



Minutes
February 6, 2015

The Wastewater Advisory Committee to the MWRA met at the MAPC conference room, 60 Temple Place

Attendees/Contributors:

WAC: Stephen Greene (chair), Taber Keally (vice-chair), Travis Ahern, Craig Allen, Zhanna Davidovitz, Karen Lachmayr, Beth Miller, Martin Pillsbury, Wayne Chouinard,

Guests: Wendy Leo (MWRA), Charlie Jewell, Newton Alderman Ruthanne Fuller (by phone), Fred Civian (Mass DEP), Maureen Meagher, John Reinhardt

Staff: Andreae Downs (WAC),

FUTURE MEETING DATES/TOPICS

NEXT: **March. 6**, 10:30 am, MAPC: Charting progress on green energy with Steve Estes-Smargiassi (MWRA Director of Planning & Sustainability), Kristen Patneau, Program Manager, Energy Management, Deer Island

VOTE: Jan. 9 minutes approved. Comment letter on EPA's draft regulations of dentists approved (discussion below)

MWRA REPORTS

Wendy: More personnel changes at MWRA. Rachel Madden was hired by the Baker Administration. Her job (Administration & Finance) has been split into two—one Administration, one Finance director.

Travis: The MWRA Board of Directors is also seeing changes. The new chair is Matt Beaton, Brian Swett's seat will be taken by Austin Blackmon, the city's new Chief of Environment and Energy (details: <http://www.cityofboston.gov/news/default.aspx?id=17879>). Joel Barrera's seat is now empty, and needs to be filled by someone from the western suburbs and the governor also needs a minority representative.

Wendy: Flow has been low—it's all still frozen & on the streets.

Blizzard Preparation & execution: The MWRA plans for heavy weather by making sure there is access to all critical facilities, backup power at the ready in case of an outage, staffing

(16 hour shifts) and food for the staff. They also make sure there are enough supplies (chemicals, fuel) for the extent of the storm. The only unexpected incident was the stranding of a bus on Deer Island's causeway. MWRA staff helped extricate the bus and a stranded private snow plow to make sure access to the island was unimpeded.

Stephen: Always good to know the planning that you have was successful. Wendy also forwarded the maintenance plan filed as part of the permit.

Wendy: that was made part of the permit because the predecessor to WAC, FPCAC (the Facilities Planning Citizens Advisory Committee), was concerned that we were spending all this money, but if you didn't maintain it, you would not get the level of treatment we needed.

ADVISORY BOARD REPORTS

Travis: The executive committee of the Advisory Board is drafting a letter to Fred Laskey recommending that the Authority tighten permit levels of molybdenum through its Toxic Reduction and Control department.

This comes after the Advisory Board asked DEP to reduce the level at which fertilizer pellets are banned for land application. Massachusetts has the lowest level in the country (25mg/kg), lower than New York's conservative level of 40mg per kilogram. Forty would not be a problem for pellet application in-state. The research Travis has compiled (which he will send WAC members) does not support the lower level.

This is not a great solution, but because DEP has not budged, this is the new "stick." The letter to Fred Laskey should be ready in about 10 days, and we will cc you.

Stephen: for those of you not familiar—molybdenum is a seasonal issue. It's used in cooling towers to reduce corrosion. Most of those using molybdenum are large, commercial operations.

Travis: there are other alternatives, which are more expensive, some of them are phosphorus-based. If that ban took effect, there would be other people interested, because it would increase their costs.

Karen: Isn't phosphorus controlled by the NPDES permit?

Wendy: Not in the Deer Island permit

Travis: It's why this isn't the best of the solutions outlined in the Advisory Board's FY2015 Comments and Recommendations.

Wendy: We are also imposing a cost on commercial coolers without any environmental benefit.

