

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



# Team Introductions



BETA provides state agencies, municipalities, and private clients with planning, engineering, design, asset management, and construction services.



CSS is a Massachusetts-based certified woman-owned, disadvantaged business enterprise comprised of municipal experts that provide support services for government agencies and private organizations.

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

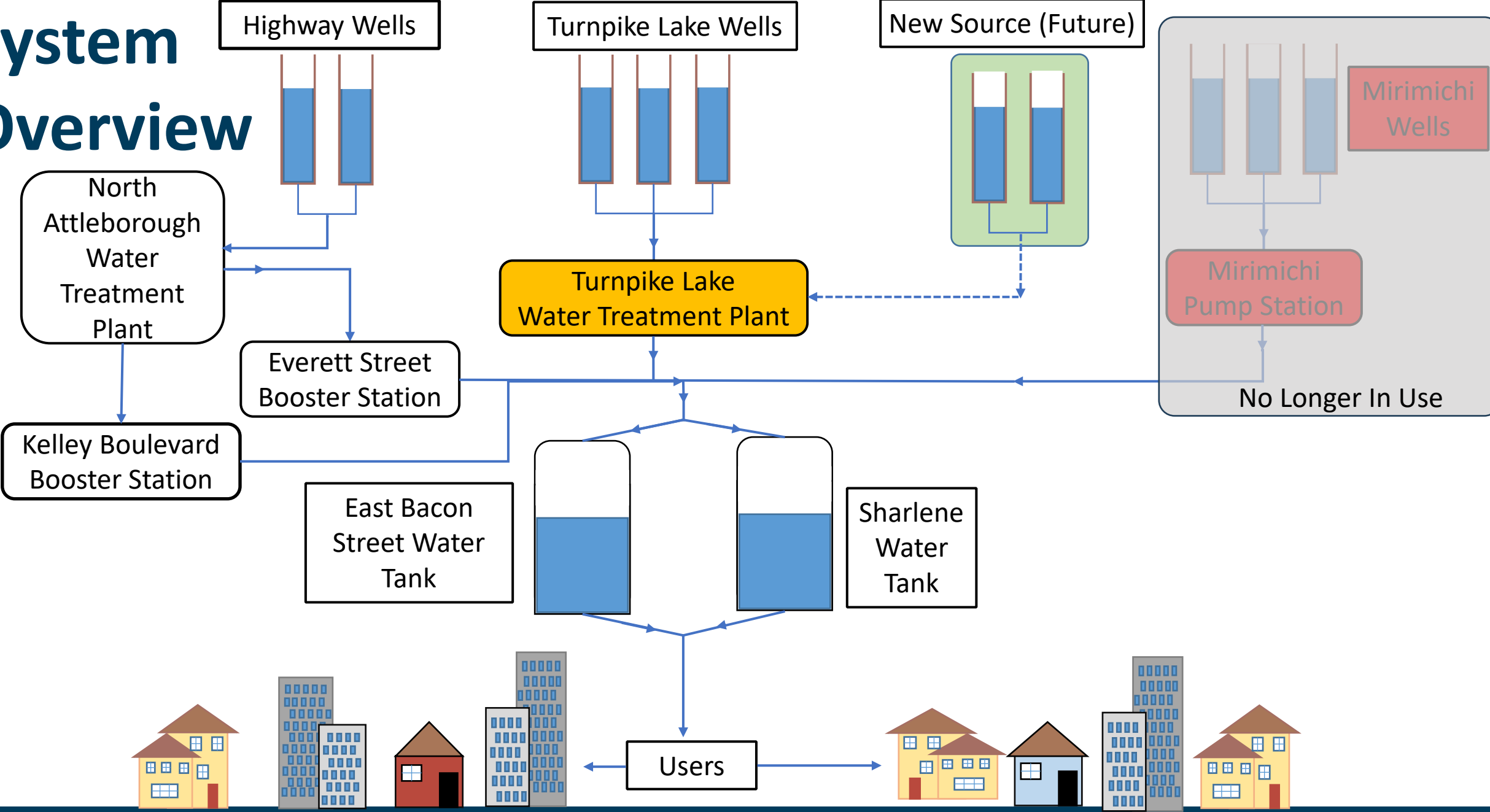
- **Increased Tax Revenue and Stabilized Tax Rates through economic development**
- **Public Trust Preserves Property Values**
- **Reduced Healthcare Costs**
- **Support of Agricultural and Industrial Activities, Fostering Economic Development Opportunities**



