MASSACHUSETTS WATER RESOURCES AUTHORITY

Board of Directors Report

on

Key Indicators of MWRA Performance

Fourth Quarter FY2024

Q1	Q2	Q3	Q4

Frederick A. Laskey, Executive Director
David Coppes, Chief Operating Officer
September 11, 2024

Board of Directors Report on Key Indicators of MWRA Performance

4th Quarter – FY24

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

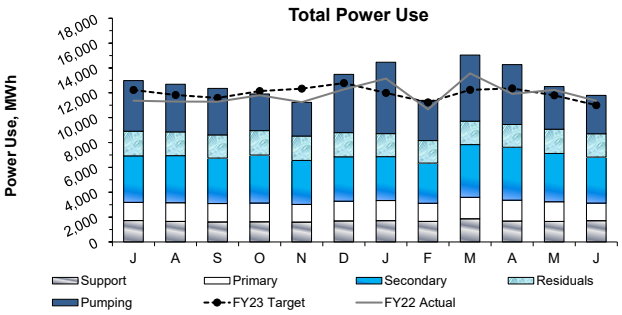
Frederick A. Laskey, Executive Director
David Coppes, Chief Operating Officer

September 11, 2024

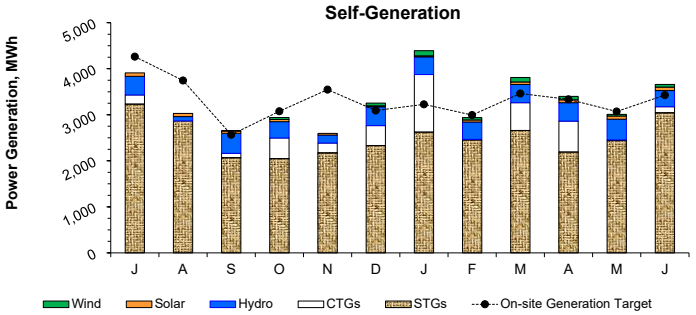
OPERATIONS AND MAINTENANCE

Deer Island Operations

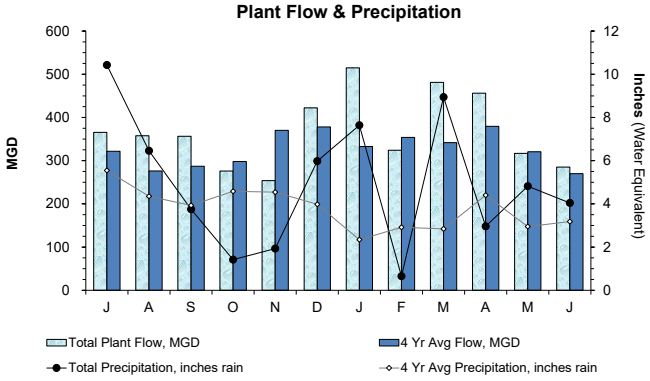
4th Quarter - FY24



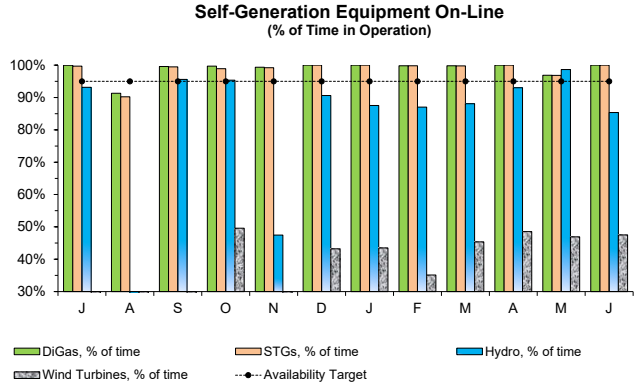
Total power usage in the 4th Quarter was 9.7% above target as plant flow for this period was 9.1% above target with historical (4 year average) data used to generate the electricity model. Power used in most areas and major treatment processes was within 5% of target, except for power used for raw wastewater pumping and for secondary treatment, which were 12.2% and 18.7% above target respectively, due to the higher plant flows. **Overall, total power usage for FY24 was 7.4% above target as total plant flow was 12.2% above the 4 year average plant flow target.**



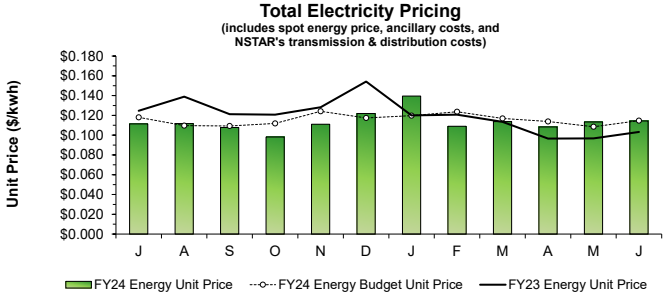
Power generated on-site during the 4th Quarter was 2.4% above the target due to 68% above target CTGs generation resulting from 48.2 hours of continuous operation from April 4 to April 6 as a source of backup power during a Nor'easter storm with damaging winds and an extended period of very high plant flows, as well as operation in June for an ISO-New England demand response summer audit, a called demand response event, and on two (2) days for peak demand shaving. STGs generation was 7.4% above target due to additional generation when supplemental fuel oil is used during periods of low or unstable digester gas production. Hydro Turbine generation was 21.3% below target due to reduced Turbine #2 availability mainly as a result of several wicket gate issues in June. Meanwhile, Turbine #1 remains unavailable pending a replacement gearbox and bearings. Solar Panel generation was 24.2% below target partially due to a failed grid inverter on the Residuals Odor Control Facility solar array which has kept the array out of service since September 12, 2022. Wind Turbine generation was 58.5% below target mainly as Turbine #1 remains out of service indefinitely. **Overall, power generation was on target (-0.5%) for FY24.**



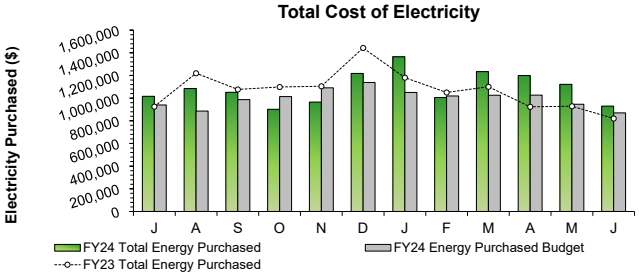
Total Plant Flow for the 4th Quarter was 9.1% above target with the budgeted 4 year average plant flow (352.7 MGD actual vs 323.3 MGD expected) as precipitation was 12.3% higher than target this quarter (11.82 inches actual vs. 10.53 inches expected). **Total Plant Flow for FY24 was 12.2% above target as precipitation was 29.6% above target.**



The DiGas System and STGs availability exceeded the 95% availability target in the 4th Quarter. Hydro Turbine availability was slightly below target at 92.3% due to several periods of high plant flows combined with high tides which prevented hydro turbine operation, in addition to several wicket gate issues in June. Hydro Turbine #1 remains offline pending a replacement gearbox and bearings. Wind Turbines availability was 47.7% as Turbine #1 remains out of service indefinitely and Turbine #2 met the target, with an availability of 95.3% during the 4th Quarter. **Overall for FY24, Wind Turbines availability was only 30.9% and Hydro Turbineavailability was 81.9%, while availability for the other self-generating equipment exceeded the 95% availability target.**



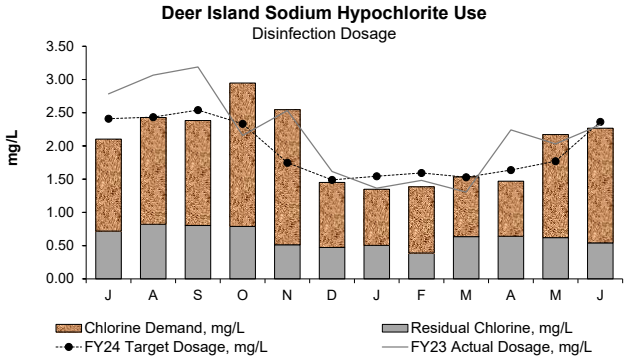
Under the current energy supply contract, a block portion of DI's energy is a fixed rate and the variable load above the block is purchased in real time. The actual Total Energy Unit Price is depicted for July through April (months with the latest available unit prices), while the May and June unit prices are estimated due to a billing delay with Direct Energy (NRG). Overall, the average unit price is estimated to be 1.9% lower than the budgetary estimate through June. The Total Energy Unit Price includes a fixed block price, spot energy price, transmission & distribution charges, and ancillary charges.

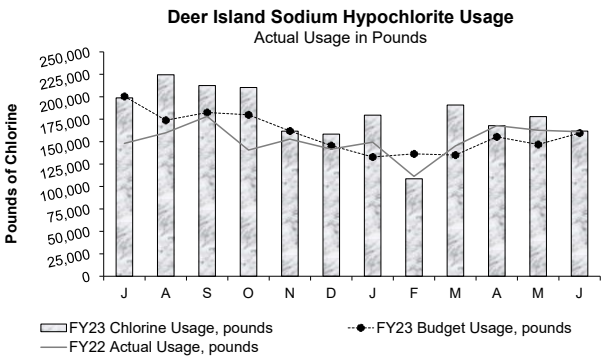


Year-to-date Total Cost of Electricity is estimated to be $1,100,823 (9.2%) higher than budgeted through June. The actual Total Cost of Electricity is depicted for July through April (months with the latest available unit prices), while the May and June Costs of Electricity are estimated due to a billing delay with Direct Energy (NRG). Even though the estimated Total Energy Unit Price through June was 1.9% lower than target, the Total Volume of Electricity Purchased was 11.3% above target due mainly to higher-than-expected overall power usage as a result of higher plant flows.

Deer Island Operations

4th Quarter - FY24





The disinfection dosing rate in the 4th Quarter was within 2.0% of target with budgetary estimates even as plant flow was 9.1% higher than expected due to multiple heavy rain events. As a result, sodium hypochlorite usage in pounds of chlorine was 9.9% higher-than-target . DITP maintained an average disinfection chlorine residual of 0.60 mg/L with an average dosing rate of 1.97 mg/L as chlorine demand was 1.37 mg/L. On March 4, the disinfection basin effluent total chlorine residual target for dry weather flows was increased from 0.30 mg/L to greater than or equal to 0.50 mg/L in preparation for potential new NPDES seasonal permit limits for indicator bacteria. The purpose for the higher chlorine residual target (and higher sodium hypochlorite dosing) is to continue developing operating strategies for the new draft permit, an effort that was also undertaken in 2023. **Overall for FY24, the disinfection dosing rate of sodium hypochlorite was within 3.0% of the budgetary estimate.**

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

Secondary Blending Events

Month	Count of Blending Events	Count of Blending Events Due to Rain	Count of Blending Events Due to Non-Rain-Related Events	Secondary, as a Percent of Total Plant Flow	Total Hours Blended During Month
July	8	8	0	98.4%	27.30
August	3	3	0	99.1%	13.32
September	2	2	0	99.4%	12.36
October	0	0	0	100.0%	0.00
November	0	0	0	100.0%	0.00
December	3	3	0	96.7%	53.67
January	5	5	0	94.9%	90.09
February	0	0	0	100.0%	0.00
March	6	6	0	96.9%	63.77
April	3	3	0	97.4%	57.10
May	1	1	0	99.6%	4.74
June	1	1	0	99.8%	4.07
Total	32	32	0	98.2%	326.43

98.7% of all flows were treated at full secondary during the 4th Quarter. There were a total of five (5) secondary blending events due to high plant flows from heavy precipitation. These blending events resulted in 65.91 hours of blending and a total of 413.61 MGal of primary-only treated effluent blended with secondary effluent.

Overall in FY24, 98.2% of all flows received full secondary treatment, as there were 32 secondary blending events totaling 326.43 hours of blending and a total of 2,462.51 MGal of primary-only treated effluent blended with secondary effluent. All secondary blending events were due to high plant flows resulting from heavy precipitation, sometimes in combination with snow melt.

The Maximum Secondary Capacity during the entire FY24 was 700 MGD and secondary permit limits were met at all times throughout FY24.

Deer Island Operations & Maintenance Report

Environmental/Pumping:
The plant achieved an instantaneous peak flow rate of 1,145.6 MGD during the early afternoon of April 4. This peak flow occurred during a storm event that brought 1.56 inches of total precipitation to the metropolitan Boston area during the course of three (3) days. The Total Plant Flow in the 4th Quarter was 9.1% above the 4 year average plant flow target for the quarter as precipitation was 12.3% higher than the 4 year average (11.82 inches actual vs. 10.53 inches expected).

Disinfection/Dechlorination:
MWRA uses sodium hypochlorite to destroy pathogens in plant effluent after primary and secondary treatment. Indicator bacteria such as Fecal Coliform, E. coli, and Enterococcus are used to measure the presence of potential pathogens. To provide a proper pathogen kill, sodium hypochlorite, a disinfectant, is added to meet a chlorine demand then regulated by maintaining a chlorine residual. On March 4, the disinfection basin effluent total chlorine residual target for dry weather flows was increased to greater than or equal to 0.50 mg/L in preparation for potential new NPDES seasonal permit limits for indicator bacteria. The purpose for the higher chlorine residual target (and higher sodium hypochlorite dosing) is to continue developing operating strategies for the new permit, an effort that was also undertaken in 2023. DITP maintained an average disinfection chlorine residual of 0.60 mg/L with an average chlorine demand of 1.37 mg/L, with the adjusted higher target during the 4th Quarter. Higher usage of both sodium hypochlorite and sodium bisulfite, used for removing the residual chlorine before discharging the effluent, will be necessary in order to comply with the more stringent indicator bacteria limits in the proposed new NPDES permit.

Primary Treatment:
The contractor started the Clarifier Rehabilitation Project (Contract #7395) on May 15 by completing sump pump work that allowed the Primary Influent Channel A to be fully isolated during the clarifier rehabilitation work. Work completed through the end of June included putting all 96 primary influent gates in place, installing a new aeration header system, completing the installation of approximately 40% of the lower aeration system and 70% of the Linabond repair work, installing drains between Batteries A and B, among other work. Also in progress is work on the effluent gates, hatch and grating modifications, and expansion joint repairs. The contractor expects to complete this phase of work by the 42 calendar day milestone period.

Secondary Treatment:
Annual turnaround maintenance on Train #2 in the Cryogenic Oxygen Facility began on April 29 and was completed on May 10. This two (2) week turnaround maintenance is performed on roughly half of the components and systems in the Cryogenic Oxygen Facility. During this turnaround maintenance, the service contractor calibrated all the instrumentation on Cold Box unit #2 as well as, a number of other components of the oxygen plant. Train #1 with Cold Box unit #1 was placed into operation starting on April 21 to allow Cold Box #2 to be taken out of operation for the scheduled maintenance. The same turnaround maintenance will be completed on Train #1 in the fall.

Deer Island Operations & Maintenance Report (continued)

Odor Control Treatment:
Emissions compliance testing for the West Odor Control (WOC) treatment system at DITP was conducted by a contractor on June 6. The WOC treatment system treats process air from the South System Pump Station, Primary Batteries C and D, and the West Grit Facility. The DITP Air Quality Operating Permit issued by the MA DEP requires that DITP conduct emissions compliance testing for the various odor control emission units once every five (5) years to demonstrate compliance with applicable total reduced sulfur (TRS) and non-methane hydrocarbon (NMHC) emission limits. This testing requires the continuous emissions monitoring of the inlet and outlet of the odor control treatment system during three (3) separate, one (1) hour test runs for TRS at the outlet (stack) of the odor control system and for NMHC at each of the inlets. All preliminary emissions test results show that DITP was in compliance with the permit limits. The final report summarizing the test results will be prepared by the contractor and submitted to the MA DEP following review by DITP staff.

The odor control fan for wet chemical scrubber #1 in the East Odor Control (EOC) Facility, which handles the Primary A & B airflows, tripped unexpectedly at 8:29 a.m. on May 7 while maintenance was being performed in the facility. The fan was taken out of automated control and was being operated manually prior to the fan trip to allow staff to perform maintenance on the automated control system. The fan tripped unexpectedly and staff returned the fan to operation within 39 minutes. All the airflow fans in the facility were later taken out of operation briefly for 16 minutes while staff completed the maintenance on the control system. The scrubber #1 fan for the Primary A & B airflow treatment was offline for a combined total of 55 minutes as a result of the two (2) separate fan shutdowns.

The West Odor Control (WOC) Facility was taken offline for maintenance purposes on May 22 for a total shutdown of 54 minutes. The airflow shutdown allowed staff to safely move an isolation blank from the inlet duct for the wet chemical scrubber #2 fan to the duct for the scrubber #3 fan in order to replace the spray nozzles in scrubber #3. Process air was contained within the building and there were no odor complaints received as a result of either of these two (2) odor control treatment system shutdowns.

Carbon adsorber (CAD) units #3 and #4 in the North Pumping Odor Control (NPOC) Facility, units #4, #5, #7 and #8 in the West Odor Control (WOC) Facility, and units #2 and #4 in the Residuals Odor Control (ROC) Facility were emptied and refilled with new regenerated activated carbon media this quarter as part of routine maintenance to replace spent activated carbon.

Energy and Thermal Power Plant:
Overall, total power generated on-site accounted for 26.1% of Deer Island's total power use in the 4th Quarter. Renewable power generated on-site (by Solar, Wind, STGs, and Hydro Turbines) accounted for 24.0% of Deer Island's total electrical power use for the quarter.

DITP took delivery of 300,000 gallons of #2 fuel oil, a total of 31 oil tanker trucks, without incident from May 6 through May10. This fuel oil is used for CTG operation, for boiler startup operations, and for supplemental fuel for boiler operation during periods of low or unstable digester gas production.

Boiler 201 in the Thermal Power Plant (TPP) was taken offline in the late evening of May 27 to allow the steam system to cool sufficiently overnight before the contractor and DITP Maintenance staff could proceed with the annual dump condenser cleaning on May 28, prior to placing the steam system in summer (vacuum) operating mode. Boiler 201 was returned to operation later in the evening, following the dump condenser work, to restore steam production and steam turbine power generation. The TPP began operating the steam system in summer mode starting on May 29 to maximize the energy generation from the steam turbines during the seasonally lower plant heat demand period.

This summer, DITP is enrolled in an Eversource Connected Solutions Curtailment (Demand Response) program to reduce a portion of DITP's load from the regional electrical grid during peak energy usage periods. In this program only green energy can be used to offset a committed energy demand or the load shed can be achieved by curtailing existing energy demand sources. DITP is enrolled in this program by curtailing the cryogenic oxygen generation process. To be successful, the oxygen generation process would be taken onffline for the few hours of an event to defer 1.5 MW of power demand. From a treatment perspective, staff would use stored liquid oxygen that was previously produced and stored in the Liquid Oxygen (LOX) tank to feed the secondary activated sludge without impact to the process during this short interruption, then reactivate the cryogenic compressors after the event has ended to restore normal operation. DITP participated in this program during the summer of 2023 and earned over $46,000 by participating. The cryogenic oxygen generation process was taken offline for three (3) hours from 5 p.m. to 8 p.m. on June 20 for an Eversource demand response called event.

CTG-1A was operated for approximately 2.1 hours on June 11 for an ISO-New England demand response summer audit . The performance on this audit determines DITP's demand response program payment for the next six (6) months. On June 18, DITP participated in the first ISO-NE demand response event of the season and operated CTG-1A for approximately 1.8 hours.

The Wind Turbine Maintenance contractor performed a quarterly inspection of Turbine #2 on June 25 and completed minor mechanical repairs on June 26 that were warranted due to findings from the inspection. The turbine was offline for approximately 19.5 hours.

Clinton Operations & Maintenance Report

Dewatering Building
Maintenance staff and the Facilities Specialist changed wash box seals on the #2 sludge press. They also brought #2 gravity thickener squeegee and rake assembly back on line with beach plate and welded C-channels solidly together. Then they changed out the drive motor on the #1 sludge thickener pump. Plant staff cleaned the polymer containment area and the probes on the mixing tank. M&O's and Deer Island jet vactor truck crew cleaned the gravity thickener scum well and jetted the gravity thickener scum troughs. The contractor worked on the dry polymer feed probe in the Dewatering Building.

Chemical Building
The M&O's cleaned the soda ash hatch cover on top of the silo to ensure proper seal. They also removed the discharge piping on soda ash pump #1 and cleaned out the hard soda ash that was inside the piping. Maintenance staff installed a new #1 Bisulfite pump and repaired a dampener on the #2 Bisulfite pump. Staff also checked the plant equipment for proper operation & lubrication.

Aeration Basins
Operations staff cleaned the pH and D.O. probes. They also washed down all three (3) aeration tanks. The contractor replaced the pH probes on aeration tanks #2 and #6.

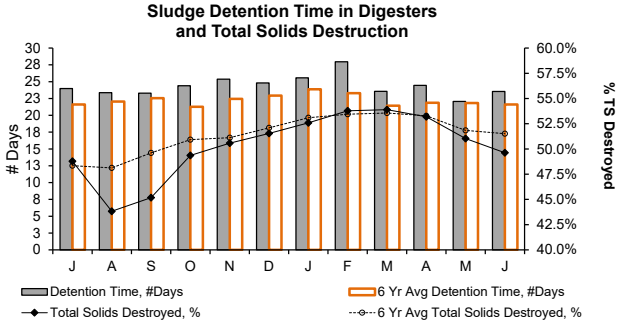
Phosphorus Reduction Facility (PRF)
Maintenance and Operations staff completed an acid wash of the troughs for all three (3) filters. They also washed down the #2 rapid mix, coagulation, and flocculation tank train. Operations staff cleaned and changed reagents in both CL17 chlorine analyzers.

Headworks Building
M&O's and the Facilities Specialist removed and installed a new motor for the aerated grit removal system. They worked on repairing grit screw conveyor #2. The Facilities Specialist and the Maintenance staff cleaned the mechanical bar rack and greased the upper and lower pin rack. They also replaced both springs on the mechanical bar rack.

Digester Building
The M&O's completed an overhaul of the #3 sludge recirculation pump. Maintenance staff checked all equipment for proper operation. They also greased the Ovivo mixer on the floating cover. Deer Island's B&G staff cleaned the old sludge off the top of the floating cover digester. The contractor adjusted the settings and performed a combustion analysis on the #1 sludge boiler. They also dismantled the valve on the #2 sludge boiler and did not find a cause for the temperature mixing problem.

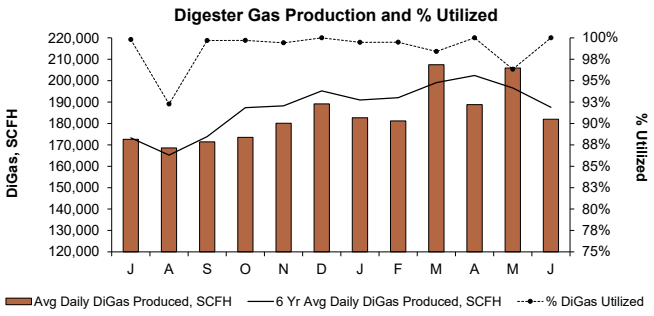
Deer Island Operations and Residuals

4th Quarter - FY24



Total solids (TS) destruction following anaerobic sludge digestion averaged 51.3% during the 4th Quarter, within 1.8% of target with the 6 year average. Sludge detention time in the digesters was 23.4 days, 7.3% above the 21.8 days, even though the number of digesters in operation was on target with budgetary estimates. **Overall for FY24, TS destruction averaged 50.3%, 2.2% lower than the 51.4% target.**

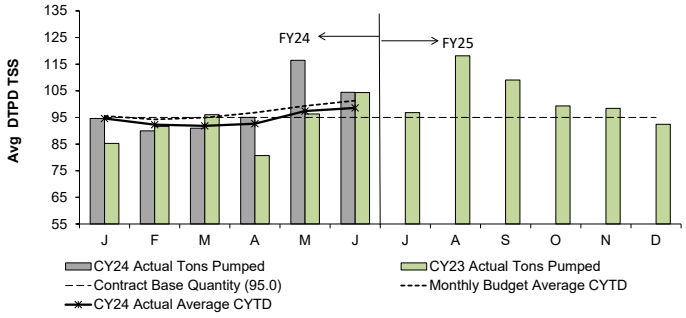
Total solids (TS) destruction is dependent on sludge detention time which is determined by primary and secondary solids production, plant flow, and the number of active digesters in operation. Solids destruction is also significantly impacted by changes in the number of digesters and the resulting shifting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



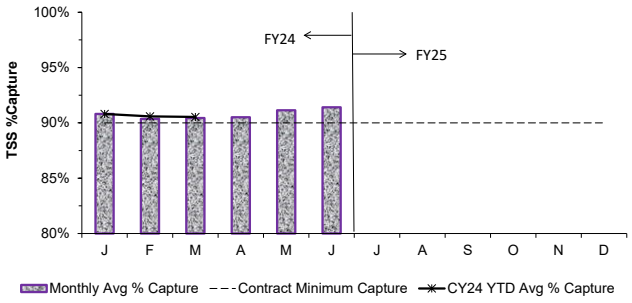
The Avg Daily DiGas Production in the 4th Quarter was 1.7% below target with the 6 Year Avg Daily DiGas Production as total sludge production was lower than target. 98.8% of the DiGas produced was utilized at the Thermal Power Plant (TPP). **Overall for FY24, DiGas Production was within 2.2% of target and 98.7% of the DiGas produced was utlized at the TPP.**

Residuals Pellet Plant

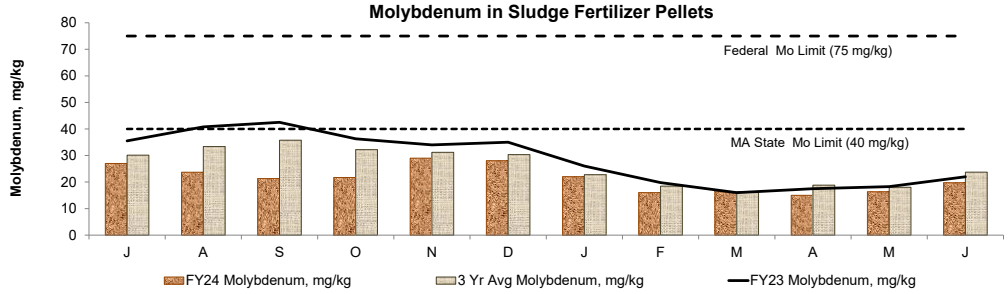
New England Fertilizer Company (NEFCO), a wholly-owned, indirect subsidiary of Synagro Technologies, Inc., operates the MWRA Biosolids Processing Facility (BPF) in Quincy under contract. MWRA pays a fixed monthly amount for the calendar year to process up to 95.0 DTPD/TSS as an annual average (for the extended contract period of January 1, 2024 through December 31, 2034). The monthly invoice is based on 95.0 DTPD/TSS (Dry Tons Per Day/Total Suspended Solids) times 365 days divided by 12 months. At the end of the year, the actual totals are calculated and additional payments are made on any quantity above the base amount. On average, MWRA processes more than 95.0 DTPD/TSS each year (FY24's budget is 103.2 DTPD/TSS and the FY25 budget is 102.5 DTPD/TSS).



The average quantity of sludge pumped to the Biosolids Processing Facility (BPF) in the 4th Quarter was 105.3 TSS Dry Tons Per Day (DTPD), within 2.2% of target with the FY24 budget of 107.7 TSS DTPD for the same period. The overall CY24-to-date average quantity of sludge pumped is 98.64 DTPD, 4.5% below target compared to the CY24-to-date average budget of 103.2 DTPD.



The contract requires NEFCO to capture at least 90.0% of the solids delivered to the Biosolids Processing Facility. The average capture for the 4th Quarter was 91.02% and the CY24-to-date average capture is 90.78%.



Copper, lead, and molybdenum (Mo) are metals of concern for MWRA as their concentrations in its biosolids have, at times, exceeded regulatory standards for unrestricted use as fertilizer. Molybdenum-based cooling tower water is a significant source of Mo in the sludge fertilizer pellets. The Federal standard for Mo is 75 mg/kg. The Massachusetts Type I biosolids standard for molybdenum was changed from 25 mg/kg to 40 mg/kg in 2016, allowing MWRA to sell its pellets in-state for land application whereas the previous limits forced several months' worth of pellets to be shipped out of state.

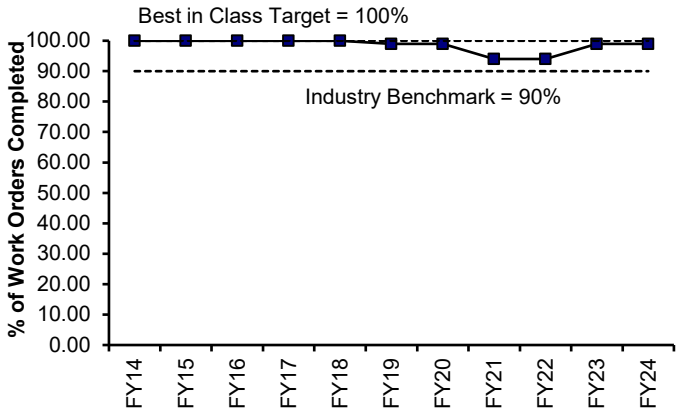
Overall, the levels have been below the DEP Type 1 limit for all three (3) metals. For Mo, the level in the MWRA sludge fertilizer pellets during the 4th Quarter averaged 17.0 mg/kg, 16% below the 3 year average, 47% below target with the MA State Limit, and 72% below the Federal Limit. **Overall for FY24, the Mo level in the pellets averaged 21.3 mg/kg, 47% below the MA State Limit, and 72% below the Federal Limit.**

Deer Island Yearly Maintenance Metrics

FY24

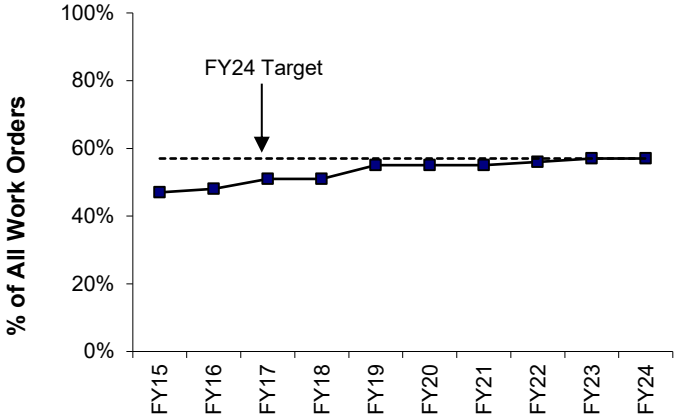
Proactive and Productivity Measures

Preventative Maintenance



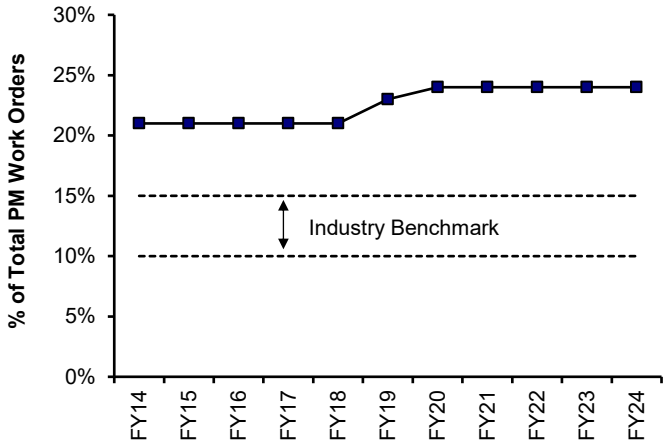
The industry benchmark is 90% for Preventative Maintenance (PM) completion. Upon reaching the 90% goal in FY05, the target goal was increased to the "Best in Class" Target of 100% PM completion. Reliability-Centered Maintenance (RCM) and PM optimization efforts have continued. PM completion rate was 99% in FY24.

