WEIR RIVER WATER SYSTEM

WATER LEAKS & REPAIRS IN OUR SYSTEM

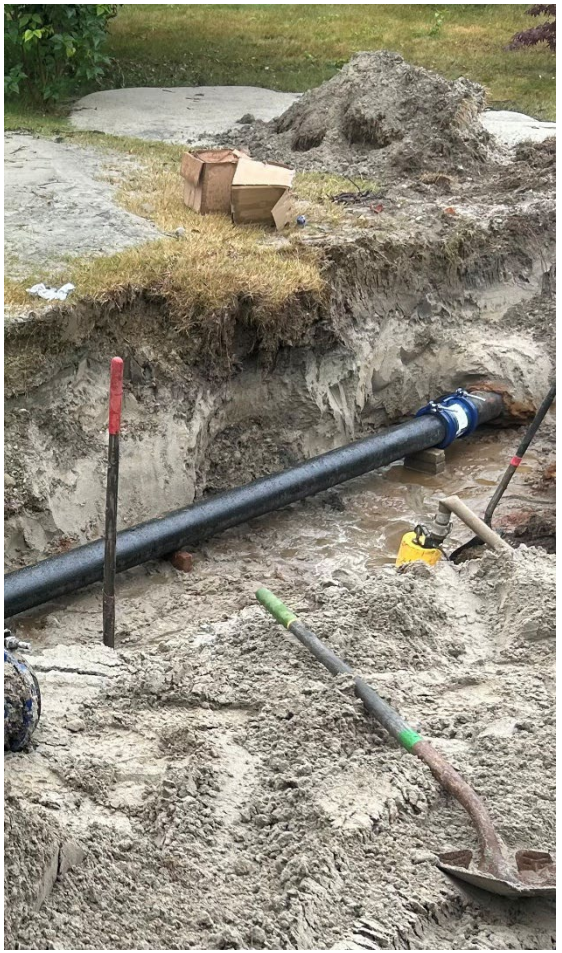
POTENTIAL CAUSES & PERCEPTIONS

TYPES OF LEAKS

HISTORY

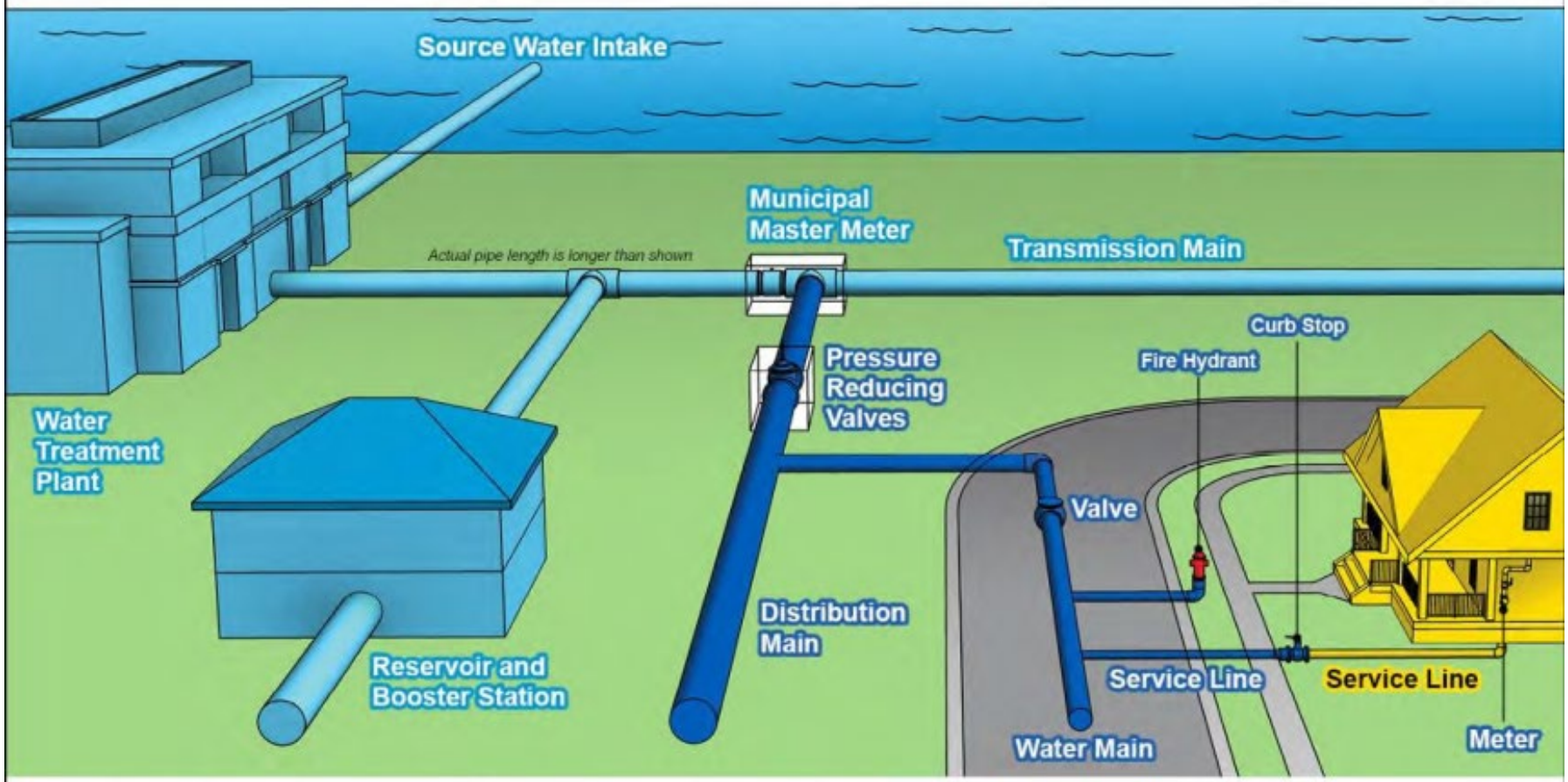
FUTURE PLANS

JULY 2025



WEIR RIVER WATER SYSTEM

What makes up our water system?

