Planning for Resilient Clean Safe Drinking Water for Today, Tomorrow and the Future of Plainville

Water plays a significant role in public health, safety and a stable local economy, benefits include:

- **Increased Tax Revenue and Stabilized Tax Rates**
- **Increased Property Values**
- **Improved Sanitation and Hygiene**
- **Reduced Healthcare Costs**
- **Support of Agricultural and Industrial Activities, Fostering Economic Development Opportunities**

The State of Plainville's Water

- Challenges
  - Capacity Issues
  - Expiring Intermunicipal Water Agreement
  - Elevated Levels of Manganese & Iron in Source Water
  - Regulatory Compliance (The Existing Supply Exceeds the EPA's National Drinking Water Regulation for PFAS)
- Opportunities
  - New Well Source
  - MassDEP Approved Treatment for PFAS
  - $15M State Revolving Funding at 0% Interest with 3.3% Minimum Principal Forgiveness
  - Increased Future Development/Economic Opportunities

WHAT HAS BEEN DONE TO DATE TO PROTECT PUBLIC HEALTH AND SAFETY AND INCREASE CAPACITY?

June 2017
Town Meeting Approved a study to evaluate the drinking water quality of the Mirimichi Wells.

February 2018
Town Meeting Approved the Cleaning of the Sharlene Water Tank and Examination of Drinking Water Treatment to Improve Water Quality.

June 2019
Town Meeting Approved the Turnpike Lake Water Treatment Plant Conceptual Design to Increase Capacity/Water Supply.

September 2019
Select Board held a Public Hearing to Discuss the Critical Nature of the Lack of Drinking Water Capacity in Town.

January 2020
The Select Board sign a 5-Year Inter-Municipal Agreement to Purchase Water from North Attleborough.

October 2020
MassDEP institutes an enforceable Drinking Water Regulation for 6 PFAS Compounds at 20 parts per trillion (ppt).

May 2021
Town Meeting Approved a Schematic Design for the Turnpike Lake Water Treatment Plant to include PFAS.

October 2021
Implementation of Quarterly Violation Notices by North Attleborough Distributed to Water Customers Regarding the Exceedance of the MassDEP's Maximum Contamination Level for PFAS6 in the public drinking water.

January 2022
BETA Presented the Turnpike Lake Water Treatment Plant Feasibility Report to the Select Board.

2022/2023
MassDEP Required Plainville to perform a pilot test to ensure the PFAs treatment method was viable.

September 2023
Preliminary Design/Cost Estimate Presented to the Select Board.

December 2023
75% Design Completed

March 2024
Additional Design/Permit Process per MassDEP; Plainville Approved for MassDEP's Drinking Water State Revolving Fund for $15M 0% loan.

April 2024
EPA (Federal) Instituted a national Drinking Water Regulation for 6 PFAS compounds at 4 parts per trillion (ppt).

May 2024
BETA and Capital Strategic Solutions Presented an Update on PFAS and the Water Treatment Plant Design to the Select Board.

June – September 2024
Informational/ Educational Sessions.

September 2024
Special Town Meeting to Vote to Accept the Drinking Water State Revolving Funding $15M loan at 0% interest with 3.3% minimum principal forgiveness and to allow the Town to apply for a bond rated loan to construct the new Turnpike Lake Water Treatment Plant.

What is at Stake for the Immediate Future?

- Risk to Public Health and Safety
  - ✓ Challenges for vulnerable populations
    - ✓ Increased risk to health
    - ✓ Rising healthcare expenses

Economic Development Challenges

- ✓ Potential decline in business investments due to unreliable water supply
- ✓ Risk of property value

- Increased Funding for Educational Expenses
  - ✓ PFAS can impact brain development, leading to learning difficulties and behavioral issues

- Risk of Funding Opportunities
  - ✓ Future State and Federal assistance will be more competitive
  - ✓ Rising cost of materials
  - ✓ Contractor Availability

Why is Water Capacity Development Important?

By boosting the technical, financial, and managerial capabilities of water systems, we ensure the consistent delivery of safe and reliable drinking water to the public.

