

Wastewater Advisory Committee to the MWRA
Minutes
February 16, 2016

The Wastewater Advisory Committee to the MWRA met jointly with the Water Supply Citizens Advisory Committee at the **Municipal Water Works Museum** conference room, 2450 Beacon St., Chestnut Hill

Attendees/Contributors:

WAC: Taber Keally (chair), Craig Allen, Karen Golmer, Stephen Greene, Beth Miller, Jim Pappas, Martin Pillsbury (MAPC), Elie Saroufim

WSCAC: Kurt Tramosch, Jerry Eves, Michael Baram,

Guests: Kristen Hall, Daniel Nvule, Maret Smolow, Nicole Johnson, David Wu, Katie Ronan (MWRA), Lou Taverna (newton DPW), Adriana Cillo, Paul Keohan, Tom Daly (BWSC), Julie Wood (CRWA)

Staff: Andreae Downs (WAC), Lexi Dewey, Heidi Waugh (WSCAC)

FUTURE MEETING DATES/TOPICS

NEXT: Friday, March 4, 2016, 10:30 a.m., “MWRA CSOs: Performance assessment and remaining regulatory determinations,” with David Kubiak, MWRA Senior Program Manager, Location: MAPC, 60 Temple Place, Boston

VOTES:

- December minutes approved
- Comment letter on pharmaceutical take-back provision in state opioid legislation approved.

Direction given to WAC director to:

1. Research food waste/co-digestion situation for future discussion
2. Draft a letter on proposed regulatory changes related to biosolids (Molybdenum limits, Phosphorus)
3. Work with WSCAC director to research & draft a joint comment letter on the historic & actual level of DEP funding from the state for water-quality-related work. And losing institutional memory. Going back to the 1990s. Present at the next meeting.

EXECUTIVE DIRECTOR’S REPORTS:

WSCAC:

- North Reading is preparing to join MWRA water as a full user. Report to follow in email

- Biking in the Reservoir watershed: written report to follow
- Brice-Lemon 111-unit development in Rutland, MA. Secretary's certificate says MEPA regulations met, but the Town of Rutland is becoming nervous about its water & sewer capacity. Developer is considering private wells, municipal sewer. Complicated issues. Report to follow.
- DEP is looking to raise the Molybdenum limit for biosolids applied to land

WAC--Attached, below.

Discussion:

EPA proposed changes to MS4 permit process—WAC consensus was not to comment.

Wastewater regulation Delegation (aka Primacy for MA DEP): Discussion of how the water section of the DEP's budget has shrunk over the years. Suggestion that WAC & WSCAC draft a joint letter highlighting how budget cuts over the years have impacted water quality efforts in the state. Watershed organizations are thrown back to volunteer testing results only, for instance.

Phosphorus in fertilizers: NeBRA met with DEP and the Agriculture Department—they are looking at just testing biosolids for water soluble Phosphorus.

Sense of WAC members: want to comment on Molybdenum and Phosphorus

Co-Digestion on hold—WM bows out of bargaining:

Kurt: there are a few digesters already out there. There are ways to get outside funding—clean energy center?

Greater Lawrence is piloting co-digestion with MWRA help.

Market (for food waste disposal) may be soft, and MWRA wants to charge a tipping fee to ensure it's a money-making operation. But if can hit food capacity, could generate \$5m in energy costs avoided per year (at previous energy prices).

Piping is more expensive, and might be the eventual solution, but not before the pilot is successful.

Has anyone thought of approaching the Seaport Council? They fund infrastructure improvements for water-dependent uses along the harbor.

Sense of WAC: want to continue to learn about options.

PRESENTATIONS & DISCUSSION:

Carl Leone, MWRA:

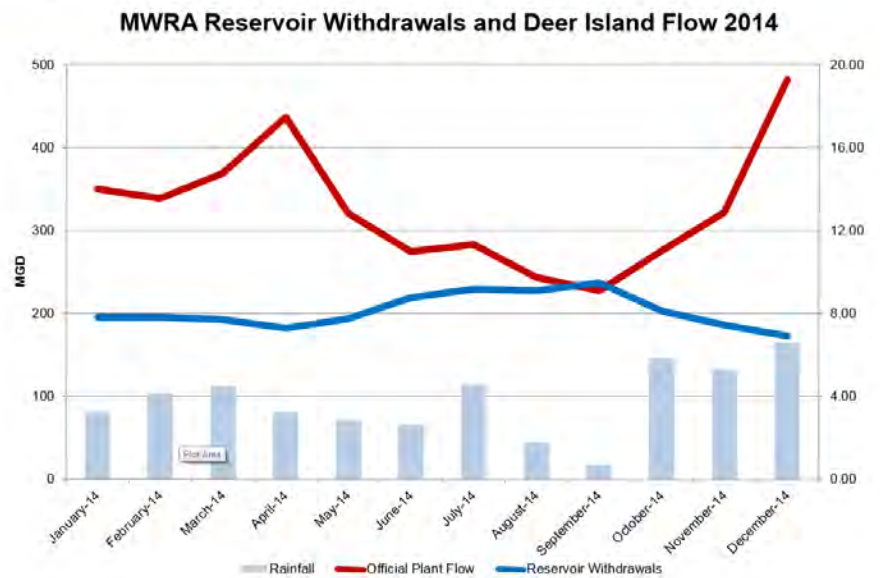
MWRA Service Area

- MWRA provides wholesale water and wastewater services to over 2.5 million customers in 61 communities
- MWRA delivers an average of 200 million gallons per day to its water customers, with a peak demand of 350 million gallons
- MWRA collects and treats an average of 350 million gallons of wastewater per day, with a peak capacity of 1.2 billion gallons



This presentation should answer the question of why Deer Island ends up treating more water than the Carroll Water Treatment Plant is sending to the MWRA service area.

MWRA Reservoir Withdrawals and Deer Island Flow



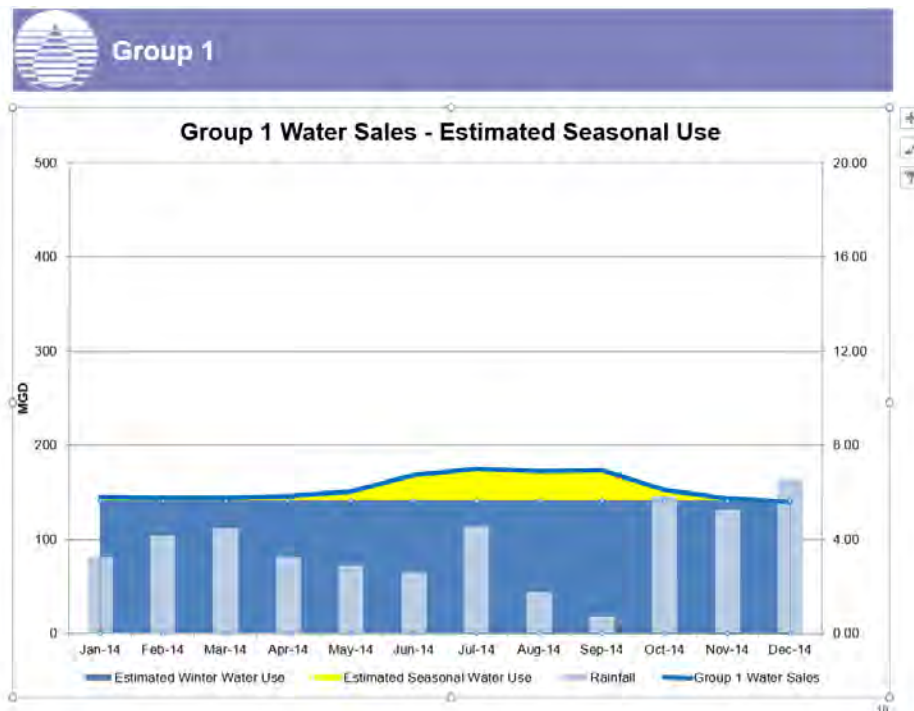
The MWRA sells 11mgd less water than it withdraws from the reservoirs—why? Some is MWRA use (dewatering, maintenance), leaks (.3mgd), metering differences.

Similarly, the MWRA treats 17mgd more than it meters from communities. Again, metering differences, and some leaks into the system.

Most of the communities in the MWRA system is fully served with water and sewer. Smaller numbers of communities get some water and use the sewers, some use no water and use the sewers, and some only buy MWRA water.

