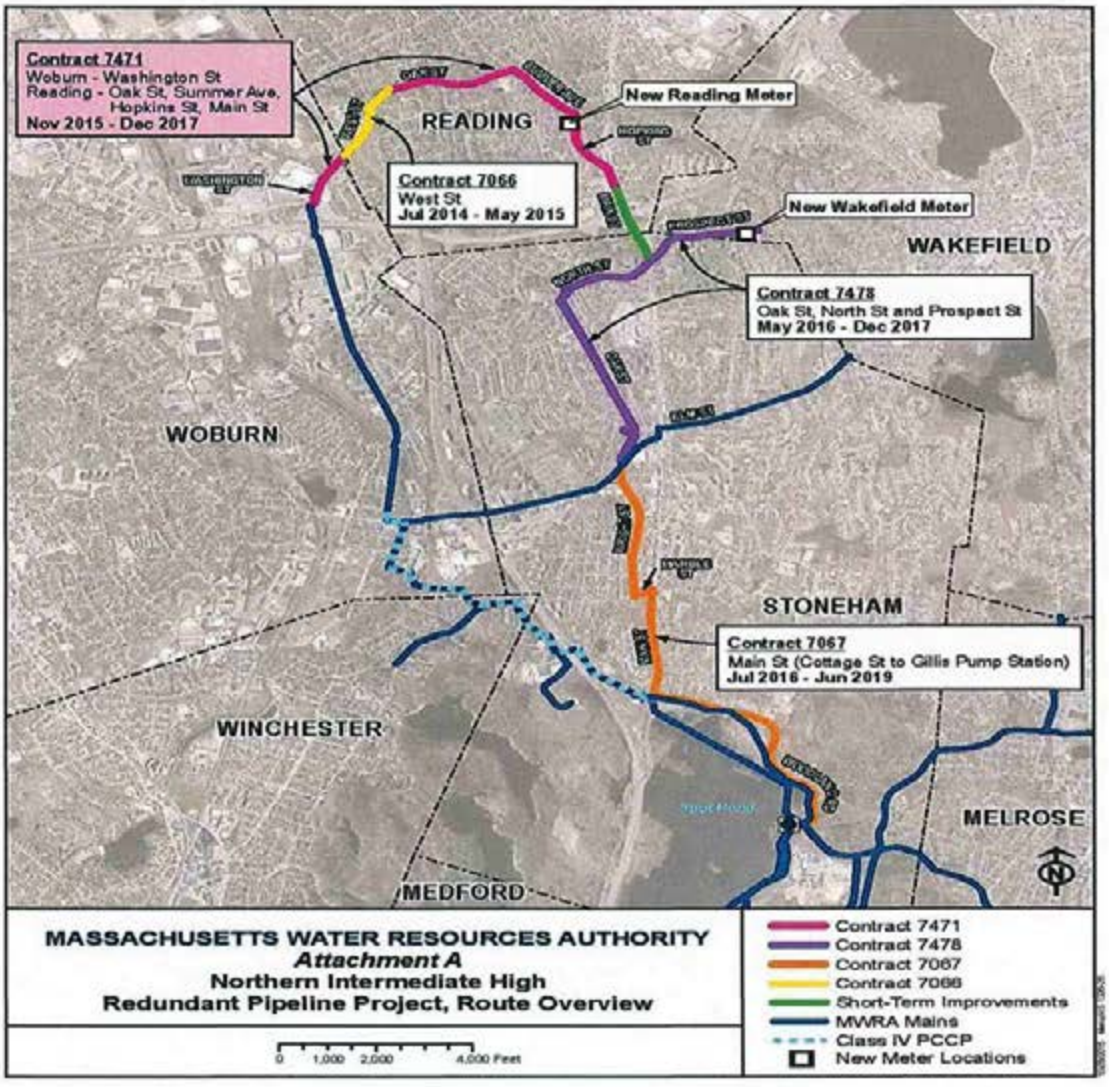
Important Projects to Eliminate Single Points of Failure are Underway:

There are several critically important projects that are in design, about to be bid, and under construction which will dramatically improve either transmission or distribution system redundancy and eliminate serious single points of failure.

The Cosgrove Tunnel is a critical transmission system component that brings water from Wachusett reservoir to the Carroll Water Treatment Plant. The back-up to the tunnel is the gravity Wachusett Aqueduct which can supply approximately 240 MGD of water to the service area. The aqueduct was rehabilitated in 2002 to allow connection of the CWTP to the Cosgrove Tunnel. However, it operates at a lower gradeline then the treatment plant and therefore could not provide water that meets drinking water standards without boiling and booster chlorination. Design and construction of a pump station at the end of the Aqueduct was selected as the means to protect against a Cosgrove Tunnel failure. The graphic above shows the planned pump station. This pump station will lift water to the treatment plant allowing the Cosgrove Tunnel to come out of service without impacting water quality. The 240 mgd capacity would allow for unrestricted supply for at least eight months during the lower demand fall/winter/spring period. The construction contract was awarded in 2015.

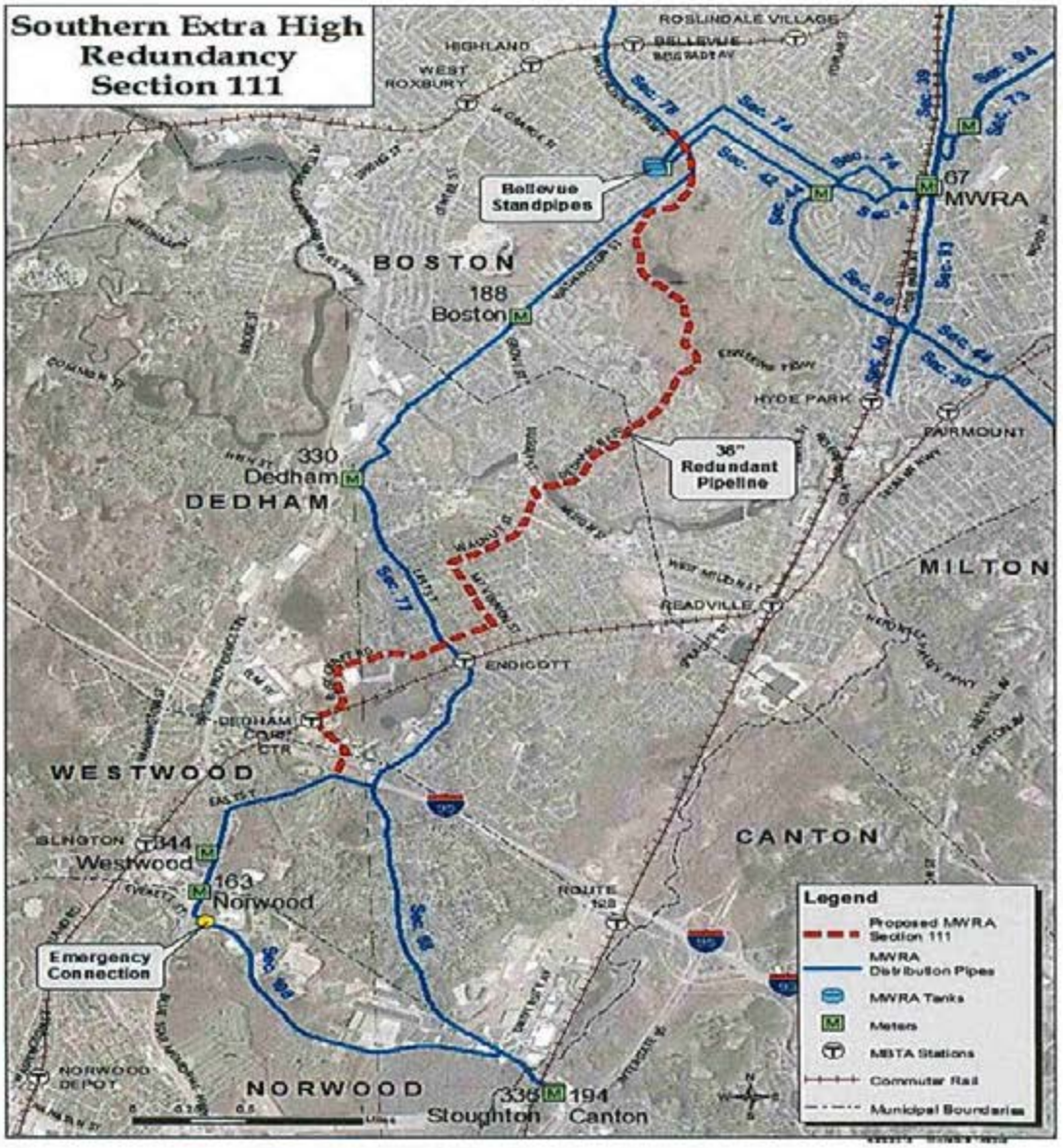
In addition to the improvements described above to the NIH service area pumping capability, the 2006 Master Plan identified the single tank and pipe system in the NIH distribution service area as lacking redundancy. Concern over the potential for a catastrophic failure of the main Section 89 pipeline increased when in-house research showed that a 10,000 foot portion of this pipeline is Prestressed Concrete Cylinder Pipe (PCCP) that was constructed by a particular manufacturer with a Class IV wire that has been prone to embrittlement and failure elsewhere in the country.

The map illustrates the various contracts that will help to provide looped service for this pressure zone. Short term improvements to interconnect Stoneham and Reading along Rt. 28 are complete as is work along West St. in Reading. Contract 7471 was also awarded in 2015 and work will begin this year. Overall, the project is expected to be completed in 2019 at an estimated cost of approximately $81 million (Final FY16 CIP-excludes rehab cost of existing sections 29 and 89).



In the Southern Extra High Service Area, Sections 77 and 88 are single spine mains serving Canton, Norwood, the Dedham-Westwood Water District and Stoughton. Although four of these communities are partially supplied and may be able, in part, to provide some level of service in the event of a pipeline leak, break or other failure, Norwood is fully supplied by MWRA.

The University Avenue Connection (Section 108) at the lower portion of the map was constructed separately to provide partial redundancy. Construction on the first contract is expected to begin in 2016. Total estimated cost for the complete project is approximately $86.6 million (Final FY16 CIP excluding University Ave and costs of rehab for Sections 77 and 88 but including long term new storage).



Remaining Transmission System Redundancy Needs:

Metropolitan Tunnels: Segment 5 as shown on the overall transmission system map (page 5) includes the tunnel system to the east of Shaft 5 and encompasses the City Tunnel, the City Tunnel Extension, and, to the south, the Dorchester Tunnel. These three tunnels come together at Shaft 7. Of particular concern is the area around and underneath the Chestnut Hill Reservoir that is critical to MWRA's ability to deliver water to the greater Boston area. On average, over 60 percent of the water delivered by MWRA flows through the Metropolitan tunnels, supply mains, pipes and valve chambers in and around the Chestnut Hill Reservoir footprint. Shaft 7 is the end of the City Tunnel and provides connection to supply the City Tunnel Extension to the north and the Dorchester Tunnel to the south. As noted above, tunnels are generally assumed to have a 100-year useful life and these tunnels were constructed in 1950, 1963 and 1976,

respectively. The major concern with tunnels is the potential for a failure at the surface connections at the top of the tunnel shafts. A rupture of piping at surface connection points on any of the metropolitan area tunnel shafts would cause an immediate loss of pressure throughout the entire High Service area and would require difficult emergency valve closures and lengthy repairs.

Ideally, in the event of an emergency with either a tunnel or surface connection, the best resolution would be to have a transition to a backup system that is unnoticeable by the end consumer. However, MWRA's system is not yet at that point and, depending upon the location of a failure, service could be significantly disrupted.

With the current system configuration, in the event of a failure of the City Tunnel or the interconnections with the City Tunnel Extension or the Dorchester Tunnel, a limited amount of water could be transferred through the 60-inch WASM 3 line and the recently rehabilitated WASM 4. The Sudbury Aqueduct would need to be brought on line and extensive use of the Sudbury Aqueduct/Chestnut Hill Emergency Pump Station and open distribution storage at Spot Pond and Chestnut Hill would be required. Supply would be limited and a "boil water" order would be put in place. Failure of the City Tunnel Extension would be similar with reliance on WASM 3 and open storage at Spot Pond. In the above scenario, the ability to put the Sudbury Aqueduct quickly into service would be critical.

This potential situation has elicited careful study on the part of MWRA to determine the best course of action. The CIP has several projects that have been contemplated to increase operational response capabilities to these failure scenarios. Staff plan a series of future briefings for the Board of Directors to specifically address this part of the water transmission system and discuss the merits of the various approaches to fulfilling elimination of these single points of failure. This white paper was intended to provide additional context for the initial staff summary which will look at why redundancy for the metro tunnels is essential, including the condition of the system, potential failure scenarios, the difficulty of recovering from any failure and restoring service, and the inability to shut down the system for either inspection or maintenance. The second will review work done over the past several years examining a wide range of alternatives to provide full or partial redundancy, including their costs, reliability of operation, constructability issues and environmental impacts. The third staff summary will examine whether and how the costs can be accommodated within the framework of predictable and sustainable rates.

ATTACHMENT 1
LIST OF PROJECTS

Category A-New Infrastructure to Specifically Address SPF

Already Constructed:

MetroWest Tunnel/Hultman Interconnections
Chicopee Valley Aqueduct
Section 99-Redundant suction to Gillis
Lynnfield Pipeline-Section 109
Section 91/91B/92
Section 97A/97/98
Section 101-part of Section 83 redundancy
W10B/W10C-Suction to Lexington St. PS
Sections 105/106-part of Chestnut Hill Connecting Mains project
Section 94-reinforced Hyde Park suction-allowed rehab of Sec 73
Section 107 (replaced 21/43)
Sections 95/100-redundancy to Dudley Rd. PS
Section 96-redundancy to Section 76-discharge from Newton St PS
Section 108-University Ave-part of SEH short-term solution
Chestnut Hill Emergency Pump Station
Dorchester Corridor Valve Installation
Fire Chief's Study-other targeted interconnections
Deer Island Storage Tank
Blue Hills Storage
Spot Pond Storage and Pump Station

In Progress:

NIH-Section 89
SEH-Section 77
Wachusett Aqueduct Pump Station

Future:

Section 75

ATTACHMENT 2

WATER SYSTEM REDUNDANCY – UTILITY EXAMPLES & POLICY GUIDANCE

UPDATED FROM DECEMBER 2007

Depending upon the configuration of a water system, different means of providing redundancy or creating operational flexibility allow the utility to respond to emergencies and/or unforeseen conditions. In December 2007, staff compiled a list of reviews regarding water system redundancy structures from a variety of cities across the U.S. Utility examples and corresponding policies were examined to provide guidance and further understanding of the work carried out by water systems on a national level. The following document provides an update of the utilities reviewed in 2007, outlining progress made on initiatives and goals that have been accomplished.

San Francisco, California

The San Francisco Public Utilities Commission (SFPUC) has accomplished an extensive amount of utility upgrades since last review in December 2007. SFPUC customers are currently served by 280 miles of pipelines, 60 miles of tunnels, 11 reservoirs, five pump stations and two treatment plants that bring snowmelt from the Sierra Nevada Mountains to the cities surrounding the San Francisco Bay. San Francisco's principle failure scenario remains an earthquake, as pipelines and tunnels from the Hetch Hetchy Reservoir cross three major earthquake faults that could interrupt water service for days and weeks after a significant event. The following updates represent the most recent findings on redundancy/operational flexibility projects that were originally examined in our 2007 report:

On March 3, 2015, the San Francisco Public Utilities Commission (SFPUC) announced that after more than four years of construction, a new 3.5-mile-long, seismically improved tunnel is now delivering water to 2.6 million people in the San Francisco Bay Area.[2] The New Irvington Tunnel Project completes the last of three new tunnels, creating a water lifeline able to withstand earthquakes on three different faults (Hayward, Calaveras, and San Andreas). The project is located between the Sunol Valley and Fremont, and is part of the agency's $4.8 billion Water System Improvement Program (WSIP) which has only one remaining project (of 83) to complete. The New Irvington Tunnel measures 8.5 feet in diameter and was constructed parallel to the existing Irvington Tunnel completed in 1932, with a goal of restoring water deliveries within 24 hours after a major earthquake in the Bay Area. This placement allows the SFPUC to take either tunnel out of service for maintenance and inspections, improving redundancy and securing access to the water from Hetch Hetchy, San Antonio, and Calaveras Reservoirs. In the coming weeks, crews will take the existing tunnel out of service for inspection while the project team will work to restore above ground facilities around the new tunnel. This above ground work is expected to last through fall of 2015.

2 http://sfwater.org/modules/showdocument.aspx?documentid=6846

On April 13, 2015, SFPUC announced the completion of a $278-million project to improve the seismic and operational reliability of the Harry Tracy Water Treatment Plant located in the city of San Bruno.[3] The largest part of the construction was a new 11-million-gallon treated water reservoir. During the design, the discovery of the Serra Fault trace directly beneath crucial portions of the plant prompted a significant redesign of the project to relocate and completely rebuild the reservoir in its current location. The plant upgrade has been seismically designed and reinforced to withstand a magnitude 7.9 earthquake on the San Andreas Fault, with the goal of providing 140 million gallons of water per day, for 60 days, within 24 hours of a major earthquake. In September, 2015, the San Andreas Pipeline No. 3 (a 1,000-foot segment of 66-inch pipeline) that runs through San Bruno was completed and this pipeline can now also withstand a 7.9-magnitude earthquake.

The New Crystal Springs Bypass Tunnel was completed ahead of schedule, measuring 4,200 feet long at depths of up to 160 feet underground.[4] Tunnel excavation was completed on March 24, 2010, and pipeline installation was completed on May 26, 2010. The goal of the project was to provide redundancy to the existing Crystal Springs Bypass Pipeline built in 1969 and to ensure water delivery after a major earthquake. The old pipeline will remain in service to provide redundancy for inspection and maintenance of the new tunnel.

The San Antonio Backup Pipeline began construction in April of 2013 and was expected to reach completion in March 2015. Once completed, the Backup Pipeline will enable the SFPUC to discharge Hetch Hetchy water to a nearby quarry pit during emergency events while transporting San Antonio Reservoir water to the Treatment Plant at the same time. The goal is to add operational flexibility to the system and minimize the risk of service disruption to 2.6 million customers, as the existing San Antonio Pipeline has limited conveyance capacity and a history of failure due to wire corrosion and breakage in the Pre-stressed Concrete Cylinder Pipe.

As the SFPUC's Quarterly Report for FY14-15 states, The East-West Transmission Main project has successfully been completed with the installation of approximately 4.5 miles of 36-inch and 42-inch welded steel pipes, allowing the SFPUC to move water from the east side of the city into the Sunset system in the event of a peninsula pipeline failure or emergency.[5] Prior to this project, there was no transmission main dedicated to supply emergency water from the eastern part of the city to the west.

The objective of the San Joaquin Pipeline System project was to construct a 78-inch-diameter pipeline totaling approximately 11 miles at the Western portion of the SJPL System to ensure adequate flow at that end. As of June 2013, the eastern segment of the system was completed, which was the last of five projects constructed in that region.

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3 http://www.waterworld.com/articles/2015/04/sfpuc-completes-new-seismic-upgrades-to-drinking-water-treatment-plant.html

4 http://www.tunneltalk.com/SFPUC-Mar10-Crystal-Springs-bypass-tunnel-complete.php

5 http://www.sfwater.org/Modules/ShowDocument.aspx?documentID=6341 , pg. 17

New York City[6]

New York City released its PlaNYC Progress Report in 2014, providing an update of any progress made in areas of sustainability and resiliency since the previous year. The City's initiative to repair the leak in the Delaware Aqueduct is still in progress, and is expected to reach completion in 2017. The first half of the bypass tunnel project (focusing on construction of access shafts) commenced on schedule in March 2013, and the second half of the project (which includes the construction of the 2.5 mile long bypass tunnel) recently reached the 60% design milestone. The project is currently on schedule to commence work in 2015.

The initiative to improve interconnection between the Catskill and Delaware aqueducts and maximize capacity to deliver water from the Catskill/Delaware system remains in progress. In 2013, DEP broke ground on the Shaft 4 connection of the Delaware and Catskill Aqueducts and expects to complete construction in 2016. Activation of the Manhattan Section of City Water Tunnel No.3 took place in October 2013, providing redundancy for the older Water Tunnel No.1 in Manhattan.[7] The construction of Water Tunnel No.3 is intended to provide the City with a critical third connection to its Upstate New York water supply system, allowing for the repair of tunnels No.1 and No.2 for the first time in their history. Construction on Tunnel No.3 began in 1970, and its first phase is now completed. The tunnel will eventually measure more than 60 miles long, though completion of all phases is not expected until at least 2020.

Seattle, Washington[8]

Seattle Public Utilities has recently embarked on a seismic vulnerability study (project scope released in March 2015) to assess facility risk involved with 100-year and 500-year return interval earthquake ground motions.[9] Since SPU's last comprehensive evaluation in 1990, understanding of the seismicity of crustal faults in the Puget Sound area has changed dramatically. Lessons have been learned on water system performance from recent earthquakes, thereby causing seismic codes and standards to evolve. The purpose of this project will be to develop mitigation alternatives that avoid single points of failure and to develop seismic design standards for the new SPU water transmission/distribution facilities with an emphasis on pipeline reliability.

