**City of Salem, Massachusetts**

**"Know Your Rights Under the Open Meeting Law, M.G.L. c. 30A ss. 18-25 and City Ordinance Sections 2-2028 through 2-2033."**

**The City Council Committee on** Government Services co-posted with Committee of the Whole

**met remotely via zoom on** Wednesday, January 19, 2022 **at** 6:30 P.M.

**for the purpose of discussing the matters(s) listed below. Notice of this meeting was posted on**

January 14, 2022 **at** 12:48 P.M.

**(This meeting is being recorded)**

**ATTENDANCE**

**Councillor Ty Hapworth, Councillor Conrad Prosniewski, Councillor Andy Varela, Councillor Merkl, Councillor Watson-Felt, Councillor Cohen, Councillor Morsillo, Councillor McClain, City Engineer Dave Knowlton**

**ABSENT WERE:** _____

**SUBJECT(S)**

Councillor Ty Hapworth (Chairperson):

Meeting Commence 6:31pm. Meeting to discuss water main breaks. Prosniewski, Riccardi, Morsillo and Merkl from COW. Dave Knowlton City Engineer. All members present. Thanks for working to make committee work. We can do a lot of good and have good discussion. Open up for questions to the committee. None. Councillor Hapworth recognizes Dave Knowlton to discuss water main breaks. Councillors can ask questions, and will be opened to the public if any arrive. Questions go through chair. Plan to address all topics related to water main breaks.

Councillor Hapworth asks about state of the water mains in the city

DK: Water main breaks are an annoyance, and disruptive to residents and businesses, but do happen. Will not go away. Addressing them and making improvements where possible to prevent further breaks. Code Red calls sent to those affected by an outage. Notify residents in surrounding areas for resulting brown water. The rush of water changes the standard flow of water, stir up turbulence at the bottom of the pipes. Water direction changes and sediment stirred up. Don't run laundry, run a spigot at the lower elevation of house until clear. They have increased notifications and might be why people notice it more. Can happen anytime, dedicated water and sewer division within DPW to address the issues when they arise. Historically, the number of breaks has come down. Looking at time periods of from the 1970s to now or last 10 years, there has been a reduction. There are reports of water loss sent to DEP, they look at our maintenance and operation plans for standard water line breaks and they provide guidance. 60 breaks now 30-40. Water breaks happen for many reasons, age, material, when it was installed, cast iron is more susceptible to freeze/thaw cycle. Can change pressure in the pipe, ground freezes, constricts pipe and thaw makes pipes expand. Based on age and time and location, water breaks occur. Ground settlement, Salem has various soil conditions, sandy to peat material. Corrosive soils, salt water can affect life of the pipes. Stray electrical current underground can also corrode pipes and other areas pipe is not bedded properly. They find that the pipes are sometimes laid directly on ledge, and contraction and expansion can cause it to break. Bedding not good, sharp rocks can cause damage. Reduce problems by monitoring, where and how long it took to resolve the break, the amount of water loss. Examples: 2-4 breaks in an area will create a CIP project to fix. Resurfacing of road can follow these projects. Highland Ave. is a high pressure

zone. 16" pipe from Mooney road to pep boys. Main feed from pump station to wards 4,3. Exposed pits and lined the existing water pipe to give it extra support. Breaks on Loring Ave. from Leggs Hill Road to a pump station in Marblehead, there were several breaks. Recently replaced with 16" pipe. Near Forest River as well. Horton St. is upcoming in ward 3, ward 5-Broadway from canal to Loring Ave. multiple breaks, the fire hoses affected the flow and pressure in the pipes. City has provided funding to do that, retained earnings if a larger break. Special contractors are sometimes brought in to do the work. 90% taken care of by in house DPW folks. Contractors on more complicated breaks and 12-16" usually and then 6"-10" we typically take care of ourselves. Questions about basement flooding and property damage: depends on where the break happens. Lower areas the water will run into basements or downhill. Sometimes the City will hire Service master or something like that to clean up the home damage. City will reimburse property owners for the expense of repair. Minimized by continuous monitoring and identifying problematic pipes and CIP projects to minimize breaks in the future. Any questions:

Councillor Hapworth: great overview. Asks that although water main breaks have tended to decrease since 70s, the perception is that new development is causing water main breaks. A lot of development we have seen have been going into old commercial spaces. Are we seeing more water usage from commercial than residential, and over the last 40 years are we using more or less water?

