

**Minutes of Regular Meeting  
Select Board  
Thursday, February 16, 2023  
Remote Online Meeting (Zoom 862 3690 2995)  
Called to Order at 7:00 p.m.**

Remotely participating were Board members, Chair Christopher Houston, Harvey Boshart and Laurie Bent. Also remotely present were Town Manager Leon A. Gaumond, Jr., Assistant Town Manager/Human Resources Director Lisa Yanakakis, Assistant to Town Manager, Michelle LeBlanc, DPW Director Tom Cullen, Finance Director Susan Kelley, Robert Williamson & Amy Coppers from Wright-Pierce Engineers and other residents & employees of the Town of Weston.

Mr. Houston called the remote meeting to order and read the following:  
*Chapter 107 of the Acts of 2022, "An Act Relative to Extending Certain State of Emergency Accommodations", authorizes municipal boards to hold fully remote or hybrid meetings through March of 2023. The law does not mandate or prohibit in-person meetings; instead, it allows the Town flexibility in that regard. As required, if a meeting is held fully remotely or as a hybrid meeting, adequate alternative access is provided through a video conferencing link included on the meeting agenda.*

The three members of the Select Board were introduced as present: Chair Christopher Houston, Harvey Boshart and Laurie Bent. This meeting is the first of three presentations regarding the water tank replacement project.

**Consent agenda**

**MOTION:** Ms. Bent moved the Consent Agenda as follows. 2<sup>nd</sup> by Mr. Boshart.

**Roll call vote:** Mr. Boshart, Ms. Bent and Mr. Houston voted in the affirmative. **Approved unanimously.**

Approve the Police Superior Officers Collective Bargaining Agreement (CBA)

**Presentation of Water Tank Proposal: Hydraulics**

Mr. Gaumond introduced Sel. Bent and the project engineers from Wright-Pierce who, along with the DPW staff in attendance, will lead the discussion. Sel. Bent spoke about the shortcomings of the Weston water system and introduced the topic of this discussion, which is the hydraulics of the water system and why it needs to be updated. Two additional forums have been scheduled. One will be held on March 21st to talk about options for siting the proposed tanks and another one will be held on April 15th to discuss financial aspects of the water tank project. Of all the services that a town provides its residents, water is probably the most necessary and fundamental. Weston's water tanks nearly ran dry during the drought of 2016 when Paines Hill tank had 2 ½ feet of water left in the bottom of the tank, not enough to fight a fire if it had happened in that moment. That event triggered an in-depth analysis of our water system and eventually brought us to this conversation. Sel. Bent further stated that the Town tanks are old, at the end of their useful lives. There is no doubt that we need to replace them soon. Furthermore, the existing water system has serious shortcomings. Our existing tanks cannot provide adequate water service to the town. It is better to address these shortcomings in a timely manner than to wait for a failure. Since we know we need to build new tanks, we should build tanks that will meet the town's water needs in the foreseeable future. This is not a question of whether we should do it but when we should do it.

Rob Williamson and Amy Coppers from Wright-Pierce began their discussion. Mr. Williamson is a senior project manager with Wright Pierce since 2006, having participated in many of the water system improvement projects in Weston that have been undertaken since then. Amy Coppers is the lead project engineer for the project, and she will explain the operation of municipal water systems, and then will discuss the current operation of Weston's water system.

Mr. Williamson began by presenting an overview of Weston's systems. Water for the system is obtained from the MWRA (Massachusetts Water Resource Authority) water system, coming in from the south of Town. From there it is pumped by the Wellesley Street pump station into the distribution piping network, filling the water tanks. In addition to the Wellesley Street booster pump station, there is also a very small pump station, the Black Oak booster pump station, that serves a small neighborhood on the western side of the community. There are about 102 miles of piping within the system. The pipes range in size from six inches to 20 inches in diameter. Pressures throughout the system range from below 35 to 110 pounds per square inch (PSI). Wright-Pierce completed a water system master plan several years ago, and the Weston system is generally well-networked and hydraulically adequate despite having some undersized piping—a condition that is not unusual in a water system. However, that smaller piping creates high velocities in the system, which increases friction within the pipe network. That friction causes imbalances in the water levels between the tanks and also increases the horsepower requirements for the pump station at Wellesley Street to be able to push water into the system.