Travis: NY studied this, and the issue is that Molybdenum is a plant-available element in soils that can harm farm animals (ruminants) by inducing copper deficiency (Molybdenosis) if Molybdenum levels are too high. NY found that 40 mg/kg of molybdenum in the biosolids applied to land does not negatively affect cattle. 25 is just too conservative.

Wendy: It could if there were a lot of molybdenum naturally occurring in the soil, but east of the Mississippi there isn't.

Karen: but there's no significant downside to a little extra phosphorus in the outfall?

Wendy: Right, but we'd rather not impose a cost on the economy without any benefit to the environment.

Other issue: the co-permittee appeal requested by the Charles River Water Pollution District was denied yesterday by the Environmental Appeals Board. \

PRESENTATION & DISCUSSION: Stormwater planning, I/I and innovations

Charlie Jewell, Director of Planning and Sustainability, Boston Water & Sewer Commission

Stormwater resources mentioned (link)

Boston is most impacted right now by an EPA stormwater consent decree from 2012. Independently of stormwater, we have been looking for illicit connections. These are connections from the sanitary sewer into the stormwater system, meaning raw sewage is going untreated into the receiving waters.

BWSC has actually been working on this since 1986. EPA wanted us to move faster and to enforce on property owners who weren't being helpful.

BWSC takes charge of fixing the illegal connections where the connection is located in the street. The Commission assists homeowners who have to make modifications to plumbing inside the house, rebating homeowners up to \$7,500 to fix cross connections.

There are instances when the Commission cannot correct the problem. When the Commission finds a legal primary system with an illegal secondary system—say a basement laundry or toilet—inside the house connecting to the wrong pipe, the Commission requires the property owner to redirect the fixture to the sewer system. The Commission does not do work inside the house. Sometimes the property owner has to raise their flow to meet the sewer system, with an inside pump. We will help them with a reimbursement, work with their contractor, and fix it.

So we were doing dye testing, and finding illicit connections. But sometimes, we would dye test and have dye in both the storm and the sewer system—now what? What we found is 194 leaking sewer laterals that we have found & fixed. But how to fix them?

We have the homeowner do it, line the lateral from the connection to the foundation wall. To help the homeowner, we have a program to help them with up to \$4,000.

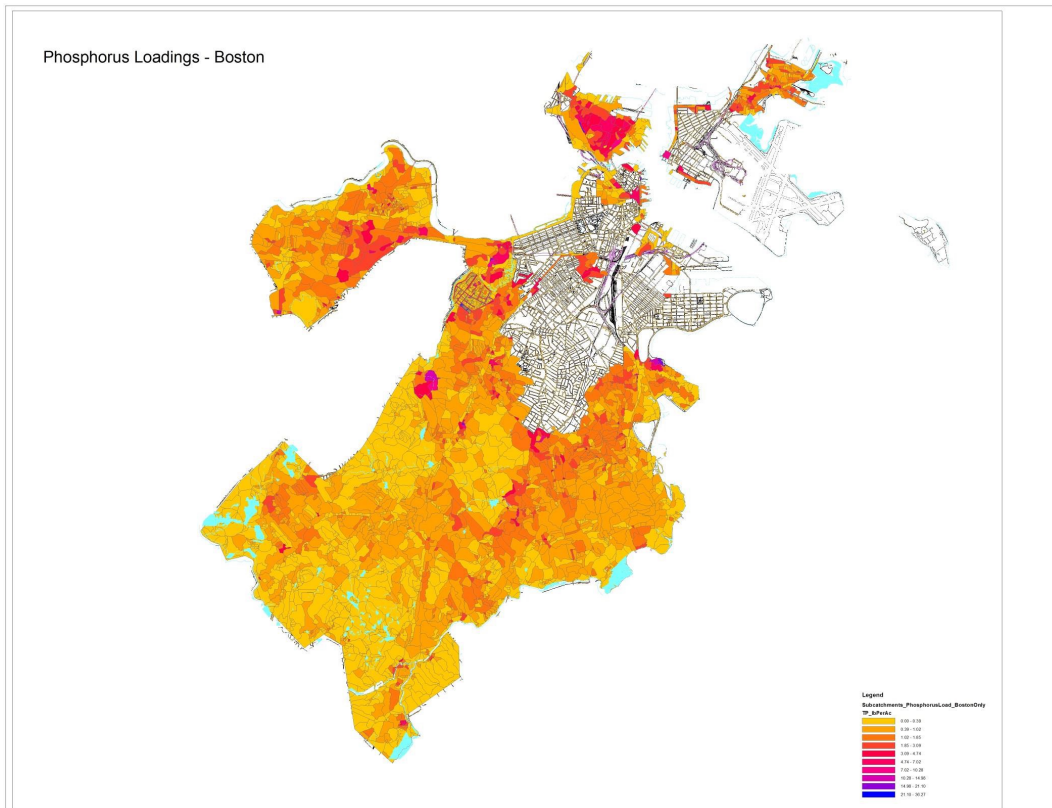
Karen: How do they do these dye tests?

