

DRAFT

Wastewater Advisory Committee

Minutes

June 7, 2019, 10:30 am

MAPC, 60 Temple Pl., Boston

Attendees:

WAC: Philip Ashcroft (NEWIN), Wayne Chinouard (Arlington) (both on phone), Taber Keally (NepRWA), Zhanna Davidovitz (MIT, vice chair), Martin Pillsbury (MAPC), Adrianna Cillo (BWSC), Belinda Stansbury, Stephen Greene, Mary Adelstein, Kannan Vembu, Karen Lachmayr (chair)

Guests: Travis Ahern (Advisory Board), Veronica Colman (MAPC)

Staff: Andreae Downs

VOTES: Approval of April minutes, May notes.

FY2020 Leadership: Karen Lachmayr, chair. Wayne Chinouard, vice chair.

Vote to extend leadership term to two years. Understanding that Karen's term is already 1 year, so one more year.

Advisory Board updates: Budget comments and recommendations submitted to MWRA board, vote on June 19. September 19 (at 11), joint meeting probably at Lexington DPW.

August AB tour is a boat ride from Deer Island, looking at POTW outfalls, OMSAP theme.

Chair's report: Thanks to WAC members for this year's work, time. Also, to Executive Director. Pleasure working for a committee that advises MWRA, which gave some outstanding presentations this year. Having an annual planning meeting in June is probably WAC's most important meeting—to focus on the job of advising the MWRA.

This year, chair focused the WAC Handbook.

Also question of whether to move the December meeting back to January.

ED Report: WAC leadership plan for turnover annually. But this year, Zhanna has professional conflicts. Karen is happy to stay on another year. Wayne has agreed to step up as vice chair.

Agreement that the second year of chairmanship is easier.

WAC Annual Report — two new WAC members; more meeting-focus this year than comment-focus. Approved.

Meeting Topics FY20:

WAC Suggestions: MWRA Education & outreach; Is MWRA leveraging Big Data or AI to improve service or reduce cost in wastewater management?; How Deer Island compares in energy efficiency to other plants, the Combined Heat & Power study, hydro, EEA energy office—May Tour?; Marketability of pellets/phosphorus; PFAS, pellets, and the bay—water monitoring, pre-OMSAP—October meeting with WSCAC. What's the science on these contaminants & health effects; pellet plant contract—safe & economical disposal of sludge; major interceptor maintenance update;

ED Suggestions: HEEC cable engineering & cost sharing; headworks upgrades and lessons learned so far from Chelsea Creek

Agreement to retain December meeting, but keep the January meeting as a possible snow date. Looking at Jan. 10 instead of Jan. 3.

Request to make the schedule available as soon as possible so members can schedule around it.

Sewer Operators Survey: ED contacted 40 sewer communities, reached all but 7; largest issue is FOG, much of it downstream of restaurants, second wipes—including sniffers, facial wipes, toilet cleaning swiffers, etc. (bigger issue for systems with pumping), distant third—diapers, including adult diapers downstream of assisted living or adult day care. Also, baby diapers downstream of public restrooms. MWRA North system has capacity issues—sometimes flow comes back because no room in the pipes.

Next step to borrow or create flyers & a clearing house of materials that all communities could use. BWSC also uses fliers in its education program, and like MWRA Education program, shows that nothing dissolves in water except toilet paper. Found that kids put paper towels and other items in toilets.

FOG—every restaurant is required to have a grease separator in working order. Boards of Health aren't always focused on the separators, but on the safety of the food in restaurants. Some towns have taken inspections of grease traps into DPW.

Wipe packaging also says that they are flushable. Question for WAC to work on is legislation to remove such statements from wipe packaging. Can also send notifications via water bills—or response with online bill pay for municipalities. Info with cost of clogs and issue with home pipes. Manufacturer messaging that tampons are flushable. Add to a meeting with MWRA education division.

WAC Handbook — Produced by ED after having to piece together ED job description from multiple sources. ED thought important to leave a record of WAC practices and important contacts/meetings for the next ED. And since it changes all the time, the Handbook is always a draft, but it at least gives some Standard Operating Procedures, and as it is updated can give

WAC an opportunity to direct scope and direction of the ED's work. ED added information on reasons for regularly-scheduled WAC traditions (i.e. planning meetings in June. Committee members noted that many businesses don't write down what they do—this is helpful as both an operating manual and as a way for WAC to know, shape and define the committee and its work. Members expressed appreciation for the effort.