Mr. Williamson explained that the system has three water storage tanks: Paines Hill, Cat Rock, and Doublet Hill. The Paines Hill tank is a concrete storage tank and serves as the controlling tank in the system; water levels in this tank control the start and stop operation of the pumps in the Wellesley Street pump station. When water levels drop, it triggers the pumps to kick on and when it fills to a certain level, it triggers the pumps to shut down. Paines Hill tank is an older prestressed concrete tank design. It is 70 years old and contains about a million gallons. The Cat Rock tank, 77 years old and a welded steel tank, contains about 850,000 gallons. The Doublet Hill tank, 92 years old and a riveted steel tank, contains about 780,000 gallons. The total volume of storage contained in these three tanks is 2.53 million gallons. However, the amount of volume that is physically usable for the water system, called active volume or active storage, is essentially zero, because homes have been constructed at elevations too close to the bottom of the tanks. Weston needs 2.5 million gallons of additional storage that would be designed to be completely active storage. The current piping network serves about 95% of the population through about 3600 service connections. The average daily demands of the system, which is equal to the total yearly use divided by 365, is approximately 1.85 million gallons per day and the maximum day demand, which is the highest observed demand day in any one year, has been 5.45 million gallons a day.

Ms. Coppers reviewed the components of a municipal water system. A water system includes four main components: the source of water supply in Weston (the MWRA), the pump stations that are used to move water into the system, elevated water storage tanks, and finally the network of pipes, valves, and hydrants that bring water to homes. Ideally, water storage should be at a high enough elevation that water flows by gravity into homes and fire hydrants. The proper pressure standard is established as 35 PSI (Pounds per Square Inch), which equates to 81 feet in height. Weston needs active storage at that elevation in order to provide that minimum standard of pressure to homes during normal situations. As water is pumped to a sufficient elevation, it is stored, and then it flows by gravity in an acceptable operating band to provide adequate pressure. Weston should have water stored at an elevation high enough to serve the community by gravity.

The four components of a water system (supply, pumping systems, piping network, and water storage) must all work together in a well-functioning system. Regarding supply, Ms. Coppers stated that the optimal design should exceed or be equal to the projected average day demand. It should meet levels established by MassDEP and national standards. Weston is currently meeting those standards. Pumping systems should exceed or be equal to projected maximum day demands according to established MassDEP and national standards. Weston is currently meeting the Massachusetts standard with its Wellesley Street booster station. However, if Weston were to increase the elevation of its water storage tanks, that pumping equipment would need to be replaced in order to have the capacity to boost water to a higher elevation. The Town will also need its piping network to be sized to reduce friction. Regarding water storage, the design should include sufficient volume to deal with peak hour demand, firefighting, and emergencies. Peak hour demand is a time period during the day, and it occurs daily, at a time when everybody is using water at the same time. That tends to happen in the morning when people are getting ready for work or school. Peak hour demand is when high water flows are needed; to meet this demand the Town needs to have adequate active storage. It is preferable to keep water in storage as opposed to trying to meet those peak demands using pumps.

Mr. Williamson mentioned that there should be roughly 3500 gallons per minute of water flow for fire protection according to the Insurance Services Office which rates and ranks communities by their fire protection capabilities. Ms. Coppers reiterated the need for a total of 2.5 million gallons of active storage at an elevation sufficient to provide the minimum recommended pressure, 35 PSI, which equates to 81 feet above the current service area. Wright-Pierce recommends that Weston's water storage tanks be raised approximately 40 feet above where they are today. This additional elevation will create active storage so the Town will no longer have to run the pumps nonstop during days of extreme or above-normal demand.

Mr. Williamson recommends a modern prestressed concrete storage tank for Paines Hill. This type of tank has the longest service life of any of the different tanks and is highly recommended. For Cat Rock and Doublet Hill, the style of tank has yet to be determined. As part of its analysis Wright-Pierce is doing a water quality evaluation and a water age analysis to determine the appropriate volumes that can be supported without creating water quality issues. If those analyses determine that dead storage should be reduced, that will influence Wright-Pierce's recommendation as to tank type. Regarding tank height, the tank elevations need to be raised to add active storage and meet state standards. Wright-Pierce is recommending that an additional 40 feet of height, at minimum, be added to provide the proper service in Weston. Furthermore, the tanks have served their useful life and should be replaced. The combined age of all three tanks is nearly 240 years old with an average age of 80 years old. Tanks generally are designed to serve for 50 to 75 years. Also, as discussed, the current tanks and their elevations leave zero capacity for fire protection or peak demand buffering. Neither water conservation measures nor additional pumping will address the concerns of tank age or the hydraulic requirements that are needed to provide proper service.

Ms. Bent opened the meeting up to discussion and questions.

Mr. Pastor asked about the time that would be needed to complete the project. Mr. Williamson stated that the conservative estimate might be several years, or perhaps shorter than that. The construction process varies depending on what time of year the project is actually built. Generally contractors will not construct tanks during the winter months. A project of this nature may take upwards of a year or perhaps two years to construct fully, depending on the style of the tank. The upgrade of the pump station could be done concurrently and could be done probably within a year. Mr. Williamson estimated that the process would take at least three years before the Town realizes the benefit of new tanks.