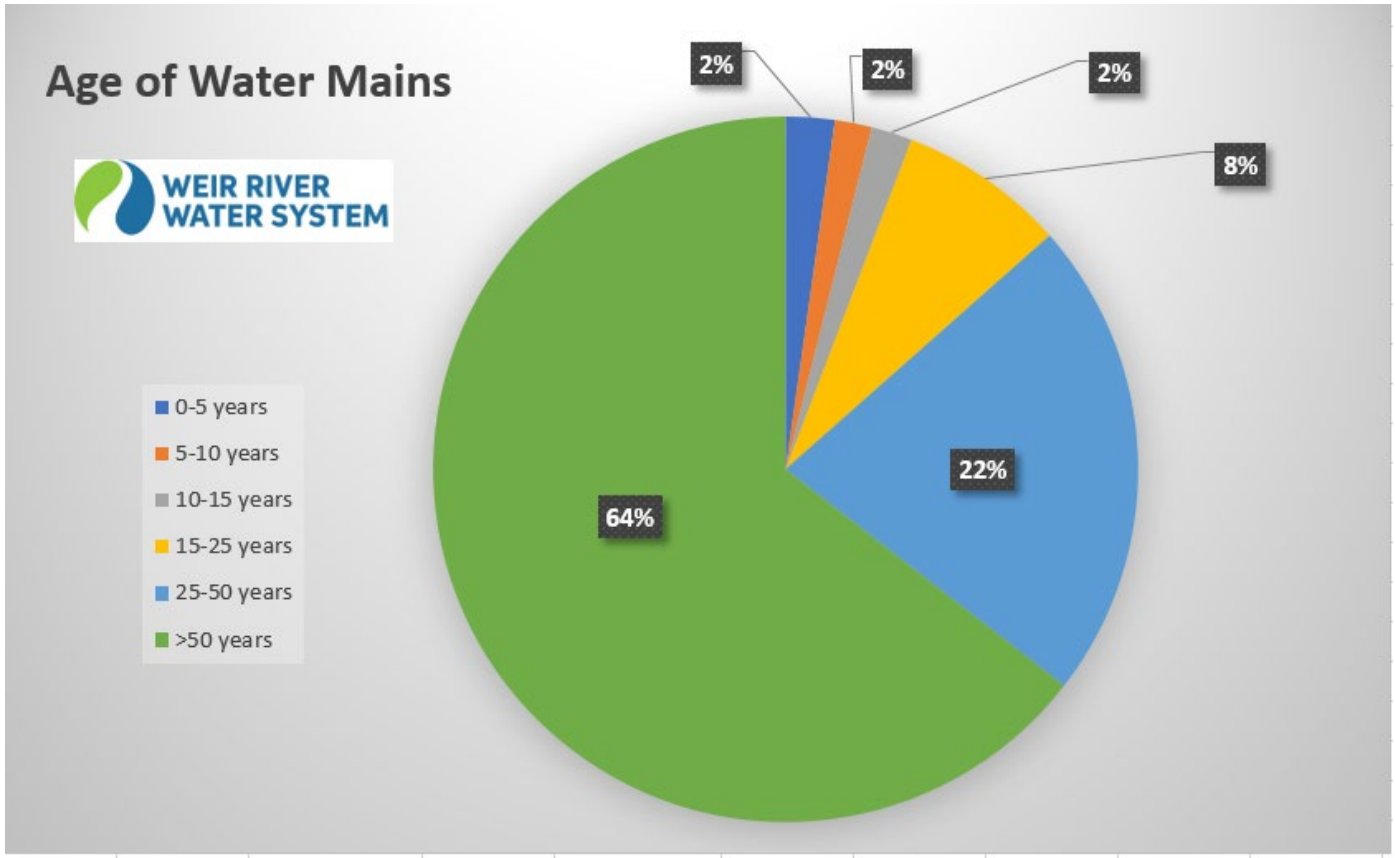


WEIR RIVER WATER SYSTEM

Potential Causes / Perceptions

Failures in the distribution system, water mains, services, hydrants and/or gate valves, are part of operating a water system. The WRWS maintains over 200 miles of pipeline, 12,500 service connections, 1,250 fire hydrant and over 3,000 gate valves.