ED thanked WAC members for their attention, support, attendance in the last FY.

June Director's Report

WSCAC 5/14

WSCAC June meeting will be at the Quabbin, but are not doing a boat tour.

Metro Redundancy Project update: Fred Brandon, MWRA.

Water supply is 100% redundant except in the Metro Boston area and between Quabbin & Wachusett reservoirs—the aqueduct between the reservoirs is off line all winter, and can be inspected & repaired in those months.

Aqueducts built since 1840s, starting with the Cochituate. Early ones were not pressurized, but starting with the Quabbin (1939) deep rock tunnels under pressure.

Grade line aqueducts—slope 1 foot/mile and use gravity.

Pressure aqueducts started with Quabbin-Hultman, Cosgrove, Chicopee Valley. Hultman was supposed to be double-barrel for redundancy, but WWII interfered. MetroWest tunnel now provides that redundancy, completed 2003.

Now Hultman is repaired and interconnected (2013). Handful of leaks fixed.

The deep rock tunnels are in good shape—need almost no maintenance. Worry is the valves at the surface. Some are inoperable; MWRA fears that they will break. Part of the need for the redundant tunnel into the city.

Need for redundancy highlighted by the shaft 5 leak at Weston in 2010, where the break was 1" and the leak was 250mgd. Another break is inevitable without a redundant tunnel.

Alternatives evaluated, including a city circle in the early 1900s. Larger diameter pipes were added, but replacing some via city streets & parks was ruled out.

Current plan is two tunnels, starting at the end of the Hultman/Metro supply. Northern: 4.5 miles connects in Waltham, Southern: 9.5 miles, connects to 7C in Weston. Could take 23 years. Deep rock.

Will work with existing tunnels offline—will be fully redundant. Designed for high day demand, including mid-summer. Will allow year-round maintenance on the current city tunnel.

Adding new pipeline improvements into the hydraulic model, along with population and employment projections. Also looking at possible system expansions into communities with stressed water supply.

Existing system's high day demand is 265 mgd east of Norumbega. The tunnel will be able to handle that—showed how the water would be distributed to the existing system—most of which has been rehabbed to allow for flow from the new direction. Working on WASM 3, but all the rest is done. (“Interim projects”)

Adding connections to existing water supplies to add flexibility.

Expect the total cost of the tunnel to be about \$1.5 billion, with inflation factored in over 17 years. Shortening construction time by digging two tunnels at once.

Have program support services contract. About to hire the preliminary design engineer. After MEPA review, will have final design engineers on board, and then a construction manager. Mitigation for noise and vibration happens in preliminary design and is part of the final design plan.

Preliminary design starts next year, includes geotechnical investigation, route, shaft sites, permits...documents.

Final design 2024.

BHEN (Boston Harbor Ecosystem Network) 5/15

CRWA Lisa Kumpf aquatic scientist—Monitoring projects. 19 dams currently on the Charles.

Volunteer monthly monitoring since 1995—e coli and some nutrients. More intense in the lower basin—hourly water quality reports for recreational users. Also, Cyanobacteria monitoring 3 places in lower basin summer & fall. Benthic Macroinvertebrate sampling in 10 tributaries.

Best water quality in the middle of the watershed. Dedham best. Muddy River outfall is lowest water quality.

Lower basin E. coli — getting worse over time. Even in dry weather. Apparently because of more frequent rainfall events.

Looking at the airborne/aerosol of Cyanobacteria, and testing those for toxins. Mystic is also doing.

Tributary monitoring in impaired streams—hopping, chicken and mine brooks April-October in wet & dry weather.

Also looking at chloride concentrations Jan. Feb. March. Increase at all sites as snow melted. Higher in the lower basin.

Other projects:

- Blue Cities—green infrastructure design. Edenfield Ave, Watertown. Embassy cinema parking lot design. Milford sub watershed restoration plan in Milford to increase recharge and remove phosphorus. GI Ambassadors program, building blue framework.
- Climate resilience & advocacy—I -90 project; feasibility of dam removal—Watertown; priority restoration mapping tool for anywhere in the watershed looking at conservation & restoration (Nature conservancy website).
- Future priorities—watershed approach; Cyanobacteria; communication with stakeholders, continue blue cities and advocacy; support municipal climate residency.