# — The State of Plainville's Water

- **Inability to Meet Customer Demands in Recent Years**
  - Elevated levels of iron & manganese in source water
  - Mirimichi Wells offline
- **North Attleboro Intermunicipal Water Agreement**
  - Increased capacity provision expires in January 2025
- **Existing Treatment Plant**
  - Beyond capacity and expected life
  - Increased risk of service disruptions
  - Not sized for current demand
  - Regulatory compliance (remove Iron, Manganese and PFAS)
- **Outdated Rate Structure and Limited Opportunity for Development**

# System Overview



# What is PFAS & Why is it a Concern?

The concern about PFAS arises from several key issues:

- ✓ **Persistence in the Environment**
- ✓ **Bioaccumulation**
- ✓ **Health Risks**
- ✓ **Widespread Contamination**

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





# 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
- Kidney disease
- Increased thyroid disease
- High blood pressure
- Hormone disruption
- Decreased fertility rates in women
- Pre-eclampsia during pregnancy
- Low infant birth weights
- 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.**





- ✓ 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
<b>Maximum Contaminant Level Goal (MCLG):</b> 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.*





# PFAS Concentrates in Plainville's Water

Location	Quarter	Results
Turnpike Lake	1 <sup>st</sup> Quarter 2022	7.5 parts per trillion
Turnpike Lake	2 <sup>nd</sup> Quarter 2022	6.46 parts per trillion
Turnpike Lake	3 <sup>rd</sup> Quarter 2022	7.34 parts per trillion
Turnpike Lake	4 <sup>th</sup> Quarter 2022	9.81 parts per trillion
Turnpike Lake	1 <sup>st</sup> Quarter 2023	6.60 parts per trillion
Turnpike Lake	2 <sup>nd</sup> Quarter 2023	6.97 parts per trillion
Turnpike Lake	3 <sup>rd</sup> Quarter 2023	7.34 parts per trillion
Turnpike Lake	4 <sup>th</sup> 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.



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



# — Opportunities Ahead...

- **New Turnpike Lake Water Treatment Plant**
  - Increased Capacity and reliability (all new facility)
  - Removes Iron, Manganese and PFAS
  - Approved for State Revolving Funds for PFAS Treatment
- **New Groundwater Source in development to support growth and future economic opportunities**
- **Comprehensive Rate Evaluation underway**





