



Minutes

Jan. 6, 2023

*Remote via zoom*

**Attendees:**

**WAC Members:** **Wayne Chouinard** (Chair, Town of Arlington), **Kannan Vembu** (Vice Chair), **Adriana Cillo** (BWSC), **Craig Allen**, **Dan Winograd**, George Atallah, **James Guiod** (AB), **Karen Lachmayr**, Martin Pillsbury, **Mary Adelstein**, Philip Ashcroft, **Stephen Greene**, **Taber Keally** (NepRWA), **James Ferrara** (Members in attendance in bold)

**Guests:** Charles Ryan, director of wastewater operations, Katie Ronan, Sean Navin, Devon Winkler, Angela Atchue (MWRA), David White (Arlington ConComm), Joseph Nerden (DEP), Sarah Traore, Zeus Smith (CRWA), Paul Lauenstein, Lexi Dewey (WSCAC), Alfredo Vargas (City of Newton), Katie Webster (Practical Applications), Karen Felton (AECOM), Juliet Simpson (OMSAP),

**Staff:** Andreae Downs (WAC)

**VOTE:** Nov. minutes approved

**REPORTS:**

**MWRA Advisory Board: James Guiod:**

- Staff continue to collect data and analysis for the annual Rate Survey. Combined retail rate rose about 13% on average—higher than in last few years. Water use trends are starting to get more normalized post-COVID.
- AB is still very involved in legal efforts to oppose co-permittees in the DI permit.
- John Carroll has resigned from the MWRA Board, which means the Advisory Board needs to vote on his successor. Will be an open seat. January meeting will have more information.
- Water system expansion workshop was very successful.
- Gearing up for the spring budget cycle.

**MWRA: Wendy Leo (sent in):**

- On December 15, MWRA, Cambridge, and Somerville held a public meeting on the updated CSO Control Plan for Variance waters. Presentation and discussion focused on the climate-adjusted typical year that will be used for this planning. A link to the meeting recording, and other info about the updated plan process, is on Cambridge's web site <https://www.cambridgema.gov/Departments/publicworks/cityprojects/2022/updatedcombinedseweroverflowsocontrolplan> (MWRA, Cambridge, and Somerville are working closely together on this process.)
- A CSO optimization report for Alewife and Charles was published Dec 31 – there is little low-hanging fruit left to be gathered, but the report identified one possible project at CAM005. Variance reports are here <https://www.mwra.com/cso/pcmapa.html#variances>
- MWRA will shortly publish its final CSO Public Notification Plan, and will post it here [https://www.mwra.com/harbor/html/cso\\_sso\\_reporting.htm](https://www.mwra.com/harbor/html/cso_sso_reporting.htm) and it will also be noticed in the *Environmental Monitor*.
- Many capital projects are still somewhat delayed due to supply chain issues. But Braintree/Weymouth pump station rehab has begun.
- MWRA is closely following regulatory developments around PFAS, and the possible impact on beneficial reuse of biosolids.
- An OMSAP meeting is being planned for late January (may slip into February) – no date set yet. No news on a new DITP permit.
- John Carroll has retired from the MWRA Board of Directors, on which he served since 1985.

#### EXECUTIVE DIRECTOR REPORT (details attached):

- MWRA board notes–High MWRA vacancy rates continue. Drought meant record low flows at both treatment plants. Update of MWRA business plan—they are now tracking building electrification rates. The new wastewater meters are installed and in use. MWRA is tracking greenhouse gas emissions—from 2006-19 reduced GHG in operations 37%. Will update through 2021. Evaluating solar panels and energy storage at Deer Island. MWRA already has battery storage (via a state grant) at administrative building in Chelsea and Brattle Street pump station. The new Clinton NPDES permit includes PFAS monitoring—often a precursor to limits. Also in the Clinton permit are co-permittees and requirements that Clinton and Lancaster

have backup power for their sewage pumping stations and have to report SSOs.

- 495 Business community met to discuss the stormwater (residual) permits proposed for large parking lots. That's the major unaddressed source of pollutants.
- Water Infrastructure Finance met—they will be backing the wipes labelling bill put forward by WAC—Rep. Sean Garballey and Sen. Jamie Eldridge and includes an education piece.
- MWRA Board talked about the renewal of the biosolids contract. Will be competitively bid for 5 years, a shorter duration to take into account biosolids landfilling.
- Jim Ferrara is now a full WAC member.

## **PRESENTATION:**

### **Planning for Ward and Columbus Park Headworks**

Charles Ryan, director, Wastewater Operations & Maintenance

Need to rehabilitate the headworks for the next 20—50 years.

Chelsea Creek recently completed; the remaining remote headworks are these two.

Will need to meet new code since they were built in the 1960s.

Also—need to upgrade and replace the equipment that is end of its useful life. The new equipment will have automatic screen clearing & disposal of the detritus. The gates will be replaced. All odor control and HVAC will be replaced and redundant. Instead of wet scrubbers, will use carbon filters. Upgrade electrical and control systems.

Majority of the flow from the North system goes through Columbus Park, Chelsea Creek and Ward Street headworks.

Through Columbus Park and Ward in wet weather--432mgd in flow. That's a lot. They share the Boston Main Drain under Boston Harbor to Deer Island. CP joins the Ward St. flow at Ward St, but not through the headworks.

Existing facilities—



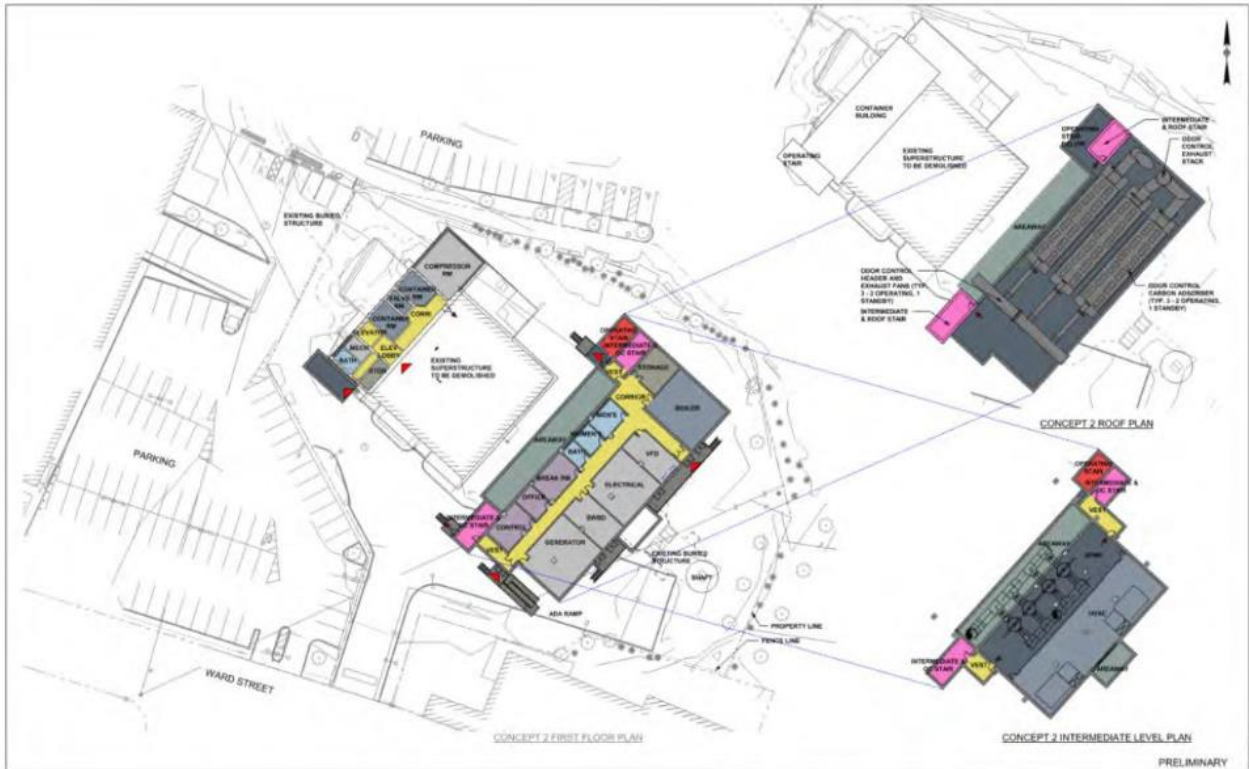
Existing Columbus Park Headworks



Existing Ward Street Headworks

MWRA will build new above-ground equipment. Have space on the sites—will be over the underground structures. The existing structures will be demolished once the new ones are built.