DK: 60s and 70s show we were using about 6 million gallons of water/day and early 2000s was 5-5.5million. Power Plant change uses less water. Now use closer to 4 million gallons of water/day. Attributable to power plant, leak detection, listening to identify leaks and respond to them. New meter reading system (10 years ago) gives better, more frequent readings. Previously had been done quarterly. Able to get daily consumption reading from each house and building. We will get alerts for continued water use. Over a period of 30 days, if water use continues during night will be a red flag, maybe a leaky toilet, can use a significant amount of water used. Identify those properties, send letters, recommend hiring a plumber. A lot of these things contribute to overall reduction in water use. Pushing water conservation efforts, low flow shower heads, rise in low flow toilets. We provide nozzles for outside water use that are low flow as well. All contribute.

Councillor Hapworth calls on Councillor Cohen

Councillor Cohen: Can you speak to the cold weather and basement flooding?

DK: Ground water can cause basement flooding. Especially near the coast. A lot of rain this year. Water will travel via path of least resistance. We use a hot box to address potholes and trenches. Any time the DPW digs, the street division follows right behind to restore roadway, wintertime repairs aren't ideal. Follow up in spring to repair properly. City ordinances are clear, that the homeowner is responsible from home to the water main. Homeowner will have to get a contractor to make the repairs. Trees are an issue. Sometimes the city will have planted a tree and 10-15 years later it will cause root problems, and it is still the homeowners' responsibility. Contractors can repair, sometimes replace pipe, and avoid tree.

Councillor Hapworth: Councillor Cohen any follow up?

Councillor Cohen: suggestion, outside of the box. As a way to save the city money, Portland Oregon in 2015 started installing turbines in the pipes and created a lot of energy. 1.7 million dollars cost produced over 2 million watts of electricity. Enough to power 150 homes. I can send an article about what they did, and maybe think about long term future to conquer two things at the same time.

DK: send to me and we can talk about it. I used to work on west coast, and they had a lot of water supply issues, and they were capturing the storm water and with gravity flow the turbines were quite successful. Happy to talk more about that.

Councillor Hapworth calls on Councillor Prosniewski

Councillor Prosniewski: I want to tip hat to you and your crew when a water break does occur. We have all seen the crews in action in every kind of weather. It is a really tough job, and we have a very committed crew. I believe there is a GIS layer that shows the water mains throughout the city streets, is that available to us or the public or for our wards?

DK: I believe that is available. It is available to me; we do map where breaks occur and helps to guide us which areas are having trouble:

Councillor Prosniewski: Is there any one part of the city more than another that concerns you?

DK: Two of the bigger ones, Highland Ave. and Loring Ave., have been addressed. Loring Hills high rise at end of system, they don't get the best pressure. I think we have addressed that. No one area that is worse than another, just understanding the data, where we have been and where we need to be in the future. Horton and Broadway will be addressed soon.

Councillor Prosniewski: I can assume most of the older pipes have already been replaced? No more wooden pipes?

DK: We just found some on Bridge Street, though I don't think they are active anymore. Wooden pipes found sent to museum. Older hydrants, underground still out there. When we find them we take them out. Before the Great Fire we were relying on one pipe which quickly drained, led to the devastation. After that, a who's who of engineering companies were brought in to look at the water system, Mcaff and Eddy {sic} were part of the planning of the supply system in Salem. Hasan and Sawyer {sic} as well. Our transmission system from treatment plant in Beverly is well maintained. 3 ways of getting water into Salem. Through Beverly, through Kernwood and then through North Street. We have a 10-million-gallon storage tank in Danvers and 5-million-gallon storage tank in Gallows Hill. No concerns about amount of water the city is going to get. We have not met our allotment for reservoir water from Wenham Lake. Plenty of water, to the benefit of the residents of Salem. Never been in a water restriction. Other areas start April 1st with water restrictions. Salem promotes conservation, we only pump from Ipswich River into our reservoirs in the winter from December to April and we store the water we need for the rest of the year. Depending on rainfall and how much is pumped from the Ipswich. Springtime we are at 98-99% capacity. End of year 80%. We manage it well.

Councillor Hapworth: I love that there is a water pipe museum. Councillor Hapworth recognizes Councillor Mcclain:

Councillor Mcclain: Thank you Dave Knowlton. I want to ask about the expected rate of failure for water system, knowing numbers have come down over time. How much do you expect to break on a year-to-year basis?

DK: Roughly 50 breaks a year. Maybe 60 or even lower to 40. Hard to predict. Some firms use artificial intelligence to predict where most vulnerable spots are. We don't use that yet. We know our system and can respond.