Charlie: we do manhole inspections. Look for signs of toilet paper, etc. If we don't see any, we don't assume it's clean. We put a sand bag in there & leave it for 48 hours. We'll find a storm drain manhole with sewage in it. We'll try to find what houses are connected to it. We'll notify the homeowners, and dye test the fixtures in the homes. We'll try to pick the lowest and see if all the fixtures are connected to the same plumbing. If not, we'll do multiple dye tests.

Another thing we've done is tried to control phosphorus going into the Charles River. The Commission updated its stormwater model to include water quality. When the Commission did its analysis, it found a high level of phosphorus in Boston's base flow. We think that's because

of illicit connections. So EPA allowed us to go after those and leaking laterals to get that base level phosphorus out.

The City has 4,000 catchment basins—the red ones in this map have more phosphorus.



Here's a map ranking the phosphorus in areas. The areas in gray have combined sewers.

We can do this for copper & other contaminants.

Our BMP Implementation Plan—the model tells us where the phosphorus is; we have an idea of what BMPs are good in an urban environment. Our consultants are working on a 25 year master plan for the sewer system and storm drainage system, and in there they have to develop a BMP Implementation Plan. So for areas, based on outfalls, what BMPs have to go in to reduce phosphorus levels—the plan will guide us on how many rain gardens, how many infiltration trenches, etc. This gives us an idea of what needs to go where.

We're looking at three areas of implementation:

- Illicit connections
- Complete Streets with the city (streets designed for safe travel for all modes and stormwater infrastructure)

- Green Infrastructure in private development

As part of the consent decree, we had to complete three green infrastructure demonstration projects:

- Central Square in East Boston—has been put out to bid, bids came in too high; it's been adjusted & is back out to bid
- Audubon Circle in the Fenway—which is now nearly at 100% design
- City Hall Plaza—still working on. MBTA is working on Government Center Station. City Hall is looking at the area where the old fountain was located as an opportunity to put in some green infrastructure there.

In all three projects we have added monitoring structures to check that the infrastructure is as effective as people say it is.

Slide show: Plan for Central Square. Supposed to capture 95,000 gallons of water in a 1-inch storm from about 2.5 acres of area. We'll have shafts that we can check to see if water is coming in. We also have a manhole we can meter to see what's going on. We're putting in infiltration trenches, porous concrete, tree trenches, with pavers, with infiltration trenches underneath and porous asphalt. We're trying all of these out in this area.



(Porous concrete infiltration trench—planned for Central Square)

Audubon Circle—Boston Transportation is putting rain gardens in the center of the circle. We're going up Beacon Street and putting in infiltration trenches which will also feed the trees. This goes along with Complete Streets—as you are doing other work in the City, we are adding these things in. Adding in trees, but even so it's very sensitive when you are removing trees.

In addition, when we have large private developments, we require them to install green infrastructure. We require them to retain one inch of stormwater on site.