Seattle has continued to make investments in its drinking water system since last review in 2007. SPU released its *2013 Water System Plan* in July 2012, which focuses primarily on the 2013-2018 time scale and identifies infrastructure improvement needs for the water supply system that include Morse Lake Pump Plant, Overflow Dike Replacement, and Landsburg Dam Flood Passage Improvement projects. SPU also plans to complete investigations that support water resources operations including refill of Chester Morse Lake to elevation 1566 feet, potential impact on water quality that could be caused by failure of Lake Youngs Cascades Dam, and potential additional drawdown of South Fork Tolt Reservoir.

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6 http://www.nyc.gov/html/planyc2030/downloads/pdf/140422_PlaNYCP-Report_FINAL_Web.pdf , pg. 101
7 http://www.nyc.gov/html/nycwaterboard/pdf/blue_book/bluebook_2015.pdf , pg. 6
8 http://www.seattle.gov/util/cs/groups/public/@spu/@water/documents/webcontent/04_007871.pdf
9 http://www.seattle.gov/util/cs/groups/public/@spu/@engineering/documents/webcontent/1_036077.pdf

SPU plans to mitigate the risk of pipe failure in the slide area between the Regulating Basin and Tolt Water Treatment Facility through continued slope monitoring, additional geotechnical data collection, periodic internal inspections, and biannual leak testing. Acquiring ownership of the land in the slide area and implementing pipeline stress relief measures when necessary will also aid to mitigate the risk of pipe failure. Cost-effective cathodic protection projects will be implemented as needed for the concrete cylinder and steel transmission pipelines to protect these from corrosion and extend their service lives.

Washington, DC – DC WASA[10]

In the coming years, DC Water will be performing rehabilitation of large water mains throughout the city involving the joint seal of large transmission mains to help improve water quality and system reliability, increase water pressure in some areas, and maintain adequate flows throughout the system. The City has embarked on a ten-year $3.8 billion Capital Improvement Program (CIP) that, when completed, will significantly enhance DC WASA's water and sewer facilities infrastructure. The following project examples represent small-scale reliability efforts within the CIP:

The 17th NE/SE Project, as part of DC Water's CIP, will result in the installation of a new 20-inch water main and replace the existing 8-inch main within that location. The 20-inch water main acts in a dual capacity of alleviating low flow and pressure in the community near Kenilworth NE while serving as a redundant water main for the RFK Stadium area in case of emergency or water outages. These efforts will improve water quality and system reliability, increase water pressure, and maintain adequate flows throughout the system. Construction is scheduled to span from March 2015 to April 2016.

The 16th & Alaska Pumping Station Rehabilitation Project will allow DC Water to perform improvements for its pumping station located at 16th Street NW and Alaska Ave NW, as no major construction or design improvements have been conducted to the station in almost twenty years. The work being proposed under this project will improve overall reliability of the facility and provide operational flexibility. Construction is scheduled to span from June 2014 to May 2015, and involves the installation of a generator (operating as a backup electrical source to the pumping station), an upgrade of the security system, and an upgrade of all pump controls/control system as needed.

Portland, Maine[11]

Portland Water District's website remains unchanged since last review in 2007, stating that "having more than one transmission main is not a coincidence," and "as with the whole distribution system, redundancy is maintained to ensure minimum interruptions in water service." Portland's Water Main Replacement Program has a goal of providing a reliable distribution system designed and maintained to enhance public health and safety. In the coming 2015 season, water main replacement will involve replacing existing water mains with new ones

10 http://www.dcwater.com/about/cip/default.cfm
11 https://www.pwd.org/water-distribution

to improve water flow characteristics and to improve service to customers. There are various projects scheduled between April 1 and mid-November of 2015 to begin construction, including an array of water main replacements around Portland and a CSO project scheduled for May 2015.

Portland, Oregon

The Portland Water Bureau released its Annual Watershed Control Program Report for Water Year 2014 in December 2014, detailing the "several layers of redundancy" in its chlorination system. Chlorine is injected via the carrier-water line into each conduit from two primary and secondary chlorination systems at the Bureau's Headworks. Although each system is capable of delivering a sufficient dose of chlorine, both normally operate, adding just over one-half of the applied dose each. If one were to fail, CT's would sufficiently be met with just one of the two systems operating. One-ton chlorine cylinders are used, and 12 are ready at any given time with 12 one-ton cylinders typically in stand-by with automatic switch-over. In addition, there is a spare chlorinator in the primary system that can be used to back up any of the chlorinators in the primary system. There are multiple low level alarms and low vacuum alarms, along with extra chlorination systems and carrier-water lines that are used regardless of which intake is in use. The valves for switching from one carrier-water line to the other are manual, but normally both are used simultaneously. Chlorination can continue in the event of a power failure since the carrier water supply is gravity-fed.

Board of Director's Briefings Regarding Redundancy Projects

November 28, 1990	Board approval to proceed with design of the MetroWest Water Supply Tunnel. Staff recommended that a future tunnel extend north from Weston to Shaft 9A.
September 13, 1995	Informational briefing at a special Board meeting regarding the planning and interrelationships of the proposed MetroWest Water Supply Tunnel, Norumbega and other covered storage projects, and the Carroll Water Treatment Plant
September 20, 1995	Board approval to award the Spot Pond Pipeline (Section 99) construction contract to provide a redundant supply to the Gillis pump station. Completed September 30, 1999.
May 22, 1996	Board approval to award the first construction contract for the MetroWest Water Supply Tunnel. Construction of the tunnel was completed on April 3, 2003.
August 7, 1997	Board approval to award the Loring Road Covered Storage construction contract. Completed November 30, 2000.
February 11, 1998	Board approval to award the Nash Hill Covered Storage construction contract. Completed February 17, 2000.
February 10, 1999	Board approval to award the Chestnut Hill Replacement Pumping Station to provide redundancy to the Southern High and Southern Extra High service areas. Completed March 30, 2001.
September 29, 1999	Board approval to award the Norumbega Covered Storage design build contract. Completed June 30, 2005.
October 12, 2005	Board approval to award the Chicopee Valley Aqueduct Redundancy construction contract. Completed April 21, 2008.
November 15, 2006	Board approval to award the Blue Hills Covered Storage design build contract. Completed April 1, 2010.
January 10, 2007	Informational staff summary on construction progress of the Chicopee Valley Aqueduct Redundancy construction project.
June 27, 2007	Informational staff summary on the benefits and proposed schedule for the Hultman Aqueduct Rehabilitation and Interconnections to the MetroWest Tunnel project.

December 12, 2007	Informational Staff Summary describing the level of redundancy throughout the water transmission and distribution systems and the status of ongoing or proposed projects and studies.
March 12, 2008	Board approval to award the University Ave Water Main construction contract to provide a pipeline loop supplying Norwood. Completed November 7, 2008.
September 17, 2008	Board approval to award a contract (Transmission Redundancy Plan) to evaluate alternatives and develop conceptual design for redundancy for the metropolitan tunnel system and the Cosgrove Tunnel.
July 15, 2009	Board approval to award the Hultman Aqueduct Rehabilitation and Interconnections construction contract (CP-6A). Completed May 31, 2013.
December 16, 2009	Board approval to award the Southern Spine Distribution Mains Section 107 construction contract to provide a redundant supply to Milton and Quincy. Completed January 17, 2012.
May 6, 2010	White paper on Water System Redundancy Planning and Construction. The white paper described completed, ongoing and planned redundancy projects throughout the water system. The white paper identified the need for redundancy for the metropolitan water system and noted that the findings of the Transmission Redundancy Plan would be presented soon.
June 30, 2010	Informational Staff Summary presenting the findings and recommendations of the Transmission Redundancy Plan. The recommended alternative included the construction of seven miles of large diameter surface pipes, Slip lining the Sudbury Aqueduct with a seven foot diameter pipe, rehabilitation of the Chestnut Hill Emergency Pump Station and a four mile tunnel from Norumbega Reservoir to the Sudbury Aqueduct.
December 22, 2010	Board approval to award the Lynnfield/Saugus Pipeline construction contract to provide redundancy to the Lynnfield Water District. Completed December 10, 2012.
October 12, 2011	Board approval to award the Spot Pond Water Storage Facility and Pump Station design build contract. Put into service in December 2015.

January 18, 2012	Informational staff summary on construction progress of the Hultman Aqueduct Rehabilitation and Interconnections to the MetroWest Water supply Tunnel
March 14, 2012	Board approval to award the Hultman Aqueduct Interconnections construction contract (CP-6B). Completed June 23, 2013.
May 15, 2013	Informational Staff Summary on the completion of the Hultman Aqueduct Rehabilitation and Interconnections with the MetroWest Water Supply Tunnel. For the first time since the Hultman Aqueduct was planned in the 1930s, the transmission system has full redundancy from Marlborough to Weston.
November 18, 2015	Board approval to award the Wachusett Aqueduct Pump Station construction contract to provide redundancy to the Cosgrove Aqueduct

STAFF SUMMARY

TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director
DATE: February 10, 2016
SUBJECT: Update Unregulated Contaminants Monitoring Rule Sampling

COMMITTEE: Water Policy & Oversight

X INFORMATION
___ VOTE

Steve Rhode, Laboratory Manager
Stephen Estes-Smargiassi, Director, Planning and Sustainability
Betsy Reilley, Ph.D., Director, Environmental Quality
Preparer/Title

Michael J. Hornbrook
Chief Operating Officer

EPA periodically requires water systems to conduct monitoring for as-of-yet unregulated contaminants in drinking water to help understand their national occurrence as part of the process of deciding whether to regulate the contaminants. In May 2012, staff initially reported to the Board on the third Unregulated Contaminants Monitoring Rule (UCMR3) and indicated that MWRA would collect and analyze the required samples on behalf of all fully-supplied communities. Results of the EPA-required UCMR3 sampling for 2013, 2014, and 2015 indicate that only 5 of the 28 unregulated substances were detected in the fully-supplied communities, and each averaged well below any health guideline value from any other state, nation, or international body. No further MWRA action is required or necessary.

EPA has released a draft contaminant list for the upcoming UCMR4. Staff are evaluating it and will provide comments to EPA. This staff summary discusses both the UCMR3 and UCMR4 in more detail.

RECOMMENDATION:

For information only.

DISCUSSION:

Under the 1996 Safe Drinking Water Act amendments, EPA is required once every five years to develop a list of up to 30 unregulated contaminants that must be monitored by public water systems. The UCMR monitoring provides one portion of the information needed by EPA to determine if a drinking water regulation is necessary.

To justify a new regulation under the Safe Drinking Water Act, EPA must find that:

1. *"the contaminant may have an adverse effect on the health of persons;*
2. *the contaminant is known to occur or there is a substantial likelihood that the contaminant will occur in public water systems with a frequency and at levels of public health concern; and*

3. *in the sole judgment of the Administrator, regulation of such contaminant presents a meaningful opportunity for health risk reduction for persons served by public water systems." (Section 1412 of the Safe Drinking Water Act amendments).*

The contaminant monitoring conducted under the UCMR provides the national occurrence data necessary to answer the second condition.

In May 2012, staff informed the Board that as part of EPA's UCMR3, MWRA would collect and analyze the samples on behalf of all fully-supplied communities. This sampling required that MWRA contract with an outside, EPA-approved laboratory because MWRA does not own the specialized and costly equipment required to perform the testing. MWRA made its contract laboratory available, at cost, to any partially served community that wanted to "piggyback" on its procurement, and most partial communities took advantage of this arrangement. Staff first reported sampling results in April 2013, with a second update in January 2014, and are now providing the completed final results through December 2015.

MWRA's UCMR3 testing involved analyzing for 21 substances, including a number of metals, byproducts of disinfection, volatile organic compounds, and perfluorinated compounds in each community for four quarters, as well as seven hormones in a few communities. These contaminants are shown in Attachment 1, and sampling depended on the size of the water system, source type, and treatment. MWRA collected samples for 27 fully supplied and two Chicopee Valley Aqueduct communities, and coordinated lab services for nine partially supplied communities.

Sampling under UCMR3 was unusually complex with multiple bottles and different preservatives at multiple locations. The hormone samples were analyzed to the picogram-per-liter sensitivity (less than one part per trillion) for compounds that everyone has in his or her bodies, so sample contamination was a real risk if proper techniques were not followed. MWRA provided sampling instructions to both its own staff and to any of the staff from partially-supplied communities involved in the sampling to ensure sample integrity and to avoid accidently contaminating samples with substances that are not actually in the water.

UCMR3 Sampling Results

Fully-supplied Communities:

In the fully-supplied communities, only 5 of the 28 substances were present above the required, very sensitive detection limits: total chromium, hexavalent chromium, strontium, chlorate, and vanadium. Vanadium was only found in one community. Results for all three years were reasonably similar (except for the vanadium detected in 2015 in one community) and are discussed in more detail below.

Total chromium is already regulated by EPA with a Maximum Contaminant Level (MCL) of 100 parts per billion (ppb). It was included in the UCMR3 testing with a sensitive detection level as part of the information that would be useful in evaluating the results for hexavalent chromium. Chromium is a relatively abundant element, and Chromium (III), the more common form, is an essential nutrient with recommended daily allowances ranging from 20 - 45 ug/day for adults.

Hexavalent chromium is another form of chromium and would normally be detected (but not specifically identified) as part of the total chromium measurement. Results for total chromium ranged from less than 0.2 to 0.83 ppb with one anomalous result of 4.2 ppb. All results, other than the anomalous 4.2 ppb, were below the normal detection limit MWRA uses for regulatory testing (1 ppb), and very far below the MCL of 100 ppb.

Hexavalent chromium is regulated as an occupational hazard in air, in such industries as metal fabrication, production of anti-corrosion coatings, paints and inks, and leather tanning. Hexavalent chromium is not currently regulated by EPA or by Massachusetts. In July 2014, California issued an MCL of 10 ppb. Hexavalent chromium was detected in 16 out of 27 fully-served communities and ranged from less than 0.03 ppb to 1.3 ppb, all well below the California MCL. Staff previously briefed the Board on hexavalent chromium in February 2011 after there was national publicity following the release of a report by Environmental Working Group, a national advocacy group. The UCMR3 results are similar to those reported at that time.

Strontium is not regulated at this time. It is a metal common in nature, and small amounts weather from rock and are transported by water. EPA has a non-regulatory health advisory on its website of 25 mg/L (25,000 ppb) for acute exposures and 17 mg/L (17,000 ppb) for chronic exposures. Strontium detections ranged from 26 to 54 ppb, 500-1000 times lower than the acute health advisory.

Vanadium is a naturally occurring "rare earth" element that is found ubiquitously in the earth's crust. Vanadium compounds are found in fossil fuels and exist in more than 50 different mineral ores. There are no federal or state standards, although California has proposed a Notification Level of 15 ppb. Vanadium was only detected in 3 out of 8 samples in one community in 2015. The results ranged from non-detect to 0.3 ppb, with an average of 0.23 ppb, well below the California proposed Notification Level.

Chlorate is a degradation product of sodium hypochlorite, which MWRA uses for disinfection. It is not regulated at this time. The World Health Organization has a provisional guideline value of 0.7 mg/L (700 ppb), Health Canada has a guideline value of 1 mg/l (1,000 ppb), and a number of years ago, California proposed a standard (which was never finalized) of 0.5 mg/L (500 ppb). EPA has not set a standard but has a provisional safe daily reference dose of 0.210 mg/l (210 ppb) for lifetime exposure. Chlorate detections ranged from 32 to 307 ppb, with an overall average of 116 ppb, lower than the guideline values cited above.

MWRA staff investigated the potential causes of chlorate, which include the seasonally higher chlorine doses in warmer months, as well as faster degradation of the hypochlorite solution in the warmer storage conditions. Staff initiated best management practices to minimize the amount of hypochlorite sitting in chemical storage tanks at John J. Carroll Water Treatment Plant, and therefore, subject to further degradation, by changing the hypochlorite storage tank switchover set point. This seemed successful in reducing chlorate levels and Operations continues to follow this best management practice.

Partially-supplied and CVA Communities:

In 2014 and 2015, staff also coordinated sampling for two Chicopee Valley Aqueduct communities[1] as well as for nine partially-served communities that conducted their own sampling using MWRA's contract laboratory. The five contaminants listed above were also found in these samples, with vanadium at higher levels, though still below any guidelines. Two other contaminants were detected in these other communities at low levels: 1,4-dioxane in two partial communities and bromomethane in one CVA community. 1,4-Dioxane is a clear liquid used as a solvent in the manufacture of chemicals. Massachusetts DEP has recently introduced a drinking water guideline of 0.3 ppb. There were single detections in two communities, and both detections were below the Massachusetts and all other published guidelines. Bromomethane is a colorless gas that is used as a pesticide, as well as other industrial uses. Massachusetts DEP has a drinking water guideline of 0.1 ppm. The one detection was below the Massachusetts and all other published guidelines.

Reporting of Results

Results from the UCMR sampling were posted to EPA's national database each quarter after review by MWRA staff and EPA has published a number of summary level reports on national data. Data were also available to community staff, and Massachusetts DEP staff. Detections from UCMR sampling were included, as required by EPA regulations, in the Annual Water Quality Report in 2014 and 2015, and remain posted on MWRA's website, even though the contaminants themselves are not regulated. Publication as part of the Annual Water Quality Report is required for five years after the date of detection, but MWRA will maintain the data on the website beyond then. Some of the UCMR contaminants have been investigated by the media, and MWRA has been able to report that those specific contaminants were not in the service area. For instance, as discussed at the January 13, 2016 Board meeting, there was a recent New York Times article on Perfluorooctanoic acid (PFOA), a byproduct of Teflon manufacturing, in drinking water. MWRA was able to state that it has tested for PFOA, and it was not detected.

UCMR4

On December 11, 2015, EPA proposed the fourth Unregulated Contaminant Monitoring Rule (UCMR4). The proposal outlines monitoring for 30 additional chemical contaminants between 2018 and 2020. The proposed list includes 10 cyanotoxins and 20 additional chemicals, including two metals, 8 pesticides, 1 pesticide by-product, 3 brominated haloacetic acids groups, 3 alcohols, and 3 semi-volatile chemicals. The full list is included on Attachment 2.

MWRA has already sampled for several of the contaminants on the list, including manganese and microcystin, one of the cyanotoxins. Massachusetts already has an official health guidance value for manganese, and MWRA's regular sampling finds levels well below DEP's guidance value of 300 ppb.

MWRA has specifically looked for microcystin (an algal toxin) after the Lake Erie cyanobacteria episode that contaminated water for Toledo, Ohio. Although MWRA did have a few detections, most of the samples did not find any microcystin in the raw water. In general, the cyanotoxins

[1] Wilbraham did not need to do UCMR sampling due to its small population.

are not a problem in MWRA's reservoirs, and would be extremely unlikely to pass through treatment. MWRA's reservoirs are much better protected, have a much higher quality of source water, and are also deeper than the portion of Lake Erie where Toledo's intake is or other water sources that have had problems with microcystin; and ozone is effective at destroying these compounds.

MWRA staff also expect to find low levels of the brominated haloacetic acid groups, which are similar to the already-EPA-regulated haloacetic acids (HAAs). Both haloacetic acid groups are disinfection by-products that were dramatically reduced when MWRA switched to ozone for primary disinfection. Staff expect that none of the other contaminants under the UCMR4 will be detected in MWRA water supplies.

Testing for UCMR4 will likely be as complex, or even more so, than UCMR3. Staff again anticipate use of an outside laboratory for these specialized and sensitive testing procedures.

Next Steps

MWRA staff plan to provide comments to EPA on the UCMR4 and have several concerns that are similar to the concerns that were raised with UCMR3. MWRA will once again be required to sample from each of 27 fully supplied communities rather than have a single system-wide effort, substantially increasing the effort and costs for lab services. Also, the proposed sampling is quite excessive, in particular, the cyanotoxin sampling. For example, EPA's proposal would lead to more than 100 samples of treated water being collected all from the same treatment train for algal toxins, while the source water which is part of the wholesale system might not be subject to any sampling at all. A single matched raw and finished water sample set would provide better information. The UCMR4 sampling approach, as proposed, does not allow enough flexibility for large consecutive systems like MWRA to develop appropriate system sampling plans that are both scientifically and financially sound. However, based on the lack of results from MWRA's comments on UCMR3, staff are not confident that EPA will change its approach for UCMR4.

Staff will track the UCMR4 process as it progresses, and will keep the Advisory Board and communities informed. At this time, staff plan to recommend a similar approach for a coordinated sampling program lead by MWRA, as was recommended by MWRA and accepted by the Advisory Board, for UCMR3. Future budgets will incorporate the necessary funds for outside laboratory services. Staff will provide an update to the Board when the final UCMR4 regulation is issued, and more details on schedules and costs are available. The final UCMR4 is expected to be published in late 2016 to early 2017.

BUDGET/FISCAL IMPACT:

MWRA's total cost of commercial laboratory services to meet the requirements of UCMR3 was approximately $210,000, and was spread across four fiscal years, from FY13 through FY16. Funds for UCMR4 will be proposed for the FY18 through FY20 budgets.

