# DELIVERING ON THE MISSION Annual Report





# CONTENIS



- 6 Message from the Commissioners
- 7 Message from the Executive Director
- 8 System Map
- 9 Water Supply & Consumption
- 10 Infrastructure Renewal
- 26 Drinking Water Treatment
- 34 Wastewater Collection & Treatment
- 38 Watershed Protection
- 44 Watershed Lands Maps
- 48 Field Services
- 54 Technology Infrastructure
- 58 Customer Service
- 62 Education & Community
- 68 Financial Report

Photo: The Connecticut River and the skyline of the City of Springfield, MA, in 2024.



#### MESSAGE FROM THE COMMISSIONERS

Fiscal Year 2024 (FY24) was a proud year for the Commission, as we were able to begin to deliver on some major milestones from the Water and Wastewater Infrastructure Renewal Program (WWIRP), which was launched only a short time ago in 2021.

In November 2023 the Board joined Congressman Neal and other local officials to cut the ribbon on the new York Street Pump Station and Connecticut River Crossing Project. The new pump station replaces an original 1938 pump station, and has twice the pumping capacity as well as features to make the facility resilient to the effects of climate change. The project took approximately a decade to bring to fruition, representing the scale of both the effort and the impact behind projects in the Commission's WWIRP portfolio.

A few months later in early 2024 the final design of the new West Parish Water Treatment Plant was completed. The seeds for this project were planted in approximately 2015 through a comprehensive planning process, and since has gained heightened importance as the forces of aging infrastructure, more stringent water quality regulations, and climate change converge. The Board oversaw the many steps it took to arrive at the new plant design, and is committed to ensuring this project is delivered to customers as quickly as possible as construction begins in FY25.

Finally the Board was pleased to oversee the many other modernization efforts taking place at the Commission, from enhancing efficiency through the integration of technology to increasing the resiliency of our infrastructure to building our future water workforce.

As we deliver these many necessary projects through an unprecedented reinvestment program in a relatively short timeframe, we are steadfast in our commitment to maintaining customer affordability through stable, predictable rates and customer assistance programs. Our work now will ensure the region's health and prosperity for generations into the future.



#### MESSAGE FROM EXECUTIVE DIRECTOR

As the vast majority of the Commission's infrastructure is buried beneath city streets or tucked away in remote areas, the adage "out of site and out of mind" could be a fitting descriptor of our essential services, but it's not. Fiscal Year 2024 was another year of tremendous growth and maturation for the Commission, and a year where the Commission's vision of the future came into fruition.

The completion of the York Street Pump Station and Connecticut River Crossing Project represented a number of significant accomplishments. The project was the largest project ever undertaken in terms of scale and cost since the Commission's inception, challenging staff in the areas of engineering, project and contract management, finance, and operational integration. Its completion demonstrated our ability to successfully manage and deploy resources, recognize and mitigate risks, and coordinate sophisticated multi-agency partnerships and obligations.

This expertise was also put to the test during the extreme storms of September 2023, which here in Springfield caused the largest water main break and boil-water order in more than 30 years. The Commission's quick and effective response was successful because staff had previously conducted exercises for just such an incident.

With an emphasis on raising the awareness of how clean water is truly at the center of our everyday lives, the Commission had many examples to point to in FY24. We have a great deal of pride in preparing for all of the challenges ahead and will rely on our experience, vision, and execution in the same way our predecessors did more than a century ago.

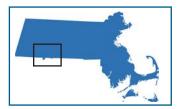
Joshua D. Schimmel Executive Director

If you have any questions about the content of this report, please contact the Commission at 413-452-1300 or email info@waterandsewer.org.

Photo (from left to right): Former Commissioner William Leonard, Congressman Neal, Commissioner Matthew Donnellan, Executive Director Josh Schimmel, FY24 Chairwoman Vanessa Otero, and Commissioner Daniel Rodriguez.

#### **SWSC SYSTEM MAP**

Service Area and Major System Components





SERVICE CATEGORIES		
Springfield (main customer)	Retail water and wastewater service	
Ludlow	Retail water service and regional wastewater treatment	
Agawam, Longmeadow, East Longmeadow	Regional water and wastewater treatment	
Southwick	Regional water treatment, peak emergency water	
Westfield, Chicopee	Peak emergency water	
West Springfield, Wilbraham	Peak emergency water, regional wastewater treatment	

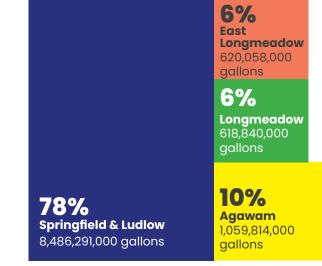
#### **Water Supply & Consumption**

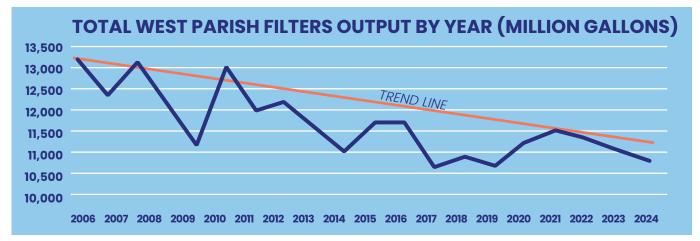
The Commission provides drinking water to approximately 250,000 people in the lower Pioneer Valley. This includes retail customers in Springfield and Ludlow (as well as small portions of Chicopee and Wilbraham), and regional customers in Agawam, Longmeadow, and East Longmeadow. The Commission also provides emergency and peak drinking water supply to Southwick, Westfield, West Springfield, Chicopee, and Wilbraham. In FY24, the output from West Parish Filters Water Treatment Plant was approximately 11 billion gallons among all Commission customers.

