

Hi Sallee et al.

I will do my best to begin to answer your questions - but a discussion may be helpful.

1. Harry Saunders was the speaker. He is an active citizen and has raised these concerns with the administration over the last few years. My understanding is that in response to Harry's concerns, DPW tested the meters (and had an outside group test the meters) and they are sure the meters are accurate. This was discussed several times in PF when Ald. Salvucci was the chair, and Fred Russell the Director of Public Utilities.

This is why the city literally pulled a couple dozen meters to have them independently tested. The results were superior at the time.

I heard Mr. Saunders suggest that he now believes the meters are underreporting water used. We have no evidence this is so - but In fact, I remember learning that it is a mechanical impossibility for meters to over count water. Because what happens is that the mechanics loosen up over time - like any machine. So this is one reason why meters have about a 10-12 year life expectancy we are told. Harry was right when he noted that the city was ten years behind in replacing the previous meters. The city does have a very high rate of "unaccounted water" - that is water that we pay to purchase from the MWRA but which does not get metered. We do leak detection and repair every year, but remember our system is very old - underground leakage will improve greatly as we advance our restoration program. We also lose water flushing hydrants, and fighting fires (hydrants are not metered). The WSS group had the city commission a "water Audit" which has not revealed a one point source as yet, though we are now testing the large MWRA meters coming into the city and as well the reservoir.

2. I will ask about this again tomorrow at our working group meeting (though the focus is stormwater tomorrow).

However - I do not think 'bias' is the correct word - If the meters are failing early (which again we have no evidence to suggest) I will ask whether this would be a condition that would likely be uniform or not. I can say that our water usage matches our metered water very consistently over the years relative to changes in our household.

3. This next item may require a discussion.

There is always water underground. Groundwater finds its level ("water table") based on many factors - proximity (elevation) to water bodies, topography, geology, soils. When we develop property it is important to know the groundwater table. In a very ledgy area normally the groundwater runs on top of the ledge which can be quite high. Many old basements with ledge outcroppings can be very damp or even wet. If clay soils, groundwater can be trapped at a high elevation as well. If well draining soils, groundwater may be twenty feet or more below grade. Rains elevate ground water naturally. So we look for what is the high groundwater mark when we build, or "high water table". Not advisable - but one can build in a high water table using certain techniques for dewatering and waterproofing.

Infiltration is groundwater seeping into sewer pipes. If leaky sewer pipes exist above groundwater - the flow would be in the other direction, contaminating soils with wastewater. Many are below ground water only during high water table - caused by rain events, not irrigation systems.

An important point - we WANT rainwater to seep naturally into the ground, creating a 'slow recharge' of the groundwater... which is nature's way of filtering water on its way back to the river... - and less so to runoff into our storm drains, which carries street pollution to our streams and rivers, and takes capacity

from our storm drain system. Lawns are better than driveways but gardens better than lawns for capturing and making good use of rain.

Irrigation systems have little effect on the ground water table. They exist to nourish plants and lawns and unless neglected for very long periods of time (which would be very, very, very expensive!) would not contribute the volume of water necessary to raise the ground water table.

A more important factor is the condition of the private sewer line running under a person's yard, which each property owner owns to the street main - and which comprise a large percentage of the total underground system in Newton. These (old lines) are replaced with new construction and major renovation, but otherwise, especially on older properties may well be leaking in or out and a source of infiltration. Stay tuned.

Hope that helps....

Best,

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When responding, please be advised that the Secretary of the Commonwealth has determined that email may be considered a public record.

On Dec 4, 2014, at 11:10 AM, rrcexec wrote:

Hi Deb:

Last night's Public Hearing was extremely useful and I, personally, am appreciative of the efforts that you and Ruthanne have put forth to focus attention on and to document our declining water/sewer/storm water infrastructure.

A couple of questions remain for me:

1. A gentleman named Howard (I didn't catch his last name) spoke of information a group of engineers had gathered about the validity of the meter readings installed in the City. If that citizen's description of the state of the water meters and the company that supplied them is valid, what effect will that have on actions to be taken by the BOA, since any systematic bias in the readings could make the charges more "unfair and inequitable" than they currently might be?
2. Will you and the Public Facilities Committee report to the BOA on your assessment this week of the meters' possible biases in light of his information? If the vote moves ahead at BOA, will you stipulate that the rate structure could be reversed as soon as next year if further study leads to proof that there is, in fact, bias in the readings? While unpopular a thought, perhaps the double meter vote should be pushed out another year so that people don't install second meters only to learn that the rate structure might be reversed because of meter reading biases.
3. My next question has to do with storm water and its relationship to irrigation use. While researching the connection of storm water to groundwater, I became confused as to how they mix. Since water, like money, is fungible, I began to ask whether both ground and storm water contribute to "I and I" and the burden on our sewers. I read this quote from King County, Washington's Department of Natural Resources and Parks Wastewater Treatment Division:
"Excess water that flows into sewer pipes from groundwater

and stormwater is called

Infiltration and Inflow, or I/I.

Groundwater (infiltration) seeps into sewer pipes through holes, cracks, joint failures, and faulty connections. Stormwater (inflow) rapidly flows into sewers via roof drain downspouts, foundation drains, storm drain cross-connections, and through holes in manhole covers. Most I/I is caused by aging infrastructure that needs maintenance or replacement."

I don't know what percentage of the I/I is from groundwater (or if any studies have been carried out on this subject), but clearly, irrigation systems put some additional burden on the sewers and the storm drains. Maybe we can address this extra burden by assessing an extra charge on irrigation systems that do not recapture and re-use stormwater and ground water on site. Also, since well users also contribute to I/I to some degree, they should be charged a fee as well.

Any insights you can provide would be greatly appreciated!

Sallee Lipshutz