## Improved Layout at Completion of Construction



Shaded area will be demolished.

Underground will be the grease & mist eliminators. (lower right) roof will have the carbon filters.



Wentworth University is very close. Grit & screenings will be on the side. Influent gates and channels under the parking lot. Generator and electrical units/variable frequency drives will be in the ground floor.

MWRA has to keep everything up and running at the current location—has to be over the pipes. Lots of challenges there.

Done a 360-degree laser scan of the existing facility and took pictures so can come up with design documents. Each component will be identified whether or not it is currently in use (much of the older equipment can be abandoned/demolished, because it is not being used).

Next will have to determine what needs to stay on line while in construction. Four channels through the facility. Three need to be in service. So will take one out at a time to refurbish and replace.

Need to identify acceptable downtimes for the equipment. Some stuff can be offline for a longer time, other stuff has to be continuous. And need to identify where need temporary backup.

We received first design report in Dec. 22.

Have identified the hazardous materials that will need to be mitigated. Mostly lead paint. Small amount of asbestos.

Done the hydraulic analysis—issue mainly is when choke the gates in wet weather creates high velocity on the screens.

Inspected the concrete in the grit chambers, so know we don't need to replace, just to re-coat.

Done noise monitoring. Will need to insulate the fans to prevent loud noises for neighbors.

Will be two separate contracts—one for each headworks. Expect to stagger the starts – one will start after the other.

During extreme wet weather MWRA chokes the influent gates to limit the flow in to the headworks. This creates high velocity and force on the catenary screens (chain hangs free at the bottom of the screen). That can bounce around. Looking at a baffle to dissipate the energy of the water.

Why choke? Have to limit the amount of water that flows through to Deer Island. The tunnel can only handle a fixed volume of water. When choke, then water is stored in the system—in a combined sewer it will go into a CSO. Have to protect the headworks so it will continue to operate outside of the extreme weather.

The final design will take 24 months. Should be issuing a notice to start that in March.

Related: will renew the covers on the outfalls.

Slide: rough rendering of the Columbus Park structure:

### **Questions?**

Are the new screens good enough to remove all wipes?

Screens will catch wipes and we will collect and landfill them. Sometimes they get caught in the tributary collection systems and in wet weather they all hit at once at the headworks, so that's why we need the screens to work in wet weather.

Have more issues at Braintree-Weymouth where they go through grinders and turn into long ropes in the wet wells and impact capacity of the pumps. Headworks don't have as many issues with wipes. B-W now needs staff to manually remove the wipes, and that's why MWRA is changing out that station.

Community pipes and pumps are smaller and get clogged quicker. I was talking with a friend recently about how wipes aren't flushable, and they said it's right on the package that they are flushable.

People get confused about whether the wipe they are buying is flushable, which is why WAC and MWRA are pursuing legislation to get them properly labeled. And they do re-form after being ground up.

Is MWRA also doing more cleaning of the clarifiers on Deer Island? Charlie—not involved in the processing, just the collection.

# Director's Report Nov-Dec 2022

## Water Resources Commission 11/10

**Executive Director's Report Vandana Rao**-- Drought has improved. Rao attended the Northeast (NOAA) drought conference--all states are still in a drought. Sharing data, where funding is available, communication tools. Climate change being added into EEA's hazard mitigation plan, which will be updated in 2023 (every 5 years).

MassDEP has several regulations out for comment: Water management--until Nov. 18. Revisions of Title 5 for nitrogen-sensitive areas that would require a septic upgrade if in a nitrogen-sensitive area--met over 50 communities on Cape and Buzzards Bay area.

### **Update: Hydrologic Conditions and Drought Status Erin Graham**

Temperatures--16th warmest October on record

Precipitation, normal to above normal--Still some deficits

Streamflow--rain helped in Oct. Parker River, CT valley & Cape still have some low flows--Cape particularly

Groundwater: Mostly better, but some stalled.

Drought: all regions improved--except Northeast. Level 1 most areas. US drought monitor dropped northeast to Level 2, Cape improved.

Crop Moisture: mostly better, lingering issues in western part of the state

Outlook: Next month--60-70% chance of normal temperatures, no strong signal for precipitation.

Drought outlook: persisting around Essex County & in parts of the CT River valley.

**Presentation and VOTE: Staff Recommendation, Town of Foxborough, Modification to Monitoring Required Under its Interbasin Transfer Act Decision**

## MWRA Board of Directors 11/16

### REPORT OF THE CHAIR

Continue to track drought, which has improved. Water conservation is key to recovery. MWRA system was just fine.

Economic Development bill signed. Billions for the Commonwealth--much of it for EEA work: \$100m for core infrastructure for Offshore Wind, more for clean energy center & EVs, \$75m for parks, \$25 for food security, additional for water & sewer (\$15m just for Cape Cod).

### REPORT OF THE EXECUTIVE DIRECTOR

This week diesel fuel delivery to DI to top off tanks before the winter. Got at a good price.

Wachusett Reservoir Safety--CSX is making improvements to the rails to prevent derailments. This spring new ties.

Expansion of water system--still on track with studies and meetings with communities who need either additional water or have PFAS issues

### EXECUTIVE SESSION

i. Approval of October 19, 2022 Executive Session Minutes

A. Real Estate

1. Watershed Land Acquisition

### PERSONNEL & COMPENSATION

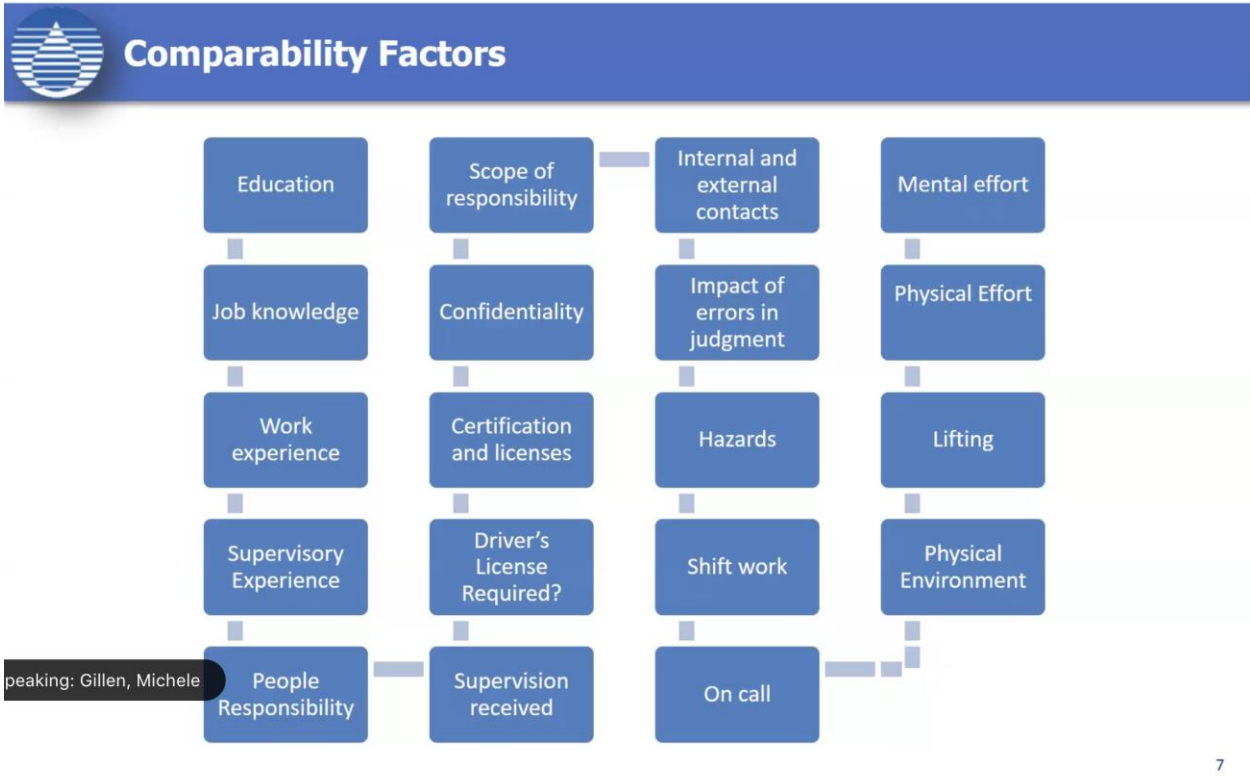
A. Approvals

1. Recommendations for Bargaining Unit Pay Equity Adjustments

MWRA ran a comparison of qualifications for staff vs. pay with a consultant--will increase pay for



9 staff (5 women, 4 men) for a total of ~\$86K/year.