We have been tracking the installation of green infrastructure since 1999. When we get site plans, green infrastructure is required.

I looked up the numbers: Since 2004, 1,200 projects holding 8.5 million gallons of water from a 1-inch rain event.

Q: What are BMPs?

Best Management Practices (BMPs). They anything that reduces stormwater pollution. I like to distinguish between infrastructure and practices—it can include street sweeping, keeping your site clean, stuff like that. I consider the trenches green infrastructure. Low Impact Development is how do you develop a whole site to keep stormwater on the site.

Travis: Do you consider porous asphalt and concrete green infrastructure, and what is the added cost of using them?

Charlie: Yes, I do consider that green infrastructure. Added cost is in the maintenance. You can't get sand into it, as it starts to lose function. Need to vacuum at least once a year. For infiltration trenches, the Commission is looking at directing water first into a catch basin—to collect the sand and some of the trash, and then having the trench underneath it. We'll see how it goes.

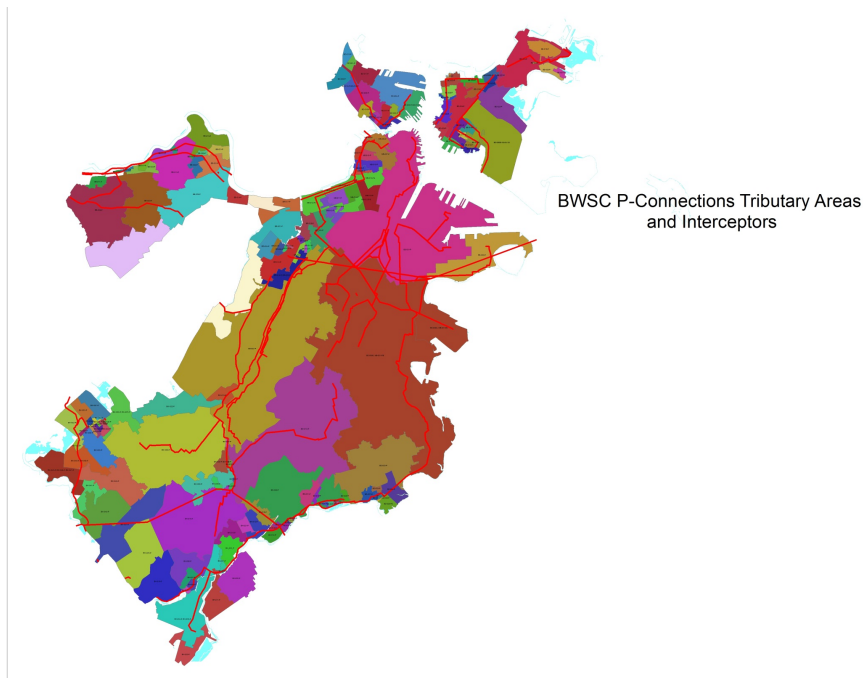
Wendy: Why a one-inch storm?

Charlie: Want to be consistent across neighborhoods, no matter which river you drain into. Plus, 90% of the storms are an inch or less. You address a lot of problems with the first inch.

Next thing we are working on is an I/I master plan. DEP regulations require everyone to do an I/I master plan by Dec. 2017. We have done an RFP and have proposals back. We've done 14 studies in the 25 years since our last I/I plan.

The new plan will summarize what we've done and re-evaluate it. Didn't check whether what we had done had the impact we thought it did.

MS4 permits (municipal separate storm sewer system) are all based on outfalls. For I/I we did the same thing per sewer tributary.



Public connections (p-connections) are where the local pipes join together before linking to the MWRA pipes. Some are metered, some not. Boston also has special connections—a house or development out by itself that links directly to MWRA. So with the I/I plan we will be speaking the same language as with the stormwater plans—we will be looking by tributary to control the I/I upstream.