Max Rome: Charles River conservancy & grad student at NE. Eutrophication, Cyanobacteria and floating wetlands.

Looking at where swimming might happen on the Charles. North point park, clean in terms of e-coli. Only 5 days that violated swimmable. Cyanobacteria is a much more serious issue.

Microcystis, anabaena, aphanizomenon. EPA imposed a TMDL for chlorophyll. Seeing a decreasing trend for Phosphorus on the Charles, but no decrease in algal blooms. Cyanobacteria and chlorophyll are not tightly correlated. Lab extraction and EPA buoy every 15 minutes.

Charles hasn't had a year without a Cyanobacteria bloom since 2015.

Chlorophyll is not a good indicator of Cyanobacteria. Turbidity and Phycocyanin (pigment produced by Cyanobacteria) is. Using turbidity, Rome has been able to set a threshold over which you have a bloom.

Eutrophication is both a nutrient problem and an ecosystem problem. Charles needs an ecological understanding of the problem. Habitat complexity can handle higher nutrient loading than a less complex habitat.

Adding vegetation back to the river will help zooplankton survive—it seems zooplankton can reduce Cyanobacteria blooms. So, considering floating wetlands to introduce habitat where large zooplankton can hide, particularly the larger ones. They consume cyanobacteria. Hypothesis that more habitat for zooplankton (floating wetlands) could make the Charles more

swimmable. Trying to answer the question of how many might be needed to achieve a zero Cyanobacteria bloom Charles River.

Floating wetland about \$12,000. Permitting with Army Corps, 10A, DCR, Conservation Commissions.

Andres Ripley—Neponset river environmental scientist fellow. Monitoring network results 2018.

Monitoring oxygen, chlorophyll, Ph, bacteria. What is remaining is nitrogen, phosphorus and e-coli. Phosphorus holding steady, not improving. More sites are showing e-coli. May be increased rainstorms?

Focus on stormwater. More e-coli on wet days than dry days. Initiatives—raingardens, tree-boxes, painting storm drains with art. Lot of dog poop—not scooped.

Will sample from 5 new sites. Doing culvert assessments, measuring those that most need changing (elevated, too small)

Habitat quality: dams all along the Neponset. Working to remove where can. Increases the trout habitat. Trying to remove Lower Mills dam and T&H at Hyde park. Will also improve Boston Harbor. Need funds, particularly for dredging.

Andrew Hrycyna, watershed scientist, MyRWA
Cities Change Rivers...yet, nonetheless, urban rivers are living systems.

Bacteria at Mystic mostly gone. But tributaries are still bad. Impaired for Phosphorus. High in urban as well as agricultural areas. Cities contribute with soil particles, leaf litter, fertilizer, pet waste. #1 culprit is impervious surface. 40% of Mystic watershed is impervious.

Restoration of herring habitat via fish ladders up to the Upper Mystic Lake and now looking to expand to Horn Lake in Woburn.

MWRA Harbor monitoring program—beaches, also. Fish disease free and water in good shape. Also monitor main streams of the Mystic and Charles.

Top priority for monitoring rivers and harbor health?
Charles—main issue is that the lower basin functions as a lake. Stormwater runoff. Rome: difficulty in switching from bacterial health to eutrophication. Shift for the harbor is how to monitor new health impacts. Neponset —just need more data, esp. in the estuary. Mystic—harbor cleanup is tribute to the power of the Clean Water Act. The things one does to reduce phosphorus in the fresh water of the river would also impact nitrogen, and should help the harbor.

Challenges for monitoring and opportunities for collaboration?

MWRA could collect data portion from our sampling and from the harbor.

How do we make our intertidal parks as ecologically sustainable as possible? Remove the Lower Mills Dam to allow fish passage.

Data on climate and SLR. Focus on environmental justice communities.

Advisory Board 5/16

Operation and maintenance of the Fore River Pelletizing Plant-Carl Pawlowski.

\$133 million plant. Operating costs about \$13m/year. Going out for a new contract for 5 years w/possible extension to 15 years.

Selling more locally—used for land application, fertilizer, alternate fuels, Maine has a moratorium on PFAS, but are allowing Nefco pellets under restrictions.