- Reliable water service attract and retain businesses, supporting local economic growth by meeting current and future demands.
- Enhanced capacity leads to more efficient operations, reducing waste and optimizes resources used, which is crucial for small or underfunded systems.
- Addresses aging infrastructure, workforce development, financial planning, ensuring long-term service effectiveness.
- Improves water quality, protecting public health from waterborne diseases and contaminants.
- Assists with regulatory compliance, reducing risks of violations and penalties, ensuring systems stay current with evolving regulations.

What is PFAS & Why is it a Concern?

PFAS are synthetic chemicals, including PFOA, PFOS, GenX, used in everyday items like cookware, pizza boxes, and stain repellants, as well as in industry and firefighting foams. The concern about PFAS arises from several key issues:

- ✓ **Persistence:** PFAS, called "forever chemicals," persist in the environment and can build up in water, air, and soil.
- ✓ **Bioaccumulation:** PFAS can build up in the body, with regular low-level exposure leading to a significant accumulation.
- ✓ **Health Risks:** Certain PFAS exposure is linked to health issues like cancer risk, immune effects, hormone disruption, and developmental problems in children.
- ✓ **Widespread Contamination:** PFAS contamination is global, found in drinking water, rivers, wildlife, and human blood, raising public health concerns.

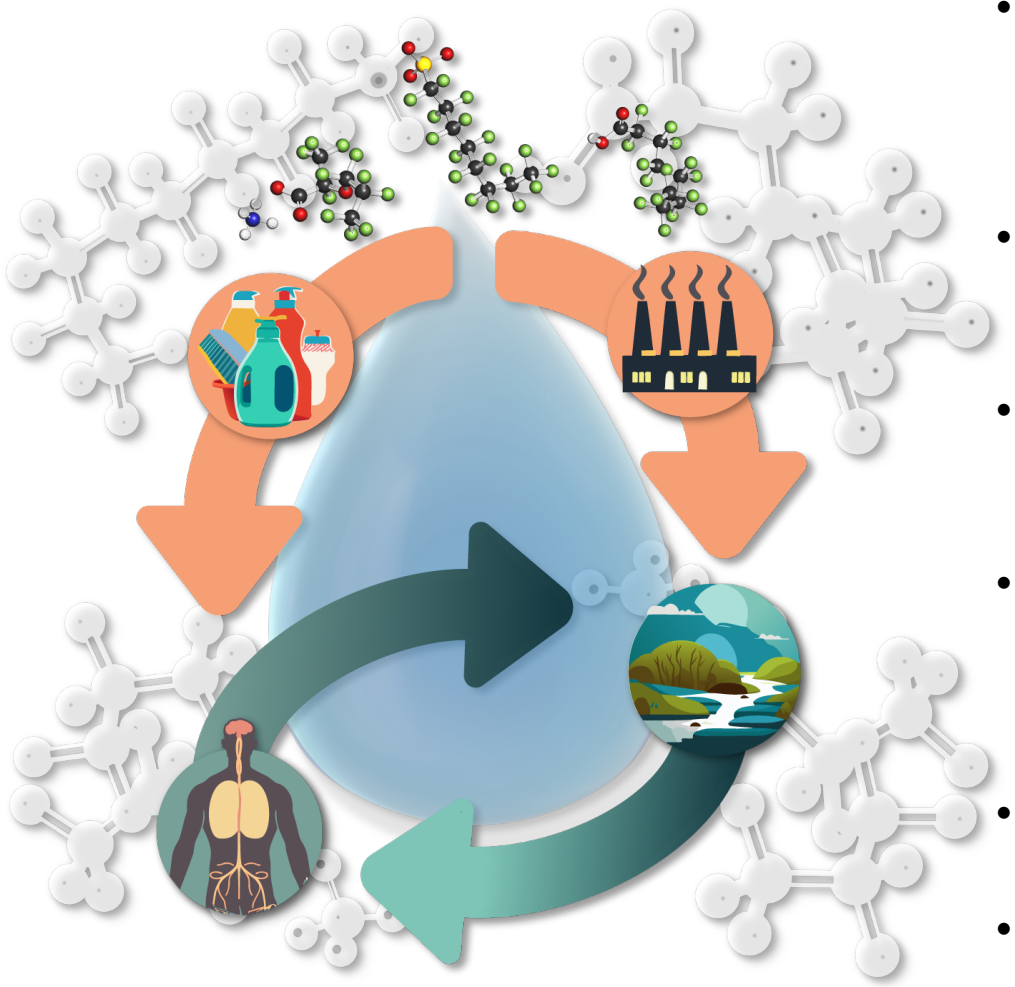
Rising concerns over PFAS have led to more regulatory scrutiny and research on their environmental and health impact.