#### **TOTAL CONSUMED WATER FY 2024**

10,812,700,000 Gallons

Southwick 27,697,000 gallons 6% East Longmeadow 620,058,000 gallons 6% **Longmeadow** 618,840,000 10% 78% Agawam **Springfield & Ludlow** 1,059,814,000





Yearly Usage (mg)	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	3-Year Average
Agawam	1,238	1,378	1,149	1,203	1,060	1,137
East Longmeadow	726	759	634	712	620	655
Longmeadow	709	820	645	737	619	667
Southwick	29	36	25	29	28	27
Springfield and Ludlow	8,508	8,520	8,9523	8,336	8,486	8,591
West Parish Output	11,210	11,513	11,405	11,017	10,813	11,078









The Commission embarked on its second full fiscal year of the Water & Wastewater Infrastructure Renewal Program (WWIRP), reaffirming its commitment to making fiscally sound, strategic investments in infrastructure to better serve customers. Launched in FY22, the WWIRP includes nearly 30 water and wastewater infrastructure projects supported in part by EPA's \$250 million Water Infrastructure Finance and Innovation Act (WIFIA) award and the Massachusetts Clean Water Trust State Revolving Fund (SRF). These funds support the implementation of these essential projects over the next five years. Most

of the projects covered in the following pages are financed by WIFIA and the SRF, with some financing provided by other sources.



#### **M** York Street Pump Station

The Commission celebrated the completion of the York Street Pump Station in FY24, capping off a major milestone of the WWIRP after nearly a decade of design and construction. This project includes a 62 million gallons per day (MGD) combined sewer pump station and screening facility, retrofit of the existing 30 MGD flood control pump station, and three new 1,100-foot-long wastewater

conveyance pipelines that pass underneath an active Amtrak railroad and US Army Corps of Engineers flood wall before crossing the Connecticut River and passing through a private levee to the Springfield Regional Wastewater Treatment Facility. This complex project is designed to address multiple issues:

- **Environmental Protection:** Increased pumping capacity will prevent an additional 100 million gallons of CSOs from entering the Connecticut River in a typical year.
- Climate Resiliency: Flood control protection is increased through repurposing the old pump station, and critical components of the new pump station are designed to withstand flooding.
- Infrastructure Renewal: A new modern station replaces an

- aging 1938 station nearing the end of its useful life and will accommodate future growth in the region.
- System Redundancy: The three new pipes under the Connecticut River will add redundancy and improve service reliability for customers in Springfield, Ludlow, Longmeadow, East Longmeadow, and Wilbraham.

A \$137 million low-interest loan from the Massachusetts SRF is the source of funding for the majority of the project. The SRF is administered by the Massachusetts Department of Environmental Protection with funding from the EPA and from repayment of past loans.

#### CONNECTICUT RIVER CROSSING & YORK STREET PUMP STATION



#### **PLANNED FY25 ACTIVITY**

DATE **TASK** 

October 2024 Complete Punchlist

**BUDGETED COST** \$137,500,000

**BUDGET SPENT - FY24** \$130,516,206

**REMAINING BUDGET** 

PERCENT COMPLETE

\$6,983,794 95%

#### **FY24 STATUS**

CONSTRUCTION

Photo: The new York Street Pump Station, which was completed in FY24.



# New West Parish Water Treatment Plant

Another major cornerstone of the WWIRP is the new West Parish Water Treatment Plant – the largest-scale project the Commission has undertaken since the 1970s. This project is a generational reinvestment in the drinking water infrastructure needed to provide the region with reliable, safe drinking water for decades to come.

West Parish Filters, originally constructed in 1909, has undergone several upgrades over the decades — in the 1920s, 1960s, and again in 1974. Located in Westfield, the current facility utilizes dual media (or "rapid sand") filters from 1974 along with "slow sand" filters from the 1920s and 1960s to filter water from Cobble Mountain Reservoir before disinfection and corrosion

control treatments are applied. The new plant will add a new treatment step, dissolved air flotation, to meet modern drinking water standards, particularly those related to disinfection byproducts.

Planning and design for the New West Parish Water Treatment Plant took nearly 10 years and included careful consideration of factors like climate change, advances in technology, and maintaining affordability. The new plant will reduce the risk of failure posed by aging infrastructure, be more resilient to climate change impacts, and ensure that customers

To watch a video about the new plant, scan the QR code with your smartphone.



Photo: Rendering of the new West Parish Filters Water Treatment Plant.

receive reliable, clean, safe drinking water every time they turn on the tap.

Technologies to be deployed in the new plant include using dissolved air flotation (DAF), which uses tiny air bubbles capture dissolved natural organic matter prior to filtration. In addition, the HVAC system will be entirely free of fossil fuel use, relying on air and water from Cobble Mountain to heat and cool the plant.



Photo: The new Backwash Facility, completed in FY24.

This use of green technology will result in an estimated cost savings of 50% and an estimated greenhouse gas emissions reduction of over 70%.

In FY24, the project reached 100% design and the Commission completed the bidding process. Construction is to begin in fall 2024 and last through 2028.

# Clearwell and Backwash Pump Station Project

The construction of the Clearwell and Backwash Pump Station Project wrapped up in FY24, and was renamed the "Backwash Facility" as it went into operation. The contractor will continue to work on final closeout items in FY25. The Backwash Facility will provide continuous service to both the existing plant and the new plant once complete.

