

WAC
Minutes
Feb. 12, 2019

The Wastewater Advisory Committee to the MWRA met with the Water Supply Citizens Advisory Committee at the Waterworks Museum, Chestnut Hill

Attendees/Contributors:

WAC: Wayne Chinouard, Adrianna Cillo (BWSC), James Guiod (AB), Karen Lachmayr, Craig Allen, Martin Pillsbury

WSCAC: Janet Rothrock, Bill Kiley (BWSC), Bill Copithorne, Paul Lauenstein, Bill Fadden

Guests: Wendy Leo, Stephen Estes-Smargiassi, Carl Leone, Lise Marx, Kristen Hall (MWRA); Trevor O'Brien, Meshari Alzahrani, Mohammad Alhammadi, Saeed Alkhoori (Northeastern University students)

Staff: Andreae Downs

FUTURE MEETING DATES/TOPICS

NEXT: Friday, March. 9 10:30am, MAPC: Wastewater Director Stephen Cullen--introduction, Gray Water Re-Use—Bruce Douglas, Natural Systems Utilities

VOTES:

December minutes

EXECUTIVE DIRECTOR'S REPORT: Full report attached.

MWRA UPDATE: Since 3 Northeastern students are in the room—the MWRA summer intern program is taking applications, including for the metropolitan tunnel project. It is a paid internship. Poster & essay contest is underway--topic is STEM. See the MWRA website for deadlines. The HEEC cable project continuing. NEWEA meeting in Boston with a lot of MWRA staff presenting—wet weather preparation, phosphorus control at Clinton, MWRA awards. OMSAP (Outfall Monitoring Science Advisory Panel) meeting later this spring.

Annual update on water use is now available. Wachusett Aqueduct emergency pump station is basically done. Major accomplishment--nearly full redundancy from the treatment plant as far as 128. Means the Wachusett Aqueduct is now a major water redundancy asset.. Metro tunnel project is staffing up and running Going out for first major contract this summer. Spring board presentation on wastewater metering upgrade.

AB UPDATE: Needham meeting February on the watershed. DCR and vacant staff positions. Budget review of the CIP, will be getting CEB transmitted this month. Infrastructure conference Friday, June 21st.

PRESENTATION:

Stephen Estes-Smargiassi, MWRA Planning & Sustainability Director

MASTER PLAN: 5 year update. Done entirely internally by MWRA staff. Used to give direction forward, record things MWRA working on and succession planning—things MWRA staff want to remember to consider in future plans.

\$8.3 billion capital spending. 70% on wastewater.

 Background – 33 Years of MWRA Capital Investment

FY86-18 \$8.3 Billion Capital Spending

- 70% on Wastewater - \$5.8 Billion
- 28% on Waterworks - \$2.3 Billion
- 2% on Business and Operations Support - \$200 Million

Replacement asset value: \$6,671 million—doesn't include the reservoirs, which are state owned. DI and pipelines are largest assets. The combined value of MWRA assets is over \$13 billion.

Look at 5, 10, 20 years out. Includes all projects in the FY19 CIP. Also includes what's recommended for next 40 years.

Focus on Fy 19-23 and FY24-28

Business Plan also—that is a much shorter horizon — 5 years, and is shared with public. Master Plan mostly for mWRA staff.

Lise Marx: Water System

Water system goals:

 Water System Goals

- Goal 1: Provide reliable water delivery
- Goal 2: Deliver high quality water
- Goal 3: Assure an adequate supply of water
- Goal 4: Manage the system efficiently and effectively.