- ✓ **On October 2, 2020, The Massachusetts Department of Environmental Protection (state) set the limit for 6 PFAS compounds at 20 parts per trillion (ppt); the EPA's Health advisory was 70 ppt.**
- ✓ **On April 10, 2024, the Environmental Protection Agency (EPA) announced new drinking water standards for six individual PFAS chemicals, also known as "forever chemicals". This drinking water regulation supersedes the existing Massachusetts standard. Public drinking water suppliers will have to comply with this standard within the next five (5) years.**

Chemical	Maximum Contaminant Level Goal (MCLG)	Maximum Contaminant Level (MCL)
PFOA	0	4.0 ppt
PFOS	0	4.0 ppt
PFNA	10 ppt	10 ppt
PFHxS	10 ppt	10 ppt
HFPO-DA (GenX chemicals)	10 ppt	10 ppt
Mixture of two or more: PFNA, PFHxS, HFPO-DA, and PFBS	Hazard Index of 1	Hazard Index of 1
Maximum Contaminant Level Goal (MCLG): The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety and are non-enforceable public health goals.		

PFBS have been used as a replacement chemical for PFOS and has been identified in environmental media and consumer products, including surface water, wastewater, drinking water, dust, carpeting and carpet cleaners, and floor wax.

About PFOS, PFOA, GenX and You...



- PFOS and PFOA are two of the most well-known and studied PFAS compounds. Although production stopped in 2000, they are still found in our environment. New PFAS like “Gen X,” are now used in their place.
- We swallow, inhale or rub PFAS into our skin by using certain products, eating or drinking impacted food and water, breathing in the contaminated dust in our homes.
- PFAS enter the environment when companies manufacture products with PFAS and as we throw away products that have PFAS, and even through human waste.
- PFAS build up in the human body over time. Scientists are still studying the health effects of higher PFAS blood levels, which include certain types of cancer, high cholesterol, or decreased vaccine response and developmental delays in children.
- PFAS do not break down naturally and build up in the environment over time.
- Resources we need to survive, like drinking water, food, air – are more likely to contain higher levels of PFAS over time.

Health Risks Associated with PFAS

According to the Environmental Protection Agency long-term exposure to certain types of PFAS has been linked to serious illnesses, including:

- Increased risk of some cancers
- Changes in liver enzymes
- Hormone disruption
- Increased thyroid disease
- Decreased fertility rates in women
- High blood pressure
- Pre-eclampsia during pregnancy
- Low infant birth weights
- Kidney disease
- PFAS exposure has also been associated with immune and developmental damage, particularly in infants and children

When PFAS contaminates our drinking water, we're directly ingesting these harmful substances, putting ourselves and our loved ones at risk.

PFAS Concentrates in Plainville's Water

Location	Quarter	Results
Turnpike Lake	1st Quarter 2022	7.5 parts per trillion
Turnpike Lake	2nd Quarter 2022	6.46 parts per trillion
Turnpike Lake	3rd Quarter 2022	7.34 parts per trillion
Turnpike Lake	4th Quarter 2022	9.81 parts per trillion
Turnpike Lake	1st Quarter 2023	6.60 parts per trillion
Turnpike Lake	2nd Quarter 2023	6.97 parts per trillion
Turnpike Lake	3rd Quarter 2023	7.34 parts per trillion
Turnpike Lake	4th Quarter 2023	Testing Not Required Per MassDEP*

*Plainville was not required to test for PFAS in the last quarter of 2023; sampling was below 10 parts per trillion consistently. The next round of sampling will occur in July of 2024.