FISCAL YEAR 2024 ANNUAL REPORT 13

Thoto. Rendefing of the new West Fansit files water freatment fan

#### CLEARWELL AND BACKWASH PUMP STATION PROJECT



#### **PLANNED FY25 ACTIVITY**

DATE **TASK** 

Final Punchlist/ October 2024

Completion

**BUDGETED COST** \$26,573,681

**BUDGET SPENT - FY24** 

\$25,960,535

**REMAINING BUDGET** 

PERCENT COMPLETE

\$613,146

96%

#### **FY24 STATUS**

DESIGN	100%
CONSTRUCTION	96%

#### 42" TRANSMISSION MAIN ENERGY DISSIPATION VALVE & RAW WATER **CONVEYANCE REDESIGN & RECONSTRUCTION**



#### **PLANNED FY25 ACTIVITY**

DATE	TASK
Ootobor 2024	Damalit

Demolition and October 2024

Excavation

November 2024 Begin Pipeline Replacement

April 2025 Begin Equalization Tank

Construction

5%

**BUDGETED COST** \$32,185,648

**BUDGET SPENT - FY24** 

\$1,496,597 **REMAINING BUDGET** 

PERCENT COMPLETE

\$30,689,051

#### **FY24 STATUS**

DESIGN	100%
CONSTRUCTION	5%



#### **42"** Pipeline Design Project

The design for the 2-mile-long, 42-inch-diameter Raw Water Conveyance (RWC) pipe and control valve system and new dissipation valve facility was completed in FY24. The pipeline is a critical redundant pathway for raw water from Cobble Mountain Reservoir to West Parish Filters Water Treatment Plant. This redundancy ensures service during severe weather events or during routine maintenance activities.

This project was put out to bid in April 2024. The contract was awarded to Northern Construction Services, LLC and construction is slated to last through calendar year 2025.



#### **Cobble Mountain Hydropower Station**

The Commission owns Cobble Mountain Hydropower Station, located in the Town of Granville, Massachusetts. The Station utilizes stored static hydro-pressure energy at the Cobble Mountain Reservoir Dam for green power production while water is conveyed to the West Parish Water Filtration Plant. The Commission controls and limits the amounts of water available for power generation to protect safe-yield water storage under various seasonal and drought conditions.

The generated power is transmitted and sold to ISO New England electricity market. The Plant has a nominal capacity of 33 Megawatt-hours power production through three turbine generators: two rated at 13.6 Megawatts (MW) and one at 5.7 MW. Currently, two of the three turbines are

shut down and partially disassembled for rehabilitation. In FY24, the plant output was approximately 10,300 MW.

FY24 activities included:

- Conceptual design for the Cobble Mountain Hydropower Station, including the existing penstocks, was completed. Peer review and detailed design are anticipated in FY25.
- Reconductoring of power transmission line began with the procurement of new conductors, insulators, and other ancillary material. Installation is planned for FY25.
- Inspection of hydropower generation Unit No. 1 and the station oil/water separator was completed. In addition, a protective coating was applied to the wicket gates, and the oil/water separator tank was emptied, cleaned, and put back into service.

#### **Other Drinking Water Treatment Projects**

- Design for the replacement of existing gaseous chlorinators was completed in FY24 and the project was put out to bid. Construction will begin in FY25.
- As part of the lagoon cleaning project at West Parish Filters, additional planning, including an updated bathymetric survey and residuals evaluation, was completed. Design, permitting, and bidding for the removal and disposal of the accumulating residuals are anticipated in FY25.
- The conceptual design for a new disinfection monitoring station at

the Provin Mountain water storage tanks was completed. Final design, bidding, and construction are anticipated for FY25.

- Design and bidding were completed for Phase I repairs to the Provin Mountain Water Storage Tanks 3 and 4. Construction began and is expected to be completed in FY25.
- Vegetation clearing on the dams and spillways were completed, as well as Phase I inspections of nine significant and high-hazard dams.
- Permitting of the Borden Brook culvert replacement project was issued.
- Alternatives analyses were conducted for culvert and slope repairs at the Ludlow Reservoir and Jabish Canal.
- Preliminary design was drafted and the start of permitting of

- repairs to the Borden Brook and Sugar Creek bridges began.
- Heavy rain caused several slope failures in the watershed. Necessary repairs were evaluated.

#### **Mastewater Treatment Facility Improvements**

The Springfield Regional Wastewater Treatment Facility (SRWTF), which serves seven communities in the lower Pioneer Valley, was originally built in the late 1930s and last updated in the 1970s. Currently, the facility is undergoing significant upgrades as part of the WWIRP. In addition to improvements to the grit removal system, additional construction focuses on upgrading the aeration and electrical systems. These improvements will enhance nutrient removal during the secondary treatment process, while new electrical equipment and HVAC upgrades will

#### **GRIT REMOVAL SYSTEM IMPROVEMENTS**



#### **PLANNED FY25 ACTIVITY**

REMAINING BUDGET	PERCENT COMPLETE
BUDGETED COST \$28,724,306	BUDGET SPENT - FY24 \$4,662,804
April 2025	Begin Mechanical/ Electrical/Plumbing Fit Out
April 2025	Demolition & Modifications to Channels 1&2
<b>DATE</b> Ongoing through March 2025	TASK Grit Chamber Concrete Construction

16%

#### **FY24 STATUS**

DESIGN	100%
CONSTRUCTION	15%

\$24,061,502

increase the plant's resilience and efficiency.

These upgrades align with the Commission's efforts to enhance the efficiency, flexibility, and climate resiliency of the SRWTF.

#### Wastewater Grit Removal **Improvements**

The design and bidding process for a new grit removal system began in FY23 and is now under construction. These improvements will better remove "grit" solids from the treatment process by converting two gravity thickeners to grit removal tanks and upgrading the existing grit cyclones and clarifiers. Additionally, a new ventilation system for the grit/screening room will reduce odors and corrosive air, protecting both workers and equipment. The expected benefits include increased treatment efficiency, extended equipment life, and improved safety and odor conditions. Veolia, the contracted operator of the SRWTF, will oversee the design and construction to ensure seamless coordination with ongoing process operations.

#### **Biological Nutrient Removal** Upgrade

The removal of nitrogen and phosphorus in wastewater treatment is crucial for protecting environmental water quality and complying with the latest EPA discharge regulations. These nutrients are eliminated by microorganisms, which are activated through aeration.