Maintenance Kitting



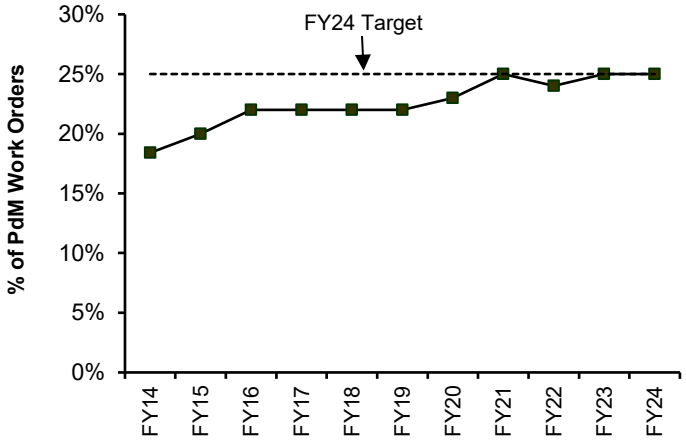
Preventive Maintenance (PM) inventory items were loaded into Maximo to assign spare parts for equipment to PM work orders. DITP reached the PM kitting goal of 100%. In FY12 a new graph was developed to track kitting of all maintenance work orders in an effort to increase wrench time. Staff continues to fine-tune the process to "kit" all maintenance work orders. Kitting is considered a best practice by maintenance and reliability professionals. It entails staging parts necessary to complete maintenance work. Kitting allows maintenance staff to spend more time "turning the wrench" and less time waiting for parts at the stockroom window. Kitting for FY24 was 57%, meeting DITP's goal of 57%.

Operations Light Maintenance PMs



The percentage of preventive maintenance work orders completed by Operations staff (non maintenance staff) increased from less than 1% in January 2002 to the current level of 24% in FY24. DITP reached the industry benchmark range of 15% and has exceeded the goal through FY24.

Predictive Maintenance

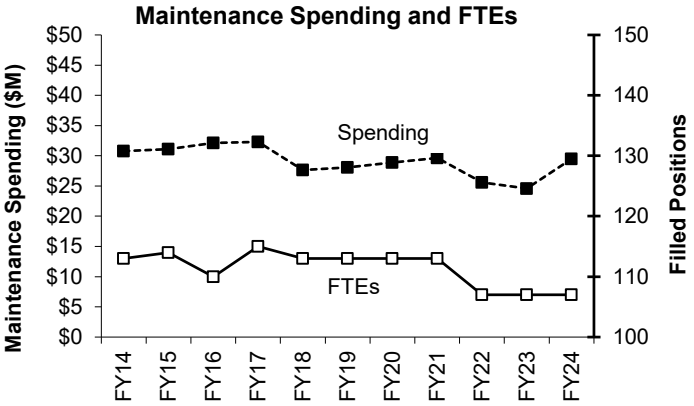


Predictive maintenance has steadily increased from 2% in FY03 to 25% in FY24, DITP met the FY24 goal of 25%. This percentage in predictive maintenance was achieved through the expanded use of lubrication, vibration, thermography, and acoustic ultrasonic testing techniques. The Condition Monitoring Group continually reviews and investigates new opportunities and initiatives to expand condition monitoring testing and analysis.

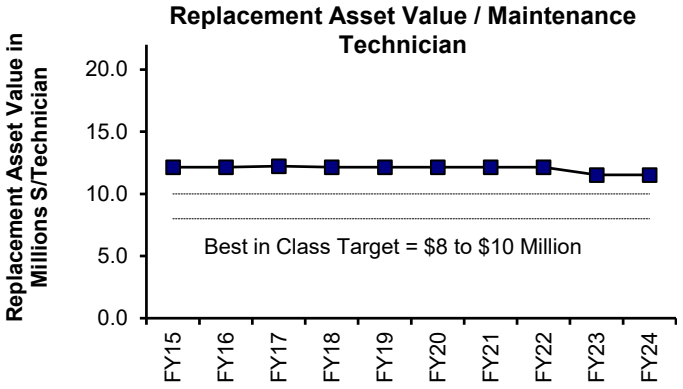
Deer Island Yearly Maintenance Metrics

FY24

Overall Maintenance Program Measures

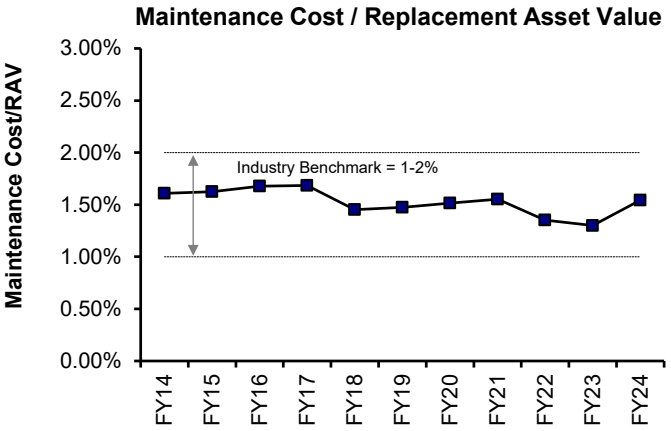


DITP's Maintenance staff is currently at 107 FTE's. Maintenance staff levels ended at 107 due to retirements and hiring challenges for trades personnel. Maintenance has worked to meet our goals though implementation of numerous maintenance efficiencies including: Operations performing light maintenance, cross-functional training and flexibility, and Reliability-Centered Maintenance. This year's overall Maintenance spending has increased.

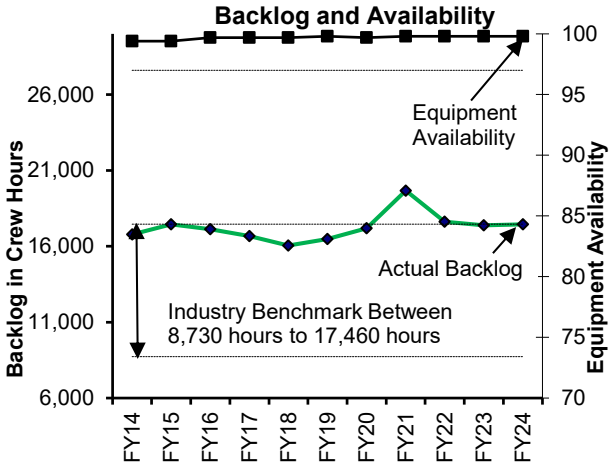


DITP adopted a "best in class" target of $8-$10 Million/Technician for maintenance staffing. DITP remains above this Best in Class. However, as the plant ages and additional equipment replacements are expected, DITP management will reassess staffing as needed.

The Maintenance Spending graph shows actual annual maintenance spending and CIP asset replacements (equipment costs only). Maintenance staff continues to evaluate plant assets and requirements for replacement of obsolete equipment to ensure the plant operates at maximum efficiency. In FY24, overall spending increased from FY23 due to the CIP Clarifier Rehab Project Spending. Maintenance staff replaced several electrical conduits, lights, outlets, and eyewash units (EWU) in the sodium hypochlorite containment area. Plumbers removed and replaced all the EWU and associated piping. Plumbing staff utilized Stainless Steel pro-press piping and fittings. Electrical staff removed all old conduit and wiring replacing with new conduits, conductors, LED lights, and outlets. All EWU shower included heat trace wiring. Instrument staff replaced sump pits level indicators. This will allow sump pit alarms to ring through to Primary Operations. HVAC staff changed out one R-410a 70-ton chiller and one Chilled Water Pump for the Digester Gas Cooling system.



The industry benchmark for annual maintenance spending is between 1% to 2% of replacement asset value, currently DITP is at 1.54%. The plant's replacement asset value is calculated at approximately $2.6 billion dollars. DITP's current maintenance spending is the industry benchmark. Overall maintenance spending has increased from last year. DITP Maintenance CEB spending is $24.3 million. CIP spending was $5.1 million (equipment costs only). CIP/CEB Spending totaled $29.5 million in FY24.



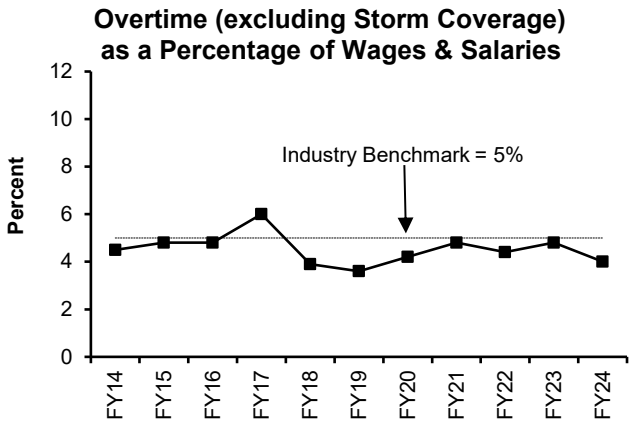
Industry benchmark for Equipment Availability is 97%. Deer Island has exceeded this benchmark over for the last ten years. In FY23 the availability was 99%. The high percentage in Equipment Availability during FY24 is due to redundancy of equipment and effective/efficient maintenance practices.

Industry Benchmark for Backlog is between 8,730 to 17,460 hours for maintenance based on current staffing, the total average backlog for FY24 was 17,411 hours, which is within the industry benchmark. DITP Maintenance has made significant progress to be within the Industry Benchmark.

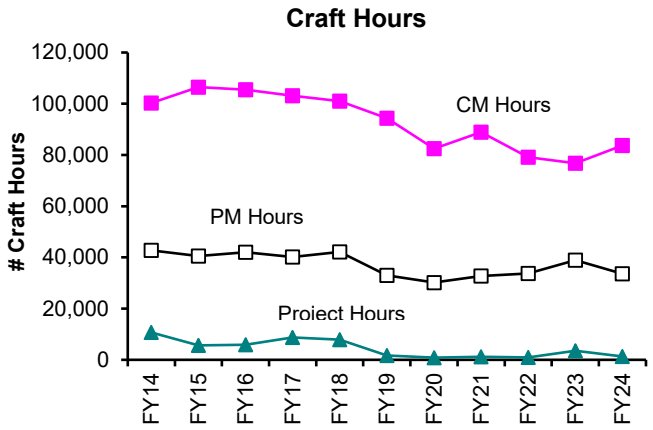
Deer Island Yearly Maintenance Metrics

FY24

Overall Maintenance Program Measures (cont.)



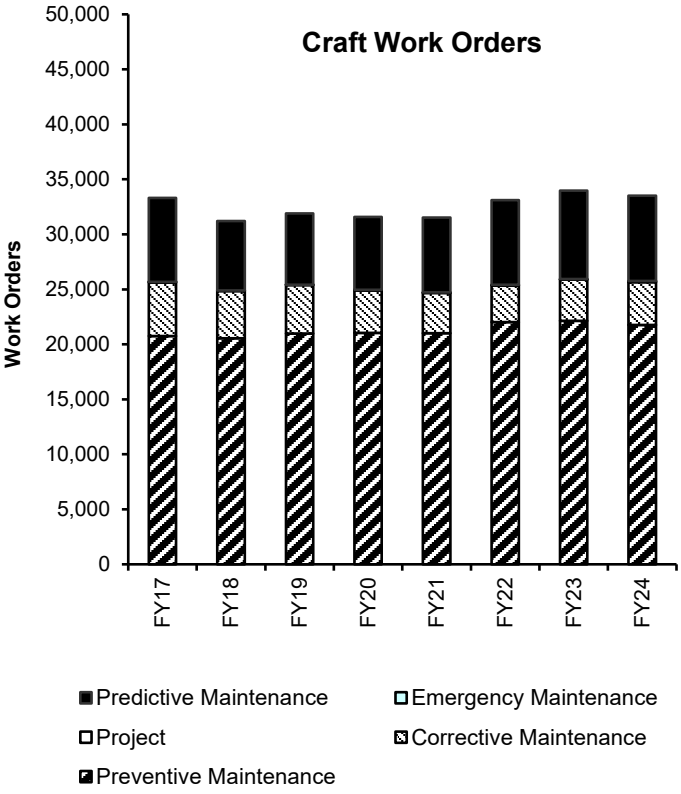
Management continues its effort to keep overtime below the industry benchmark. DITP maintenance overtime was 4.0% for FY24. Management has taken steps to reduce overtime spending by limiting overtime to repair critical equipment and systems only. DITP has been under the Industry Benchmark every year except FY17, due to the increase in overtime for the Eversource Cable Outage.



This year's increase in Corrective Maintenance (CM) hours was due to staff working on Clarifiers and unclogging pumps, grinders and piping due to rags.

This year's slight decrease in Preventive Maintenance (PM) was due to adjusting PM frequencies to meet plant needs. Staff continued to work on optimization of the Preventive Maintenance (PM) program

Maintenance did complete some significant maintenance work in FY24: Staff purchased fourteen low voltage Variable Frequency Drives (VFDs) for the Secondary return sludge system with a 50HP motor. The original VFDs were installed in the late 1990s and are failing, obsolete, and replacement parts are no longer available. DITP Medium Voltage staff installed all VFDs.
Residuals staff removed and replaced two digester mixers. The mixers were recommended for refurbishment based upon impeller and bearing wear, which was identified by vibration analyses. Mixers are critical to plant performance. It provides the driving force for mixing the digester content and ensuring a uniform temperature within the sludge mass.
Mechanical staff changed out numerous in-line grinders due to the additional clogging due to wipes in the system.

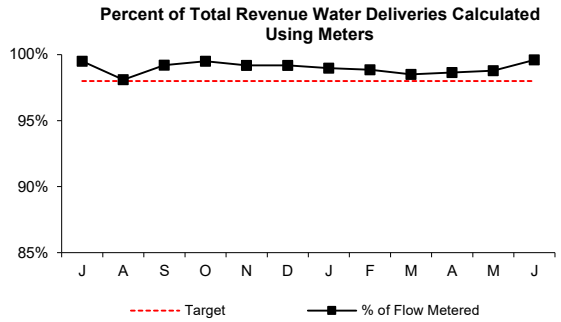


During FY24, the overall number of work orders slightly decreased from the previous year. The Work Coordination department is continuously modifying PM, PdM, and CM Job Plans to ensure maintenance is being performed efficiently and effectively, while ensuring reliability and availability of DITP's Assets.

Operations Division Metering & Reliability

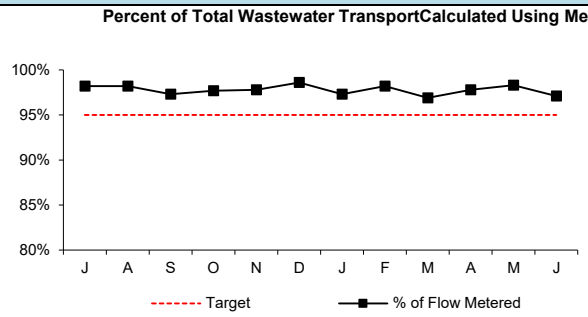
4th Quarter - FY24

WATER METERS



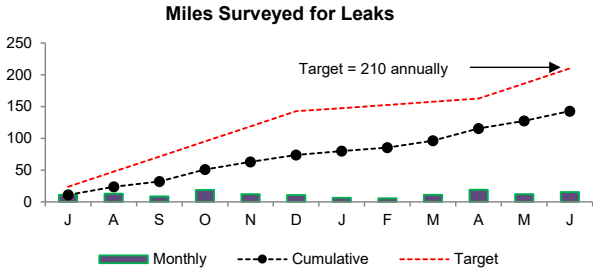
The target for revenue water deliveries calculated using meters is 98%. Estimates are generated for meters that are out of service due to instrumentation problems or in-house and capital construction projects. During Q2 CY2024 (Q4 FY24), 99.1% of the water billed was metered flow.

WASTEWATER METERS



The wastewater metering system is now operating in a typical mode following closeout of the replacement project. The target for revenue collection meters is a 95% capture rate which has been achieved consistently since the new meters have been online. In Q2 CY2024 (Q4 FY24), 2.1% of the data required estimates, while 97.9% was metered.

WATER DISTRIBUTION SYSTEM PIPELINES



During 4th Quarter - FY24, 46.4 miles of water mains were inspected. The total inspected for the fiscal year to date is 142.8 miles.

Leak Backlog Summary

Month	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	March	April	May	June	Totals
Leaks Detected	1	1	0	0	0	1	1	2	1	0	0	0	7
Leaks Repaired	1	1	0	0	0	0	1	1	2	0	1	0	7
Backlog	0	0	0	0	0	1	0	1	1	0	0	0	n/a

During the 4th Quarter - FY24 no leaks were detected, and one leak was repaired. Refer to FY24 Leak Report below for details. Also, community service ranging from individual leak location to surveys were conducted for Medford, Chelsea, Everett, Winthrop, Stoneham, Revere, Winchester and Boston.

4th Quarter - FY24

Date Detected	Location of Leaks	Repaired
07/12/23	853 Lynnway, Lynn	07/14/23
08/11/23	Morton St @ Westv Main St., Mattapan	08/11/23
12/29/23	136 Quinobequin Rd, Newton	02/01/24
01/22/24	Cottage Farm, Cambridge	01/23/24
02/29/24	River Rd @ Bright St Waltham	03/13/24
03/05/24	150 Charles St, Malden	03/14/24
02/13/24	Brookline Ave @ Parkway Rd, Brookline	05/21/24

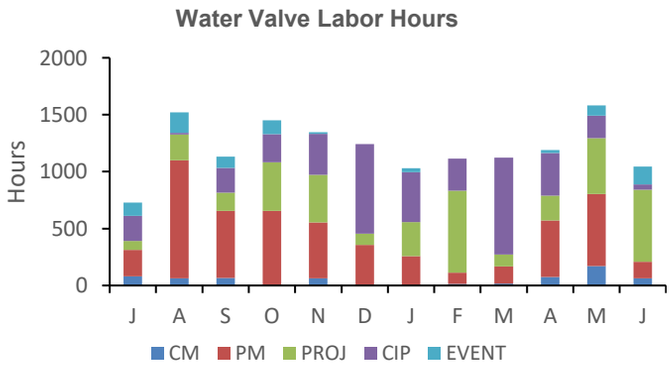
Date Detected	Location of Leaks/Unrepaired

Water Distribution System Valves

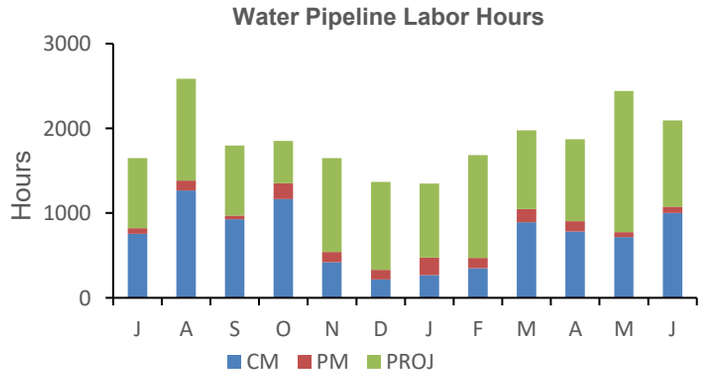
4th Quarter 2024 - FY24

Background

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

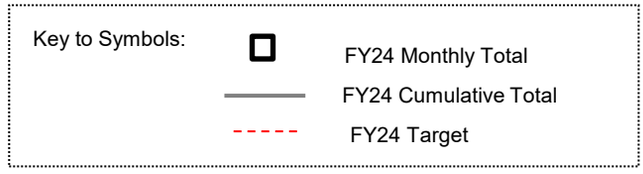


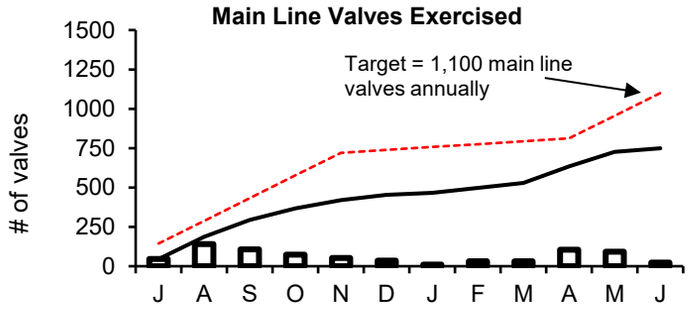
During the 4th quarter of FY24 there was a total of 3,819 hours worked. Percentage breakdown; Corrective Maintenance 3%, Preventative Maintenance 22%, Project 30%, Capital Improvement Project 44%, Event - Wtr Fountain 1%



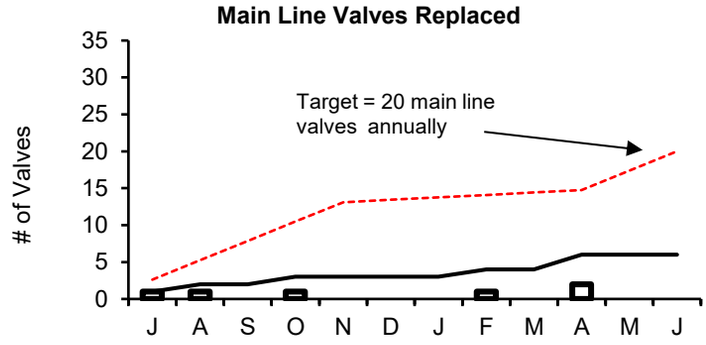
During 4th quarter of FY24 there was a total of 2,094 hours worked. Percentage breakdown; Corrective Maintenance 37%, Preventative Maintenance 7%, Project 56%

Type of Valve	Inventory #	Operable Percentage	
		FY24 to Date	FY24 Targets
Main Line Valves	2,254	97.2%	95%
Blow-Off Valves	1,746	98.9%	95%
Air Release Valves	1,545	96.6%	95%
Control Valves	49	100.0%	95%

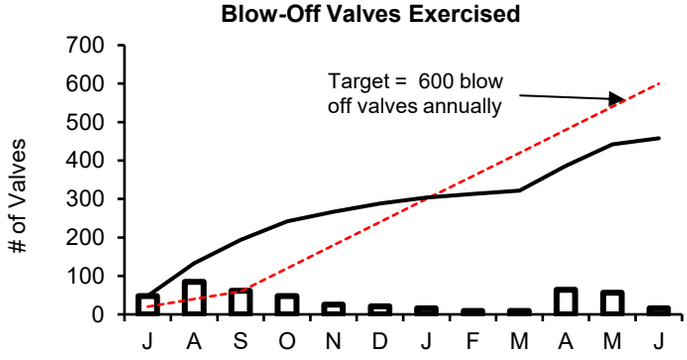




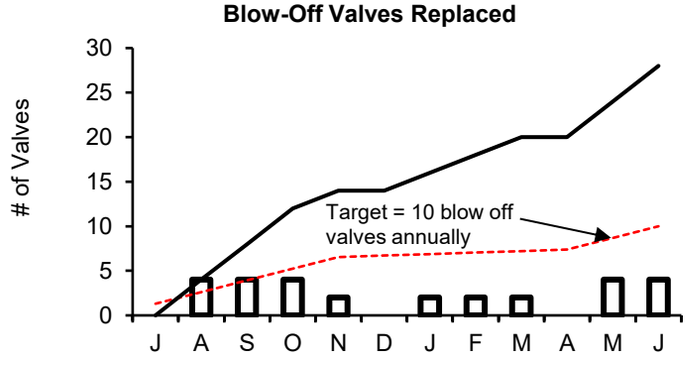
During 4th quarter of FY24, 220 main line valves were exercised. The total exercised for the fiscal year to date is 749.



During 4th quarter of FY24, there were 2 main line valves replaced. The total replaced for the fiscal year to date is 6.



During 4th quarter of FY24, 136 blow off valves were exercised. The total exercised for the fiscal year to date is 458.



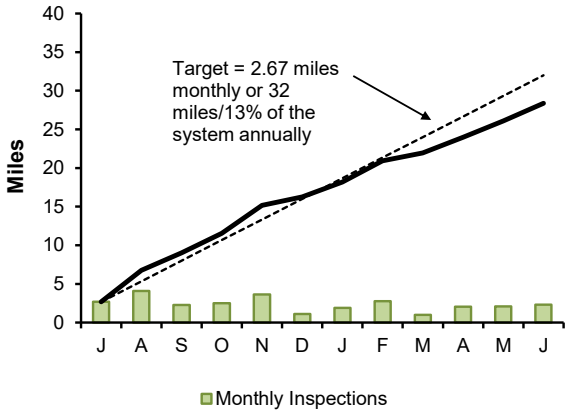
During 4th quarter of FY24, there were 8 blow off valves replaced. The total replaced for the fiscal year to date is 28.

Wastewater Pipeline and Structure Inspections and Maintenance

4th Quarter - FY24

Inspections

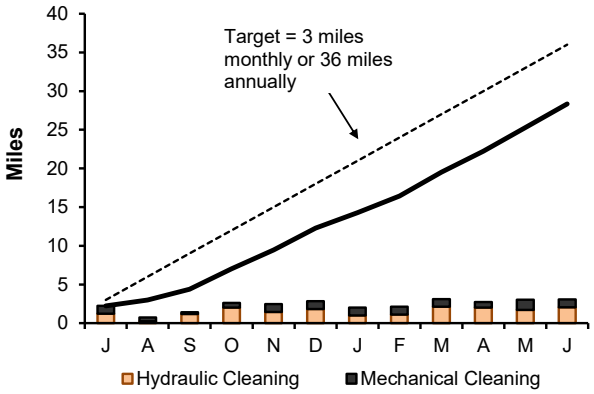
Pipeline Inspections



Staff internally inspected 6.44 miles of MWRA sewer pipe during this quarter.The year to date total is 28.38 miles. No Community Assistance was provided.

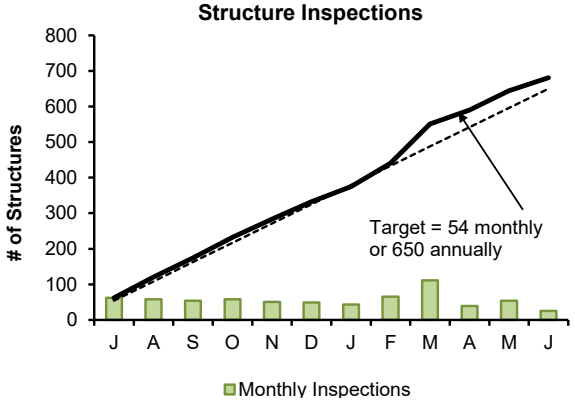
Maintenance

Pipeline Cleaning



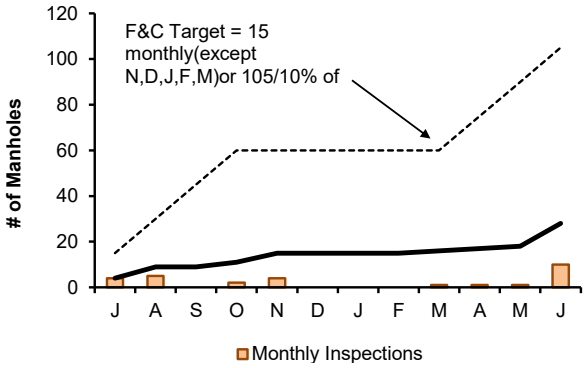
Staff cleaned 8.81 miles of MWRA sewer pipe, and removed 66 yards of grit. The year to date total is 28.34 miles. No Community Assistance was provided.

Structure Inspections



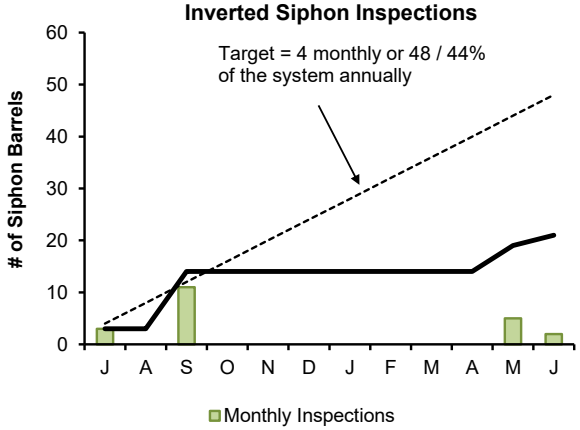
Staff inspected the 36 CSO structures and performed 94 other additional manhole/structure inspections during this quarter. The year to date total is 681 inspections.

Manhole Rehabilitation



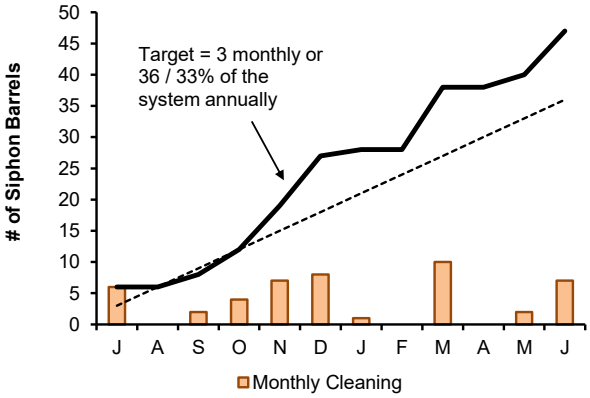
Staff replaced 12 frame and cover replacement this quarter.The year to date total is 28.

Inverted Siphon Inspections



Staff inspected 7 siphon barrels this quarter. The year total is 21 inspections.

Inverted Siphon Cleaning

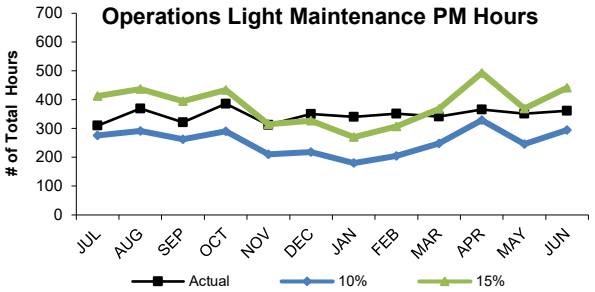


Staff cleaned 9 siphon barrels this quarter.

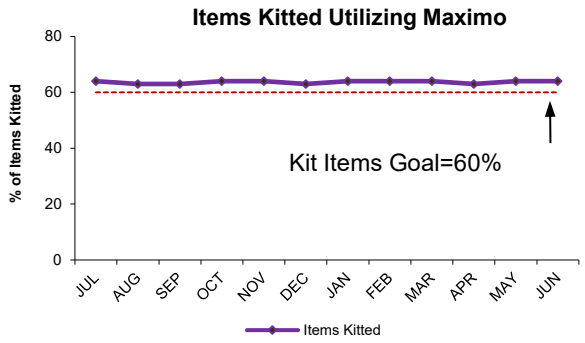
Field Operations' Metropolitan Equipment & Facility Maintenance

4th Quarter - FY24

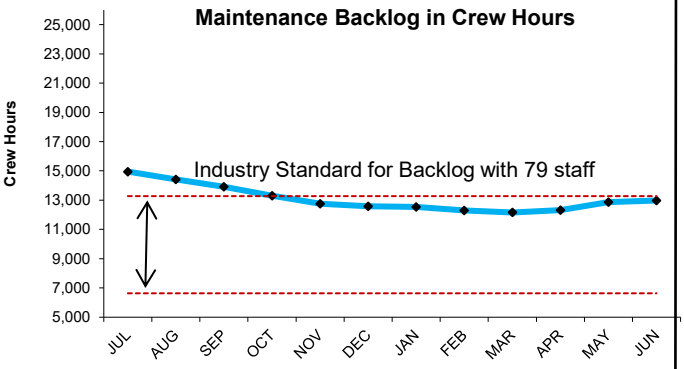
Several maintenance and productivity initiatives are in progress. The goal for the Overall PM completion and the Operator PM completion is 100%. The Operator PM and kitting initiatives frees up maintenance staff to perform corrective maintenance and project work, thus reducing maintenance spending. Backlog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



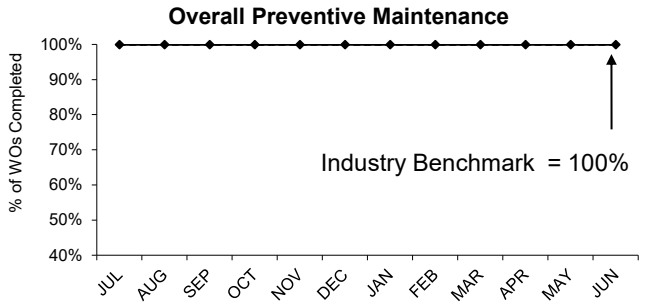
Operations staff averaged 360 hours per month of preventive maintenance during the 4th Quarter of FY24, an average of 12% of the total PM hours for the 4th Quarter, which is within the industry benchmark of 10% to 15%.



