

**Minutes**  
**Dec. 4, 2015**

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

**Attendees/Contributors:**

**WAC:** Taber Keally (chair), Mary Adelstein, Craig Allen, Karen Lachmayr, Jim Pappas, Martin Pillsbury (MAPC), Stephen Greene, Elie Saroufim Dan Winograd

**Guests:** Maret Smolow, Betsy Reilley, Sean Navin, Katie Ronan (MWRA), Fred Russell (Brookline DPW), Ian Cooke (NepRWA), Roger Frymire, Patrick Herron (MyRWA), Pallavi Mande (CRWA), Aaron Weieneth (AECOM), Mark Bartlett (Stantec) Nancy Hammett (MA Rivers Alliance), Fred Civian (MassDEP), Juliet Simpson (MIT SEA Grant), Kathy Baskin (Water Resources Commission), Maria Rose (Newton DPW)

**Staff:** Andreae Downs (WAC)

**FUTURE MEETING DATES/TOPICS**

**NEXT: Tuesday, February 9 (changed to 16<sup>th</sup>), Water Cycle, Joint with WSCAC at the Water Works Museum 2450 Beacon St, Chestnut Hill (note change in day/location)**

**VOTES:**

November minutes approved

Comment letter on hazardous pharmaceutical rules and Letter to the Editor on MWRA's 30<sup>th</sup> anniversary approved.

**CHAIRMAN'S REPORT:**

Stephen Greene outlined a request for WAC to reconsider the Advisory Board's request to reconsider its offer on payroll services. After short discussion, members agreed to do so, if WSCAC would also.

**EXECUTIVE DIRECTOR'S REPORTS:**

**Phosphorus** limitations for biosolids: MWRA has no final position yet on whether the new regulations cover Bay State Fertilizer. Andreae noted that NEBRA was meeting Dec. 10 with the Department of Agriculture to clarify the new regulations and their applicability. She recommended that WAC wait to act until the results of that meeting were known. WAC members expressed a wish to keep MWRA's attention on this.

**Pharmaceutical** Take-Back Programs: the Product Stewardship Institute has several model pharmaceutical take-back bills for state legislatures. WAC would like to look at any that

might apply to Massachusetts. WAC also agreed that Andreae should phone in to the Dec. 8 PSI conference session on model take-back programs in other parts of the country.

### **MWRA REPORT**

Betsy Reilly noted the 30<sup>th</sup> anniversary gathering Monday at Deer Island, and the imminent end of court-ordered construction work on the long-term CSO control program. Next steps will be on how to evaluate it. Data and monitoring have been ongoing. Analyzing this data is part of the next step.

Andreae noted that David Kubiak will be at the March WAC meeting. MWRA has 20 years of data. Other utilities are being given 20 years before they will have to collect data on CSO control.

### **PRESENTATIONS & DISCUSSION:**

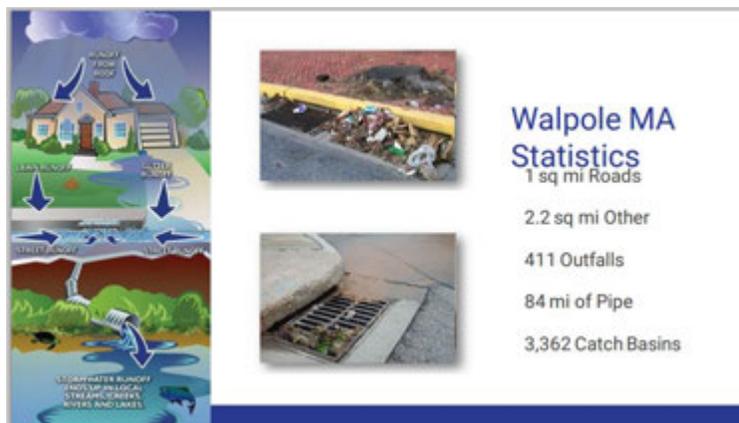
#### **Ian Cooke, Neponset River Watershed Association:**

**New MS4 Permit requirements:** The permit will affect 200+ developed communities mostly in the eastern part of the state. Caused some consternation among those who will be required to comply with it.

But has water quality benefits, so our interest is in helping communities comply effectively.

Background on stormwater—map of the Neponset River Watershed water samples that were high in bacteria.

Stormwater—the poor stepchild of the water & sewer infrastructure. People don't realize how big these assets are.



We were told there are probably another 2,000 catch basins than what we found on Walpole's GIS map.