However, the existing aeration system has reached the end of its service life. To address this, the system will

be upgraded with advanced control technology and new diffuser heads. This high-efficiency equipment, along with modern computing and logic systems, will enhance treatment effectiveness while providing significant energy savings. Work progressed significantly in FY24 and will wrap up in FY25.

#### **M** Distribution and Collection **System Upgrades**

Nearly half the Commission's water and sewer mains are over 70 years old. The Commission reviews and prioritizes water distribution and sewer collection system projects annually, first for design and then for construction. In FY24, several improvements and upgrades were made to these systems.

While the Water Distribution System Optimization Study resulted in several capital improvement recommendations to address the current systems and a plan was set in motion for scheduled upgrades, emergency repairs to aging infrastructure continued in FY24.

In September 2023, intense rainfall and the collapse of a culvert resulted in a massive water main break near Abbey Brook behind St. James Avenue (see page 49). Repairs to the main were completed in four months at a cost of approximately \$1 million. The 160' of damaged pipe was replaced with more modern material, and inspections and vegetation management was performed beyond the damaged portions. The City also replaced its culvert with one five times larger to be more resilient to extreme precipitation.

Additional planned water distribution system projects included:

- Replacing 9,000 linear feet of water main in Ludlow.
- Completing the replacement of the remaining galvanized service lines.
- Continued upgrades to smart meters.

Each year the Commission advances construction on Sanitary Sewer Infrastructure Improvement projects, for which design and bidding take place in earlier years. In FY24 construction included sprayedin-place pipe (SIPP) lining of approximately 577 linear feet of the 60" - 40" egg-shaped brick sewer pipelines on Main Street in the Court Square area, from Court Street to State Street; rehabilitation of an offset sewer manhole structure at the intersection of Main and Court Streets: and cleaning and inspection of various additional segments of sewer main slated for lining.

Additional investigations were completed for the rehabilitation of a portion of the North Branch Sewer Interceptor within the St. Michael's Cemetery.

Final design and bidding of the FY24 Sewer Infrastructure Improvements project was completed. This project includes the replacement of 4,653 linear feet of water main on Westford Circle, Dover Street and Wilbraham Road, including water main connections to side streets.

Preliminary design for another crop of projects was also completed. Final design and bidding is anticipated in FY25.

#### **A** Locust Transfer and Flow **Optimization Project**

Construction of the Locust Transfer and Flow Optimization project upgrades continued and will continue into fiscal year 2025. The improvements are pursuant to the 2014 Integrated Wastewater Plan (IWP) and Phase 3 Workplan, and fundamentally address three objectives: redundancy of critical infrastructure, operational flexibility, and CSO abatement.



#### A Birnie Avenue Water **Transmission Main Improvements Project**

The Northeast Trunk Water Main consists of a large-diameter pipe located on Birnie Avenue between Huntington Street and the Birnie Avenue Valve Chamber. Following a recent break near a critical junction on this pipeline, an emergency repair was made in 2023 while plans were made to make a permanent fix.

The Birnie Avenue Transmission Main Upgrade project will replace approximately 400' of 36" and 10' of 42" pipeline. The 1953 vintage pipe will be replaced with more modern joints, valve, and valve chamber, which will greatly improve the ability to operate the system by allowing more effective isolation and control of the feed to a large portion of the system. The relocation of a portion of the pipeline line will also allows for more effective maintenance and operation within a congested utility corridor. Design and bidding was completed in FY24. Construction is scheduled to start in FY25, though unanticipated repairs to a related main on Riverside Drive may delay progress.

#### LOCUST TRANSFER STRUCTURE



#### **PLANNED FY25 ACTIVITY**

\$32,267,077 REMAINING BUDGET	\$19,895,655 PERCENT COMPLETE
October 2024  BUDGETED COST	Site Restoration  BUDGET SPENT - FY24
Sept-Oct 2024	Complete  Main Interceptor Transfer  Connection Construction
September 2024	Complete and Backfill Mill River Stilling Chamber
DATE	TASK