Potential Causes / Perceptions

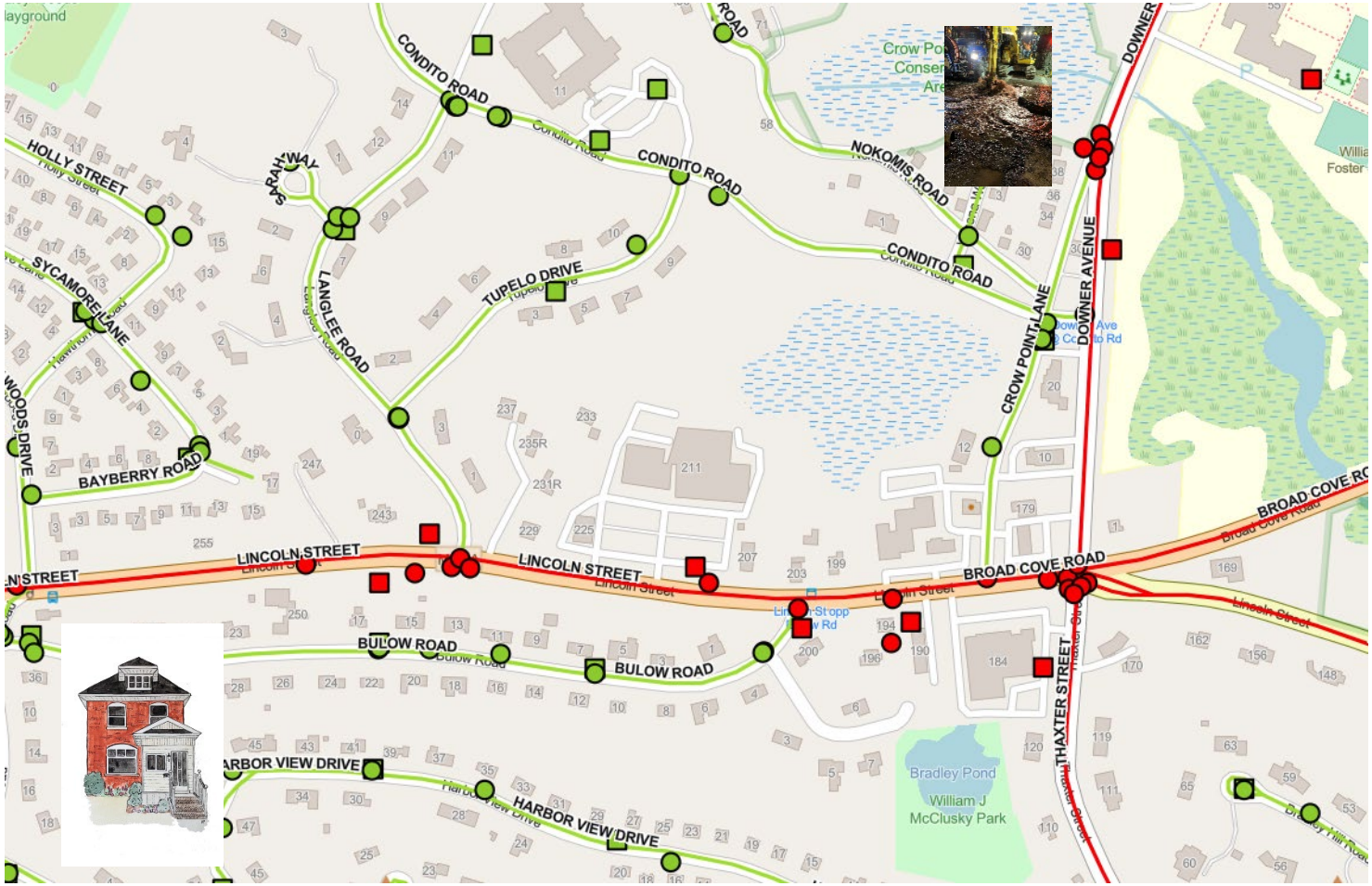


Cities and towns across America are faced with infrastructure challenges due to age, material type, and in some areas weather. The range of annual water main breaks in the United States per 100 miles of pipe is 11-27. In New England the number is higher in that range, as climate changes have an impact on our underground assets.

WEIR RIVER WATER SYSTEM

Potential Causes / Perceptions

Discolored water is often a negative result of water main breaks, service leaks and, on occasion planed system maintenance. Ongoing, effective system maintenance is key in reducing the extent of discolored water during breaks and leaks.



Potential Causes / Perceptions

Our improved communications protocol is contributing to the perception that the number of water main breaks has increased over time. Utilizing our notify system, Facebook, websites, other media outlets and additional social media platforms, is getting the needed information to our customers immediately, but also reaching customers that are not in the effected break area. In the past, these customer may have never been aware of these situations.

Potential Causes / Perceptions

Changes in Temperature

Thermal Expansion

Freezing and Thawing

Ground Movement / Settling

Vibration from Construction

Soil Erosion / Destabilization

System Age

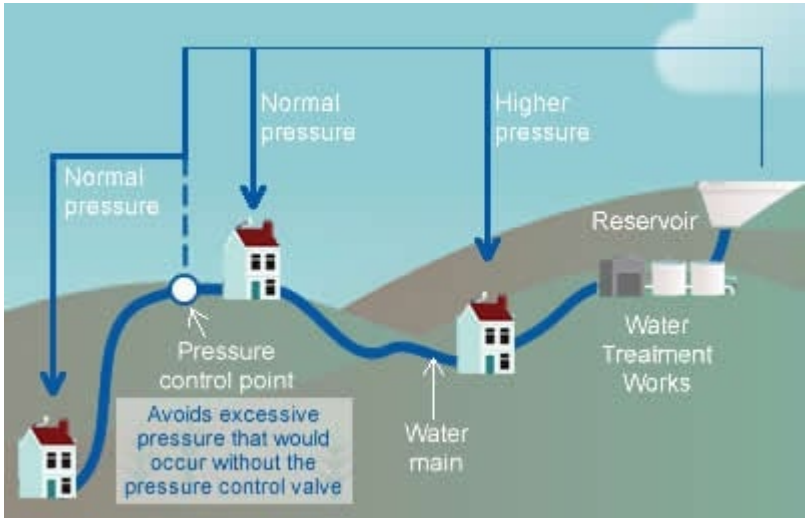
Pipe Material

Corrosion

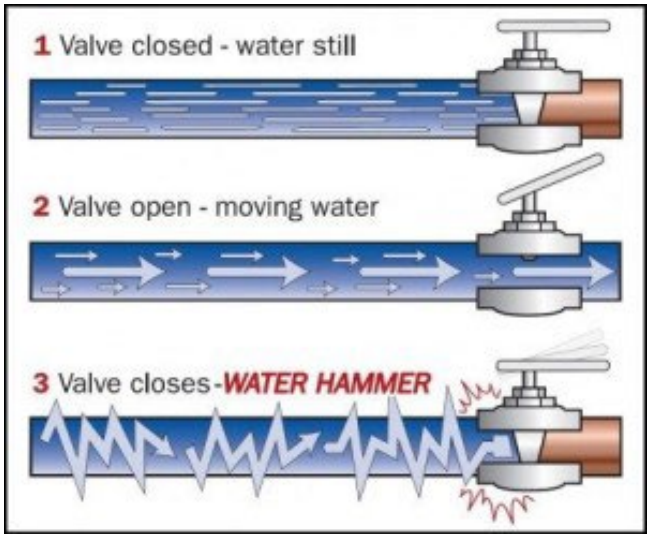
WEIR RIVER WATER SYSTEM

Potential Causes / Perceptions

Pressure Changes

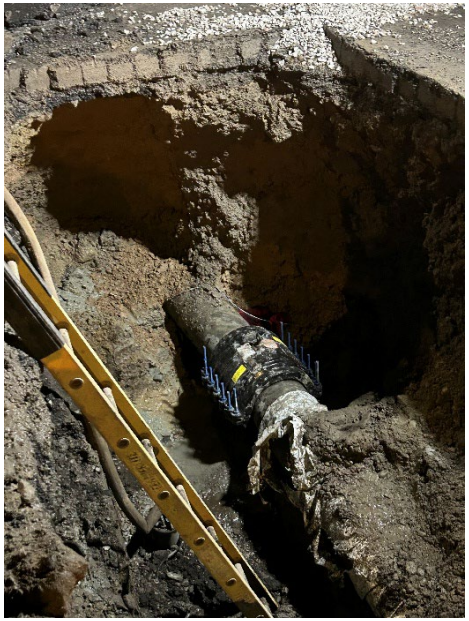


Water Hammer



High Water Demand

Types of Leaks



Water Mains

Water Services

Mains: These are the larger diameter pipes in our water system typically >2” or larger and are used as transmission lines to distribute water throughout the system and provide fire protection.