That's emblematic of stormwater infrastructure—we build it and forget it. The new permit is similar to the current permit—but more detailed, prescriptive and rigorous.

The biggest challenge will be managing, collecting and sharing the data. There's a lot of reporting, and it will need to be done all year.

And requirements vary depending on whether you discharge to impaired waters or if there is a TMDL (Total Maximum Daily Load limit—for a particular pollutant). Taunton River has a Phosphorus and Nitrogen TMDL, for instance.

Lots of deadlines, which will mean that town officials cannot file a plan and then forget it this time.

Q: What does it mean, Draft Permit?

A: It is supposed to be released in January, or maybe now February, at which point it will be a Final Permit. But there will be six months before it officially takes effect.

Everything I'm describing is from the Draft Permit, which will not necessarily look exactly like the Final Permit.



**Six Minimum Control Measures**

1. Public Education and Outreach
2. Public Involvement and Participation
3. Illicit Discharge Detection and Elimination (IDDE)
4. Construction Site Stormwater Runoff Control
5. Stormwater Management for New Development and Redevelopment
6. Good Housekeeping

The slide includes a photograph on the right showing a person in a pink shirt cleaning a storm drain with a brush and bucket. The drain is shown in a cross-section view, revealing a large amount of debris and sediment inside.

Big items for our communities is Illicit Discharge Detection and Elimination (IDDE), which will require extensive monitoring of outfalls, inspection of pipes and drainage systems, some dry weather monitoring, and that's a huge data monitoring exercise as well.

Whenever I talk to towns about this, big question is how much it will cost. Hard to say, because we don't know what's in the final permit. The other issue is that because stormwater is the orphan infrastructure, it hasn't been managed and accounted for by one line item or department. Many towns struggle to figure out what they are spending now. And there's a wide range of quality and thoroughness of current stormwater management. Also estimates vary depending on who is making the estimates.

### Annual Costs as Estimated by Communities

Community	Present	Expected
Canton	767,000	1,380,000
Milton (year 1 only)	610,000	830,000
Dedham	?	+1,056,611

Q: Why is this permit more stringent than the last one? Has some event triggered this?

A: Well, the estimate is something like 2/3 of the waters within the Commonwealth are impaired because of stormwater. It's clear requirements of permit of 2003 were not going to improve that.

Q: Are there separate negotiations with each municipality? It seems like a regulatory nightmare, since municipal boundaries and watershed boundaries aren't the same

A: It's one general permit of 300 pages of rules. The burden is on the towns to read the permit and tell the EPA what they are doing.

Neponset RWA/MAPC's interest was in cleaning up the river. Bringing municipalities together to collaborate—notoriously hard, but at least could get to know each other, share best practices, work together to reduce cost. Ultimate goal as an advocacy group to make sure towns do this well.

Started with 11 communities, now down to 9. Had Community Innovation Challenge Grant and local matching funds. Unfortunately, CIC no longer exists, but have found other funding through MAPC. There are 4 or 5 different coalitions around stormwater management.

### **Martin Pillsbury**

Overarching collaboration, with designees from each town, building teamwork. Daunting task so good to know not in it alone, and can draw on experiences of neighbors.

## **Neponset Stormwater Partnership Tasks**

1. Collaboration and Coordination
2. Outreach and Public Participation
3. Illicit Discharge Detection and Elimination (IDDE)
4. Stormwater and Non-Stormwater Bylaws
5. Evaluation of Parcel and Roadway Retrofit Opportunities
6. O&M Database Concept
7. Stormwater Good Housekeeping Tools
8. Stormwater Financing

In outreach—specific audiences you need to reach. We have developed materials, all available for other communities to beg, borrow and steal at [www.neponsetstormwaer.org](http://www.neponsetstormwaer.org). BWSC doing similar work in other formats, which can be borrowed.

One area many communities asked EPA for resources all can use. Collaborations are helping more.