Prep for contract renewal—

1. Condition assessment (excellent)
2. Technology assessment (is still cutting edge)

Costs per ton of pellets is down, overall cost up because of increased tonnage (up 17%)—more population? Not sure. May also be an issue with digesters, but gas hasn't increased, influent hasn't increased.

Bay State Fertilizer—anti NIMBY tool to use locally & not be accused of sending sludge outside Boston. Milorganite already in the market, and sold 2m bags last year. Demand for Bay State has gone up—because works so well. Can't produce enough. Getting so many calls that the 500 tons/year now bagging is not enough for the market. Have been called to see if up to 10,000 tons/year could be sold for Bay State. Looking at 2,000 lb. super sacks for golf courses. Looking to automate the bagging.

Talked with 4 of the big players in biosolids.

Potential risks:

1. PFAS—7pp trillion limit in drinking water. Some reduction in manufacturing. No limit in biosolids, but Mass DEP is monitoring. If restricted would have to sell out of state or landfill. Carl thinks it's the DDT of the modern age. Banned DDT years ago and the peregrines are now nesting at the pellet plant. The ban on PFAS, he thinks, will reduce levels. Small amounts in pellets now.
2. Mass DAR—restriction of phosphorus in fertilizers. DEP made an effort to exempt biosolids. Not enforced yet, but may impact future sales.

CSO Monitoring—Brian Kubaska

New report—semi-annual #2 preview.

Met Federal Court requirements—closing 34 of 84 outfalls, adding the So Boston storage tunnel, reduced typical year discharge frequency.

Volume average gone from 3million gallons/year to just about 500,000 gallons, 92% treated (1988-2017)

The monitoring involves: Inspecting, metering, collecting rainfall data, quantification of CSO discharges, site-specific discharge investigations, model updates, receiving water monitoring.

Inspected 200 regulators (open and closed). Correlating meter data to rainfall. Identify outliers with scatter graphs. Realizing intensity of the storm plays a role in activation.

2018 was atypically wet and intense. But great year for adjusting the hydraulic model. Detected anomaly at Somerville outfall, and investigated—are adjusting so it conforms to the model (fewer overflows)

Ongoing work: continuing to collect data; upgrading hydraulic model, looking into overflow activities, updating the water quality models, reporting.

Still pending: 3 remaining semi-annual assessments & final report

AECOM are evaluating the Alewife & Mystic water quality & CSO impacts. MWRA is continuing in-stream sampling of Alewife, upper mystic and Charles. Also looking at wet weather recovery.

Also simulating ground water levels in the hydraulic model.

FY 20 Advisory Board budget:

Modest increase in AB budget of \$7,000. Approved

Nomination of Joe Foti to the MWRA Board through 2022. Approved.

Been on the board 18 years.

AB draft comments on MWRA budgets for FY2020

Reduce rates to 3.15% from 3.74%, or about \$4.3m

Propose taking 500,000 from watershed staffing because DCR is not filling the positions needed in the watershed & are unlikely to get them filled in FY20. AB not recommending reducing the number of staff, but they haven't filled the positions. Historically had 142 staff. Budget they gave Mwra assumed 157 employees +3%. Will be leaving \$3m unspent in their budget because did not staff up in FY19.

HEEC cable and MassPort—considered alternatives. Wiggins Pump station serves MassPort. As of now, figures operating costs \$280K+ for the station in light of the \$8m easement charge

from MassPort. Also, Wiggins is in line for replacement. Design on CIP this year.
Recommending a signed MOU that puts all of cost of the station to MassPort, not to ratepayers.

Ops Committee report—presentation on the sewer systems and how north and south vary.
Presentation on the website.

Favaloro: senate budget doesn't have debt service assistance included yet. Amendment been filed.

EBC Solid Waste: Organics in MA: Where is it All Going? 5/21

Gretchen Carey—recycling & organics coordinator Republic Services
Deb Darby—marketing director Organix Solutions

Gretchen Carey: part of her job is finding new destinations for organic waste

John Fischer, Branch Chief DEP commercial waste reduction and waste planning.