Wastewater:

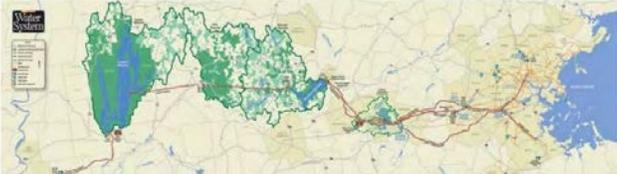
 **Wastewater System Goals**

- Goal 1: Provide reliable and safe sewer service
- Goal 2: Provide environmentally sound wastewater collection and treatment, pretreatment, residual disposal, and combined sewer overflow control
- Goal 3: Assure appropriate future wastewater collection and treatment capacity
- Goal 4: Manage regional sewer service efficiently and cost-effectively

This plan identifies \$5.7 Billion in capital over the next 40 years.

 **MWRA Water System Overview**

- 102 miles of active transmission mains and tunnels
- 43 miles of standby transmission facilities
- Water treatment capacity 405 MGD
- 284 miles of distribution mains
- 5,597 valves
- 287 MG of covered storage
- 13 pump stations (includes Wachusett Aqueduct Pumping Station)



Water system Compared last 5-years and this plan. What has changed?

 **Water System Master Plan Themes**

<p>2006</p> <ul style="list-style-type: none">• Redundancy<ul style="list-style-type: none">– Initiate Planning Efforts– Continue Work on NIH/SEH and Lynnfield Projects– Complete Blue Hills• Continue Pipeline Rehabilitation• Identify Asset Protection Needs	<p>2013</p> <ul style="list-style-type: none">• Redundancy<ul style="list-style-type: none">– Implementation Underway– Transmission System– Distribution System– Storage• Continue Pipeline Rehabilitation• Increase Asset Protection Funding
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Water System Master Plan Themes

2013

- Redundancy
 - Implementation Underway
 - Transmission System
 - Distribution System Storage
- Continue Pipeline Rehabilitation
- Increase Asset Protection Funding

2018

- Redundancy
 - Implementation Underway
 - WAPS Nearing Completion
 - Metropolitan Tunnels
 - Spot Pond Storage/PS
 - Distribution Storage in Future
- Continue Pipeline Rehabilitation
- Continue Asset Protection Funding

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Assumptions—think have enough water, watching lead & copper rules, climate won't impact water supply much

Recommendations mostly focused on redundancy. \$1.7 billion in programs, including big tunnel projects.

Do plan to inspect the Quabbin tunnel. With the Wachusett Aqueduct Pump Station, will also inspect the Cosgrove. Further out thinking will need to design & rehab the Metro tunnels in future—\$65 million placeholder.

Metro Tunnel project: unlikely to have issues with deep rock tunnels. Mostly with piping and surface connection valves. Currently can't inspect because can't interrupt water supply. The Metro Tunnel project is starting up—new department formed, will look at MEPA review for FY20. Scope of service for preliminary design and MEPA review has been developed.

Since 2013—Work in the next few years is focused on redundancy before the Metro Tunnel goes into service: Improving the Comm Ave pump station is about to start—this will allow some more flexibility. Will connect to Low service system. All of these projects mitigate risk before the opening of the new tunnels.

Low service design for additional capacity underway. Distribution at WASM 3 is under design, new pump controls and isolation valves at chestnut hill emergency pump station. Doing what we can at the top of the existing tunnel shafts, to reinforce the system and extend their useful lives, which can be as simple as carefully repacking bolts, to ensure that they won't give way.

In the Northern Intermediate High—

Winchester/Stoneham/Reading/Woburn/Wilmington/Wakefield—adding redundancy. 3 contracts completed. Some problematic pipeline there that has failed elsewhere the country, so a worry. Expect to be finished FY20.

Southern Extra High system redundancy underway—\$50m by 2020. One contract complete, one almost complete, and a third just awarded.

Storage—now all covered. MWRA has gradually added more covered storage and moved to all covered. Have 3 areas where feel need for more storage as local communities take their own storage off line (expensive to maintain). MWRA is planting meadows (missing habitat) on top of the storage tanks.

Any push to add solar panels? MWRA lookin at—it's a trade-off because you lose public access and habitat, but get green energy.