## ADMINISTRATION, FINANCE & AUDIT

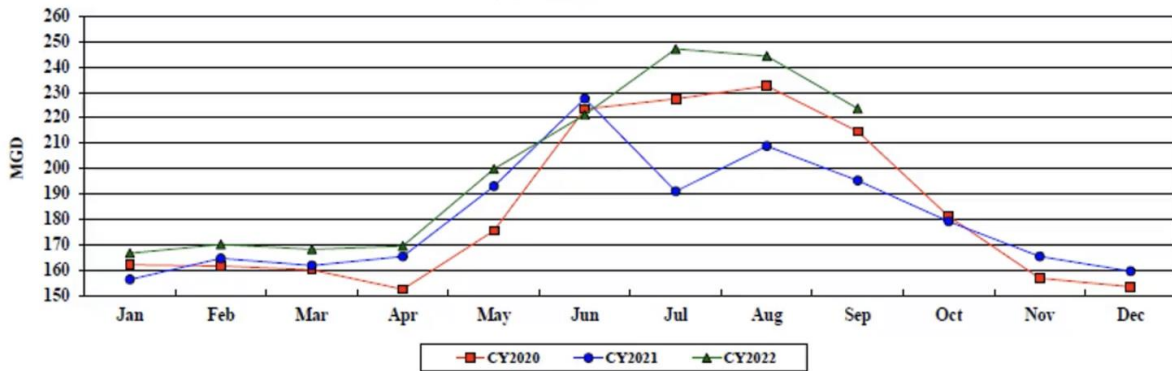
### A. Information

#### 1. FY23 Q1 Orange Notebook

Highlights: staff turnover remains high

- DI had record low flows (drought)
- Clinton had an exceedance of copper (again, low flows); 4 NPDES violations total; also toxicity
- Water use was higher, because of drought & PFAS. Cambridge took 100% of their water from MWRA. Wellesley also added supply.

MWRA Water Supplied: All Revenue Customers



- Source water quality remains exceptionally good--lack of runoff (rain) in Wachusett.

## 2. FY21-FY25 Strategic Business Plan Annual Update for FY22

This is an annual progress report on the 5-year update. Added Diversity, Equity & Inclusion in this plan.

MA Cannabis Commission are using this as their model for how to do strategic planning

Six strategic themes integral to MWRA’s mission form the basis of the Plan, and are as follows:

- I. Drinking Water Quality and System Performance;
- II. Wastewater Management and System Performance;
- III. Infrastructure Management and Resilience;
- IV. Finance and Management;
- V. Diversity, Equity, Inclusion, and Workforce Development; and
- VI. Environmental Sustainability

Changes: Building electrification initiative added.

Overview: core activities; special projects. Of the latter, completed 16% of projects, showed progress of 70%, the rest was outside of MWRA control.

Of interest to WAC:

Construction: “Ward Street & Columbus Park Headworks Design began in Jan 2021.

Incorporating lessons learned from the Chelsea Headworks Construction project, the [designs] will include a new above-grade structure on both sites instead of rehabilitating the existing facility superstructures. Final design is expected to be complete in Jan 2024'

Interceptor rehab: inspected & prioritized. Malden/Melrose is next

Metering: The new wastewater meter system was installed and tested on schedule by the end of CY2021. The new meters are now being used for billing of communities as of January 2022

GHG: From 2006 through 2019, MWRA has reduced its GHG emissions by about 37%. Staff is currently working on the update to the GHG report through 2021. Also replacing light bulbs with LEDs.

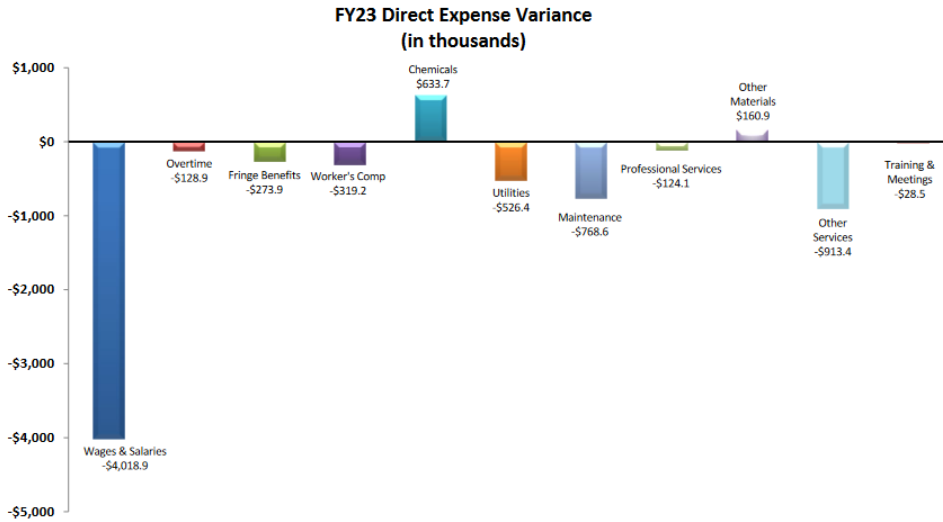
Renewables: Staff received bids in FY20 for a 1 to 2 MW solar canopy with energy storage at Deer Island. The winning bidder was unable to comply with provisions in the proposed contract for a power purchase agreement leading to delay in project implementation. Staff expect to rebid this project in FY23. Also examining solar over underground water tanks. Staff applied for and received grant funding from the Mass. Clean Energy Center for an assessment of the hydro turbines at Deer Island. The feasibility study which will look at replacing or refurbishing the existing two 1.1 MW hydro turbine to optimize their generation, will begin in late FY23.

Rebates: MWRA secured free battery storage for Chelsea Admin building and Brattle St. pumping station--can rely on during outages and peak power demand periods instead of diesel generators.

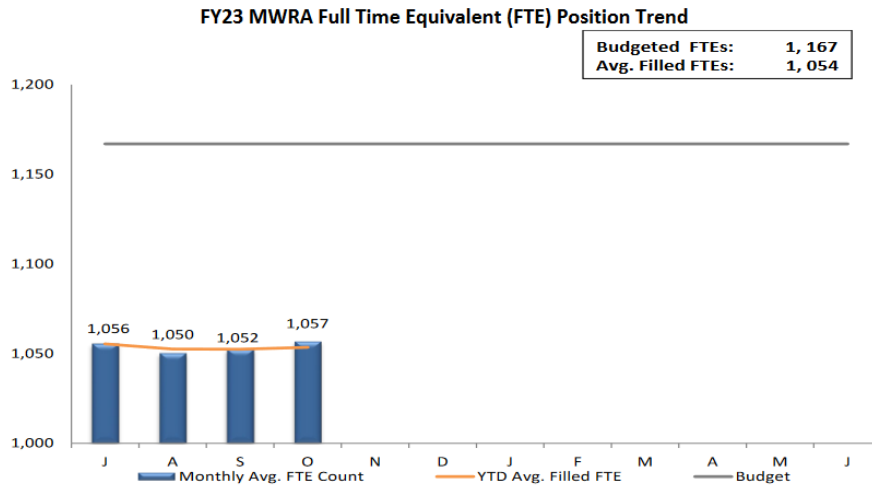
### 3. Delegated Authority Report – October 2022

### 4. FY23 Financial Update and Summary through October 2022

Direct expenses down \$6.3m to date, mostly wages & salaries. FTE 1054, but budgeted for 1,167. Capital finance under budget \$1.8m or 1.2%



And here's why:

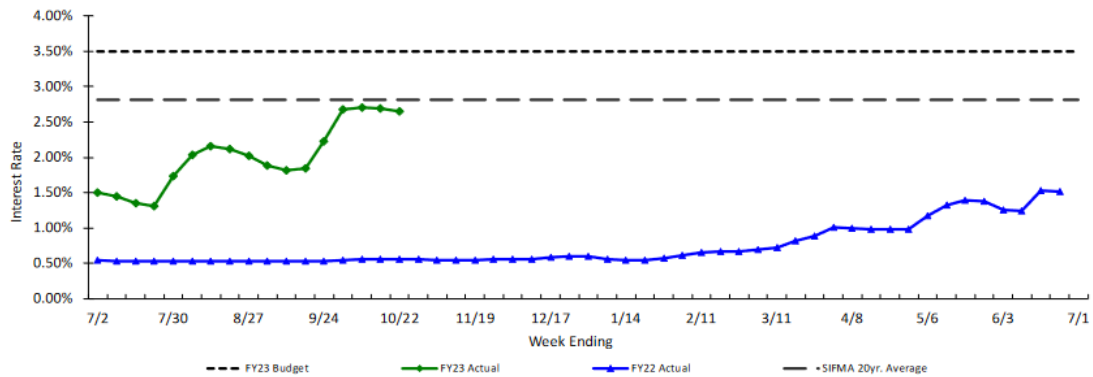


Impacts: inflation. CPI 7.7%, still high.