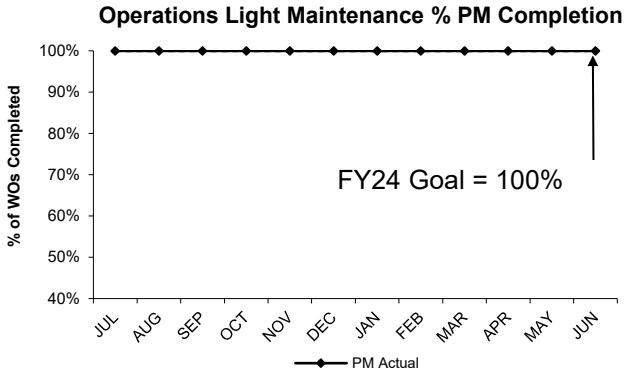
Operations' FY24 maintenance kitting goal has been set at 60% of all work orders to be kitted. Kitting is the staging of parts or material neccesary to complete maintenance work. In the 4th Quarter of FY24, 63% of all applicable work orders were kitted. This resulted in more wrench time and increased productivity.



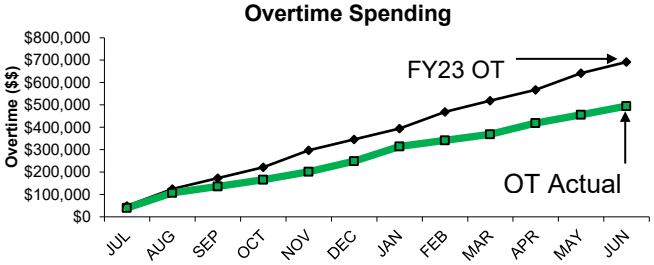
The 4th Quarter of FY24 backlog average is 12,721 hours. Which is within the industry benchmark of 6,636 to 13,275 hours. The current backlog is due to vacancies and several large maintenance projects.



The Field Operations Department (FOD) preventive maintenance goal for FY24 is 100% of all PM work orders. Staff completed 100% of all PM work orders in the 4th Quarter of FY24.



Wastewater Operations complete light maintenance PM's which frees up maintenance staff to perform corrective maintenance. Operations' FY24 PM goal is completion of 100% of all PM work orders assigned. Operations completed 100% of PM work orders in the 4th Quarter of FY24.

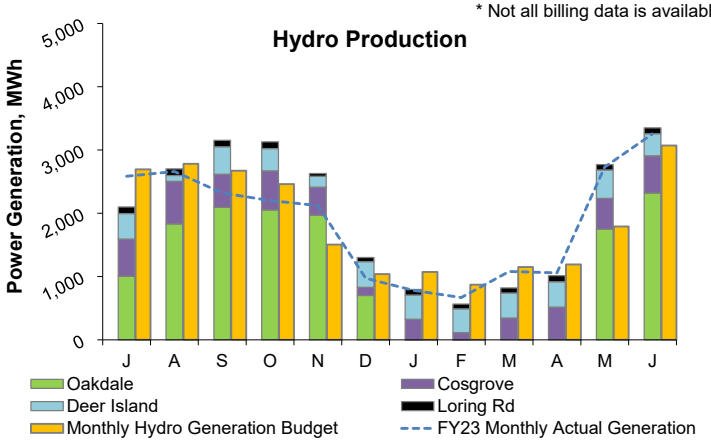


Maintenance overtime was $16,133 under budget on average, per month, for the 4th Quarter of FY24. Overtime is used for critical maintenance repairs and wet weather events. The overtime budget through the 4th Quarter of FY24 is $691,712. Overtime spending was $495,001 which is $196,711 under budget for the fiscal year.

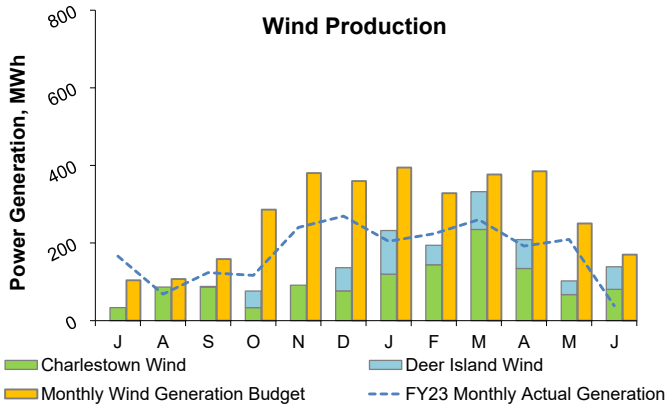
Renewable Electricity Generation: Savings and Revenue

4th Quarter - FY24

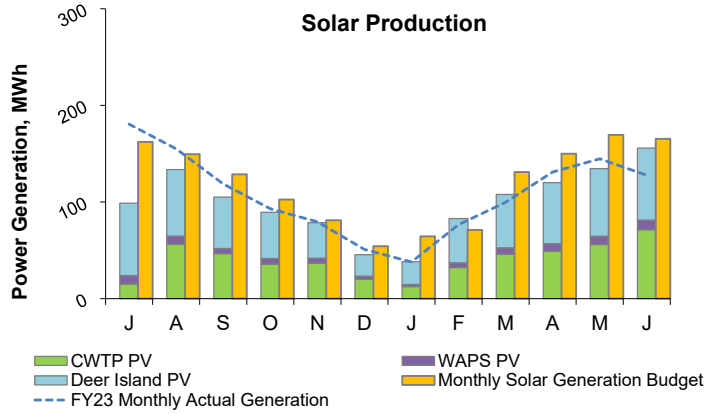
* Not all billing data is available for June. Some values are estimates.



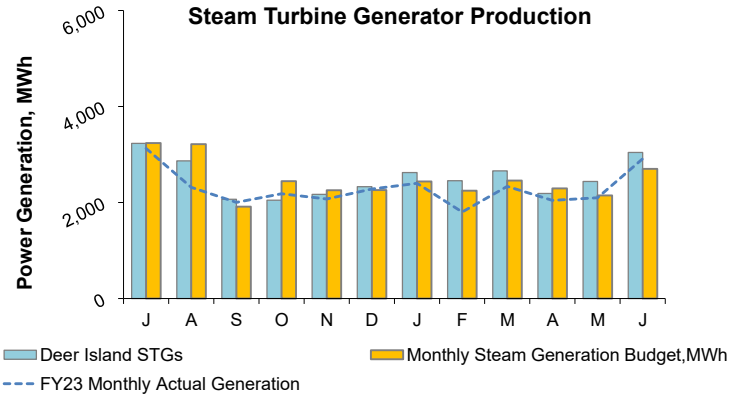
In the Quarter 4, the renewable energy produced from all hydro turbines totaled 7,239 MWh; 20% above budget[1]. However, values for the Oakdale turbines are internal estimates and not based on utility billing data.



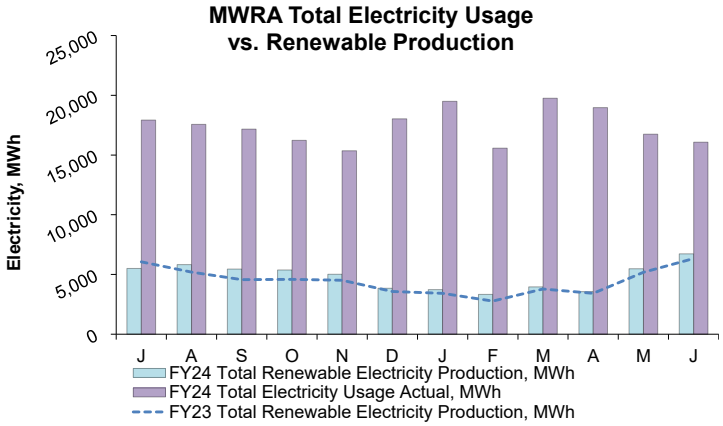
In Quarter 4, the renewable energy produced from all wind turbines totaled 139 MWh; 18% below budget[1]. Deer Island Turbine #1 has been out of service since April 2022, and was heavily damaged following a braking failure on May 29, 2023.

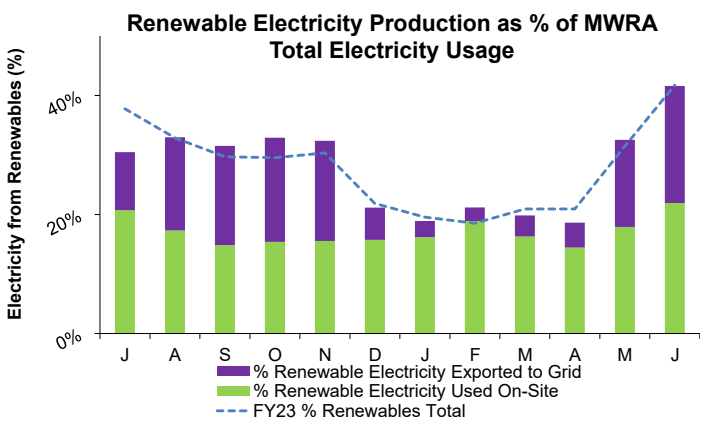


In Quarter 4, the renewable energy produced from all solar PV systems totaled 411 MWh; 15% below budget[1]. The Deer Island Residuals Odor Control roof mounted array has been offline since September 11, 2022 due to a failed inverter. An inverter was repaired at the CWTP array, restoring the system to full design capacity.



In Quarter 4, the renewable energy produced from all steam turbine generators totaled 7,671 MWh; 13% above budget[1].





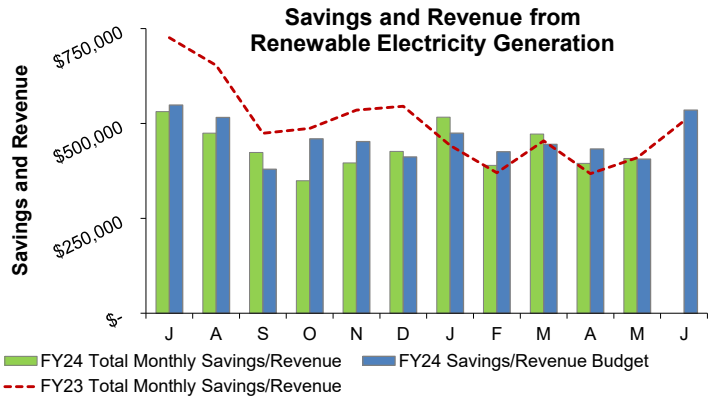
In Quarter 4, MWRA's electricity generation by renewable resources totaled 15,771 MWh, 9% above budget.* MWRA's total electricity usage was approximately 51,778* MWh. Renewable resources were 30.3% of total usage. The MWRA total electricity usage is the sum of all electricity purchased for Deer Island and FOD plus electricity produced and used on-site at these facilities. Approximately 99% of FOD electrical accounts are accounted for by actual billing statements; minor accounts that are not tracked on a monthly basis such as meters and cathodic protection systems are estimated based on this year's budget.
All renewable electricity generated on DI is used on-site (this accounts for more than 50% of MWRA renewable generation). Almost all renewable electricity generated off-DI is exported to the grid.

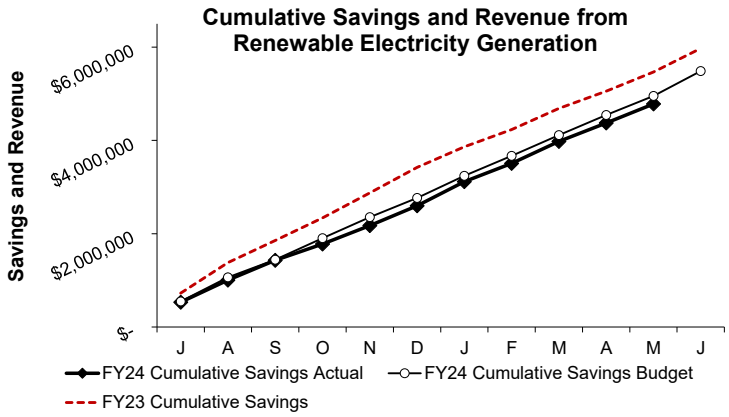
Notes: 1. Budget values are based on historical averages for each facility and include operational impacts due to maintenance work.

Renewable Electricity Generation: Savings and Revenue

4th Quarter - FY24

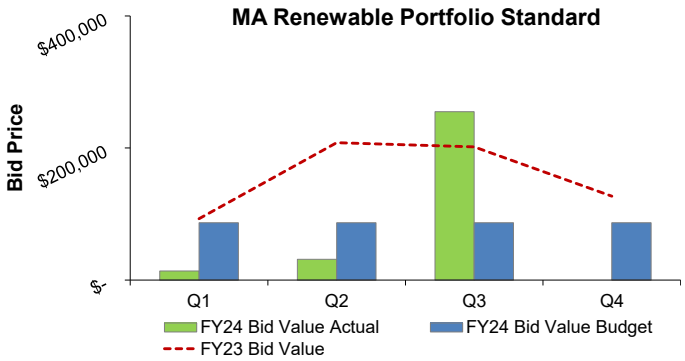
* Not all billing data is available for June. Some values are estimates.

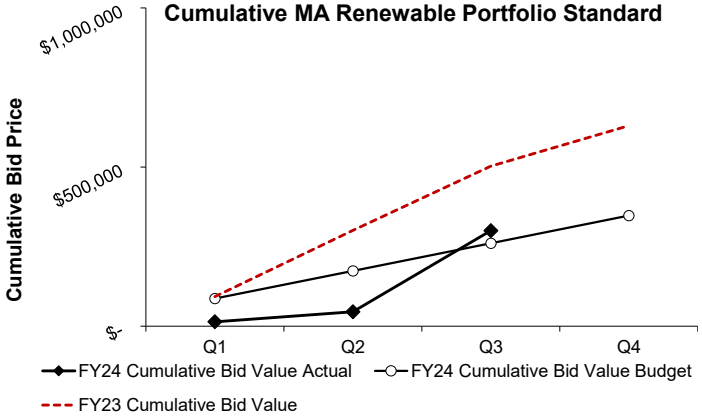




Savings and revenue from renewable energy sources totaled $407,697 in May. Not all data savings and revenue data for June has been received. Cumulative Savings and Revenue is 3% below budget for the fiscal year as of May.

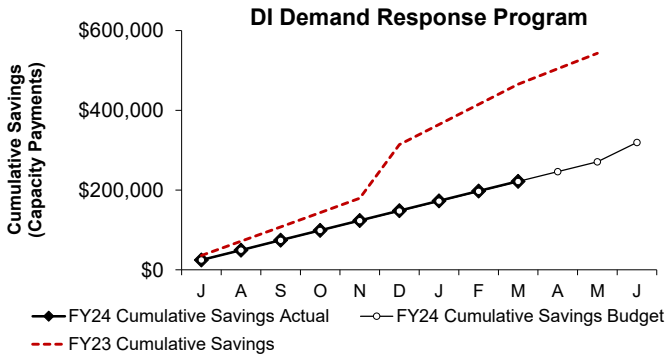
Savings and revenue[1] from all renewable energy sources include wind turbines, hydroelectric generators, solar panels, and steam turbines (DI). This includes savings and revenue due to electricity generation (does not include avoided fuel costs and RPS RECs).
The use of DITP digester gas as a fuel source provides the benefit of both electricity generation from the steam turbine generators, and provides thermal value

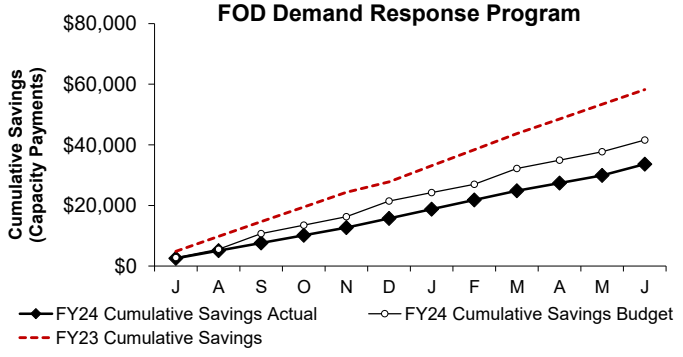




Bids were awarded during the 3rd Quarter[2] from MWRA's renewable energy assets; 479 Q2 FY23 Class I Renewable Energy Certificates (RECs); and 8,541 Q1 and Q2 FY24 Class 2 RECs were sold for a total value of $255,027 RPS revenue; which is 194% above budget[3] for the Quarter. Class 2 RECs are usually sold in Q2 but no qualifying bids were received, and banked RECs were sold in Q3. REC values reflect the bid value on the date that bids are accepted. Cumulative bid values reflects the total value of bids received to date.

*MWRA's SRECs have transitioned to the Class 1 REC category starting in FY23.



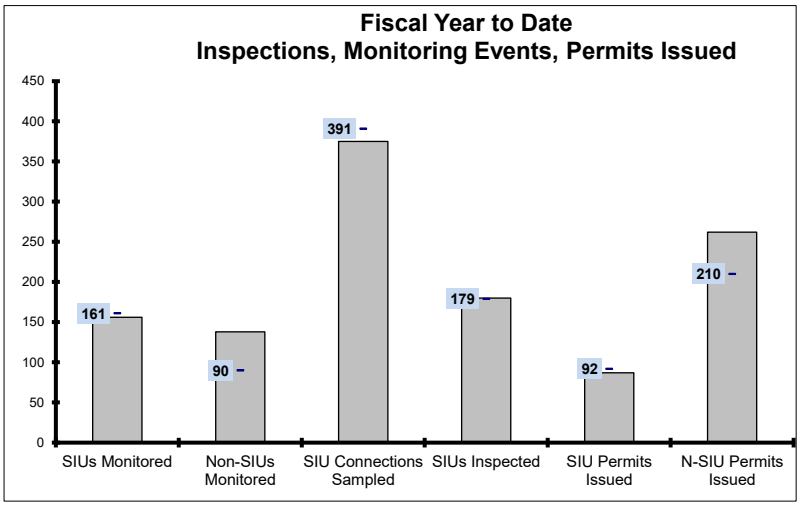


Currently Deer Island, Loring Rd, Brutsch Hydro, and JCWTP participate in the ISO-New England Demand Response Programs. By agreeing to reduce demand and operate the facility generators to help reduce the ISO New England grid demand during periods of high energy demand, MWRA receives monthly Capacity Payments from ISO-NE. When MWRA operates the generators during an ISO-NE called event, MWRA also receives energy payments from ISO-NE. Capacity Payments for Deer Island total $222,102 through March FY24, and payments for FOD total $33,639 YTD through June.

Notes:
1. Savings and Revenue: Savings refers to any/all renewable energy produced that is used on-site therefore saving the cost of purchasing that electricity, and revenue refers to any value of renewable energy produced that is sold to the grid.
2. Only the actual energy prices are being reported. Therefore, some of the data lags up to 3 months due to timing of invoice receipt.
3. Budget values are based on historical averages for each facility and include operational impacts due to maintenance work.

Toxic Reduction and Control

4th Quarter - FY24



EPA Required SIU Monitoring Events
for FY24: 161
YTD : **156**

Required Non-SIU Monitoring Events
for FY24: 90
YTD : **138**

SIU Connections to be Sampled
For FY24: 391
YTD: **375**

EPA Required SIU Inspections
for FY24: 179
YTD: **180**

SIU Permits due to Expire
In FY24: 92
YTD: **87**

Non-SIU Permits due to Expire
in FY24: 210
YTD: **262**

Significant Industrial Users (SIUs) are MWRA's highest priority industries due to their flow, type of industry, and/or their potential to violate limits. SIUs are defined by EPA and require a greater amount of oversight. EPA requires that all SIUs *with flow* be monitored at least once during the fiscal year.

The "SIU Monitored" data above, reflects the number of industries monitored; however, many of these industries have more than one sampling point and the "SIU Connections Sampled" data reflect samples taken from multiple sampling locations at these industries.

EPA requires MWRA to issue or renew 90 percent of SIU permits within 120 days of receipt of the application or the permit expiration date - whichever is later. EPA also requires the remaining 10 percent of SIU permits to be issued within 180 days.

Number of Days to Issue a Permit								
	0 to 120		121 to 180		181 or more		Permits Issued	
	SIU	Non-SIU	SIU	Non-SIU	SIU	Non-SIU	SIU	Non-SIU
Jul	1	3	0	1	0	0	1	4
Aug	5	7	0	1	0	1	5	9
Sep	14	28	0	3	0	0	14	31
Oct	11	34	0	1	0	1	11	36
Nov	15	24	1	2	0	2	16	28
Dec	3	10	0	2	0	0	3	12
Jan	0	0	0	0	0	0	0	0
Feb	0	1	0	0	0	0	0	1
Mar	12	35	1	10	0	10	13	55
Apr	6	14	1	0	0	0	7	14
May	9	21	1	1	0	12	10	34
Jun	6	21	1	5	0	13	7	39
% YTD	94%	75%	6%	10%	0%	15%	87	263

TRAC's annual monitoring and inspection goals are set at the beginning of each fiscal year but they can fluctuate due to the actual number of SIUs.

In addition to the Annual SIU inspections required under TRAC's EPA approved Industrial Pretreatment Program, other inspections are usually undertaken, including for enforcement, permit renewal, follow up, temporary construction dewatering sites, group/combined permit audits, spot, sampling locations, visit only and out of business facility.

Monitoring of SIUs and Non-SIUs is dynamic for several reasons, including: newly permitted facilities; sample site changes requiring a permit change; changes in operations necessitating a change in SIU designation; non-discharging industries; a partial sample event is counted as an event even though not enough sample was taken due to the discharge rate at the time; and sometimes increased/decreased inspections lead to permit category changes requiring additional monitoring events

This is the fourth quarter of the MWRA fiscal year, FY24.

In this quarter, 111 permits issued.
There were 24 SIUs, of which 21 were issued on time.
There were 87 non-SIUs of which 56 were issued on time, with 25 late beyond 180 days.

All but 3 of the SIU permits were issued within the 120-day timeframe. The 3 SIUs were issued after 120 days due to outstanding permit fees holding up the issuance of the permits.

In FY24, there have been 41 completely new permits issued: 8-LFLP, 2-02 N-SIUs, 21-Dental, 2-One Time discharge, 1-06 Septage, 7-02 SIU

For the Clinton Sewer Service area, there was 0 SIU permits issued during the FY24 fiscal year.

Permit Categories, as defined in CMR 10.101(2):

DEW - Category 12 Temporary Construction Site Dewatering Permit

LFLP - Category 10 Non-Significant Industrial User with Low Flow and Low Pollutant

02 N-SIU - Category 2 Non-Significant Industrial User

Dental - Category D1 Dental Group Permit

G2 - Category G2 Group Permit for Food Processing

METRO WATER OPERATIONS AND MAINTENANCE

Valve Program:

- Valve operations to support in-house work including providing isolations on: Blow off Replacements along Sections 73, 77, 94, 83A, and 70, as well as air valve replacement on section 87. CIP Contractors supported by isolation and dewatering of portions of Section 29 and 89 (Contract 7117), WASM 11 (Contract 6544), Section 23, 24 & 47 (Contract 6392) and WASM 4 and WASM 16 (Contract 7563). Other work included Meter 183 by-pass valve repair and Reservoir level management and mainline valve exercising of 17 water main sections.

Water Pipeline Program

- Staff completed Blow-Off replacements in Sections 70, 73, 77, 83A, and 94. Leak repairs were completed in Brookline on the Boylston Street Line. Leak detection was performed on over 46 miles of MWRA water main and assistance was provided to seven (7) customer communities.

SCADA

Water System Work

- Continued technical support for JCWTP PLC replacement project; continued work on network management improvements in the JCWTP water system; completed move into new control room at JCWTP; Supported soda ash improvements contractor at JCWTP; Continued support for the Wachusett Lower Gate House Project and Steel Tank Project; Rebuilt Sudbury Dam PLC; replaced processor and supported replacement of actuator at Reservoir 1; rebuilt water server in Chelsea OCC; replaced wireless routers at Newton St Pump Station and Gillis Pump Station. Successfully tested wireless backup at Nash Hill; replaced input module at Walnut Hill.

Wastewater System Work

- Configured and hardened SCADA Operating system; continued work on Ward/Columbus, Braintree/Weymouth Pump Station Improvements Project; improved alarming at Prison Point; installed and tested network SIEM on the wastewater network; improved security files at Cottage Farm CSO. Installed wireless routers at Caruso and DeLauri pump stations. Merged Nut Island Odor Control system into main SCADA system.

ENVIRONMENTAL QUALITY-WATER

- Algae: MWRA's algae monitoring season began this quarter with MWRA and DCR staff collecting algae samples at both reservoirs. All nuisance algae were below levels of concern and there were no algae related taste and odor complaints. Sampling staff conducted visual inspections for cyanobacteria at active and standby reservoirs, and commenced seasonal algal toxin screening.

- Regulatory Sampling: Staff collected samples for all quarterly monitoring programs including EPA's Unregulated Contaminant Monitoring Rule 5, Disinfection Byproducts Rule, and Optimal Water Quality Parameters. Sampling occurred for the Wachusett Aqueduct Pump Station Geothermal NPDES permit and the Carroll treatment plant NPDES permit, both related to half plant remediation operations.

- Non-Regulatory: MWRA voluntarily sampled at locations near residences with lead results over the lead action level from samples collected in March. All samples met pH and alkalinity targets. Staff conducted monthly sample collection for nitrification monitoring. Managers met with the DLS and Planning departments to review a recent AWWA Water Sciences *Legionella pneumophila* response plan article, and discuss plans to develop a response plan.

- Community Support: *Training & Guidance: S*taff trained Lynnfield Water staff on use of water quality field equipment. This field unit is available on loan to Lynnfield to test water routinely. Staff performed coliform sampler training with 22 attendees from MWRA and member communities. Staff met with Wayland's consultant to discuss water quality-monitoring plan for their transition to MWRA water supply. *Sampling:* Staff assisted Boston and Norwood with water quality complaints, and assisted the town of Bedford in Total Coliform and E.coli sample collection. Sampling staff performed

pipeline clearance sampling in Boston, Brookline, Newton, and Brighton.

- Projects: Staff performed routine sampling for the lead pipe-rig study at the Carroll Water Treatment Plant. Staff sampled for Legionella as part of collaborative research study with Georgia Tech and the University of Texas.
- Contaminant Monitoring System (CMS): This quarter, staff responded to seven CMS alarms and followed routine response protocols during each event. Staff relocated and tested the CMS mobile trailer. Staff assisted diving contractor with second quarterly dive inspection of the intake structure at the Wachusett Reservoir water quality monitoring shed. Staff also completed the installation and roll out of new CMS equipment at all sites in June.
- Wachusett & Quabbin Buoys: Staff successfully deployed three Wachusett buoys and one Quabbin buoy in April and May. All Buoys continue to conduct scheduled profiles on both reservoirs. A new fixed depth buoy was advertised for bidding by interested vendors.
- Data Management Group (http://wqdmgdev.mwra.net/): submitted monthly DEP and DPH reports on schedule and fulfilled 17 data requests. Staff reviewed draft guidance document and all other Consumer Confidence Report documents. All data from Chicopee's Total Coliform Rule program and MWRA's buoy water quality profiles are now stored in local databases and managed by the group.
- Environmental / Permitting/Environmental Compliance: Southborough Spill Prevention, Control and Countermeasure (SPCC) final draft comments were sent to vendor. Oakdale SPCC 5-year plan finalized.
- Environmental / Chemical Contract Management: prepared numerous chemical supply contracts for bidding, reviewed chemical bid documents from vendors.

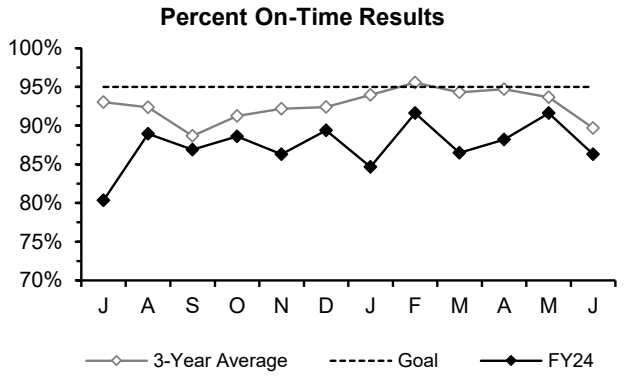
ENVIRONMENTAL QUALITY-WASTEWATER

- Ambient Monitoring: Three monthly water column surveys were successfully completed. Report production on 2023 monitoring data has begun.
- Harbor/CSO Receiving Water Monitoring: Biweekly harbor monitoring continues. Seasonal CSO receiving water sampling began in April.
- Permitting and Compliance Reporting: Submitted monthly and quarterly discharge monitoring reports, and as-needed notifications of CSOs, SSOs, and blending, and provided prior notice of essential maintenance. Submitted annual certifications of annual CSO structure inspections and of Best Management Practices at drinking water facilities. Submitted annual reports for: industrial stormwater permit at Deer Island, biosolids reports for DITP/Pellet Plant and for Clinton, Clinton collection system O&M report, and the pesticide general permit report. Also submitted annual report required by sewage notification regulation, and annual report on injuries at wastewater facilities. Submitted quality assurance plan for ambient phosphorus monitoring as required by Clinton NPDES permit. NPDES Steering Committee met in April and June.
- Coordination with other MWRA Departments: Assisted Engineering & Construction (E&C) by participating in community CSO coordination meetings, meetings with regulatory agencies, and by reviewing draft presentations and contributing to reports. Worked with MIS and consultants on Discoverer to SAP Webi migration.
- Cooperation with other agencies: Continued communication with metro Boston CSO permittees about new sewage notification regulation. Staff attended NERACOOS and NOAA Fisheries hosted workshop on plankton monitoring, and the spring meeting of the New England Estuarine Research Society. Staff attended the virtual meeting of the Stellwagen Bank National Marine Sanctuary Advisory Council, and met with the Northeastern Regional Association of Coastal and Ocean Observing Systems to discuss buoy-based scientific instrumentation. Staff attended training on the new Massachusetts Department of Public Health Beach Data Portal system.

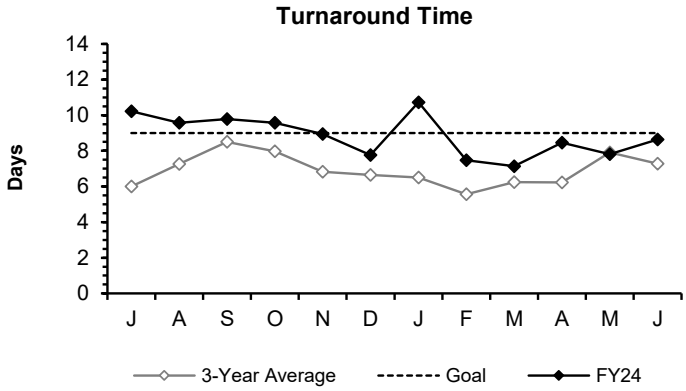
Laboratory Services

4th Quarter - FY24

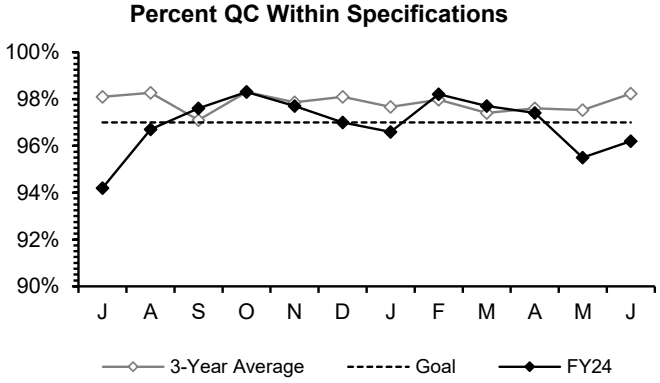
Laboratory Services supports the laboratory sampling, testing, and consulting needs of various client groups primarily in the Operations Division. This includes drinking water transmission and treatment, wastewater collection and treatment, wastewater residuals management, industrial-pretreatment monitoring, and environmental quality.