\$320m in pipeline expenditures, excluding redundancy projects. MWRA is continuing to line old unlined cast iron mains for water quality. We have a number of steel pipes that need rehab and replacement. Recommending a pipeline study in the next 5 years. Cast iron can fail catastrophically, steel can be fixed, but when too many leaks needs replacement. MWRA has cleaned & lined a number of pipelines since its inception, which should add 50 years of life. But that's an industry rule, and we need to determine whether the pipes will last 100 or 30 years.

Other facilities we own—dams, treatment facilities, pump stations, lab equipment, meters valves, etc. Even the “brand new” water treatment facility needs asset protection (\$41m)—electrical equipment. UV bulbs, monitoring equipment. Valves. Cathodic protection work. Dams—some significant safety work done over last 10-15 years, but recommend \$10m more in maintenance over the next 40 years.

Community pipes—6600 miles and much of it is unlined. Recommending 2 additional stages of funding.

On water supply side in CIP, primarily because of the Metro Tunnel project, \$2.6 billion is in the Master Plan for the next 40 years.

Other things—water & wastewater oriented:

Renewable energy generation increased about 17%. Energy purchases down over time—various programs to improve efficiency. One was just improving the efficiency of adding oxygen to wastewater as part of treatment. Eliminating mixers at Carroll. Insulation. Changing light bulbs.

Why renewable electricity production down? Because one of our biggest energy generators is hydro-power—if we are not moving water between Quabbin and Wachusett, then aren't generating (green energy production goes down in rainy years).

MWRA-produced greenhouse gas emissions down 19.5% since 2006. Tracking all contributors under MWRA control, electrical use, diesel, propane, process emissions. Some is efficiency, some is green generation. Next big change will be at DI with the combined heat & power plant replacement, where we will change the way we use the methane to a more efficient model. Should bump up our green electrical use substantially, even without co-digestion (which seems to be stalled, if not completely off the table).

Adapting for climate change—not as a line item, but evaluating and as projects come online for rehab or renewal, MWRA is adding adaptive needs, particularly for low-lying infrastructure.

(Example: Alewife Brook Pump Station--which elevates all electrical and incorporates flood controls such as stop-logs).



Adding public access where can (aqueduct trails, Deer Island access trails, Cambridge wetland).

Carl Leone: Wastewater



Themes: asset protection all throughout. We have built what we want to build, and just want to keep it all running.

On Deer Island—lots of funds on asset protection.

Remote headworks now getting rehabbed.

Residuals is on the CIP already

Interceptor projects are planned, some were pushed out to finish Deer Island, some being renewed.

CSO control plan now mostly finished.

Don't anticipate long-term regulatory changes. But we will continue to monitor.

One of the big assumptions is that wastewater will mostly be asset protection. Few additions. No boom in population, just modest infill. Starting to look at capacity—plenty at the plant, but may be individual locations with localized issues.

Q: Does MWRA have a good database of where local systems are in regards to condition and capacity? **A:** Somewhat—but try not to get too far into the communities' systems. Paper copies of their systems, and major inputs modeled. Recommended in future CIP to re-look at hydraulic models. How to optimize.

Also looking at flood mitigation for storm surge/SLR as upgrade facilities. Look at freshwater facilities but not as heavily as coastline. That's the flip side of climate change—10 miles inland, what effect of storm intensity on MWRA facilities. But that kind of analysis isn't easy yet.

Q: What elevations using for Alewife? **A:** Using Cambridge #'s, and estimating the impact of the overtopping of the mystic River (Amelia Earhardt) dam due to sea level rise. Possibly would affect Fresh Pond.

DI slide—lot of equipment, lot of funding recommended. Represents about 45% of total wastewater expenditures in the Master Plan. Keeping Deer Island operating is our big wastewater expense.

Energy improvements—\$90m for the combined heat & power project Steve mentioned. Also hydro turbine generator replacement in the outfall tunnel. Should move them plant from 62% of the plant's total power needs from green energy to 90% once that goes on line. If could add more feedstock (FOG, etc), could generate even more. But the feedstock hasn't been as plentiful as DEP expected. MWRA has kept \$\$ in FY25 for a co-digestion project, if it were to move forward, just in case.