ATTACHMENTS:
Attachment 1: List of UCMR3 Parameters
Attachment 2: List of UCMR4 Proposed Parameters

Attachment 1 -- UCMR3 Parameters

List 1 -- 21 chemical parameters – all systems over 10,000 and random sample of smaller systems:

1,4-dioxane
Molybdenum*
Cobalt*
1,2,3-trichloropropane
1,3-butadiene
chloromethane (methyl chloride)
1,1-dichloroethane
bromochloromethane (Halon 1011)
bromomethane (methyl bromide)
chlorodifluoromethane (HCFC–22)
Vanadium*
Strontium*
Hexavalent chromium* (also total chromium*)
Chlorate*
perfluorooctanesulfonic acid (PFOS)
perfluorooctanoic acid (PFOA)
perfluorononanoic acid (PFNA)
perfluorohexanesulfonic acid (PFHxS)
perfluoroheptanoic acid (PFHpA)
perfluorobutanesulfonic acid (PFBS)

*- must be sampled both at entry point and maximum residence point

List 2 -- 7 chemical parameters – all systems over 100,000 and random sample of smaller systems:

17-b-estradiol
17-a-ethynylestradiol (ethinyl estradiol)
estrone
4-androstene-3,17-dione
estriol
equilin
testosterone

List 3 – 2 biological contaminants -- sample of undisinfected groundwater systems in karst or fractured bedrock (No MWRA communities were in this category):

Enterovirus
norovirus

Attachment 2 – UCMR4 Proposed Parameters

Ten Cyanotoxin Chemical Contaminants

Total microcystins
Microcystin-LA
Microcystin-LF
Microcystin-LR
Microcystin-LY
Microcystin-RR
Microcystin-YR
Nodularin
Anatoxin-a
Cylindrospermopsin

Two Metals

Germanium
Manganese

Eight Pesticides and One Pesticide Manufacturing Byproduct

Alpha-hexachlorocyclohexane
Chlorpyrifos
Dimethipin
Ethoprop
Oxyfluorfen
Profenofos
Tebuconazole
Total permethrin (cis- & trans-)
Tribufos

Three Brominated Haloacetic Acid (HAA) Groups

HAA5: regulated under Stage 2 DBPR compliance program
HAA6Br
HAA9

Three Alcohols

1-butanol
2-methoxyethanol
2-propen-1-ol

Three Other Semivolatile Chemicals

Butylated hydroxyanisole
o-Toluidine
Quinoline

EPA is seeking public comment on additional contaminants and indicators that could be considered for UCMR4 inclusion. They include *Legionella pneumophila*, *Mycobacterium avium*, ammonia, and three pesticides (Disulfoton, Hexazinone, and Vinclozolin).

STAFF SUMMARY

TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director
DATE: February 10, 2016
SUBJECT: Rosemary Brook Siphon Buildings Repair & Stabilization, Calhess Restoration and Weatherproofing Corporation, Contract 7472

COMMITTEE: Water Policy & Oversight

___ INFORMATION
X VOTE

Michele S. Gillen
Director of Administration

John P. Vetere, Deputy Chief Operating Officer
A. Navanandan, P.E., Chief Engineer
Michael G. Rivard, P.E., Program Manager
Preparer/Title

Michael J. Hornbrook
Chief Operating Officer

RECOMMENDATION:

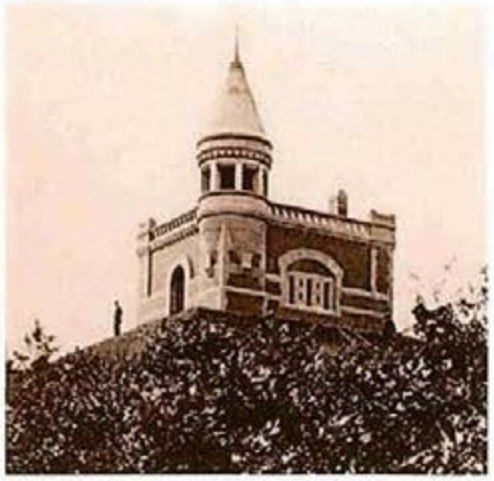
To approve the award of Contract 7472, Rosemary Brook Siphon Buildings Repair and Stabilization, to the lowest responsible and eligible bidder, Calhess Restoration and Weatherproofing Corporation, and to authorize the Executive Director, on behalf of the Authority, to execute said contract in the bid amount of $1,696,700 for a contract term of 260 calendar days from the Notice to Proceed.

DISCUSSION:

On September 12, 2012, the Board approved the award of Contract 7352, Sudbury Aqueduct Pressurization and Connections, Alternatives Analysis and MEPA Review, to CDM Smith, Inc. to evaluate alternatives and complete a MEPA (Massachusetts Environmental Policy Act) review of the southern component of the transmission redundancy program. Currently, the evaluation of pressurizing the Sudbury Aqueduct is on hold while the Authority is reviewing alternatives for Metropolitan Tunnel redundancy. This contract also includes the design, construction administration and resident engineering for repair and stabilization of the Rosemary Brook Siphon Buildings in Wellesley that are currently in poor condition. These structures are needed so that the Sudbury Aqueduct can continue to function as an emergency supply to the Chestnut Hill Emergency Pump Station regardless of the long-term Metropolitan Tunnel redundancy alternative chosen. Final design services have been completed, and construction administration and resident engineering services for the construction phase of the project are to begin this year.

These historic buildings (shown in the archival pictures on the following page) provide ventilation of the aqueduct as it transitions from a gravity brick aqueduct to three cast-iron (inverted) siphon pipes crossing the Rosemary Brook. The evaluation of the Rosemary Brook Siphon buildings was completed in 2014 and found significant signs of deterioration due to

leaking roofs and the age of the structures. Infiltration of water between the bricks and sandstone trim along with the subsequent freezing and thawing has caused expansion and contraction of the multiple layers of brick that make up the walls. This has resulted in bulging and crumbling of the masonry walls weakening the structures. In addition, rust has built up between the main floor beams and the granite floor slabs and floor grating which has buckled the floor and loosened the grating making the buildings unsafe for access.



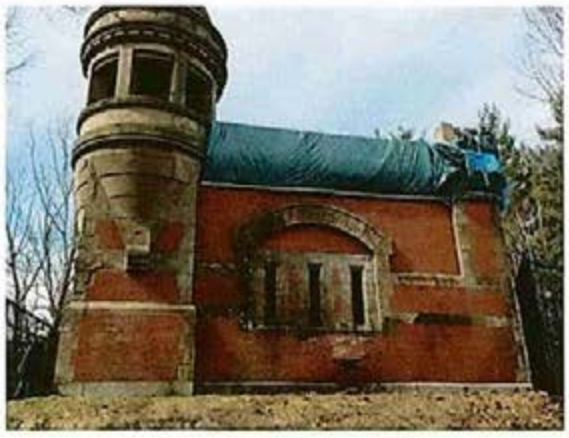
West Building

These siphon buildings provide a necessary function for the operation of the Sudbury Aqueduct as MWRA's emergency, non-potable back-up water supply for the Southern High and Southern Extra High communities, including Boston, Brookline, Milton, Quincy, Norwood, Canton, Dedham, Westwood, and Stoughton.

The necessary repairs include re-pointing of the mortar joints, minor sandstone replacement, replacement of roofs and drains, replacement of steel grating, and replacement of steel support beams beneath the floors at both buildings.

East Building

Staff provided an update to the Board on July 12, 2015 consisting of various rehabilitation alternatives. Staff recommended proceeding with a structural stabilization alternative only (not full restoration) at an estimated construction cost of $2 million. The Massachusetts Historic Commission had previously approved this structural stabilization only approach (see attached correspondence between Massachusetts Historic Commission and MWRA).



Current View West Building

Current View East Building

Final design was completed in November 2015 and the project was advertised for construction bids in December 2015.

Procurement Process

Contract 7472 was advertised in December 2015 and competitively bid in accordance with Massachusetts General Laws, Chapter 149. Filed sub-bids, for roofing and flashing, were received and opened on January 8, 2016. General bids were opened on January 28, 2016. Seven general bids were received with the following results:

BIDDERS	BID PRICE
Northern Contracting Corporation	$1,637,100*
Calhess Restoration and Weatherproofing Corporation	$1,696,700
Kronenberger & Sons Restoration, Incorporated	$1,798,000
Engineer's Estimate	*$1,836,000*
Folan Waterproofing	$1,864,000
The Aulson Company LLC	$1,898,150
Contracting Specialists Incorporated	$1,997,000
Commercial Construction Corporation	$2,485,000

*Northern Contracting Corporation bid was corrected for a math error and thus became the apparent low bid. However, Northern withdrew their bid.

The two lowest bids were within 6% of each other. The Engineer's Estimate (CDM Smith) is 8% higher than the low bid. The average of all bid prices was $1,956,475 or 6.6% higher than the Engineer's Estimate. MWRA staff and CDM Smith reviewed the bid with Calhess Restoration and Weatherproofing Corporation (Calhess) and found it to be well portioned between the bid items and inclusive of all components of the work. MWRA staff and CDM Smith believe Calhess understands the full nature and scope of the project. The company's DCAM update information and references were reviewed. References show Calhess Restoration and Weatherproofing Corporation has a strong performance history and has successfully completed many projects of similar scope and cost.

MWRA staff and CDM Smith have concluded that Calhess Restoration and Weatherproofing Corporation possesses the skill, ability, and integrity necessary to perform the work under this contract, and is qualified to do so. Staff have further determined that the bid price is reasonable, complete, and includes the payment of prevailing wage rates, as required. Therefore, staff recommend the award of this contract to Calhess Restoration and Weatherproofing Corporation as the lowest responsible and eligible bidder.

BUDGET/FISCAL IMPACT:

The approved FY16 CIP includes a budget of $1,796,049 for Contract 7472. The bid price of $1,696,700 is $99,349 under budget.

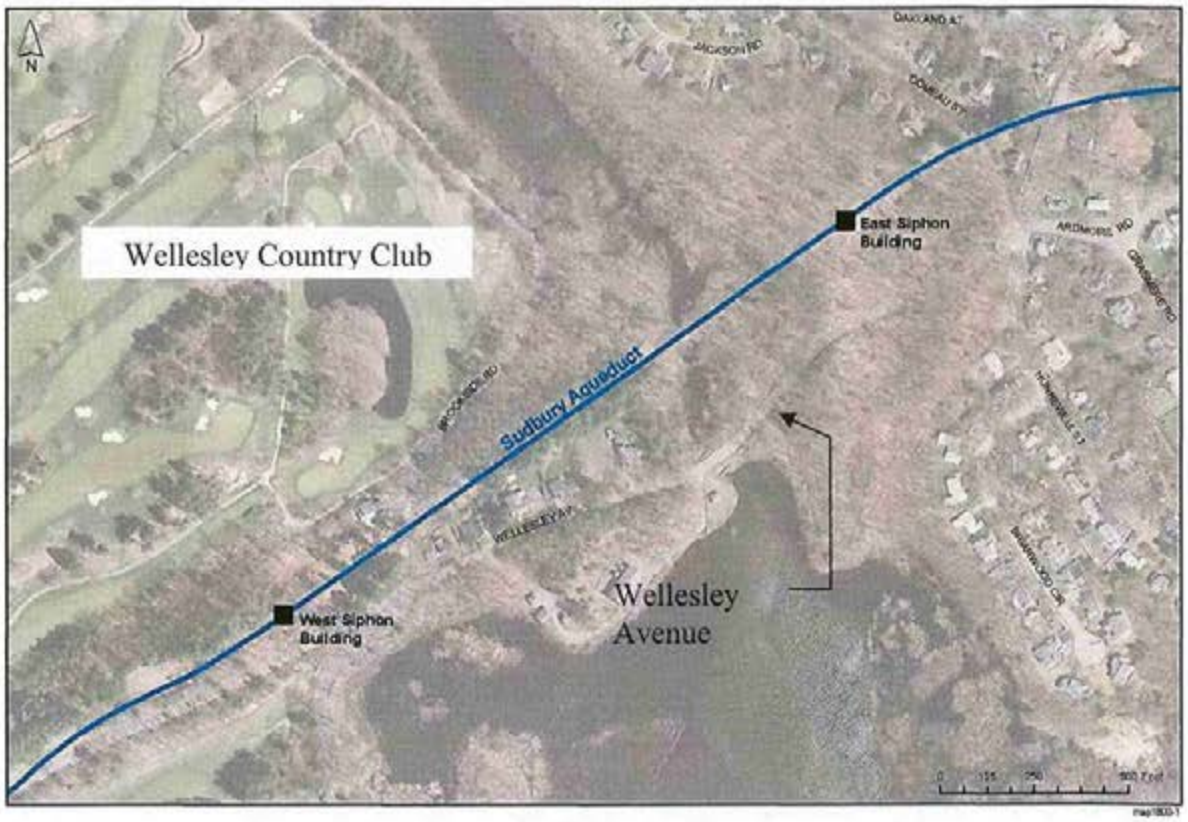
MBE/WBE PARTICIPATION:

The MBE/WBE participation requirements for this project are 7.24% and 3.6%, respectively. The Affirmative Action & Compliance Unit has reviewed the bids and determined that Calhess Restoration and Weatherproofing Corp bid is responsive to these requirements.

ATTACHMENT:

Attachment 1 - Rosemary Brook Siphon Buildings Repair and Stabilization, Locus Map.
Attachment 2 – Massachusetts Historic Commission and MWRA correspondence.

Figure 1 - Rosemary Brook Siphon Buildings Location



The Commonwealth of Massachusetts

William Francis Galvin, Secretary of the Commonwealth
Massachusetts Historical Commission

July 22, 2014

Marianne Connolly
Senior Program Manager
Environmental Review and Regulatory Compliance
Massachusetts Water Resources Authority
Charlestown Navy Yard
100 First Avenue, Building 39
Boston, MA 02129

RE: Rehabilitation of MWRA's Rosemary Brook Siphon Gatehouses, Sudbury Aqueduct near Wellesley Avenue, Wellesley, MA; MHC# RC.56325

Dear Ms. Connolly:

Thank you for submitting a Project Notification Form (PNF) for the project referenced above, which was received at this office on June 24, 2014. The staff of the Massachusetts Historical Commission (MHC) have reviewed the information submitted and have the following comments.

The proposed project consists of the repair and long-term stabilization of the West and East Rosemary Brook Siphon Gatehouses by the Massachusetts Water Resources Authority (MWRA).

Review of the MHC's *Inventory of Historic and Archaeological Assets of the Commonwealth* indicates that both the Rosemary Brook Siphon - West Chamber (WEL.929) and the Rosemary Brook Siphon - East Chamber (WEL.930) are listed in the State Register of Historic Places as contributing elements of the Sudbury Aqueduct Linear District (WEL.AM).

After review of our files and the information submitted, MHC has determined that the proposed project will have "no adverse effect" (950 CMR 71.07(2)(b)(2)) provided that the following condition is met: the mortar used in the masonry should match the existing mortar in composition, color, type, strength, and profile.

These comments are offered to assist in compliance with M.G.L. Chapter 9, sections 26-27C, (950 CMR 71.00). Please do not hesitate to contact Elizabeth Sherva of my staff if you have any questions.

Sincerely,

Brona Simon
State Historic Preservation Officer
Executive Director
Massachusetts Historical Commission

xc: Wellesley Historical Commission

220 Morrissey Boulevard, Boston, Massachusetts 02125
(617) 727-8470 • Fax: (617) 727-5128
www.sec.state.ma.us/mhc

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

June 23, 2014

Ms. Brona Simon
State Historic Preservation Officer
Massachusetts Historical Commission
220 Morrissey Boulevard
Boston, MA 02125

Re: Rehabilitation of MWRA's Rosemary Brook Siphon Gatehouses – Sudbury Aqueduct, Wellesley, MA

Dear Ms. Simon:

Enclosed please find a Project Notification Form (PNF) and supplemental information as required by M.G.L. Chapter 9, Sections 26-27c, as amended by Chapter 254, for the Repair and Long-Term Stabilization of the two Rosemary Brook Siphon Gatehouses of the Sudbury Aqueduct in Wellesley, Massachusetts under the control of the Massachusetts Water Resources Authority (MWRA).

The MWRA retained CDM Smith to assist in preparing an overall assessment of the East and West Rosemary Brook Gatehouses as part of the Authority's long term Metropolitan Area System-wide Redundancy Planning. Pursuant to the 1994 Programmatic Memorandum of Agreement, as part of this assessment, CDM Smith retained McGinley Kalsow & Associates, Inc. (MKA), historic architects and Structures North Consulting Engineers (SNCE), structural engineers, to evaluate the Gatehouses.

Both Gatehouses are located within the Sudbury Aqueduct Linear District (NRDIS) and Nation Register Thematic Resource Area (NRTRA). The buildings are integral components of the siphon that enables the historic Sudbury Aqueduct to pass over Rosemary Brook in the eastern section of Wellesley to convey water eastward culminating at the Chestnut Hill Reservoir to service Metropolitan Boston during emergencies and for scheduled maintenance.

Under the direction of MWRA, MKA and SNCE undertook an evaluation of the physical condition of these historic gatehouses and developed alternative treatments that are discussed in the PNF and supplemental information. MWRA's proposed recommended plan calls for the repair and long-term stabilization of both buildings to correct existing physical deficiencies and deterioration, and to stabilize these historic resources consistent with Secretary of the Interior's *Standards for the Treatment of Historic Properties*.

The proposed scope of work is further described in the PNF and attached architectural and engineering reports. Based on MWRA's proposed plan to repair and stabilize the buildings consistent with the Secretary of Interior Standards, we do not believe that this work will result in an adverse effect on State Register listed properties and will satisfy MWRA's obligations under M.G.L. c.9 Sections 26 through 27C.

If you have any questions, need additional information to complete your review, or would like a site visit, please contact me at (617) 788-1165. Thank you for your attention to this matter.

Sincerely,

Marianne Connolly

Marianne Connolly
Senior Program Manager,
Environmental Review and Regulatory Compliance

Enclosures:
Project Notification Form
CDMSmith Alternatives Analysis Memorandum
MK&A Evaluation of Historic Structures Report

cc: David Wright, Chairman, Wellesley Historical Commission
James Pescatore, PE, CDM Smith (without enclosures)
Mark Pelletier, AIA, CDM Smith (without enclosures)
Paul J. McGinley, McGinley Kalsow & Associates (without enclosures)
Mike Rivard, MWRA Program Manager (without enclosures)

STAFF SUMMARY

TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director
DATE: February 10, 2016
SUBJECT: Hatchery Pipeline and Hydroelectric Project
Waterline Industries Corp
Contract 7235

COMMITTEE: Water Policy & Oversight

___ INFORMATION
_X_ VOTE

Michele S. Gillen
Director of Administration

John P. Vetere, Deputy Chief Operating Officer
A. Navanandan, P.E., Chief Engineer
Maureen McAvoy, P.E., Program Manager
Pamela Heidell, Policy & Planning Manager
Preparer/Title

Michael J. Hornbrook
Chief Operating Officer

RECOMMENDATION:

To approve the award of Contract 7235, Hatchery Pipeline and Hydroelectric Project, to the lowest responsible and eligible bidder, Waterline Industries Corp. and to authorize the Executive Director, on behalf of the Authority, to execute said contract in the bid amount of $3,657,677, for a contract term of 545 calendar days from the Notice to Proceed.

DISCUSSION:

The scope of work under this contract consists of a new water pipeline from the MWRA's Chicopee Valley Aqueduct (CVA) to the Division of Fish and Wildlife's McLaughlin Fish Hatchery in Belchertown and construction of a new MWRA 60 kilowatt hydroelectric facility. When completed, the 20-inch water pipeline will tap raw water off of the CVA just prior to the William A. Brutsch Water Treatment Facility, and convey six million gallons a day (mgd) of untreated water (except during periods of drought) first to a new hydropower turbine/generator on MWRA's grounds, and then to a pipeline terminating less than a mile away at the McLaughlin Fish Hatchery's water supply distribution system. (See Figure attached.)

This project has been included in MWRA's Capital Improvement Program budget since FY09 and was first identified during discussions concerning MWRA's water system expansion and MWRA's current discharges from Quabbin Reservoir.

At present, the hatchery uses a combination of water from on-site wells and water withdrawn directly from the Swift River, with river withdrawals being the dominant source. Currently, when MWRA demand is low and Quabbin Reservoir's elevation is high and the reservoir is stratified,

warmer surface water spills over the dam. These warmer water spillway discharges in the summer can be detrimental to the McLaughlin Fish Hatchery and are an ongoing concern. The water to be conveyed by the new pipeline will be withdrawn from the deeper waters of Quabbin Reservoir and will provide a continuous, reliable supply of cold water directly to the hatchery. The pipeline will replace the hatchery's river withdrawals and will also reduce electrical demand at the hatchery: with MWRA water, the need for the hatchery to pump water from the Swift River is eliminated under typical conditions, reducing the hatchery's electrical demand by an estimated 588,000 kWh annually. Ultimately, flows in the Swift River downstream of the hatchery would also be supplemented by six mgd, since after circulation through the hatchery's raceways and treatment, the water would be discharged to the Swift River.