# Turnpike Lake Water Treatment Plant





# What are the Treatment Options

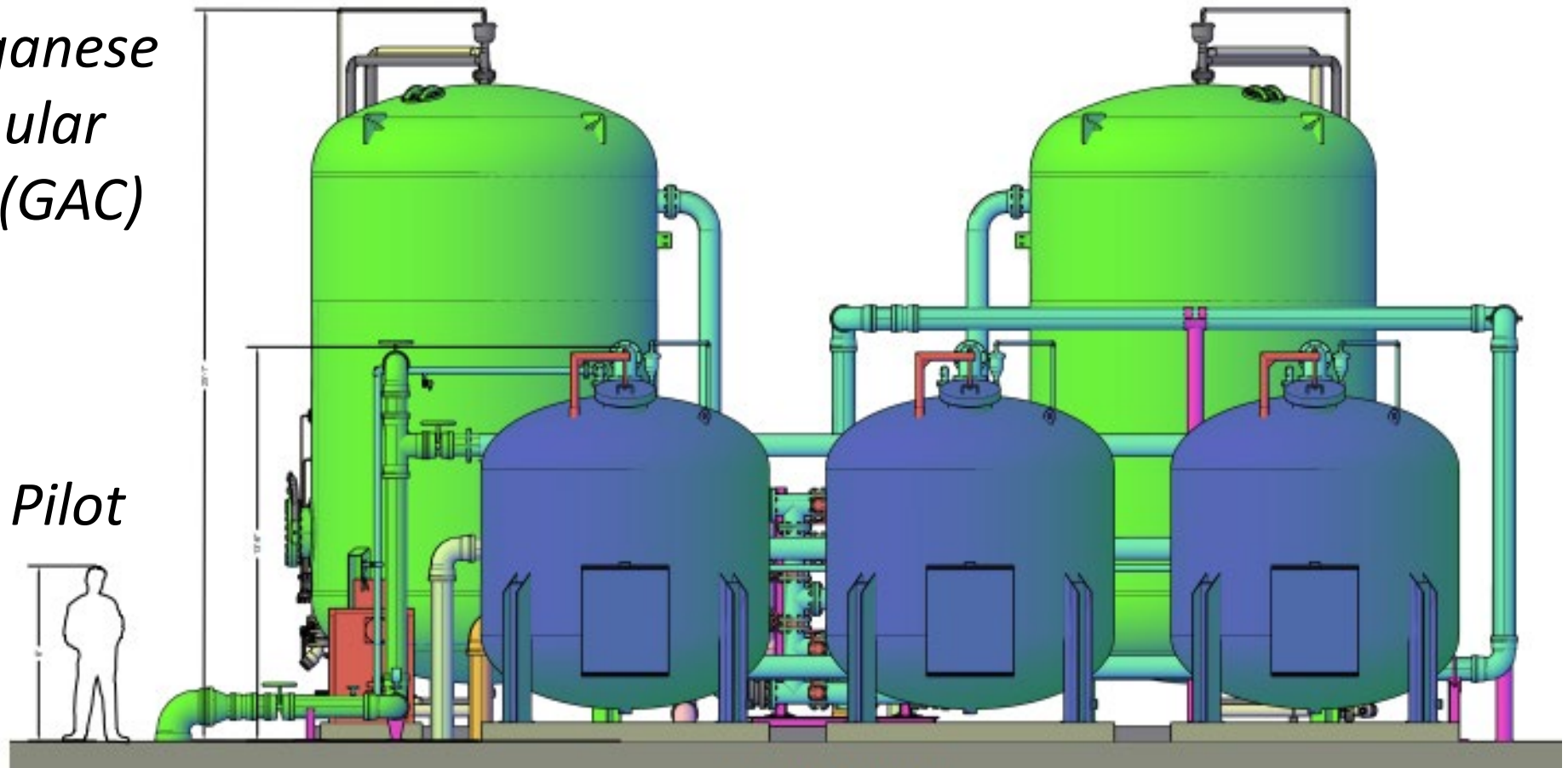
The EPA recommends several technologies for removing PFAS6 from drinking water, including:

- ✓ **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 adsorption 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.