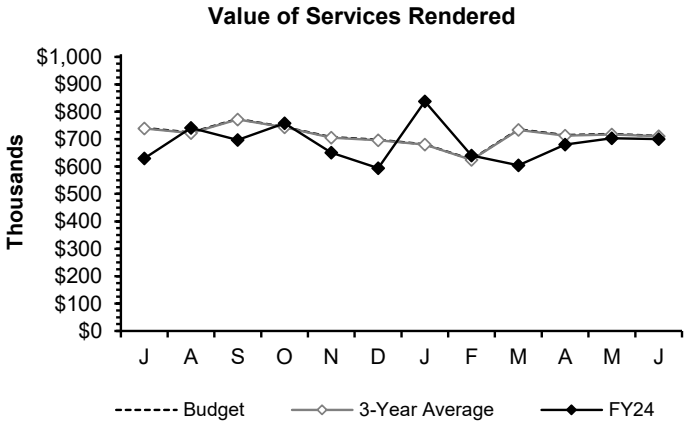
The Percent On-Time measurement assesses performance against internal client due dates. These due dates are shorter than the compliance reporting requirements to allow for internal review of the data.



Turnaround Time measures the average time from sample receipt to sample completion.



Percent QC Within Specifications measures the fraction of Quality Control tests that met required limits during the month.



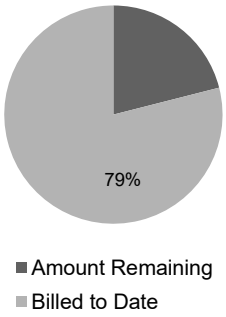
Value of Services Rendered models the true cost of the lab work performed, including fringe benefits that are not a part of the Laboratory Services budget.

School Lead Program: During the 4th quarter of FY24, MWRA's lab completed 2518 tests from 59 schools and childcare facilities in 17 communities. Since 2016, MWRA's Laboratory has conducted over 44,000 tests from 647 schools and daycares in 45 communities. We have also completed 1007 home lead tests under the DPH sampling program since 2017.

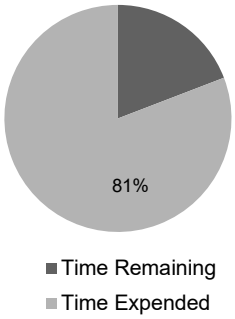
CONSTRUCTION PROGRAMS

Engineering & Construction
Projects In Construction
4th Quarter – FY24

Cost



Time



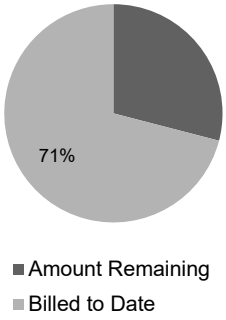
Carroll Water Treatment Plant SCADA Improvements

Project Summary: The current SCADA control equipment has reached the end of its useful life, and future vendor support for the installed PLC base is no longer guaranteed. This contract includes the supply and installation of replacement instrumentation panels, PLC's, UPS backup power, fiber-optic communication network, wiring between the existing panels, and new equipment and refurbishment of the operator control room. In addition, a new server room equipped with HVAC and fire suppression is being constructed to house redundant computer hardware supporting active and backup SCADA systems.

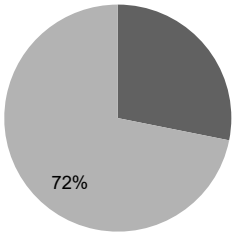
Contract Amount: $13,526,674.07 *Contract Duration:* 1,127 Days

Notice to Proceed: 1-Sep-21 *Contract Completion:* 2-Oct-24

Cost



Time



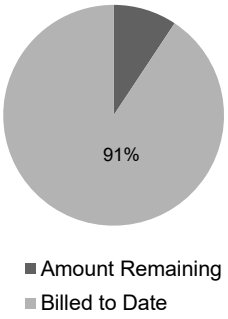
Section 89 Replacement Pipeline

Project Summary: This project will include replacement of a 10,500-foot portion of PCCP with class IV reinforcing wire, line valves and appurtenances, and abandonment of the 118-year old, 24-inch diameter cast iron Section 29 pipeline.

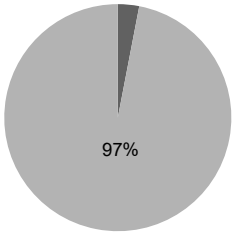
Contract Amount: $35,275,662.11 *Contract Duration:* 1,475 Days

Notice to Proceed: 5-Aug-21 *Contract Completion:* 19-Aug-25

Cost



Time



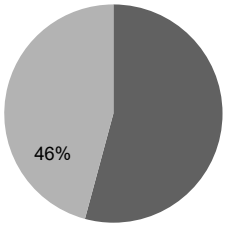
Low Service PRV Improvements

Project Summary: This project will demolish the existing Nonantum Road and Mystic Valley Parkway PRV vault structures, including four 24-inch PRVs and appurtenances, and construct new, larger cast-in-place vaults. At Mystic Valley Parkway, two 42-inch PRVs and at Nonantum Road two 30-inch PRVs, isolation valves, piping, and other appurtenances will be installed. Additionally, a new master meter will be constructed at the Mystic Valley Parkway pressure reducing valves and the existing master meter located near the Nonantum Road pressure reducing valves will be upgraded to accommodate the increased flow.

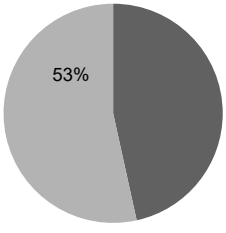
Contract Amount: $12,205,837.64 *Contract Duration:* 990 Days

Notice to Proceed: 14-Jul-21 *Contract Completion:* 30-Mar-24

Cost



Time



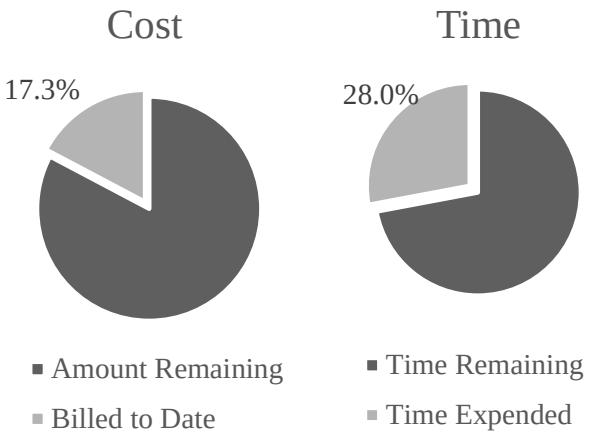
Construction of Water Mains – Section 101

Project Summary: This construction contract consists of a new 36-inch diameter water main and appurtenances extending from MWRA's Meter 182 at the Waltham/Lexington town line down Lexington Street to Totten Pond Road, where it will connect to Waltham's water system. This new water main will provide sufficient capacity to maintain water service to Waltham during the anticipated shutdown of MWRA's WASM 3 pipeline and the Lexington Street Pumping Station for future rehabilitation.

Contract Amount: $33,235,976.89 *Contract* Duration: 1175 Days

Notice to Proceed: 12-Jul-22 *Contract Completion: 29*-Sep-25

Deer Island Wastewater Treatment Plant
Projects In Construction
4th Quarter – FY24

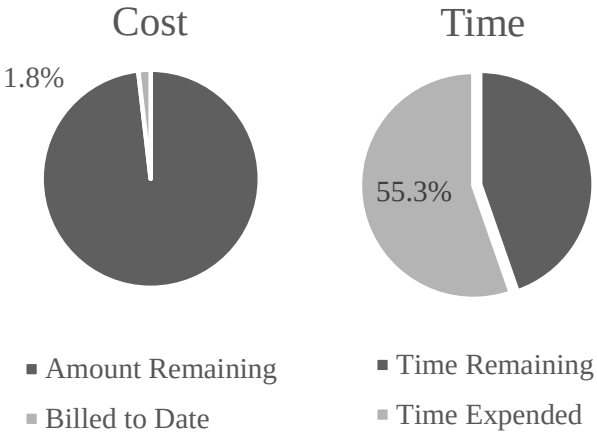


7395 - Clarifier Rehabilitation Phase 2

Project Summary: This project involves the replacement of the original remaining scum and sludge equipment, as follows: over 400 Primary Clarifier influent, effluent, and dewatering gates; 384 primary effluent cross channel gate actuators; approximately 450 secondary scum influent gates and actuators; wear strip rails,768 head shaft and idler sprockets; over 3000 linear feet of influent channel aerations piping systems; 360 head shafts collector drives and chains; return sludge line vent piping; approximately 400 concrete and aluminum hatches and associated electrical and control systems.

Contract Amount: $289,359,690 *Contract Duration:* 1710 Days

Notice to Proceed: 10-Mar-23 *Contract Completion:* 14-Nov-27



7734 - Deer Island Treatment Plant Roofing Replacement at Various Buildings

Project Summary: This project includes the removal and replacement of 86,500 square feet of roofing on the following buildings: Cryogenic Compressor; Gravity Thickener Complex; Thermal/Power Plant; Main Switchgear; and Digester Complex Modules 1, 2 and 3. Buildings to be reroofed in the Digester Complex include: Module 1- Digester Equipment Complex Roof, Elevator/Stair Lobby Roof and Elevator Penthouse Roof; Module 2 - Digester Equipment Complex Roof; and Module 3- Digester Equipment Complex Roof and Elevator Penthouse Roof.

Contract Amount: $8,873,000 *Contract Duration:* 365 Days

Notice to Proceed: 28-Dec-2023 *Contract Completion: 27-Dec-2024*

CSO CONTROL PROGRAM

4th Quarter – FY24

Overview

In compliance with milestones in the Federal District Court Order, all 35 projects in the CSO Long-Term Control Plan (LTCP) were complete as of December 2015. Subsequently, MWRA completed a multi-year CSO post-construction monitoring program and performance assessment, filing the Final CSO Post Construction Monitoring Program and Performance Assessment Report with the Court and submitted copies to EPA and DEP in December 2021. April 2024 Annual report shows an 88% reduction in CSO in a typical year, from 3.3 billion gallons to 397 million gallons, with 73 of 86 outfalls meeting or materially meeting the LTCP goals for CSO activation frequency and volume. MWRA and its member CSO communities are moving forward with plans to bring 7 of the 13 (formerly 16) CSOs in line with the LTCP goals. With respect to the remaining 6 challenging CSO outfalls, MWRA and its CSO Consultant (AECOM) continue to investigate alternative to move closer to LTCP goals.

MWRA CSO Performance Assessment

- In November 2017, MWRA signed a contract for CSO Post-Construction Monitoring and Performance Assessment with AECOM Technical Services, Inc. The contract includes CSO inspections, overflow metering, hydraulic modeling, system performance assessments and water quality impact assessments, culminating in the submission of a report to EPA and MassDEP in December 2021 verifying whether the LTCP goals are attained.

- AECOM continues to support efforts to advance project identified to meet performance goals at 7 of the 13 CSOs that don't meet LTCP goals, evaluate alternatives for the remaining 6 challenging sites, and predict and report on annual CSO discharges.

- Submit in December 2024 a Supplement to the Post-Construction Monitoring and Performance Assessment report with the MWRA's final results and conclusions as to the 16 outfalls that have not met their respective LTCP goals.

Court Ordered Levels of CSO Control

Progress on the work to comply with the court ordered levels of CSO control is discussed with the EPA/MassDEP at progress meetings held quarterly. The last meeting was held on 3/28/2024 and the next meeting will held 9/26/2024.

Ongoing Projects as of June 30, 2024

- *East Boston CSO Control*: As part of the East Boston CSO a FAA/MOU was executed in June 2021 for $2.1M, BWSC design and construction. East Boston Contract 3 is complete and BOS003 and BOS009 are anticipated to meet the LTCP goals. Plans for Phase 4 sewer separation with five new contracts starting summer 2024 (through 2030) will result in most of East Boston being separated. *Somerville Marginal New Pipe Connection* came out of the variance optimization study that recommended adding a new pipe from the facility's CSO influent conduit to the interceptor with an added control gate. The $6.7 (est.) construction project is expected to be completed by December 2025.
- *Fort Point Channel and Mystic Confluence* – BOS013, BOS062, BOS065, BOS070 DBC and BOS017: The FAA/MOU was amended on December 13, 2023 to include BOS013. The FAA/MOU was amended again on 1/29/2024 to increase the amount to $11.9 million to accommodate the greater than anticipated construction cost.
- *CAM005 weir raising and lengthening* for reducing CSO activation and frequency volume. The contract for the design was executed 7/17/2024 .Cost estimate $1,000,000. Anticipated completion of construction in 2025.

CSO variances

MassDEP has issued a series of multi-year CSO variances that allow MWRA, Cambridge, and Somerville to continue to have limited CSO discharges to Alewife Brook and the Upper Mystic River, as well as the Charles River lower basin. The most recent variances, issued in 2019, require the development of Updated LTCP. The Updated LTCPs must include a description of the existing level of CSO control, an evaluation of the costs and the performance and water quality improvements achieved by additional CSO control alternatives, a public participation plan, and an affordability analysis. Draft Updated Control Plan due December 2025 and the Final Plan due December 2027.

- MassDEP and EPA conditionally approved MWRA's Updated CSO Control Plan Scope of Work on 5/11/2022.
- Schedule Extension Request for Deliverables Associated with Updated CSO Control Plan was submitted 9/22/22. In May 2023 EPA/MassDEP advised that MWRA, Cambridge and Somerville proceed according to our revised schedule.
  - As identified in the variance the progress is reported at monthly meetings with EPA/MassDEP. The next meeting is scheduled for 8/14/2024. Key elements of the Updated CSO Control Plan are discussed including the development of Alternatives to be evaluated using the Unified Hydraulic Model.
- The 3rd of 8 planned meetings was held on 11/15/2023. The next Public Meeting is scheduled for late autumn of 2024.
- Development and Submittal of Studies as required under variance included the following:
  - Alewife PS Optimization Evaluation was submitted on 4/27/2021
  - Somerville Marginal CSO Reduction, Study and Preliminary Design was submitted on 12/27/2021
  - Alewife Brook and Charles River System Optimization Evaluation was submitted on 12/28/2022
  - MWRA CSO Variances Additional System Optimization Measures Report was submitted on 1/31/2023.
- Bi-annual meeting with CLF/Watershed groups held on 6/21/2023. Next meeting November.

CIP Expenditures

4th Quarter – FY24

FY24 Capital Improvement Program Expenditure Variances through June by Program - ($ in thousands)				
Program	FY24 Budget Through June	FY24 Actual Through June	Variance Amount	Variance Percent
Wastewater	$137,647	$94,000	($43,647)	-31%
Waterworks	$141,742	$104,956	($36,786)	-25%
Business and Operations Support	$22,812	$9,281	($13,531)	-59%
Total	$302,201	$208,237	($93,964)	-31%

Wastewater:

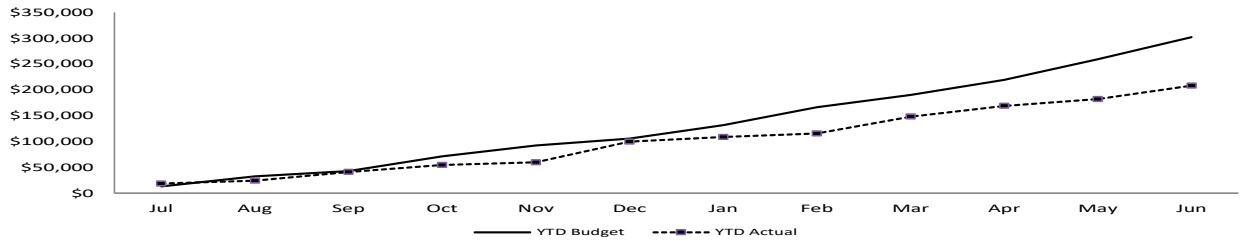
- Spending was less than planned in Wastewater due to timing of community grants and loans for the I/I Local Financial Assistance program, later than anticipated contract award for DITP Roofing Replacement, schedule changes for Motor Control Center Switchgear Replacement, Siphon Structure Rehabilitation Construction, Hayes Pump Station Rehabilitation Construction, DiStor Membrane Replacements, DI Fire Alarm Construction, and Clinton WWTP Digester Cover Replacement, delay in performing shaft inspections and issuing NTP for Final Design for Ward Street & Columbus Park Headworks Upgrades Design/CA, changes to the structural steel design leading to later than anticipated date for its fabrication and installation for Braintree/Weymouth Improvements and lower than projected task order work for Deer Island As-Needed Design.
- This less than planned spending was partially offset by equipment received ahead of schedule for Clarifier Rehabilitation Phase 2 Construction, earlier than anticipated Fort Point Channel and Mystic community work, contract award being greater than planned for Prison Point Discharge Piping Rehab, and Chelsea Creek Headworks Upgrade claim settlements.

Water:

- Spending was less than planned in Waterworks due to updated schedules for Section 75 Extension, CP3 Shafts 7, 7B, 7C & 7D, Steel Tank Improvements, Maintenance Garage/Wash Bay/Storage Building and Shaft 5 Improvements Construction, less than anticipated contractor progress for Section 89/29 Replacement, lower than anticipated spending for the completion of Metropolitan Tunnel Redundancy Preliminary Design & Massachusetts Environmental Policy Act Review, timing of final contractor work including paving for CP-1 NEH Improvements, lower than projected spending for Wachusettt LGH Pipe and Boiler Replacement, timing of Quinapoxet Dam Removal work, lower than projected task order work for CWTP Technical Assistance, and work scheduled for FY24 performed in FY23 for WASM 3 Rehabilitation CP-1.
- This less than planned spending was partially offset by timing of community distributions for the Water Loan program, contractor progress on CP-2, Sections 25 & 24 Construction, and work scheduled for FY23 that was completed in FY24 for CWTP Chemical Feed System.

Budget vs. Actual CIP Expenditures ($ in thousands)

Total FY24 CIP Budget of $302,200



Construction Fund Management

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

Cash Balance as of 6/30/24	$157.3 million
Unused capacity under the debt cap:	$2.25 billion
Estimated date for exhausting construction fund without new borrowing:	Oct 2024
Estimated date for debt cap increase to support new borrowing:	Not anticipated at this time
Commercial paper/Revolving loan outstanding: Commercial paper capacity / Revolving Loan	$80 million $170 million
Budgeted FY24 Cash Flow Expectancy*:	$246 million

DRINKING WATER QUALITY AND SUPPLY

Source Water – Microbial Results and UV Absorbance

4th Quarter – FY24

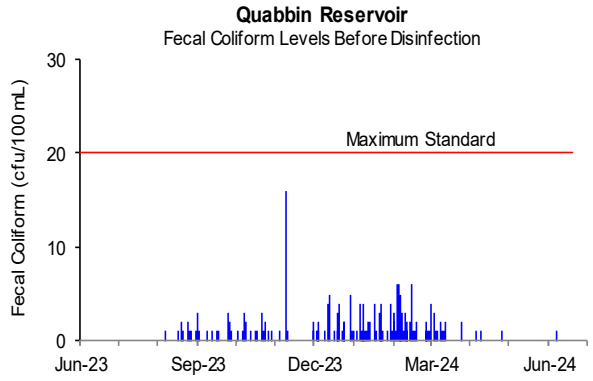
Source Water – Microbial Results

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

Sample Site: Quabbin Reservoir

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

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

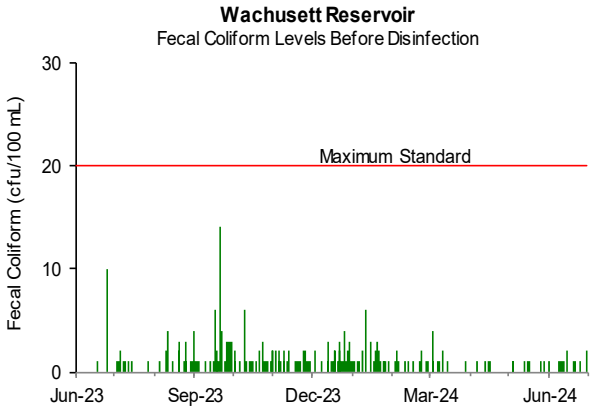


Sample Site: Wachusett Reservoir

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

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

All samples collected during the 4th Quarter were below 20 cfu/100mL. **For the current six-month period, 0.0% of the samples exceeded a count of 20 cfu/100mL.**

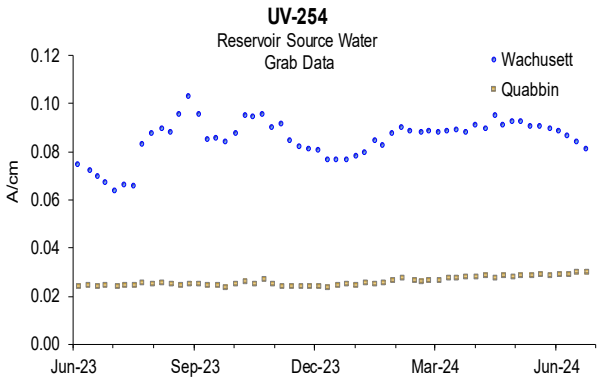


Source Water – UV Absorbance

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

Quabbin Reservoir UV-254 levels averaged 0.029 A/cm for the quarter.

Wachusett Reservoir UV-254 levels averaged 0.089 A/cm for the quarter.



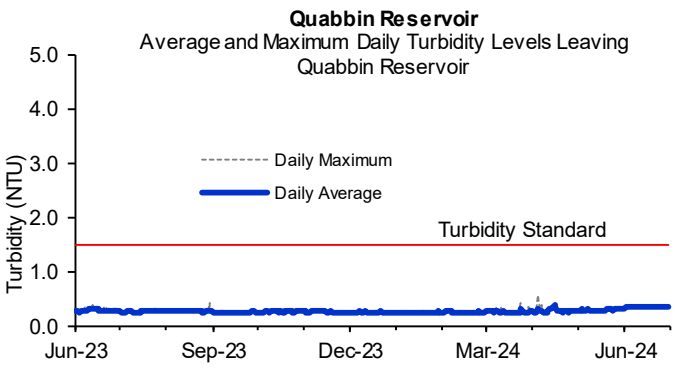
Source Water – Turbidity

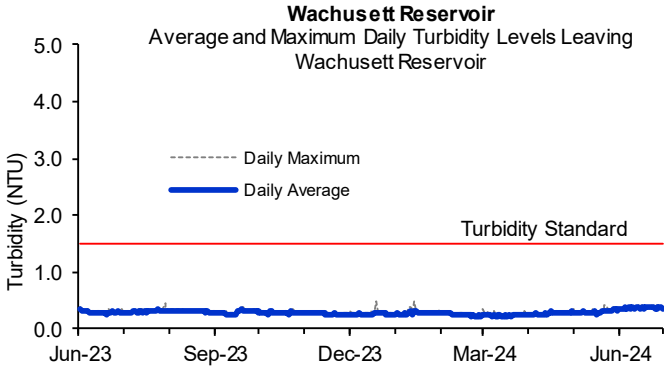
4th Quarter – FY24

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

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

Turbidity of Quabbin Reservoir water is monitored continuously at the Brutsch Water Treatment Facility (BWTF) before UV and chlorine disinfection. Turbidity of Wachusett Reservoir is monitored continuously at the Carroll Water Treatment Plant (CWTP) before ozonation and UV disinfection. Maximum turbidity results at Quabbin and Wachusett were within DEP standards for the quarter.



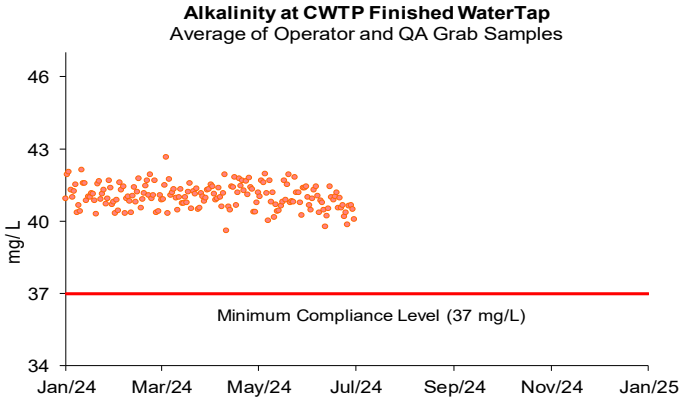


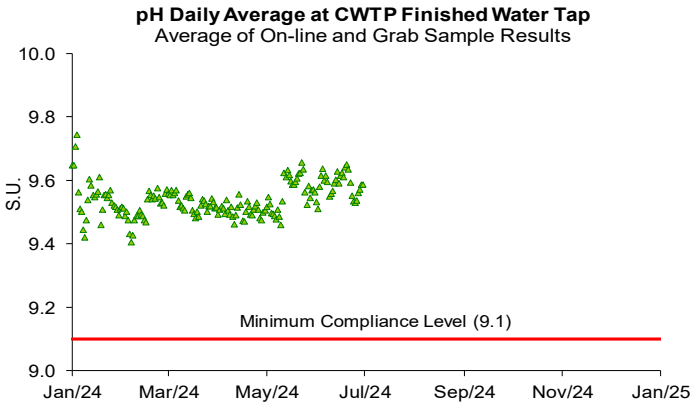
Treated Water – pH and Alkalinity Compliance

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

Each CVA community provides its own corrosion control treatment. See the CVA report: https://www.mwra.com/annual/waterreport/2023results/PDFS/CVA.pdf.

Quarterly distribution system samples were collected over a course of two weeks in June. Distribution system sample pH ranged from 9.3 to 9.7 and alkalinity ranged from 40 to 43 mg/L. No sample results were below DEP limits for this quarter.





Treated Water – Disinfection Effectiveness

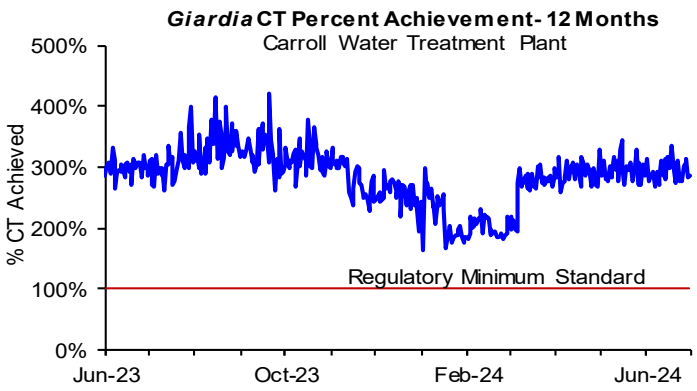
4th Quarter – FY24

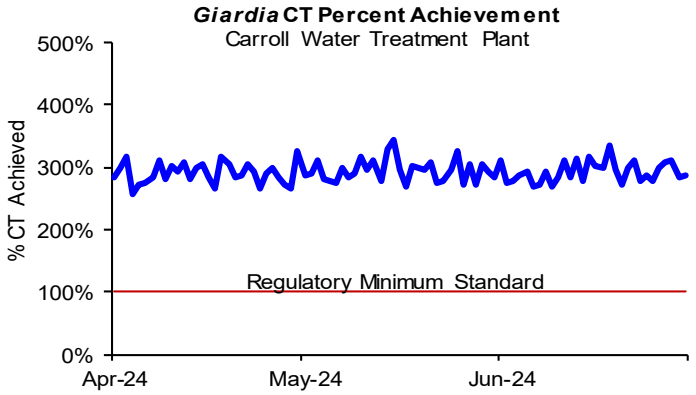
At the Carroll Water Treatment Plant (CWTP), MWRA meets the required 99.9% (3-log) inactivation of *Giardia* using ozone (reported as CT: concentration of disinfectant x contact time) and the required 99% (2-log) inactivation of *Cryptosporidium* using UV (reported as IT: intensity of UV x time). MWRA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

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

Wachusett Reservoir – MetroWest/Metro Boston Supply:

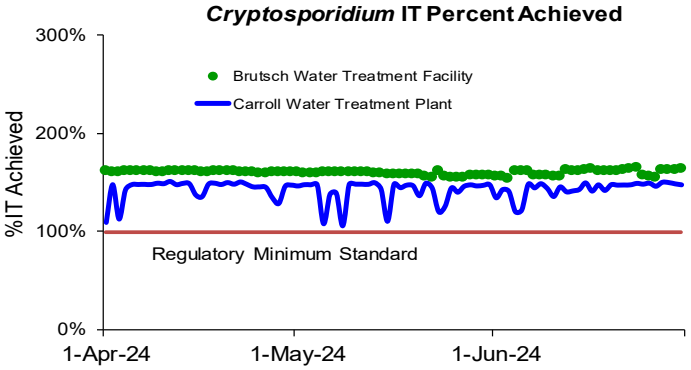
- The chlorine dose at the CWTP varied between 3.45 and 3.95 mg/L for the quarter.
- Ozone dose at the CWTP varied between 2.3 to 3.2 mg/L for the quarter.
- *Giardia* CT was maintained above 100% at all times the plant was providing water into the distribution system this quarter, as well as every day for the last fiscal year.
- *Cryptosporidium* IT was maintained above 100% for the quarter. Off-spec water was less than 5%.

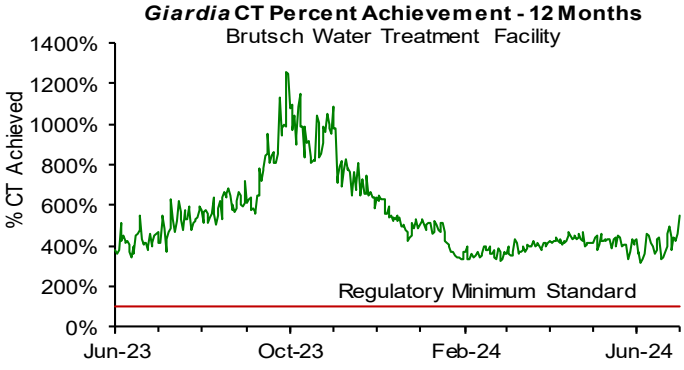


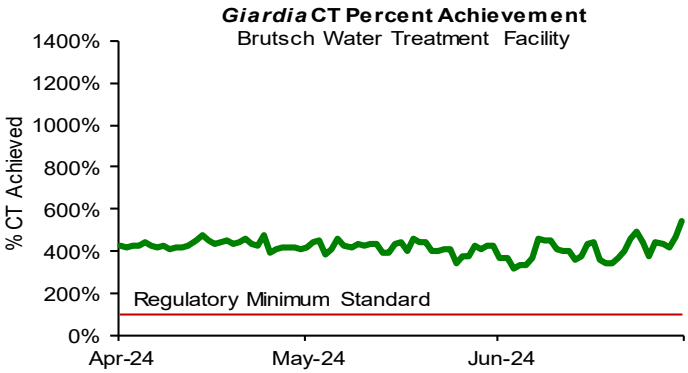


Quabbin Reservoir (CVA Supply) at: Brutsch Water Treatment Facility

- The chlorine dose at BWTF is adjusted in order to achieve MWRA's seasonal target of 0.75 - 0.85 mg/L (November 1 – May 31) and 0.85 - 1.05 mg/L (June 1 – October 31) at Ludlow Monitoring Station.
- The chlorine dose at BWTF varied between 1.40 to 1.55 mg/L for the quarter.
- *Giardia* CT was maintained above 100% at all times the plant was providing water into the distribution system for the quarter.
- *Cryptosporidium* IT was maintained above 100% for the quarter. Off-spec water was less than 5%.







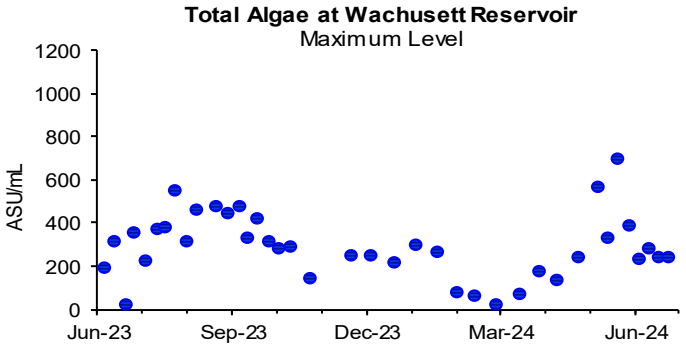
Source Water - Algae

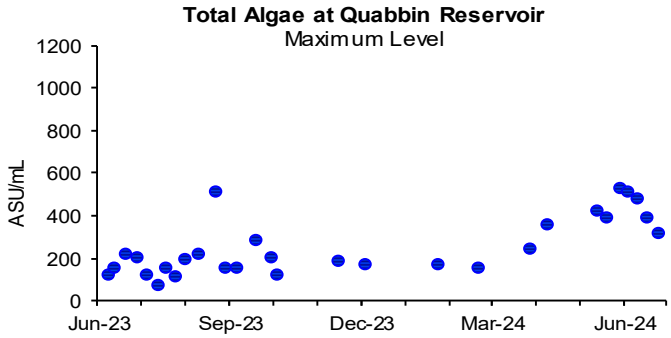
4th Quarter – FY24

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

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

In the 4th quarter, there were no complaints believed to be algae related reported from local water departments.