Services: These are typically smaller pipes in our system <= 2” and provide water to individual residences and businesses. Services can vary in relation to the size of the property being serviced, but typically are less than or equal to 2” in diameter.

WEIR RIVER WATER SYSTEM

Types of Leaks

Fire Hydrants

Gate Valves

Fire Hydrant: The main function is for fire protection but they are also used for system maintenance such as flushing and bleeding off pressure and discolored water after a water leak and repair.

Gate Valves: These are used to control the flow of water throughout the system and isolate sections of the system during a water leak and repair.

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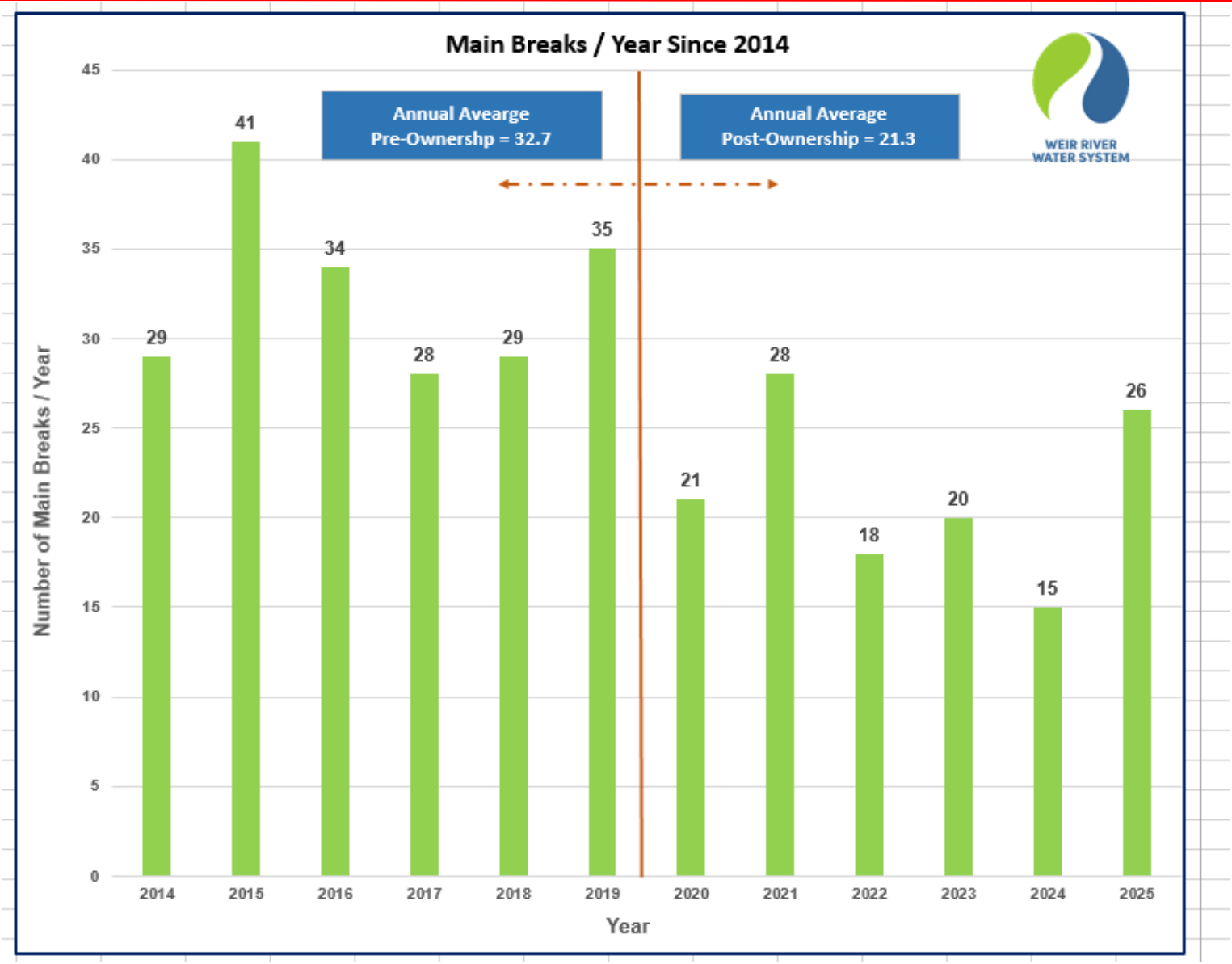
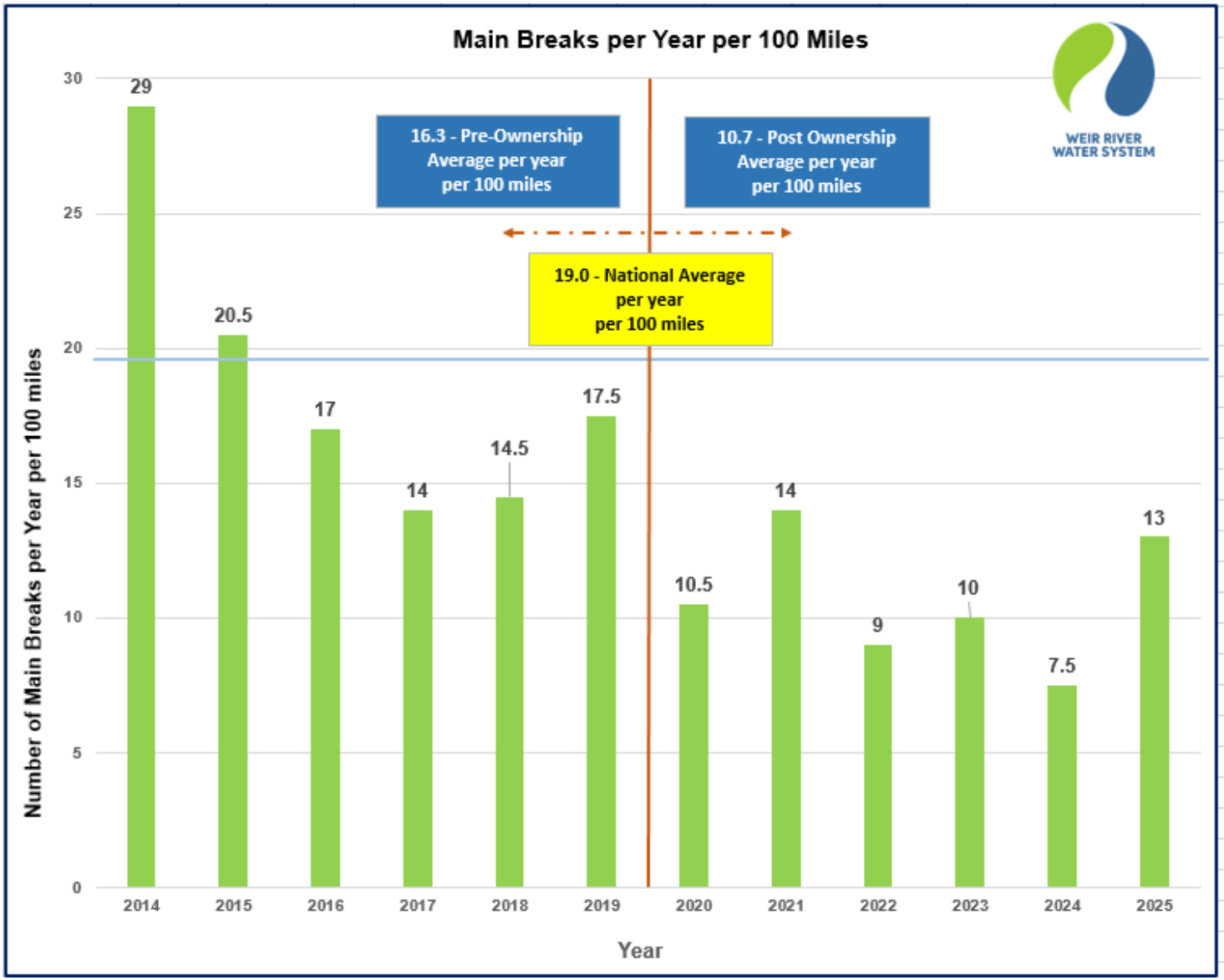
Main Breaks per Year Since 2014