Mr. Stelzer from FinCom asked what would occur in case of dire emergency. Mr. Gaumont highlighted emergency relief options in case of disaster and Mr. Williamson mentioned that there are other emergency efforts which could be undertaken in the short term, but which would not be ideal in the long term. Ms. Coppers emphasized that the current tanks are old but have been well-maintained and are not in imminent danger of collapse.

Mr. Polando thanked the team for a good presentation and stated that he recognizes the need to replace the old tanks and make upgrades to the system. He believes there is a better and less expensive way to do it than building new tanks. He questioned the need to add 2.5 million gallons of capacity. He also suggested that the proposed redundant line from the MWRA to the Wellesley Street pump station might eliminate the emergency water requirement. Ms. Coppers responded that the redundant main brings water into Weston but doesn't bring the water to homes. The Town would still need to boost that water via the Wellesley Street pump station to then bring that water into the community. Mr. Williamson added that adequate storage volume is a number that the community has to be comfortable with and is unrelated to the redundant line. Mr. Polando disagreed and pointed to Section 5-22 in Wright-Pierce's water master plan report. Mr. Williamson reiterated that the redundant main will not solve the problem of insufficient pressure and insufficient volume. Ms. Bent mentioned that the Town is working with MWRA and the town of Wellesley to pursue the redundant pipe to MWRA as well as looking to increase active water storage.

Mr. Polando asked if the higher tanks would increase the pressure. Mr. Williamson responded that higher tanks will provide for higher pressure and more active volume.

Ms. Giske asked about pressure at the hydrants and if any of the new fire suppression systems in some of our new buildings such as WAIC, JST would need to be modified. She also asked about the manner in which these tanks would be constructed. Mr. Williamson responded that the concrete tanks are constructed on-site, and steel tanks come in in panels and then are welded in place.

Mr. Aydelotte asked if the proposed affordable housing units have been taken into consideration in the calculations for storage. Mr. Williamson responded that the water master plan took some factors into consideration but that adding a few hundred people is not significant enough to affect the design.

Mr. Martin thanked the Town for a good presentation. He asked about using alternative flow control mechanisms in the case of fire and emergency such as ground-based valving systems to essentially throttle back the flow in certain areas to provide water for an emergency in another area. Ms. Coppers responded that it would not be wise to throttle back an area, because you could cause catastrophic failure for those areas. Mr. Williamson felt such an action would not be permitted.

Mr. Sallay from FinCom thanked the team for the presentation. He questioned the need to replace the tanks which in his view was prompted by excessive water usage in Weston. He stressed water conservation as a way to avoid replacing the water tanks. Mr. Williamson said that conservation will not change the fact that the tanks are at too low an elevation. Conservation can reduce water use, but it cannot address the fact that the tanks are not at a sufficient elevation to properly serve the community. Conservation and water pressure are not related. Conservation may enable the Town to slightly reduce the diameter and volume needed in storage, but the Town would still need to raise the height of the stored water. Conservation has nothing to do with that needed elevation. Ms. Bent echoed these comments and highlighted the drought in 2016.

Ms. Nitsch identified herself as a civil engineer and commented that she appreciated the presentation. She stated the Town needs to replace the tanks and it would be irresponsible not to increase the heights. She asked about the timing of the project and when the tank construction would begin. Mr.

Williamson thought it might be possible to do two tanks at the same time. If they were done one at a time, you would be doing one project over two years and then you'd have to take another two years to do the next project. Ms. Nitsch requested an updated capital improvement plan timeline. She also mentioned that the Article 97 process may benefit from being worked on simultaneously.

Ms. Glynn of the Planning Board asked about the Article 97 process and whether full design work was needed first. Mr. Williamson plans to do the preliminary work to identify the size of the parcels needed. Further information about the access, maintenance and lay-down areas will be discussed more at the next forum. Ms. Coppers said that they will need a conceptual design for the Article 97 process.

Mr. MacDowell identified himself as an abutter to Paines Hill tank and asked about the height of that tank. Ms. Coppers mentioned that analysis showed that service to all the homes did not meet minimum standards. The Town needs to size these tanks to serve the community-at-large to the best degree possible, but homes have been built right at the base elevation of these tanks. Wright-Pierce needs to find the optimum height to satisfy the majority of the needs within the community while not raising them too high or increasing the volume too much.