Information for Private Well Owners

MassDEP recommends all private wells be tested for PFAS contamination; especially if your well is located within 1 to 2 miles of a known source of PFAS or other water supplies where PFAS has been detected.

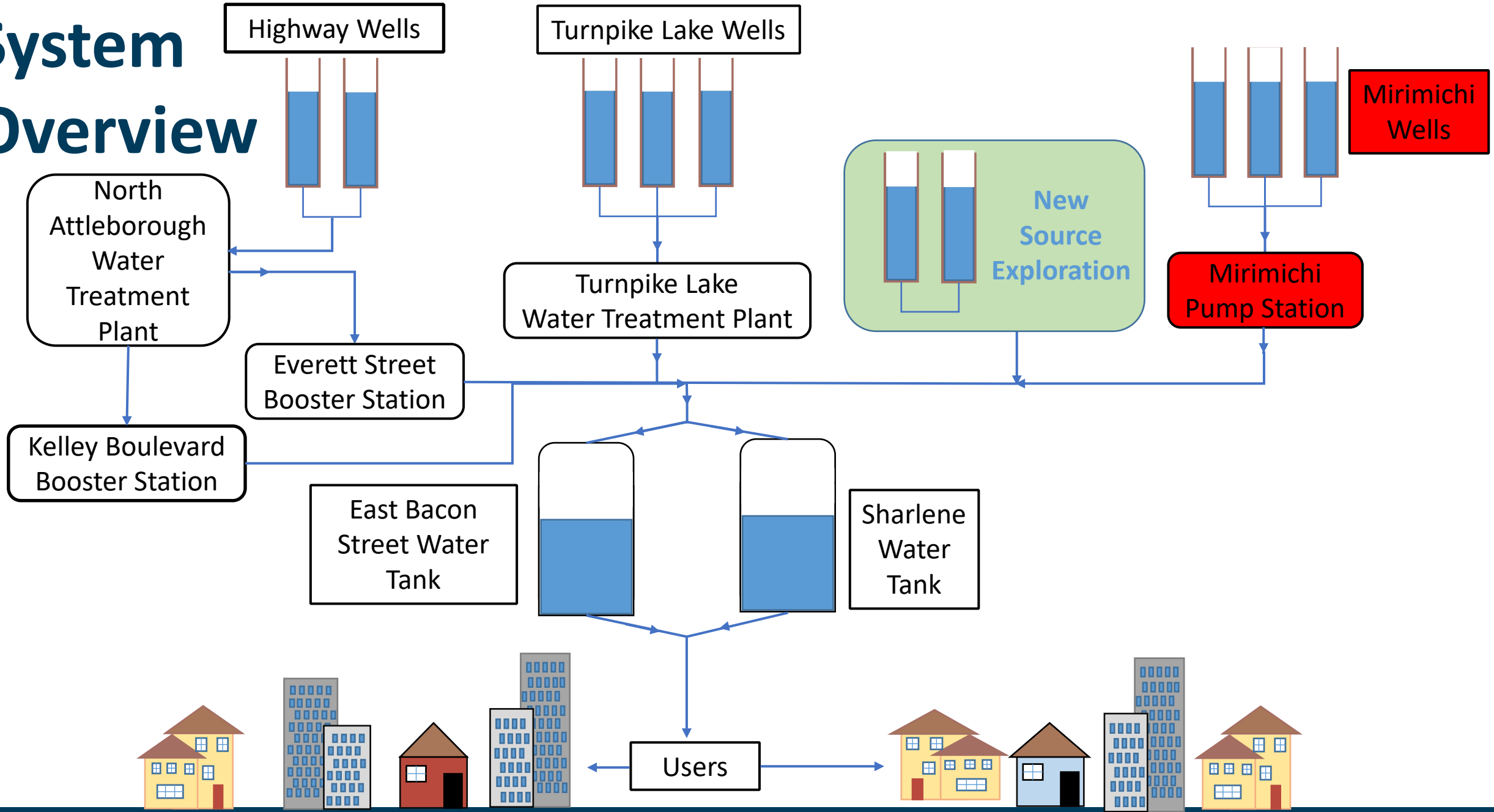
- Testing for PFAS every 10 years after the first non-detect.
- Recommended Treatment of PFAS for Private Wells:
  - Charcoal (Granular Activated Carbon or GAC)
  - Reverse Osmosis (RO) Systems
  - Ion Exchange Resins
- ANSI-Accredited Filters