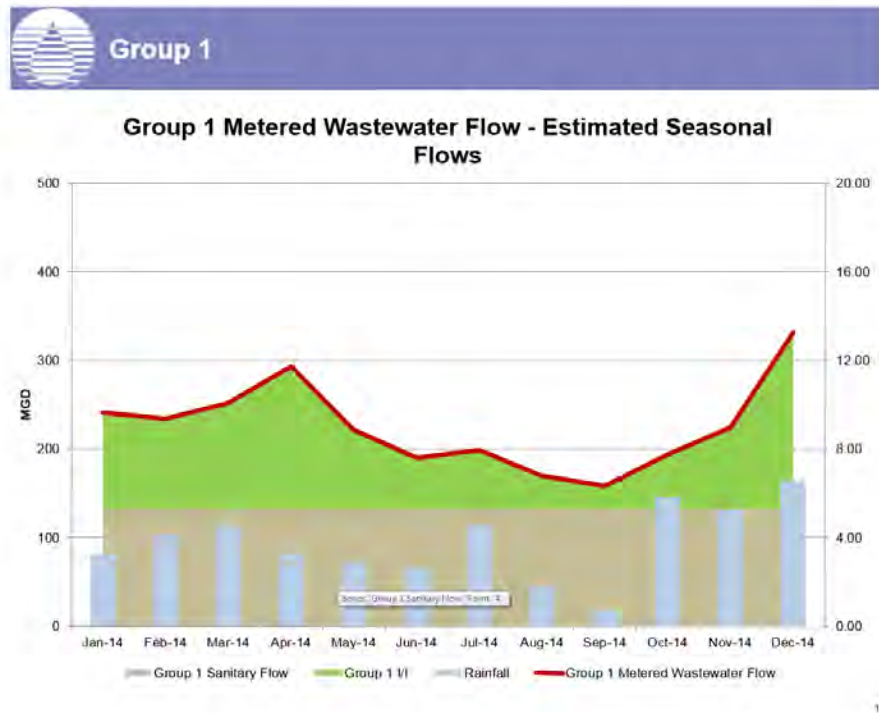
This is what the 80% of MWRA water usage looks like:

The yellow “delta” between winter water use (the blue area) and actual use (the blue line) is estimated summer—or outdoor water use:



The same group of (fully-served) communities account for 73% of MWRA sewer flows:

The green delta here is estimated inflow (water from sump-pumps and down-spouts) and infiltration (leaks into the pipes)—higher when it rains or the snow melts:



The blue bars represent overall rainfall. Usually, I/I is greater when it rains, but after a dry month, the ground will absorb more. Similarly, rain on top of snow will sometimes cause a bigger spike in I/I.

Most of the water sold returns to the sewer. Some leaks, some is bottled or in food, some may be green cooling systems that evaporate water rather than discharge it to sewers.

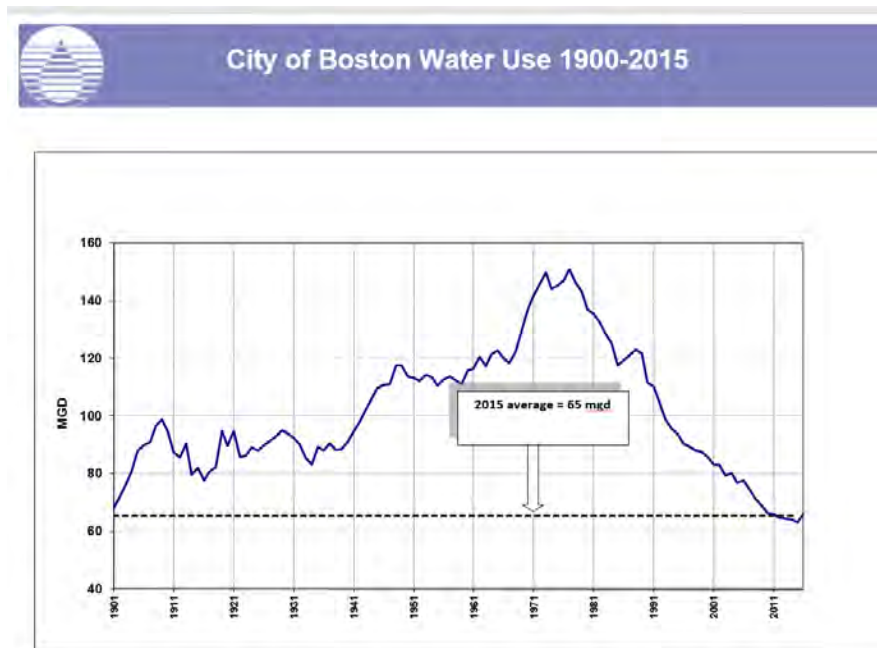
Average wastewater flow to Deer Island is 326 million gallons/day (mgd), which is down from the long-term average of 350 mgd. The five-year average is 300 mgd. When MWRA started, over 50% of the flow was I/I. Now sanitary sewage makes up about 55%.