Pellet plant—\$200m asset value. O&M contract up in 2020. Some significant expenditures planned. They are still being sold in-state, but there are sets of issues with pellets—phosphorus content mostly a labeling problem. Molybdenum numbers are back down. During the drought/hot weather numbers got higher. Cities and towns buy the pellets for parks—pretty good chunk of the local market. Are pellets “organic”? Not exactly, due to non-residential wastewater. Emerging contaminant PFAS contamination is a concern & pellets will have to be tested for content. But the science is still so unclear, there's not even a clear level where it should be regulated at. There will always be new thing.

Wastewater Cross-Harbor tunnels, \$660m replacement value. The two older ones were built in 1953—still have 50 years. 1998—newer one. \$50m placeholder to inspect them & fix as necessary. No redundancy on these tunnels. Hydrogen sulfide corrosion of concrete is a concern, but mostly on the tunnel shafts. What happened to the old outfall? Not going to be used, but was left just in case. Available for emergency use at Nut Island. Permit requires be maintained, but only land end of them is currently taken care of.

MWRA has four remote headworks. First three are from 1967. Chelsea Creek is currently getting rehabbed. Columbus Park and Ward will be designed together, but constructed separately. Nut Island has had some work post-fire

CSO control project considered finished.

Lots of manholes, structures, interceptors to renew. 6 of 12 interceptor projects--\$120million--are in the CIP. Difficult to permit and construct. Usually cured-in-place pipe liner, but even so are often longer in planning than in construction.

Q: Any way that sewer lining could be added to MWRA sewer use regulations like Title 5 so that communities could extend lining to the sewer laterals? **A:** Interesting idea. Sewer use regulations are part of Mass General Law.

Suggestion: that MWRA lawyers and lobbyists take on changing the law so MWRA can update its sewer regulations to require lining of sewer laterals at point of sale.

Also need to maintain metering and information systems. Expensive. SCADA used to operate all pump stations, keep an eye on the collection system during storms.

I/I—since 1993 \$370 m distributed to communities, over 5,300 miles of community pipes.

Total figure of \$3,170m recommended over the next 40 years in the Master Plan. (Today's dollars). In CIP adjust for future dollars.

Future challenges include preserving institutional knowledge as folks retire in the next 10-40 years, including entire Master Planning Team. Need to ensure people pass on that memory. Future regulatory changes have to be anticipated, national and state. Climate change adaptation strategies may change MWRA plans. Energy pricing is a concern—very energy intensive processes.

Q&A

Combined heat & power plant—10 year project, by 2029?

Sewage metering surprises? Mostly looking at estimated flow areas—can't meter all of it. Anticipate some new meters where cost-effective (new growth). Does not correlate with water distribution ratios. Depending on the weather, sanitary flow is about 50% of wastewater flow, less in wet weather. Steadily decreasing flow. But part of the reason flow holds steady is that more of the wet weather flow is getting to DI (and not discharging to streams, rivers and the harbor).

Water per capita use has gone down, number of people on the sewers have gone up. Low-flow toilets, lower water use down the drain, fewer leaks—all helps.

Proportion of sanitary vs. rain flow? We have seen reductions in total wastewater flow as well as reductions in I/I. Yet sewer separation projects also increase sanitary flow.

Water use: seen substantial reduction in consumption since 1980.