Water Treatment Plant

CAPITAL STRATEGIC SOLUTIONS
Building Stronger Communities

BETA

System Overview

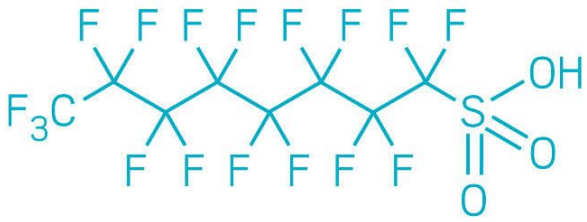


What are the Treatment Options

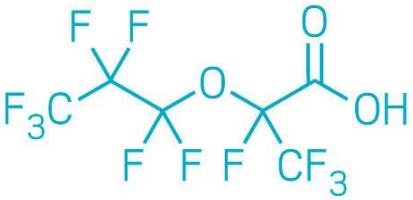
The EPA recommends several technologies for removing PFAS6 from drinking water, including:

- ✓ **Granular Activated Carbon** – Utilizes an "activated" media produced from carbon-based materials, such as wood, to absorb chemicals and compounds, including PFAS.
- ✓ **Ion Exchange** – Occurs through a solution designed to "exchange" through absorption resins a variety of contaminants, including PFAS.
- ✓ **Reverse Osmosis and Nanofiltration** – High pressure membrane processes that separate and remove contaminants, including PFAS, from water.

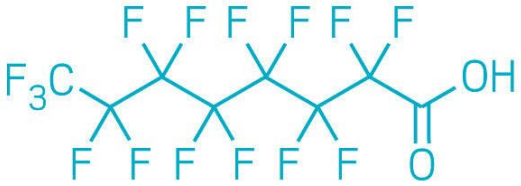
Through the MassDEP pilot test BETA conducted in 2022/23, granular activated carbon was found to be the most effective and efficient way to treat PFAS6 in Plainville's water.