Decades of work on food waste reduction. Feb. 2012 Organics Action Plan
Oct. 2014 commercial organics ban, update periodically since
Now building infrastructure based on largest sources first

Progress:

5% increase from 2016-17

2017 total reported diversion: 280,000 tons

- Compost 150K
- AD 88K—mostly going to co-digestion at dairy farms.
- Donation 26K—mostly food banks—growth in food rescue (fresh/perishable food)—up 14% since 2016 and room for growth.
- Other 13K—processed into wastewater (garbage disposals)
- Animal feed 1,700 tons (probably underestimated)

Does not include on-site systems, ca 50K annually

Hauler collection—grown 70% since 2014. 950 businesses adding food waste collection.
Necessary, but not sufficient for compliance (separation doesn't always happen)

NOT mission accomplished, but exciting to see growth.

45 sites accepting food waste

- Compost capacity about 150K tons per year (TPY)
- Growth in AD (13 facilities total)
 - 600K TPY operational

- 400K permitted and operational
- 120K under construction
- 120k TPY not yet permitted.

De-packaging operations—7 operating to some degree; 2 more under development

Economic impact: 2016–900 jobs, 150% growth. \$77m value to state GSP

Have a recycling loan fund, recycling business development grants, municipal sustainable materials recovery program, mass clean energy center

RecyclingWorks—phone hotline and email for businesses; on-site technical assistance, workshops for compost operators, web content. DEP circuit riders can help municipalities/school districts

Waste ban compliance

- 45 notices of non-compliance, 4 penalties for food material violations. (Second offenses)
- Several more enforcement actions in process
- More targeted outreach & compliance assistance

Solid Waste Master Plan

- Draft plan in 2019 and final 2020
- Food still #1 material in the trash
- Continued focus in 2030 plan

Organics subcommittee meetings

- Develop a comprehensive strategy to support reduced ban at possibly ½ ton/week
- Estimate approx. doubling of businesses subject to the ban—would capture larger restaurants, schools, colleges.
- Goal to ensure needed infrastructure in place before move forward—reduce, rescue food, collect and process/dispose

John.fischer@mass.gov 617-292-5632

Issue of Mass Ag restrictions on phosphorus impeding land application of digestate and compost. Both a challenge and opportunity (Fischer).

Lauren Palumbo—Lovin' Spoonfuls

Non-profit — grants, corporate sponsors

Food rescue as a solution for organics:

- 40 million hungry Americans
- 40% of food is wasted
- Largest source of solid waste
- 21% of fresh water use goes to making food that is wasted
- Wasted food worth \$218 billion retail.

- #3 greenhouse gas emitter (if it were a country) after China & US
In MA 650,000 people are food insecure—up since the recession of 2009

Lovin Spoonfuls rescued over 10 million meals—70 different (mostly) grocery stores (also farmer's market, wholesalers)

65,000 lbs./week.

Same day delivery in refrigerated trucks

To 140 non-profits and 30K clients

Ensure food is safe for consumption to avoid liability.

Triple bottom line—businesses can deduct the donation, save on waste removal, benefits employee retention.

30% less waste could feed 50 million people.

Get food from BC that's prepared, but not served. Issues with temperature and storage.

Do not repackage food. Mostly fruits and vegetables, some proteins. Comes out of stores already boxed. 100 lb. minimum pickup, so don't do convenience stores.

A smaller vendor: Rescuing Leftover Cuisine—volunteer-run

Terri Goldberg, executive director **NEWMOA**—non-profit association for state govt agencies. 8 environmental agencies in the NE—do training, data gathering, policy coordination, federal coordination on rule making & policies—NE states, NY, NJ. On toxics, work with states outside of the area.

Emerging contaminants and other issues with compostable food ware & packaging

PFAS in compostable food service ware

- More than 5,000 fluorinated chemicals. Contamination is coming up in several environmental sectors—finding in drinking water where was an industrial source or firefighting foams. States are establishing very low parameters—in the parts per trillion.
- PFOA and PFOS are two of the most studied and associated with cancer, developmental toxicity, immunotoxicity, growth and learning delays & other health effects. Phased out.
- Highly persistent. Ubiquitous, can migrate into food from packaging
- Can contaminate compost, drinking water, & crops
- Industry moving to short-chain PFAS to substitute for PFOA and PFOS (long-chain) and these are now showing up in environment—very little data on safety
- Repel heat, oil, water—non-stick, stain guard, coatings on many products, including food ware.