Total Consumption by MWRA Communities (1980 to 2018)



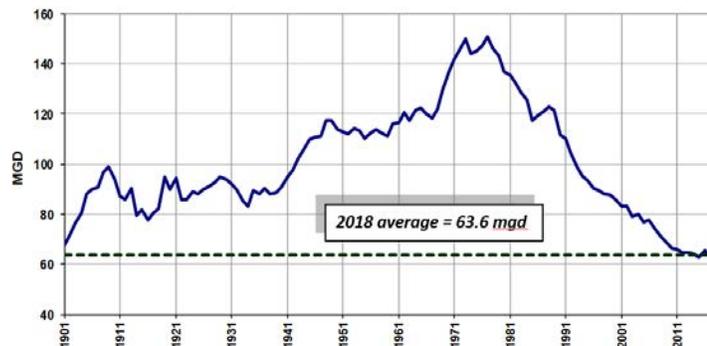
This was an interesting year for us—with the earlier drought, we kept going to the board to talk about Quabbin levels, drought, and how other communities were doing vs. MWRA. And by October this year, the Quabbin was overflowing.

Look at daily demand. During the drought, we sold a lot of water, and that shows. This year—lowest demand is Christmas. Was lowest day MWRA has seen since 1980—146 mgd. Max was July 10 at 297.5—used to be that the daily average was over 300 mgd.

City of Boston—less use now than in 1900, even with population and employment gains.



Boston Water Use (1900 to 2018)

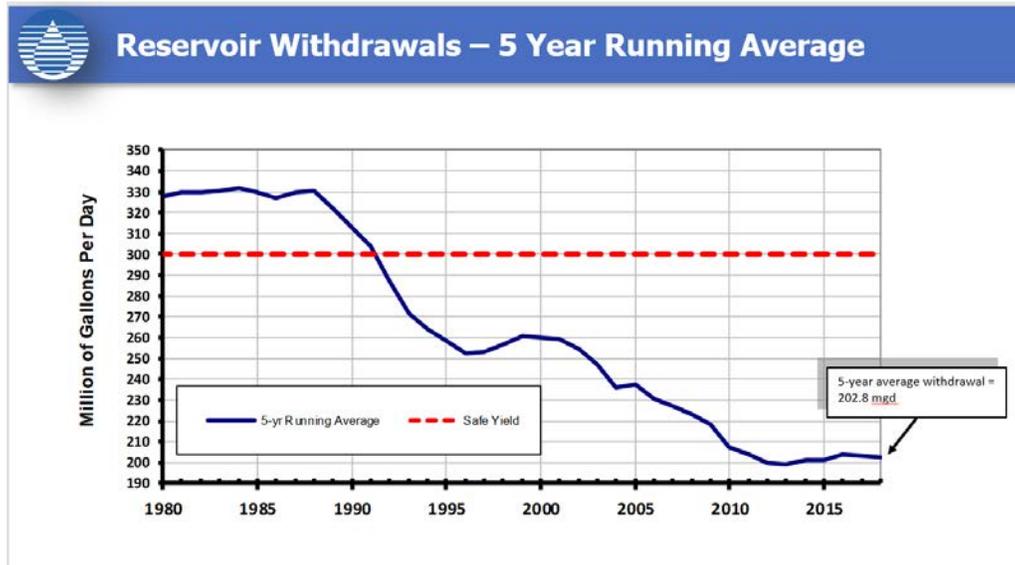


Peak population in 1950s. Now back over the peak then.

Base flow is steadily dropping. Flattening out recently. Increased economic activity, plus conservation. Seasonal use higher in drier years. In our region, 8-12% of total.

Reservoir withdrawals down, despite new communities. Anticipate that extra water not currently going to Boston area anymore may be the backup for surrounding communities during dry years.

Ashland is joining the system, but not a lot of water. Some is going to the fish hatchery to keep the fish cool.



Quabbin reservoir volume

We never got into real drought, just below normal. Crossed into normal, ended year at cusp of normal. Started spilling in October. Now spilling across the entire width of the spillway and are continuing. 32 billion gallons down the Nashua 40 billion gallons to Wachusett. So recovery is even more impressive when consider that.

Does that run the generators? Yes. We make money when we transfer.

Arlington community meters—how often are they calibrated? Quarterly for MWRA meters—water and wastewater to calibrate with what our sensors say the flow is.