Energy & utilities are under budget, but electricity is over. Offset by deferring diesel purchase.

--Interest rates: new Fed rate shows up in assets (money market accounts--not 1.02% but 2.25%) and debts (variable rate debt 3.5% budgeted, actual 2.9%--last year it was more favorable). The variance in these rates is put into defeasance at the end of the fiscal year.

**Weekly Average Interest Rate on MWRA Variable Rate Debt  
(Includes liquidity support and remarketing fees)**



**B. Approvals**

**1. Pilot Program for Use of Statewide Professional Services Contracts**

MWRA will use state OSD (Operational Services Division) for professional services to see if they can get better value and more flexibility. OSD pre-qualifies and looks for diversity in contractors that any state agency in the state can use--and have a larger list of firms available because of their larger size.

Fred--gives MWRA ability to select highest quality vendors

**C. Contract Amendments/Change Orders**

**1. Data Analyst Consultant: Clovity Inc**

With MIS vacancies, extending this contract to help with the work

**2. Security Guard Services for Various MWRA Facilities: Universal Protection Service, LLC d/b/a Allied Universal Security Services**

Final one-year extension option. MWRA is happy with this contractor

**WASTEWATER POLICY & OVERSIGHT**

**A. Information**

**1. New Clinton Wastewater Treatment Plant NPDES Permit**

Changes:

--stricter ammonia limits

--monitoring for PFAS & nitrogen

None are expected to affect operation of plant. Continues to include co-permittees (Lancaster & Clinton)

Notice of intent to request coverage due in December. Additional cost to MWRA: \$20K/year for PFAS monitoring.

Monitoring of a contaminant is often a precursor to future limits.

Analog on the water supply side--MWRA required to monitor for PFAS.

What are anti-backsliding measures? --in general, not allowing more of a limited contaminant in a future permit.

**Co-Permittee issue:** "The co-permittee language in the final Medium Wastewater Treatment Facility General Permits is similar to that in the existing Clinton Plant NPDES permit. EPA and MassDEP have attempted to clarify the roles and responsibilities of MWRA, Clinton, and Lancaster as co-permittees. For example, the EPA General Permit now states:

The Permittee and Co-permittee are severally liable for their own activities under Parts II.C [Unauthorized Discharges], III.A [Operation and Maintenance of the Sewer System] and III.B [Alternate Power Source] and required reporting under Part V with respect to the portions of the collection system that they own or operate. They are not liable for violations of Parts II.C, III.A and III.B committed by others relative to the portions of the collection system owned and operated by others. Nor are they responsible for any reporting under Part V that is required of other Permittees under Parts II.C, III.A and III.B.

Co-permittees are newly responsible for ensuring backup power for their collection systems (e.g. pump stations), and for some new reporting requirements for unauthorized discharges (e.g. sanitary sewer overflows)

## B. Contract Awards

1. Agency-Wide Technical Assistance Consulting Services: Hazen and Sawyer, P.C.; and Kleinfelder Northeast, Inc.

## C. Contract Amendments/Change Orders

1. Harbor and Outfall Monitoring Contracts: Battelle, and Normandeau, (extending for a year because anticipate new permit this year)

2. Nut Island Headworks Odor Control and HVAC System Improvements:

Walsh Construction Co. II, LLC

Integrating the new fire alarm system with the new HVAC system.

## WATER POLICY & OVERSIGHT

### A. Information

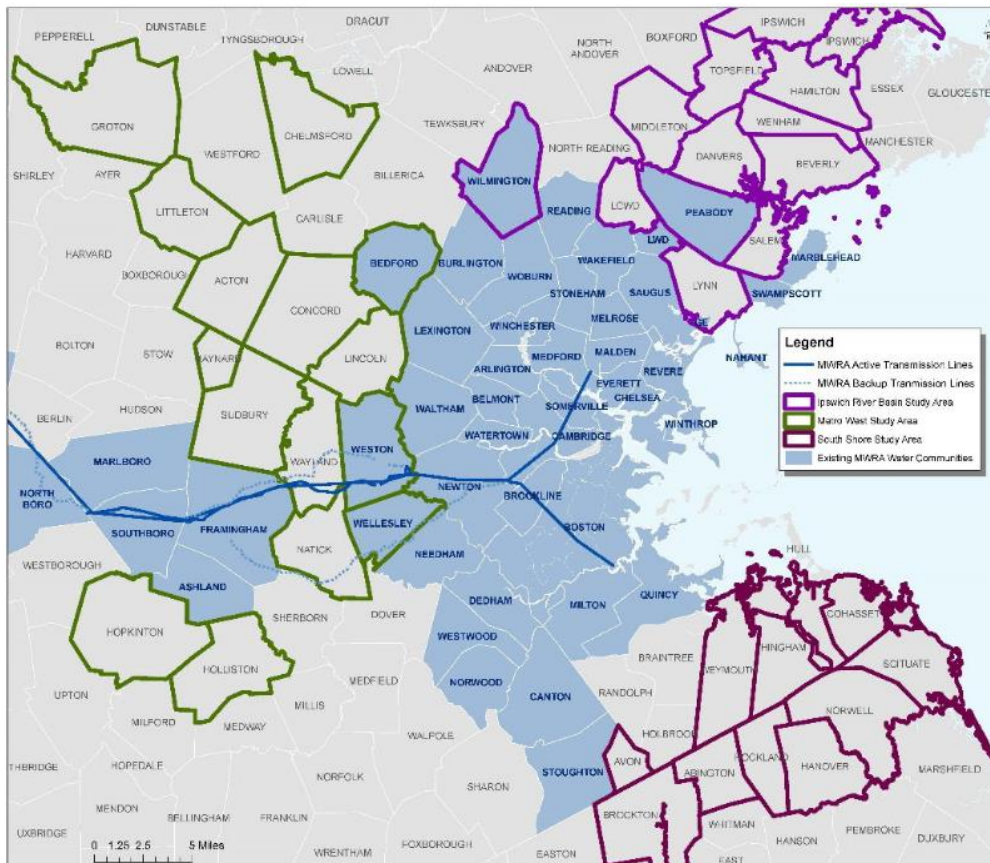
#### 1. Update on Lead and Copper Rule Compliance – Fall 2022

Because of lower lead limits and tougher testing that exposes local communities' remaining lead lines, MWRA is preparing to study additional corrosion control measures to reduce the amount of lead that dissolves into drinking water. Winthrop right now is replacing lead lines at no charge to the homeowner. Every homeowner with an elevated sample gets a call from the local water utility head & immediate offer to replace the lead line. Looking to change out 100 lead service lines/year. Have 400 known lead lines.

#### 2. MWRA Water System Expansion Feasibility Studies

Studies complete: Ipswich & South Shore (full expansion to both \$130m-1B) . Still ongoing: Metro-West

Haven't mapped out pipeline options yet.



“the sales of just an additional five MGD of water over a period of 25 years based on the FY23 rate revenue requirement would provide approximately \$204.5 million in revenue from new customers, which would reduce the existing communities’ shares of the annual system assessment.”

## B. Contract Awards

### 1. Metropolitan Water Tunnel Program - Approval of Lease for Core

Storage Facility: IC Needham Gould Portfolio, LLC.

This allows easier access to the core samples taken to evaluate various routing options. “in accordance with the Massachusetts Statewide Records Retention Schedule, all rock cores, rock specimens, cuttings and thin sections are records that are required to be kept permanently.”

### 2. Wachusett Dam Lower Gatehouse Pipe and Boiler Replacement: J.F.

White Contracting Co.

\$19m for lining pipes, removing hazardous materials, replacing valves and a propane heating system (not usually manned, so a higher cost & efficiency electric system didn’t pencil out), a new restroom. Board member issues: one bidder, fossil fuel heating that will be extant after net-zero is to be attained; whether it would be more prudent to wait, given that “inflation has peaked” (answer--urgent to do this)

### 3. Technical Assistance Consulting Services for the John J. Carroll Water

Treatment Plant: Hazen and Sawyer, and Stantec Consulting Services, Inc.

## Advisory Board 11/17

Report of the Executive Director--“joe is ready to go.” Matt Romero nominated & accepted by ExComm.