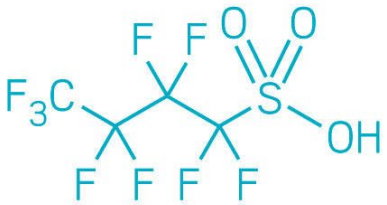
PFOS



HFPO-DA



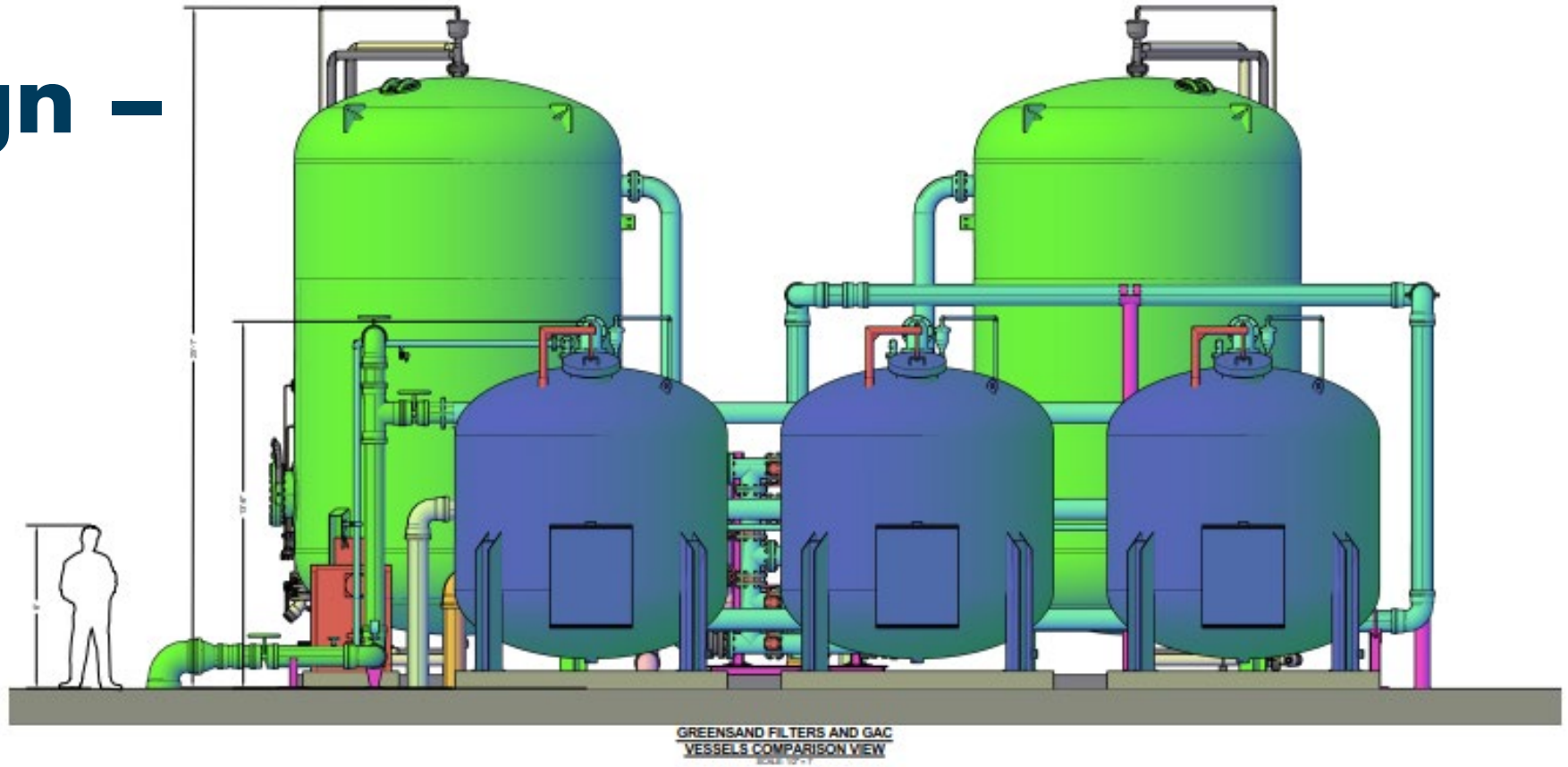
PFOA



PFBS

Water Treatment Plant Design – Filtration Room

Proposed Greensand-GAC Vessel System Section View.



State Revolving Funding (SRF)

The Town of Plainville has qualified to receive **$15M** in SRF funding at **0%** interest with a **minimum** of **3.3 % ($495,000)** principal forgiveness. The Town will need to secure additional bonding for the remainder **$10M** to cover the cost of the new water treatment plant. The additional 20-year bond is anticipated to have a **3.5%** interest rate.

Possible split, 1/3 of the debt covered by all property tax holders and 2/3 of the debt being funded by water customers. The costs below are preliminary costs based on the current information available, and are subject to change:

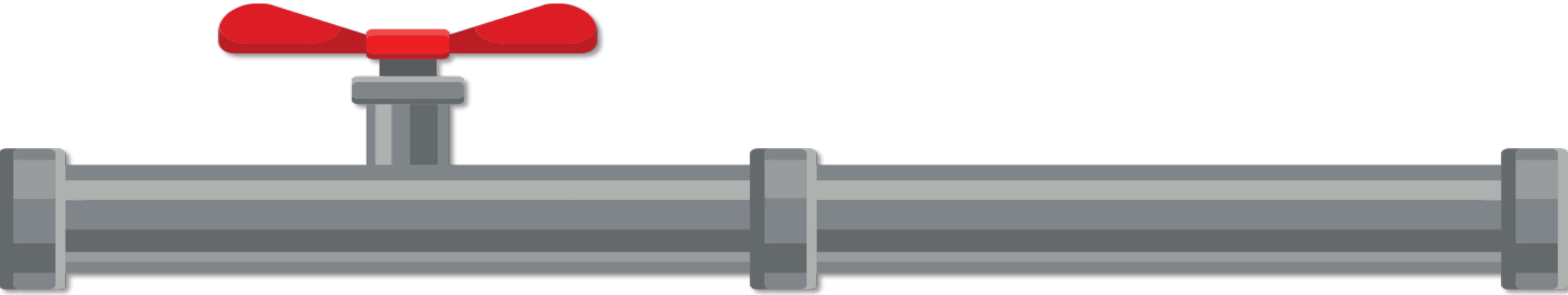
- It is estimated that property tax holders could see an annual tax increase of about $82.53; approximately 0.23 cents per day.
- The water customer could see an annual increase of $324.32; approximately 0.88 cents per day.
- The estimated average for a tax holder who is also a water customer would see a combined increase of $406.85; approximately $1.84 per day.

Potential revenue sources to help fund the project:

- Legislative Earmark: $1.5M towards the Turnpike Lake Water Treatment Plant
- Closed Capital Projects: Approximately $1.2M from previous water projects that will be reappropriated
- PFAS Lawsuit Settlements: Expected to total about $4M

Why Should Non-Water Customers Have to Share in the Cost?

- **Increased Economic Growth and Vitality:** Without a sufficient water supply and the ability to properly treat drinking water, the Town will not be able to allow new growth to help stabilize the tax rate and support our local economy. The existing Treatment Plant is already beyond capacity and will need to be expanded to handle not only future growth, but our existing customers.
- **Property Value Protection:** Contaminated water sources and insufficient treatment capacity can negatively impact property values across the community. Effective remediation and capacity enhancements can help maintain or even increase property values, benefiting all property owners.
- **Community Attractiveness:** A well-maintained and capable water treatment infrastructure can make the community more attractive to businesses and new residents, contributing to local economic growth and stability.
- **Widespread Impact of PFAS:** PFAS contamination can affect not just water supplies but also soil, air, and food. Remediation efforts help reduce these contaminants, which can have widespread health benefits for the entire community.
- **Preventing Secondary Contamination:** Addressing PFAS at the water treatment level helps prevent secondary contamination of other resources and services that non-water users may depend on, such as local agriculture and public spaces.



Pipeline to Funding through State Revolving Fund

- September 2024 – Town Meeting Vote
- October 11, 2024 – Local Appropriation Deadline/Loan Application Submittal
- October 11, 2024 – Plans, specifications and SRF plans and specifications must be submitted
- Construction must commence within 6 months of issuance of the Project Approval Certificate by MassDEP
- June 30, 2025 – Construction Agreement Execution Deadline

Potential Risk for Delaying Action

Health and Environmental Priority

Addressing PFAS in drinking water is critical to protect public health and environmental integrity.

Financial Support

$15M in SRF Funding approved, with 0% interest and minimum 3.3% principal forgiveness, to manage PFAS issues.

Risk of Delay

Delaying PFAS mitigation increases health risks and future cleanup costs and complexity.

Impact on Massachusetts Public Water Suppliers

Approximately **181** public water suppliers in Massachusetts to be affected by EPA MCLs. With the escalating cost of materials and limited number of contractors.