Councillor Mcclain: Are there areas or sections of the system that are currently listed as priorities for next round of CIP work?

DK: Horton St. and Ward 5 section on Broadway.

Councillor Mcclain: I want to ask about the impact of development. The Moone Road area. There has been some additional housing developed at the top of that hill. I wonder if any of your current monitoring efforts have looked at the impact of development on water pressure or if you have seen any difference in the mains prior to and after development.

DK: when developments come in, they do fire hydrant flow tests on our mains, will tell static pressure. Every development does that first. They tell us that the main they want to connect to has the pressure the development needs. We try and catch these things beforehand. If there are deficiencies, we ask the developer to make improvements, larger pipe, a different section, to rectify and provide minimum standard we want to provide. Mooney area has a high pressure station that pressurizes everything to Lynn line. It is important, we monitor that pump station, which provides the pressure for that area. Typically, it is in the high range (80 psi). Throughout the city, the rest of the city depends on the Gallows Hill tank, closer to the tank the pressure would be lower. Higher elevation differences get higher pressure (closer to the coast). Normal psi can be 40-80+.

Councillor Mcclain: do you have a sense of which portions of the system are past their expected life range?

DK: The booster station on Highland Ave. needs replacement. Monitored daily. Will need to be addressed in the next ten years. Main pump station at the water board, which treats the water and puts it into a common clear well, and both cities pump from that. Constantly monitoring that and replacing pumps and generators and standby systems to make sure it is reliable. Storage systems are monitored. We don't anticipate any outages more than the 3 days, continuous leak detection in the system. Monitoring the system, seeing how it is acting. Adding lining helps the flow of water going through the pipes. Daily monitoring is essential.

Councillor Hapworth recognizes Councillor Varela

Councillor Varela: When you replace the mains what do you replace with?

DK: No more cast iron, the leaded joints don't have much movement to them. We do replace with ductile iron, a much better pipe. Some places we use plastic pipe (Bridge St along North River due to tidal influence). Ground water rises with tides. We are selective with that because it is more expensive.

Councillor Varela: Since we have harder water, with the replacement of lines with non-cast-iron materials, do you feel like the new technology we are using we won't affect water quality?

DK: we usually get 50 years with the pipes we replace. Water boards are careful about the chemistry of the water. There is a capital upgrade to upgrade the treatment plant.

Councillor Hapworth recognizes Councillor Morsillo

Councillor Morsillo: My home got a notice about a drip and was picked up by the city based systems. I want to talk about the notification system used for the residents. You do a great job and communicating when there is a water break in a ward and getting info out to constituents, and the estimated time for repair. Complaints are usually when break happens overnight of early morning hours or on a weekend. Does someone have to manually go in and send phone calls? Or is there a plan to make it more automated to set up zones?

DK:The code red is a pretty sophisticated system. The city-wide messages are much easier. With the water break we want to be specific, not panic everyone. Not as easy as creating zones. We try to be specific and anticipate where the brown water is going to go. The code red system does allow to put a circle around affected area. We do our best to have people in the office when we have issues, sometimes overnight and weekend can be an issue. Similar to when we have snow emergencies. We like to have someone in the office to take calls. After hours, call non-emergency PD line and Ray Jodoin or DK will get notified for response.

Councillor Morsillo: It is hard to figure out when the best time is to send the call. But also, better to have the focus on fixing the pipe. Didn't know if there was a better way to automate the system to help.

DK: Previously relying on Ellen Talkowsky to do the calls, but transitioned to doing the calls at DPW and getting better at it. Always things we can do to improve.

Councillor Hapworth recognizes Councillor Watson-felt

Councillor Watson-Felt: Is there more public awareness with what the notification process is during off hours? Is it posted online to call non-emergency line? Maybe we can go broader with that information?

DK: We can give that a larger presence on the website.

Councillor Hapworth: I want to thank Dave, he has been very informative. This has been a topic for a long time. I will take a first motion, could be to discharge this from committee.

Councillor Watston-Felt makes motion to discharge from committee; seconded by Councillor Cohen.

Councillor Watson-Felt: yes

Councillor Mcclain: yes

Councillor Varela: yes

Councillor Cohen: yes

Councillor Hapworth: 5 voting; 5 in affirmative. I will take one more motion.

Councillor Varela motions to adjourn, and all in favor.

The meeting adjourned at __7:28_____P.M.

_____

(Chairperson)