Main Breaks per Year per 100 Miles

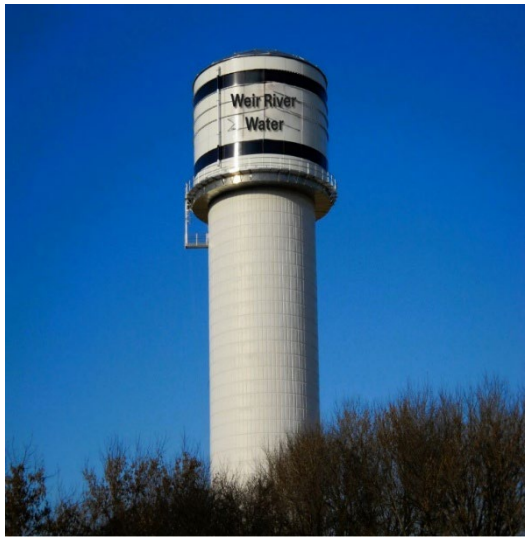


WEIR RIVER WATER SYSTEM

Future Plans / Improvements

Capital Plan Main Replacement Program / Road Reconstruction

During the past four years we have completed capital work that included replacing 23,500 LF of water main, 12,745 LF which were recommendations from our master plan, added 6,000 LF to create loops and additional service, installed 84 additional hydrants, and added 18 new gate valves.



New Storage Tank Strawberry Hill

Pressure Stabilization

Additional Storage for High Demand

Future Plans / Improvements

Route 3A Rotary / Summer St Project
9,650 LF 12 Ductile Iron Water Main
October 2025 - Design / Permitting
December 2025 – Bidding / Award
January 2026 – Pre Construction Meetings
February / March 2026 – Construction