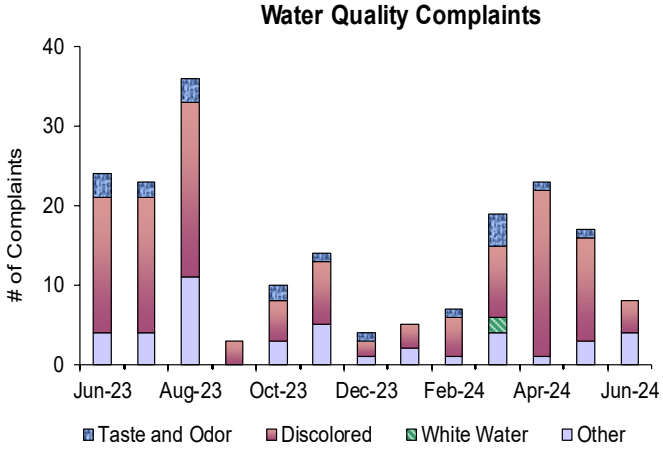


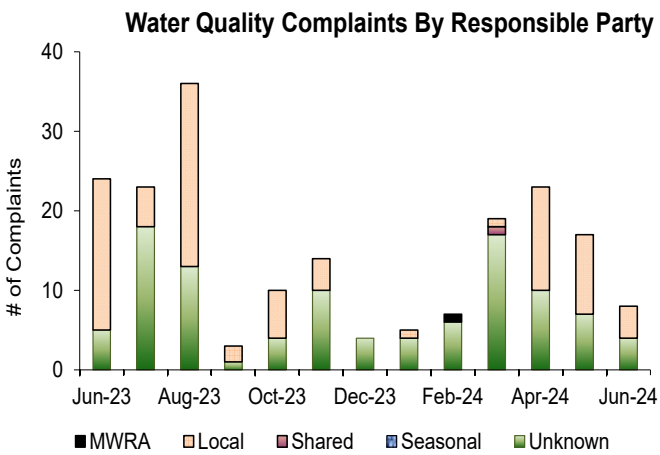
Drinking Water Quality Customer Complaints: Taste, Odor, or Appearance

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

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

Communities reported 48 complaints during the quarter compared to 47 complaints from 4th Quarter of FY23. Of these complaints, 38 were for "discolored water", 2 were for "taste and odor", and 8 were for "other". Of these complaints, 27 were local community issues and 21 were unknown in origin.
Communities with discolored water (DW) complaints due to hydrant flushing performed during the quarter:
(April – Arlington (6); May – Somerville (9); June – Somerville (4).





Bacteria & Chlorine Residual Results for Communities in MWRA Testing Program

4th Quarter – FY24

While all communities collect bacteria samples and chlorine residual data for the Total Coliform Rule (TCR), data from the 44 systems that use MWRA's Laboratory are reported below.

The MWRA TCR program has 144 sampling locations. These locations include sites along MWRA's transmission system, water storage tanks and pumping stations, as well as a subset of the community TCR locations.

Samples are tested for total coliform and *Escherichia coli (E.coli*). *E.coli* is a specific coliform species whose presence likely indicates potential contamination of fecal origin.

If *E.coli* are detected in a drinking water sample, this is considered evidence of a potential public health concern. Public notification is required if repeat tests confirm the presence of *E.coli* or total coliform.

Total coliform provide a general indication of the sanitary condition of a water supply. If total coliform are detected in more than 5% of samples in a month (or if more than one sample is positive when less than 40 samples are collected), the water system is required to investigate the possible source/cause with a Level 1 or 2 Assessment, and fix any identified problems.

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

Highlights

In the fourth quarter, sixteen of the 6,423 fully and partially served samples (0.25%) tested positive for total coliform. None of the 1899 Shared Community/MWRA samples tested positive for total coliform. None of the 400 CVA/MWRA community samples tested positive for total coliform. Bedford and Winthrop are required to conduct Level Assessments for June. One June sample in Bedford tested positive for E.coli. Repeat samples did not confirm for total coliform or E.coli. 0.1% of the Fully Served community quarterly samples had chlorine residuals lower than 0.2 mg/L

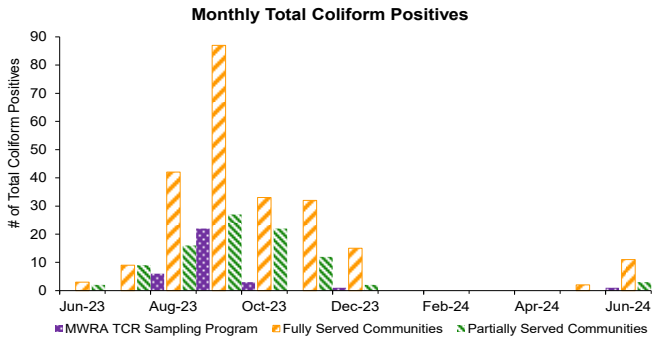
NOTES:

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

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

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

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



		Total Coliform # Samples (b)	Total Coliform # (%) Positive	*E.coli* Positive	# Assessment Required
MWRA	MWRA Locations	398	0 (0%)	0	
MWRA a	Shared Community/MWRA sites	1501	0 (0%)	0	
MWRA	***Total: MWRA***	1899	0 (0.0%)	0	
Fully Served	ARLINGTON	169	0 (0%)	0	
Fully Served	BELMONT	104	0 (0%)	0	
Fully Served	BOSTON	783	1 (0.1%)	0	No
Fully Served	BROOKLINE	237	0 (0%)	0	
Fully Served	CHELSEA	172	1 (0.6%)	0	No
Fully Served	DEER ISLAND	52	0 (0%)	0	
Fully Served	EVERETT	169	0 (0%)	0	
Fully Served	FRAMINGHAM	276	1 (0.4%)	0	No
Fully Served	LEXINGTON	119	0 (0%)	0	
Fully Served	LYNNFIELD	21	1 (4.8%)	0	No
Fully Served	MALDEN	234	0 (0%)	0	
Fully Served	MARBLEHEAD	72	0 (0%)	0	
Fully Served	MARLBOROUGH	153	0 (0%)	0	
Fully Served	MEDFORD	234	0 (0%)	0	
Fully Served	MELROSE	117	0 (0%)	0	
Fully Served	MILTON	102	0 (0%)	0	
Fully Served	NAHANT	30	0 (0%)	0	
Fully Served	NEWTON	279	0 (0%)	0	
Fully Served	NORTHBOROUGH	48	0 (0%)	0	
Fully Served	NORWOOD	99	0 (0%)	0	
Fully Served	QUINCY	331	0 (0%)	0	
Fully Served	READING	143	0 (0%)	0	
Fully Served	REVERE	219	0 (0%)	0	
Fully Served	SAUGUS	104	0 (0%)	0	
Fully Served	SOMERVILLE	252	0 (0%)	0	
Fully Served	SOUTHBOROUGH	30	0 (0%)	0	
Fully Served	STONEHAM	94	1 (1.1%)	0	No
Fully Served	SWAMPSCOTT	57	0 (0%)	0	
Fully Served	WALTHAM	225	3 (1.3%)	0	No
Fully Served	WATERTOWN	143	0 (0%)	0	
Fully Served	WESTON	45	0 (0%)	0	
Fully Served	WINTHROP	72	5 (6.9%)	0	Yes
Fully Served	*Total: Fully Served*	*5185*	*13 (0.25%)*		
Partially Served c	BEDFORD	63	2 (3.2%)	1	Yes
Partially Served c	BURLINGTON	126	0 (0%)	0	
Partially Served c	CANTON	90	0 (0%)	0	
Partially Served c	NEEDHAM	123	0 (0%)	0	
Partially Served c	PEABODY	223	1 (0.45%)	0	No
Partially Served c	WAKEFIELD	123	0 (0%)	0	
Partially Served c	WELLESLEY	114	0 (0%)	0	
Partially Served c	WILMINGTON	87	0 (0%)	0	
Partially Served c	WINCHESTER	94	0 (0%)	0	
Partially Served c	WOBURN	195	0 (0%)	0	
Partially Served	*Total: Partially Served*	*1238*	*3 (0.24%)*		
	Total: Community Samples No CVA	*6423*	*16 (0.25%)*		
CVA d	MWRA CVA Locations	104	0 (0%)	0	
CVA d	CHICOPEE	186	0 (0%)	0	
CVA d	SOUTH HADLEY FD1	60	0 (0%)	0	
CVA d	WILBRAHAM	50	0 (0%)	0	
CVA	*Total: CVA*	*400*	*0 (0.0%)*		

Chlorine Residuals in Fully Served Communities

	2023							2024					
	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
% <0.1	0.0	0.0	0.0	0.4	0.2	0.2	0.3	0.1	0.0	0.0	0.0	0.0	0.1
% <0.2	0.0	0.1	0.3	1.8	1.0	1.2	1.0	0.5	0.4	0.1	0.1	0.1	0.2
% <0.5	1.0	1.2	3.1	6.2	5.2	5.7	3.2	2.4	1.9	0.6	1.0	0.8	1.2
% <1.0	3.4	4.8	12.5	16.0	13.2	14.4	8.4	5.8	3.7	2.6	2.9	3.1	5.2
% ≥1.0	96.6	95.2	87.5	84.0	86.8	85.6	91.6	94.2	96.3	97.4	97.1	96.6	94.5

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

4th Quarter – FY24

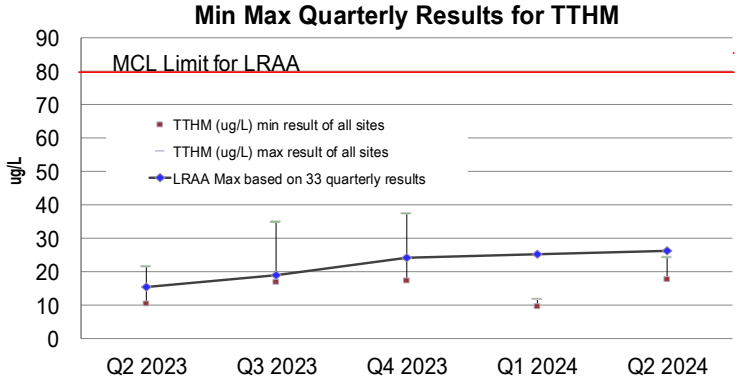
Total Trihalomethanes (TTHMs) and Haloacetic Acids (HAA5s) are by-products of disinfection treatment with chlorine. They are of concern due to their potential adverse health effects at high levels. EPA's locational running annual average (LRAA) standard, using the most recent four quarterly results, is 80 µg/L for TTHMs and 60 µg/L for HAA5s. The locational running annual average at each individual sampling location must be below the standard.

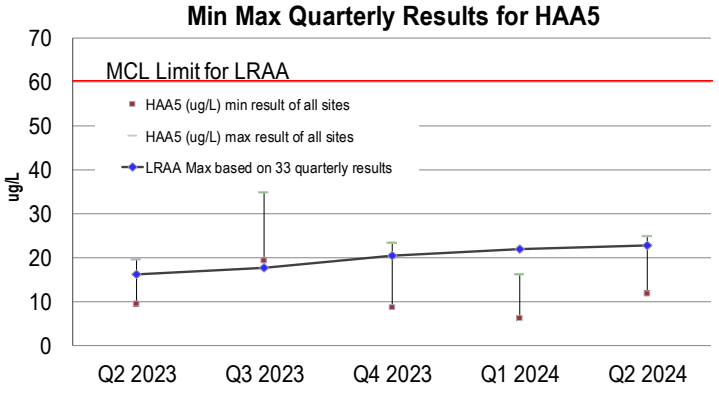
Bromate is tested monthly as required for water systems, like CWTP, that treat with ozone. EPA's RAA Maximum Contaminant Level (MCL) standard for bromate is 10 µg/L. The current RAA for Bromate at the CWTP finished water tap is 0.0 µg/L.

MWRA's TTHM and HAA5 sampling program includes sampling at 33 MetroWest and Metro Boston communities sites. Partially served and CVA communities are responsible for their own compliance monitoring and are regulated individually.

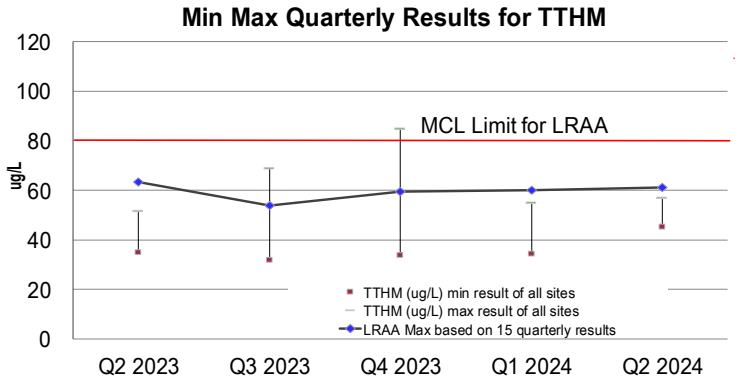
The LRAA for TTHMs and HAA5s for MWRA's Compliance Program (represented as the line in the top two graphs below) remains below current standards. The Max LRAA in the quarter for TTHMs = 26.3 µg/L; HAA5s = 22.9 µg/L. No LRAA exceedances or violations occurred this quarter for MetroBoston and for any of the CVA communities.

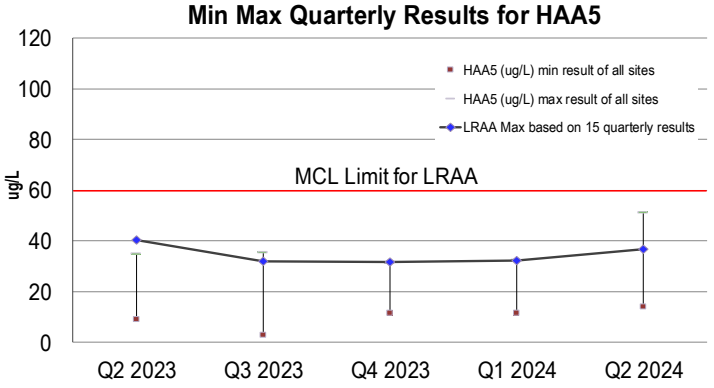
MetroBoston Disinfection By-Products





CVA Disinfection By-Products (Combined Results Chicopee, Wilbraham, & South Hadley FD1)





Water Supply and Source Water Management

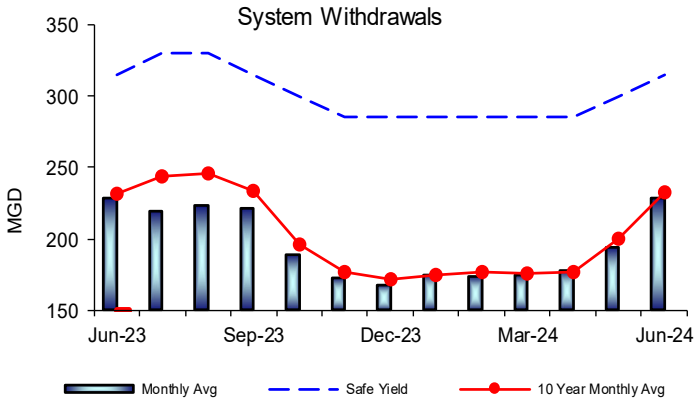
4th Quarter – FY24

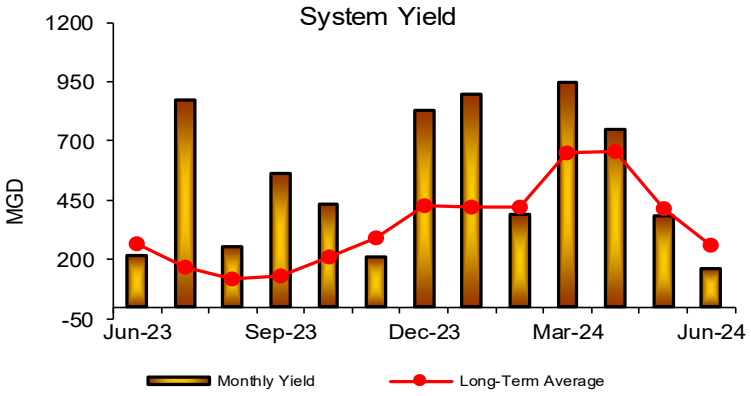
Background

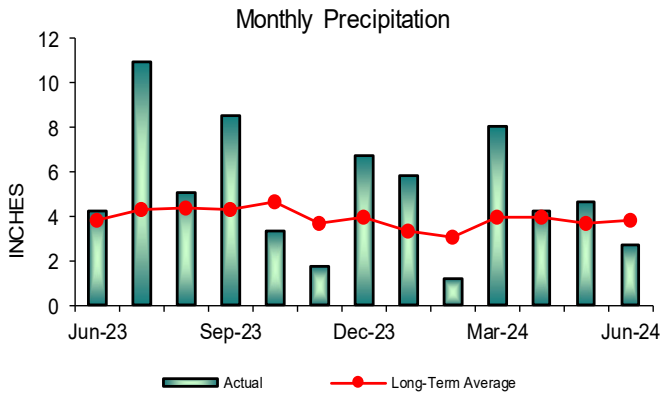
A reliable supply of water in MWRA's reservoirs depends on adequate precipitation during the year and seasonal hydrologic inputs from watersheds that surround the reservoirs. Demand for water typically increases with higher summer temperatures and then decreases as temperatures decline. Quabbin Reservoir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

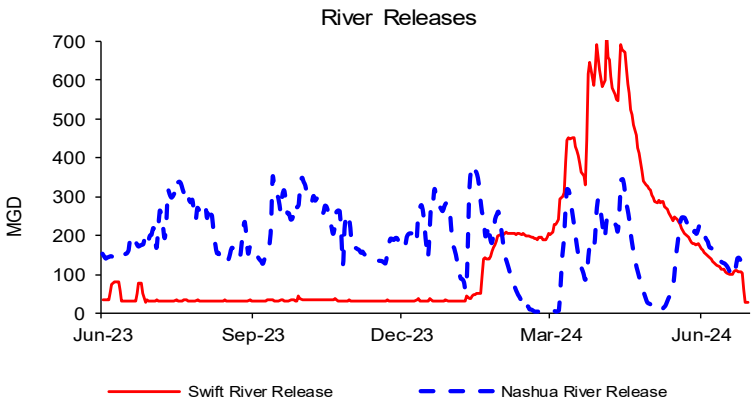
Outcome

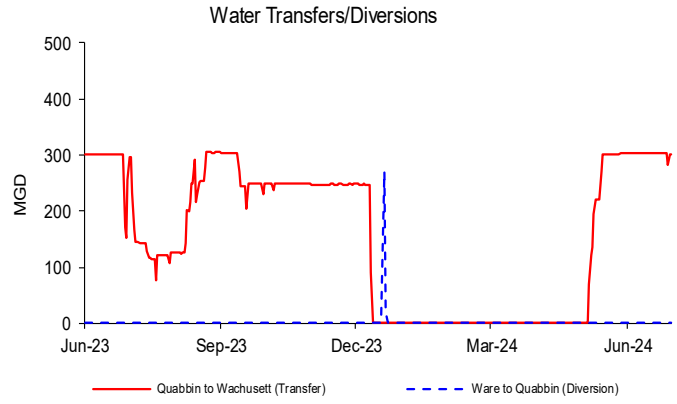
The volume of the Quabbin Reservoir was at 95.9% as of June 30, 2024; a 5.0 % decrease for the quarter, which represents a loss of more than 20.9 billion gallons of storage and a decrease in elevation of 2.65'. System withdrawal was below its long term quarterly average. Precipitation was above and Yield slightly below their respective quarterly long term averages. Quabbin is in Normal Operating Range for this time of year.

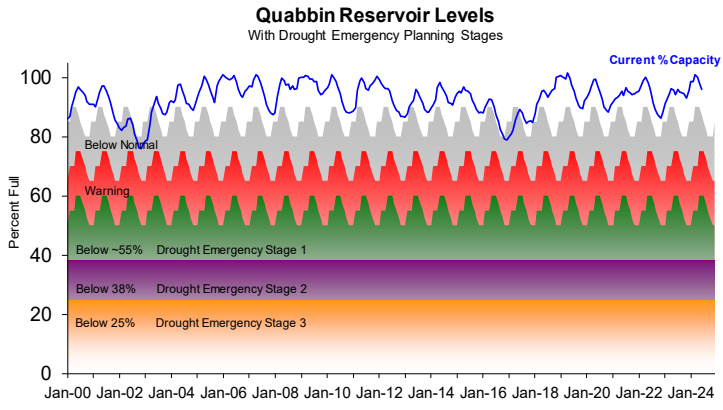












WASTEWATER QUALITY

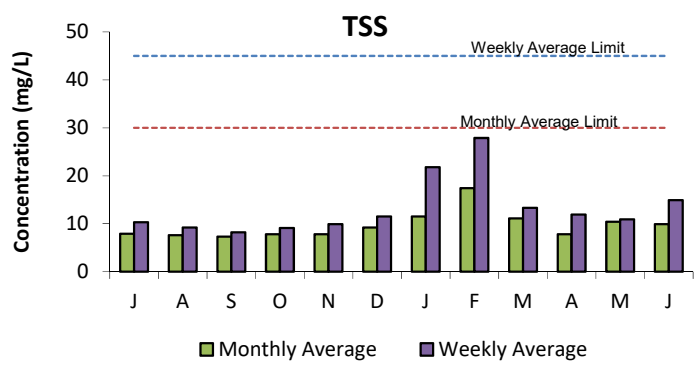
NPDES Permit Compliance: Deer Island Treatment Plant

4th Quarter - FY24

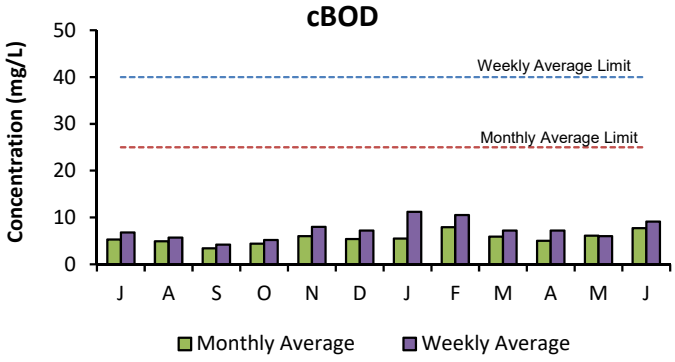
NPDES Permit Limits

Effluent Characteristics		*Units*	*Limits*	*April*	*May*	*June*	*4th Quarter Violations*	*FY24 YTD Violations*
Dry Day Flow (365 Day Average):		mgd	436	314.5	316.7	316.8	0	0
cBOD:	Monthly Average	mg/L	25	5.0	6.1	7.7	0	0
	Weekly Average	mg/L	40	7.2	6.0	9.1	0	0
TSS:	Monthly Average	mg/L	30	7.8	10.4	9.9	0	0
	Weekly Average	mg/L	45	11.9	10.9	14.9	0	0
TCR:	Monthly Average	ug/L	456	0.0	0.0	0.0	0	0
	Daily Maximum	ug/L	631	0.0	0.0	0.0	0	0
Fecal Coliform:	Daily Geometric Mean	col/100mL	14000	86	187	11	0	0
	Weekly Geometric Mean	col/100mL	14000	9	6	8	0	0
	% of Samples >14000	%	10	0	1	0	0	0
	Consecutive Samples >14000	#	3	0	1	0	0	0
pH:		SU	6.0-9.0	6.4-6.9	6.4-6.9	6.5-6.9	0	0
PCB, Aroclors:	Monthly Average	ug/L	0.000045	UNDETECTED			0	0
Acute Toxicity:	Inland Silverside	%	≥50	>100	80.7	>100	0	0
	Mysid Shrimp	%	≥50	>100	>100	>100	0	0
Chronic Toxicity:	Inland Silverside	%	≥1.5	100	25	100	0	0
	Sea Urchin	%	≥1.5	100	100	100	0	0

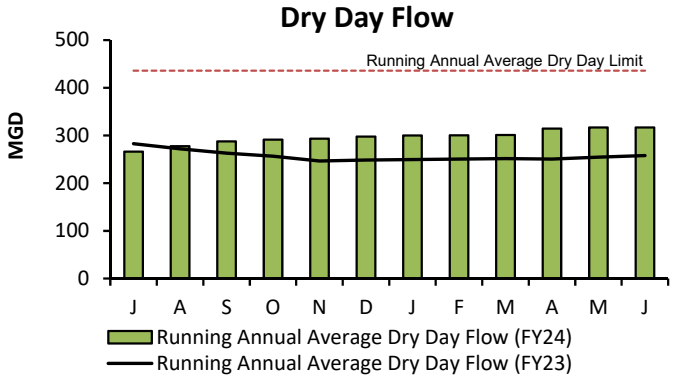
There have been no permit violations in FY24 to date at the Deer Island Treatment Plant (DITP).



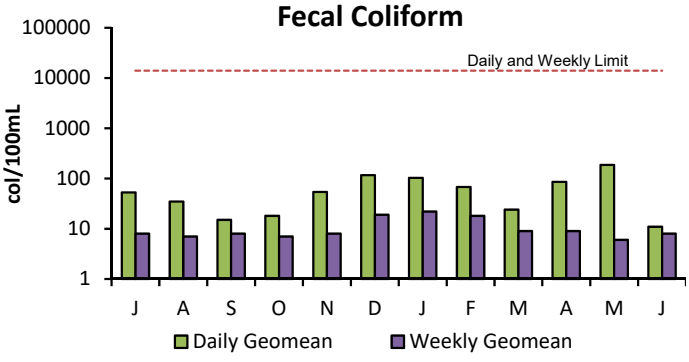
Total Suspended Solids (TSS) in the effluent is a measure of the amount of solids that remain suspended after treatment. All TSS measurements for the 4th Quarter were within permit limits.



Carbonaceous Biochemical Oxygen Demand (cBOD) is a measure of the amount of dissolved oxygen required for the decomposition of organic materials in the environment. All cBOD measurements for the 4th Quarter were within permit limits.



Running Annual Average Dry Day Flow is the average of all dry weather influent flows over the previous 365 days. The Dry Day Flow for the 4th Quarter was well below the permit limit of 436 MGD.



Fecal Coliform is an indicator for the possible presence of pathogens. The levels of these bacteria after disinfection show how effectively the plant is inactivating many forms of disease-causing microorganisms. In the 4th Quarter, all permit conditions for fecal coliform were met.

NPDES Permit Compliance: Clinton Wastewater Treatment Plant

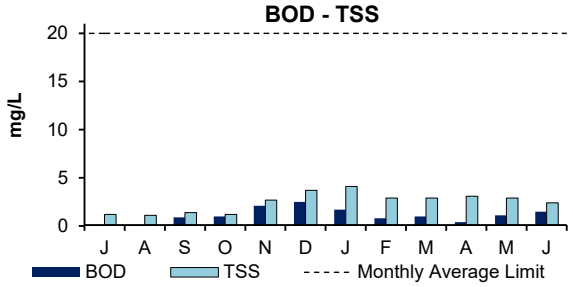
4th Quarter - FY24

NPDES Permit Limits

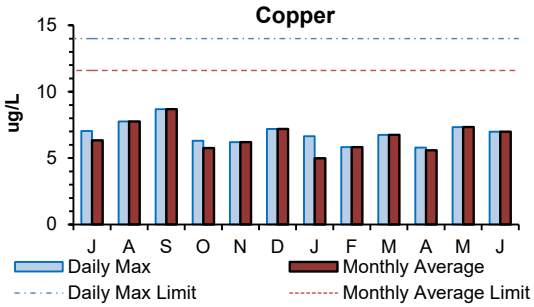
Effluent Characteristics		*Units*	*Limits*	*April*	*May*	*June*	*4th Quarter Violations*	*FY24 YTD Violations*
Flow:	12-month Rolling Average:	mgd	3.01	3.74	3.74	3.75	3	9
BOD:	Monthly Average:	mg/L	20	0.4	1.1	1.5	0	0
	Weekly Average:	mg/L	20	2.2	1.5	1.8	0	0
TSS:	Monthly Average:	mg/L	20	3.1	2.9	2.4	0	0
	Weekly Average:	mg/L	20	4.8	3.4	3.2	0	0
pH:		SU	6.5-8.3	7.1-7.7	7.3-7.7	7.2-7.7	0	0
Dissolved Oxygen:	Daily Average Minimum:	mg/L	6	10.0	9.3	7.8	0	0
E. Coli:	Monthly Geometric Mean:	cfu/100mL	126	6	7	5	0	0
	Daily Geometric Mean:	cfu/100mL	409	11	25	10	0	0
TCR:	Monthly Average:	ug/L	20	0.27	<20	<20	0	0
	Daily Maximum:	ug/L	30.4	4.00	<20	<20	0	0
Copper:	Monthly Average:	ug/L	11.6	5.59	7.34	6.99	0	0
	Daily Maximum:	ug/L	14.0	5.79	7.34	6.99	0	0
Total Ammonia Nitrogen: June 1st - October 31st	Monthly Average:	mg/L	2.0	0.06	<0.1	0.04	0	0
	Daily Maximum:	mg/L	3.0	0.17	<0.1	0.14	0	0
Total Phosphorus: April 1st - October 31st	Monthly Average:	mg/L	0.15	0.04	0.03	0.06	0	0
	Daily Maximum:	mg/L	RPT	0.06	0.05	0.08	0	0
Acute Toxicity+:	Daily Minimum:	%	≥100	54.1	N/A	N/A	1	1
Chronic Toxicity+:	Daily Minimum:	%	≥62.5	12.5	N/A	N/A	1	1

There have been eleven permit violations in FY24 at the Clinton Treatment Plant.
1st Quarter: There were no permit violations in the first quarter.
2nd Quarter: There were three permit violations in the second quarter, each for 12 month rolling-average flow.
3rd Quarter: There were three permit violations in the third quarter, each for 12 month rolling-average flow.
4th Quarter: There were five permit violations in the fourth quarter, three for 12 month rolling-average flow, one for acute toxicity and one for chronic toxicity.

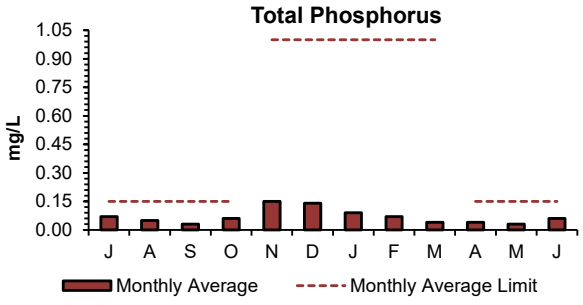
+ Toxicity testing at the Clinton Treatment Plant is conducted on a quarterly basis.



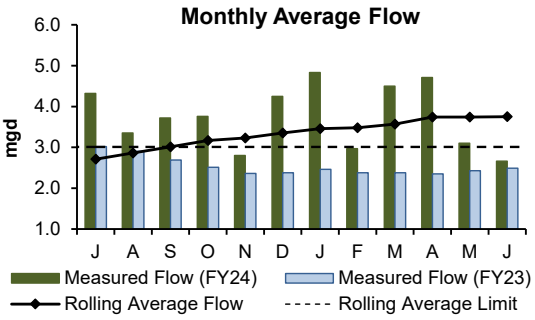
Monthly average concentrations of BOD and TSS were below permit limits in the 4th Quarter. The permit monthly limit for both parameters is 20 mg/L.



Daily maximum and monthly average concentrations of copper were below permit limits in the 4th Quarter. Permit daily and monthly limits are 14.0 ug/L and 11.6 ug/L respectively.