Presentation: Metropolitan Tunnel Redundancy Program Update –  
Kathy Murtagh, Tunnel Redundancy Director

Currently in preliminary design. Plan to start construction in 2027, completion by 2040





## Program Schedule

- Overall Program Schedule
  - Currently in Preliminary Design - thru early Jan 2024
  - Targeting beginning Final Design in mid 2024
  - Targeting bidding first tunnel contract in 2027
  - Program completion by 2040
- Preliminary Design Status
  - Evaluate tunnel alignment alternatives
  - Geotechnical investigations
  - Environmental Impact Reports
  - Preliminary Design Report
  - Establish contract packages
  - Refine Program cost and schedule

We are Here

For discussion only

Draft Environmental Impact report submitted Oct. 22--public comment ends 12/9/22--details proposed shaft sites, construction impacts at each site.



# Key Locations

## Construction Shaft Sites

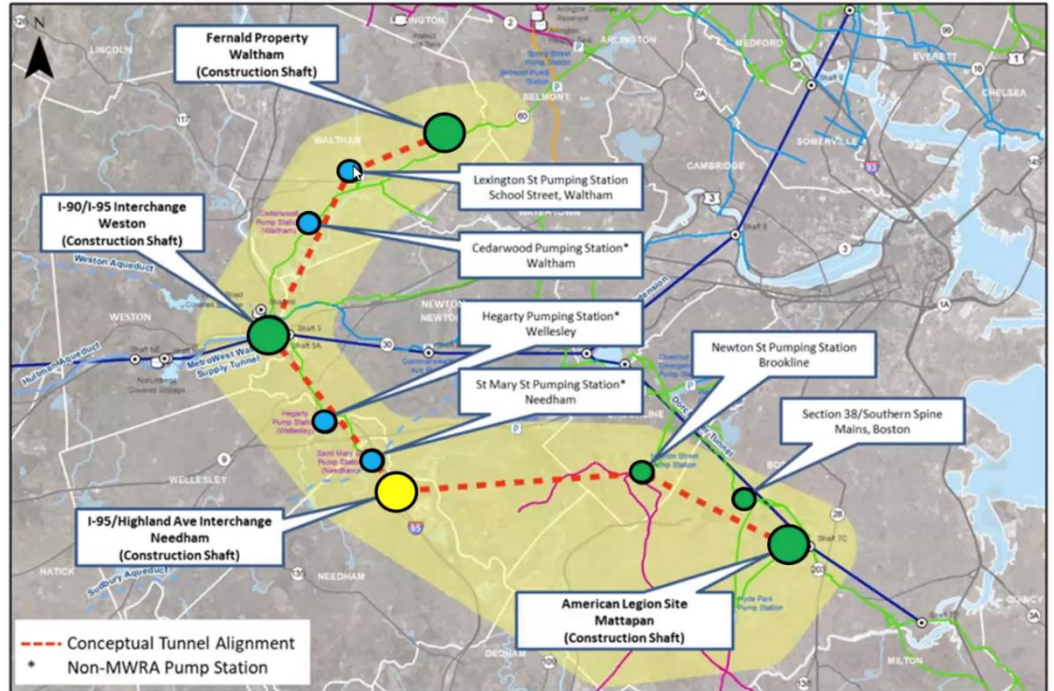
- Fernald Property, Waltham
- I90/I95 Interchange, Weston
- Highland Ave/I95 Interchange, Needham
- American Legion, Mattapan

## Connection Shaft Sites

- Lexington St Pump Station, Waltham
- Cedarwood Pump Station, Waltham
- Hegarty Pump Station, Wellesley
- St. Mary Street Pump Station, Needham
- Newton Street Pump Station, Brookline
- Southern Spine Mains, Boston

Final shaft locations subject to permits and real estate acquisition

- \* Non MWRA Pump Station
- Required Connection (required for system redundancy)
- Secondary Connection (provides local benefit)
- Construction Shaft (no connection)



Examining ~40 deep borings--they are now stored at Deer Island, but will be moved to leased space in Needham. Final design engineer by 2024; construction manager by 2026.

## System Expansion Update – December 5<sup>th</sup> Workshop at BC

Workshop--Star lineup includes Beth Card, Fred Laskey, PFAS report authors--presentation, Sen. Tarr on Ipswich River basin.

Studies: Ipswich (12 communities/42.1 MGD); South Shore (10/40.5), Metro West (17/35.1)--latter is ongoing. 2 communities just joined study.

If 100% of total is taken, it exceeds MWRA available supply, but not all communities will join.

Study assumptions (Ipswich & SoShore): Fully served, new connection (no "wheeling" from one community to another), assume MWRA can supply extra 51 mgd average, or 76.5 on max demand day.

## 2022 Annual Water & Sewer Retail Rate Survey Update

Average Mass retail rate survey--just under 3% average increase now, but not all communities have weighed in. Will have an interactive document on the AB website. More communities!!

### Committee Reports

#### Executive Committee – Louis M. Taverna

- Action Item: Nomination and Election of Cate Fox-Lent (Chelsea) to Executive Committee--Mammolette from Chelsea returned to private sector; Marsette from Natick is now at Sherborne. Vacancies for those interested.

**Fred Laskey:** Moving out of Charlestown by spring, going well.

PFAS looming, particularly on wastewater if pellets can't be land-applied.

### 12/5 Advisory Board Workshop on Water Supply

Laskey: state of the watershed

**Ipswich River** Watershed Issues: Sen. Bruce Tarr, Becky Weidman—Commonwealth primed for action. Droughts, need for drinking water. Now in Dec. still abnormally dry/drought.

Group of N. Shore legislators—decided can't wait to take action. Working with environmental groups. Building a task force to see if can find consensus about how to solve the water supply issues regionally, while also respecting environment.

Studies: MWRA/State \$100K study, SWIMI study. Some interconnections already but many small water suppliers that would need help and decades to connect. Can it be wheeled through other communities?

Next study will take interconnection lessons and move the agenda further. Issues of water chemistry, treating for PFAS. Will need uniform solutions for contaminants. Need to take action now because of unprecedented federal \$\$ available

Becky: 12 communities in the study of Ipswich basin. Three already partially served or have a connection. This is one of several studies of the water issue.

Cost about \$1-1.2 billion. Shorter-term could supply Wilmington, Lynnfield, Peabody & Salem with more water. Some expanded pipe gets you to Ipswich in 10-15years, but partial \$2m

Supply only. \$362m

Q: Weymouth also faces a sewage issue. Can deer island take it and will it need more sewer work?

A: only looked at water expansion in north. Should not add any wastewater into MWRA system.

**South Shore:** Weymouth Mayor Robert Hedlund

Town is on the sewer, own water. Most other communities have small water supplies. All independent. Weymouth has one great pond, plenty of water most years. Water usage down vs. 20 years ago. Citizens have proposed a ban on development in Weymouth because of no water. Tri town development proposed for Southfield (air base), but no water.

Studies on MWRA possibly bringing water to the site. Developers looking at site now are most worried about water sourcing. Weymouth also looking for new water source—with ARPA \$\$ and waiving entrance fees, looks more attractive. "Stars in alignment." Getting MWRA water is the only way to supply development and the town. Got herring run back, btw, after fixing a dam. IF get MWRA water, can restore environmental benefits of Great Pond and Whitman's Pond—and can also use as recreational resource.

We worry less about the capital costs—we think those are manageable. The drawback and political blowback may be in the rates. Weymouth remembers the protests against large sewer rate hikes. (Hung Paul Levy in effigy!).

Might also consider partial supply. Worry that will have to fix pipes so won't be losing >10% water.

Other communities on the south shore struggle with water supply. Question of capacity in the Blue Hills reservoir. Or would water wheel through Weymouth? Other towns now come to Weymouth to see if there is excess water supply they could access.

Becky: MWRA looked at 10 communities and airbase (south to Brockton). No partial or fully served communities. Looked at full supply and partial supply to just Avon, Brockton and Weymouth/airbase.

Fully serving: \$1.4b—40.5 mgd. Pipeline & storage tanks.

Partial uses existing system:

Did address wastewater system capacity. There is no additional capacity for wastewater.

Q: Weymouth sewer pipes collapsed/corrosion and had to be dug out. How do you add water supply & no sewer? Esp. Union Point / airbase, no place for the sewage to go. New sewage treatment plant?

A: study would replace current water, not increase demand by much (some future). Wastewater at Union Point and other additional development would have to be studied.

**MetroWest System:** Alan Cathcart, Concord Director of DPW.

Need for water is apparent by the attendance here. Concord's challenge is PFAS.