Where does spilled/released water go? Nashua River, Sudbury River, Swift—>Chicopee—>CT river. Try to keep rivers healthy as well as the Boston area economy.

Historically, MWRA has had years where sent water into rivers all year—sometimes more than it has withdrawn from the reservoirs.

Spillway water doesn't produce power. Would like to, but haven't figured out an economic way to do so yet.

In early 1980s, estimated that water needs would exceed 450mgd by 2020. Fortunately, hasn't proven true. "No models are true; some models are useful."

February Directors Report

Water Resources Commission Meeting, Feb. 11

Doug Fine of DEP updated the commission on PFAS regulation. This class of contaminants are not regulated at the Federal level for drinking water. EPA recently issued a health advisory for PFAS and PFOA, which are just two of a large family of related compounds (estimated 3-5,000 substances). Sources are usually manufacturing (Teflon and stain-resistant fabric), but the most common is fire fighting foam. Found around former military bases, airports, firefighter training centers.

MA has issued an expanded health advisory (treated as a regulatory standard) for 5 PFAS related substances. DEP is looking at additional actions, such as soil and groundwater standards, which are a precursor to proposing regulations. This may include a maximum contaminant level.

A Conservation Law Foundation petition started this particular examination. A required public hearing was held on the petition in January 2019. DEP's response was that it will move forward with setting maximum contaminant levels and waste site cleanup guidelines. It will take time to get regulations in place. Their examination is limited to PFAS substances with adequate information on health risks, for which detection technology and treatment technology exists, and will also assess costs of remediation.

Hydrological Report--groundwater is at normal levels. It is usually over normal at this time of the year. Part of the issue is the lack of snowpack. A summer drought is thus more likely.

New Drought Management Plan Draft Review: Touted as more flexible, easier to determine risk of drought earlier.

MWRA Board 2/20/19

New member Chris Cook from Boston.

Administration & Finance

Orange Notebook, second quarter of FY19:

Drinking water is coming from Wachusett this season, because that reservoir is so full. Means more UV and chlorine needed to keep the water within MWRA quality parameters. Wachusett has more organic matter than Quabbin.

Siphon cleaning and inspection metrics: not as many siphon inspections as hoped because looked at CSO system. Cleaning was ahead of schedule.

Leak detection & repair: lot of catch up this season. Also a lot of time helping communities.

Delegated Authority: changes to job descriptions are now included in this report, which allows MWRA to comply with OSHA requirements. Before they were each voted but the board.

CIP /CEB update: overspending driven by community water & wastewater grants/loans. Otherwise, CIP is underspent by a more normal variance. Chelsea Creek Headworks is \$7.3m under budget, but only 49% complete.

A&F is looking closely at community support to see whether there are trends in the timing of the requests.

Debt service budget variance—interest rates have been lower on variable rates than estimated. That surplus is used for defeasance. Expect an updated defeasance allocation in May. Revenues are also over budget (interest rates higher than budgeted). Other surpluses are in personnel and maintenance. Anticipate a \$15m surplus by end of the FY.

Assessment Update: Adjustments for communities that challenge their rate increases. Preliminary FY20 W&S assessments: MWRA proposal for the next CEB. Take needs, subtract investment & other income, and rest is rates. Rates are set by volume (water) and volume, population & strength (wastewater). \$767m is FY20 requirement from rates. Average rate increase will be 3.74%. Laskey: multi-year rate strategy to have consistent rate increases, in order to keep rate increases low each year.

Transmittal of **FY 2020 CEB**. Rates management—sustainable & predictable. Biggest considerations: capital finance expenses (61%), existing expenses and revenue (HEEC cable, change to TRAC fees, inflation); Long-term liabilities (OPEB, debt, etc). Debt service is the biggest driver of rate increases. So that's where MWRA focuses attention. Part of strategy is defeasance. Another is smoothing out the HEEC payments @ \$6m/year or so. Pension funding now at "fully funded," but that can change if mortality and markets don't meet assumptions. Last calendar year, instead of earning 7%, lost 3%. OPEB more flexible. Now budget ½ of the required annual contribution.