Total phosphorus limits are most stringent during the growing season from April to October.
The 4th Quarter's monthly average concentrations for total phosphorus were below permit limits.

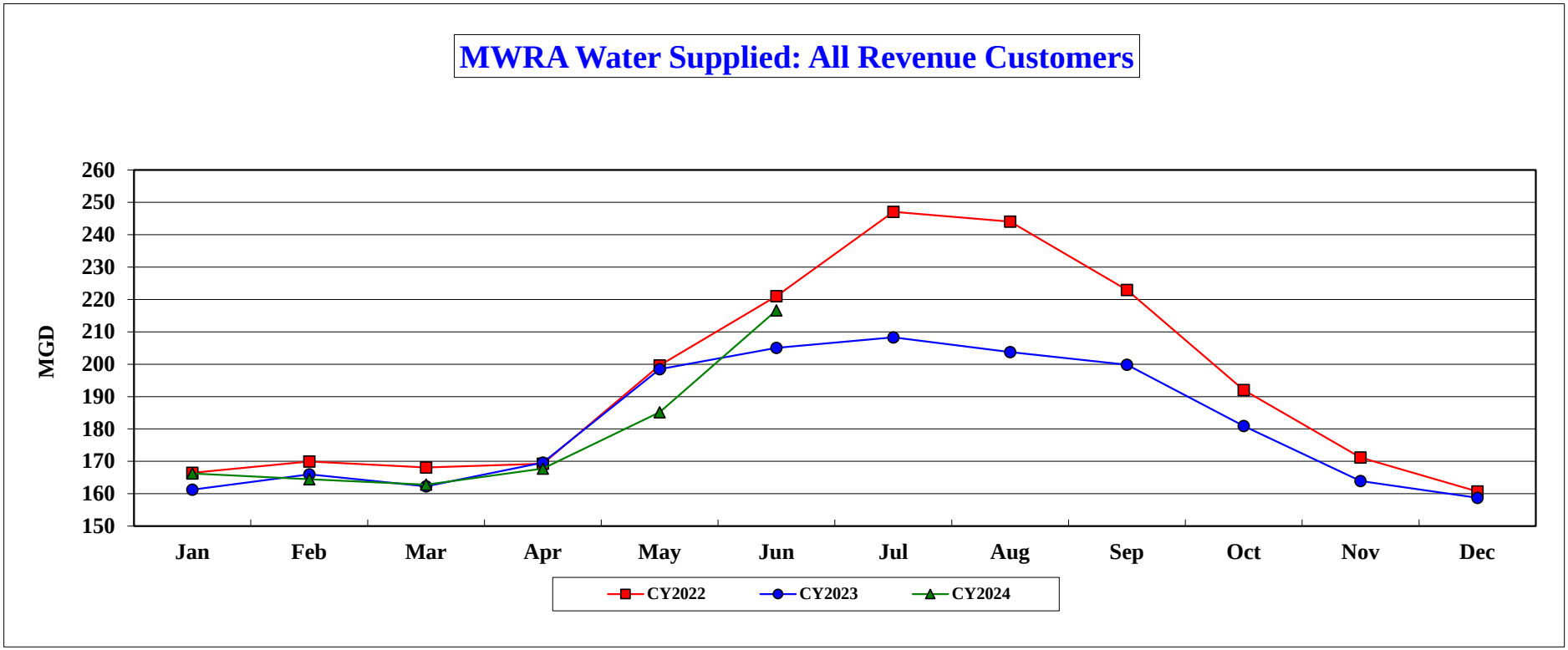


The graph depicts the rolling annual average monthly flow, measured in million gallons per day, exiting the plant.
The 12-month rolling average flows during the 4th Quarter were above the permit limit.

COMMUNITY FLOWS AND PROGRAMS

Customer Water Use

4th Quarter - FY24



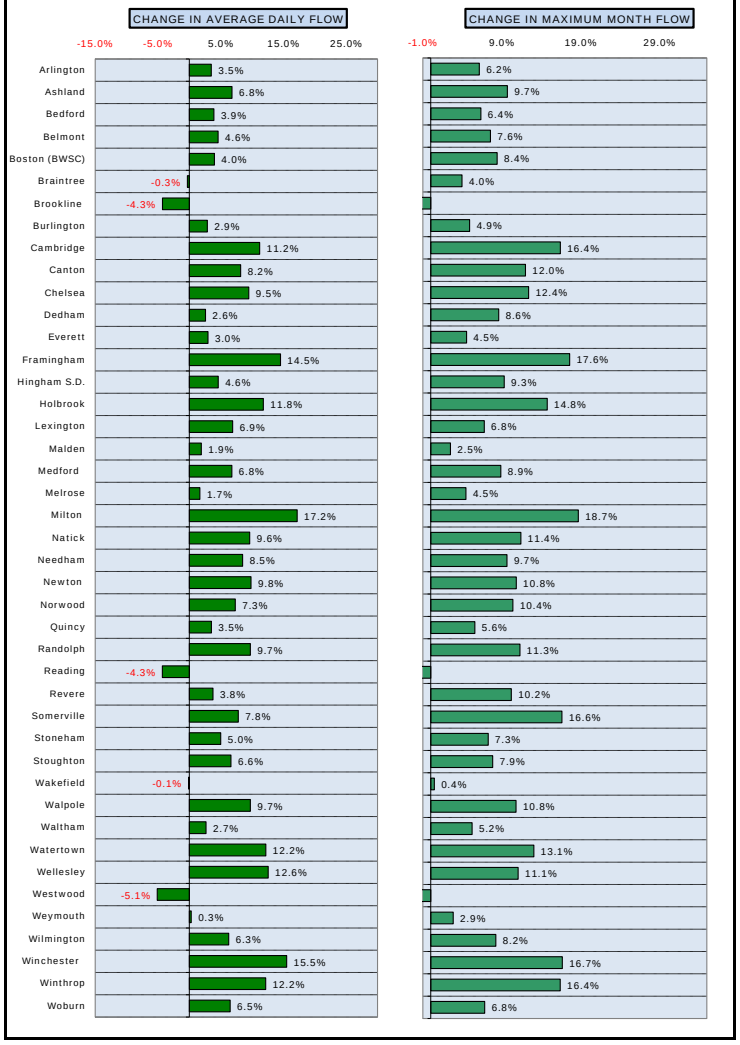
	Water Use (million gallons per day)													
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	YTD Average	Annual Average
CY2022	166.445	169.923	168.101	169.253	199.626	221.002	247.075	244.069	222.906	192.000	171.170	160.697	182.457	194.537
CY2023	161.272	165.989	162.292	169.594	198.499	205.042	208.304	203.762	199.844	180.948	163.937	158.736	177.186	181.612
CY2024	166.238	164.451	162.794	167.778	185.139	216.659	0.000	0.000	0.000	0.000	0.000	0.000	177.151	1,040.048

The June 2024 Community Water Use Report was recently distributed to communities and customers served by the MWRA's Metropolitan and Chicopee Valley waterworks systems. Each community's annual water use relative to the system as a whole is the primary factor in allocating the annual water rate revenue requirement to MWRA water communities. Calendar year 2023 water use will be used to allocate the FY2025 water utility rate revenue requirement.

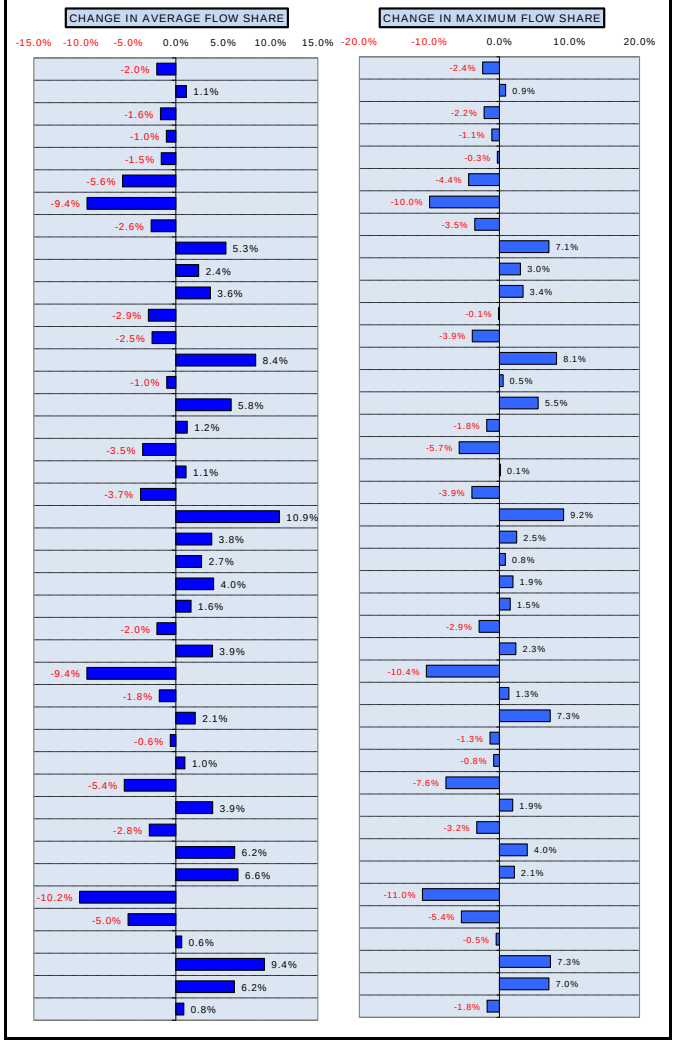
MWRA customers used an average of 189.8 mgd in the 4th quarter (Apr-Jun 2024) of FY2024. This is a decrease of 1.3 mgd or 0.7% compared to the 4th quarter of FY2023.

How CY2022-24 Community Wastewater Flows Could Effect FY2026 Sewer Assessments [1,2,3]

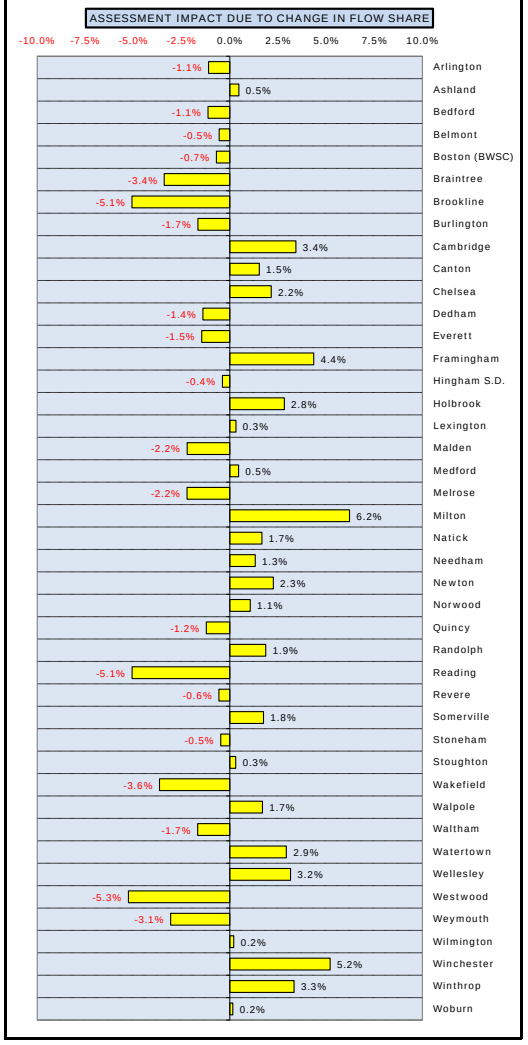
The flow components of FY2026 sewer assessments will be calculated using a 3-year average of CY2022 to CY2024 wastewater flows compared to FY2025 assessments that will use a 3-year average of CY2021 to CY2023 wastewater flows.



But as MWRA's sewer assessments are a ZERO-SUM calculation, a community's assessment is strongly influenced by the RELATIVE change in CY2022 to CY2024 flow share compared to CY2021 to CY2023 flow share, compared to all other communities in the system.



The chart below illustrates the change in the TOTAL BASE assessment due to FLOW SHARE CHANGES. [4]



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

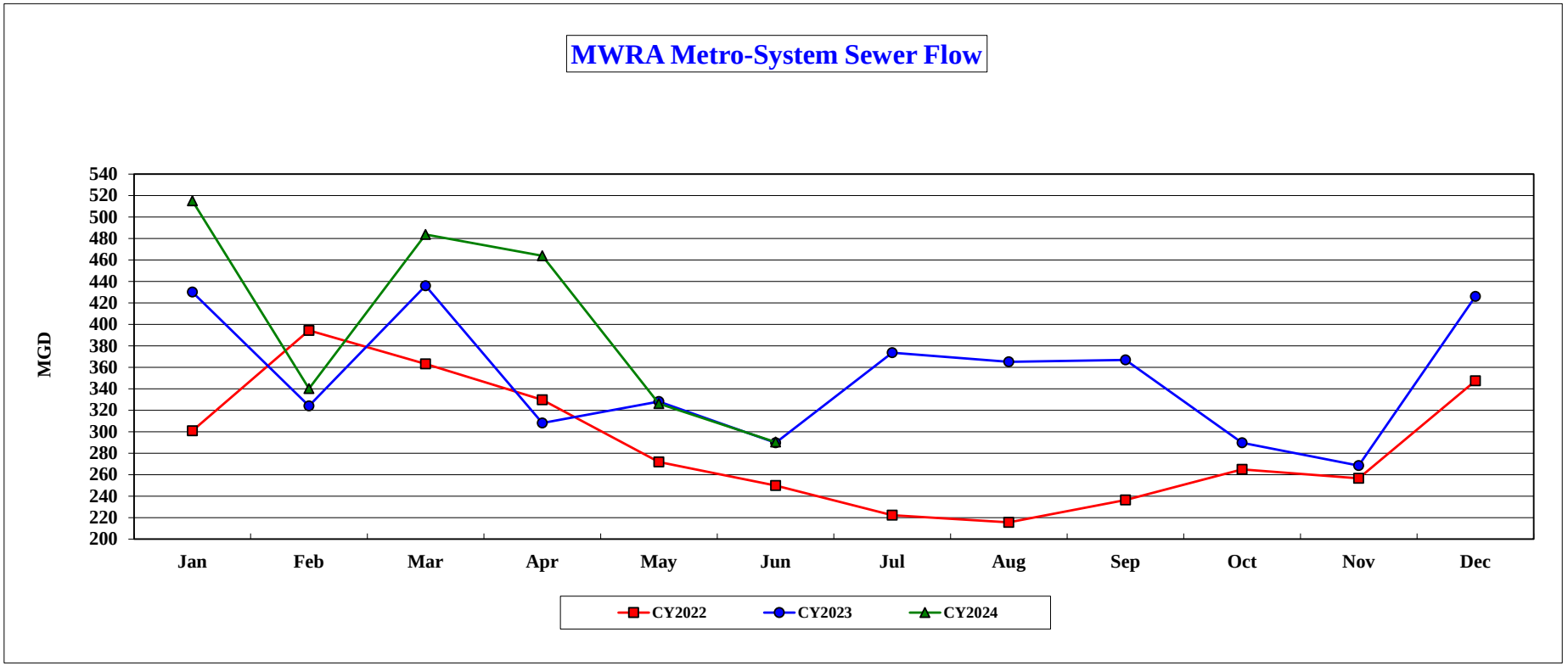
[2] Based on actual flows for 2022 through June 2024.

[3] Flow data is preliminary and subject to change pending additional MWRA and community review.

[4] Represents ONLY the impact on the total BASE assessment resulting from the changes in average and maximum wastewater FLOW SHARES.

Community Sewer Flow

YTD - FY24



	Sewer Flow (million gallons per day)													
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	YTD Average	Annual Average
CY2022	300.930	394.400	363.110	329.710	271.890	249.840	222.280	215.600	236.380	264.960	256.590	347.420	317.368	287.098
CY2023	430.060	323.980	435.990	308.110	328.160	289.710	373.540	365.130	366.840	289.680	268.470	426.070	353.738	351.159
CY2024	515.140	340.120	483.660	463.870	326.210	290.340							404.204	

The 2024 6-Month Community Sewer Flow Report was recently distributed to the 43 communities served by the MWRA's Metropolitan sewer system. Each community's share of sewer flow relative to the system as a whole is used to allocate the annual sewer rate revenue requirement to MWRA sewer communities. The average of calendar year 2022-2024 sewer flow will be used to allocate the FY2026 sewer utility rate revenue requirement.

MWRA customer sewer flow averaged 404.2 mgd in the first six months of CY2024. This is an increase of 50.5 mgd or 14.3% compared to the first six months of CY2023.

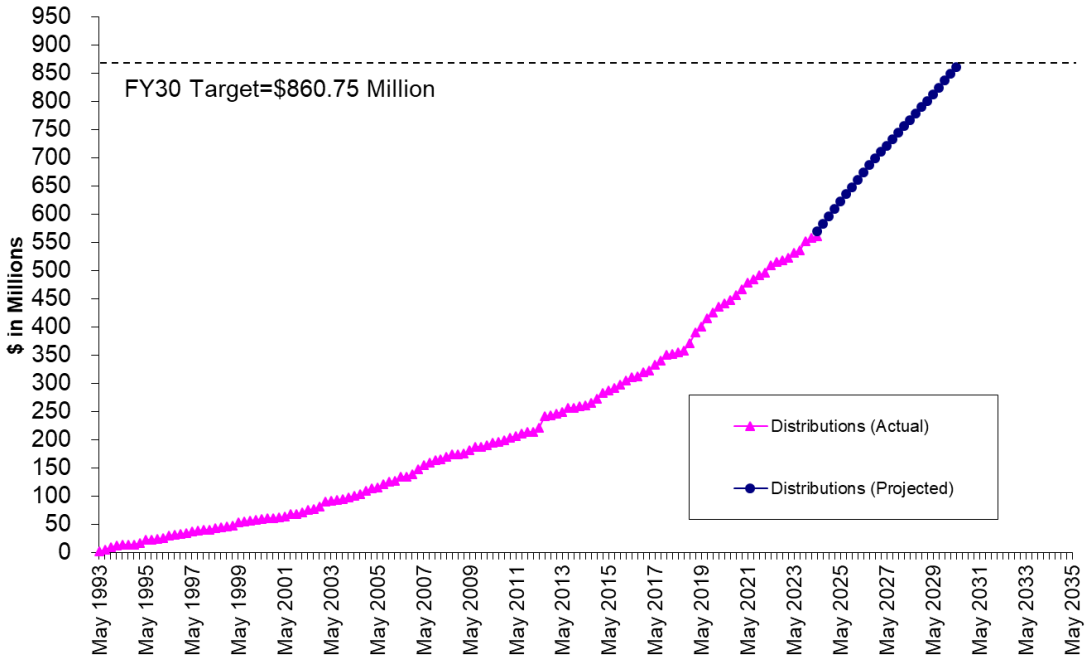
Community Support Programs

4th Quarter – FY24

Infiltration/Inflow Local Financial Assistance Program

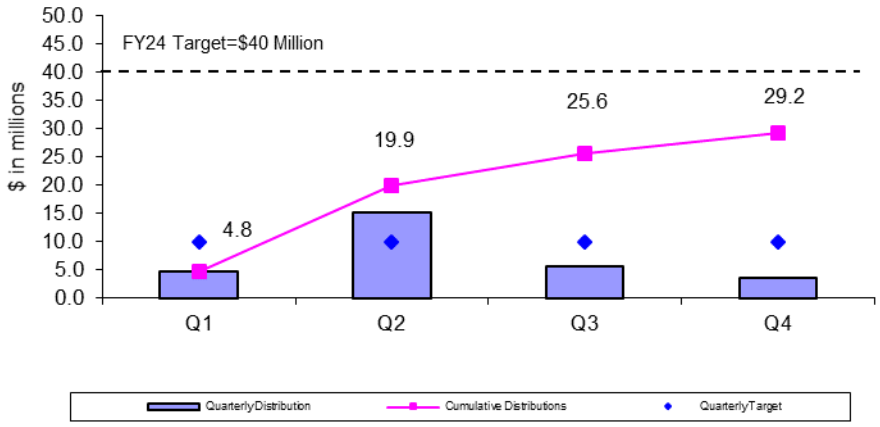
MWRA's Infiltration/Inflow (I/I) Local Financial Assistance Program provides $860.75 million in grants and interest-free loans (average of about $22 million per year from FY93 through FY30) to member sewer communities to perform I/I reduction and sewer system rehabilitation projects within their locally-owned collection systems. Eligible project costs include: sewer rehabilitation construction, pipeline replacement, removal of public and private inflow sources, I/I reduction planning, engineering design, engineering services during construction, etc. I/I Local Financial Assistance Program funds are allocated to member sewer communities based on their percent share of MWRA's wholesale sewer charge. Phase 1-8 funds (total $300.75 million) were distributed as 45% grants and 55% loans with interest-free loans repaid to MWRA over a five-year period. Phase 9 through 12 funds (total $360 million) are distributed as 75% grants and 25% loans with interest-free loans repaid to MWRA over a ten-year period. Phase 13 provides an additional $100 million in ten-year loan-only funds. Phase 14 funds (total $100 million) are distributed as 75% grants and 25% loans with interest-free loans repaid to MWRA over a ten-year period.

I/I Local Financial Assistance Program Distribution FY93-FY30



During the 4th Quarter of FY24, $3.6 million in financial assistance (grants and interest-free loans) was distributed to fund local sewer rehabilitation projects in Ashland, Hingham, Walpole and Wellesley. Total grant/loan distribution to date for FY24 is $29.2 million. From FY93 through the 4th Quarter of FY24, all 43 member sewer communities have participated in the program and $560 million has been distributed to fund 685 local I/I reduction and sewer system rehabilitation projects. Distribution of the remaining funds has been approved through FY30 and community loan repayments will be made through FY40. All scheduled community loan repayments have been made.

FY24 Quarterly Distributions of Sewer Grant/Loans



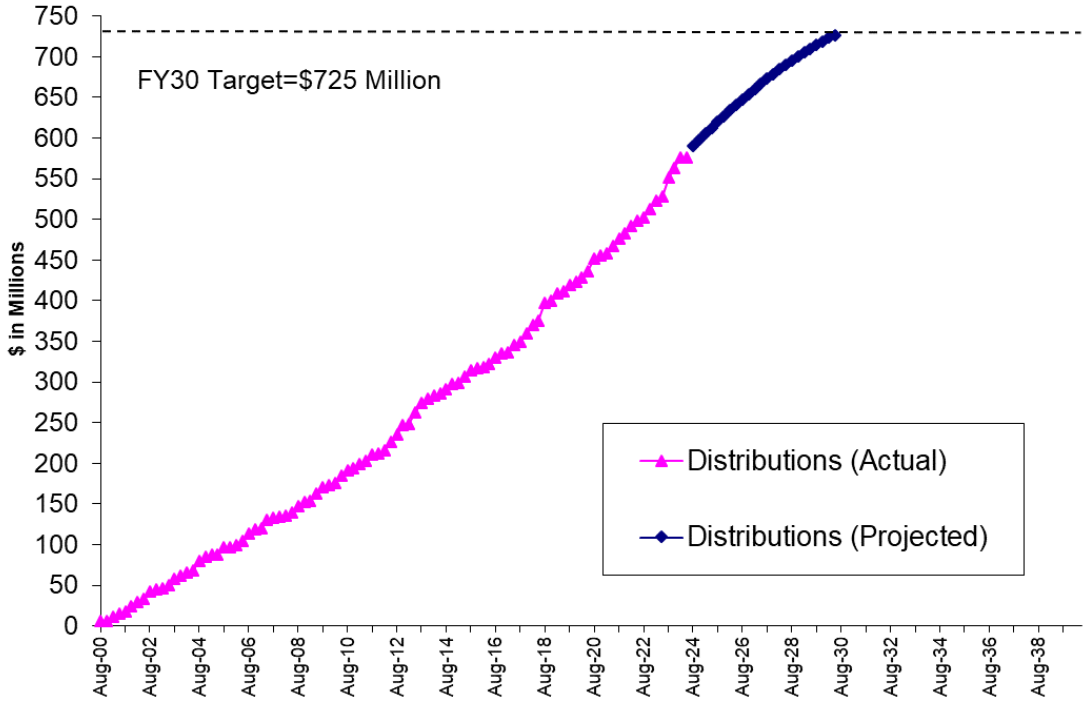
Community Support Programs

4th Quarter – FY24

Local Water System Assistance Program

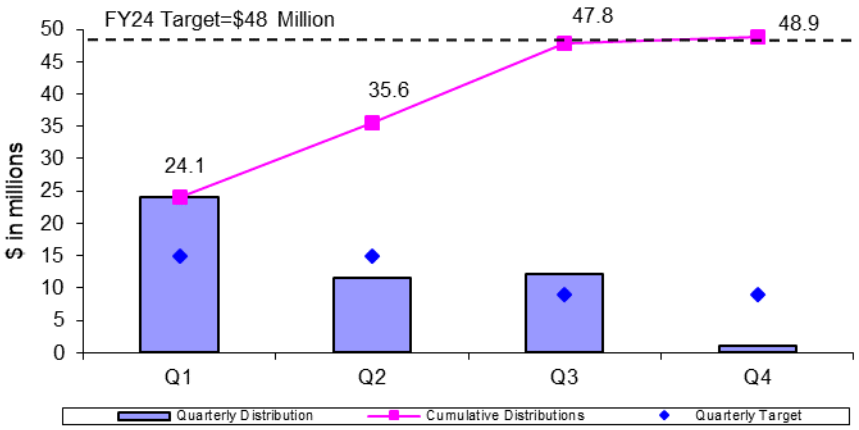
MWRA's Local Water System Assistance Programs (LWSAP) provides $725 million in interest-free loans (an average of about $24 million per year from FY01 through FY30) to member water communities to perform water main rehabilitation projects within their locally-owned water distribution systems. There have been three (3) funding phases: Phase 1 at $222 Million, Phase 2 at $210 Million, and Phase 3 at $293 Million. Eligible project costs include: water main cleaning/lining, replacement of unlined water mains, lead service replacements, valve, hydrant, water meter, tank work, engineering design, engineering services during construction, etc. MWRA partially-supplied communities receive pro-rated funding allocations based on their percentage use of MWRA water. Interest-free loans are repaid to MWRA over a ten-year period beginning one year after distribution of the funds. The Phase 1 water loan program concluded in FY13 with $222 million in loan distributions. The Phase 2 - LWSAP continues distributions through FY25. The Phase 3 Water Loan Program is authorized for distributions from FY18 through FY30.

Local Water System Assistance Program Distribution FY01-FY30



During the 4th Quarter of FY24, $1.1 million in interest-free loans was distributed to fund local water projects in Melrose and Weston. Total loan distribution to date for FY24 is $48.9 million. From FY01 through the 4th Quarter of FY24, $576 million has been distributed to fund 536 local water system rehabilitation projects in 43 MWRA member water communities. Distribution of the remaining funds has been approved through FY30 and community loan repayments will be made through FY40. All scheduled community loan repayments have been made.

FY24 Quarterly Distributions of Water Loans



Community Support Programs

4th Quarter – FY24

Lead Service Line Replacement Loan Program

By its vote on March 16, 2016, the Board approved an enhancement to the Local Water System Assistance Program to provide up to $100 million in 10-year zero-interest loans to communities solely for efforts to fully replace lead service lines. The Lead Service Line Replacement Loan Program is also referenced as the Lead Loan Program or LLP. Each community can develop its own program, tailored to their local circumstances. MWRA's goal in providing financial assistance to member communities is to improve local water systems so that the high quality water MWRA delivers can make it all the way to the consumer's tap. The presence of a lead service line connecting a home to the main in the street can lead to elevated lead levels in tap water, especially if that water sits stagnant for an extended period. MWRA's stable water quality and effective corrosion control treatment reduce the risk that a lead service line will cause elevated lead levels, and measured lead levels in high risk homes have decreased by 90 percent since corrosion control was brought on-line in 1996. However, the risk of elevated levels remains as long as lead service lines are in use. To date, $43.8 million dollars has been distributed to 17 communities.

FY17 was the first year of the Lead Service Line Replacement Loan Program - MWRA made three Lead Loans.

FY18 was the second year of the Lead Loan Program - MWRA made five Lead Loans.

FY19 was the third year of the Lead Loan Program - MWRA made four Lead Loans.

FY20 was the fourth year of the Lead Loan Program - MWRA made eight Lead Loans.

FY21 was the fifth year of the Lead Loan Program - MWRA made seven Lead Loans.

FY22 was the sixth year of the Lead Loan Program - MWRA made six Lead Loans.

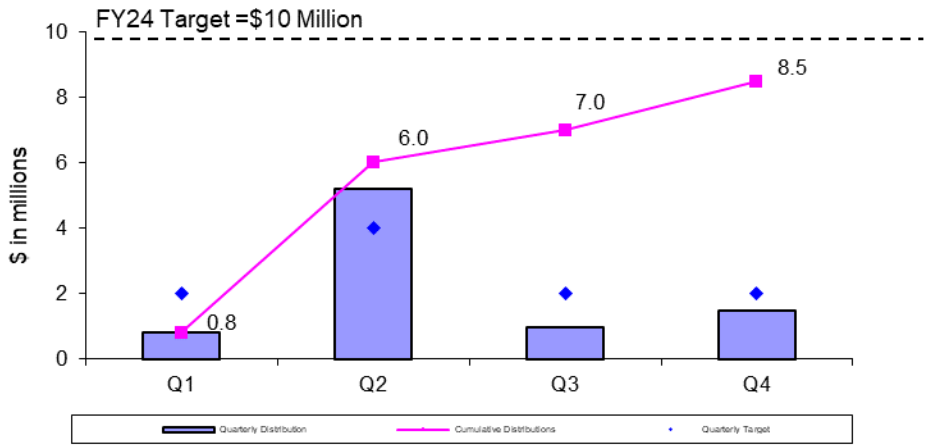
FY23 was the seventh year of the Lead Loan Program - MWRA made six Lead Loans.

FY24 was the eighth year of the Lead Loan Program - MWRA made seven Lead Loans.