Water is highly regulated. Nothing we do is easy. Not complaining, this is a public health need. Looking at 1mgd costing Concord a \$40m treatment plant. Underinvesting in the pipes in the ground. Have a 10-year plan, but now looks like 4-5 other sources of Concord water may have PFAS. Wayland now dispensing bottled water because of PFAS.

Checking with surrounding DPWs to find out what they were doing. Agreement that need a regional approach. Despite ARPA \$\$, the need is still daunting. Most large systems in rest of the country are regional. Makes economic sense.

But before PFAS/ARPA \$, joining MWRA was an easy no. Dilemma is the various small government structures But this is an uncommon opportunity—water isn't as cheap as everyone expects it to be. Challenges: water quality NOW, economic development (later).

Thinks need to build 50-75 year quality systems, and they need to be regional. Concord \$\$ spent in next 5 years should be in long-term resilience, not in stranded assets.

Becky: looking at 19+ communities, study underway. New demand about 39.5 mgd. Walpole called just last week & may be added.

Partially-served communities included: Wayland, Hopkinson, Wellesley...

Report due in Spring 2023.

Bill Copithorne, Arlington, If all 3 regions take full supply, will we start to approach safe yield? What is the current usage & the assumptions in the studies?

Becky: all these are just feasibility studies. Our current system has seen less water usage. But cannot fully supply all of the study communities. On average day have 51 mg, and for max day 75 mg. Don't anticipate all communities will come in and at full supply.

Would not have impact on existing communities or our capacity for growth here.

Paul Lauenstein: 100 mgd was created by water conservation. What water conservation requirements would be added to reduce the needs and accommodate for people?

A: many requirements already in place and are added to new communities. Still a lot of work to do next.

Tough question: what exactly are we planning for?

Patrick from Walpole—Obvious can't supply everyone. Is there a priority list and how weighted. How does MWRA decide?

A: too early to say. We have not finished that work. No ranking system in place at this point, because unclear that there's a need

Lees Miller, Framingham: MWRA gets you depth of knowledge and resources that help communities solve water issues—can't be matched.

With PFAS, regulations are changing. But going forward, will be more, not fewer regulations. If you are looking at water system investments, have to take that uncertainty into account. And longer-term: climate and what that means for water resources. MWRA is looking to increase capacity. More solutions will be needed. Think MWRA will be in the forefront.

Framingham—here to say we are ready to work on helping MetroWest with its water issues.

**Funding Options:** Nate Keenan, Mass Clean Water Trust

Annual grants—2% loans have about \$363m in drinking water funds

BIL about 43.4B for clean and drinking water funds

Priorities: lead service lines, PFAS, climate resilience, onshoring (BABA)

Additional loan forgiveness required. Heavily focused on disadvantaged community reimbursement

About \$1.2B expected in next 5 years. Now is the time to apply!

**WIFIA Underwriting:** Mary Fasano

(Water Infrastructure Finance Agency): Using federal treasury rate, weighted for live of the loan. Usually 49% funding. Can borrow for 35 years. Can defer 5 years after the project is complete. Can also defer interest. Can also defer repayment of principal.

WIFIA would be really interested in helping to finance water expansion and regionalization work described today.

## Water Resources Commission 12/8

Vandana Rao: MWRA Tunnel Project MEPA letter submitted. Don't think Interbasin Transfer Act applies.

WRC staff is presenting MA drought Dashboard at NOAA conference

DEIR regulations on appliance efficiency standards are out (include plumbing code as well as energy)-- includes rates package and guidance

DCR is putting together a research working group to compile all the work/study of and on DCR land. This includes Climate Adaptation tracking tools, and evapotranspiration indices, Flood hazard management, identifying vulnerable populations.

DWS is looking at chloride loading in the Wachusett. WRC will have the director of research in.

Division of Ecological Restoration is hiring

DEP--Kathy Baskin--the sewage notification law and CSO notification plans are due by the first week of January.

Hydrologic conditions: November was hotter & dryer than normal. Cape Cod still has drought Severity 1. Streamflow mostly below normal. Groundwater mixed, Cape Cod & islands worst. Snowpack is below normal.

Baskin: Cape Cod--looking to reduce nitrogen impairment in Cape Cod Bay. Biggest contributor is septic systems operating **normally**. New draft regulations under 310CMR 15.00 and 314CMR 21 for watershed permitting could mean fertilizer restrictions. Number of alternatives with a goal to reduce nitrogen. Public comment period is **now**. Nitrogen contamination removes oxygen and kills eelgrass and shellfish. Waters then not suitable for recreation, tourism, and can affect real estate values. Without action, the effects will worsen. Most of Cape Cod, islands and southeast MA affected.

Another option: watershed permitting. Tradeoffs of the two approaches:



## Proposed Regulation Changes: Comparison of Title 5 and Watershed Permitting

	Title 5 Nitrogen Sensitive Area Regs	Watershed Permitting Regs
Requirements	<ul style="list-style-type: none"> <li>Mandatory upgrade of septic system to innovative/alternative technology</li> </ul>	<ul style="list-style-type: none"> <li>Implementation of Comprehensive Plan to reduce nitrogen loading to meet specific water quality target</li> </ul>
Implementation Period	<ul style="list-style-type: none"> <li>Within 5 years of designation (unless Notice of Intent is filed under watershed permitting, then timeframe is paused)</li> </ul>	<ul style="list-style-type: none"> <li>20 years</li> </ul>
Participant (who pays?)	<ul style="list-style-type: none"> <li>Individual septic system owner</li> </ul>	<ul style="list-style-type: none"> <li>Community (municipality, region, etc.)</li> </ul>
Type of Participation	<ul style="list-style-type: none"> <li>Mandatory</li> </ul>	<ul style="list-style-type: none"> <li>Voluntary</li> </ul>
Funding Sources	<ul style="list-style-type: none"> <li>Community Septic Management Loan Program</li> </ul>	<ul style="list-style-type: none"> <li>SRF Funding/ Clean Water Trust</li> <li>Cape Cod and Islands Water Protection Fund</li> <li>Other State and Federal sources (e.g., SNEP grants)</li> </ul>
Effectiveness at Reducing Nitrogen to Target Levels	<ul style="list-style-type: none"> <li>Might not be sufficient to meet water quality goals, leaving watershed nitrogen impacts insufficiently addressed</li> <li>Will likely require further action in the future</li> </ul>	<ul style="list-style-type: none"> <li>Can use various ways to reduce nitrogen</li> <li>Quantitative approach to efficiently estimate and reduce nitrogen loads to meet water quality goals</li> </ul>

### 495 Partnership 12/13

EPA Residual Authority –discharge permits for stormwater from large impervious areas.

**The Partnership sent out this:** EPA’s November 1<sup>st</sup> informational presentation to the Partnership on exercising RDA in the impacted watersheds:

- [You can watch a video recording of the presentation at this link](#)
- [You can access the slide deck from the presentation at this link](#)

Today: looking for feedback and possible consensus on this process.

Hopes, fears, questions:

Alison Field-Juma: background--this is part of Clean Water Act. Major unaddressed source of pollution is now stormwater. Most municipalities have a stormwater permit (MS4), but that puts the burden on local governments, which aren’t in charge of all the impervious surfaces. This process will include private stakeholders. Includes all three rivers Charles, Mystic and Neponset. EPA is still working out some questions, so haven’t yet issued a draft permit.

Dan, private sector: it is expensive to remove phosphorus from stormwater. Easiest way to remove is via infiltration, but that's not always possible--depends on soil and groundwater conditions. Another consideration is the time frame to come into compliance. Existing developments might not have a lot of room--might have to remove pavement. Wants language in the permit to allow "extent feasible" esp. For smaller sites, redevelopment sites. Would be interesting to see the difference in phosphorus loading from buildings vs. parking lots.

Kraft Building Group: What accommodations will be made if you are planning work, but don't want to dig up something recently constructed.

Matt Piekarski (Kraft)--what triggers need to become compliant? Our impervious surfaces are 10-60 acres of paved parking lots. Does one small improvement trigger the need to do larger work? If you have to forgo some parking to create facilities, what about zoning (parking minimums) requirements? What trumps?

Is EPA making the call on who is impacted by this? Or are municipalities? What role for municipalities play in oversight or enforcement?

Bridget Graziano (Medford)--how do we ensure industrial facilities comply with this permit, particularly if contaminated (unable to infiltrate because of underground contamination plume).

Liz Clark--great point, also something she is tracking. Not all sites should infiltrate. EPA is looking at sub-watersheds where groups can come together and figure out where they can infiltrate the most for the least cost.

More guidance, shared parking would help municipalities with compliance.

Funding?

What is the threshold for increased compliance when entities re-pave?

Several ask whether they can skate under the requirements by not doing any improvements.