#### **FY24 STATUS**

DESIGN	100%
CONSTRUCTION	62%

#### BIRNIE AVENUE WATER TRANSMISSION MAIN IMPROVEMENTS PROJECT



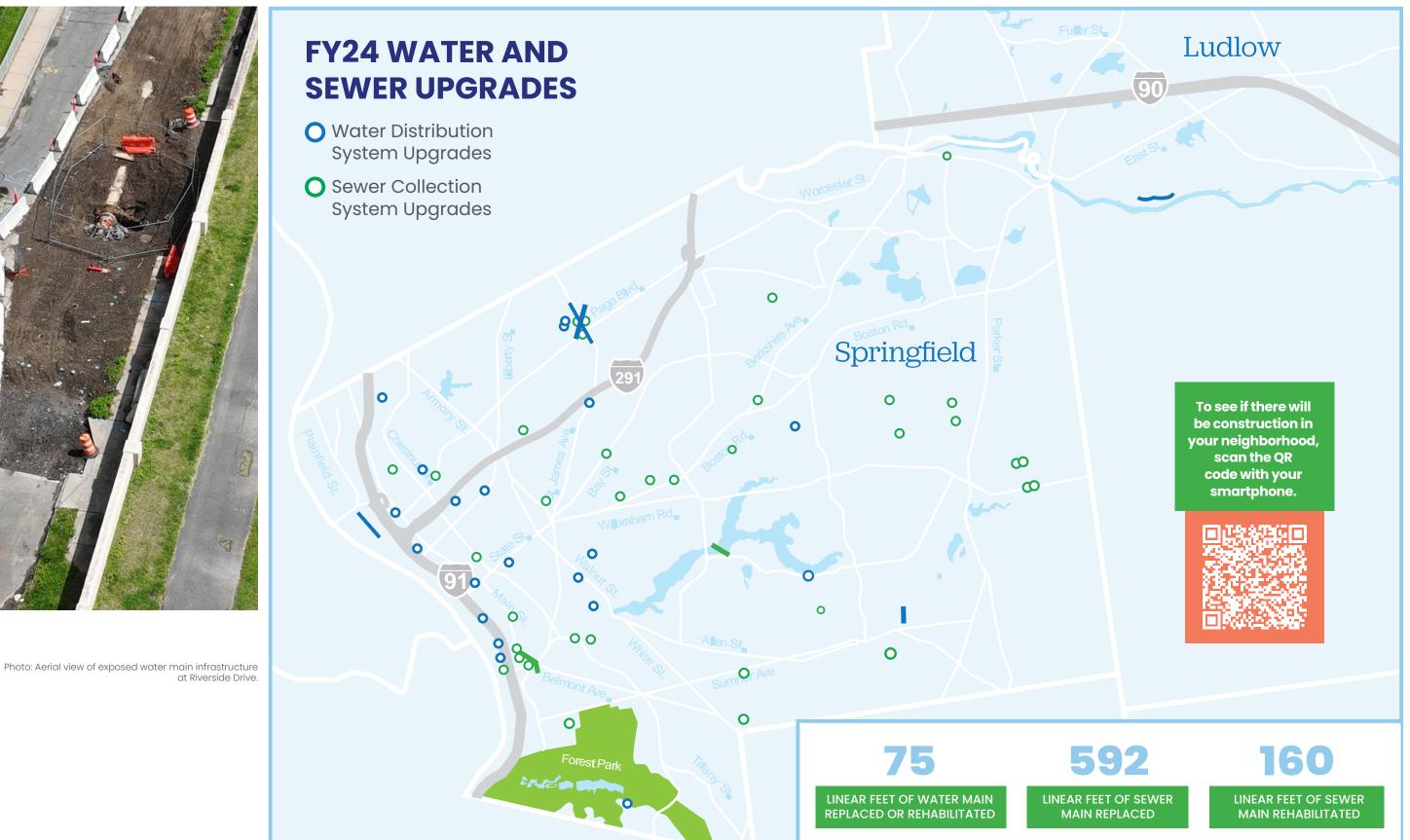
#### **PLANNED FY25 ACTIVITY**

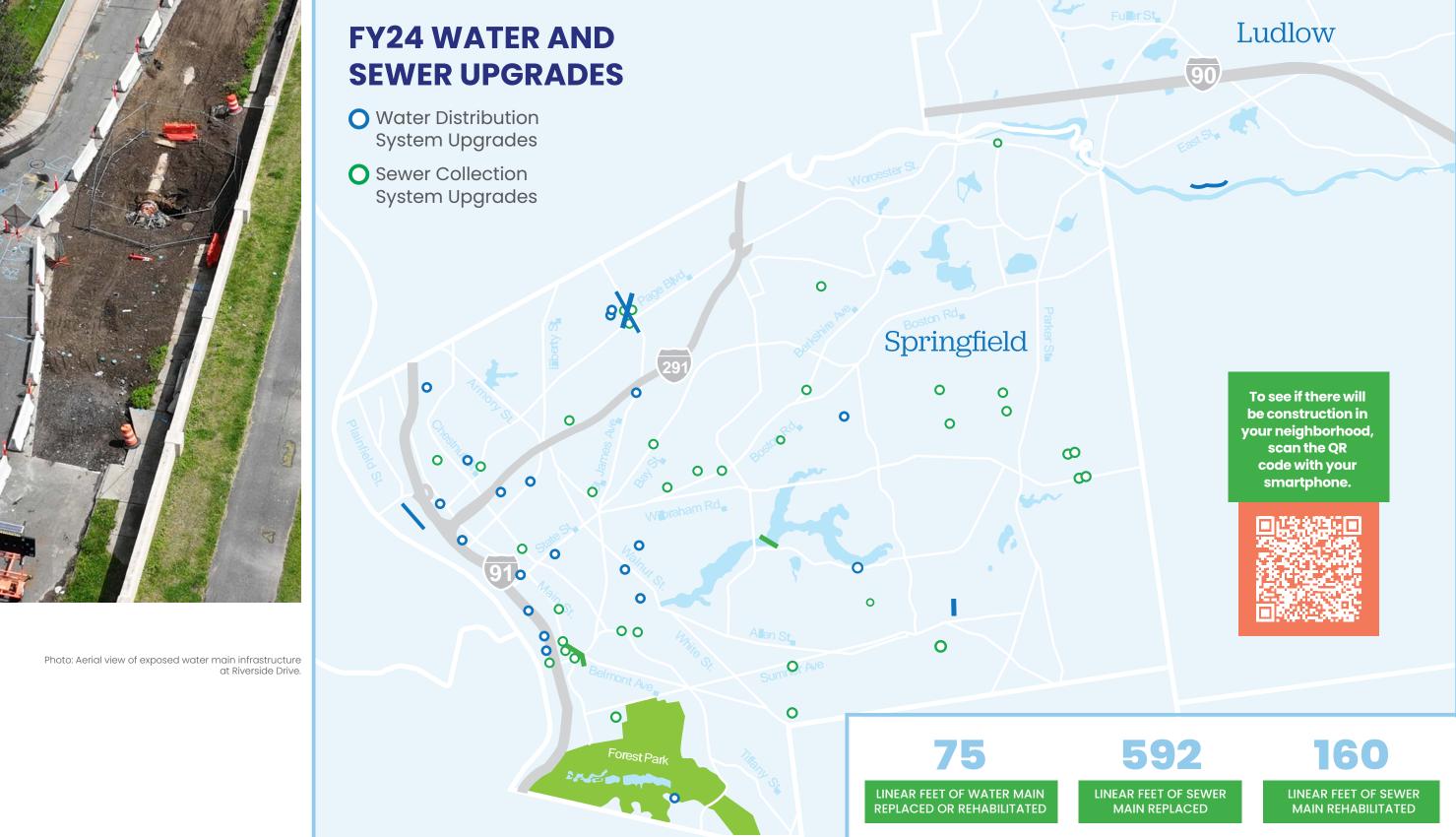
DATE **TASK** Apr-Jun 2024 **Construction Start** (pending Riverside Drive repair)