Summary of Lead Loans:

Quincy in FY24	$1.50 Million	Somerville in FY22	$1.60 Million	Everett in FY20	$1.0 Million
Winthrop in FY24	$0.98 Million	Revere in FY22	$1.30 Million	Somerville in FY20	$0.90 Million
Chelsea in FY24	$0.30 Million	Chelsea in FY22	$0.30 Million	Chelsea in FY20	$0.30 Million
Melrose in FY24	$1.04 Million	Watertown in FY21	$0.60 Million	Marlborough in FY19	$1.0 Million
Lexington in FY24	$3.88 Million	Marlborough in FY21	$2.0 Million	Winthrop in FY19	$0.50 Million
Watertown in FY24	$0.30 Million	Everett in FY21	$1.50 Million	Chelsea in FY19	$0.10 Million
Malden in FY24	$0.50 Million	Boston in FY21	$2.60 Million	Everett in FY19	$1.0 Million
Chelsea in FY23	$0.50 Million	Winthrop in FY21	$0.80 Million	Needham in FY18	$1.0 Million
Watertown in FY23	$0.30 Million	Chelsea in FY21	$0.30 Million	Winchester in FY18	$0.50 Million
Winthrop in FY23	$0.70 Million	Winchester in FY21	$0.60 Million	Revere in FY18	$0.20 Million
Reading in FY23	$1.50 Million	Everett in FY20	$0.50 Million	Winthrop in FY18	$0.30 Million
Watertown in FY23	$0.30 Million	Marlborough in FY20	$1.0 Million	Marlborough in FY18	$1.0 Million
Winchester in FY23	$0.60 Million	Winchester in FY20	$0.60 Million	Newton in FY17	$4.0 Million
Everett in FY22	$1.5 Million	Winthrop in FY20	$0.70 Million	Quincy in FY17	$1.5 Million
Boston in FY22	$0.90 Million	Weston in FY20	$0.20 Million	Winchester in FY17	$0.50 Million
Winthrop in FY22	$0.80 Million			**TOTAL**	**$43.80 Million**

FY24 Quarterly Distributions of Lead Service Line Replacement Loans

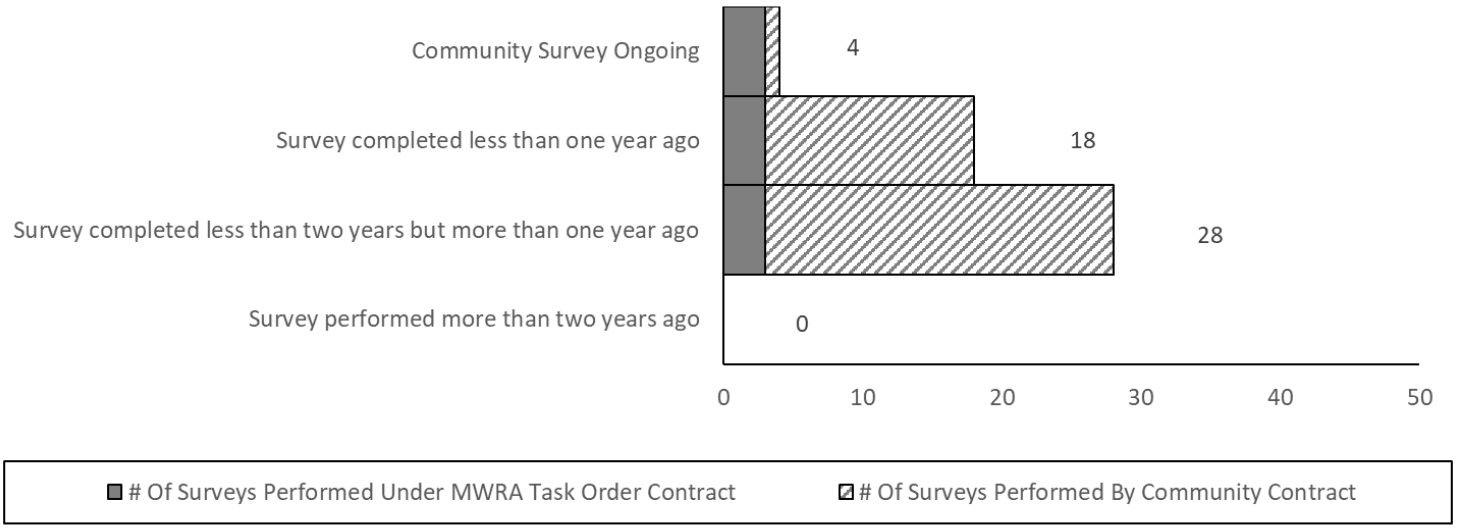


Community Support Programs

4th Quarter – FY24

Community Water System Leak Detection

To ensure member water communities identify and repair leaks in locally-owned distribution systems, MWRA developed leak detection regulations that went into effect in July 1991. Communities purchasing water from MWRA are required to complete a leak detection survey of their entire distribution system at least once every two years. Communities can accomplish the survey using their own contractors or municipal crews, or alternatively, using MWRA's task order leak detection contract. MWRA's task order contract provides leak detection services at a reasonable cost that has been competitively procured (3-year, low-bid contract) taking advantage of the large volume of work anticipated throughout the regional system. Leak detection services performed under the task order contract are paid for by MWRA and the costs are billed to the community the following year. During the 4th Quarter of FY24, all member water communities were in compliance with MWRA's Leak Detection Regulation.



Community Water Conservation Outreach

MWRA's Community Water Conservation Program helps to maintain average water demand below the regional water system's safe yield of 300 mgd. Current 5-year average water demand is less than 200 mgd. The local Water Conservation Program includes distribution of water conservation education brochures (indoor - outdoor bill-stuffers) and low-flow water fixtures and related materials (shower heads, faucet aerators, and toilet leak detection dye tabs), all at no cost to member communities or individual customers. The Program's annual budget is $25,000 for printing and purchase of materials. Annual distribution targets and totals are provided in the table below. Distributions of water conservation materials are made based on requests from member communities and individual customers.

	Annual Target	Q1	Q2	Q3	Q4	Annual Total
Educational Brochures	100,000	357	8,330	350	8,105	**17,142**
Low-Flow Fixtures (showerheads and faucet aerators)	10,000	1,175	796	812	423	**3,206**
Toilet Leak Detection Dye Tablets	------	1,065	193	1,354	770	**3,382**

BUSINESS SERVICES

Procurement: Purchasing and Contracts

4th Quarter - FY24

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

Highlights: Processed 95% of purchase orders within target; Average Processing Time was 4.61 days vs. 5.23 days in Qtr 4 of FY24. Processed 75% (6 of 8) of contracts within target timeframes; Average Processing Time was 100 days vs. 98 days in Qtr 4 of FY24.

Purchasing

	No.	TARGET	PERCENT IN TARGET
$0 - $500	524	3 DAYS	94.6%
$500 - $2K	657	7 DAYS	87.9%
$2K - $5K	334	10 DAYS	97.1%
$5K - $10K	170	25 DAYS	98.5%
$10K - $25K	64	30 DAYS	99.4%
$25K - $50K	26	60 DAYS	92.1%
Over $50K	38	90 DAYS	94.7%

The Purchasing Unit processed 1,813 purchase orders, 89 more than the 1,724 processed in Qtr 4 of FY23 for a total value of $15,432,700 versus a dollar value of $14,927,509 in Qtr 4 of FY23.

The purchase order processing target was met for all categories.

Contracts, Change Orders and Amendments

Procurement executed eight contracts with a value of $3,052,114 and eighteen amendments with a value of $9,753,349. Two contracts were not executed within the target timeframes. One contract's (Uniform Apparel Services) RFQP was intentionally delayed and subsequently the Notice to Proceed in order to align the contract with the start of the fiscal year when uniform allowances reset. Another contract was delayed due to an extensive vetting process as the vendor (Ardent Group) is a new vendor to the MWRA. Additionally, the vendor was slow to respond to required MWRA administration information requests.

Staff reviewed 51 proposed change orders and 28 draft change orders.
Thirty two change orders were executed during the period. The dollar value of all non-credit change orders duringQ4 FY24 was $2,437,947 and the value of credit change orders was ($667,789).

Note: A credit change order is a change order that results in a decrease in contract value.

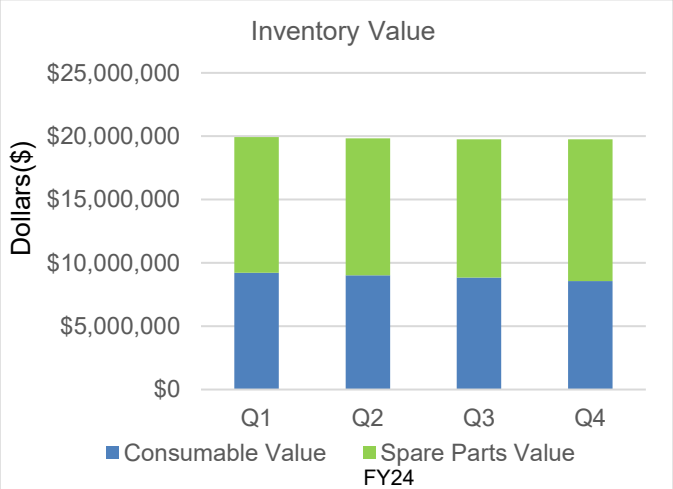
Materials Management

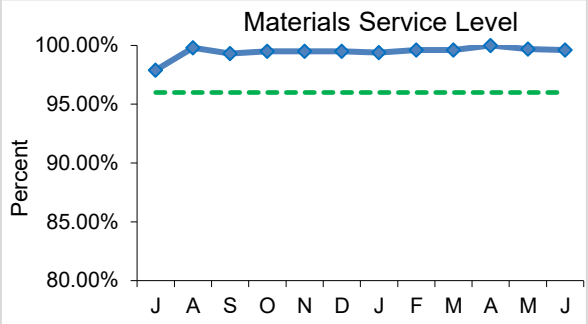
4th Quarter - FY24

The Materials Management department manages the three regional warehouses (Chelsea, Deer Island and Southboro). This includes the replenishment and receipt of both consumable and spare parts items to meet the needs of the MWRA. Additionally, MWRA tools and equipment are safeguarded through the Property Pass unit within the Materials Management department.

Inventory goals focus on:

- Maintaining optimum levels of consumables inventory (office supplies, electrical, safety, etc.) and spare parts inventory (critical items such as actuators, motors, muffin monsters, etc.) necessary to support MWRA Operations and Maintenance. Typically spare parts carry longer lead times.
- Adding new items to inventory to meet changing business needs.
- Reviewing consumables and spare parts for obsolescence.
- Managing and controlling valuable equipment and tools via the Property Pass Program.

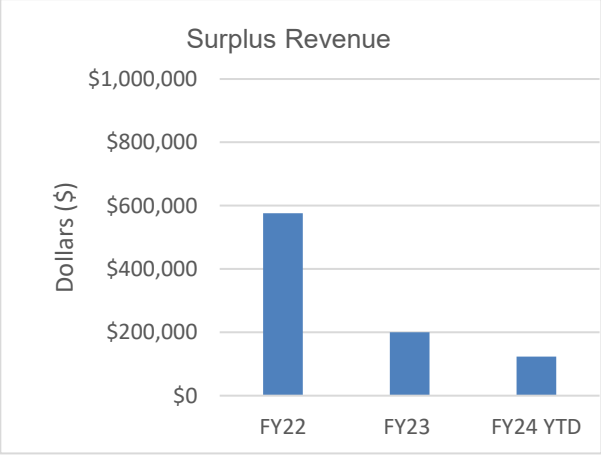


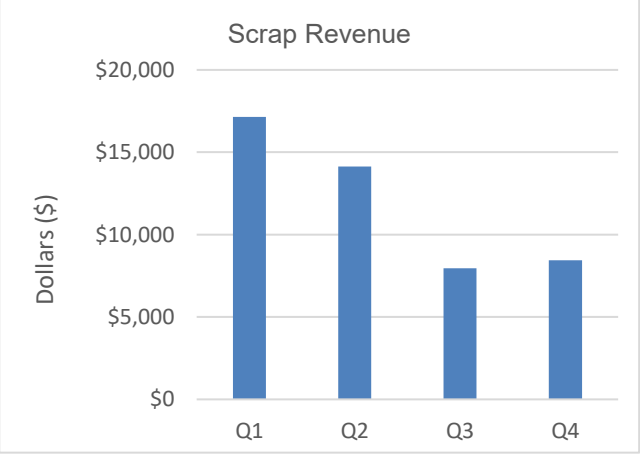


The service level is the percentage of stock requests filled. The goal is to maintain a service level of 96%. Staff issued 7,667 (99.7%) of the 7,687 items requested in Q4 from the inventory locations for a total dollar value of $1,940,804.

Property Pass Program:

- Conducts audits of tools and equipment to ensure the safeguarding of MWRA assets.
- Manages the disposition and sale of surplus tools and equipment through GovDeals, an online auction site.
- Manages the surplusing of scrap metals and materials generating revenue to the MWRA staff.

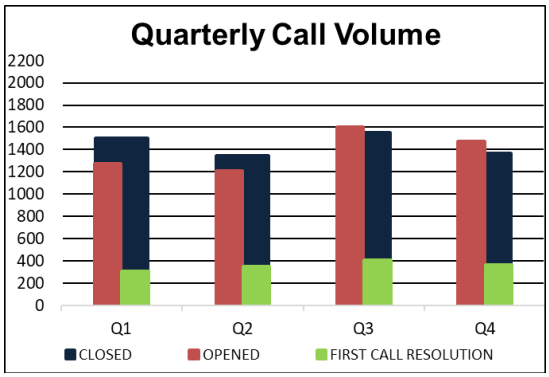




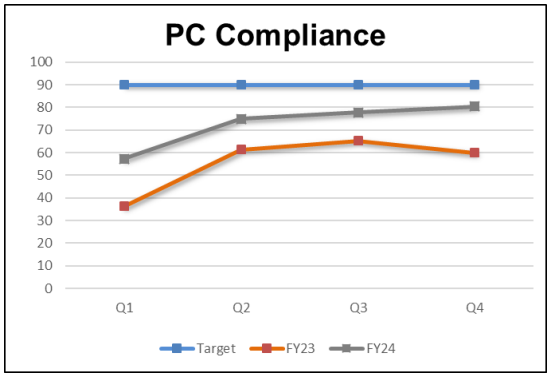
MIS Program

Fourth Quarter – FY24

Numbers & Statistics



Summary of calls managed by the Helpline.



Percentage of user endpoints that are in compliance with system updates. These numbers are a direct reflection of accessibility to these systems. Daytime patching began in January for mobile devices.

Project Updates

Infrastructure & Security

SD-WAN: Implementation completed at seven of the original eight planned locations. Deer Island is pending second ISP. Needham facility added and pending ISP and hardware.

VOIP: Call Detail Reporting software was purchased, working with vendor to plan implementation. Permanent IP address and server name were determined.

Switch Upgrades: All Edge Switches replaced except for portions of Deer Island. Chelsea Core switches upgrade.

VMWare WorkspaceONE: 1148 devices migrated to WorkspaceONE for device management. Staff working with vendor to optimize deployment process and training.

Oracle Database Appliance Hardware Refresh: Migration of Dev databased completed. Production databases started. Anticipated completion in mid August

Server/Database Version Upgrades: Staff continue to meet monthly to review and identify migration paths of infrastructure to maintain support.

Live Stream Webcams: New hardware selected, developing scope of work for installation.

AWIA: DMZ server logging implemented.

Distributed Antenna System: Vendor scheduled to begin repairs Chelsea facility system in July. Services being procured to repair Deer Island system

Library, Record Center, & Training

Library: completed 14 research requests, supplied books and reports for circulation, and provided access to five new books/reports and two new standards (aside from subscription). The MWRA Library Portal supported 409 end-user searches.

Record Center (RC): Added 34 new boxes to the RC and handled 337 total boxes. The RC performed database / physical box searches for various departments. Research included: Engineering documents, public record requests, staff summaries, personnel files, various construction contracts.

MIS Training: In Q4, 2 online IT lessons were taken (11 YTD), by 15 employees (152 YTD).

Applications

ECM/Electronic Document Management: Build for the first Staff Summary workflow (Purchasing Staff Summary) to begin in July, with the goal of completing and rolling it out in the fall. Continued to gather requirements in Q4 for building the remaining Staff Summary, Requisition, and Policy processes in ECM. Work continued towards migrating the remaining InfoStar data into ECM in the hopes of formally retiring InfoStar at the end of that project.

MWRA Website Refresh: Vendor continued to work on building out more robust search functionality within the website, per the recently approved Task Order. Website go-live date scheduled for August. Continue to populate the new website with up-to-date content so it will be ready for go-live.

Infor Upgrade/Migration: MIS Development staff continued to attend weekly technical touchpoint sessions and CloudSuite training sessions with the vendor (RPI). They participated in the first round of Unit Testing and continued to perform the analysis related to integrating the MWRA Custom applications with the cloud version of Infor Lawson. The Development staff is currently working on the 2nd of 4 development sprints in preparation for the 2nd round of Unit Testing scheduled for late July.

Maximo/Lawson Interface: MIS completed the Maximo-Lawson Interfaces project in late April. The project involved streamlining process flows, enhancing functionality, and adding data validation for optimal performance and transaction integrity. The project is in the Warranty period and MIS is currently working with the vendor (Starboard) to resolve issues related to the implementation of the Maximo interfaces with the Lawson ERP application.

Library Portal Upgrade (GeniePlus): MIS completed the upgrade and migration of the Library Portal to a SaaS environment and the application is ready to implement into production in July. MIS is also currently working with the vendor (Lucidea) to deploy an update of the library portal containing a Logout feature.

Maximo Version Upgrade: MIS completed the Maximo Upgrade project in late April. The application and underlying infrastructure were upgraded to current versions of the hardware and software. In mid June the Maximo application started experiencing stability and performance issues that impacted the usability of the system. MIS has engaged the vendor (IBM) to troubleshoot and resolve.

Legal Matters

4th Quarter – FY24

PROJECT ASSISTANCE

Real Estate, Contract, Energy, Environmental, and Other Support:

- **8(m) Permits and License Agreements**: Reviewed thirty-four (83) 8(m) permits, including any related MEPA Section 61 Findings. Drafted 8(m) permit for the Town of Weston to allow for installation of an antenna array on MWRA's microwave tower at its Norumbega facility. Drafted and finalized license agreement for short-term use of MWRA/FRRC's property at Fore River Shipyard in Quincy. Finalized amendment to the Town of Northborough's Public Access 8(m) permit.

- **Real Property**: Completed review of Quabbin Watershed Fee Acquisition W-001257 package for parcel of land in Wendell, MA and Wachusett Watershed Fee Acquisition W-001259 package for parcel of land in Boylston, MA. Reviewed Quabbin Watershed Preservation Restriction Acquisition W-001254 package for parcel of land in Barre, MA. Further reviewed property records and trust documents verifying ownership of land in Wendell, MA concerning acquisition of a Quabbin Watershed Preservation Restriction W-001247. Reviewed use of state funds for acquisition of property interests for W-001254, W-001257, W-001259 by DCR. Finalized water easement rights on one property in Winchester for MWRA Contract 7117 - Northern Intermediate High Section 89 Pipeline. Drafted summary related to request for DCR construction access permit and reviewed property records for various parcels in Lynn and Revere for Section 56 Water Pipeline Replacement Project. Drafted notices of offer for property interests in Lynn and Revere needed for Contract 7454 - Section 56 Replacement of Saugus River Crossing. Drafted license for Point of Pines Yacht Club, and drafted grant of easements from City of Lynn needed for Contract 7454. Reviewed, revised and finalized sewer easement language and plan related to MWRA's Hingham Pump Station. Drafted water easement language and reviewed easement plan related to proposed water easement on a parcel of land in Saugus. Drafted high-level summary and updated property maps related to request for DCR construction access permit for Section 56 Water Pipeline Replacement Project. Reviewed grant of location for DCR construction access permit for Section 56 Water Pipeline Replacement Project. Revised proposed grant of water easement from MBTA in Lexington along Minuteman Bikeway needed for MWRA Contract 7725 - Northern Extra High Pressure Zone Improvements CP2. Reviewed boring license agreement and insurance coverages for Tunnel Redundancy Program. Site visits for Southern Tunnel alignment and review of various property interests, disposition and acquisition processes for Tunnel Redundancy Program. Reviewed Walpole Records Center lease for notice requirements to landlord for discontinuation of use of additional storage space.

- **Environmental**: Prepared draft Water Supply Continuation Agreement with the Town of Wilmington. Assisted with preparation of the Annual Report for Calendar Year 2023 for the Boston Harbor Case. Assisted with preparation of comment letters regarding Department of Environmental Protection proposed rulemakings. Assisted with MEPA filing for Section 56 Water Pipeline Replacement Project. Assisted with preparation of filing for closeout of Deer Island landfill. Assisted with preparation of comments regarding MassDEP reissuance of Fact Sheet for Deer Island draft Surface Waters Discharge Permit. Reviewed and revised draft Program Guidelines for Lead Service Line Replacement Program Projects.

- **Energy**: Reviewed draft letter of intent regarding a potential solar canopy project on Deer Island. Prepared draft legislation regarding solar-PV installation for the MWRA Norumbega covered water storage facility. Assisted energy team with preparation of a draft non-binding Letter of Intent for Solar PV Installation and/or Power Purchase Agreement.

- **Miscellaneous**: Participated in Contract Selection Committee for Disclosure Counsel. Reviewed updates to Fleet Services Management and Maintenance Policy. Finalized Employee Use of Electric Vehicle Chargers at MWRA Facilities for Personal Vehicles Policy. Reviewed documents for submission to Records Conservation Board for disposition. Further reviewed and edited draft of final design and engineering services agreement for Tunnel Redundancy Program. Reviewed terms of MOA with Ludlow and bonds for work at Nash Hill concerning the installation of a retaining wall. Researched Uniform State

Plumbing Code (248 CMR 10.00) and regulation changes for purposes of compliance with lavatory signage. Reviewed terms for Contract OP-421 concerning change order request.

- **Public Records Requests:** During the months of April, May and June 2024, MWRA received and responded to **one hundred fifty seven (157)** public records requests.

LITIGATION /TRAC – 4th Quarter FY24

New Lawsuits:

There is one new lawsuit and one new bankruptcy matter in 4th Quarter FY 2024.

- MWRA v. Baldwin Energy, LLC and Hanover Insurance Company, Suffolk Superior Court C.A. No.2484CV01019-BLS2: MWRA filed suit on April 16, 2024 alleging breaches by Baldwin Energy, LLC of MWRA Contract No. S605 for maintenance of wind turbine generators at MWRA facilities. MWRA also alleged contractual indemnity and negligence. On May 30, 2024, MWRA amended its complaint to add the surety, Hanover Insurance Company. MWRA seeks damages in the action for the catastrophic failure of WTG-1. On June 17, 2024, Baldwin Energy, LLC and Hanover Insurance Company filed their answer to MWRA's complaint and Baldwin Energy, LLC filed counterclaims against MWRA alleging breach of contract, breach of the implied covenant of good faith and fair dealing, violation of G.L. c. 93A, sec. 11 and defamation and seeking damages. A Litigation Control Conference is scheduled for August 22, 2024.
- In re: Steward Health Care System, LLC et al., TXSB (Southern District of Texas), Case No. 24-90213; (Chapter 11): On or about May 22, 2024, MWRA received notice of a Chapter 11 bankruptcy. MWRA currently has a claim for sewer use permitting fees in the approximate amount of $15,000 and this amount is subject to increase.

New Claims:

- There are no new claims in 4th Quarter FY 2024.

Significant Developments:

- Thomas Ryan et al v. The Newark Group, Inc. et al., U.S.D.C. (Mass), 4:22-cv-40089-MRG: On May 13, 2024, The Newark Group, Inc., Seaman Paper Co. of Massachusetts, Inc., and Otter Farm, Inc. filed a Motion for Leave to Amend Their Answers to Join Massachusetts Water Resource Authority as Crossclaim Defendant Pursuant to Rule 20(A)(2), or in the Alternative, for Leave to File Third-Party Complaint to assert claims of contribution and indemnification and under G.L. c. 21E against the Authority. On June 10, 2024, the Authority filed the Opposition of Massachusetts Water Resources Authority to Motion for Leave to Assert Crossclaims and/or Third-Party Claims Against the Authority.

- In re Aqueous Film-Forming Foam Products Liability Litigation, MDL No. 2:18-mn-02873-RMG: On June 14, 2024, the Court preliminarily approved a $750 million class action settlement with Tyco Fire Products LP.

Closed Cases:

There are two closed cases during 4th Quarter 2024:

- Massachusetts Water Resources Authority v. National Association of Government Employees (NAGE), Local R1-168, Suffolk Superior Court C. A. No. 2284CV02453: On April 1, 2024 the court issued a Memorandum and Order on Motion for Judgment on the Pleadings confirming the Arbitrator's Award in favor of NAGE Local R1-168, which MWRA challenged in Suffolk Superior Court.

- (Former employee) v. MWRA, et al., Suffolk Superior Court C.A. No. 284CV01434: On April 3, 2024, the court enforced the settlement agreement between the parties and entered Judgment of Dismissal dismissing plaintiff's case with prejudice.

Closed Claims:

- There are no Closed Claims to report in 4th Quarter FY 2024.

Subpoenas:

- During the 4th Quarter FY 2024, no new subpoenas were received and one subpoena is pending.

SUMMARY OF PENDING LITIGATION MATTERS

TYPE OF CASE/MATTER	As of June 2024
Construction/Contract/Bid Protest	2
Tort/Labor/Employment	1
Environmental/Regulatory/Other	2
Eminent Domain/Real Estate	0
TOTAL	**5**
Other Litigation matters (restraining orders, etc.) - Class Action suits	4
TOTAL – all pending lawsuits	**9**
Claims not in suit	0
Bankruptcy	5
Wage Garnishment	1
TRAC/Adjudicatory Appeals	3
Subpoenas	1
TOTAL – ALL LITIGATION MATTERS	**19**

TRAC/MISC. ADMIN. APPEALS

Appeals Pending:

- There are three pending TRAC appeals in 4th Quarter 2024:

  1058 Beacon Street, Newton, MA; MWRA Docket No. 22-01

  Tri-Town Regional Water District; MWRA Docket No. 23-03

  Courtyard Marriott Boston Downtown; MWRA Docket No. 23-04

LABOR AND EMPLOYMENT – 4th Quarter FY24

New Matters

- A union filed a request for arbitration of a grievance alleging that MWRA violated the collective bargaining agreement because an employee has been working out of title.
- A union filed a request for arbitration of a grievance asserting that MWRA violated the collective bargaining agreement when it appointed an employee to an acting position after the interview process.
- A union filed a request for arbitration of a grievance asserting that MWRA promoted an employee based upon gender in violation of the collective bargaining agreement.
- A union filed a request for arbitration of a grievance asserting that MWRA violated the collective bargaining agreement by failing to conduct the shift bid process before promoting an employee.
- A union filed a request for arbitration of a grievance asserting that MWRA failed to complete the lateral transfer process to fill an open position in violation of the collective bargaining agreement.
- A former employee filed an appeal of the Department of Unemployment Assistance's determination that the former employee is disqualified for unemployment benefits due to a knowing violation of uniformly enforced policies.

Significant Developments

- None to report.

Matters Concluded

- The MCAD dismissed an employee's complaint of disability discrimination and retaliation.
- A union withdrew a demand for arbitration in a grievance challenging a promotional bypass.
- The MCAD dismissed an employee's complaint of disability discrimination and retaliation.
- A union withdrew a demand for arbitration in a grievance challenging a suspension.
- A union withdrew a demand for arbitration after settlement of a grievance challenging a suspension.
- The Department of Unemployment Assistance reversed its prior determination that a terminated employee is indefinitely ineligible for benefits, thereby ruling against the MWRA and awarding the former employee benefits.
- A union and MWRA settled remaining wage claims after an arbitrator awarded employees one hour of overtime pay.

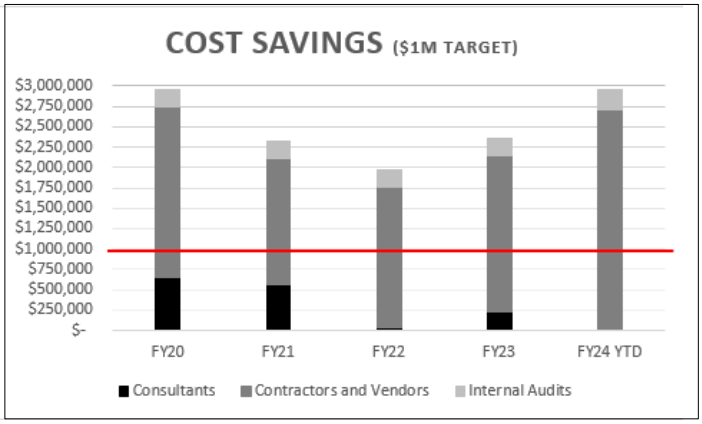
INTERNAL AUDIT AND CONTRACT AUDIT ACTIVITIES

4th Quarter - FY24

Purpose

Internal Audit evaluates the effectiveness of internal controls and procedures and monitors the quality, efficiency and integrity of the Authority's operating and capital programs. Through our audits and reviews, we assess whether internal controls are functioning as intended and that only reasonable, allowable and allocable costs are paid to consultants, contractors and vendors.

Cost Savings	FY24 YTD
Consultants	$8,302
Contractors and Vendors	$2,702,469
Internal Audits	$240,082
Total	$2,950,853



Highlights

During the 4th quarter FY24, an audit of MIS Asset Management was completed. Recommendations included enhancing documented policies and procedures, reconciling deployed, returned, and department managed MIS assets to the Maximo database. Controls and procedures related to visitor logs for employee restricted areas was re-established. Secondly, a review of Travel Expense (Mileage) Reimbursement was completed. An enhanced Travel Expense Form was recommended to enhance processing efficiency and reduce the risk of error, fraud and/or abuse.

In addition, IA completed a true-up of 2023 operating expenses for the HEEC cable, reviewed the Fore River Railroad 2023 tax return, and completed 2 labor burden reviews. There are 4 incurred cost audits, 2 labor burden reviews, and 1 consultant review in process. IA also issued 57 indirect cost rate letters to consultants following a review of their consultant disclosure statements. Management advisory services included a final review of the Navy Yard lease.

Status of Recommendations

During FY24, 7 recommendations were closed.

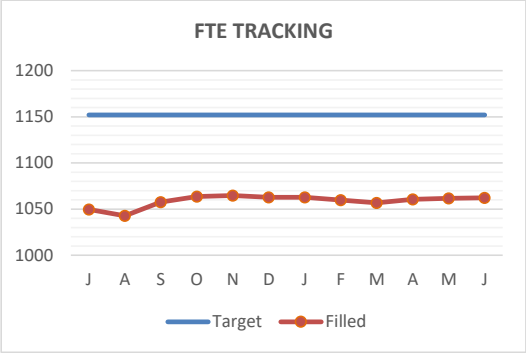
IA follows-up on open recommendations on a continuous basis. All open recommendations have target dates for implementation and are generally targeted to be closed within 12 months of the audit report issue date.

Report Title (issue date)	Audit Recommendations		
	Open	Closed	Total
Accounts Payable Process (3/14/2024)	2	4	6
MWRA Payroll (3/19/2024)	2	1	3
Travel Expense (Mileage) Reimbursement (5/14/2024)	0	1	1
MIS Asset Management (6/28/2024)	7	0	7
Total Recommendations	**11**	**6**	**17**

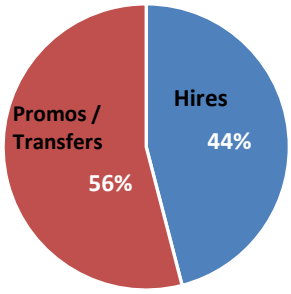
OTHER MANAGEMENT

Workforce Management

4th Quarter - FY24



Position Filled by Hires/Promos & Transfer for YTD



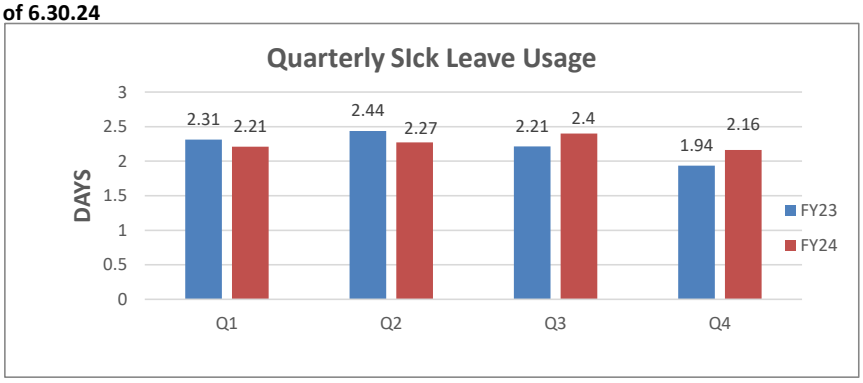
	Pr/Trns	Hires	Total
FY22	138 (68%)	65 (32%)	203
FY23	133 (59%)	91(41%)	224
FY24	117 (56%)	93 (44%)	210

FY24 Budget for FTE's = 1152
FTE's as of June = 1062.2
Tunnel Redundancy as of June 2024 = 10

POSITION CHANGE by FY

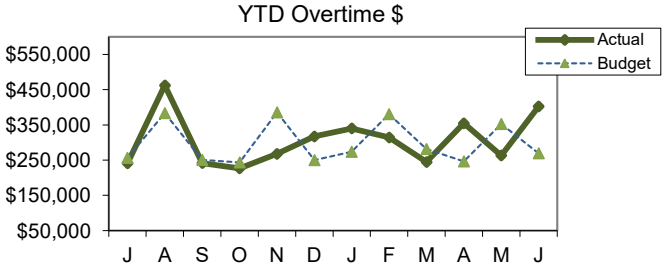
FY	HIRES	PROMOS	TRANSFER	RETIRE	RESIGN	DISMISS	DECEASED
FY20	58	70	14	38	23	2	1
FY21	64	66	15	58	15	2	2
FY22	65	108	30	82	45	2	3
FY23	91	118	15	46	31	5	5
FY24*	93	97	20	48	30	5	4

*** as of 6.30.24**



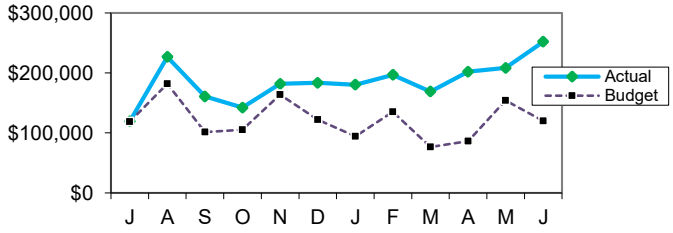
Average quarterly sick leave for the 4th Quarter of FY24 has increased as compared to the 4th Quarter of FY23. (2.16 to 1.94)

Field Operations
YTD Overtime $



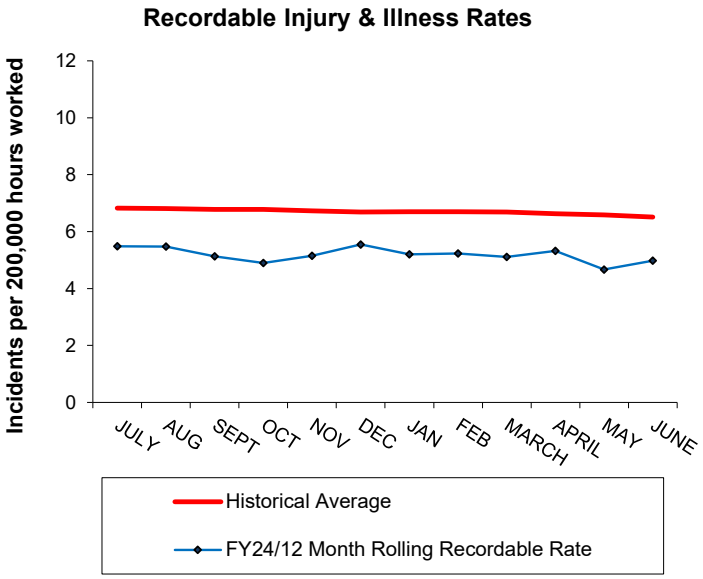
Total Overtime for Field Operations for June was $402k which is $129k or 47.2% over budget. Rain events totaled $115k and Total Emergency Maintenance was $150k, $25k or 20% over budget for the month due to multiple rain events. Planned overtime was $131k, which is $64k, or 96% over budget. June had $77k for Operator Coverage, which is on budget for the month due to previous vacancies becoming filled. Work Completion OT worked was $11k; Community Assistance Work (Water Fountain) was at $17k for the month, indicative of summer events being supported by Authority.