Question of how this will be enforced (municipalities not that willing), knowing that many entities will do nothing to raise awareness of their status unless they have to.

Is there a role for DEP?

How can the EPA be helpful? --Outreach program, circuit rider, funding.

How will success be defined? Who will monitor?

## WSCAC 12/13

Hydrologic reports: CT river valley at level 1 drought.

A foot of precipitation deficit in the watershed. 10% lower than usual.

James--Advisory Board--workshop showed great thirst for water system expansion.

Becky Weidman--**System expansion** (see above)

Metrowest study is still expanding & not final. Westboro joined just yesterday.

3 options for North system:

1. Fully serving & new pipeline
2. Serve Peabody & Salem
3. Provide water to Danvers/Middleton, Hamilton, Ipswich...

Other studies include wheeling, so MWRA didn't look at that. If communities opt to join, then have to do the hydrologic modeling based on the new tunnel.

MWRA did not look at the effect on the Ipswich River. Safe to assume that the river would benefit. All these communities discharge to the river, not to Deer Island. (Salem & Beverly have sewers--draw out water in the off season).

South Shore options:

1. Fully serve all communities
2. Partially serve Avon, Brockton and the former air field.

Can't supply Avon without Brockton. MWRA is talking with the communities, but nobody has made a decision yet. Brockton would be a big user & has a private water contractor. Lot of pipeline. No South shore sewer capacity--the south collection system can't take more sewage.

Brockton is unlikely to want full supply. Contract is up with the private contractor.

All communities would have to justify taking the water via DEP and ITA.

Unlikely community would pay for a pipe just for emergency supply.

Not considering the Sudbury system--it would require a new treatment plant (too expensive). And may have PFAS...it's everywhere.

PFAS rules & contamination is correlated with interest in and studies of new supply.

Paul L: if everyone was more efficient in use of water, could have as much as communities are asking for without expanding supply.

#### **Ware River Access Plan--DCR Dan Clark**

Annual PILOT payments to towns because the watershed lands were purchased by MWRA. --\$8m

Conservation land doesn't use town services (schools, roads, water/sewer)

MWRA ratepayers pay DCR watershed staff.

Rutland State Park is actually MWRA watershed land.

Public Access Plan goals: Improve protection of watershed

Maintain or enhance recreational opportunities

Adjust past policies that don't provide protection

Long process with community

Contrasts what is allowed in watershed vs. other public parkland/conservation land.

DEP asked for changes:

- Intake exclusion zone--no public access. 17 acres. Hasn't changed
- New--buffer zone. 483 acres with only pedestrian access. Shift activity away from intake.
- Public access to parking lot along west side of Ware River will remain for canoe/kayak launching. New barrier to keep vehicles out of the water
- Hours of access--currently open 24/7--significant safety worries. New policy will reflect what's available elsewhere--open hour before sunrise and hour after
- Dogs must be on a leash, except if hunting (same as mass wildlife) --not allowed at Quabbin
- Trails--proposed a set of multi-use trails (all users all trails, no separation) --all user groups weighed in.
  - Avoid intake buffer zone & riparian buffers
  - Use bmps
  - Avoid private property
  - Connect
  - Reduce redundancy
- Allows for single-track mountain biking (new)

Can walk off the trails.

Expectation to self-police (including mt. bikers)

Revisit trail requests annually.

No more than 25 horses. Now have more (riding clubs). Discussion of cleaning up after the horses

Reduced the number of trails that can be used by snowmobiles. Mostly shared. They do get night access for trail grooming

Internal roads have been open 24/7--thought to close them all, all of the time

Compromise: keep 2 roads open (Cold Brook and Intervale) dawn to dusk. Non-vehicle access allowed daylight.

Some gates open for hunting season.

Rangers allowed to ticket unauthorized vehicles (parking)

Long Pond--all DWSP--no water skiing/tubing; no large motors. No swimming, no public beach. Canoes & kayaks allowed.

Comet Pond--not all DWSP, but own eastern shoreline. No distance swimming (only exception Walden) from DCR property. Permit program for larger motors for existing residents. Paddleboarding allowed where public swimming is.

Phase out 2-stroke? Happening naturally. Would like to go to all-electric outboards.

DCR can't enforce regulations (outside of parking)

## Water Infrastructure Finance 12/13

Eldridge: PFAS will mean water finance for supply

Hope we have an Environmental Bond Bill in next session

Wipes bill discussed

Other bills: Water pipe funding;

Connection fee bill for new water services to private developments, dedicated to water infrastructure

Drought bill re-filing

MVP bill--getting worked on. Emphasis on green infrastructure

Nowack: very worried about cost of biosolids disposal as PFAS restrictions apply.

UCANE--invest in water Jeff Mahoney

Feels that in construction, hit a bottleneck--even with ARPA and other \$\$, supply chains are choking projects on the streets.

Jenn--SRF structure does not allow for small communities to apply for grants (too small to afford grant writers)--would be better if just equitably distributed.

Helen Gordon: tough to realize projects. Pipe is 50 months delay.

## MWRA Board 12/14

### REPORT OF THE CHAIR:

- MA is still experiencing drought. Use water wisely.
- EEA working on climate initiatives. Includes Clean Heat (buildings), retrofits, CH standards, different ways to work with public, develop workforce toward Net Zero goals.
- By end of year, submitting Clean Energy & Climate plan.
- Congrats to Advisory Board for the workshop last week on water system expansion.
- Transition to the Healey Administration going smoothly
- John Carroll has resigned from the MWRA Board
  - Andrew Pappastergoin (25 years on board), how he met Carroll at a DPW event when he was a 20-something engineer.
  - Foti--agrees need a better send-off for Carroll. Met him just out of college.

### REPORT OF THE EXECUTIVE DIRECTOR

- Waltham has come out against the Metro tunnel project. Thinks they need more information
- \$450K is coming to MWRA for its COVID testing of staff from FEMA
- Salvation Army's Angel tree program in Chelsea--got a wish-list from kids & employees have filled it
- Andrea Murphy retires as of this meeting; stayed on longer than planned to help MWRA through some of its hiring crunch.
- Also thanks AB for workshop on water system expansion

### EXECUTIVE SESSION

i. Approval of November 16, 2022 Executive Session Minutes

A. Real Estate -- Watershed Land Acquisition

### ADMINISTRATION, FINANCE & AUDIT

#### A. Information

1. Delegated Authority Report – November 2022

## 2. Internal Audit Department Activities Report – FY2022--Claude Cormier

### 3. FY23 Financial Update and Summary through November 2022

To date variance in current budget is \$15.6m, mostly because of lower direct expenses of \$5m (personnel, but higher chemical costs), and debt service savings of \$2.2m. Also higher revenue (\$8.2m--Cambridge using more MWRA water this summer & variable interest rates). Employee count remains 1,057--more than 100 people less than budgeted.

Capital spending is also under budget--both community payments and MWRA spending (30% under or \$22.3m)

CPI up 7%, lower than last year, but prices are rising, but stabilizing. MWRA is managing through this.

## B. Approvals

### 1. Appointment of Proxy for Fore River Railroad Corporation

### 2. Proposed Amendments to the Management Policies of the Board of Directors and MWRA Purchasing Policies and Procedures

Increasing the amount the ED can approve by delegation to \$10K. Jack Walsh wants an estimate of cost savings.

Michelle Gillen--efficiency of operations, but maybe can't measure dollar savings.

Foti--we do the same thing--not large amounts of \$\$, but inflation. Why not more?

Consistency with Inspector General & municipalities.

All amounts spent will be reviewed by the board.

## WASTEWATER POLICY & OVERSIGHT

### A. Information

#### 1. Operations and Maintenance of the Fore River Pelletizing Plant

Update--Fore river plant \$133m.

Started up in 1991. Operations contracted out. This is the second competitive bid contract & in its last year.