Ms. Rohall identified herself as an abutter to the Doublet Hill Tank and pointed out that many people have booster pumps and that does not appear to be a problem. As a result she feels the tanks should not be raised. She opposed unlimited height restrictions for the tanks as was proposed at the previous town meeting. Ms. Coppers reiterated the desire to size these tanks at the optimum height, because making the tanks too tall can also cause problems. Too much water can mean that there is not enough turnover in the tanks which can adversely affect water quality.

Mr. Hill asked if there are plans for another booster pump for drought conditions. He also asked whether we can simply put a tank on MWRA land. Ms. Coppers cautioned against relying on mechanical systems to bring water into the community, and observed that the Town's existing piping system could not accommodate a system based on pumps. Mr. Williamson added that we do not want to design pumps for the heaviest demands in the system, i.e., the peak hourly demands, because the equipment and systems just get too large to put in place. Water storage is designed to provide that buffer during the times when the pumps can't meet normal high demands. As to whether or not the tank can be located on state property or MWRA property, Mr. Williamson thought it might be possible, but it would probably be very complex from a permitting perspective, and the elevations and proximity from Weston's system would need to be looked at.

Ms. Bent asked the other Select Board members if they had any comments or questions. Mr. Houston highlighted the question about the newly installed fire suppression systems in Town buildings and whether they would need to be upgraded or replaced. Mr. Polando identified himself as a fire protection engineer and stated that no changes to those systems would be needed.

Mr. Boshart asked if the water master plan needs to be updated before moving forward. Mr. Williamson said that they recommend master plans be updated every 10, sometimes even 20 years. Ms. Coppers added that the master plan assumed 5% growth over the next 20 years.

Mr. Polando reiterated his support for more pumps and for the installation of the redundant line from the MWRA. He also mentioned the ISO concerns on only two locations. He is also concerned that raising the height of the tanks will increase pressure on the piping. Ms. Coppers observed that the ISO testing was not done under peak conditions which would affect the pressure readings. Further, Mr. Williamson stated that the ISO testing is not done on all locations whereas hydraulic modeling is done on every location in Town. Mr. Polando offered his opinion that the Town could solve water

pressure issues by adding pumping stations to low water pressure areas. Mr. Williamson responded by explaining why booster pumps could not solve the Town's inadequate water pressure. He estimated that there are a dozen or more low pressure areas in Weston. Under a pumping design, each of those areas would require a separate booster pump station, as well as piping and valve modifications to each of those separate zones. Furthermore, pumping would entail additional maintenance, electricity, and operational complexity. Wright-Pierce's job in designing municipal water systems is to keep communities out of the pumping business and the mechanical equipment business. With regard to Mr. Polando's question about water pressure, Mr. Williamson stated that pressure is something that is to be addressed. There are some areas in the community that have higher pressures currently. The town is not in default by having pressures over 80 PSI. Nonetheless, increasing pressures does increase leakage. Areas of the Town with excess pressures will need to be examined.

Mr. Stelzer from FinCom thanked the participants in the presentation. He asked what would need to happen if something changed dramatically in the town after the upgrades were made. Mr. Williamson mentioned a community in Massachusetts where zoning laws changed resulting in industrial and commercial enterprises moving in at a high rate. This is a rare situation in his opinion and probably not likely to happen in Weston. Mr. Stelzer asked if the proposal is a high-end fix or a low-end fix or someplace in the middle. Mr. Williamson felt it was somewhere between a 5 and 7 on a 10-point scale.

Mr. Martin asked about the risk of mechanical failure in these designs and the rate of failure. Mr. Williamson responded that the mechanical devices are designed for the life of a pump station, or roughly 20 years. Most pump stations consist of at least three pumps. Usually one is a normal duty pump that satisfies average demands. When the demands get very high, a second pump kicks on. And those two pumps provide all the service to the system under all of the expected hydraulic conditions that it can encounter. But there's one pump off to the side so that if one of the other two fail, you have another one that immediately can be put into service so that one is always available to provide that design condition of service at all times. However he had no information on the rate of pump failure.

Mr. Aydelotte asked the engineers to confirm that there would be adequate extra capacity in the system to handle a 10% increase in the housing stock because of the current state regulations that currently exist or are about to be imposed.

Mr. Gaumond and Sel. Bent thanked all the attendees for coming to the meeting and reminded the attendees that the next forum would be held on March 20<sup>th</sup> on tank siting.

Motion to adjourn at 9:11 p.m. by Mr. Houston, seconded by Mr. Boshart.

**Roll call vote:** Mr. Boshart, Ms. Bent and Mr. Houston voted in the affirmative. **Approved unanimously.**

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Laurie Bent  
Clerk

*Note: A copy of all documents, explanatory material, and exhibits presented to and used by the Select Board as part of this meeting are attached to the approved minutes*