- What products include PFAS? Paper products—bowls, take out containers, plates, clamshells, food trays, deli & portion cups, boxes, bags, wrappers, bakery liners....
- How do we know if they are present? Brands may not know—may be in the raw materials
- Some brands sell products under the same name with & without PFAS
- All molded fiber products contain them
- To know—ask the supply for test results or test them. Center for Environmental Health tested
 - Tested about 130 + products
 - 57% had PFAS
- No or low PFAS
 - Bamboo
 - Clay-coated paper
 - Clear PLA and paper PLA (controversial)—but only some
 - Palm leaf
 - Paper with other coatings
- With PFAS
 - Silver grass
 - Blend of plant fibers,
 - Sugarcane
- Harvard Study—tested common products, including compostable plates & bowls
 - Compostable paper has among the highest PFAS levels

State, local and private actions on PFAS

- WA state—regulated PFAS in food contact materials
 - Studying alternatives—due Jan. 2020
 - Prohibition on PFAS in food packaging effective 2022 if find safer alternatives
- SF ban of PFAS in food ware
 - First city in the US to prohibit
 - Also prohibit cocktail stirrers, straws, etc. out of plastic
- CA listed PFOA and PFOA under its list of chemicals that require warnings
- EU regulates them—much more rigorous testing
- Biodegradable Products Institute (compostable verification)
 - Will restrict & eventually eliminate PFAS from their certification
 - Limit of 100 ppm total, and no intentionally added ones
 - Thank this kind of contamination will harm the composting industry

Recent OR study on compostable packaging, etc.

- Life cycle environmental impacts report on packaging and food service ware
- Reviewed available studies on them
- Compared bio-based and compostable packaging with fossil-fuel based counterparts
 - Composting these items results in increased impact when compared with landfilling, incinerating or recycling

- Compostable FSW is generally not preferable to non-compostable-higher production impacts
- Exception maybe is where fsw collected & composted with food waste
- 9 Oregon composers believe the packaging is harmful, and limit how much they take
 - Don't always compost
 - Contamination
 - Hurt resale
 - Can't sell to organic farmers
 - May threaten health
 - Increases their costs
 - Compostable doesn't mean better for the environment

NEWMOA food recovery resources. —can brand & distribute

- Backyard composting handout & guide
- Handout on food waste re-education
- Handout on food recovery & donation

Recent webinars:

- Composting product confusion
- Lessons learned from food recovery hierarchy
- Food for donation

Studying freshwater contamination & fish

Finding PFAS in landfill leachate, biosolids, drinking water. Know less about the short chain chemicals than the ones now banned. Not sure whether they are broken down or eliminated by incineration. Needs more study

James Gist, Brick Ends Farm, south Hamilton. Nonprofit, but sell compost in bags—how they recover costs.

Take food waste from Black Earth. Wet. Have a gray water system for leachate. Lets sit for 3 months, turns, then 3 months, etc. High fungal base.

Screen-contamination—rocks, wood, plastic bags, forks, spoons, “compostable food ware,” “compostable plastic bags” about 10 tons/3 years. Burn the wood for bio-char—add to product. Rest is rocks, metal. Temperature about 140-155F. Depends on feedstock. Whale/meat will increase the temperature quickly.

Benefits of compost: holds carbon 1.72% on average—depends on soil types—helps soil retain water.

Compost second to last in hierarchy of food recovery.

Helps grow healthier food—used, not wasted or landfilled. Product that reincorporates itself back into the system.

Hoping to make compost delivery easier. Gives compost to local farms—expensive at that volume. Also give to lawn & garden contractors.

Feedstock is mostly residential—curbside collection. Was more commercial but these sources are sending to other sites where incorporate de-packaging.

Odors only when move the compost piles. Adding leaves also decreases the odors.

Compost has high levels of nitrogen. Holds runoff, helps plants grow. Prevents stormwater contamination. Put in socks around construction sites. At end of construction just cut the straw & empty the compost around the site.

Fossil-fuel based plastics

1.2m tons food waste in trash MA. 280K tons being recycling. Half residential half commercial sources. Looking at generation by sector and size. Work in progress.

Neighboring states also implementing bans. Waste moves around. VT taken food waste ban to residential level, but not implemented.

AD in Maine meant North Shore saw less waste.

Appears organic waste increased. Why?

DEP—puzzling. But taking less of the bulky waste at incinerators, shifting to other sites. Food waste is largest remaining portion by tonnage. Also, may be increase in food waste generation. Looking at waste reduction efforts.