Because of its multiple environmental (and operational) merits, the project has been embraced by a number of agencies, which have provided funding for much of the project's costs. In June 2015, a Memorandum of Agreement (MOA) was executed whereby the Massachusetts Division of Fisheries and Wildlife and the Massachusetts Department of Fish and Game transferred $500,000 and $2 million, respectively, to MWRA to fund MWRA's costs of the design, permitting, and construction of solely the pipeline component of the project. Funds are being held in MWRA's name in an interest-bearing account and should MWRA not use all of the funds provided to complete the pipeline, unused funds will be returned. For the hydropower component, a total of $577,620 has been secured through two separate grants, one from the MA Clean Energy Center, the other from the EOEEA Leading-by-Example Program. MWRA will receive payment from NGRID for the projected 440,000 kWh of hydropower that MWRA will export to the grid and will also receive Renewable Energy Certificates. Staff conservatively estimate that these revenue streams will be approximately $50,000-$60,000 annually: revenues would be higher if net metering provisions for hydropower recommended by the MA Department of Public Utilities are enacted .

Procurement Process

Contract 7235 was advertised and bid in accordance with Massachusetts General Laws, Chapter 149. Six bids were received and opened on January 26, 2016 with the following results:

Bidder	Bid Amount
Engineer's Estimate	*$2,985,259*
Kingsbury	$3,580,000
Waterline Industries Corporation	$3,657,677
Daniel O'Connell's Sons, Inc	$3,926,000
Winston Builders	$3,970,889
Wes Construction Corporation	$4,987,270
Williams Collins Co. Inc	$5,198,270

The low bidder, Kingsbury, was found to be not certified by DCAM, and staff determined that Waterline Industries Corp. was the lowest responsive bidder and that Waterline Industries meets all the requirements of the bid. Waterline's bid is 22.5% above the Engineer's Estimate. The bid price for General Requirements (includes project management, traffic control, field offices, bonds and insurance, start-up and testing, environmental protection measures during

bonds and insurance, start-up and testing, environmental protection measures during construction) is approximately $300,000 higher, or double, the Engineer's Estimate. In addition, the filed sub-bids for roofing, electrical, miscellaneous metal and masonry associated with the powerhouse total approximately $100,000 more than the Engineer's Estimate; and the cost for the hydroelectric equipment (water to wire package) is approximately $83,000 greater than the Engineer's Estimate. The Engineer's Estimate for SCADA/controls also appears to be less than what the contractor has budgeted.

Staff reviewed the scope of work with Waterline and determined that the Waterline understood all of the various elements and types of work required in this contract. References for Waterline were checked and found to be satisfactory. Staff have concluded that Waterline Industries Corp. possesses the skill, ability, and integrity necessary to perform the work under this contract and is qualified to do so. Staff have further determined that the bid price is reasonable, complete, and includes payment of prevailing wages, as required. Therefore, staff recommend that Contract 7235 be awarded Waterline Industries Corp. as the lowest responsible and eligible bidder.

BUDGET/FISCAL IMPACT:

The Approved FY16 CIP includes $1,960,662 for Contract 7235 (pipeline) and $450,000 for Contract 7323 (hydropower) for a total of $2,410,662. The proposed contract award is $3,657,677.

Total funding for the design, permitting, engineering services during construction (ESDC), and construction of the project that is being provided by outside sources is $3,077,620. The sum of Waterline's construction bid, and MWRA's existing design and ESDC contract (Original Contract Award plus Amendment 1) for design, permitting and ESDC is $4,472,254. Therefore, MWRA's capital contribution to the project, based on the bid amount and costs associated with design, permitting, and ESDC, is $1,394,634.

Hydropower revenue will help to offset MWRA's capital contribution. MWRA is pursuing further financial assistance from the Division of Fisheries and Wildlife and the Clean Energy Center, potential reduction in ancillary construction costs (e.g., utilizing MWRA or DCR buildings in lieu of temporary construction trailers) and utilizing MWRA staff in lieu of consultant services during construction and resident engineering. There may also be future opportunities to increase revenue from energy generation, including changes in metering regulations to benefit hydropower and potential federal hydropower production incentives.

MBE/WBE PARTICIPATION:

The MBE and WBE participation requirements for this contract were established at 7.24% and 3.6%, respectively. The Affirmative Action & Compliance Unit has reviewed the bids and has determined that Waterline Industries Corp.'s bid is responsive to these requirements.

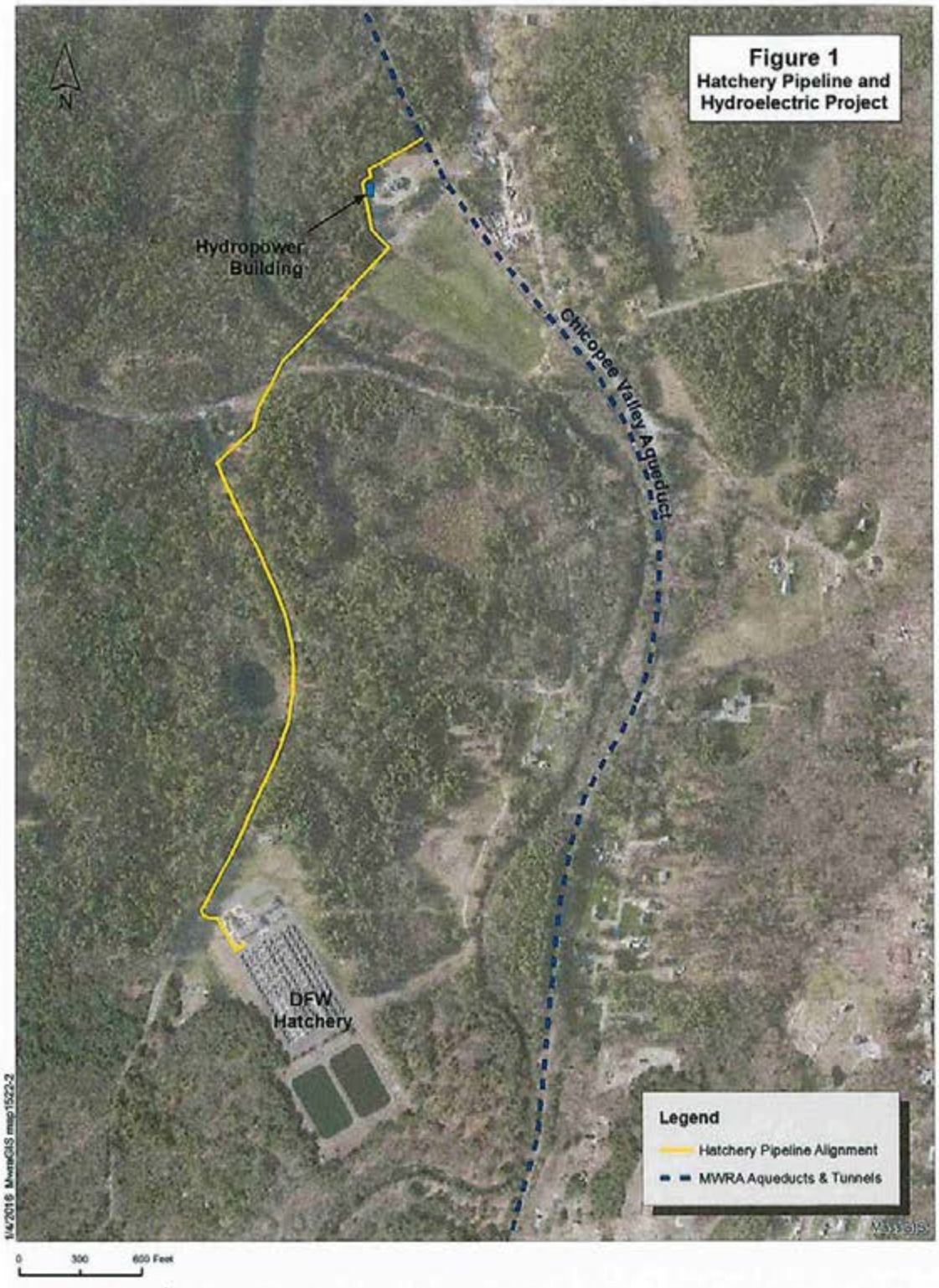


Figure 1
Hatchery Pipeline and
Hydroelectric Project
N
Hydropower
Building
Chicopee Valley Aqueduct
DFW
Hatchery
Legend
Hatchery Pipeline Alignment
MWRA Aqueducts & Tunnels
0
300
600 Feet

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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PERSONNEL & COMPENSATION COMMITTEE MEETING

Chair: J. Wolowicz
Vice-Chair: K. Cotter
Committee Members:
J. Carroll
P. Flanagan
J. Foti
A. Pappastergion
H. Vitale
J. Walsh

to be held on

Wednesday, February 10, 2016

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

Time: Immediately following Water Comm.

AGENDA

A. Approvals

1. 2016 Affirmative Action Plan
2. PCR Amendments – February 2016
3. Appointment of Warehouse Manager, Deer Island
4. Appointment of Deputy Director, Deer Island Treatment Plant
5. Appointment of Program Manager, Environmental Compliance & Monitoring
6. Appointment of IT Architect, MIS
7. Appointment of IT Architect, MIS

MASSACHUSETTS WATER RESOURCES AUTHORITY

Meeting of the
Personnel and Compensation Committee

January 13, 2016

A meeting of the Personnel and Compensation Committee was held on January 13, 2016 at the Authority headquarters in Charlestown. Chair Wolowicz presided. Present from the Board were Messrs. Blackmon, Carroll, Cotter, Flanagan, Foti, Pappastergion, Vitale and Walsh. Among those present from the Authority staff were Fred Laskey, Steve Remsberg, Karen Gay-Valente and Bonnie Hale. The meeting was called to order at 12:45 p.m.

Approvals

*PCR Amendment – January 2016

The Committee recommended approval of an amendment to the Position Control Register (ref. agenda item A.1).

The meeting adjourned at 12:50 p.m.

* Approved as recommended at January 13, 2016 Board of Directors meeting.

STAFF SUMMARY

To: Board of Directors
From: Patterson Riley, Special Assistant, Affirmative Action & Compliance Unit
Date: February 10, 2016
Subject: Approval of the Affirmative Action Plan

COMMITTEE: Personnel & Compensation

_____ INFORMATION
_X_ VOTE

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, 2016 through December 31, 2016.

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 has 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 10, 2016. 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 2015 Affirmative Action Plan year, MWRA hired a total of 50 new employees, including 14 (28%) females and 10 (20%) minorities. There were 84 employees promoted during this period, including 22 (26%) females and 20 (24%) minorities. 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 48 such promotions during the 2015 Affirmative Action Plan year and of these, 12 (25%) were minorities and 7 (15%) were females.

A total of 55 terminations occurred during CY 2015. Of the total number of terminations, 12 (22%) were females and 11 (20%) were minorities. Of the total number of terminations, 82% left voluntarily, and of those, 56% were employees who retired and 26% were employees who resigned.

In comparison, during the 2014 Affirmative Action Program year, a total of 66 terminations occurred, including 11 (17%) females and 19 (29%) minorities. Of the total number of terminations, 16% were employees who resigned and 82% were employees who retired. A review of the total number of termination statistics for calendar years 2013, 2014, and 2015 is included in Table A below.

Table A

Termination Statistics	Employee Count	Minority		Female	
Total Terminations CY2013	61	10	16%	15	25%
Total Terminations CY2014	66	19	29%	11	17%
Total Terminations CY2015	55	11	20%	12	22%

The race/sex composition of the workforce did not change significantly during the 2015 Affirmative Action Plan year, particularly as compared to Plan years 2013 and 2014.

The current overall MWRA affirmative action workforce staffing goal for females is 22.4% in the aggregate and workforce staffing at the end of the 2015 Plan Year was 22.9% for females. The current overall MWRA affirmative action workforce staffing goal for minorities is 21.5% in the aggregate and workforce staffing at the end of 2015 Plan Year was 20.0%.

A review of MWRA workforce staffing statistics for calendar years 2013, 2014, and 2015 is included in Table B below:

Table B

Calendar Year	Minority	Female
12/31/13	19.9%	22.3%
12/31/14	20.1%	22.8%
12/31/15	20.2%	23.0%

The 2015 Affirmative Action Plan documents include detailed workforce data for the reporting period December 1, 2014 through November 30, 2015. The data indicate that the number of underutilized job groups for females has increased. In calendar year 2015, there were 6 job groups underutilized by women and this number has increased to 7 job groups for 2016. In calendar year 2015, there were 9 job groups underutilized by minorities and this number has decreased to 5 job groups for 2016.

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 $3.3 million and $4.8 million respectively with minority and women owned businesses in the last fiscal year. These amounts were 86% and 125% 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, 2016 - DECEMBER 31, 2016

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 1/22/2016
Patterson A. Riley Date
(Special Assistant for Affirmative Action)

Telephone Number: (617) 788-4070

Approved by: 1/22/2016
Frederick A. Laskey Date
(Executive Director)

Inclusive Dates of the AAP: January 1, 2016 - December 31, 2016

Massachusetts Water Resources Authority
Affirmative Action Plan

Table of Contents

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, 2016 through December 31, 2016. 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, 2015, MWRA employed 1158 people. The MWRA divides its workforce into 30 organizational units in Executive, Administration, Finance, Law, and Operations as follows:

Board of Directors
Executive - Office of the Executive Director
Executive - Affirmative Action
Executive – Office of Emergency Preparedness Services
Executive - Internal Audit
Executive - Public Affairs
Administration - MIS
Administration - Facilities
Administration - Fleet Services
Administration - Human Resources
Administration - Procurement
Administration - Real Property & Environmental
Finance - Director's Office
Finance - Rates & Budget
Finance - Treasury
Finance- Controller
Finance - Risk Management
Law
Operations - Administration
Operations - ENQUAL
Operations - Facilities Management
Operations - Laboratory Services
Operations - Planning
Operations - Toxic Reduction & Control
Operations - Engineering & Construction
Operations - Wastewater Operations
Operations - Water Distribution & Pumping
Operations - Water & Wastewater O&M
Operations - Water Treatment & Transmission
Operations - Operation 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, 2014 - November, 2015

From December 1, 2014 through November 30, 2015, there were a total of 50 new hires at the MWRA, including 14 (28%) females and 10 (20%) minorities. The current race/sex composition of the workforce for minorities of 20.0% is less than the overall 2014 MWRA workforce staffing goal of 21.5%; however, the current race/sex composition of the workforce for females of 22.9% is above the overall 2015 workforce staffing goal of 22.4%.

A total of 84 promotions occurred within this period, including 22 (26%) females and 20 (24%) minorities. For Affirmative Action Plan reporting purposes, of these, 48 promotions reflect employee promotions where there has been a change in Job Group as described herein under "Availability Analysis." For the Plan reporting period, a total of 84 promotions, includes 48 reflective of a job group change and of that total number, 12 (25%) minorities and 7 (15%) females, were promoted.

A total of 55 terminations occurred within the period, and of these, 12 (22%) were females and 11 (20%) were minorities. Of the total number of terminations, 82% left voluntarily, and of those, 56% were employees who retired and 26% 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 2016 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 B, Engineer A, Engineer B, Craft A, Craft B, Laborers, 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.
- 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 90 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 ADMINISTRATIVE B	# Opportunities	% Availability Minority	% Availability Female	% Workforce Minority	% Workforce Female	Goal Minority	Goal Female
Total	2	12.84	35.78	0.00	10.00		1
JOB GROUP ENGINEER A	# Opportunities	% Availability Minority	% Availability Female	% Workforce Minority	% Workforce Female	Goal Minority	Goal Female
Total	7	19.26	17.06	25.71	11.43		1
JOB GROUP ENGINEER B	# Opportunities	% Availability Minority	% Availability Female	% Workforce Minority	% Workforce Female	Goal Minority	Goal Female
Total	7	22.15	25.43	26.03	21.92		1
JOB GROUP CRAFT A	# Opportunities	% Availability Minority	% Availability Female	% Workforce Minority	% Workforce Female	Goal Minority	Goal Female
Total	4	28.57	3.17	13.64	0.00		1
JOB GROUP LABORERS	# Opportunities	% Availability Minority	% Availability Female	% Workforce Minority	% Workforce Female	Goal Minority	Goal Female
Total	5	22.87	12.61	28.57	3.17		2
JOB GROUP MANAGEMENT B	# Opportunities	% Availability Minority	% Availability Female	% Workforce Minority	% Workforce Female	Goal Minority	Goal Female
Total	5	25.54	38.96	12.50	15.63	1	1
JOB GROUP OPERATOR A	# Opportunities	% Availability Minority	% Availability Female	% Workforce Minority	% Workforce Female	Goal Minority	Goal Female
Total	4	16.16	7.97	7.58	1.52	1	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 30 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 2016, 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 31st 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, 6th Floor
Boston, MA 02108

Springfield Office
MCAD
436 Dwight Street - Rm. 220
Springfield, MA 01103

Worcester Office
MCAD
455 Main Street - Rm. 101
Worcester, MA 01608

New Bedford Office
MCAD
800 Purchase Street - Rm. 501
New Bedford, MA 02740

Massachusetts Office of Diversity and Equal Opportunity
One Ashburton Place - Rm. 213
Boston, MA 02108

U.S. Equal Employment Opportunity Commission
JFK Federal Building
475 Government Center
Boston, MA 02203

U.S. Department of Labor
Office of Federal Contract Compliance Programs
JFK Federal Building - Rm. E235
Boston, MA 02203

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:

Procurement Categories

	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:

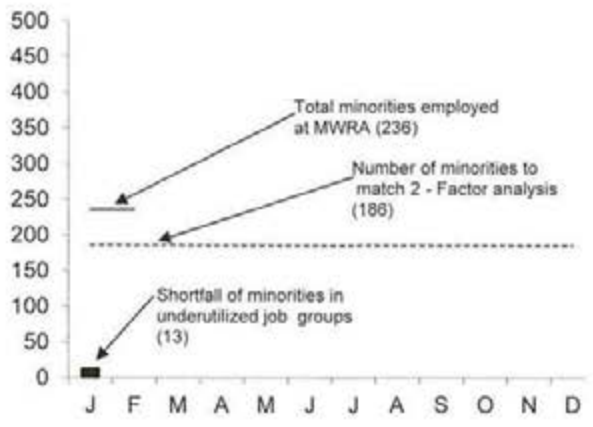
Procurement Categories

	Construction Goals	Professional Goals	NonProfessional Goals
MBE	7.24%	7.18%	5.61%
WBE	3.60%	5.77%	4.88%

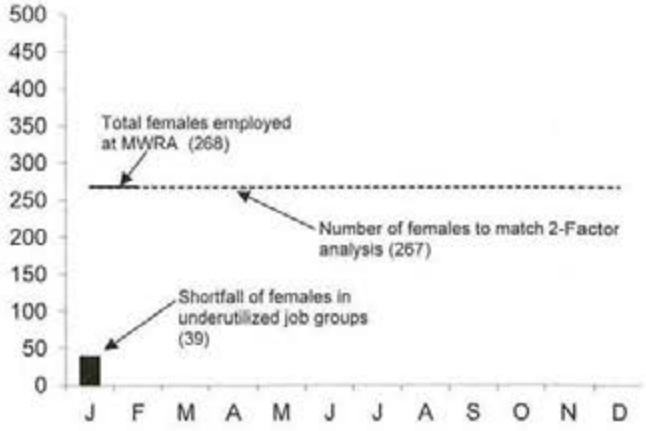
For FY15 the MWRA spent $3.3 million and $4.8 million respectively with minority and women owned business. These amounts were 86% and 125% of the respective MBE and WBE targets.

Attachment B
MWRA Job Group Representation
CY16

Minority - Affirmative Action Plan Goals



Female - Affirmative Action Plan Goals



Underutilized Job Groups - Workforce Representation

Job Group	Total Employees as of 1/1/2016	Actual Minorities as of 1/1/2016	Achievement Level	Minority Over or Under utilized	Actual Females As of 1/1/2016	Achievement Level	Female Over or Under utilized
Administrator A	21	2	2	0	6	6	0
Administrator B	20	0	3	-3	2	5	-3
Clerical A	38	15	5	10	32	34	-2
Clerical B	35	8	8	0	12	18	-6
Engineer A	83	20	14	6	13	12	1
Engineer B	56	14	11	3	10	7	3
Craft A	113	16	15	1	0	7	-7
Craft B	146	30	17	13	3	4	-1
Laborer	65	19	15	4	3	3	0
Management A	101	14	16	-2	36	26	10
Management B	42	7	3	4	9	11	-2
Operator A	66	5	10	-5	1	9	-8
Operator B	66	11	2	9	4	1	3
Professional A	34	4	6	-2	21	14	7
Professional B	164	42	35	7	83	67	16
Para Professional	56	13	11	2	27	30	-3
Technical A	53	15	11	4	5	11	-6
Technical B	7	1	2	-1	1	2	-1
Total	**1166**	**236**	**186.0**	**63/-13**	**268**	**267**	**40/-39**

STAFF SUMMARY

TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director
DATE: February 10, 2016
SUBJECT: February 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 the amendment 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.

February PCR Amendment

There are four PCR amendments related to changes in the Administration, Finance and Operations Divisions.

The amendments are:

1. A title, grade and location change to a vacant position, Electrician Grade 16, to a Heavy Equipment Operator Grade 15, to ensure current staffing needs at the Southboro Facility are met.