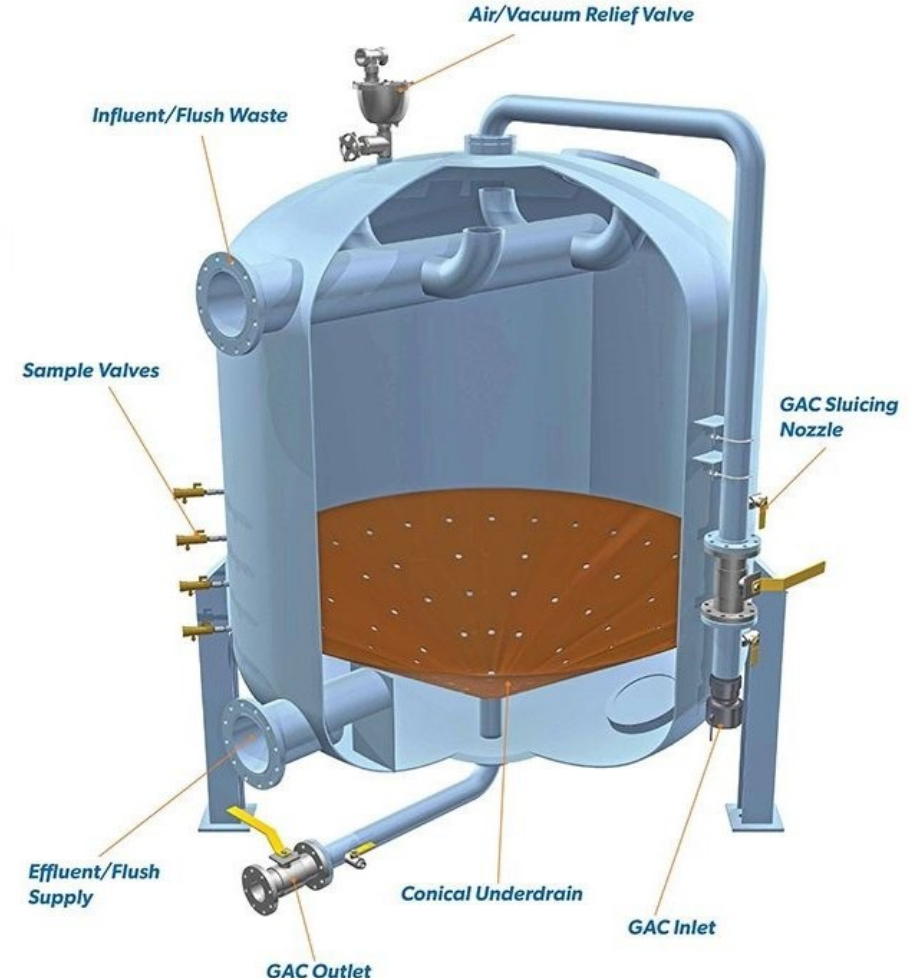
# Proposed Treatment Process

*Treatment process consists of Greensand for Iron and Manganese removal and Granular Activated Carbon (GAC) for PFAS removal. Both technologies evaluated during MADEP Approved Pilot Test.*



# Communities Currently Using Granular Activated Carbon for PFAS Removal

- ✓ Cate Springs & Walsh PFAS Treatment Facility  
Mansfield, MA
- ✓ Whitcomb Avenue Treatment Plant  
Littleton, MA
- ✓ Spectacle Pond Treatment Facility  
and Wellfield  
Ayer, MA