As of Dec. 2017 all communities will need a new master plan (Boston and Worcester are in a different, earlier cycle)

DEP requires a sewer meter every 20,000 linear feet, and you have to analyze it during a storm events to see how much I/I is in there. For Boston it would take over 200 meters.

Ruthanne: In Newton we are just finishing up a stormwater infrastructure investment plan. One of the tricky things is figuring out how much we can raise via our stormwater fee compared to the mountain of work we need to do. How do you prioritize work? How many years do we do the work over? How do you do that?

Charlie: Our executive director, Harry Vitale, is our former CFO. We have in our CIP (capital improvement plan) a feasibility analysis of designing and implementing a stormwater fee. We don't want to do that until we have a CFO on board. We know we need one. As far as prioritization, we want to base it on the P-connections so we know which the worst are and we'll start there.

In the I/I master plan, we prioritize the areas with the most flow. What we want is a better grip on the effect of our work.

I've heard in Commission discussions—20 or 30 year plans, reevaluation every 5 years.

Wayne: Have you considered during title transfer requiring the lateral lines to be inspected?
Charlie: We'd like to link (sewer) lateral testing at the change in title but there is concern for how difficult it would be.

Ruthanne: Newton has thought about this & is still thinking about it. We've talked to the solicitor's office. We think it's doable if there's the political will. We're hoping the closing attorneys and real estate agents can get on board.

Charlie: We do dye-test on transfer to see if there's an illicit connection. I want to take it to another level and test the lateral under surcharge conditions. Really test it, like a septic system. As a homeowner, I would want to know.

Ruthanne: We are pitching it as consumer protection.

Charlie: As a homeowner, it's much easier to fix a lateral at the point of transfer, rather than later.

Taber: Many other cities require those inspections—not sure if it's statewide. It's unheard of in Massachusetts. But there's precedence for how to do it in other states.

Andreae: Travis, how many communities have started stormwater planning?

Travis: Most people who have not started now are waiting for the MS4, and then will scramble. Just from polling the state, only 6 communities have a stormwater fee and a few have revolving funds, but by next year we should see more than 10, and there will be a big bump once the MS4 is finalized.

Andreae: Fred, is DEP doing any outreach on the MS4 requirements?

Fred: We are continually doing outreach. We are talking about how to true-up work under the current MS4, and about equitability as far as sources of funding for stormwater. One of the hurdles to a stormwater fee is not knowing how much it costs in the first place. Usually costs are decentralized and spread across the municipal budget. Hard to get a handle on them.

We have been working with **Central Mass. Regional Stormwater Coalition**—which is 28 towns formed together to do stormwater work. (They have a great website. They are one of several local coalitions formed to find ways large and small to address stormwater issues. Can be simple stuff like a standard operating practice—SOP—for applying salt to roads. Another is a model stormwater management plan that a town can take off the shelf & make specific to their own town).

We also work with students at WPI (Worcester Polytechnic Institute: <http://www.wpi.edu/>) who have developed a spreadsheet to help municipalities figure out their stormwater costs.

Many informal discussions are around equitability: my town of Dedham, 11% of properties are tax-exempt; those properties do not pay toward stormwater costs because they are tax-exempt. Is that fair?

Martin: the Neponset River Watershed Association and MAPC did a similar project, using a Community Innovation Challenge Grant (the grant has been cut). Details at <http://neponsetstormwater.org/>

Fred: **Joe Delaney** from Reading can speak about the stormwater fee they are implementing. But you are already paying a tax for stormwater—but it's through your property tax, which means that non-profits aren't paying for it.

Charlie—in Boston, you pay for stormwater based on your water use in your home. In my opinion, that's not the right way to do it.

Wayne: it comes out of our property tax.

Are there grants communities can take advantage of?

Fred: yes, but can't be used to meet permit requirements. 319 funds will no longer be eligible for stormwater use once the new permits are in.

Stephen: On I/I-how effective are those repairs? I'd heard that it's ubiquitous & continuous.