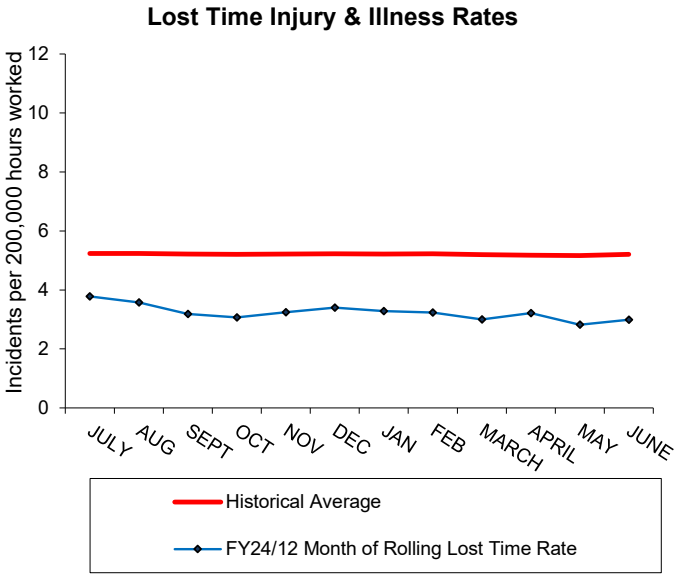
Deer Island Treatment Plant
YTD Overtime $



Deer Island's total overtime expenditure in June 2024 was $252K, which was $132K or 110.2% over budget. In June 2024, Deer Island experienced higher than anticipated shift coverage of $79K - driven by Wastewater Ops $69K & Thermal $10K. Storm coverage of ($2K) was under budget, and Planned/Unplanned overtime was $55k over budget. YTD Deer Island's overtime spending is $2.2M, which is $764K or 52.4% over budget due to higher than anticipated shift coverage of $660K - driven by Wastewater Ops $629K due to significant vacancies in the Operator position (8 vacancies out of 24 PCRs) within the dept that have been difficult to fill due to license requirements. Storm Coverage is ($21K). Planned/Unplanned is at $125K YTD.

Workplace Safety
4th Quarter - FY24





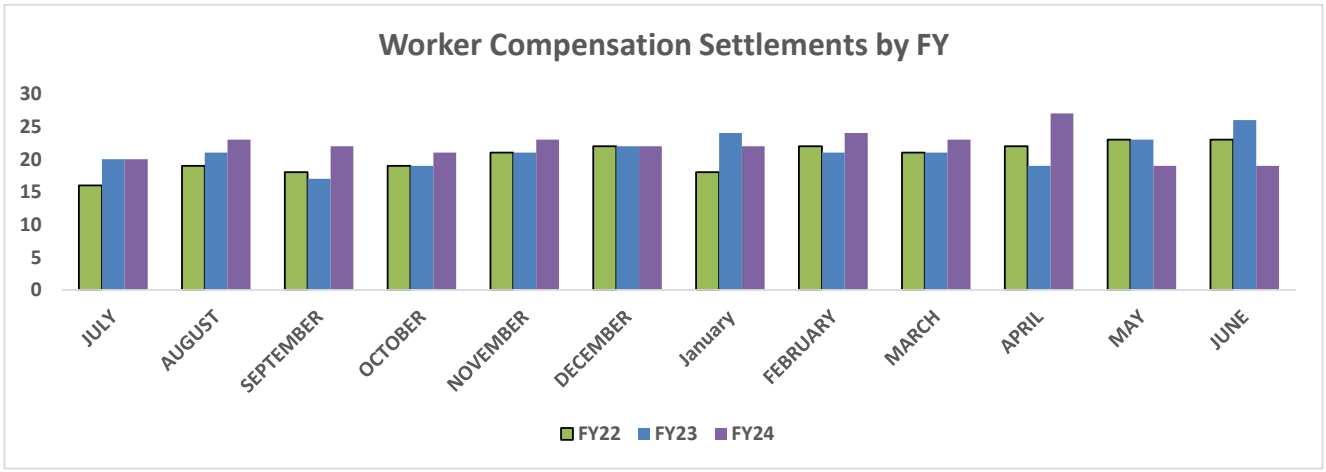
1 “Recordable" incidents are all work-related injuries and illnesses which result in death, loss of consciousness, restriction of work or motion, transfer to another job, or require medical treatment beyond first aid. Each month this rate is calculated using the previous 12 months of injury data.

2 "Lost-time" incidents, a subset of the recordable incidents, are only those incidents resulting in any days away from work, days of restricted work activity or both - beyond the first day of injury or onset of illness. Each month this rate is calculated using the previous 12 months of injury data.

3 The “Historical Average” is computed using the actual MWRA monthly incident rates for FY03 through FY24

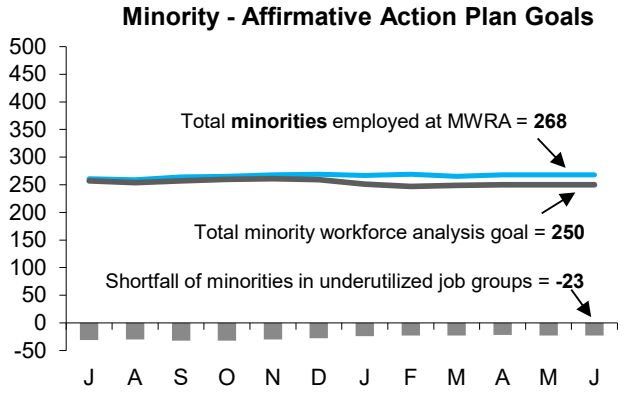
WORKERS COMPENSATION HIGHLIGHTS

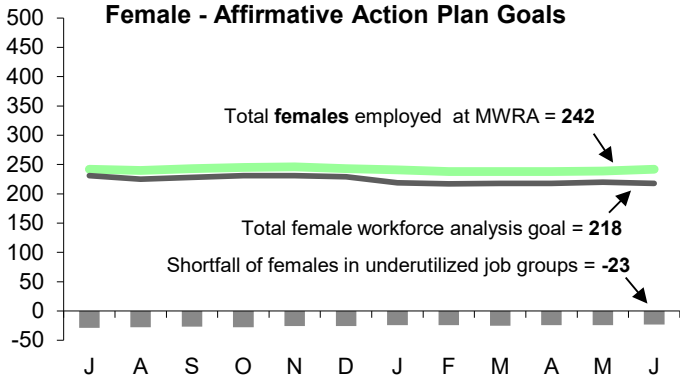
	4th Quarter Information		
	New	Closed	Open Claims
Lost Time	3	3	31
Medical Only	5	2	110
Report Only	4	4	
	QYTD		FYTD
Regular Duty Returns	6		18
Light Duty Returns	0		1
Indemnity payments as of June 2024 included in open claims listed			19



MWRA Job Group Representation

4th Quarter - FY24





Highlights:

At the end of Q4 FY24, 5 job groups or a total of 23 positions are underutilized by minorities as compared to 6 job groups for a total of 29 positions at the end of Q4 FY23; for females 7 job groups or a total of 23 positions are underutilized by females as compared to 8 job groups or a total of 31 positions at the end of Q4 FY23. During Q4, 6 minorities and 8 females were hired. During this same period 2 minorities and 1 female were terminated.

Underutilized Job Groups - Workforce Representation

Job Group	Employees as of 6/30/2024	Minorities as of 6/30/2024	Achievement Level	Minority Over or Underutilized	Females As of 6/30/2024	Achievement Level	Female Over or Underutilized
Administrator A	24	5	4	1	10	6	4
Administrator B	26	5	6	-1	9	10	-1
Clerical A	24	9	5	4	19	17	2
Clerical B	21	6	3	3	3	5	-2
Engineer A	82	18	21	-3	19	23	-4
Engineer B	62	21	15	6	18	12	6
Craft A	116	19	24	-5	0	4	-4
Craft B	123	24	24	0	0	5	-5
Laborer	58	15	15	0	6	2	4
Management A	87	18	19	-1	33	25	8
Management B	37	11	7	4	5	9	-4
Operator A	62	3	16	-13	4	7	-3
Operator B	60	19	10	9	3	2	1
Professional A	29	8	8	0	15	13	2
Professional B	168	52	50	2	72	58	14
Para Professional	42	14	10	4	18	12	6
Technical A	51	18	12	6	7	7	0
Technical B	5	3	1	2	1	1	0
Total	**1077**	**268**	**250**	**41/-23**	**242**	**218**	**42/-23**

AACU Candidate Referrals for Underutilized Positions

Job Group	Job Title	# of Vacancies	Requisition Internal/ External	Promotions/ Transfers	AACU Referral External	Position Status = New Hire/Promotion
Administrative B	Director, Water Quality	1	Int./Ext.	1	1	PROMO= WF
Administrative B	Director,Environmental Quality	1	Int./Ext.	1	1	PROMO= AM
Engineer A	Project Manager	1	Ext.	0	0	NH= WM
Engineer A	Sr Monitor & Control Eng	1	Ext.	0	0	NH= HF
Engineer A	Sr Prog Manager PICS	1	Int.	1	0	PROMO= BM
Engineer A	Sr Program Mgr,Quality Assurance	1	Int./Ext.	1	1	PROMO= BF
Engineer A	Sr Prog Mgr Ops Engineering	1	Int./Ext.	1	0	PROMO= WM
Engineer A	Prog Mgr,Monitor & Control	1	Int./Ext.	1	0	PROMO= WM
Craft A	M & O Specialist	2	Int./Ext.	2	0	PROMO= 2WM
Craft B	Instrument Technician	1	Int./Ext.	1	0	PROMO= HM
Management A	Manager, Training and Development	1	Int./Ext.	0	0	NH= WF
Management A	Manager, Operations	1	Int./Ext.	0	0	NH= WM
Management A	Sr Prog Mgr Engineer & Construction	1	Int.	1	0	PROMO = WF
Operator A	Sr Trans/Treatment Operator	1	Int.	1	0	PROMO = WM
Operator A	Area Supervisor-Transport	1	Int./Ext.	1	0	PROMO = WM

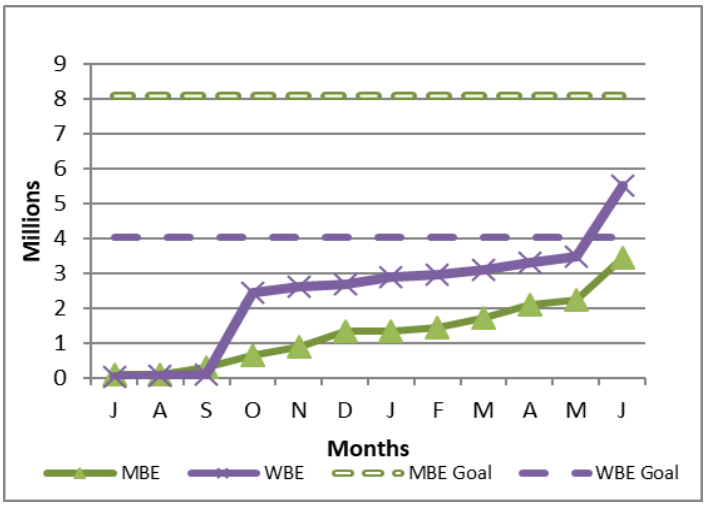
MBE/WBE Expenditures

4th Quarter - FY24

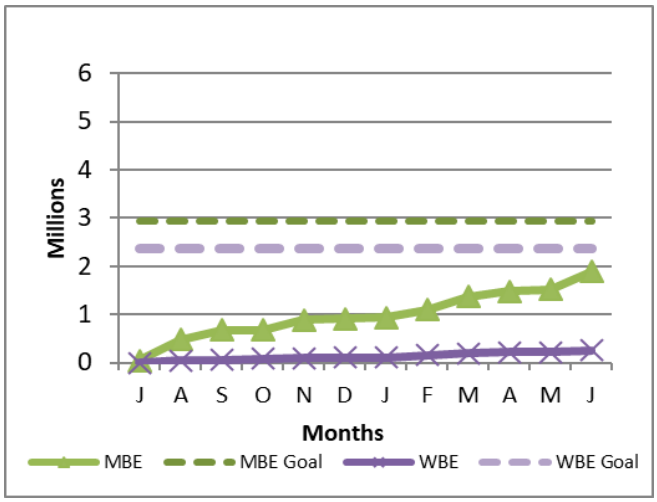
MBE/WBE targets are determined based on annual MWRA expenditure forecasts in the procurement categories noted below. The spending goals for FY24 are based on 85% of the total construction and 75% of the total professional projected spending for the year. Certain projects that do not meet the established monetary thresholds and/or have limited opportunities for subcontracting have been excluded from the goals as they have no MBE/WBE spending goals. The spending goals for FY24 for Goods and Services are based on the average spending of MBE/WBE dollars for the previous 5 years.

MBE/WBE percentages are the results from a 2002 Availability Analysis, and MassDEP's Availability Analysis. As a result of the Availability Analyses, the category of Non-Professional Services is included in Goods/Services. Consistent with contractor reporting requirements, MBE/WBE expenditure data is available through June.

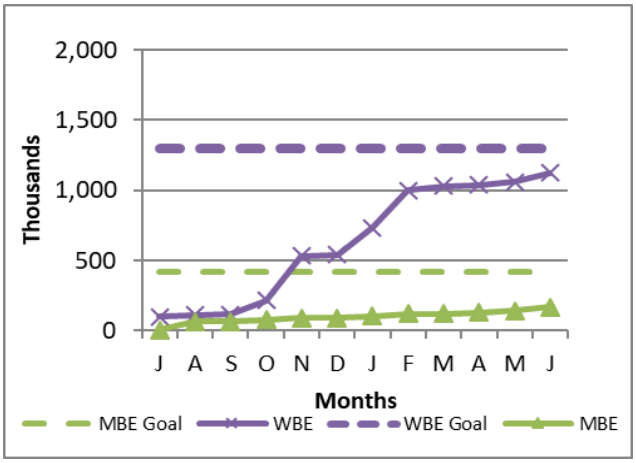
Construction



Professional Services



Goods/Services



FY24 spending and percentage of goals achieved, as well as FY23 performance are as follows:

MBE					WBE			
FY24 YTD		FY23			FY24 YTD		FY23	
Amount	Percent	Amount	Percent		Amount	Percent	Amount	Percent
3,439,415	44.6%	2,808,124	34.7%	Construction	5,152,090	134.4%	4,927,964	95.3%
1,891,966	41.1%	2,794,126	95.3%	Prof Svcs	255,204	6.9%	1,220,172	51.8%
167,497	41.0%	69,250	16.6%	Goods/Svcs	1,122,653	82.4%	174,521	13.4%
5,498,878	43.2%	5,671,500	49.6%	**Totals**	6,529,947	73.4%	6,322,657	82.3%

FY24 MBE/WBE dollar totals do not include MBE and WBE payments to prime contractors and consultants.

MWRA FY24 CEB Expenses

4th Quarter – FY24

As of June 2024, total expenses are $854.2 million, $20.0 million or 2.3% lower than budget, and total revenue is $885.0 million, $10.8 million or 1.2% over the estimate, for a net variance of $30.8 million.

Expenses –

Direct Expenses are $285.3 million, $30.7 million or 9.7% under budget.

- **Wages & Salaries** were $13.9 million under budget or 10.9%. Regular pay is $14.3 million under budget, due to lower head count, and timing of backfilling positions. YTD through June, the average Full Time Equivalent (FTE) positions were 1,068 or 100 below the 1,168 FTE's budgeted.
- **Other Services** were lower than budget by $7.8 million or 20.4% driven lower Sludge Pelletization spending of $6.2 million primarily due to lower potential landfill costs due to anticipated PFAS regulations that were budgeted in the second half of FY24, Telecommunications of $992k due to updated and less than anticipated costs, and Grit & Screenings Removal of $355k due to lower quantities.
- **Chemicals** were lower than budget by $7.1 million or 25.3%. Lower than budgeted spending on Sodium Hypochlorite of $3.8 million was driven by Water Operations of $2.1 million and Wastewater Operations of $206k primarily due to contract pricing, and DITP of $1.5 million due to lower pricing for the new contract, which is offset by additional usage for disinfection due to higher flows. Lower Ferric Chloride of $1.5 million was due to lower pricing. Lower Carbon Dioxide of $709k was primarily due to lower volume, lower contract price, and lower dose required to meet target residual levels in finished water. Lower Aqua Ammonia of $409k was due to lower price and lower flows. Lower Sodium Bisulfite of $261k was primarily driven by due to lower dose and volume due to lower flows, lower price and volume at Water Operations of $143k, Clinton Wastewater Treatment Plant of $66k, and lower volume at DITP of $40k due to lower quantities to dechlorinate the effluent. DITP flows are 13.8% greater than the budget and the CWTP flows are 2.8% less than the budget through June. It is important to note that Chemical variances are also based on deliveries which in general reflect the usage patterns. However, the timing of deliveries is an important factor.
- **Utilities expenses** were over budget by $1.9 million or 6.1%, reflecting higher electricity spending $2.2 million over budget. This overspending primarily at DITP of $1.6 million was driven by higher demand usage charges due to the many rain events and new pass through cost associated with the Mystic Power Station and winter reliability pass through costs. Electricity in Field Operations was greater than budget by $660k due to pumping for the many rain events. Diesel Fuel spending is $415k under budget due to favorable pricing.
- **Professional Services** expenses were $2.2 million under budget or 21.2%, primarily due to lower than anticipated spending on Other Professional Services of $913k, Legal Services of $452k, Lab Testing & Analysis of $298k, and lower Engineering expense of $178k.
- **Fringe Benefits** expenses were $1.2 million under budget or 4.7%, primarily due to under spending for Health Insurance of $1.3 million, reflecting the lower than budget head count. As of June, FTEs were 100 below budget.

Indirect Expenses are $69.7 million, $725k or 1.0% under budget due to lower Watershed Reimbursement of $1.4 million, partially offset by higher spending on HEEC of $429k and Insurance of $215k.

Capital Finance Expenses totaled $499.2 million, $11.5 million over budget or 2.4%. Higher Senior Debt of $24.3 million, as a result of defeasance expenditures of $20.2 million, and a cash tender of bonds totaling $12.0 million. This was partially offset by lower SRF issues of $7.4 million due to timing and lower than budget interest expense of $5.0 million as a result of lower interest rates and the swap termination savings.

Revenue and Income –

Total Revenue and Income is $885.0 million, $10.8 million or 1.2% over the estimate. The favorable variance was driven by Investment Income of $33.0 million, $9.6 million or 41.3% over the budget due to higher than budget interest rates and higher average balances.

	Jun 2024 Year-to-Date			
	Period 12 YTD Budget	Period 12 YTD Actual	Period 12 YTD Variance	%
EXPENSES				
WAGES AND SALARIES	$ 127,828,242	$ 113,940,177	$ (13,888,065)	-10.9%
OVERTIME	5,727,593	6,410,242	682,649	11.9%
FRINGE BENEFITS	25,823,383	24,605,503	(1,217,880)	-4.7%
WORKERS' COMPENSATION	2,144,395	2,606,979	462,584	21.6%
CHEMICALS	28,269,124	21,125,295	(7,143,829)	-25.3%
ENERGY AND UTILITIES	31,064,890	32,968,038	1,903,148	6.1%
MAINTENANCE	38,574,256	37,677,377	(896,879)	-2.3%
TRAINING AND MEETINGS	498,597	324,788	(173,809)	-34.9%
PROFESSIONAL SERVICES	10,410,484	8,204,808	(2,205,676)	-21.2%
OTHER MATERIALS	7,167,400	6,753,950	(413,450)	-5.8%
OTHER SERVICES	38,494,660	30,649,141	(7,845,519)	-20.4%
TOTAL DIRECT EXPENSES	**$ 316,003,024**	**$ 285,266,298**	**$ (30,736,726)**	**-9.7%**
INSURANCE	$ 4,065,380	$ 4,280,811	$ 215,431	5.3%
WATERSHED/PILOT	30,358,187	28,989,024	(1,369,163)	-4.5%
HEEC PAYMENT	7,500,650	7,929,639	428,989	5.7%
MITIGATION	1,779,086	1,779,086	-	0.0%
ADDITIONS TO RESERVES	7,861,035	7,861,035	-	0.0%
RETIREMENT FUND	15,972,804	15,972,804	-	0.0%
POST EMPLOYEE BENEFITS	2,849,365	2,849,365	-	0.0%
TOTAL INDIRECT EXPENSES	**$ 70,386,507**	**$ 69,661,763**	**$ (724,744)**	**-1.0%**
STATE REVOLVING FUND	$ 90,798,263	$ 83,358,104	$ (7,440,159)	-8.2%
SENIOR DEBT	294,055,644	318,360,317	24,304,673	8.3%
DEBT SERVICE ASSISTANCE	(1,187,297)	(1,187,297)	-	0.0%
CURRENT REVENUE/CAPITAL	19,200,000	19,200,000	-	0.0%
SUBORDINATE MWRA DEBT	69,931,072	69,931,072	-	0.0%
LOCAL WATER PIPELINE CP	7,744,625	7,347,129	(397,496)	-5.1%
CAPITAL LEASE	3,217,060	3,217,060	-	0.0%
VARIABLE DEBT	-	(5,003,706)	(5,003,706)	---
DEFEASANCE ACCOUNT	-	-	-	---
DEBT PREPAYMENT	4,000,000	4,000,000	-	0.0%
TOTAL CAPITAL FINANCE EXPENSE	**$ 487,759,367**	**$ 499,222,679**	**$ 11,463,312**	**2.4%**
TOTAL EXPENSES	**$ 874,148,898**	**$ 854,150,740**	**$ (19,998,158)**	**-2.3%**
REVENUE & INCOME				
RATE REVENUE	$ 834,268,000	$ 834,268,000	$ -	0.0%
OTHER USER CHARGES	10,390,434	10,679,161	288,727	2.8%
OTHER REVENUE	5,838,903	6,730,761	891,858	15.3%
RATE STABILIZATION	305,482	305,482	-	0.0%
INVESTMENT INCOME	23,346,079	32,980,995	9,634,916	41.3%
TOTAL REVENUE & INCOME	**$ 874,148,898**	**$ 884,964,399**	**$ 10,815,501**	**1.2%**

Cost of Debt

4th Quarter – FY24

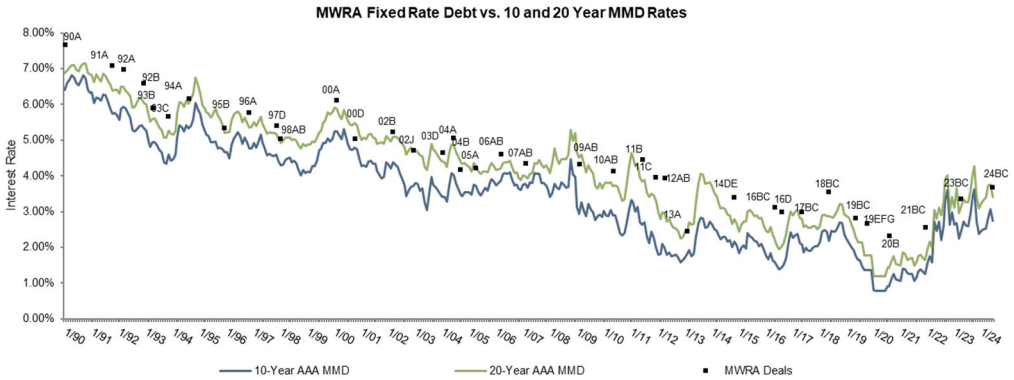
MWRA borrowing costs are a function of the fixed and variable tax exempt interest rate environment, the level of MWRA's variable interest rate exposure and the perceived creditworthiness of MWRA. Each of these factors has contributed to decreased MWRA borrowing costs since 1990.

Average Cost of MWRA Debt FYTD

Fixed Debt ($3.30 billion)	3.19%
Variable Debt ($382.4 million)	4.08%
SRF Debt ($731.62 million)	1.74%
Weighted Average Debt Cost ($4.02 billion)	2.96%

Most Recent Senior Fixed Debt Issue
April 2024

2024 Series B and C ($445.5 million)	3.49%

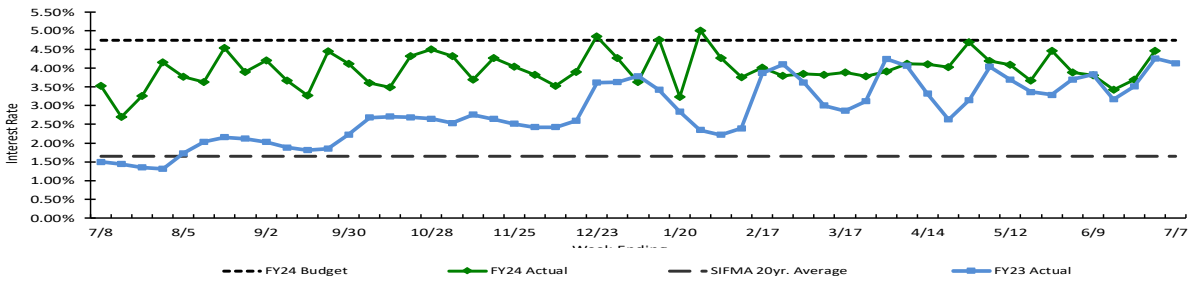


Bond Deal	1998AB	2000A	2000D	2002B	2002J	2003D	2004A	2004B	2005A	2006AB	2007AB	2009AB	2010AB	2011B
Rate	5.04%	6.11%	5.03%	5.23%	4.71%	4.64%	5.05%	4.17%	4.22%	4.61%	4.34%	4.32%	4.14%	4.45%
Avg Life	24.4 yrs	26.3 yrs	9.8 yrs	19.9 yrs	19.6 yrs	18.4 yrs	19.6 yrs	13.5 yrs	18.4 yrs	25.9 yrs	24.4 yrs	15.4 yrs	16.4 yrs	18.8 yrs

Bond Deal	2011C	2012AB	2013A	2014D-F	2016BC	2016D	2017BC	2018BC	2019BC	2019EFG	2020B	2021BC	2023BC	2024BC
Rate	3.95%	3.93%	2.45%	3.41%	3.12%	2.99%	2.98%	3.56%	2.82%	2.66%	2.33%	2.56%	3.35%	3.68%
Avg Life	16.5 yrs	17.9 yrs	9.9 yrs	15.1 yrs	17.4 yrs	18.8yrs	11.2 yrs	11.7yrs	11.9yrs	9.73 yrs.	15.6 yrs	12.2 yrs	10.45 yrs	11.77 yrs

Weekly Average Variable Interest Rates vs. Budget

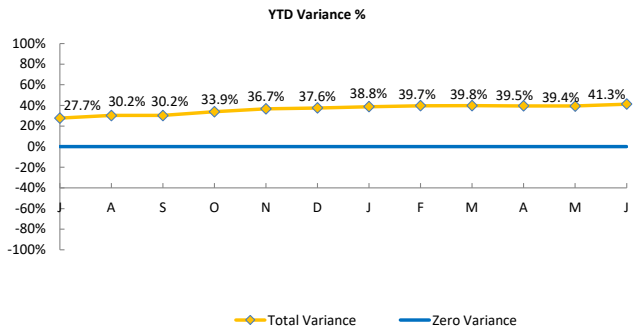
MWRA currently has eight variable rate debt issues with $382.4 million outstanding, excluding commercial paper. Variable rate debt has been less expensive than fixed rate debt in recent years as short-term rates have remained lower than long-term rates on MWRA debt issues. In June, the Securities Industry and Financial Markets Association rate ranged from a high of 4.090% to a low of 2.890% for the month. MWRA's issuance of variable rate debt, although consistently less expensive in recent years, results in exposure to additional interest rate rise as compared to fixed rate debt.



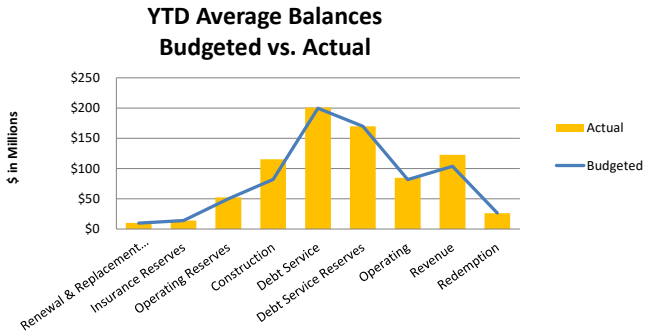
Investment Income

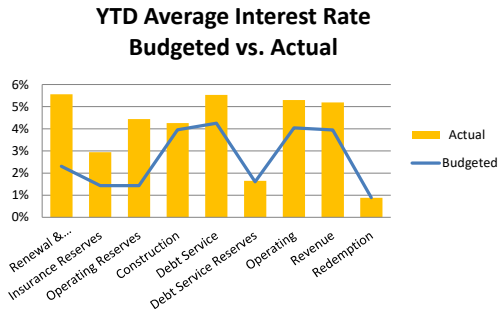
4th Quarter – FY24

- YTD variance is 41.3%, $9.6 million, over budget due higher than budgeted interest rates and average balance.



	YTD BUDGET VARIANCE ($000)			
	BALANCES IMPACT	RATES IMPACT	TOTAL	%
Renewal & Replacement Reserves	$0	$326	$326	141.2%
Insurance Reserves	$0	$211	$212	105.4%
Operating Reserves	$35	$1,574	$1,609	224.9%
Construction	$1,540	-$229	$1,311	39.0%
Debt Service	$56	$2,570	$2,626	31.0%
Debt Service Reserves	$2	$76	$79	2.9%
Operating	$130	$1,054	$1,185	35.9%
Revenue	$761	$1,526	$2,288	55.9%
Redemption	$0	$1	$1	0.3%
Total Variance	$2,525	$7,110	$9,635	41.3%





Monthly