**BUDGETED COST BUDGET SPENT - FY24** \$7,100,00 \$407,877 **REMAINING BUDGET PERCENT COMPLETE** \$5,782,208 2%

#### **FY24 STATUS**

DESIGN	100
CONSTRUCTION	2%

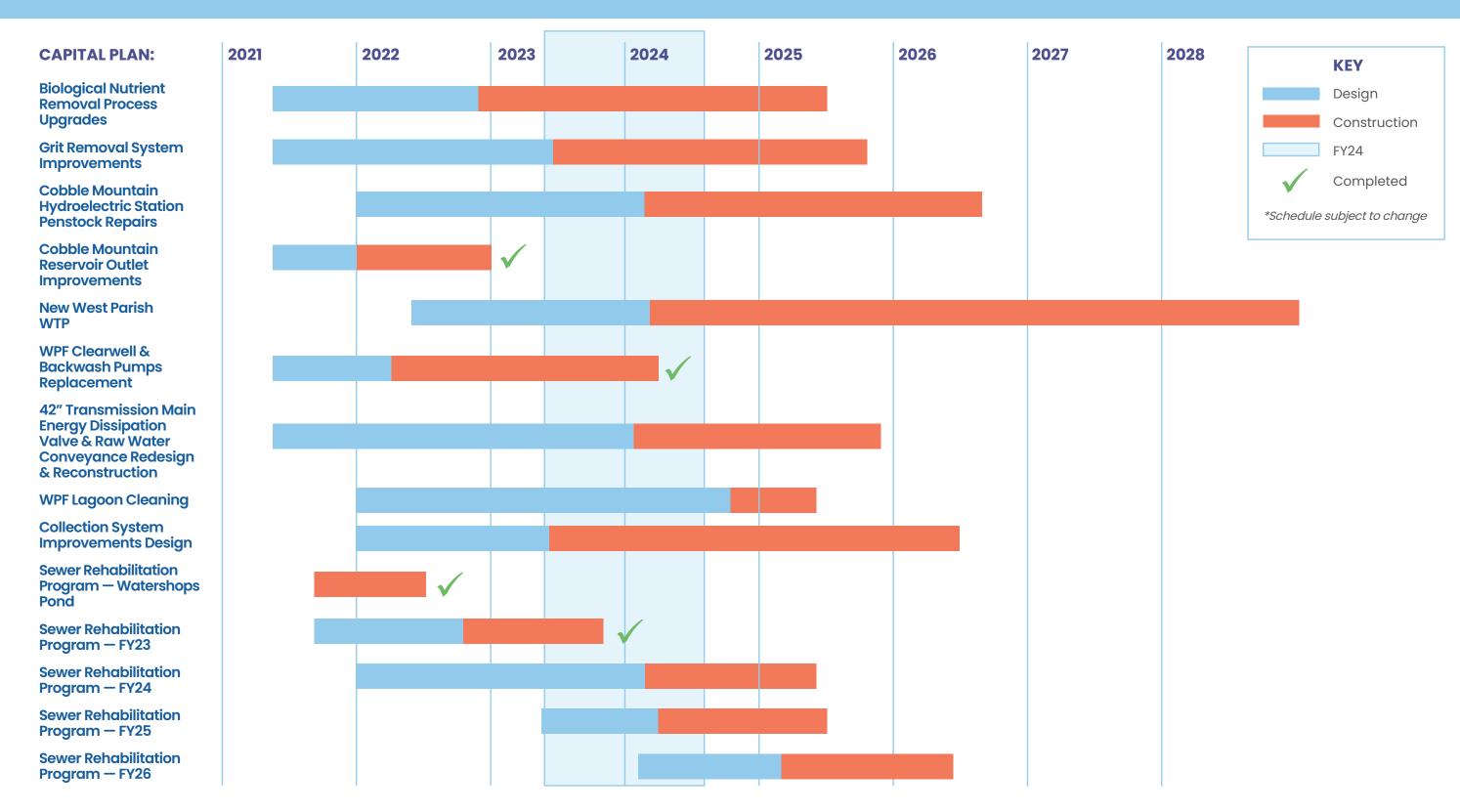




#### **ENGINEERING CAPITAL PROJECTS SCHEDULE**





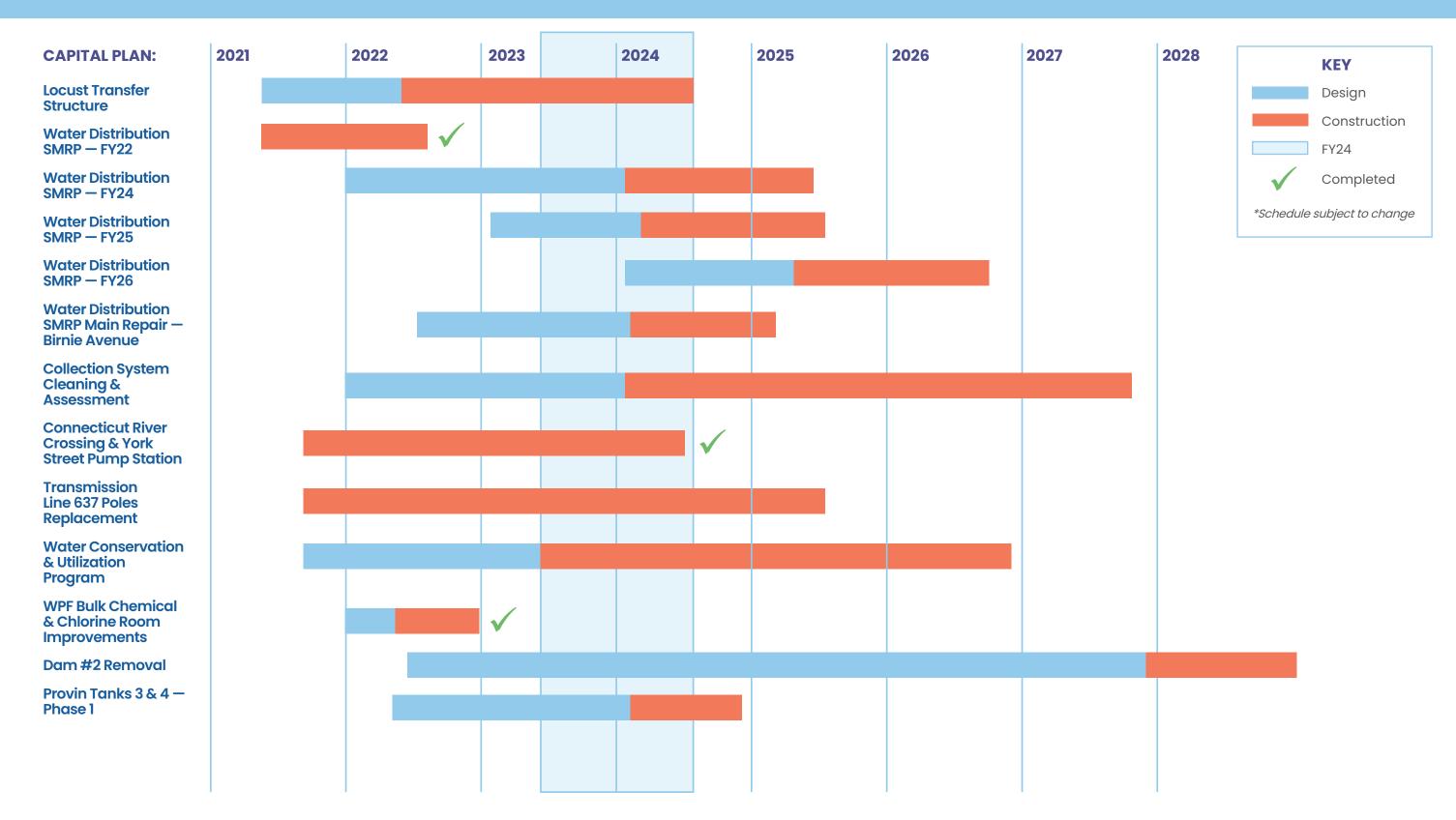




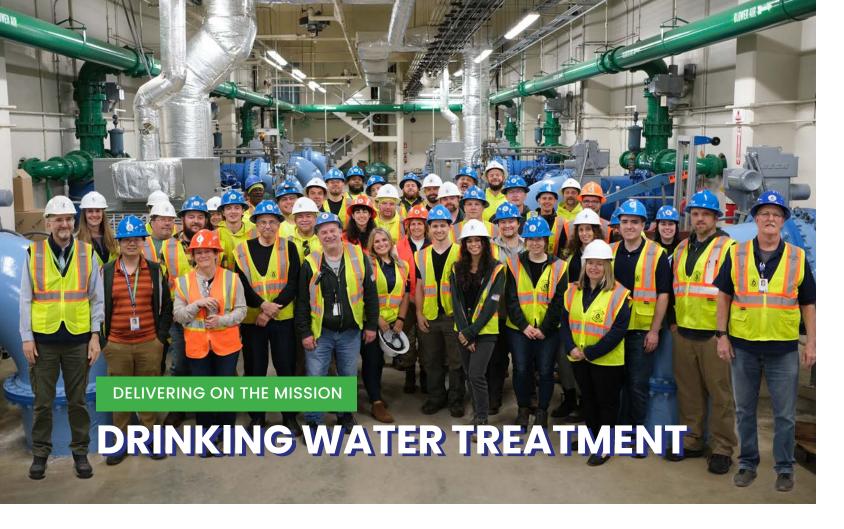
#### **ENGINEERING CAPITAL PROJECTS SCHEDULE**











Water Operations ensures the delivery of clean, safe, reliable drinking water, totaling 10.5 billion gallons in FY24. With multiple large-scale infrastructure renewal projects underway and the construction of the new plant on the horizon, FY24 was an active year for staff at the West Parish Filters Water Treatment Plant.

#### **New Backwash Facility**

The integration of the new Backwash Facility into the existing water treatment process in late 2023 added redundancy and greatly reduced risk of system failure. The facility features two backwash (filter cleaning) water tanks with three new backwash pumps above.

Connecting and commissioning the new Backwash Facility required careful coordination with the Water Operations team, Engineering, project manager, and Design-Build team to complete critical tie-ins to existing piping and infrastructure. Detailed planning ensured the continuous operation of the plant and uninterrupted drinking water supply to customers. Water Operations, along with the Communications department, hosted two public open houses to showcase the new facility.

#### **New Water Treatment** Plant Design

Water Operations staff participated in regular design meetings for the new water treatment plant with Hazen and Sawyer, the Commission's design engineer. Staff closely reviewed the design documents, providing input on all aspects of the design, including

Take a quick virtual tour of the new plant by scanning the QR code with your smartphone.



site layout and connections to existing infrastructure. The project was put out to bid in February 2024. Read more about the new water treatment plant and view a design rendering of the plant on Page 10, or visit newwestparish. com.