2. A title change to a vacant position, IS Development Specialist Grade 9, to Customer Support Technician II Grade 9, to align position with the organizational structure as recommended in the MIS 5 Year Strategic Plan.

3. A title and grade change to a filled position in the Operations Administration Department, Contract Administrator Grade 8, to Sr. Contract Administrator Grade 10, as a result of a union settlement.

4. Creation of a new position, Assistant Finance Manager Unit 6 Grade 11, in the Finance Division to address staffing needs in the Rates & Budget Department.

The first two amendments require approval by the Personnel and Compensation Committee. The last two amendments require Board approval after review by the Personnel and Compensation Committee.

BUDGET/FISCAL IMPACT:

The annualized budget impact of these PCR amendments is a cost of between $60,870 and $109,390, depending on the individuals selected for the vacant positions upon the completion of the hiring processes. Staff will ensure that the cost increases associated with these PCR amendments will not result in spending over the approved FY16 Wages and Salary budget.

ATTACHMENTS:

New/Old Job Descriptions

MASSACHUSETTS WATER RESOURCES AUTHORITY
POSITION CONTROL REGISTER AMENDMENTS
FISCAL YEAR 2016

PCR AMENDMENTS REQUIRING PERSONNEL & COMPENSATION COMMITTEE APPROVAL - February 10, 2016

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
P14	Operations Equipment Maintenance 3396005	V	T,G,L	Electrician	3	16	Heavy Equipment Operator	3	15	$58,367	$46,734 - $64,121	-$11,633 - $5,754	To ensure current staffing needs at the Southboro Facility are met
P15	Administration MIS 8610025	V	T	IS Development Specialist	6	9	Customer Support Tech II	6	9	N/A	N/A - N/A	$0 - $0	To align position with organizational structure as recommended in the MIS 5 Year Strategic Plan
	PERSONNEL & COMP COMMITTEE TOTAL=				2						SUBTOTAL:	-$11,633 - $5,754	

PCR AMENDMENTS REQUIRING BOARD APPROVAL- February 2016

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
B9	Operations Operations Administration 5210009	F	T,G	Contract Administrator	6	8	Sr Contract Administrator	6	10	$71,464	$79,905 - $79,905	$8,441 - $8,441	Union Settlement
B10	Position To Be Added	N/A	N/A	N/A	N/A	N/A	Assistant Finance Manager	6	11	$0	$64,062 - $95,195	$64,062 - $95,195	To address staffing needs in the Finance Division
	BOARD TOTAL =				2						SUBTOTAL:	$72,503 - $103,636	
	GRAND TOTAL =				4						TOTAL ESTIMATED COSTS:	$60,870 - $109,390	

STAFF SUMMARY

TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director
DATE: February 10, 2016
SUBJECT: Appointment of Warehouse Manager, Deer Island

COMMITTEE: Personnel & Compensation

____ INFORMATION
X VOTE

Karen Gay-Valente, Director, Human Resources
Janice Brady, Materials Manager
Preparer/Title

Michele S. Gillen
Director of Administration

RECOMMENDATION:

That the Board approve the appointment of Mr. Stephen Coffey to the position of Warehouse Manager (Unit 6, Grade 12) at the recommended salary of $91,604 commencing on a date to be determined by the Executive Director.

DISCUSSION:

The Warehouse Manager, Deer Island position became vacant upon the retirement of the incumbent.

The Warehouse Manager reports to the Materials Manager and oversees the Deer Island inventory control functions for materials and supplies in accordance with the Authority's materials management and purchasing policies and procedures. Position responsibilities include managing nine Deer Island materials management staff; managing all warehousing and inventory control activities including stock replenishment, inventory control, shipping, receiving and issuance functions. The Warehouse Manager also ensures the availability of supplies and materials for Deer Island's operating units and assists with the development and implementation of policies and procedures.

Selection Process

The position of Warehouse Manager, Deer Island was posted internally. Eight qualified candidates were referred and were interviewed by the Materials Manager and AACU Workforce Coordinator. Upon completion of the interviews, Mr. Stephen Coffey was selected as the most qualified candidate for this position.

Mr. Coffey has eighteen years experience working in maintenance operations, inventory control and materials management. In 2001, Mr. Coffey began working at MWRA as a Construction Pipelayer. In 2002, he was promoted to a Materials Handler position at the Deer Island Warehouse. In 2013, he was promoted to a Planning/Scheduling Coordinator at Deer Island where he plans, estimates, schedules and coordinates work orders for preventive and corrective maintenance. Mr. Coffey is proficient with both Lawson and Maximo software.

In addition to his positions in Procurement and Operations, Mr. Coffey has served as AFSCME Local 1242 Vice President, representing MWRA warehouse and operations staff employees for the past 7 years. As Union Vice President, Mr. Coffey participated in negotiating collective bargaining agreements and disciplinary and employee relations matters, and represented Union members in grievance proceedings.

Mr. Coffey holds an Associate's Degree from North Shore Community College. During his tenure at the MWRA, Mr. Coffey has demonstrated a thorough understanding of the materials management/inventory control programs, policies and procedures. He has a strong work ethic and a demonstrated ability to handle both the personnel and technical aspects required in this position. He is widely respected by his colleagues.

BUDGET/FISCAL IMPACT:

There are sufficient funds for this position within the Procurement Department's FY16 CEB. The recommended salary is in accordance with the Authority's policy for Unit 6 employees.

ATTACHMENTS:

Resume of Mr. Stephen Coffey
Position Description
Materials Management Department Organizational Chart

Stephen Coffey

Summary of Professional Qualifications

18+ years of experience in Maintenance Operations. Proven leadership skills. Adept at establishing relationships at all levels of the organization. Respected leader with focus on organized, efficient and effective workflow. Experienced in a variety of departments and including Maintenance, Work Coordination, and Purchasing. 9 years of Labor Relations experience.

Expertise

- People Management
- Change Management
- Process Improvement and Best Practices
- Performance Management
- Organizational Effectiveness
- Negotiations
- Purchasing Management
- Inventory Control

Related Work Experience

Vice President of AFSCME Local 1242 **November 2008- Present**

Assisted in the implementation of new work procedures within the bargaining unit. Successful negotiated and ratified two (2) contracts for union members. Worked closely with Human Resources to negotiate discipline. Worked directly with Labor Relations and Human Resources collective bargaining agreement disputes

MWRA **June 2013 -Present**
Planner Scheduling Coordinator

Receive and analyze work request and work orders. Coordinate with Managers to establish work order priorities. Work directly with Management and Supervisors on organizing work flow for the day to day operations. Ensure all work orders are received and processed efficiently. Develop work orders with proper trade and proper amount of hours and job plans to maximize job at hand. Coordinate with Warehouse staff and outside vendors that all necessary parts are allocated for job efficiency. Ensure all equipment replacement is entered into the proper database and tic center for future information.

Stephen Coffey

MWRA **2002 – June 2013**
Material Handler Grade 14

Distribution of all plant material to appropriate parties. Skilled in Lawson and Maximo software. Preparation and delivery of issue kits for maintenance department. Performed cycle counts, audit and yearly physical inventories.

MWRA
Construction Pipelayer Grade 14 **2001-2002**

Installed and repaired valves/pipes on major metropolitan water distribution systems ranging from 8"-60". Assisted field supervisors in deciphering blue prints. Followed all MWRA safety regulations to ensure a safe work zone

Licenses

-Waste Water Collection Systems Operator Grade 2
-CDL Class B with Tankers Endorsement
-1B Hoisting License
-2B Hoisting License

Education

North Shore Community College Danvers, MA
Associates Degree
Major: Fire and Safety Management

MWRA
POSITION DESCRIPTION

POSITION: Warehouse Manager

DIVISION: Administration

DEPARTMENT: Materials Management

BASIC PURPOSE:

Manages all warehouse activities at assigned location including stock replenishment, inventory control, shipping, receiving and issuance functions. Ensures comprehensive and efficient support or availability of supplies and materials for several of the Authority's operating units and any other divisional units in the assigned district.

SUPERVISION RECEIVED:

Reports directly to the Materials Manager.

SUPERVISION EXERCISED:

Exercises close supervision over the Warehouse Supervisors, Materials Handlers and /or Principal Storekeepers as assigned.

ESSENTIAL DUTIES AND RESPONSIBILITIES:

- Manages the activities of the shipping, receiving, and storing of inventory items at assigned site.

- Manages the replenishment of all supplies, materials, and relevant contract services; ensures adequate on-site inventory to support the Authority's needs.

- Manages the efficient utilization of the computer-based inventory control system, providing the information required for the timely availability of all materials for the Authority's southern operating units.

- Manages the establishment and maintenance of the Inventory Master Record, to reflect and effectively utilize data on reorder points, unit costs, and lead times.

- Provides all safety-related material for the entire Authority.
- Ensures cooperative efforts among related functions, such as MIS, Procurement, Maintenance, Operations, Finance, etc., to assure the accuracy and efficiency of the purchasing and inventory control system.

- Manages the development and maintenance of computer-based inventory control reports and related systems and procedures.

- Ensures the organized receiving and completion of associated procurement documentation for all supplies and materials.

- Manages the SARA (Superfund Amendments and Reauthorization Act of 1986) program for all materials received and disbursed by the warehouse.

- Coordinates with other plant managers the short and long-term needs for supplies and materials.

- Monitors vendor performance and service delivery and manages sales representatives in cooperation with Procurement.

- Initiates, coordinates and evaluates training for all warehouse personnel.

- Evaluates assigned employees performance according to MWRA procedures.

- Promotes the MWRA safety programs by supporting the supervisor's weekly safety meetings, holding monthly safety meetings and keeping informed on the staff's safety record.

- Administers the application of collective bargaining provisions and personnel policies in the workplace. Serves as Step 1 grievance hearing officer.

- Designs and develops long-range plans for staffing and efficient space utilization.

SECONDARY DUTIES:

- Performs related duties as required.

MINIMUM QUALIFICATIONS:

Education and Experience:

(A) A four (4) year college program in Business Administration program or related field; and

(B) Seven (7) to nine (9) years of experience in materials management of which at least two (2) must be in a supervisory capacity; or

(C) Any equivalent combination of education or experience.

Necessary Knowledge, Skills and Abilities:

(A) Knowledge of inventory management and standard business procedures.

(B) Excellent interpersonal, written and oral communications skills.

(C) Experience and knowledge in automated inventory systems or other data management systems.

(D) Experience with spreadsheets and data bases is desirable.

(E) Familiarity with types or parts normally used in a maintenance organization.

SPECIAL REQUIREMENTS:

A valid Massachusetts Class D Motor Vehicle License.

TOOLS AND EQUIPMENT USED:

Office machines such as the telephone, personal computer 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 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 and to talk and hear. The employee is occasionally required to walk, sit, climb, balance, stoop, kneel, crouch or crawl.

The employee must frequently lift and/or move up to 50. Specific vision abilities, required by this job include close vision, distance vision, color 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.

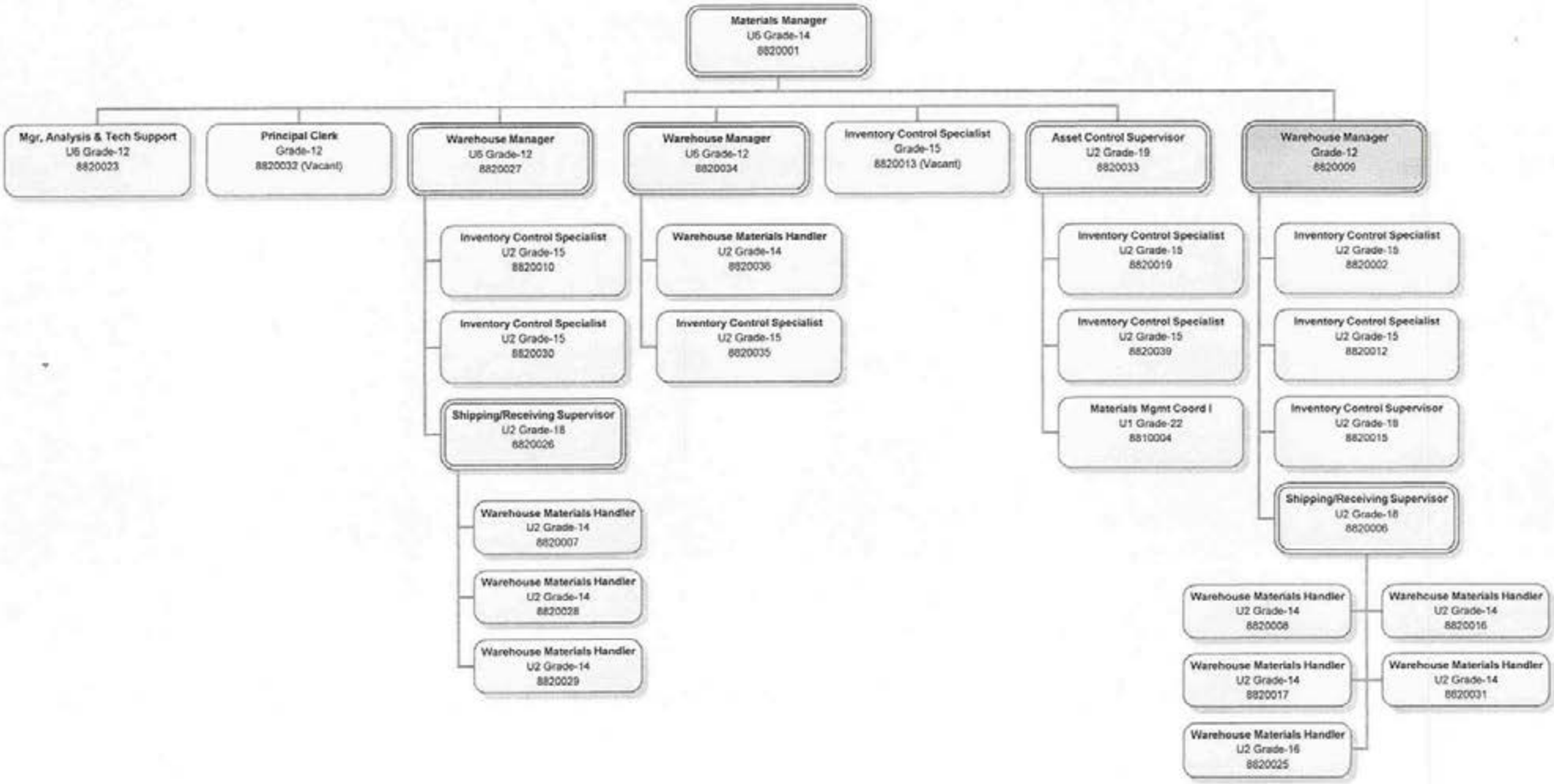
While performing the duties of this job, the employee regularly works in a field/office environment. The employee regularly works near moving mechanical parts, is frequently

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.

Materials Management

February 2016



STAFF SUMMARY

TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director
DATE: February 10, 2016
SUBJECT: Appointment of Deputy Director, Deer Island Wastewater Treatment Plant Operations Division

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COMMITTEE: Personnel & Compensation

___ INFORMATION
_X_ VOTE

Karen Gay-Valente, Director, Human Resources
John P. Vetere, Deputy Chief Operating Officer
David F. Duest, Director, DIWWTP
Preparer/Title

Michael J. Hornbrook
Chief Operating Officer

RECOMMENDATION:

To approve the appointment of Mr. Ethan Wenger to the position of Deputy Director, Deer Island Wastewater Treatment Plant (Non-Union, Grade 15), at an annual salary of $127,374, commencing on a date to be determined by the Executive Director.

DISCUSSION:

The position of Deputy Director, Deer Island, became vacant upon the appointment of the incumbent to another position. This position reports directly to the Director, and will act on behalf of the Director in his absence. The Deputy Director, will primarily oversee the operating units of the Deer Island Treatment Plant (Wastewater Treatment, Thermal Power Plant and Process Control departments). The Operations Department works 24 hours a day, seven days a week operating the second largest wastewater treatment plant in the United States.

Selection Process:

The position was posted internally and four candidates applied. One candidate subsequently withdrew prior to the interviews. The Director, Deer Island Deputy Director, Maintenance, Deputy Chief Operating Officer, Programs, Policy & Planning, and the Special Assistant for Affirmative Action interviewed the three candidates. Upon completion of those interviews, Mr. Ethan Wenger was identified as the most qualified candidate for the Deputy Director, within Deer Island Operations.

Mr. Wenger currently holds the position of Manager, Process Control (Non-Union, Grade 14) in the Process Control Department at the Deer Island Treatment Plant. Mr. Wenger has more than 22 years of progressive experience in the environmental industry, all at the MWRA, and over 12 years of experience in process control with an emphasis on biological treatment and greater than 10 years experience supervising a multi-disciplinary technical team. In his current position, Mr.

Wenger serves as the manager in charge of a 17 person engineering team overseeing Deer Island plant automation and control, as well as process monitoring and process optimization and is principally responsible for Deer Island's NPDES permit and Title V Air permit compliance. Mr. Wenger has led a number of process optimization efforts at DITP that helped reduce the plant's energy consumption over 9 M kWh annually. He has overseen a number of service contracts valued at over $1million annually including carbon bed servicing, specialty maintenance on the cryogenic oxygen plant, and the replacement of wet scrubber media. Mr. Wenger is an expert in energy and secondary aeration treatment and has presented numerous papers while at Deer Island, including: "Energy Optimization of Large Plant Aeration Process" and "Aeration System Optimization/Dissolved Oxygen Study at the Deer Island Treatment Plant."

Mr. Wenger holds a Bachelor of Science Degree in Environmental Engineering Science from the Massachusetts Institute of Technology and a Master of Science Degree in Environmental Engineering from the University of Massachusetts at Lowell. Mr. Wenger is also an MBA candidate from the University of Massachusetts at Amherst. Mr. Wenger is a licensed Professional Engineer in the state of Massachusetts. He holds a Grade 7 Full-Active Wastewater Operator's License from the Commonwealth of Massachusetts' Department of Environmental Protection.

BUDGET/FISCAL IMPACT:

There are sufficient funds for this position in FY16 and Proposed FY17 Current Expense Budgets.

ATTACHMENTS:

Resume of Ethan Wenger
Position Description
Organization Chart

Ethan Wenger

Experience

2014-present MWRA Winthrop, MA

Manager, Process Control

- Manage department of sixteen technical professionals responsible for providing various types of support to the MWRA Deer Island Treatment Plant (DITP).
- Manage the optimization of the DITP process, including energy management, chemical usage, and implementation of new equipment processes
- Manage plant compliance with NPDES (discharge) permits and DEP air permits, include reporting to internal compliance units and interfacing directly with regulatory agencies as needed
- Responsible for managing the 30,000 point Process Information and Control System (distributed control system for DITP) which is valued at $40m.
- Responsible for the department's $2.5m budget, and DITP's $3m chemical budget
- Accomplishments
  - Overhauled PICS staff call-in procedure to more efficiently manage PICS staff hours
  - Improved PICS security by eliminating off-site access (VPN) to control system
  - Rolled out PI Process Book training to DITP staff to improve staff understanding of process
  - Implemented Instrumentation Review plan to update the DITP Instrumentation Calibration and Maintenance System throughout DITP

2004-2014 MWRA Winthrop, MA

Project Manager, Process Control

- Prepared and managed the service contract for recharging carbon beds on Deer Island, valued at $900,000 for 3 years
- Co-managed the Oxygen Services Contract, valued at $1,500,000 for 3 years
- Operated the oxygen generation facility, the odor control facility, and the centrifuge facility during complex conditions, such as start-up
- Gave technical advice to operations, maintenance, and safety department as needed for the safe operation and maintenance of the treatment facility
- Designed and directed nitrogen purges for the digester gas system, consisting of the feeding of 200,000 cubic feet of nitrogen through the ENVIREX DYSTOR membrane cover of the digested sludge and gas storage tank to allow the installation of new valves

Ethan Wenger

1996-2004 MWRA Winthrop, MA

Laboratory Supervisor II, Central Laboratory

- Managed 4-7 temporary and full-time employees. Recommended employees for hire and termination as needed
- Responsible for all DITP compliance sample collection and management of all samples taken at the MWRA, including chain of custody and field sampling/testing quality control.
- Used NPDES permit limits and regulatory requirements to write procedures for sampling and analysis
- Managed team budget and procurement for sampling equipment and containers

Education

1988-1992 MIT Cambridge, MA

Bachelor of Science in Environmental Engineering Science

2005-2009 University of Massachusetts Lowell, MA
Master of Science in Environmental Engineering

2015 Isenberg School of Management (UMASS) Amherst, MA
Completed "Leadership and Organizational Behavior" Enrolled in "Strategic Information Management" this winter. Accepted into MBA program in Fall 2016.

Certifications

Grade 7-C Wastewater Operator's License # 9909

Massachusetts P.E. Environmental Engineering #50268

Presentations

Presented "Energy Optimization of Large Plant Aeration Process" at the NEWEA Joint energy and Plant Operations Seminar on May 16, 2012.

Presented "Aeration System Optimization/Dissolved Oxygen Study at the Deer Island Treatment Plant" at the Boston NEWEA Conference on January 29, 2014 and at WEFTEC Conference in New Orleans on September 29, 2014.

Presented "Struvite the Deer Island Experience" at NEBRA Conference in South Portland on October 23, 2014.