Charlie: Yes, it is. But we did the work & did not look at whether it was working because we were moving on to the next area. So we really haven't checked even the meters.

Ruthanne: We haven't either, but are seeing significant reductions in our flow as recorded by MWRA, so we appear to be making progress. Not tracking it ourselves; that's a terrific idea.

Stephen: What is your experience with permeable pavement? We've heard the maintenance is expensive, climate, sand, heavy traffic...

Charlie—We're just putting it in to see how it goes.

Stephen: I know of a number of LEED buildings added pervious pavement, and you could be following up with them to see how effective it is.

Charlie: Our installations, including the new porous alley, haven't been tested yet. They are still too new.

Ruthanne: Newton is looking at gradations of stormwater fees based on impervious surface. In 2005 we implemented a flat fee of \$25 for residences, \$150 for non-residential. We are about to vote to change that, with a credit for stormwater retention work on on-residential properties. Anyone else doing that?

Travis: Not in Massachusetts, except for Northampton. Nationally, that's the standard.

Martin: Isn't Reading looking at equivalent residential units—larger units pay more?

Travis: yes, but they consider all single and two-family houses to be flat rate.

Ruthanne: We're thinking of doing a tiered residential system, just because we have to raise so much money.

Travis: Technically, this should be easier for municipalities with GIS, although it may be difficult politically.

We have a report on the BWSC website that lists every BMP and how much it removes.

Fred: Another resource is the UNH stormwater center, which is on the cutting edge. They have found that more artisanal rain gardens with lots of different plants are not as effective as simpler ones with a single species of grass or reeds at removing phosphorus.

A lot of the issue with pervious pavements is that not only do you need to vacuum them once a year, you shouldn't add sand or salt. And the difficulty is getting contractors to realize which treatment to use for each parking area. It's easier to manage when you only have one method.

Taber: Heard that tree boxes in Milton had to use genetically stunted trees, and every 5-7 years you need to change the medium for the tree box. So now they have to pay to do that, and aren't interested in paying to change the medium. Without some way to pay for the maintenance, it won't be done.

Charlie: Plus, trying to touch somebody's living tree—that's political.

Beth: You mentioned that people think in terms of belonging to a neighborhood rather than a storm water tributary system. Can you speak about any efforts to make people aware of what "sewershed" they are in?

Charlie: We are looking at the system as a whole—not by neighborhood. So we've tracked which areas send flow to which parts of the sewer, as we do with stormwater. It's hard for someone in West Roxbury to understand that their street drains to the Charles.

Stephen: It does?

Charlie: Via the Stony Brook Conduit, yes.

Beth: So the two systems have different "catchment" areas?

Charlie: Yes—streets drain to basins & in to the river. Sewers drain to the pipes that go to the MWRA. But they function very similarly. And they don't necessarily flow the same direction. I have 204 stormwater outfalls and 96 P-connections.

EPA's proposed Dental Mercury rule

The committee discussed the draft comment letter from WAC. Andreae summarized the MWRA's draft comments.

Beth asked whether WAC shouldn't support higher efficiency separators.

John Reinhardt explained that while the removal efficiencies were not essentially different, the issue was not about the separators, but about the way the rule might make regulating separators in Massachusetts doubly complicated. If Massachusetts' current rule is acceptable, then DEP can continue its model program with dentists.

Stormwater Resources:

- WPI spreadsheet:
- **Central Mass. Regional Stormwater Coalition :**
<http://centralmastormwater.org/Pages/index>
- Neponset River Watershed project: <http://neponsetstormwater.org/>
- UNH Stormwater Center: <http://www.unh.edu/unhsc/>

- BWSC stormwater outreach:
http://www.bwsc.org/ABOUT_BWSC/systems/stormwater_mgt/stormwater_mgmt.asp
- MAPC Stormwater resources: <http://www.mapc.org/stormwater>
- Northampton, MA stormwater fees: <http://www.northamptonma.gov/762/Stormwater>