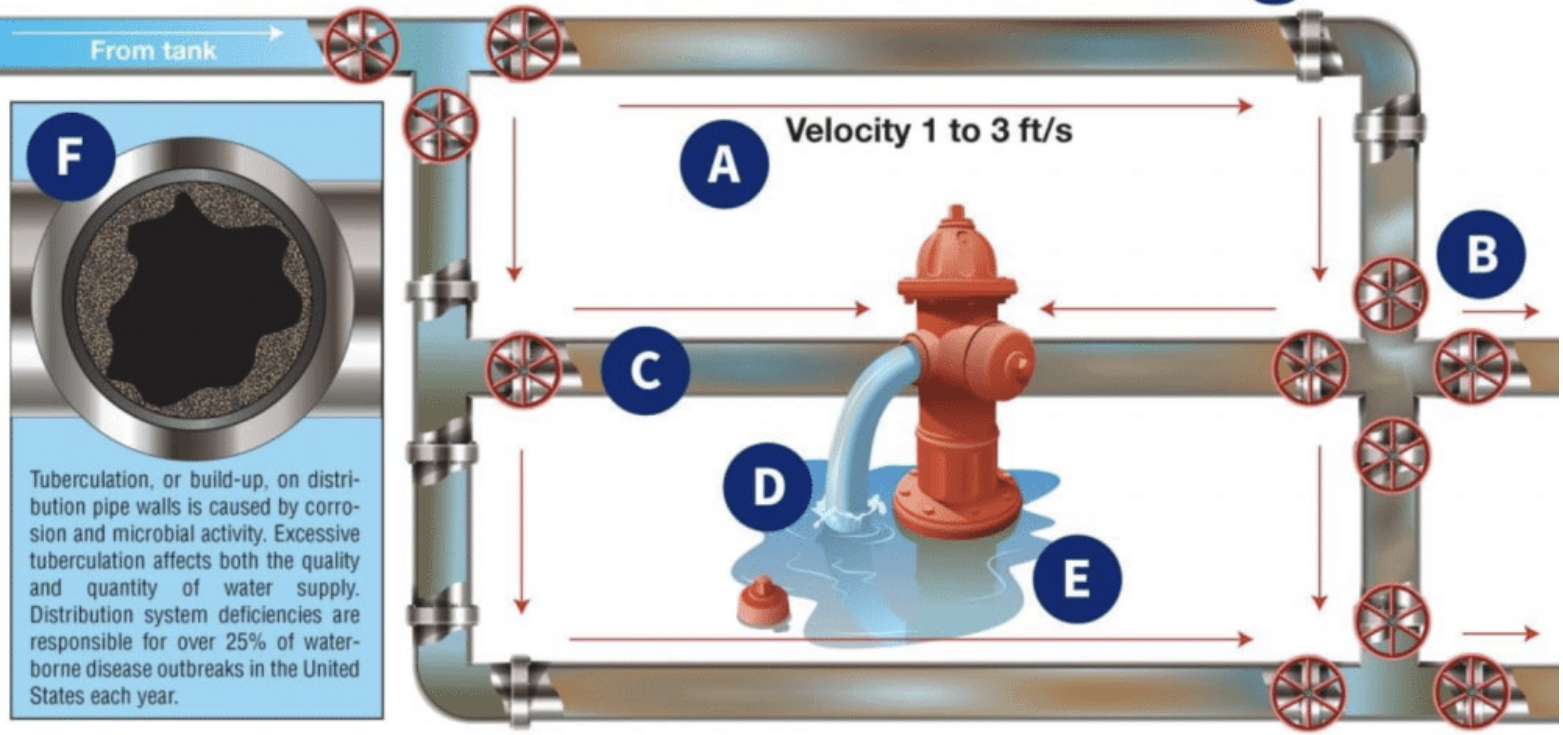
Manomet Ave / Samoset Ave
11,200 LF 8” Ductile Iron Water Main
June 2026 - Design / Permitting
August 2026 - Bidding / Award
September 2026 – Pre Construction Meetings
February / March 2027 – Construction

Main St
6000 LF 12” Ductile Iron Water Main
October 2026 – Design / Permitting

Project in in the beginning phases of discussion and may need to be done two phases dependent on other projects and funding.

Future Plans / Improvements

Conventional Flushing



Tuberculation, or build-up, on distribution pipe walls is caused by corrosion and microbial activity. Excessive tuberculation affects both the quality and quantity of water supply. Distribution system deficiencies are responsible for over 25% of waterborne disease outbreaks in the United States each year.

A Velocity of water is significantly higher in UDF than in traditional flushing, providing far better pipe scouring.

B Valves are opened and closed during UDF, enabling water systems to locate broken or closed valves and to learn critical information about the system. Exercising hydrants and valves in this way also prolongs their useful life.

C During conventional flushing, dirty water is recirculated throughout the system, whereas UDF forces water in one direction, from a clean source through a dirty pipe, providing for superior pipe wall cleaning.

D Sediment, corrosion, and biofilm are forcefully flushed out during UDF, whereas they remain circulating in the system in conventional flushing.

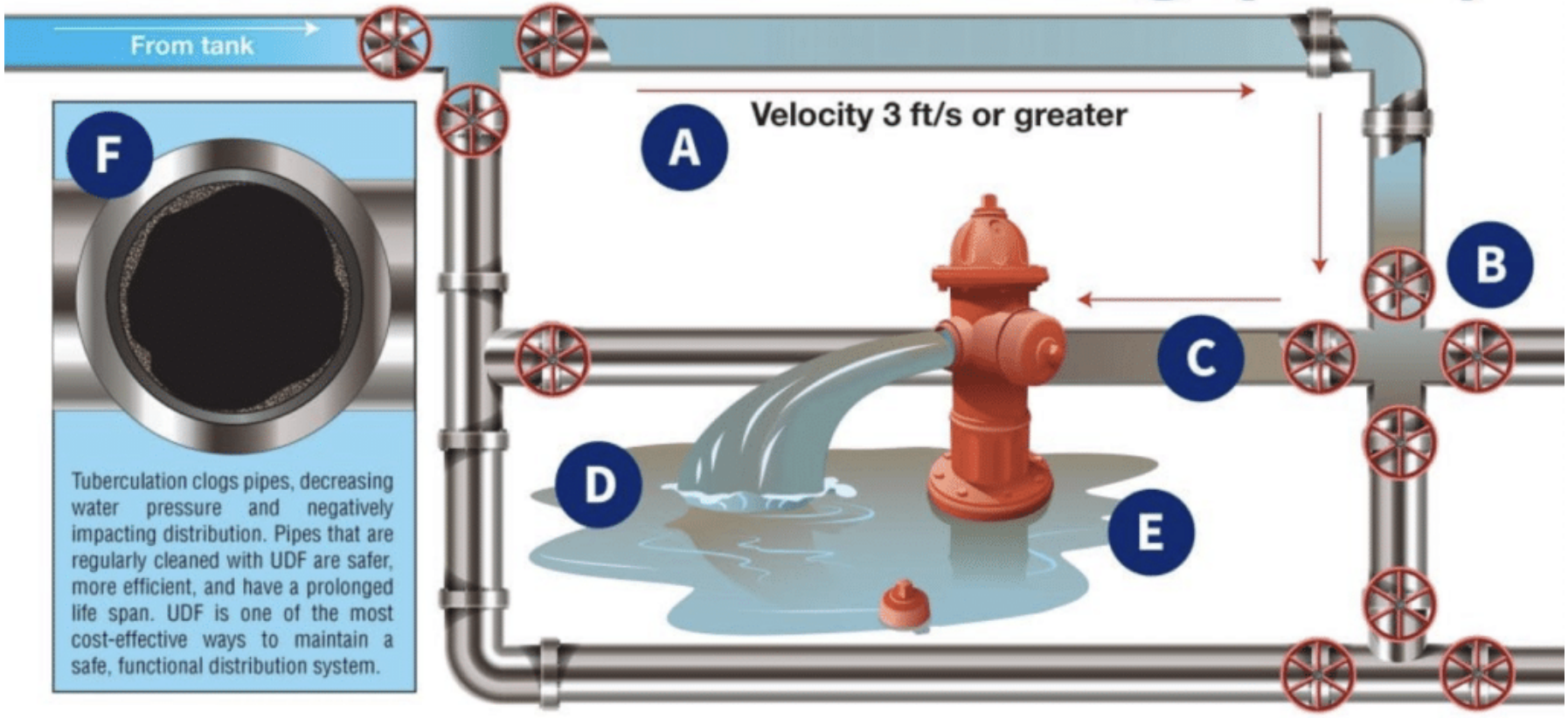
E UDF actually uses up to 40% less water than conventional flushing.