Potential municipal savings if can divert heavy food waste to composting (or AD) vs. the cost of heavier trash.

Some states are banning “compostable” food ware that isn’t compostable.

MWRA Board 5/29

AB budget presentation: “2.4% by 2024”—

Meeting with communities. Positive feedback on the 2.4% rate and gives them capacity to do new projects—i.e. stormwater.

CIP \$950m cap proposed AB not proposing any changes to MWRA CIP except for Wiggins Pump Station.

AB proposing rate revenue of 3.15%, cutting \$950,000 in personnel budget, which will account for high vacancy rate without cutting any actual personnel. Also cutting variable rate interest budget, assuming a lower interest rate on variable rate loans—\$1m savings.

Also recommending cutting \$500,000 from DCR watershed budget (because DCR isn't hiring the staff, and is saying they will be cutting 7.5 staff). In FY19, DCR watershed is under budget by more than \$3m.

Laskey: we are frustrated with the lack of hiring at DCR watershed. They are now committed to staffing up early in the fiscal year. Not simple to hire, however. Using surplus funds from staff to purchase CIP items (phones). Taking surplus this year to fix the road to the Wachusett Dam. Revert to the Authority to make this needed repair. Don't want to cut the personnel budget and then have to come back for more funds if they do staff up.

Durkin: MWRA budget needs to support possible risks faced by the authority through next FY.

Lot of attention on this issue, up to A&F staff. AB gets credit for bringing up.

MWRA is recommending \$361K, cutting positions to 150FTE.

AB recommends TRAC fees increase by 4% this year, and by 3% in each of the next 4 years. Represents about \$40K.

Still support primacy for wastewater.

OPEB/Pension—pension system gets funded first, leave OPEB funding aside if pension contributions need to be increased.

AB supports changing monitoring program as long as other outfalls are making \$\$ or labor contributions to the studies.

AB requesting details on \$8m +9% that was charged for HEEC traversal of Conley Terminal without MWRA at the table, no appraisal of the cost, etc. Legislative strategy on Wiggins Pump station, which serves Conley terminal for free. In the CIP for total replacement (\$2m), but MassPort pays nothing for O&M. Business option—charge MassPort for back O&M (about \$300K) and future O&M (about \$1k/mo.) and they pay for the new pump station.

MWRA response:

Durkin: at same rate increase, but taking it in different areas—not as much in personnel, instead more cuts in capital financing.

Sludge quantities are up—so is methane production.

Capital financing—take some funds from FY19 leftover, restructuring bonds and saving \$\$.
Taking account of lower interest rates on variable rate debt.

MWRA projections: sewer 2.9%, water 3.6%, combined 3.15%. Looking forward at rate increases (combined) not above 3.5%. Board members (AB appointees): would like to see MWRA at 3%.

Laskey: if push too low in this year, it raises rates in following years.

A&F:

Orange Notebook:

- Lab services hit a milestone—1million tests processed.
- Valves in the water distribution system: milestone—95% operable (average in US is 50%). This helps with water main breaks—can shut down closer to the break.
- Siphon cleaning still ahead, will catch up with inspections.
- TRAC has filled vacancies & is catching up on permits and inspections
- Not moving Quabbin water yet because Wachusett is so full (wet year). Both reservoirs are spilling. Some pipes and gates at Wachusett are preventing MWRA from lowering levels so higher-quality Quabbin water can be moved in.

Financial overview/variances:

Moving \$17m this month into defeasance. Could add another \$8m by September board.

MWRA Green Bonds—social and environmental bonds favored by particular investors. MWRA in green funds worth \$1.1 b. Biggest in the state, 10th biggest nationwide. Not significant difference to the MWRA in bond savings, but one could develop. Issue selectively so can get some savings in yields. Savings eaten by reporting requirements. Could issue all bonds as green bonds.

Wastewater

Crescent Ridge Dairy admission—will be subject to TRAC inspections and pre-treatment. Voted in.

WAC contract: want an annual budget. Voted in.

Water

Section 22 cast iron water main in the southern end of Boston. Looking at alternatives. High service line. Multiple leaks, including one in the middle of the SE Expressway. Board questions \$2m study/preliminary design for \$19m project. MWRA—includes all permitting.