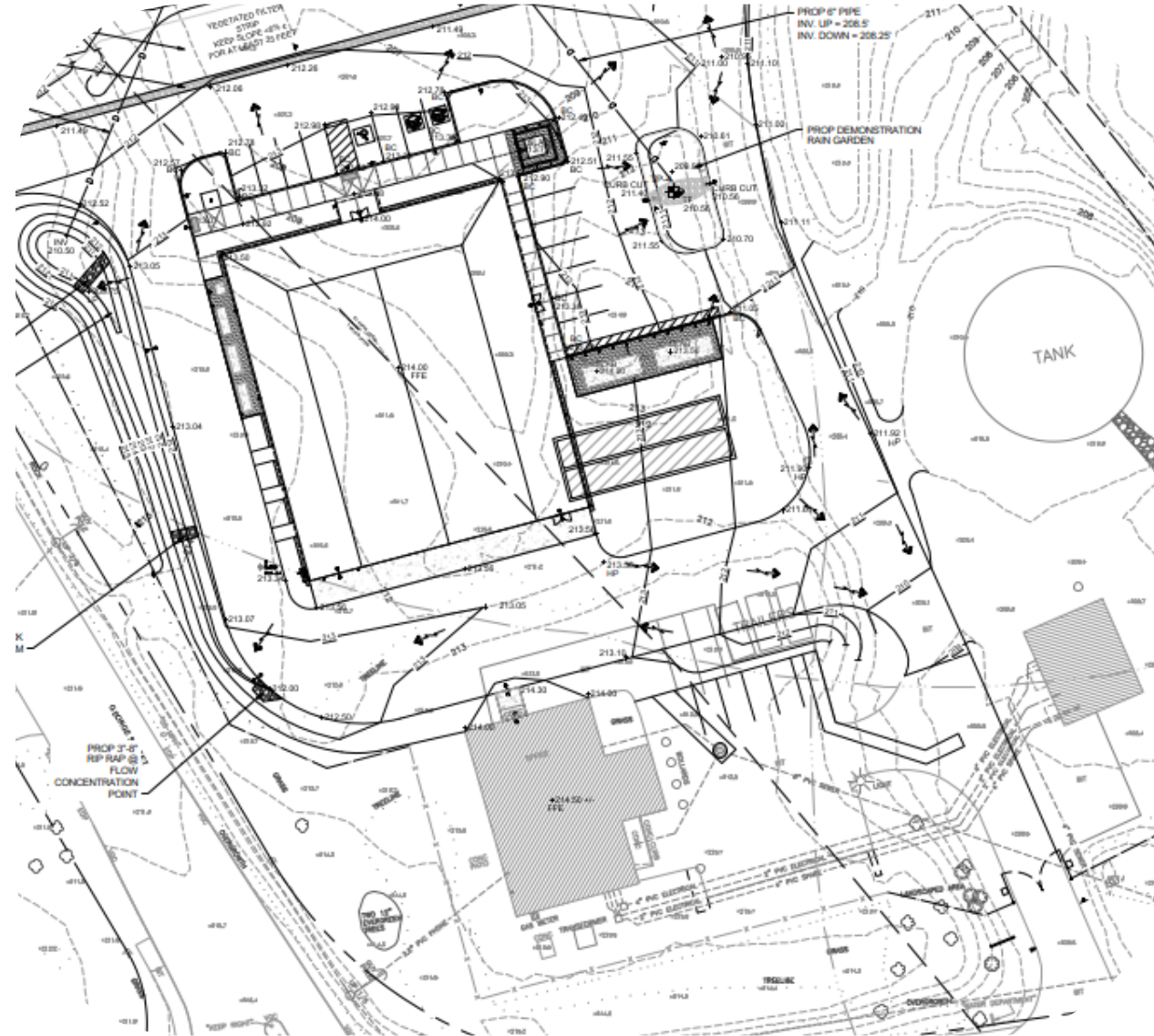


# Turnpike Lake Water Treatment Plant Replacement Costs

- Construction Cost: **\$25.6M**
- Operations & Maintenance: **\$800K +/-**

## New Well Source Update

- Approximately 6 Years – Spring 2030
  - 3 Years Permitting
  - 1 Year of Well/Pumping Design
  - 2 Years Construction





# How are we going to pay for this?

- **Construction Cost: \$25.6M**
- **Operations & Maintenance: \$800K +/-**

**State Revolving Fund (SRF):** SRF funding specifically for PFAS was introduced in **2020** to assist communities in mitigating the impact of this emerging contaminant at the lowest cost possible.

- Plainville has been approved for **\$15M** in SRF funding, which provides a loan at **0%** interest with a minimum of **3.3%** principal forgiveness for up to **30** years.
- The project team is investigating additional fund sources including applying for additional SRF funds for the remaining **\$10M** in project costs under **FY2025**.
- There is the potential that Plainville may have to apply for a **20-year** bond to cover the additional **\$10M** in project costs at a **3.5%** interest rate

**PFAS Litigation:** Plainville is submitting a claim under the PFAS settlement agreement and anticipates up to \$4M in compensation.

**Reappropriate Funds:** Approximately **\$1.2M** from previous water projects that were completed will be reappropriated

**Conduct a Water Rate Evaluation:** By performing a comprehensive water rate evaluation it will allow Plainville to equitably distribute the costs of the water treatment plant and account for other necessary capital improvements moving forward.

**Potential Cost Sharing:** Possible split, **1/3** of the debt covered by all property tax holders and **2/3** of the debt being funded by water customers. Property tax holders could see potential increase of about **\$80.52**; approximately **0.22** cents per day. Water customer could potentially see an annual increase of **\$202.40**; approximately **0.55** cents per day.



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

- Increased Economic Growth and Vitality
- Protection of Property Values
- Enhanced Community Attractiveness
- Abatement of Widespread Impact of PFAS
- Prevention of Secondary Contamination





# Next Steps

August/September 2024

- **Community Informational Sessions**

October 7, 2024

- **Special Town Meeting**

October 11, 2024

- **Local Appropriation Deadline/Loan Application Submittal**
- **SRF Plans and Specifications Must Be Submitted**