Carl went through similar slides for the remaining 4 groups of MWRA communities.

Overall graphs shows that rainfall has been less over the last 4 years; as a result I/I numbers are down. A reduction in sewer use over time is shown in one of the last graphs. Some is I/I reduction, some is from fixing leaks in the system, more efficient appliances and toilets. Water use per capita is down, but our population has grown.

Daniel Nvule: Water Use


Some reductions are because of water-dependent industries moving, like the Kraft factory in Stoneham.



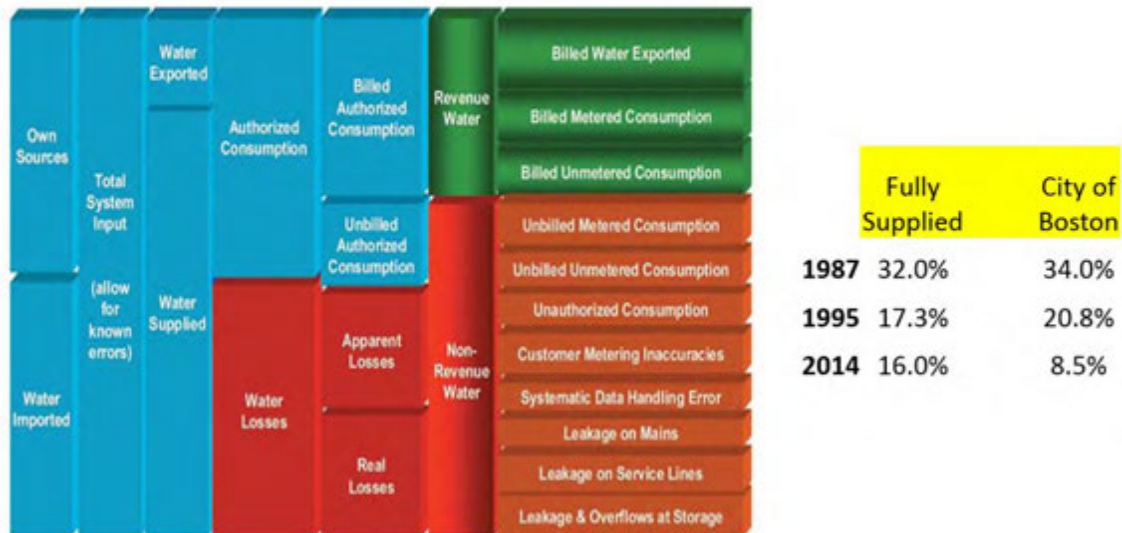
You can see here that Boston's water use is at a 110 year low.

Further slides show seasonal use month-by-month. There's a general decline, but a sharper decline during the recession of Jan. 2007-10. Indoor use now may be rising, but it's too early to say.

Some water is unaccounted for in the system. This page shows where some may be going (orange & red), and the trend in MWRA communities:

 **Unaccounted for Water**

AWWA Water Balance



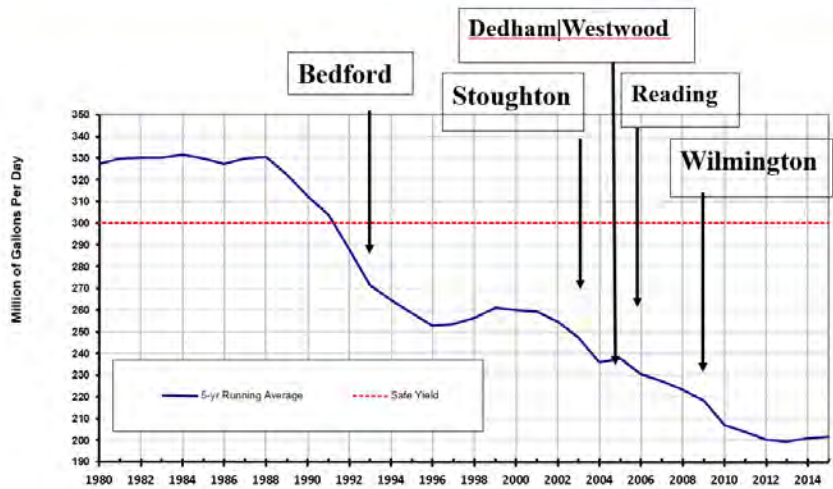
Water consumption also goes UP during very cold weather. For instance, last February’s cold snap. Why? People leave faucets running, for instance, to keep pipes from freezing. And pipes burst.