Presented "Hi Flow Operation of the Deer Island Treatment Plant" at the NEWEA CSO conference on October 26, 2015.

MWRA
POSITION DESCRIPTION

Position: Deputy Director, DIWWTP

PCR#: 2915016

Division: Operations

Department: Wastewater Treatment

BASIC PURPOSE:

Directs the efficient and effective operation of the Deer Island Treatment Plant's (DITP) processes and equipment to meet regulatory requirements and provide operations personnel with necessary resources and support. Directs the shift operations activities of assigned personnel to ensure efficient operation of all plant areas to enable the plant to meet optimized performance and permit requirements.

SUPERVISION RECEIVED:

Works under the general supervision of the Director, DIWWTP

SUPERVISION EXERCISED:

Exercises general supervision of the Senior Shift Manager, Manager of Power Generation, Program Manager, Energy and the Manager of Process Control. Within this reporting structure there are approximately 76 positions.

ESSENTIAL DUTIES AND RESPONSIBILITIES:

- Directs the 24 - hour operations of the Deer Island Wastewater Treatment Plant and Onsite Thermal Power Plant. Advises the Director on all operational aspects of the facility. Responds to emergency situations 24 hours per day, seven days per week.

- Provides advice/assistance, on all issues, to the Director, DIWWTP and acts in place of Director in his/her absence.

- Oversees plant process evaluations to ensure optimization of plant processes. Has overall responsibility for enhancement of all plant process systems to reduce chemical and utility costs without sacrifice to permit compliance. Establishes and updates operational procedures in accordance with process control strategies.

- Reviews, analyzes and prepares managerial reports for operational, process control, fiscal and personnel matters. Develops recommendations for ongoing improvements in facility operations.

- Manages the preparation of annual operations budgets and participates in the Authority budgetary process.

- Coordinates with the Maintenance Department, the Thermal Power Plant, and Laboratory Services to establish priorities to ensure successful facility operation.

- Represents plant operations and is an active participant in plant and/or Authority-wide initiatives.

- Directs the Process Control Department including Process Engineering, Process Monitoring/Data Management, and the PICS support functions.

Directs Process Control Department in the implementation of new control strategy and/or process control modifications to improve plant performance or provide energy savings.

- Provides management input and technical review of plant wide or individual area energy initiatives including consultant studies and engineering projects.

- Works with the Process Control Manager to develop a replacement plan and budget for the PICs hardware and a current inventory of all PICs hardware spare parts.

- Works with the Program Manager, Energy to coordinate CTG outages and plant notifications, monitor the electrical grid pricing and operate CTGs for peak days, demand response, or high electrical pricing to reduce energy costs.

- Manages the development and updating of Operation Manuals and Systems/Station Operating procedures and works with the Program Manager – Technical Information to ensure timely production of updates.

- Works with all Deer Island Department Managers to ensure the success of plant organization, including the development of staffing requirements and oversight of staff selection.

- Provides technical, supervisory and managerial training and education opportunities for all operations employees. Works with Human Resources on the continued implementation of the Wastewater Operator Shadowing Program.

- Oversees Deer Island Operations Department's compliance with safety programs, maximizes employee involvement, and supports Deer Island and Authority wide safety programs.

- Establishes, with the assistance of training and safety departments, emergency response procedures, and oversees training via scheduled drills, audits and inspections.

- Establishes and administers operational records and procedures required for a 24 - hour facility.

- Ensures consistency and uniformity of work rules in accordance with established policies and procedures.

SECONDARY DUTIES

- Administers labor contract policies and processes all Step I grievances.

- Reviews employee performance according to MWRA procedure

- Performs related duties as required.

MINIMUM QUALIFICATIONS:

Education and Experience:

(A) A Bachelor of Science degree in Chemical or Environmental Engineering or a related field. Masters degree preferred; and

(B) Ten (10) to twelve (12) years of progressive experience in wastewater treatment and/or in a large utility, regional agency or equivalent, of which at least six (6) years should be in a managerial capacity;

Necessary Knowledge, Skills and Abilities:

(A) Knowledge of engineering principles and practices with a special emphasis on wastewater treatment theory, process instrumentation, control and automation.

(B) Proven expertise in the commissioning and operation of large-scale process plant equipment/systems to include a solid understanding of mechanical operating characteristics and their relationship to process performance variables.

(C) Demonstrated managerial capability in a multi-disciplinary technical environment. Knowledge of operational procedures and techniques.

(D) Knowledge of standard business management practices to include labor relations, budgeting and job cost accounting techniques.

(E) Demonstrated computer skills to include proficiency in MS Office software package as well as MS Project. Familiarity with Operations reporting systems, distributed control systems, and Maximo maintenance management systems a plus.

(F) Excellent oral, analytical and written communication skills.

(G) Demonstrated knowledge and understanding of water and sewer infrastructure issues.

SPECIAL REQUIREMENTS:

A valid Massachusetts Wastewater Treatment Plant Operator Grade VII certification (or ability to obtain one within 12 months from date of hire).

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 machines.

PHYSICAL DEMANDS:

The physical demands described herein 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, talk or hear. The employee is regularly required to use hands to finger, handle, feel or operate objects, including office equipment, or controls and reach with hands and arms. The employee frequently is required to stand and walk.

There are no requirements that weight is lifted or force is exerted in the performance of this job. Specific vision abilities required by this job include close 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 regularly works in outside weather conditions. The employee occasionally works near moving mechanical parts, is exposed to wet and/or humid conditions and vibration. The employee occasionally works in high, precarious places and occasionally is exposed to fumes or airborne particles, toxic and/or caustic chemicals.

The noise level in the work environment is usually loud in field settings, and moderately quiet in an office setting.

December 2015

Deer Island - Operations, Process Control, and Power Generation

February, 2016

STAFF SUMMARY

TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director
DATE: February 10, 2016
SUBJECT: Appointment of Program Manager, Environmental Compliance & Monitoring

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COMMITTEE: Personnel & Compensation

___ INFORMATION
_X_ VOTE

Betsy Reilley, Ph.D., Director, Environmental Quality
Karen Gay-Valente, Director, Human Resources
Carolyn Fiore, Deputy Chief Operating Officer
Preparer/Title

Michael J. Hornbrook
Chief Operating Officer

RECOMMENDATION:

To approve the appointment of David Wu, to the position of Program Manager, Environmental Compliance and Monitoring (Unit 9, Grade 29), at the recommended salary of $93,102 to be effective on a date to be determined by the Executive Director.

DISCUSSION:

The impending departure of Ms. Kelly Coughlin within the Environmental Quality Department will result in a vacancy of her position, Program Manager, Environmental Compliance and Monitoring. This staff summary recommends the appointment of her replacement.

The Environmental Quality's Wastewater Quality section consists of 14 staff and is responsible for managing and reporting on federal and state environmental and regulatory issues related to MWRA's operations and projects. The department's main activities are monitoring sewage influent and effluent quality, monitoring the quality of Boston Harbor and its rivers, tributaries, beaches, and Massachusetts Bay, managing quality and operations data, complying with the reporting requirements of MWRA's National Pollutant Discharge Elimination System (NPDES) permits, and coordinating with the Outfall Monitoring Science Advisory Panel (OMSAP).

The Program Manager position oversees three technical staff responsible for the management of NPDES related data, including results from Deer Island Treatment Plant, Clinton Wastewater Treatment Plant, Combined Sewer Overflow (CSO) facilities, the John J. Carroll Water Treatment Plant, and several other wastewater and water facilities, and receiving waters. This position prepares and manages permit-required reporting, provides water quality expert analysis for CSO variance receiving waters (the Charles and Mystic Rivers), and oversees beach data and regulations, among other duties. This position also interacts frequently with outside agencies,

including the Massachusetts Department of Environmental Protection and the U.S. Environmental Protection Agency, as well as various watershed groups.

This position was posted in October 2015. Four candidates were referred for interviews, and interviews were held December 2, 2015. One of the referred candidates declined an interview, one did not show up for the interview, and a third withdrew his application after the interview. To allow for additional consideration, the position was reposted. Additional applications were received and on January 19 three more applicants were referred and interviews were held on January 29, 2016. Of the seven total applicants, two were internal and five were external.

Mr. David Wu is being recommended for this position because of his expertise and experience in wastewater quality, compliance reporting, and environmental policy. Mr. Wu was hired by the Authority in 2000 and has held positions of increasing responsibility since that time within the Environmental Quality Department. In his present position, Mr. Wu is responsible for scientific management and data analysis and interpretation of several complex projects. These include the effluent toxicity testing required by the NPDES permits for Deer Island, CSOs, and Clinton, as well as the flounder disease and flounder, lobster, and mussel contaminant monitoring parts of the outfall ambient monitoring program. He is the department's recognized expert in long-term trends in wastewater quality and how they relate to environmental effects. Mr. Wu has prepared over a dozen departmental technical reports disseminated to regulators, colleagues and the general public. Mr. Wu has also been involved with CSO and beach water quality reporting, and in planning for the upcoming post-construction CSO assessment. He represents MWRA on the Massachusetts Bays Program's Boston Harbor Habitat Coalition. Mr. Wu has earned the respect of colleagues both inside and outside the MWRA for his ability to understand and translate complex technical issues for colleagues, senior management, and the public.

Mr. Wu earned a Bachelor's of Arts degree and a Master of Environmental Management degree from Duke University. Mr. Wu has earned his Grade 6 Combined Wastewater Operators License, and completed EPA's NPDES Permit Writers Training course.

BUDGET/FISCAL IMPACT:

There are sufficient funds in the FY16 CEB for this position. The recommended salary is in accordance with Unit 9's current collective bargaining agreement.

ATTACHMENTS:

Resume
Position Description
Organization Chart

DAVID C. WU

EDUCATION

Master of Environmental Management, May 2000
Nicholas School of the Environment, Duke University, Durham, NC
Concentration: Coastal zone management.
Master's project: Ecological and Political Dynamics of Fish Nursery Areas: Marshallberg, NC.

Bachelor of Arts, May 1997
Duke University, Durham, NC
Majors: History; coursework for marine biology.
Honors: Dean's List, 6 semesters.

PROFESSIONAL EXPERIENCE

Project Manager, Massachusetts Water Resources Authority, Boston, MA
2015-present. Responsible for effluent and environmental monitoring projects for the Authority's Deer Island Treatment Plant and CSO treatment facilities in the Environmental Quality – Wastewater department.

- Interpret and report NPDES permit-required whole effluent toxicity (WET) testing results from the Authority's wastewater facilities.
- Communicate with the WET testing contract lab, as well as TRAC and DLS, regarding sampling schedules and issues with test results and interpretations.
- Analyze results from permit-required flounder, lobster, and mussel biomonitoring projects in Boston Harbor and Massachusetts Bay in collaboration with coworkers and outside consultants.
- Communicate with the consultant, the department's data management group, and DLS regarding collection and analysis status and general project progress for the effluent biomonitoring project.
- Co-writing an in-progress analysis of *Enterococcus* in Deer Island effluent and Massachusetts Bay, examining future permit compliance implications of an *Enterococcus* effluent limit.
- Assisted with the development of water quality factsheets for the general public on Boston Harbor beaches, which were posted on the Authority's website in summer 2015.
- Member of the Authority's NPDES Steering Committee.
- Provide technical assistance to coworkers working on NPDES issues.
- Part of the NPDES On-Call Manager rotation, which provides 24/7 response to potential NPDES issues, as well as coordinating CSO sampling efforts for conventional and WET testing.
- Continue to work on a number of projects from my previous position: primarily beach and river data analysis, marine mammal sightings, and internal and external data requests.

Environmental Scientist, Massachusetts Water Resources Authority, Boston, MA
2000-2015. NPDES permit compliance specialist for the Authority's Deer Island Treatment Plant and 5 CSO treatment facilities in the Environmental Quality - Wastewater department.

- Generated monthly discharge monitoring reports for the public and regulators as required by the NPDES permit.
- Interpreted and reported whole effluent toxicity (WET) testing results at the Authority's wastewater facilities in collaboration with other department members.
- Co-authored a study examining the two WET test failures at the Clinton Treatment Plant in 2014 looking for linkages between historical effluent, plant process data, and the test failures.
- Wrote and edited several permit-related annual reports (e.g., Deer Island NPDES compliance report, technical survey of nitrogen removal technologies, marine mammal observation summary).

- Managed permit-related deliverables, approximately 75 annually. Coordinated with the department's webmaster to make deliverables available on the web.
- Presented on Deer Island effluent quality at the department's annual technical workshop with outside consultants.
- Extensive experience with the Authority's database system for treatment plant and CSO facility operational and sampling data.
- Responded to internal and external requests for treatment plant and CSO facility operational and sampling data.
- Assisted on permit-related duties related to the Clinton Treatment Plant, including review of the 2010 and 2013 draft permits.
- Reviewed current and potential regulations pertaining to the Authority's treatment facilities.
- Responsible for permit-related pages in the Authority's Yellow and Orange Notebooks.
- Member of the NPDES Steering Committee.
- Part of the NPDES On-Call Manager rotation as detailed above.
- Analyzed and posted to the web daily beach monitoring data during the swimming season.
- In conjunction with coworkers, collated and analyzed river monitoring data for CSO variance reporting.
- Miscellaneous tasks relating the to Authority's environmental monitoring programs (e.g., entering data on marine mammal sightings, checking data for QA/QC purposes).

Fisheries Habitat Researcher, NC Environmental Defense Fund, Raleigh, NC
Summer 1999. Helped to develop habitat restoration and preservation guidelines in a brackish water fishery nursery area in coastal North Carolina. Extensively used GIS to rank potential study sites.

Marine Sciences Summer Intern, College of Marine Sciences, University of Delaware, Lewes, DE
Summer 1996. Performed nitrogen analysis of seawater samples using original procedures and analytical mathematical models. Resulting report was titled *Differential Uptake of Ammonium and Nitrate by Phytoplankton: A Study Using ^{15}N Stable Isotopes and GC-MS.*

OTHER EXPERIENCE

Recruiting Assistant, Office of Career Services, Harvard University, Cambridge, MA
Summer-Fall 2000. Planned the 2000 Career Forum, featuring 100+ companies and organizations, and open to the entire Harvard community.

Staff Assistant, Office of Continuing Education, Duke University Divinity School, Durham, NC
Summer 1998. Organized summer school for 150 students. Handled registration, class selection, housing arrangements, and orientation.

COMPUTER SKILLS

Extensive experience with Microsoft Office applications and Adobe Acrobat Pro.
Knowledge of Adobe Illustrator and Photoshop, ESRI ArcMap, Oracle Discoverer and SQL Developer, OriginLab Origin Pro.
Experience with EPA's NetDMR on-line NPDES reporting tool.
Extensive experience with MWRA and ENQUAD database systems.
Knowledge of HTML and SQL.

ADDITIONAL INFORMATION

Massachusetts Grade 6-Combined Wastewater Operators License (#17393; When and If status)
Unofficial NEWEA Grade II Collection Systems Certification (passed test but formal certification process in progress)
Knowledge of major Federal and Massachusetts environmental laws and regulations, especially as they pertain to wastewater operations and maintenance and receiving water quality standards.

- Managed permit-related deliverables, approximately 75 annually. Coordinated with the department's webmaster to make deliverables available on the web.
- Presented on Deer Island effluent quality at the department's annual technical workshop with outside consultants.
- Extensive experience with the Authority's database system for treatment plant and CSO facility operational and sampling data.
- Responded to internal and external requests for treatment plant and CSO facility operational and sampling data.
- Assisted on permit-related duties related to the Clinton Treatment Plant, including review of the 2010 and 2013 draft permits.
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Summer 1998. Organized summer school for 150 students. Handled registration, class selection, housing arrangements, and orientation.

COMPUTER SKILLS

Extensive experience with Microsoft Office applications and Adobe Acrobat Pro.
Knowledge of Adobe Illustrator and Photoshop, ESRI ArcMap, Oracle Discoverer and SQL Developer, OriginLab Origin Pro.
Experience with EPA's NetDMR on-line NPDES reporting tool.
Extensive experience with MWRA and ENQUAD database systems.
Knowledge of HTML and SQL.

ADDITIONAL INFORMATION

Massachusetts Grade 6-Combined Wastewater Operators License (#17393; When and If status)
Unofficial NEWEA Grade II Collection Systems Certification (passed test but formal certification process in progress)
Knowledge of major Federal and Massachusetts environmental laws and regulations, especially as they pertain to wastewater operations and maintenance and receiving water quality standards.

MWRA
POSITION DESCRIPTION

POSITION: Program Manager, Environmental Compliance & Monitoring

PCR#:

DIVISION: Operations

DEPARTMENT: Environmental Quality

BASIC PURPOSE:

Manages compliance with NPDES permits, acts as internal and regulatory contact for NPDES permit issues. Manages activities relative to complex environmental monitoring data and permit-required reporting. Serves as senior technical consultant.

SUPERVISION RECEIVED:

Works under the general supervision of the Senior Program Manager.

SUPERVISION EXERCISED:

Supervises technical staff.

ESSENTIAL DUTIES AND RESPONSIBILITIES:

- Supervises and manages professional staff, including assignment of projects, evaluation of performance, and staff development to ensure that permit-required data are complete, accurate and available within the permit-required timeframe. Provides technical and administrative assistance to staff in project development and management.

- Manages compliance with monitoring and reporting requirements of MWRA's wastewater treatment system and permitted discharges from drinking water facilities. Prepares or summarizes technical data, correspondence and other permit-related documents as required.

- Coordinates NPDES program activities with other MWRA departments and staff. Provides guidance in formulating policy in response to environmental water quality issues and reviews preparation of compliance reports for internal and public distribution, including monthly, annual and web reporting. Participates in interdepartmental steering committee to evaluate and coordinate activities regarding wastewater operations/compliance. Maintains current knowledge of environmental science and technology in order to recommend appropriate research and monitoring.

- Provides expert technical assistance for NPDES permit negotiations and renewals, and acts as backup internal and regulatory contact. Coordinates permit-required environmental

monitoring and reporting with state and federal regulatory agencies including Mass. Dept. of Environmental Protection, Environmental Protection Agency, and Mass. Division of Marine Fisheries.

- Assists staff in compiling water quality management plans, such as best management practice and storm water pollution prevention planning. Maintains familiarity with MWRA's wastewater operations to facilitate understanding and communication of regulatory changes on wastewater operations.

- Reviews and comments on state and federal environmental regulations, such as water quality standards. Interprets and disseminates existing and proposed legislation, rules and guidance with respect to state and federal environmental regulations and emerging issues, particularly those related to the Clean Water Act, and provides comments on proposed changes. Participates in regional organizations to track, develop, and influence water quality regulations and policies.

- Presents findings to scientific community, the Board of Directors, and the general public.

- Provides technical assistance and/or project oversight to the Director as required.

SECONDARY DUTIES:

- Performs related duties as required.

MINIMUM QUALIFICATIONS:

Education and Experience:

(A) Knowledge of principles and practices of sanitary engineering as normally attained through an advanced degree in microbiology, public health, environmental science, sanitary engineering, or related field. A Ph.D. degree preferred; and

(B) Knowledge and understanding of issues related to wastewater treatment processes and NPDES permit requirements as acquired through seven (7) to nine (9) years of experience of which a minimum of three (3) years is in a supervisory or managerial capacity.

Necessary Knowledge, Skills and Abilities:

(A) Experience in NPDES permit compliance, permit negotiations, and state and federal NPDES permit requirements.

(B) Knowledge of Laboratory Information Systems (LIMS), and standard software (MSWord, Excel, Powerpoint, Project Outlook, Oracle, WordPerfect).

(C) Excellent interpersonal skills as well as good oral and written communication skills.

SPECIAL REQUIREMENTS:

Complete EPA NPDES Permit Writers Course within 6 months.

Grade 4 Wastewater Treatment Plant Operator-in-training license preferred.

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, including office equipment or controls, and reach with hands and arms. The employee frequently is required to sit, talk, and hear. The employee is occasionally required to stand and walk, stoop, kneel, crouch or crawl, taste or smell.

There are no requirements that weight be lifted or force be exerted in the performance of this job. Specific vision requirements required by this job include close 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.