## Illicit Discharge Detection and Elimination (IDDE)

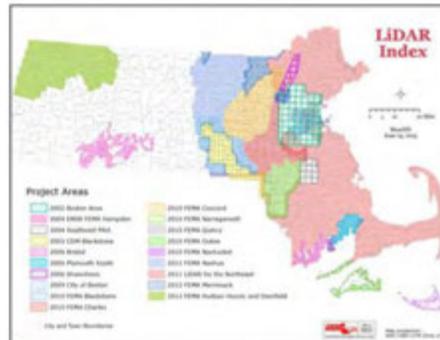
Outfalls discharging to waters impaired for bacteria subject to bacteria TMDL

	Outfalls that need to be High or Problem	Total Number of outfalls	Percentage
Canton	214	277	77%
Dedham	125	200	63%
Medfield	322	426	76%
Milton	167	178	94%
Randolph	222	564	39%
Sharon	20	237	8%
Stoughton	53	207	26%
Walpole	227	411	55%
Westwood	230	372	62%

We identified problem outfalls and percentage of outfalls that need addressing in each community. When you have a problem outfall, it's like a mini-watershed: you have to go upstream and see what is feeding it, whether there is a pollution hotspot, etc.

## IDDE Task Overview

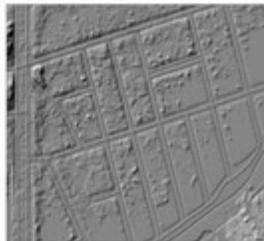
- ▶ Tracing sources of pollution from the receiving water to the contributing land area.
- ▶ Connecting outfalls to Impaired Waters.
- ▶ Ranking outfall catchments according to their likelihood to contribute illicit discharges.



MAPC put this together with our GIS folks using LIDAR.

## Catchment Delineation

- Step 1: Process Digital Elevation Model
- Download and mosaic lidar images
  - "Burn" in urban landscape features



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- Step 1: Process Digital Elevation Model
- Download and mosaic lidar images
  - "Burn" in urban landscape features
- Step 2: Create Catch Basin catchments
- Step 3: Dissolve Catch Basin catchments into Outfall catchments



In Milton, here's how we delineated where the catch basins were draining.

Working in three more communities now. Found out that for this to work well, the community needs a fairly good, well-mapped, idea of where the infrastructure actually is. Where are the catch basins, how are they connected. Milton had a fairly high-quality data set.

Q: do you have a script?

A: there's a whole set of tools, documented and downloadable. We developed the methodology so that other towns or their consultants could use it.

Next we looked at the bylaws. Looked across the communities. This is a section of the matrix—some bylaws where might need to bolster for better compliance:

### Stormwater and Non-Stormwater Bylaws

Stormwater & Non-Stormwater Bylaw Recommendations R = Recommended Action	Clinton	Deerham	Watson	Sharon	Scituate	Westwood	Northwood	Eastwick	Westport
	Limit tree clearance in zoning and subdivision regulations.	R	R	R		R	R	R	
Allow by-right construction of open space residential developments.	R	R	R	R			R	R	R
Don't require more than 3 parking spaces per 1,000 SF of floor space in professional buildings.	R			R			R		
Establish parking maximum standards for all uses.	R	R	R	R	R	R	R	R	R
Allow for reduction of parking requirements if parking is shared.	R				R		R	R	

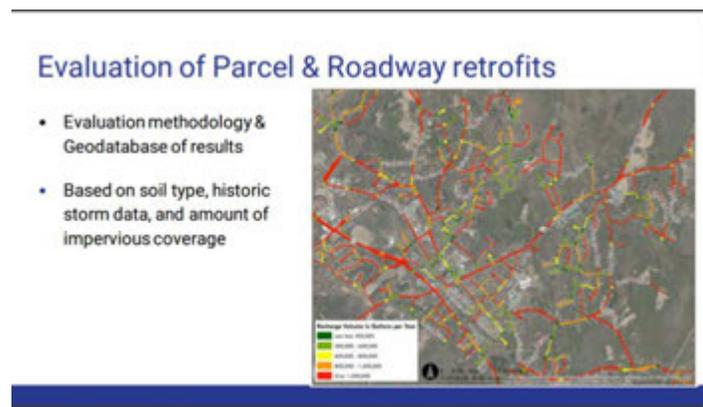
Most communities have some kind of stormwater bylaws, but see the need to upgrade particularly in light of the new permit, if the 1-inch control limit is in the final, everyone's bylaws will need to be upgraded to account for that.

We're also looking not just at permit requirements but in incorporating more green infrastructure, more opportunities for Low Impact Development, so bylaws need to be tuned in such a way that they're not an obstacle to that.

Another aspect is looking at potential for recharge:

Looked at surrounding road-space, saw varying degrees of recharge volume. Lots of other factors, but points to the right direction for where the potential recharge areas are.

Stormwater reporting and documenting



will also be a task. We came up with a concept to standardize an online reporting database, whether a physical piece of infrastructure or a practice, like street sweeping. Then at the end of the year, if you keep up with this, reporting will be easy.