F Conventional flushing does not produce a high enough velocity to adequately scour pipe walls, whereas the increased velocity in UDF removes a significant amount of tuberculation from pipe walls. Regularly scheduled UDF is an invaluable part of a system's asset management program.

WEIR RIVER WATER SYSTEM

Future Plans / Improvements

Unidirectional Flushing (UDF)



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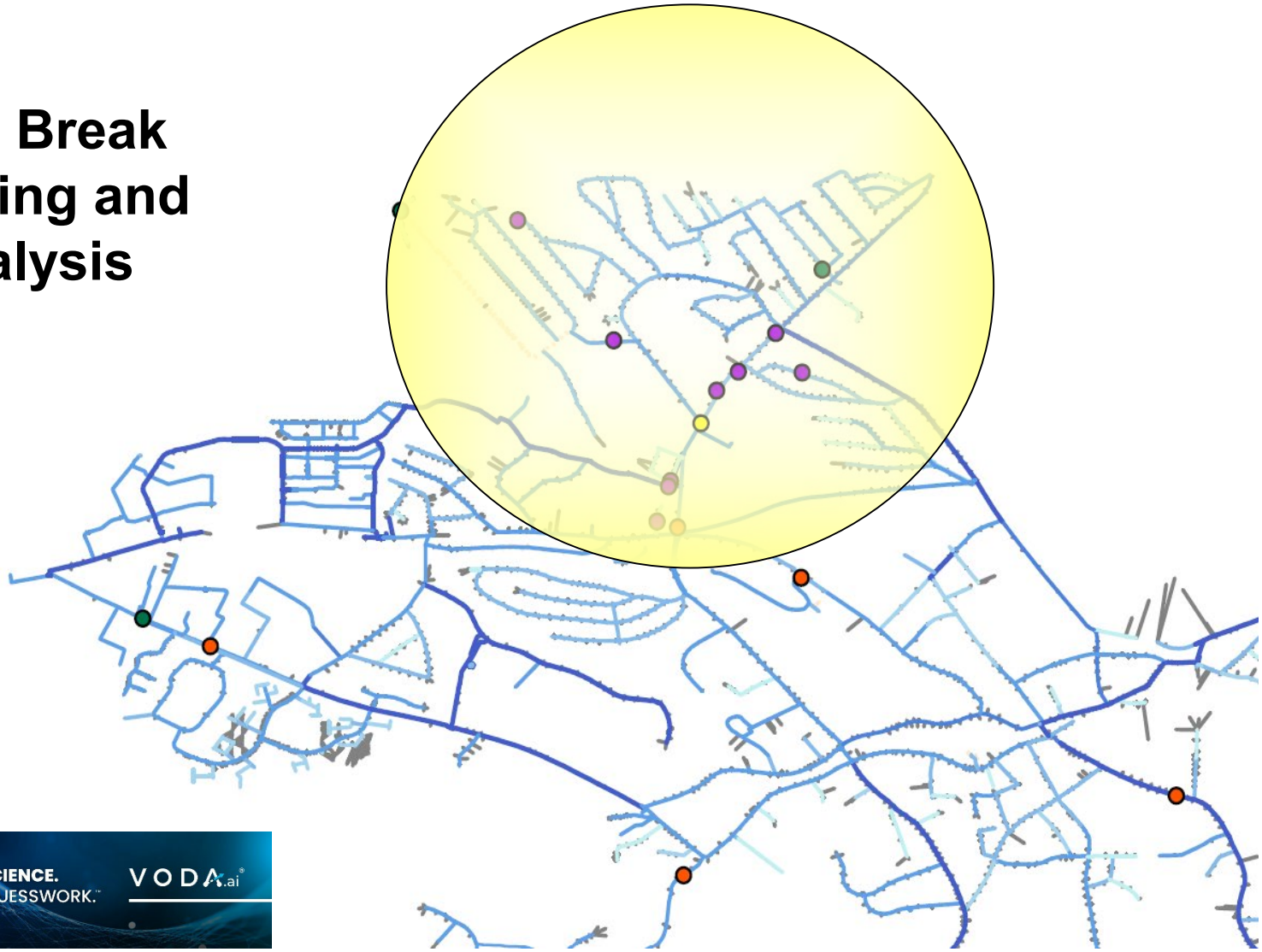
Future Plans / Improvements

Main Break Tracking and Analysis



Future Plans / Improvements

Pressure Data Loggers

Pressure Recording Vaults

Main Break Tracking and Analysis

Using our GIS system we will improve our monitoring of main break locations by adding loggers in the system. This will allow us to see “clusters” of breaks, and pressure abnormalities at a glance and then work with our consultants to prioritize replacement.

WEIR RIVER WATER SYSTEM

Future Plans / Improvements

Valve Inspection and Replacement Program

Properly operating gate valves are key in the distribution system. They are not only utilized in controlling water during an emergency, but key in the implementation of an Unidirectional Flushing Program.

Over the past several months we have focused on this program in preparation for the UDF, but have found several broken or inoperable valves. We will scheduling additional resources to get this completed.