Water use also goes up during very dry weather, as people irrigate lawns and gardens.

So one reason consumption in the Boston area went up in 2015, after going down over many years through 2014, may be that 2015 was very cold (in February) and dry (in the spring & summer). But the economy also impacts water use. It may continue to increase. We are watching it.

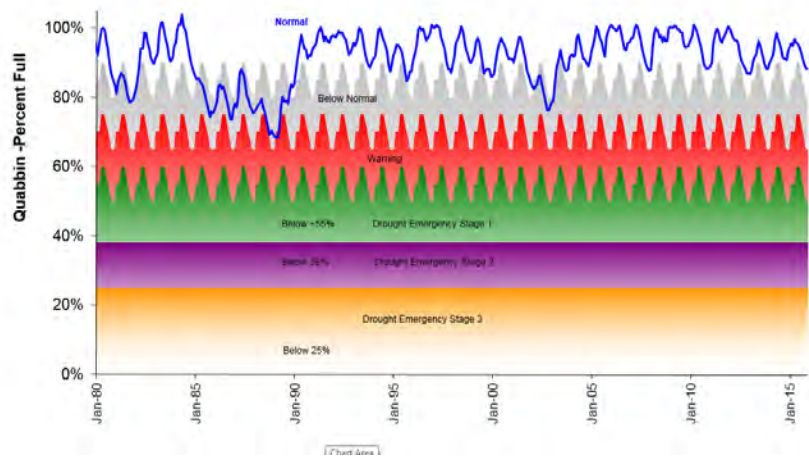
But over the long-term, water demand has declined in the MWRA system, despite the addition of more communities who are now buying water. MWRA demand is leveling off, but has a lot of excess capacity:

Demand Has Dropped Dramatically, Even with New User Communities



So at the Quabbin, despite several dry years, MWRA is spilling water over the dam, and releasing it under the dam. Fisheries prefer water releases, as they are colder. Worcester is looking to purchase water, because it's reservoir is very low. But the Quabbin has 5 years' worth of water.

Quabbin Reservoir Still In Normal Operations Band



Q: any predicted increases in water demand?

A: if a community comes to us and asks for water—we can afford to add them to the system. As far as economic growth, it's hard to tell yet.

We have assessed our system for vulnerabilities to climate change. It appears the Northeast should get more rain than it used to. It may rain at different times, but because we have a big reservoir, our safe yield should go up. But a lot of surrounding communities have surface water supplies, and may need our water to help them through the tough seasons.

Groundwater may also be depleted in drier years, or years with fewer storms.

LETTERS:

Letter to Conference Committee on Pharma take-back: Adrianna Cillo of BWSC suggested that the WAC letter to state legislators include a note that education of nurses and hospice is needed to keep drugs from being flushed.

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Director's Reports:

January MWRA Board meeting highlights:

- Mike Hornbrook had a short presentation on manhole replacement and maintenance. MWRA replaces manholes every 15 years, which means 6,500/year. If WAC is interested, I can ask Mike to have the presentation brought to this committee.
- Debt Service Assistance was not cut as part of Gov. Baker's budget balancing in December.
- Waste Management is not interested in buying a barge for Food Waste going to Deer Island. No other vendor has expressed interest. Fred Laskey said the MWRA is regrouping and looking at a Plan B.

Water Supply : Flint, MI issues are in the news. According to MWRA, the state administrator decided to save money by switching Flint off of Detroit water to its backup supply (the Flint River) without looking at the water's safety. A water quality evaluation is required by law, but was not done. The water as a result picked up lead from old water mains and was over EPA action levels of lead for an unknown amount of time. The city has since switched back, but the contaminants in the water supply pipes remain a public health issue.

Washington, DC had a similar issue about 10 years ago when it moved to a new source for water MWRA has managed to lower the lead levels in water over 90% since taking over from DCR, but take most care around water quality.