One of issues is looking at ways to fund this additional work. Lot of interest in stormwater utilities. MAPC has a stormwater toolkit. It's online, and has worksheets so you can get an idea of what things may cost.

## Stormwater Financing

1. Determining Fee – Impervious Analysis
2. Town data on driveways, parking lots, buildings, decks
3. Match impervious area to parcel
4. Calculate the impervious area per parcel.
5. Divide impervious area by total parcel area to derive the percentage of impervious coverage per parcel.
6. Calculate the average impervious coverage for each land use (residential, commercial).



Ian: So that's what we have done to date.

Remains unclear the extent to which communities will be willing to spend money to work together on a regional basis around stormwater.

Q: To what extent do communities have to cooperate other than with funding?

A: Everything we've done to date is before there even is a permit, to get ahead of the curve. As communities really need to spend money in a meaningful way, it remains to be seen. Enthusiasm on cooperating on the public education is clear. When it comes to other elements, IDDE, GIS systems, they may have a favorite consultant or way of doing things. Central Mass was less far along, so they collaborated and created one GIS system to map outfalls. In the Neponset, things were further along. May be opportunities to do group bidding, so folks may get economies of scale there.

MP: MAPC already does collaborative purchasing. To date, this is not an area we've done much of that in, but perhaps in buying lots of test kits or specialized equipment. We have the administrative capability to do that. But premature until people know what they will need.

Q: How much of a hurry do we have to be in?

A: 6 months before takes effect. 90 days to file a Notice of Intent. Little bit of a lead time there. Not a lot, so should already be thinking of it, especially if you are preparing for Annual Town Meeting.

Content of what's in the permit has been broadcast for some time. No surprises there.

Milton's town meeting members just heard of this last town meeting. To also figure out who will sell town meeting on this will be a struggle.

**Fred Russell**, Town of Brookline's approach

Challenge in Brookline was the perception that we were perceived as a combined system. It took awhile to determine it was really a separate system with a big inflow problem. Now officially separate.

Brookline: 6.5 sq. miles, population ca. 60,000. 47% impervious.

Brookline does not have a Consent Order from EPA. 2005 We presented a 4-phase plan, top-to-bottom, which we are working on now.

Mostly, focus on separation of the systems.

One of our unique issues: some small connections, like a bathroom in a basement that connects to the drains. That's our difficulty. Eliminated 58 illicit discharges. Now like finding a needle in a haystack.

Spend a little more than ½ million \$\$ annually on stormwater. Brookline has done well on good housekeeping. Sweep streets 3-4x year. Clean 80-90% of our catch basins annually. Very good site plan review requirements. Even redevelopments are held to them. I don't think our annual cost will be increased much by new regulations, except for the elephant in the room—phosphorus requirements for the Charles River.

We only have 15 outlets we test each year, both dry and wet weather. Don't have a good handle on retrofitting for phosphorus removal. Have a consultant on board to look at this. I've been before the Board of Selectmen a number of times now, warning them that although we are on year 12 of a 5-year permit, it is coming, and we need to plan for it.

Also have an aggressive I/I program. If we wanted to line all of our sewer pipes, ca 114 miles, looking at \$36-37m. Really gain a lot of ancillary drainage improvements by addressing the sewer system.

Routine maintenance I've found very helpful is prior to paving any streets, we TV the sewers and the drains. If you have a cracked drain pipe—not seen as a big deal. Sewer or water pipe is different. Benefit of inspection—you can find collapses and cross connections while already digging up street.

Ultimately, guessing game as to what the new permit will cost. I joke that it's between \$100-200 million. But Brookline is investigating a stormwater utility fee, similar to Newton's, in case structural improvements are required, or need to lower our TMDL numbers. We are looking at impervious surface charges, similar to Reading's. I don't see any other way to fund something this big.

Q: What would the \$100-200 million be for?

A: to retrofit our outfalls to remove or reduce Phosphorus.

Q: is Phosphorus the primary pollutant in the other rivers?

A: Not at the Neponset, mostly bacteria, but many of the tributaries are burdened with it. Kinds of things you would do for bacteria, you would also do for Phosphorus.

Major sources of Phosphorus on the Charles are car exhaust, fertilizers, wildlife/dog poop.

**Fred Civian: stormwater coordinator for DEP**

DEP will come out to Town Meetings to explain the permit, to help take the heat.