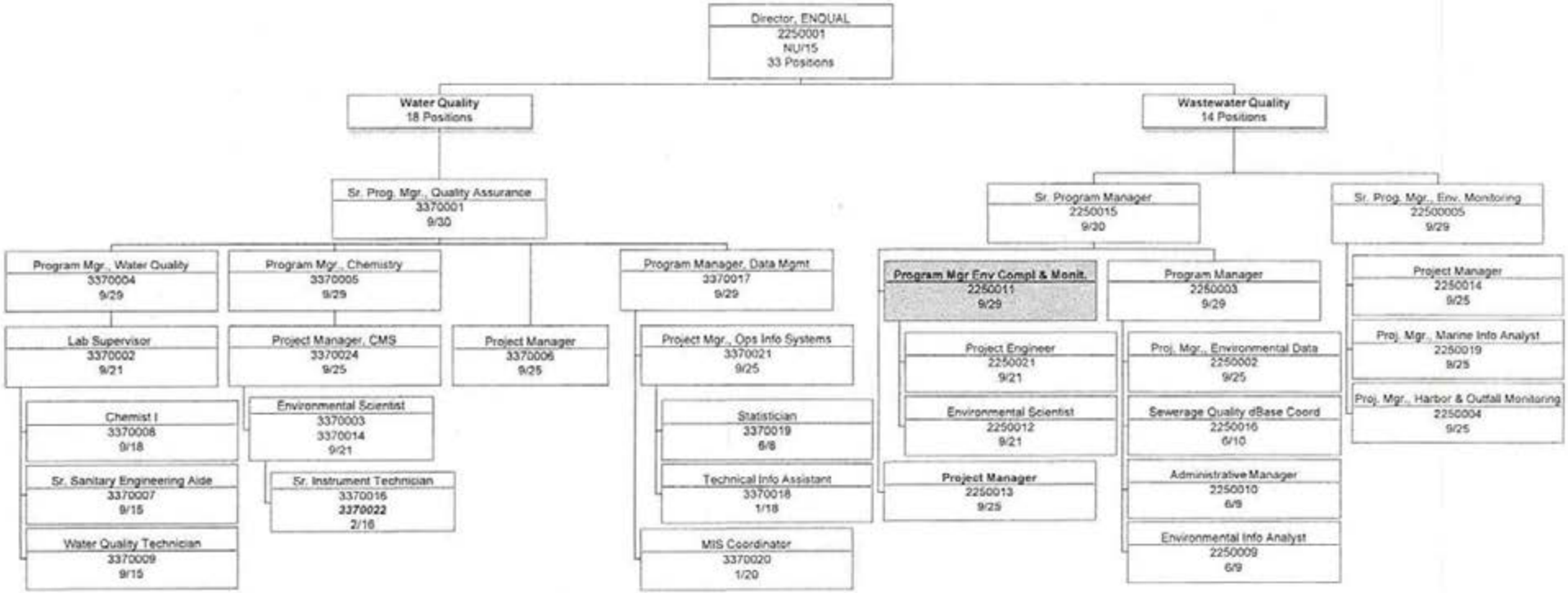
The noise level in the work environment is a moderately quiet office setting.

May 2014

Programs, Policy & Planning

Environmental Quality

February 2016



STAFF SUMMARY

TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director
DATE: February 10, 2016
SUBJECT: Appointment of IT Architect, MIS, Administration

COMMITTEE: Personnel & Compensation ___ INFORMATION
_X_ VOTE

Karen Gay-Valente, Director, Human Resources
Russell J. Murray, Jr., Director, MIS
Paula Weadick, Manager, IT Sec.,Arch.& Infr.
Preparer/Title

Michele S. Gillen
Director Administration

RECOMMENDATION:

To approve the appointment of Mr. Shantanu Patil to the position of IT Architect in the MIS Department (Union 6, Grade 13), at an annual salary of $121,913 on a date to be determined by the Executive Director.

DISCUSSION:

The 5-Year MIS Strategic Plan recommended organizational changes based on functional groups including the establishment of an Information Technology Design and Security group. Consistent with this recommendation, the Board previously approved the establishment of a Manager of Information Technology (IT) Security, Architecture & Engineering (currently filled) and two PCR amendments to establish two IT Architecture positions.

The IT Architecture positions will report to the Manager of IT Security, Architecture & Engineering and will provide leadership and oversight for IT architecture, design and development of high performance distributed applications and services and will be responsible for the development, validation and maintenance of the technical standards used throughout the MWRA's IT infrastructure and applications. These positions work closely with application developers and product experts to conceptualize, develop, and deliver IT solutions that increase business process efficiencies and staff effectiveness while ensuring data protection. These positions will also be responsible for research, evaluation and recommendations of new technologies, tools and products to determine feasibility and desirability of incorporating them within the MWRA's technology and solutions strategy and roadmaps.

Selection Process

These two positions were posted internally and externally. A total of seven applicants applied (four internal and 3 external); all seven were determined to have met the minimum qualifications and were referred for interviews. A three-person interview panel including the Director of MIS, the Manager, IT Security, Architecture & Engineering and a representative from the Affirmative Action and Compliance Unit interviewed six candidates (one external candidate withdrew).

Upon completion of the interviews, Mr. Patil was selected as one of the most qualified and best candidates to fill one of the two IT Architect positions.

Mr. Patil has over 22 years of experience with Information Technology and has been with the MWRA for over 15 of those years. In 2001, Mr. Patil started at MWRA as a contract network engineer working with the Network Services section of the MIS Department assisting with upgrading aging technologies and implementing new technologies including web and email filtering, remote access capabilities and backup solutions. In 2005, Mr. Patil was appointed as a Program Manager of Network Services. Since that time Mr. Patil has been a significant contributor in designing, implementing and supporting the network, server and storage environments.

Mr. Patil possesses two Associate Degrees: one in Industrial Electronics and the second in Computer Engineering. He possesses a certification in Information Technology Infrastructure Library ("ITIL") Foundations and also has certifications as a Cisco Certified Network Associate, VMware Certified Professional and a Microsoft Certified Systems Engineer.

Mr. Patil possesses all the necessary skills and certifications to perform in this position and his in-depth knowledge of the Authority's IT infrastructure will serve him well in taking on the new duties of this position. His skills, background and technical abilities are well suited for this position. Mr. Patil is well respected by his supervisor and peers.

BUDGET/FISCAL IMPACT:

Sufficient funds are included in the FY16 CEB for this position.

ATTACHMENTS:

Resume of Shantanu Patil
Position Description
Organizational Chart

Shantanu Patil

Senior Network/Systems Engineer with more than 20 years of experience in the IT industry and a strong background in Designing Implementing and Supporting IT solutions. Excellent knowledge of Network Devices, Network Security, Network Management Tools, Virtualization, Storage, Email, Load balancing, Clusters, etc

Qualifications
Diploma in Industrial Electronics. (Associates Degree)
Diploma in Computer Engineering. (Associates Degree)

Certifications & Training:

- **CCNA 2.0** - Cisco Certified Network Associate.
- **Information Technology Infrastructure Library (ITIL) Foundation Certification**
- **VCP: VMware Certified Professional (3.x, 4.x, 5.x)**
- **MCSE** -Microsoft Certified Systems Engineer.

Technology Experience

Networking Devices:	Cisco Nexus and Catalyst Siwtches, SonicWall VPN concentrators, Citrix NetScaler Load Balancers
Virtualization	Vmware Vphere 5.x 6.x, Microsofr Hyper-V. Citrix XENserver.
Operating Systems:	Windows Servers,
Internet:	IIS, Microsoft ISA server,Websense .
Email:	MS Exchange Blackberry, Cisco Ironport Email Security Appliance etc
ESM/Patch management:	HP Openview, HP Systems Insight Manager, Shavlik Netchkpro, Cisco Prime
Protocols/Services:	TCP/IP, IPSEC, OSPF, SSL, SNMP, DHCP, DNS, PPP, RIP, WINS, IGRP and EIGRP.
Hardware/Storage:	HP/Compaq Proliant servers, HP-3PAR SAN and Netapp NAS devices, HP Tape Libraries, Brocade FC San Switches
Anti-Virus:	Mcafee Virusscan, Trend Micro ScanMail, Symantec Antivirus.

Experience

Program Manager Network Services- Massachusetts Water Resource Authority (MWRA) **2005- present**
Environment Implemented & Supported : Cisco Nexus Switches, Cisco Catalyst Switches , HP Blade Servers, Sonicwall VPN, Blackberry VMware, Netscalers, FC Switches, 3-PAR Storage, DataDomain etc

- Architected, Implemented and Supported Virtualization Solution to Network and Systems group to virtualize all its servers. This included Implementing HP blade system , SAN Array etc
- Architected, Implemented and Supported new LAN Design using Cisco Nexus and Cisco Catalyst solution. This added high-availability and redundancy to MWRA's Local Area Network.
- Implemented and Supported VPN solution using high available Sonicwall VPN Concentrators.
- Implemented and Supported HP 3-PAR Storage Array. Migrated Data from OLD HP EVA and Netapp NAS.
- Implemented Virtualization Solution and HP Blade System for Citrix infrastructure
- Implemented Virtualization Solution for MIS's SQL Farm
- Architected, Implemented and Supported Enterprise backup Solution using EMC Data Domain and EMC Networker
- Member of team to Implement, Migrate and Support Exchange 2003 – Exchange 2012 upgrade.
  Member of team to Implement, Migrate and Support Citrix Netscaler Load Balancer.

Contract Network Engineer- Massachusetts Water Resource Authority (MWRA) **2001- 2005**

Environment Supported : Nortel 8600 Switches, Business Policy and 5510 Switches, Contivity VPN routers , Compaq/HP Proliant servers, storage and tape libraries Windows NT 4.0 Windows 2000 server, Windows Server 2003, Blackberry, SurfControl, Websense HP Open View, HP Systems Insight Manager, Backupexec, 9.1, 10.0.

- Migrated MWRA from Windows NT Domain to Windows 2003 based Active Directory.
- Migrated email services from Exchange 5.5 to Exchange 2003.
- Implement and maintain Blackberry for MWRA.
- Implement and maintain Web Filtering using Websense Enterprise.
- Implement and maintain Email Filtering using Surf Control Email Filtering.
- Configure and support Nortel Contivity VPN switch for secure Remote access to MWRA network.
- Configured VLANs and resolved various networking issues involving Nortel devices using Sniffer and other tools .
- Installed and configured HP Systems Insight Manager for proactive management of Compaq/HP hardware.
- Upgraded and Consolidated servers to Windows 2000/2003.
- Installed and Configured Microsoft ISA server.
- Implemented Enterprise Backup Solution using Compaq Fibre Channel Devices.
- Installed and Configured Veritas Backupexec 10.0.
- Administered all of MWRA Windows NT servers for user accounts, shares, print queues, disk space, and antivirus software.

Network Engineer Navisite Inc , Andover MA **2000- 2001**

Environment Supported: Cisco 6900 Switches, Compaq 8500,DL 380 servers, RAID 5, Arrowpoint Switches, Windows NT 4.0, Windows NT Enterprise, IIS 4,0, Sun Solaris.

- Proactively monitored customer server farms for maximum availability of critical customers' websites.
- Build and maintain Compaq Proliant and Dell Poweredge Servers using Raid technologies and Windows NT/2000
- Configured and troubleshoot Windows Clusters for database servers.
- Worked with Navisite Customers to diagnose network errors in Cisco Gigabit enterprise switches and load balancing devices.

Network Engineer -NYS Human Services Application Service Center New York **1999 –2000**

Environment Supported: Cisco 2600 routers, Cisco 5000 Switches, Static Routing, TCP/IP, Windows NT 4.0, Novell NetWare 4.11/3.12/3.11.

- Visit various county offices to do site survey for Network Integration.
- Co-ordinate with network infrastructure support team on network integration issues Test Implementation and upgrades of proprietary state software packages.
- Document procedures for installation and troubleshooting of proprietary software .
- Resolving Connectivity issues faced during the migration.
- Upgraded and/or retired NetWare 3.x and Windows NT 3.51 servers. Replace them with Windows NT 4.0 Servers.
- Installed Network operating systems IBM NETFINITY 5000, Compaq Prosigna 3000, 6000, Dell Poweredge .

System/Network Administrator-Tata Infotech Limited and Tata Electric Company **1998- 1999**

Environment Supported : Compaq, Dell, Unisys Servers and Desktops, Cisco Routers and Switches, Ciscoworks, Bull Open Master and its plug-in , ISDN, Novell NetWare 3.12,4.11, Windows NT 3.51,4.0, 2000 professional.

- System Administration under Windows NT, NOVELL NetWare 3.1X/4.X .
- Administration of Cisco 3600 Routers and Catalyst 1900, 5000 Switches .
- Implementing Access lists permitting or denying people from accessing internet.
- Planning for Implementation of Fujitsu System Walker Enterprise Management System.
- Study and prepare IT audit report of TEC's existing IT set up.
- Installing and configuring Bullsoft Open Master and its various modules like Asset Management, Remote Control, Cisco View, Transcend NCS 5.0.

System/Network Administrator - Iridium India - **1996- 1998**

Environment Supported: Compaq Proliant and Prosignia server, IBM PC 330 server, Cisco 2500 Routers Windows NT 4.0, IIS 3.0, Windows 95, RAID 5, Motorola Codex 3360.

- Site planning and designing of network using AT&T structured cabling.
- Installing and Configuration Cisco switches and routers.
- Installing configuring and administer WINDOWS NT 4.0.
- Installing Open Sesame proxy server on Windows NT to share Internet connection.

System Administrator/Network Administrator - Apple Industries **1994- 1996**

Environment Suported: Compaq Proliant,Prosignia servers, Novell NetWare 2.2,3.11,3.12.4.1, Windows NT 3.51,4.0, Bay Network Hubs, Cisco Routers.

- Installation and administration of Windows NT, NOVELL NetWare 3.1X/4.X .
- Planning migration from legacy Coaxial type cabling to UTP 10baseT cabling.
- Establishing connectivity between all the branch offices using 64Kbps leased lines .
- Configuring DHCP and WINS for automatic IP addressing and Name resolution.
- Documenting all the problems and setting up a helpdesk.

MWRA
POSITION DESCRIPTION

POSITION: Information Technology (IT) Architect

DIVISION: Administration

DEPARTMENT: Management Information Systems (MIS)

BASIC PURPOSE:

IT Architect provides architectural and technology leadership and oversight for architecture, design and development of high performance distributed applications and services. This position works closely with application developers and product experts to conceptualize, develop, and deliver solutions and services. This position is also responsible for research, evaluation and recommendation of new technologies and tools/products to determine feasibility and desirability of incorporating them within the MWRA's technology and solutions strategy and roadmaps; support systems and business teams by providing support for analysis and design, providing subject matter expertise in multiple technology verticals, performance, scalability, and benchmarks.

Design information systems to be implemented according to MWRA goals, needs and objectives. Establishes information system's basic structure; defines essential design features and provides a framework for developers to follow. Participate in the planning and implementing of the MWRA's information technology architecture and engineering platforms, data architecture, information security program, asset and configuration management, and capacity management. Identifies, documents, implements and enforces information security policies and procedures that assure the security and integrity of information assets of the Authority.

SUPERVISION RECEIVED:

Works under the general supervision of the Manager of IT Security, Architecture, and Engineering. 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(s).

ESSENTIAL DUTIES AND RESPONSIBILITIES:

- Aid in the development of a set of standards for infrastructure design, technical

functionality, and network based security.

- Defines requirements; assesses server, storage and infrastructure sizing; analyzes hardware sizing to meet application requirements; and designs load balancing and clustering solutions according to architecture standards.
- Prepares architectural design documentation, including diagrams and inventories.
- Performs on-going system implementation work. Oversees building business and operational plans, strategic direction, and standards for procedures and policies as they relate to IT systems architecture.
- Works with IT teams to ensure application requirements are understood and translated to technical solutions.
- Collaborates with staff, users and senior management on establishing business and operational goals; reviews new and existing IT projects, systems designs and plans, and conducts research on emerging technologies to support changes in infrastructure.
- Supports technology and business and operations management with data security event and incident metrics and trends.
- Provides effective leadership, subject matter expertise and support to technology and business and operations partners in managing Information Technology security incidents.
- Participates in task forces and projects to reduce IT risk and establish a baseline profile of traffic, events and incidents.
- Manages data security events, ensuring that they are properly identified, analyzed, cataloged, and escalated (as appropriate) to incidents.
- Manages and responds to data security incidents and maintains investigative activities to identify, analyze and report on activity and trends that could be indicative of risk.
- Gathers and maintains forensics to support investigative and risk analysis and mitigation efforts.
- Researches, evaluates new technologies/tools and software products to determine feasibility and desirability of incorporating their capabilities in line with the technology strategy of the organization.
- Participates and prepares for Disaster Recovery planning and test activities
- Develop design documentation, report requirements, and test plans of applications throughout the design process
- Support user acceptance testing and release management activities
- Develops capacity management reports for capacity planning efforts
- Work with each team to ensure the successful adoption and use of infrastructure frameworks, reference architecture and standards. This also includes conformance to the strategies, reference architectures and guiding principles
- Create, document, and communicate the integration approach of all the components of the infrastructure architecture.

SECONDARY DUTIES:

- Share in on-call rotation and emergency response tasks as needed.
- Participates in occasional off-site travel, extended hours and weekend work.
- 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 ten (10) years experience in infrastructure architecture and design.

(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 at all levels of the organization in writing and verbally.

(C) High level understanding of technologies and enterprise architecture.

(D) Possess good depth and breadth knowledge of security, database/information systems, and application architecture.

(E) Thorough understanding of Microsoft and VMware technology.

(F) Strong organization skills and the ability to manage multiple priorities with competing demands for resources.

(G) Ability to perform in a dynamic environment, with on-time delivery.

(H) Strong analytical, data processing and problem solving skills.

(I) Ability to write and present effective materials, including presentations, status reporting, technical diagrams and flowcharts.

(J) Experience with LAN and WAN development and configuration using Citrix, Windows 2008/2012, Unix operating systems with Cisco and Citrix hardware.

SPECIAL REQUIREMENTS:

- Information Technology Infrastructure Library (ITIL) Foundation Certification and at least one of the following:
  - MCSE – Microsoft Certified Solution Expert
  - MCSD – Microsoft Certified Solution Developer
  - CISM – Certified Information Security Manager
  - CISSP – Certified Information Systems Security Professional
  - CCIE – Cisco Certified Internetwork Export
  - VCP5-DCV: VMware Certified Professional 5 – Data Center Virtualization
  - PMP – Project Management Professional
  - CCP – Citrix Certified Professional

  Or the ability to obtain within one year.

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, stand, walk, talk and listen.

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:

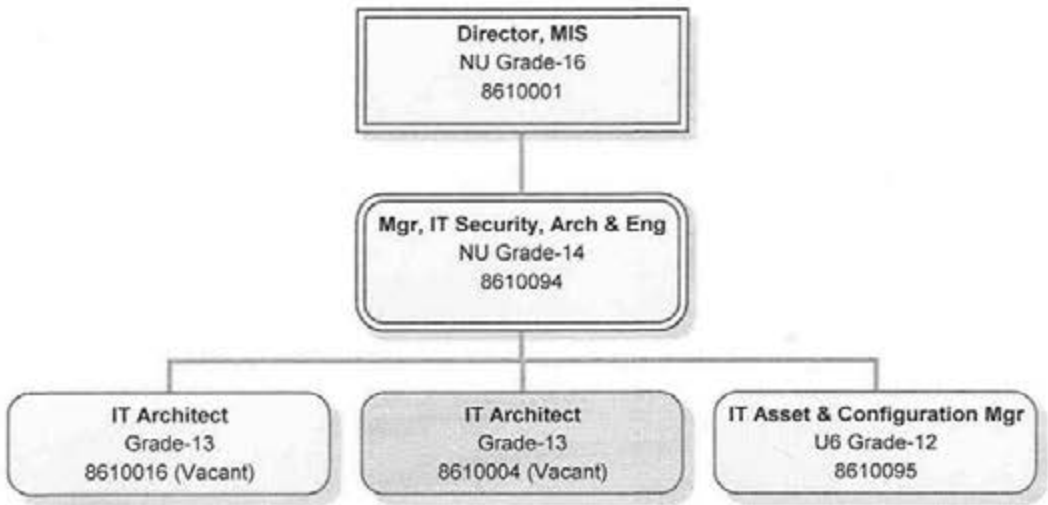
The work environment characteristics described here are representative of those an employee encounters while performing the essential functions of this job.

While performing the duties of this job, the employee works in a computer center, network closet, and/or or office environment 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 very loud in field settings, moderately loud at other work locations and moderately quiet in office settings.

MIS Department

February 2016



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STAFF SUMMARY

TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director
DATE: February 10, 2016
SUBJECT: Appointment of IT Architect, MIS, Administration

COMMITTEE: Personnel & Compensation ___ INFORMATION
_X_ VOTE

Karen Gay-Valente, Director, Human Resources
Russell J. Murray, Jr., Director, MIS
Paula Weadick, Manager, IT Sec.,Arch.& Infr.
Preparer/Title

Michele S. Gillen
Director Administration

RECOMMENDATION:

To approve the appointment of Mr. Sean Thomas to the position of IT Architect in the MIS Department (Union 6, Grade 13), at an annual salary of $117,179 on a date to be determined by the Executive Director.

DISCUSSION:

The 5-Year MIS Strategic Plan recommended organizational changes based on functional groups including the establishment of an Information Technology Design and Security group. Consistent with this recommendation, the Board previously approved the establishment of a Manager of Information Technology (IT) Security, Architecture & Engineering (currently filled) and two PCR amendments to establish two IT Architecture positions.

The IT Architecture positions will report to the Manager of IT Security, Architecture & Engineering and will provide leadership and oversight for IT architecture, design and development of high performance distributed applications and services and will be responsible for the development, validation and maintenance of the technical standards used throughout the MWRA's IT infrastructure and applications. These positions will work closely with application developers and product experts to conceptualize, develop, and deliver IT solutions that increase business process efficiencies and staff effectiveness while ensuring data protection. These positions will also be responsible for research, evaluation and recommendations of new technologies, tools and products to determine the feasibility and desirability of incorporating them into MWRA's technology and solutions strategy and roadmaps.