EPA is looking at updating its lead & copper rules for water. It is of course difficult to write a rule when a state or municipality chooses to ignore the rules.

One of the recommendations in the EPA draft rule is to improve outreach—particularly to customers with lead service lines to convince them to switch out the lines. Public health outreach is mostly focused

on lead in paint, which means that the Health Homes program does not cover removing lead service lines.

MWRA's best estimate is that about 20,500 lead service lines remain in the MWRA system. To remove them would cost ca. \$100m. Over 30 years, that's about \$3m/year. It's important to add lead service line replacement as part of the MWRA grant/loan program for water supply.

Also important is to sample the same homes with lead lines repeatedly to gauge how lead levels are changing over time. And instructing customers so they can modify their behavior to protect their own and their dependants' health.

Interesting for WAC because when service lines on private property are replaced, municipalities can also replace sewer laterals...

Delegation Meeting with the MA Rivers Alliance

January 12, 2016

- LARGE assembly of environmental organizations, including Audubon, Conservation Law Foundation, watersheds, Environmental League, Trout Unlimited, the Ct. River Watershed, Nature Conservancy...
- DEP has delegation on drinking water regulations now. Issue is sewer permits, stormwater permits

Pros	Cons	Notes
EPA Region 1 keeps its budget, can focus on other water issues	DEP will need \$ and staff— estimates: 2013: \$9-10m/year 2016: \$7.5m/year	No backup documents to support the 2016 estimate
DEP understands local issues better	DEP is more vulnerable to local political machinations	
Can issue permits faster	Steep learning curve for DEP	
DEP says it will use more science	Can't go back	
Will integrate sewer and stormwater permitting	What if funding for DEP is cut?	
DEP can use a watershed model		

ELM Study of Other Delegated states

Pros	Cons	Notes
Local DEP has more familiarity with local issues	Funding fluctuates	Still have backlogs
Integration (RI)	Political interference	Standards can be better/worse than EPAs
Stronger water regulations (VT)	Can't go back	Appeals are a mixed bag—some states have a professional/judicial appeals process, others feel more amateur/rigged
EPA can still enforce in delegated states	When funding is cut, permits continue to be issued, but compliance and enforcement lags	
DEPs tend to focus on pollution hotspots only	EPA has a more sweeping enforcement approach—better outcomes	

CLF experience in Maine (now delegated)

Pros	Cons	Notes
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Faster permitting	EPA did not support CLF's appeals
More frequent inspections	Maine DEP involvement is more frequent and often weakens permit requirements
Stormwater permitting is better	Appeals process is less impartial, more political

- DEP with support of the Administration would like to fast track this bill (this year—but not realistic)
- Needs concurrent funding legislation, raising WWTP fees

DISCUSSION

Debate on whether the legislature or public could absorb the nuances of delegation, or whether environmental groups should come out strongly against. Messaging question.

OR whether to embrace delegation as an opportunity. Possible areas of improvement:

- Standards
- Criteria
- Permitting
- Compliance

Opportunity to present a vision of an ideal, high-functioning clean water program with a clean and professional appellate program.

Consensus:

1. Legislation is premature & Coalition will oppose until proper collaboration, funding and quality control are included in the package.
2. Present vision of a Best in Nation water quality program, and what it would take
3. Stress improvements in the NPDES system that should happen first:
 - Better science
 - Better administrative bulwarks
 - Better EPA/DEP collaboration
 - More money for DEP water program

Recommendations

Water Quality

- Set Goals for water quality
- Standards: biological criteria

Administration

- Timely permitting and monitoring
- Robust compliance and enforcement

Staff

- Staff with required technical expertise
- Adequate staffing for number of permittees
- work with and educate local permittees

Support

- Insure adequate funding now and in the future
- Insulated from influence

Process

- Opportunity for public participation.
- NGO involvement and oversight.

Appeals

- A fair and accessible appeals process.