June 30, 2025

- **Construction Agreement Execution Deadline**

# Risks of Not Approving Funding for Turnpike Lake



**Reduced Public Health and Confidence**



**Construction Cost Escalation and Funding Availability**



**Continued Inability to Meet Demands and Increased Risk of Service Outages**



**Potential Significant Administrative Consent Order/Fines**

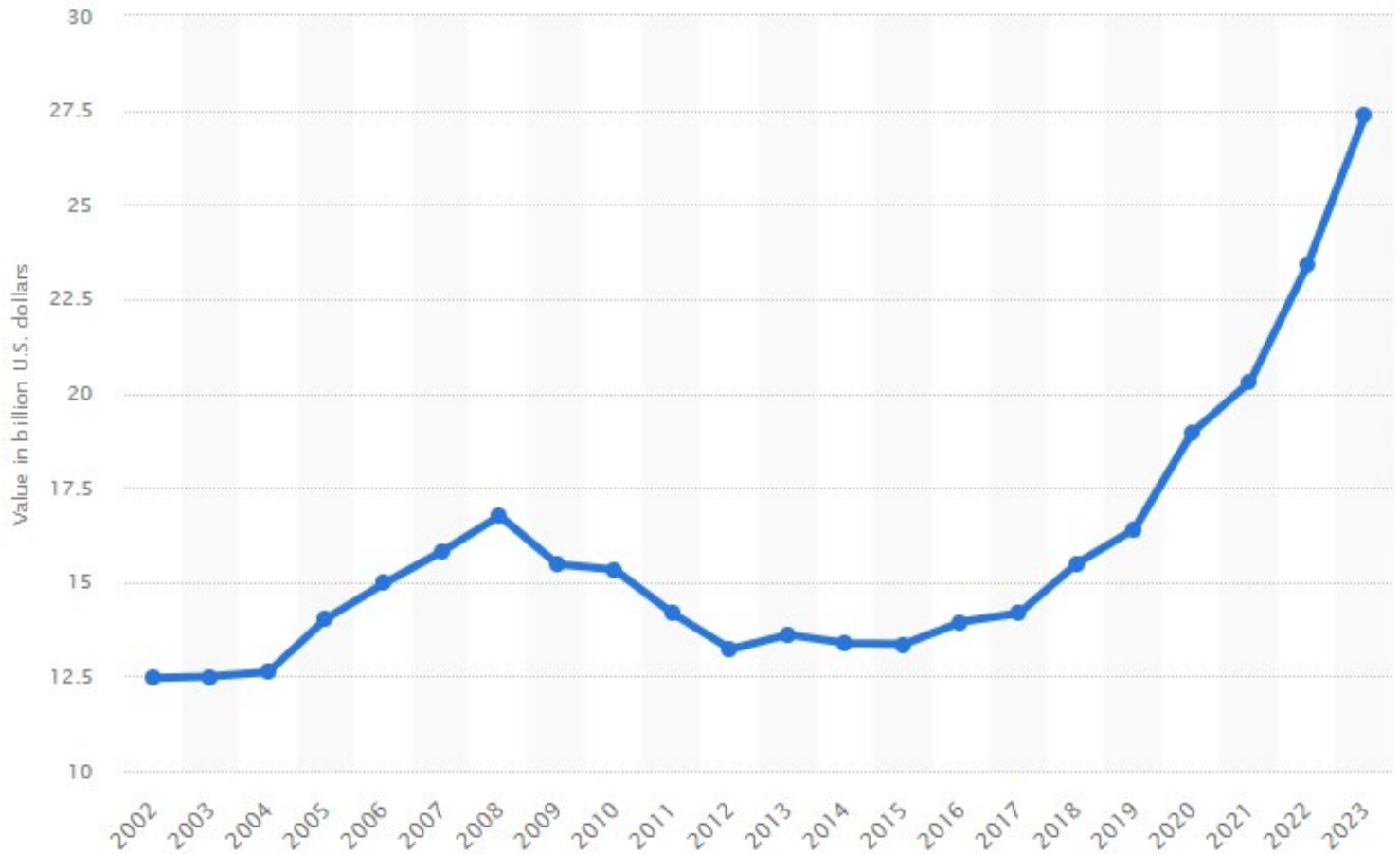


**Erosion of Real Estate Value due to Loss of Public Trust/Concern**



**Growth/Economic Development Opportunities Greatly Reduced**

# 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/>]



# 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 every 10 years after the first non-detect.
- Recommended treatment:
  - Charcoal (Granular Activated Carbon or GAC)
  - Reverse Osmosis (RO) Systems
  - Ion Exchange Resins
- ANSI-Accredited Filters





# Questions?