## Regulatory Uncertainty On-going Impacting O&M Contract

### State and Federal Drinking Water Standards:

- Massachusetts 6 PFAS compounds 20 ppt
- EPA Updated Health Advisory, June 2022
  - PFOA 4 ppq, PFOS 20 ppq, Gen X 10 ppt, PFBS 2 ppb
- EPA maximum contamination limits for PFOA and PFOS expected soon

### Maine:

- 2019 required biosolids PFAS testing
- In 2022, banned all land applications of biosolids

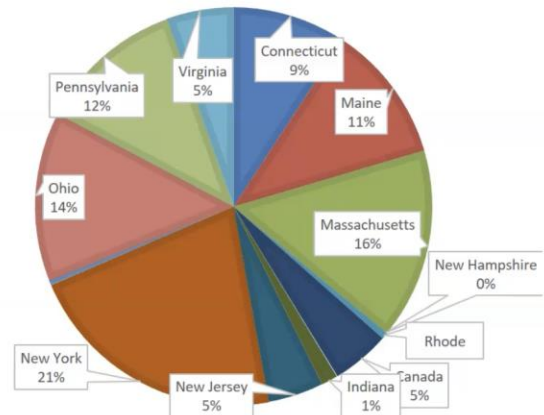
### Connecticut:

- 2022, recommend farmers obtain PFAS test results
- If > 1.4 ppb recommend do not apply to fields

### Massachusetts: 2020, new permits include PFAS testing

- MWRA permit issued November 2020
- Recent permit renewals paused (reported)

### MWRA PELLET DISTRIBUTION 2021



\* Between 2016 – 2021, 37% to 69% of biosolids land applied in New England

PFAS d/w standards make future of land application uncertain. Any changes in federal standards would have to be replicated at the state level--at least as strict.

Staff recommends shorter duration contract (10 years) and going out to bid, with separate line items for marketing and disposal (so can look directly at disposal costs if land application cannot be continued).

Beth Card: are you looking to secure landfill space, since there will be more competition for it?

Yes--most landfills are already at 95% or are planning to close in the next few years. Looking to secure additional capacity somewhere.

Pena: If EPA lists PFAS in CERCLA, what happens to landfills?

MWRA is well under CERCLA's proposed standards, but of course final number can change. But with that out there, and as a contaminant that does not degrade, any WWTP could be made responsible for future cleanups.

## 2. Public Meeting for the Development of the Updated CSO Control Plan

Tomorrow 6 pm public meeting on CSO control plans, goals & priorities. Updating the board on what they will cover.

- Why are CSOs important relief for sewers & neighborhoods?
- Planning process & Typical Year

- Goals--new TY, decreasing/eliminating CSOs, alternatives,
- What is a TY and how is it used?
- Future TY with climate change--first of its kind
- Preview of preliminary findings for TY--more rainfall, more intensely, more frequently
- Q&A
- Will request a schedule extension of EPA
- Hoping community will receive this well.

Laskey--MWRA has done everything the community asked for. Coppes: Have gone above & beyond what MWRA needed to do.

Is MWRA looking at green infrastructure? The public is very interested in it, because it solves other issues, but doesn't have a lot of effect on CSOs. Pollution is stormwater-related more than CSO-related.

## B. Approvals

### 1. Approval of Appointment of Jim Ferrara to the Wastewater Advisory

Committee--passed unanimously

## WATER POLICY & OVERSIGHT

### A. Contract Awards

#### 1. Metropolitan Water Tunnel Program, Geotechnical Support Services:

GEI-McMillen Jacobs JV, Contract 7557

### B. Contract Amendments/Change Orders

#### 1. Quabbin Aqueduct Shaft 2 Repairs: Unified Contracting, Inc.

## PERSONNEL & COMPENSATION

### A. Approvals

#### 1. PCR Amendments – December 2022

2. Appointment of Tracy Leonard, Manager, Policy & Planning Support, Operations--comes to MWRA from MBTA

## B. Contract Amendments/Change Orders

1. Extension of Employment Contract of Ward Merithew, Copy and Supply Clerk, Administration Division

### CORRESPONDENCE TO THE BOARD

1. Auditor's Letter Accompanying the Audited Financial Statements

## Combined Sewer Control Plan Public Meeting 12/15

3 partners--Cambridge, Somerville and MWRA.

[Slide deck](#)

[Technical details](#)

120 participants on the call!

Somerville: Rich Raiche--starting off by making sure the public knows NO ONE at municipalities or MWRA supports dumping raw sewage into the rivers.

Solving CSOs is complicated, so looking at how best to control. Also understand that much pollution comes from other sources.

Why have a CS? Necessary evil--they release water into rivers to avoid it going into streets, parks, basements.

CSOs have impact, and some include sewage. But stormwater discharges--and Mill Brook (EPA grade D) has NO CSOs--can pollute water.

Flooding—stormwater in separated systems.

CSOs AND stormwater make rivers unsafe for swimming or fishing, and add debris, oil slicks & odor.

Climate: more intense storms= more CSOs but also more SSOs and flooding.

Brian Kubaska: Control Plan Goals & Priorities?

MWRA & Communities have been working to reduce CSOs for over 30 years. Outlines history

Next steps--develop a control plan for a TY by June 2023--MWRA has requested an extension. Listening to public.

Among the changes--create a new TY taking Climate change into account.

Engagement: up to 7 public meetings at major milestones (this is #2). MEPA review, stakeholder interviews. More time will allow for:

1. Consider climate change
2. Have time for thorough analysis
3. Have a full public process

Q: how many miles of separated vs. combined sewers? Somerville is mostly combined. Cambridge is 60% separated.

Maps:

- [Somerville](#)
- Cambridge

Why isn't Arlington on CSO plan committee? All have met with Arlington & talked about issues. Plan is a requirement from EPA for MWRA, Cambridge & Somerville. We are required to do the plans. Arlington is not.

Kristen Anderson: Why is SOM1A not in compliance?

Kubaska: the EPA CSO plan included many outfalls. SOM1A had several modifications. In terms of control plan, we are short a couple million gallons of control to meet the goal. Continuing to try to meet those goals with Somerville.

Adding climate change modeling is new, and is a tremendous amount of work. No other CSO community has done it.

Kathy Watkins: Cambridge--we are very excited to be working to add climate modeling.

Using experts: Indrani Ghosh, Phd, of Weston & Sampson--lead author; Arthur Degaetano, Cornell U--lead reviewer

What is a typical year? EPA requirement--what can be expected (usually). Using best available rainfall data. It's an average--so some years are going to be wetter, or drier.

Use 11 different models; analyzed rainfall patterns. Look out to 2069 and two GHG scenarios

Annual rainfall up 2-3", more frequently and more intensely. A 1-year storm becomes at 6-month storm.

Q: Is goal to eliminate CSOs? Yes. But communities also have to serve sewer customers.

Somerville has spent more in the last 5 years on sewers than the past 75.

Why is a D on Alewife a pass?

Kubaska: CSOs have been reduced. Not all pollution comes from CSOs. Rainfall varies year to year.

Watkins: D is not a great grade, but the sources are not all CSO. All communities have a stormwater management plan.

Beth Melofchick: unacceptable to have human waste in Alewife. Thinks Arlington should be on the call. Thinks that stormwater should be captured and treated in green infrastructure

Kubaska: Hard to capture all stormwater, particularly in GI.

Watkins: much of what we do is not visible, and often needs to be upstream of where you see the water.

Matthew Carlino: mentions EPA GI initiatives & touting as more cost effective, Philadelphia GI & how there are other benefits from GI, including pollinator habitat, reducing heat islands, beautification. Old gray infra not being used in many progressive cities now. Are we stuck with gray? What are the goals?

Rich Raiche-somerville: A plan hasn't been developed yet. But Cambridge and Somerville plan to use GI extensively. And will be looking at the co-benefits. Should not all be a certain solution for one outcome.

Watkins: As we do projects, Cambridge looks at both--trying to clean water, reduce flooding, and more. But we do have some challenges, including poor soils for infiltration and no space.

Q: why work with just a TY when years vary so widely?

EPA requires that

What about the amount of pollutants that gets into waterways when more rain?

Watkins: storm water first inch is dirtiest

Q: can we use federal infrastructure bill to do a better job? Likes green infrastructure and thinks river at Alewife is pretty stinky

Watkins: Alewife wetlands, raingardens and such were all Cambridge's Catherine Woodbury projects from the last CSO plan.

Herron: federal \$\$?

Additional requirements to use federal \$\$\$. Project isn't designed yet, so can't apply for that \$\$ yet.

Boston has similar CSO issues. 2021 was a big year for CSOs.

Improvements to one system could push issues to another--they need to work together.

Comment: Feels that community should have been consulted before deciding on a TY. Localized storms, out to 2070 and not 2050, and variation year to year.

Actually taking a more conservative approach. Looking for a TY that models types of storms we anticipate in the future. Time frame is the state's.

Any estimate of the impact of more rain on the MWRA system?

That's the next part of the process

Flooding impacts are part of the model.

Matt Romero (AB): To get 85% of sewage out of the rivers cost \$1B. Need to cost benefits. While we all share the goal of no sewage, if it costs another \$1B to remove another 3%, is that the best route?

EPA is pushing for climate change to be included, but without guidance. So this may be a model that they adopt for other communities.

Lots of questions and hands up--but hard stop at 8.