- A commitment to define, **fund, and create a fully integrated water quality program** that meets "Level 4" criteria. See the attached report commissioned by the EPA that evaluates water quality programs on a variety of criteria for an explanation of these criteria and the status of MA's program as of a number of years ago.
- A commitment to **develop biological criteria** that are integrated into a natural classification scheme that incorporates tiered aquatic life uses.
- A **phased implementation approach** that leads with the development of new water quality criteria and a robust monitoring and assessment program first. Permitting can then follow in order to implement these standards and criteria.
- An ambient monitoring and assessment program that **supports the participation of stakeholders**, including citizen groups and permittees. This amounts to a recognition that the state's significant social capital is able to be directly engaged in the acquisition of quality assured data that measures our progress toward our goals and standards.
- A robust field-based program of **compliance and technical assistance for permittees**, including in particular those regulated under the newer stormwater programs such as the multi-sector program.
- A **strong enforcement program** that ensures fairness and equity and respect for the public's water resources.
- A commitment to **innovation, collaboration**, and the **elimination of a backlog** of expired permits.
- A **fair assessment or fee schedule** that supports the program but recognizes the different financial capacities of permittees.

(handouts)

Advisory Board & AB Operations Meeting

January 21, 2016

Operations:

New Ops Chair is John Sanchez, of Burlington.

1. Measuring the benefits of I/I removal:
 - a. Carl Leone put together handouts & gave the overview of MWRA grants & loans for I/I removal. He also put together charts of costs and gallons removed. In most cases, I/I removal has seen a 10-20 year payback, but costs per gallon removed are increasing as the easiest fixes are completed.
 - b. Overall, the amount of I/I in the MWRA system has been steadily dropping
 - c. Individual communities can request charts showing their progress vs. rainfall (a system-wide one is in Carl's handouts)
2. Wastewater Meter replacement
 - a. Currently, meters date from 2005, and have a 10-year life cycle.
 - b. AB decided in 2015 to transition in to the new meters by holding everyone harmless with prior data until all new meters are in.
 - c. In replacing meters, MWRA may move some to better locations. Will look to hard wire them into an electrical system (or solar) to prevent outages during storms.
 - d. New meters should allow communities to check data in real time.
 - e. MWRA will first measure flow from all unmetered areas to establish new baselines & make sure current assumptions are valid.
 - f. MWRA is also reviewing all SOPs, especially important with surge of retirements
 - g. The scope is ready, 6 month consultant selection process. Metering technology decision by 2017, installation in 2018, finished by 2019. Estimated reads 2017-2109

Advisory Board

Mary Ann McClellan was still in the hospital. James was introduced.

Jonathan Yeo presented the drinking water protection measures of 150-member DCR division. "forest-to-tap" 78% forest, 8% wetland.

MWRA CIP/CEB budget process (Matt): Keeping in mind water supply redundancy project coming in FY2023 for City Tunnel supply redundancy, est. \$1.14 billion project. Currently reviewing options.

Legislative (Joe): Can't **fix it first** until **fund it first** (\$21b infrastructure gap—water & wastewater). To fund, would cost average MA taxpayer a dime/day "It only takes a dime."

MS4 changes (Wendy Leo): Besides the draft/soon-to-be new Permit:

EPA revisiting rules on MS4 **March 21** deadline for comments. 3 Options:

1. Current method—general permit. All requirements in one permit. All clear, specific, measurable. Less flexible, but more certainty
2. Procedural approach—each notice of intent treated as a permit application, with hearings and comments. MS4 Plan first, NOI later. More flexible, and can be tailored to the situation. Less certainty. Permittees handle the comment, not EPA
3. States get to choose 1 or 2 as they see fit.

The October workshop will be on i/I, what works, what is most cost effective.

Pharmaceutical take-back provision in the opioid bill now in conference committee:

SENATE SECTION 24, 25 - Drug Stewardship Program

Establishes, as a condition of selling or distributing a schedule II or III drug in Massachusetts, that the manufacturer of the drug must fund and operate a stewardship program that allows patients to dispose of unused and unwanted drugs.

The plan must include at least two of the following: a mail-back program; collection kiosks; a drop-off day event; in home disposal methods; or other DEA recommended methods. Plans would be approved by the Department and renewed every three years, with the ability to assess fines for violations or discontinuation of the Stewardship plan, and with repeat violations being sent forward to the Attorney General for enforcement.

A manufacturer may pay an assessment to a newly created Prescription Drug Awareness Fund, in lieu of establishing a stewardship program. Assessments would be based on the market share of the manufacturer's product in the Commonwealth. The Fund shall be used to support public education efforts on the dangers of prescription drugs and other activities.

HOUSE SECTION 44 – Drop Boxes

This language requires each municipality to have at least one drop box for the disposal of prescription medications.

