

HARBOR PLUMBING OVERVIEW AND IMPROVEMENT PLAN:

SUMMARY:

The overall condition of our plumbing systems is functional but with a number of immediate and future concerns. The areas of main concern are regarding the thousands of feet of exposed PVC pipes that line the underside of the main seawall to the south side of the Harbor and under each dock that branches off of that main line. For more than ten years, these lines and couplings have been subject to a number of environmental elements that increases the deterioration exponentially. With this amount of time, the UV, salt, heat, cold, freezing cold and usage have and will continue to stress all of these lines to a point that their lifespan is reduced greatly. Due to this exposure and the large number of repairs that have been made, the integrity of the entire system needs proper attention to ensure correct functionality and stability. At present, the main line that spans the length of the sea wall from the parking area to the beginning of Dock 5 is of most concern.

Of all of the environmental elements that cause damage, freezing temperatures are the absolute worst. Even with the standard precautions that we take, it is typically inevitable that the system will have damage at some location when we experience freezing temps for an extended period. For example, for the snow and extreme cold we experienced January 19-24, 2025, we shut down the water at the main and drained the entire system of exposed lines over the water. We leave all drain valves and every spigot open at every single power pedestal when we do this to relieve pressure in the line. Once the freezing event has passed we very slowly recharge the system while all of these valves remain open and methodically and strategically close them to mitigate and relieve as much pressure as possible. Yet, even with these efforts, we had five failures. Two of these failures were in the main line between Dock 3 and 4. As a matter of fact, it usually happens to a straight coupling, a 45 or a 90 degree elbow coupling. Thanks to the large number of repairs we've made over the years, we now have way too many of these couplings in this main which contributes to its potential for failure over and over again. Each time we take out a section of pipe, we have to replace it with two additional couplings which means two more areas for much higher potential for failure. Each repair, though it solves the problem at the time, only contributes to more chances of it happening again. With that said, there is no other way to provide water to each slip without all of these exposed lines and couplings being in place. However, there is a way to improve these systems and make them more substantial for handling the exposure to all the elements mentioned above.

Everything being summarized here has been, somewhat, addressed in the Harbor Evaluation Report performed by Moffet and Nichol. In this report, M&N gave their recommendations for immediate, short, intermediate and long-term maintenance and also projected life spans of the majority of harbor systems, equipment and infrastructure. One of those areas noted was, of course, the plumbing. Some of these repairs and upgrades that I am proposing addresses the

immediate and long-term concerns pointed out in the M&N report and will re-establish a solid foundation for the main water line supplying each of the five docks.

Current Main Line Design and Specs:

As things stand, or in this case, hang, the main line is 1000 feet and starts as a 4 inch PVC pipe and reduces down to a 2 inch out at Dock 5. It is designed this way to increase pressure as the water travels away from the source. Along this span it makes a 45 degree down turn at each dock to traverse under that dock and then makes a 45 degree up turn on the other side back to its original track. There are no drains or shut-off valves anywhere along this path. So, in order to fix any section of this main, we have to shut down the entire line. All of this PVC is currently schedule 40 and each section has been repaired numerous times. There are certain areas in which we were able to use schedule 80, which is a more robust PVC, and have had excellent results.

Proposed Solution:

It will be necessary to address the concerns and issues that we are experiencing now and those noted within the M&F evaluation. I feel the time to address the main line is now due to its continuing failures and while there is an available funding source for the project. There is currently \$21,000 remaining in the open Fuel Dock Project Grant with MDMR Tidelands. According to Sonja Slater at DMR, we would simply need to amend this application to include these repairs and submit it for Director Spraggins approval.

Harbor Staff and Myself have compiled an initial design and material list that not only replaces the entire main with schedule 80 PVC, but also places heavy duty ball shut-off valves and drains in strategic locations. This would allow us to better drain the system and close valves to isolate sections in order to do repairs with out shutting down the entire system at the main.

We have 2 quotes for the project at this time and both quotes include labor, materials and warranty for workmanship. Bayland has completed work for us in the past and has done very good work. I recommend we select Bayland to complete this project as well.

Bayland Plumbing Services - \$16,275.00

Freeman Plumbing Services - \$18,346.00