Laskey—proposes to hold for June meeting to give board more background material.

Second pipeline in Dedham—change order to cover police details on bridge crossings, gas and water and sewer relocations (and relining), ledge. Also rebuilding roads destroyed in the process.

Full Board:

- New Secretary—Kathleen Theoharides: updates on renewable energy efforts at the state level. Hydro, wind (offshore), planning for greening up in the next decade and meeting targets. Forestry, stewardship, access to parks, resiliency to climate.
- Laskey: local beach report excellent quality water 95% swimmable. Celtic cross ceremony—attendance of over 1,000. Bugged down still is the Native American memorial. Platinum award for 12th year without permit violation at deer island. HEEC cable on both sides of harbor, including fiber optic connection—gives island redundant high-speed internet access. MassPort—putting further discussion on hold until can meet with them. Quabbin water starting to transfer to Wachusett. Personnel items at June meeting.
- Annual water quality report: 20 years of reports. Josh Das promoted. Includes emergency preparedness. Should be mailed out Friday.
- Water break in Woburn May 3. MWRA's geotechnical contractor was drilling, hit the line. 48" diameter pre-stressed concrete pipe. Installed in late 1970s—Gillis PS to Woburn. Pumped water via Stoneham local mains to the towns north of the break—got repaired within hours of the technician and the repair saddle arriving. Marcus Kempe's son is now working in MWRA water system.

May 31, CSO modeling hearing, Chelsea

Jeremy Hall

Scope of work—inspections, overflow metering, rainfall data, checking outfall status, updates of models & calibration.

Report available if you want to check a regulator or a meter

Contract has 80 meters at 57 active CSO regulators, 142 sensors. 106 of those are depth and velocity, 20 level sensors, 16 inclinometer (tidal gates).

MWRA already has 32 interceptor flow meters, records, level sensors. Communities also already have some meters.

Ultimate goal to calibrate the model to show if have met the long-term control plan goal.

Calibrate meters on installation, check data transfer conditions, maintain—clean sensors and replace batteries), verify results and check the calibration.

“Trust by verifying”-review data against rainfall and system conditions. Where the data are odd, they check against other meter data, determine the cause—often obstructions or dirty sensors.

Ensure that meter data make sense—evaluate other factors like frequency of rain & groundwater levels.

2018 was a very wet year—well over normal, but that was good for CSO monitoring and hydraulic model calibration.

What causes an activation: Intensity? Duration? History of rain? High groundwater +rain?

In some regulators, intensity of storm creates an outfall. In others intensity and volume.

Kicked off contract in November 2017, all sensors up and meters running by April 15, 2018. And it rained the next day. Wet conditions meant could remove 21 of the temporary meters because had enough data by March 1, 2019. Others in place to answer specific questions.

In 16 locations, meter results were greater than predicted.

Hydraulic model is from the 1990s. Adding field inspections, sediment inspections, etc. calibrating the model.

Of 44 remaining outfalls, 20 are not meeting goals, and are under investigation.

Among things looking at—dry weather capacity to the sewer system. Another issue may be hydraulics of the connections.

Betsy Reilly:

Updating and calibrating receiving water models; assessing updated water quality conditions, including remaining CSO impacts. Running model simulations of CSO control scenarios. Coordinating data & collection of data with municipalities (Cambridge, Somerville, Boston).

In house-MWRA is continuing in-stream sampling, esp. Charles & Mystic, continuing updated CSO and stormwater sampling. Sample all waters affected by CSOs starting in 1989.

Focus starting in 2017 is Charles and Alewife Brook/Upper Mystic and wet weather + recovery periods (about 5 days after a storm with or without CSO). Also sampling at outfalls—CSO and storm.

MWRA.com will have semiannual CSO reports, annual discharge estimates and rainfall, annual water quality monitoring summaries.

27 outfalls closed; community closed 8 more. Of remaining 44, minimal levels of discharge allowed. East Boston outfalls have restricted connections to the MWRA sewer, and they are looking to increasing capacity to the separate sewer.

Is the data showing more intense rainfall? Yes-in 2018. In the previous years, had drought. Climate change predictions are for increased rainfall. It may have to be incorporated into future typical year requirements if regulators adopt this in future. Slides will be emailed to attendees (ca 20—including a large # of MWRA staff; watershed folks, EPA, Charlie Jewell from Boston)