Capital financing is 62% of CEP. Last year 64%. Direct expenses driven by personnel.

Rates under 4%, but not yet at the AB's 2.4%. Volatility in water.

Wastewater

Increase in **TRAC fees**. Haven't been touched since FY12. Increasing 4% this year, following years by 3%. New category of permits for low-flow discharges (annual vs. every 5 years). Construction dewatering—lot of work for MWRA, adding charge at application rather than at issuance to save unnecessary MWRA work for construction that doesn't happen.

Discharging sludge to MWRA—now a permit, will be co-issued by municipality, MWRA and DEP.

Dental discharge changes to incorporate Federal requirements, which move some inspection tasks related to dental facilities from DEP to MWRA. BMP permit program—checking on amalgam separators, maintenance and cleaning. They are working with DEP to minimize overlap of tasks. First group permit anticipated for FY20. A new charge, also.

Chelsea Creek Headworks: a change order \$375K piping and supports on pneumatic ejection system (sends grit & screenings to dumpster). Entire project about 3mo behind schedule.

Pappastergion: How many more change orders coming? Think we are over the worst of it.

Alewife Brook Pump Station—final tie in of pumps yesterday. A few out-of-scope services change order for Stantec. Overview: 6 new pumps, new electrical equipment and pump motors. Raised above flood

level. New screens. New boilers—high efficiency gas. Also raised. New standby generator—also raised—twice the capacity of the old one. Replaced pipe for the conduit, now pumping through it. Bypass pumping is now being removed. Costs are for additional hours of work because of delays in completion. \$94K.

Water Supply

Sudbury Dam spillway—repainting needed. Looking to protect a vent pipe for a hydro turbine from 1916. North Dike at Leominster PS—could overtop, so restoring some elevation around the PS. Foss Dam also needs overtopping protection.

CH emergency pump station improvements design & engineering services. Underground station. Takes flow from the reservoir to two different sets of pipes. Want to add an isolation valve, surge control valves, a generator, and modern controls. Will improve performance of this station and redundancy ahead of the metro tunnel construction.

Personnel

Laskey: required by new state law to look at pay equity. MWRA hiring a consultant to do a report on MWRA positions & pay. By March meeting will present the findings. He thinks MWRA one of the largest leaders in this area.

Chair's report: Beaton absent. Carroll: Welcome to Chris Cook, Chief of Environment, chair of the MWRA Board Water subcommittee.

Laskey: \$134K from MEMA for last March's Nor'Easter. Two MWRA employees with cancer. Staff raised over \$20K combined to help out.

2018 Extraordinary Service Awards lots of nominations. Lou Collins—during March 2018 storm at Nut Island. Flooding that made the national news. Worked tirelessly to move people and food in & out of the flooded area of Quincy.

Oscar Fernandez—heavy equipment operator. Volunteered in various international locations, helping people trapped by wicked high tide in 2004.

Leak Detection Team: found where the Stoneham community leaks were, prior to the high pressure main being installed. Subcontractor couldn't find the leaks, and their specialists couldn't find the leaks—the MWRA team found them.

Team that designed & built the redundant soda ash system for Clinton WWTP. On time and on budget.

Advisory Board 2/21 Needham

DCR Water Protection:

Leo Roy—DCR takes this mission very seriously. About to fill two positions. Promotions made. Recruiting & hiring takes time. AB has had an issue with how long vacancies are open. Average age of DCRf worker is 60. Going to see a lot of senior staff turnover in the next 5 years.

John Scannell—director of Water Supply Protection: continuing to acquire watershed land, including with money besides just the MWRA. Focus from protecting the Wachusett Reservoir to now including the other watersheds—Quabbin, Ware, Sudbury. Forest Legacy grant (Federal) meant acquiring 19 additional parcels, plus protection now over 2,575 acres. Have restrictions on 143 parcels. 90 new since 2005. Only 1 staff person. NOT keeping up with monitoring. Expanding responsibility to environmental staff already in the field.