Selection Process

These two positions were posted internally and externally. A total of seven applicants applied (four internal and 3 external); all seven were determined to have met the minimum qualifications and were referred for interviews. A three-person interview panel including the Director of MIS, the Manager, IT Security, Architecture & Engineering and a representative from the Affirmative Action and Compliance Unit interviewed six candidates (one external candidate withdrew).

Upon completion of the interviews, Mr. Thomas was selected as one of the most qualified and best candidates to fill one of the two IT Architect positions.

Mr. Thomas has been with the MWRA for over 23 years. He began as an MIS Technical Analyst in 1993 and has progressively been promoted to Software Maintenance Specialist, Database Analyst Programmer and finally to his current position as Senior Systems Manager. Mr. Thomas has taken on the challenges of each of those positions and his performance has been outstanding. Mr. Thomas has worked closely on the development, implementation and administration of server, storage and remote access environments throughout his career and most recently has significantly contributed to the deployment of the work force mobility platform.

Mr. Thomas possesses two Associate Degrees: one in Electrical Engineering and the second in Liberal Arts. He is also a Microsoft Certified Professional.

Mr. Thomas possesses all the necessary skills to perform in this position and his in-depth knowledge of the Authority's IT infrastructure and applications will serve him well in taking on the new duties of this position. His skills, background and technical abilities are well suited for this position. Mr. Thomas is well respected by his supervisor and peers.

BUDGET/FISCAL IMPACT:

Sufficient funds are included in the FY16 CEB for this position.

ATTACHMENTS:

Resume of Sean Thomas
Position Description
Organizational Chart

Sean Thomas

SUMMARY

- Knowledge of design and development in relational database applications
- Knowledge of Citrix XenApp, XenMobile, ShareFile, NetScaler, Linux , UNIX, and Windows OS
- Over 7 years experience with Oracle Database Administration/Implementation, testing and maintenance of various business applications such as Maximo Maintenance System
- Proficient in Oracle DBMS, SQL Server RDBMS, Java, VMware, and integrated multiple information systems
- Strong interpersonal and communication skills
- Years of working experience with Microsoft Windows, HP-UX , UNIX, Linux, Operating Systems, Server Hardware Peripherals, and Local Area Network

TECHNICAL SKILLS

Languages	SQL, PL/SQL, Java, Visual Basic 6.0, UNIX scripting (KSH, BASH)
Database	Oracle 10g, 9i, and 7.3, Microsoft SQL Server 6.5, 7.x and 2000
Operating Systems	Windows 2012/2008/2003/2000/XP/NT, UNIX/Linux, HP-UX, Novell Netware 3.x, 4.x
IDE/Tools	Oracle J-Developer 10g, Microsoft Visual Studio 6.x, 7, Oracle Enterprise Manager, SQL Plus, SQL Developer
Network Topologies	TCP/IP LAN, WAN, FDDI, Ethernet
Hardware/Storage	SAN, SCSI, RAID Technology
Web Technologies	HTML, JSP, JDBC, ASP
Web Server	Oracle 10g Application Server, IIS server

PROFESSIONAL EXPERIENCE

Massachusetts Water Resources Authority

Senior Systems Manager — **September 2008 – Present**

- Maintain, support, and manage database applications and operating systems
- Optimize database and OS to deliver best performance to the user community. Perform multiple database upgrades and system integration
- Evaluate and test new software update features and security patches
- Configure and manage Lawson Oracle Databases, Storage SAN, and Application Servers environments
- Create manage Lawson Storage LUNs
- Install and configure VMware environment for DRM group
- Manage DRM 3Par storage LUNs for VMware hosts
- Manage and troubleshoot Citrix XenApp, XenMobile, XenDesktop, and ShareFile environments
- Monitor and troubleshoot Citrix NetScaler environment
- Manage and troubleshoot Landmark application
- Create and manage Zoning on Brocade SAN Switch for Lawson and VMware environments

Database Analyst/Programmer — **November 1997 – September 2008**

- Maintained, supported and managed database applications and operating systems daily. Optimized database and OS to deliver optimal performance to the user community. Performed multiple Database upgrades and system integration.
- Evaluated and tested new software products
- Configured Oracle Enterprise Manager Repository to manage all Oracle Databases
- Configured Oracle Desktop Client for Windows environment
- Configured Maximo System Environment (Hardware and Software)
- Configured Lawson Upgrade Environment (Hardware and Software)
  - Assisted consultants in implementing Storage Area Network (SAN) for Deer Island and Chelsea

  - Assisted and recommended HP-UX hardware configuration architecture
  - Configured LUN in SAN and presented to HP-UX nodes
  - Assisted and recommended in disaster recovery HP-UX
  - Assisted consultant in configuring and installing Oracle on HP-UX Service Guard Cluster
- Configured HOML Application Server (Software)
  - Configured Oracle Application Server to J2EE HOML Application
  - Customized OAS J2EE environment to meet HOML Application security requirements
  - Monitored and maintained OAS

Software Maintenance Specialist **September 1995 – November 1997**

- Implemented and maintained Novell GroupWise Email infrastructure for Deer Island Treatment Plant
- Worked with other MIS staff in integrating GroupWise Email with MS Mail
- Provided computing software support to Deer Island users, diagnosed and resolved software problems
- Established software maintenance standards and procedures
- Monitored and managed software license agreements
- Evaluated and tested new software products

MIS Technical Support Assistant **September 1993 – September 1995**

- Installed PC/LAN, installed and configured PC's equipment and peripherals
- Troubleshot and supported PC/LANs
- Trained users in PC Hardware/Software
- Installed and configured telephone equipment
- Supervised MIS interns

EDUCATION

State University of New York — Morrisville, NY
A.S Science / Electrical Engineering — June 1990

State University of New York — Morrisville, NY
A.S. Science / Liberal Arts — June 1987

CERTIFICATION

- Microsoft MCP
- Electrical Residential Wiring

TRAINING

- Designing App and Desktop Solutions with Citrix XenDesktop 7
- Citrix NetScaler 11.0 Essentials and Networking
- Implementing Citrix NetScaler 10.5 for App and Desktop Solutions
- HP 3Par Storage System Administrator
- Linux System Administrator
- Linux Networking and Security Administrator
- Lawson Administrator/Security
- Oracle Database 10g and 11g: Administration New Features
- Oracle Application Server 10g: Administration
- Oracle 9i Database Administrator Fundamentals, Oracle Education
- Oracle 9i: PL/SQL Fundamentals, Oracle Education
- Microsoft Windows 2003 System Administrator
- Microsoft Windows 2000 System Administrator

References Available upon request

MWRA
POSITION DESCRIPTION

POSITION: Information Technology (IT) Architect

DIVISION: Administration

DEPARTMENT: Management Information Systems (MIS)

BASIC PURPOSE:

IT Architect provides architectural and technology leadership and oversight for architecture, design and development of high performance distributed applications and services. This position works closely with application developers and product experts to conceptualize, develop, and deliver solutions and services. This position is also responsible for research, evaluation and recommendation of new technologies and tools/products to determine feasibility and desirability of incorporating them within the MWRA's technology and solutions strategy and roadmaps; support systems and business teams by providing support for analysis and design, providing subject matter expertise in multiple technology verticals, performance, scalability, and benchmarks.

Design information systems to be implemented according to MWRA goals, needs and objectives. Establishes information system's basic structure; defines essential design features and provides a framework for developers to follow. Participate in the planning and implementing of the MWRA's information technology architecture and engineering platforms, data architecture, information security program, asset and configuration management, and capacity management. Identifies, documents, implements and enforces information security policies and procedures that assure the security and integrity of information assets of the Authority.

SUPERVISION RECEIVED:

Works under the general supervision of the Manager of IT Security, Architecture, and Engineering. 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(s).

ESSENTIAL DUTIES AND RESPONSIBILITIES:

- Aid in the development of a set of standards for infrastructure design, technical

functionality, and network based security.

- Defines requirements; assesses server, storage and infrastructure sizing; analyzes hardware sizing to meet application requirements; and designs load balancing and clustering solutions according to architecture standards.
- Prepares architectural design documentation, including diagrams and inventories.
- Performs on-going system implementation work. Oversees building business and operational plans, strategic direction, and standards for procedures and policies as they relate to IT systems architecture.
- Works with IT teams to ensure application requirements are understood and translated to technical solutions.
- Collaborates with staff, users and senior management on establishing business and operational goals; reviews new and existing IT projects, systems designs and plans, and conducts research on emerging technologies to support changes in infrastructure.
- Supports technology and business and operations management with data security event and incident metrics and trends.
- Provides effective leadership, subject matter expertise and support to technology and business and operations partners in managing Information Technology security incidents.
- Participates in task forces and projects to reduce IT risk and establish a baseline profile of traffic, events and incidents.
- Manages data security events, ensuring that they are properly identified, analyzed, cataloged, and escalated (as appropriate) to incidents.
- Manages and responds to data security incidents and maintains investigative activities to identify, analyze and report on activity and trends that could be indicative of risk.
- Gathers and maintains forensics to support investigative and risk analysis and mitigation efforts.
- Researches, evaluates new technologies/tools and software products to determine feasibility and desirability of incorporating their capabilities in line with the technology strategy of the organization.
- Participates and prepares for Disaster Recovery planning and test activities
- Develop design documentation, report requirements, and test plans of applications throughout the design process
- Support user acceptance testing and release management activities
- Develops capacity management reports for capacity planning efforts
- Work with each team to ensure the successful adoption and use of infrastructure frameworks, reference architecture and standards. This also includes conformance to the strategies, reference architectures and guiding principles
- Create, document, and communicate the integration approach of all the components of the infrastructure architecture.

SECONDARY DUTIES:

- Share in on-call rotation and emergency response tasks as needed.
- Participates in occasional off-site travel, extended hours and weekend work.
- 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 ten (10) years experience in infrastructure architecture and design.

(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 at all levels of the organization in writing and verbally.

(C) High level understanding of technologies and enterprise architecture.

(D) Possess good depth and breadth knowledge of security, database/information systems, and application architecture.

(E) Thorough understanding of Microsoft and VMware technology.

(F) Strong organization skills and the ability to manage multiple priorities with competing demands for resources.

(G) Ability to perform in a dynamic environment, with on-time delivery.

(H) Strong analytical, data processing and problem solving skills.

(I) Ability to write and present effective materials, including presentations, status reporting, technical diagrams and flowcharts.

(J) Experience with LAN and WAN development and configuration using Citrix, Windows 2008/2012, Unix operating systems with Cisco and Citrix hardware.

SPECIAL REQUIREMENTS:

- Information Technology Infrastructure Library (ITIL) Foundation Certification and at least one of the following:
  - MCSE – Microsoft Certified Solution Expert
  - MCSD – Microsoft Certified Solution Developer
  - CISM – Certified Information Security Manager
  - CISSP – Certified Information Systems Security Professional
  - CCIE – Cisco Certified Internetwork Export
  - VCP5-DCV: VMware Certified Professional 5 – Data Center Virtualization
  - PMP – Project Management Professional
  - CCP – Citrix Certified Professional

  Or the ability to obtain within one year.

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, stand, walk, talk and listen.

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:

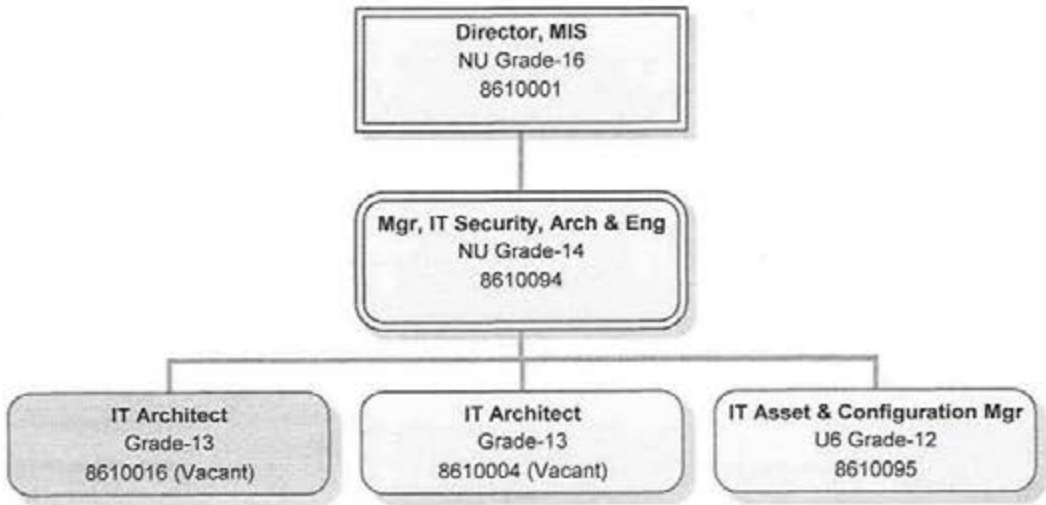
The work environment characteristics described here are representative of those an employee encounters while performing the essential functions of this job.

While performing the duties of this job, the employee works in a computer center, network closet, and/or or office environment 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 very loud in field settings, moderately loud at other work locations and moderately quiet in office settings.

MIS Department

February 2016



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1/21/2016

MASSACHUSETTS WATER RESOURCES AUTHORITY

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

Frederick A. Laskey
Executive Director

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REVISED

BOARD OF DIRECTORS' MEETING

to be held on

Wednesday, February 10, 2016

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**

IV. **BOARD ACTIONS**

A. **Approvals**

1. FY17 Proposed Current Expense Budget (ref. AF&A B.1)
2. Approval of the Seventy Second Supplemental Resolution (ref. AF&A B.2)
3. Assignment and Consent to Assignment, Stantec Consulting Services, Inc. (ref. AF&A B.3)
4. CSO Annual Progress Report for 2015 (ref. WW B.1)
5. 2016 Affirmative Action Plan (ref. P&C A.1)
6. PCR Amendments – February 2016 (ref. P&C A.2)
7. Appointment of Warehouse Manager, Deer Island (ref. P&C A.3)
8. Appointment of Deputy Director, Deer Island Treatment Plant (ref. P&C A.4)

A. **Approvals** (con't.d)

9. Appointment of Program Manager, Environmental Compliance & Monitoring (ref. P&C A.5)

10. Appointment of IT Architect, MIS (ref. P&C A.6)

11. Appointment of IT Architect, MIS (ref. P&C A.7)

B. **Contract Awards**

1. Miscellaneous Fencing: Premier Fence LLC, Contract 6760X (ref. AF&A C.1)

2. Supply and Delivery of Hydrogen Peroxide for the Deer Island Treatment Plant: U.S. Peroxide, LLC, Bid WRA-4147 (ref. WW C.1)

3. Clinton Wastewater Treatment Plant Phosphorus Reduction Facility: Daniel O'Connell's Sons, Inc., Contract 7411 (ref. WW C.2)

4. Caruso Pump Station Improvements Waterline Industries Corp., Contract 7362 (ref. WW C.3)

5. Nut Island Demolition and Other Related Services **(materials to follow)** (ref. WW C.4)

6. Rosemary Brook Siphon Buildings Repair and Stabilization: Calhess Restoration and Waterproofing Corp., Contract 7472 (ref. W B.1)

7. Hatchery Pipeline and Hydroelectric Project: Waterline Industries Corp, Contract 7235 (ref. W B.2)

V. CORRESPONDENCE TO THE BOARD

VI. OTHER BUSINESS

VII. EXECUTIVE SESSION

A. Real Estate:

1. Approval of Order of Taking: Section 36/W11C/Shaft 9-A11 Pipeline Rehabilitation, Arlington and Medford - Contract No. 7448

2. Update on Land Available for Purchase

B. Litigation

1. Cross-Harbor Cable – MA DPU and Superior Court Proceedings

VIII. ADJOURNMENT

MASSACHUSETTS WATER RESOURCES AUTHORITY

Meeting of the Board of Directors

January 13, 2016

A meeting of the Board of Directors of the Massachusetts Water Resources Authority was held on January 13, 2016 at the Authority headquarters in Charlestown. Chairman Beaton presided. Present from the Board were Ms. Wolowicz and Messrs. Blackmon, Carroll, Cotter, Flanagan, Foti, Pappastergion, Vitale and Walsh. Mr. Pena was absent. Among those present from the Authority staff were Frederick Laskey, Executive Director, Steven Remsberg, General Counsel, Michael Hornbrook, Chief Operating Officer, Thomas Durkin, Director of Finance, Michele Gillen, Director of Administration, Matthew Horan, Treasurer, David Coppes, Waterworks Director, and Bonnie Hale, Assistant Secretary. The meeting was called to order at 1:10 p.m.

APPROVAL OF MINUTES

Upon a motion duly made and seconded, it was

Voted to approve the minutes of the December 16, 2015 Board of Directors meeting, as presented and filed with the records of the meeting.

REPORT OF THE CHAIR

Chairman Beaton reflected upon the first year of Governor Baker's administration, said he was honored to chair the Board of Directors, excited for the groundbreaking of the pipeline to the fish hatchery, and said he was happy to report that it did not look as if there would be any 9C cuts.

REPORT OF THE EXECUTIVE DIRECTOR

Mr. Laskey reported on various matters, including the completion of the decades-long CSO control program by the December 2015 deadline. He also individually recognized and praised two exemplary long-time MWRA employees who were about to retire, Kevin Collins, Manager of Operations Administration, and John Sabino, Director of Procurement.

BOARD ACTIONS

APPROVALS

PCR Amendment – January 2016

Upon a motion duly made and seconded, it was

Voted to approve an amendment to the Position Control Register, as presented and filed with the records of the meeting.

CONTRACT AWARDS

Selection of Underwriters: Contract F237

Upon a motion duly made and seconded, it was

Voted to approve the recommendation of the Consultant Selection Committee to select the following investment banking firms to serve as underwriters for fixed rate bond issues and to authorize the Executive Director, on behalf of the Authority, to enter into agreements with the selected firms; and further to approve the recommendation of the Consultant Selection Committee that Citi Group Global Markets, Inc., as first ranked, serve as senior manager for the next fixed rate bond transaction and, for subsequent transactions, it is the intent to assign senior managers in rotation based on the Selection Committee's ranking order, provided there are no material changes to the firm or in market conditions:

Senior Managers: (1) Citigroup Global Markets, Inc., (2) J.P. Morgan Securities, Inc., (3) Barclays Capital Inc., (4) Bank of America Merrill Lynch, and (5) Morgan Stanley & Co., Inc.
Co-Managers: Wells Fargo Securities, Goldman Sachs & Co., Jefferies & Company, Inc., Samuel A. Ramirez & Co., Inc. and RBC Capital Markets
Selling Group: Academy Securities, Inc., Drexel Hamilton, LLC, Fidelity Capital Markets, Janney Montgomery Scott, LLC, Raymond James & Associates, Inc., Roosevelt & Cross, Inc., Stern Brothers & Co., The Williams Capital Group, LP, BNY Mellon Capital Markets, LLC, Estrada Hinojosa & Co., Inc., First Southwest Company, LLC, Mesirow Financial, Inc., Robert W. Baird & Co., Inc., Siebert Brandford Shank & Co., LLC, Stifel Nicolaus & Co., Inc., and William Blair & Co., LLC.

Agency-Wide Technical Assistance Consulting Services: Stantec Consulting Services Inc., Contract 7496 and Hazen and Sawyer, P.C., Contract 7497

Upon a motion duly made and seconded, it was

Voted to approve the recommendation of the Consultant Selection Committee to select Stantec Consulting Services Inc. and Hazen and Sawyer, P.C. to provide agency-wide technical consulting services and to authorize the Executive Director, on behalf of the Authority, to execute Contract 7496 with Stantec Consulting Services Inc., and Contract 7497 with Hazen and Sawyer, P.C., each in an amount not to exceed $1,450,000 and for a contract term of two years from the Notice to Proceed.

Sodium Hypochlorite & Sodium Bisulfite Tank Farm Rehabilitation, Design, Construction Administration & Resident Engineering Services, DITP: Stantec Consulting Services, Inc., Contract 6853

Upon the recommendation of the Wastewater Policy and Oversight Committee, consideration of this item was postponed until the February 10, 2016 meeting.

(Ms. Wolowicz left the meeting.)

OTHER BUSINESS – Wachusett Reservoir/Pan Am Railways

This item on the Water Policy and Oversight Committee agenda was referred to the full Board. Staff gave a presentation about concerns regarding the Pan Am Railways line and potential derailments of its freight trains that run through 7.6 miles of the

Wachusett Watershed and where at several points the tracks are immediately adjacent to or pass directly over the Wachusett Reservoir via circa 1870 arch bridges. There was general discussion and question and answer on continuing avenues of investigation to ensure that the track condition is of the highest caliber. Issues to be considered during discussions with MassDOT include ownership structure, liability, necessary track improvements and costs.

EXECUTIVE SESSION

It was moved to enter executive session to discuss litigation.

Upon a motion duly made and seconded, it was

Yes	No	Abstain
Blackmon		
Carroll		
Cotter		
Flanagan		
Foti		
Pappastergion		
Vitale		
Walsh		
Beaton		

Voted to enter executive session for the purpose of discussing strategy with respect to litigation, in that such discussion in open session might have a detrimental effect on the litigating position of the Authority.

It was stated that the meeting would return to open session solely for the consideration of adjournment.

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EXECUTIVE SESSION

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The meeting returned to open session at 1:50 p.m. and adjourned.