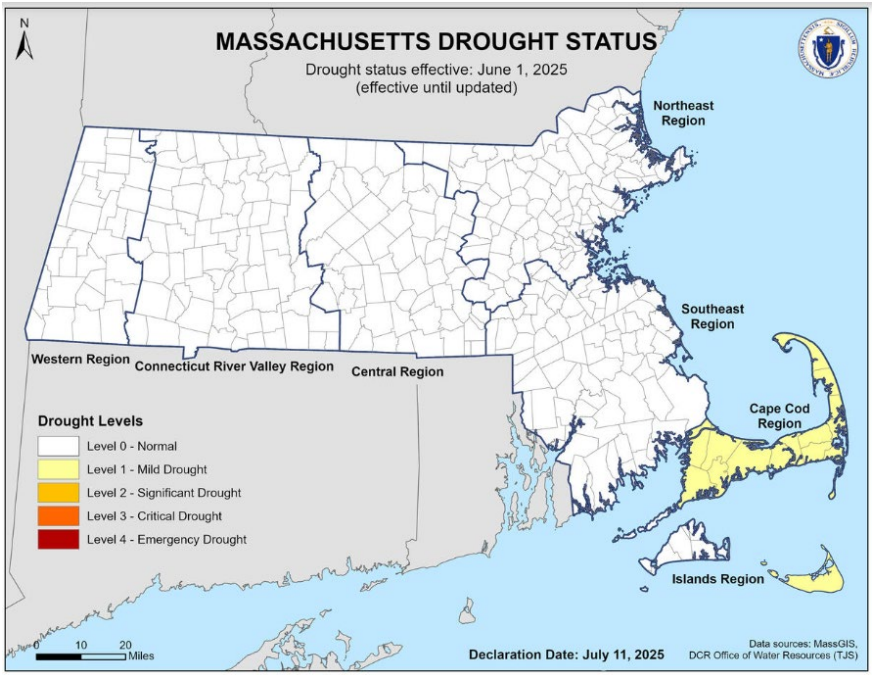
Distribution system gate valves are key to the systems hydraulics. Over the years the focus on these valves has not been a priority, Closed valves can have a negative impact on direction of flow, contributing to discolored water, and water hammer contributing to pipe failures. Our goal is to allocate additional resources to inspect and identify broken valves and repair and/or replace them.

WEIR RIVER WATER SYSTEM

Future Plans / Improvements

Drought Status / Conservation Measures

Our water sources and “capacity” are in very good shape. Several factors contribute to our decisions when determining what type of water conservation measures we implement. One factor is storage capacity, not overall system capacity. If residents to not follow our recommended and/or mandatory water conservation measures, it can make it difficult for our plant to recover tank elevations to ensure proper fire protection. In other words “we just can’t keep up”. Water storage tanks are not for lawn watering they are for fire protection



Our current “Water Conservation Restrictions” are being revised to match the states drought status. This new rule was implemented by the drinking water program for all registered public water suppliers. For example if the Southeast Region enters into a Level 2 – Significant Drought Statas, we are required to comply with the conservation efforts outlined by the state no matter our capacity or current local conditions.

Future Plans / Improvements

Conservation Measures - Drought Status

IF CUSTOMER COMPLY WITH OUR WATER CONSERVATION RESTRICTIONS PLAN, IN REGARDS TO ANNUAL RESTRICTIONS FROM APRIL 15 THROUGH OCTOBER 15, OUR SYSTEM CAN MAINTAIN TANKS LEVELS. TOO MANY RESIDENTS ARE WATERING EVERY DAY!

LEVEL 0 – NORMAL – NO RESTRICTIONS

LEVEL 1 – MILD DROUGHT

LEVEL 2 – SIGNIFICANT DROUGHT

LEVEL 3 – CRITICAL DROUGHT

LEVEL 4 – EMERGENCY DROUGHT

For a healthy lawn, you only need 1.0 to 1.5 inches per week, distributed over 2-3 days. Watering deeply and less frequently encourages strong root growth, making your lawn more resilient.

WEIR RIVER WATER SYSTEM

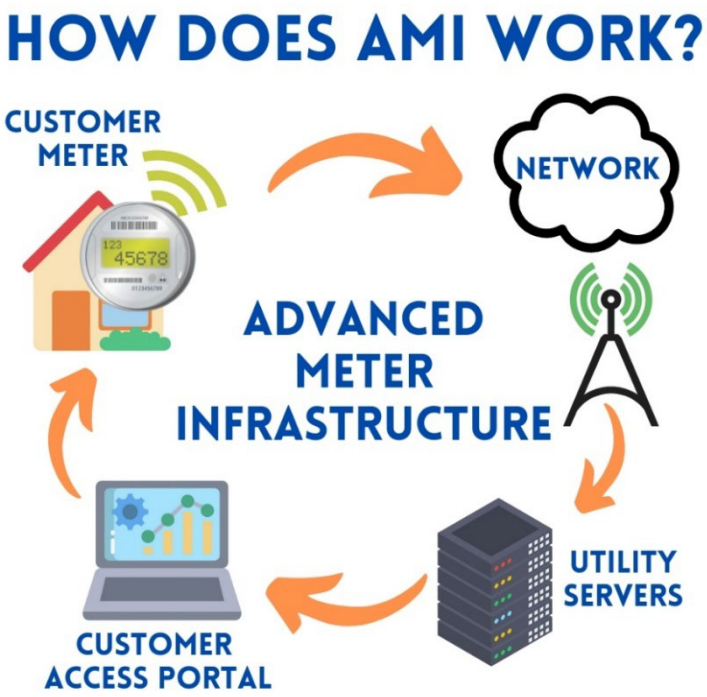
Future Plans / Improvements

Conservation Measures – Advanced Metering Infrastructure (AMI)

We are currently in the process of finalizing a Request for Proposals to upgrade our existing meter reading system with AMI.

The quantities and final details are being review and we anticipate this being posted in early September.

The program is planned for three phases starting with Hull and North Cohasset, then the following year moving into Hingham.



By upgrading to a new AMI system we will benefit from daily meter readings from all customers that are on the system. It will allow us to notice abnormalities in water usage in a more timely manner, improve unaccounted for water monitoring, provide notification during water conservation periods, and most importantly reduce the number of estimated water bills.

Future Plans / Improvements

Earlier this year it was our intention to merge customer service with Hingham Municipal Light Plant beginning July 1, 2025.

The billing transition from VEOLIA to HMLP was on schedule to start in April of 2026. This would combine electric, water and Hingham Sewer into one monthly bill.

After careful consideration, and meetings with all the stake holders, it was decided to transition both customer service and billing at the same time and postpone this one year.

WEIR RIVER WATER SYSTEM

THANK YOU FOR YOUR TIME

EVERY DROP COUNTS

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