Forest mortality (oak) impacted by gypsy moths. Keeping deer under control with hunting—Quabbin 1 week, adding Wachusett. Updating the public access plans for the reservoir lands.

Stormwater diverted from the reservoirs—of 51 direct discharges to Wachusett, 1 remains and is under design. Monitoring birds via drone.

Joe f: Unlike other areas of the budget, AB pushes for more MWRA spending on the watershed. Frustrated that still not staffed up. 24 positions not filled for over a year. Leo Roy—tight labor market

Greywater Reuse

Natural Systems Utilities (NSU) is looking at water reuse. C. Fiore: TRAC regulations (which are changing anyway, see above) need changes to allow discharge into the sanitary sewers. MWRA will allow, but only if community also allows.

Bruce Douglas: water recycling in sewer communities.

Taking all wastewater from building sanitary drains, treating it to near-potable quality in order to use for non potable uses: irrigation, laundry, car washing, snow making, fire suppression, etc.

MWRA would need to allow sludge from this treatment back in the sewer. At Patriots stadium, reclaimed water used for irrigation and toilets. Battery Park city in NYC, require high rise buildings to reuse water. Use for toilets, cooling tower, irrigation. Laundry is allowed. More sustainable building design. 5'x6'x8' battery—filters bacteria and solids, disinfects, stores for reuse. Three levels of disinfection.

Using heat pump to recover wastewater heat (like a geothermal system) for building heating/cooling. Net positive or even surplus energy from the water.

Will also mean less solids into the sewer.

Can also mine municipal sewer and treat/reuse water onsite—which would mean negative contribution of solids into sewer.

Multiple permit approvals (municipal w&s and inspectional services, mwra, dep) means will be safe.

Why? Less water demand. Cost effective, sustainable, improves sewer capacity.

Needs to be larger projects.

TRAC regulations will be publicly noticed in late March.

Crescent Ridge Dairy Sharon—border of Stoughton—applying to enter the MWRA sewer system. Have an onsite wastewater system. Flows of about 6,500 gpd. Not cow waste, ice cream waste. Entrance fee is \$24K.

Agreements with communities, details of connection, legislation, commitment to I/I removal of 40K gallons of peak flow (4:1 offset). Also Interbasin Transfer Act determination of insignificance—WRC has to approve. AB will vote after WRC.

Joe Favaloro: meeting community CEOs with MWRA staff to see how AB & MWRA can do their jobs better. Do they have designees? Need alternate designees?

HEEC cable—dredging Boston Harbor. Massport \$130m, Federal \$220m. Costing MWRA \$160m to move the cable. Massport will recover costs via cargo and cruise ship revenue. Massport getting a minimum of \$30m/year. MWRA having to raise rates. Why shouldn't MWRA get a portion of the fees from cruise and cargo ship \$\$? Massport charged MWRA \$8m to cross Connolly Terminal with a trench for the HEEC cable. NSTAR owns the cable. Has to provide profit for customers—\$10+m.

June workshop: June 21, Boston College on water & wastewater infrastructure financing.

Speakers: looking at national figures, beacon hill legislators, Ucaue.

Budget:

3.74% rate increase projected. Last year was 3.9%, which went to 3.09%. Watching investment income/interest rates & variable rate debt. Also looking at pension contribution levels. AB thinks OPEB is part of the same discussion—so if pension is up, OPEB contribution should go down. Staffing usually is 9 person short, but tunnel group may be impacting that. Still like defeasance and early refunding. Still think enterococcus should not be in the NPDES permit, and also not in the budget. DSA from FY19 was just under \$900K, wand will be applied to FY20 rates.

Annual water quality report—Planning wants community letters in earlier, and will be suggesting improvements.