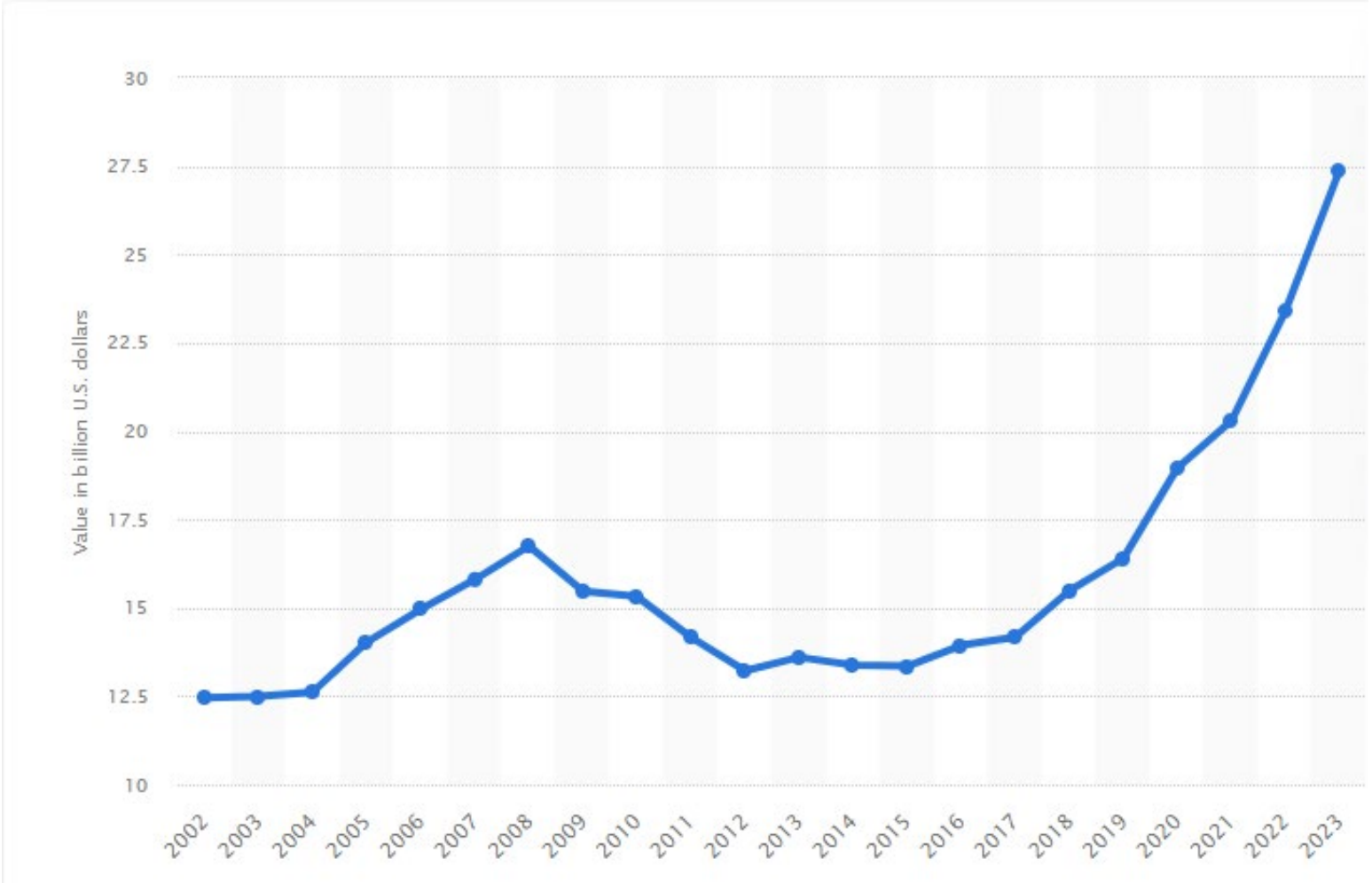
Impact on Public Water Suppliers Across the U.S.

Approximately **66,000** U.S. public water systems will need to meet new PFAS standards; includes submitting PFAS data and installing new filtration technologies within five years.

Potential

Being placed under an Administrative Consent Order by MassDEP; and potential fines of approximately $2,500 to $25,000 per day.

Cost Escalation of Water Infrastructure Construction in the United States from 2002 - 2023



In 2023, the construction spending on water infrastructure in the United States reached over 27 billion U.S. dollars. This category covers the construction, repair, and maintenance of all the infrastructure used to move and treat water. These figures only represent a small fraction of the overall value of infrastructure construction in the U.S.

*Source: Statista.com [https://www.statista.com/statistics/1362319/water-supply-construction-in-the-us/]

Questions?