(full text here: <https://malegislature.gov/Bills/189/Senate/S2103>)

Section 3. A manufacturer or stewardship organization seeking approval for a drug stewardship program shall submit, in a manner and form determined by the department, a plan that meets, but is not limited to, the following requirements:

(i) a **collection system** to provide convenient, ongoing collection services to all persons seeking to dispose of unwanted drugs; provided, however, that the collection system may accept any covered drug and **any other prescription drug** in a pill formulation regardless of its schedule, brand or source of manufacture; provided further, that the system shall offer reasonable access to persons across all geographic regions; provided further, that the collection system shall include at least 2 or more of the following: (A) a **mail-back** program that provides prepaid and preaddressed packaging for a pharmacy to distribute when filling a prescription for a covered drug or upon request by a consumer; (B) **collection kiosks**; (C) **drop-off day** events at regional locations; (D) **in-home disposal methods** that render a product safe from misuse and that comply with applicable controlled substance regulations and environmental safety regulations; or (E) any other method recommended by the department or pursuant to United States Drug Enforcement Administration guidelines;

(ii) adequate provisions for the security of unwanted drugs throughout the collection process and the safety of any person involved in monitoring, staffing or servicing the stewardship program;

(iii) a plan for **public outreach and education** about the drug stewardship program, which shall include, but not be limited to, a plan for communicating information about the drug products that may be disposed of through the program, a listing of all available collection methods, participating collectors and locations, dates and hours of operation for all collection or drop-off locations, educational information on the environmental, health and addiction risks posed by unused or improperly disposed prescription drug products and a means of communication to receive public comments and questions about the program;

(iv) a plan for the manufacturer or stewardship organization that provides the operational and administrative costs associated with the program; provided, however, that no point-of-sale, point-of-collection, processing fees or other drug cost increases may be charged to individual consumers to recoup program costs;

(v) **incentives** provided by the manufacturer, group of manufacturers or stewardship organization to consumers to return unwanted drugs;

(vi) an attestation that the program shall comply with all applicable state and federal requirements for the collection, security, transport and disposal of drug products, including any requirements established by rule or regulation of either the United States Drug Enforcement Administration or the United States Environmental Protection Agency; and

(vii) any other requirements established by the department for the safe and effective administration of a drug stewardship program.

This is from WSCAC's December meeting featuring Dr. Laurel Schreider of Silent Spring

<http://www.mwra.state.ma.us/monthly/wscac/summaries/2015/120815.pdf>

"Laurel said that a lot of people think pharmaceuticals are the major point of concern, and as a result they advocate for drug take-back programs. Although such programs are great, she pointed out that most pharmaceuticals get into wastewater through the human body via the process of excretion."

"Laurel explained the importance of putting the results of the study into context. How should researchers weigh the effects of low dose exposure to pharmaceuticals and other emerging contaminants? Orders of magnitude must be considered. For instance, pharmaceuticals in drinking water will not have the same effect as a therapeutic dose. Nevertheless, emerging contaminants in drinking water do raise concerns for human health. Pharmaceuticals are potent and contain risks to children and pregnant women. Furthermore, there is a range of sensitivity among individuals and side effects vary significantly."

Below is the relevant section of WAC's October minutes:

EPA DRAFT Rule Controlling Pharmaceutical Disposal, particularly in wastewater

Andreae Downs: explained the handout/summary (in attachments), and highlighted that the deadline was Nov. 24.

Rules would apply to ease take-back of pharma—two kinds of operations:

- Manufacturer take-back of unopened pharmaceuticals they produce
- Community or pharmacy take-back programs for all kinds of pharmaceuticals (incinerated) DB: working on getting more pharmacies to have lock-box take-back. But complicated because of involvement of EPA, DEP and DEA.

M Adelstein: WAC & MWRA have always encouraged not flushing pharmaceuticals

T Keally: take-back is the tough part. It needs a lot of education. Would be best if pharmacies were required to do take-back and put up informational signs at the counter where drugs are dispensed. Households are big generators (the rule applies to hospitals, veterinarians, assisted living, etc.)

DB: In our service area, the hospitals are pretty good. It's the nursing homes, hospice and assisted living that have the high levels.

S Greene: WAC should comment, and ask EPA to add BMPs for better compliance DEP would have to enforce Is incineration always the best method for disposal? (some compounds are broken down in WWTPs) *