DEP is stepping up to provide outreach materials. We are developing for each audience, that towns can download, put their name on, and send out.

Some topics of outreach are pretty well documented, but clear gaps. Have people from each of the state's five stormwater coalitions advising us on this, and hope to go live in a few months.

BWSC's materials are branded "We are All Connected," which all municipalities can use. Deals with stormwater issues, but also sewer issues. One umbrella of all the things people can do in their homes.

MWRA has also disseminated small PSAs on Twitter and on its website—also easy to adopt for each town.

Q: Does the Charles River have a coalition?

A: Not for the purpose of coordinating on Public Service Announcements, etc., although we try and serve as a resource for working with municipalities looking for information on ways they can comply with TMDL's and/ or the new MS4 permits

We are putting together materials we can provide as a resource to various Conservation Commissions in our watershed so they can educate developers about complying with TMDLs.

CRWA recognizes that some towns are ahead of the curve on outreach materials, while others are just starting to understand what the new permits would entail. We are involved in undertaking demonstration projects in several of our communities, and are sharing success stories and lessons learned. Ultimately will be using our website and other electronic media to disseminate information to cities and towns looking for resources.

Lost opportunity in many towns to further integrate stormwater retrofits into road reconstruction for safety, such as chicanes and bump-outs.

Pallavi: Involved in the Open Space plan for Brookline in tandem with putting together a Complete Streets policy for Brookline. Have some experience on "green streets" having worked on Boston's Complete Street Guidelines. Stormwater needs to be a part of it. Timing is great

because Climate Change Action Committee is working in tandem on reaching similar goals, even within same town, although with different departments.

Roger: BWSC and Brookline share two outfalls upstream of the BU bridge. Used to be the most sewage-laden outfalls on the Charles. Now much better by 2-3 orders of magnitude. But in those areas with large drainages, problem with Phosphorus, is finding room to implement what you need to do. These outfalls are near rail yard Harvard just bought. You could work with CRWA and create one of those constructed wetlands to remove some of your phosphorus in this area.

Hearing is scheduled for Dec. 8 on that area, but only looking at driving and walking and biking, not thinking stormwater.

MWRA will get phosphorus loading numbers on the Cambridge Constructed wetland once the new infrastructure is linked to it—after Dec. 31.

Nonantum Road retrofit, including grass strip down the middle for stormwater, becomes unsightly because not maintained. Is it worth time for all those little areas to be retrofitted?

Portland, OR does whole streets with small retrofits, but get adopted by abutters & do maintain it. Nonantum is a bit of an orphan—very few abutters besides DCR.

Pallavi: CRWA was involved with the first green street pilot in Boston, but O&M plan had to be signed by 3 different City departments and the Main Streets folks. Every time it's a different way / approach adopted to address O&M. The Complete Streets Guidelines has an implementation section that was the hardest to put together since it involved a variety of departments undertaking various components. So you have to get a lot of the pieces figured out before you can adopt policy.

Q: How are you handling Watertown?

A: We'll see. We have the contract & grant just getting going.

Q: Milton had grant 7 years ago for tree boxes. How are they working now? Would you recommend again?

A: been relatively successful. Hard for DPW to maintain because it's a unique asset, unlike 3,000 catch basins, just a few tree boxes. The pre-manufactured commercial devices are relatively expensive, but work well.

Q: Data collection critical. Now have email submission. Often much more effective than going through a portal.

Are we anticipating impact with severe storms due to climate change on stormwater?

A: Yes. If the 100 year storm is 8 inches instead of 6 inches, still the first inch will be the critical in terms of pollutants. Certainly will have to deal with more than the first flush. But if more time between storms and more volume when storms come, that may have an effect. May be more concentrated pollution.

RF: First flush isn't a problem except in 1" storms. That's when it's visible and discernible. When the SSOs start, that's also a critical hump, and then even the sewers are dilute.

When raining hard mobilize more stuff than when just a drizzle, or gentle rain.

Patrick: Mystic River Watershed has a rule that we only sample when raining more intensively.

**LETTERS:**

The EPA-pharma rule deadline was extended, so brought back for any additional discussion, and to make sure that changes were in accordance with WAC's intention.

No discussion.

Second letter on 30th anniversary to highlight MWRA's continual good work over last 30 years, incorporating technologies just being adopted with much fanfare by other utilities that are just adopting them, such as DC Water.

Changes suggested by MA and MWRA adopted.

Final sentence to stress that Deer Island came in on time and on budget.