#### Rapid Sand Filter Upgrades

In the existing treatment plant, six dualmedia (or "rapid sand") filters built in 1974 are the primary form of filtration. Though the new treatment plant will include 10 new dual-media filters, maintaining the existing 1974 filters

during construction over the next four years is important to producing water. In FY24 the existing rapid sand media depths were adjusted to optimize filter performance, particularly in terms of removing as much dissolved natural organic matter (NOM) as possible. NOM is a factor in the formation of disinfection byproducts.

#### **Raw Water Conveyance Pipeline**

Water Operations staff participated in design meetings for the construction of the Energy Dissipation Valve (EDV) facility and repair of the 42" raw water conveyance piping. This project is critical for redundancy and hardening of raw water conveyance prior to the new treatment facility's construction. The design was finalized and the project was bid in FY24. This pipeline helps convey raw water between Cobble Mountain Reservoir and West Parish Filters Water Treatment Plant. This pipeline also ensures there are redundant paths for water to flow from the reservoir to the West Parish Filters Water Treatment Plant to help prevent service disruptions, should any work need to be conducted.

BILLION GALLONS OF WATER TREATED IN FY24

**DUAL-MEDIA "RAPID SAND" FILTERS** 

**250K** 

CUSTOMERS IN LOWER PIONEER VALLEY

37.3

**MILES OF TRANSMISSION** 

Photo: Staff at the current West Parish Filters Water Treatment Plant.

# Coagulation and Flocculation

#### **Cobble Mt. Reservoir**

Raw water is drawn from the reservoir in Blandford/ Granville and flows to the West Parish Filters Water Treatment Plant.

# THE TREATMENT PROCESS

## **Rapid Sand Filtration**

Dissolved and solid materials in the water are filtered out through layers of granulated carbon and sand.

# **Chlorination and Corrosion Control**

Chlorine is added to kill any disease-causing microorganisms.
Orthophosphate is added to protect pipes from leaching lead or copper.

# **Direct To Your Home**

Water continues to flow by gravity from Provin Mountain through transmission mains to the distribution system for use by more than 250,000 customers in the lower Pioneer Valley.

# Coagulation and Flocculation

Water is mixed with an additive in large tanks to cause solids and dissolved natural organic matter to bind together. The coagulation and flocculation systems will be rebuilt in the new plant.

**Dissolved Air** 

Flotation (DAF)

Water is infused with small

bubbles that further bind

dissolved organic matter

and floats it to the top of

the tank for removal.

#### **Slow Sand Filtration**

A small portion of water is filtered in slow sand filters. This the oldest treatment technology at West Parish. Slow sand filters will be eliminated from the new plant's treatment process.

## Provin Mountain Storage

The treated, chlorinated water is gravity-fed to storage tanks at the top of Provin Mountain in Agawam.





#### **Valve Assessment**

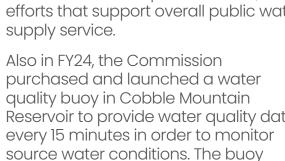
Staff worked with engineering firms to conduct a Valve Assessment at West Parish in July 2023, which provided important information on the condition and operability of the valves on site. This was another maintenance effort to ensure that treatment at the existing plant remains optimized for the next four years while construction of the new plant takes place.

#### **Laboratory & Source Water Quality Programs**

In FY24, the Commission laboratory completed extensive sampling of all Springfield secondary public schools as part of a pilot program in cooperation with UMass and Massachusetts Department of Environmental Protection (MassDEP).

The Commission's lab was awarded the STAR L Award presented by the Massachusetts Department of Environmental Protection (MassDEP) for its work implementing the program. The Commission was honored for its action to reduce lead within school systems. Recipients of these awards are recognized for their excellent water service to the public, no violations and compliance issues, and efforts that support overall public water

purchased and launched a water quality buoy in Cobble Mountain Reservoir to provide water quality data every 15 minutes in order to monitor source water conditions. The buoy captures temperature, dissolved oxygen, conductivity, pH, phycocyanin, and chlorophyll-a.





#### Transmission System & **Provin Maintenance**

The Commission works to keep 37.3 miles of high-volume transmission mains clear of vegetation to allow for access during emergencies, and to protect the integrity of the pipelines. As part of this effort, the Commission began a project to clear areas of the transmission mains in West Springfield that are overgrown and inaccessible. This helped re-establish access to the transmission mains and protect them from damage, such as from falling trees. The Commission will be coordinating with property owners and the local Conservation Commission to complete this work.

Additional FY24 activity includes:

- Adjustments to Provin Mountain flow alarms to improve response times to water main breaks.
- A conceptual design for a new disinfection contact time monitoring station at Provin Mountain Reservoir. The project includes three new flow meters that will improve the Commission's ability to measure

flow in the transmission mains.

 Construction began for improvements to Provin Tanks 3 and 4. This will include lining joints to reduce rainwater infiltration into the tanks and raising manhole risers to reduce the risk of animal intrusion.

#### **Technology Efficiency**

The Commission began a video subscription with a Standard Operating Procedure (SOP) product to assist with creating a database of video SOPs for plant operation. This encyclopedia of digital information is a way to maintain work flow standards among staff.

The group furthered improvements in Power BI/VUEWorks, and also captured drone footage of slope failures and transmission mains.

#### **A Look Ahead**

The Commission is slated to complete the improvements and rehabilitation of the RSF, slow sand filters, and backup power generator so systems are fully operable during the next few years of construction. Staff are also preparing for the maintenance of

Photo: Laboratory Services staff collect a sample from Cobble Mountain Reservoir.

Photo: Laboratory Services team members at the 2024 Massachusetts Drinking Water Awards Day.

plant operations this coming fiscal year while contractors break ground on the new treatment facility. Finally, Water Operations is coordinating closely with engineering and consultants on its ambitious capital improvements program.



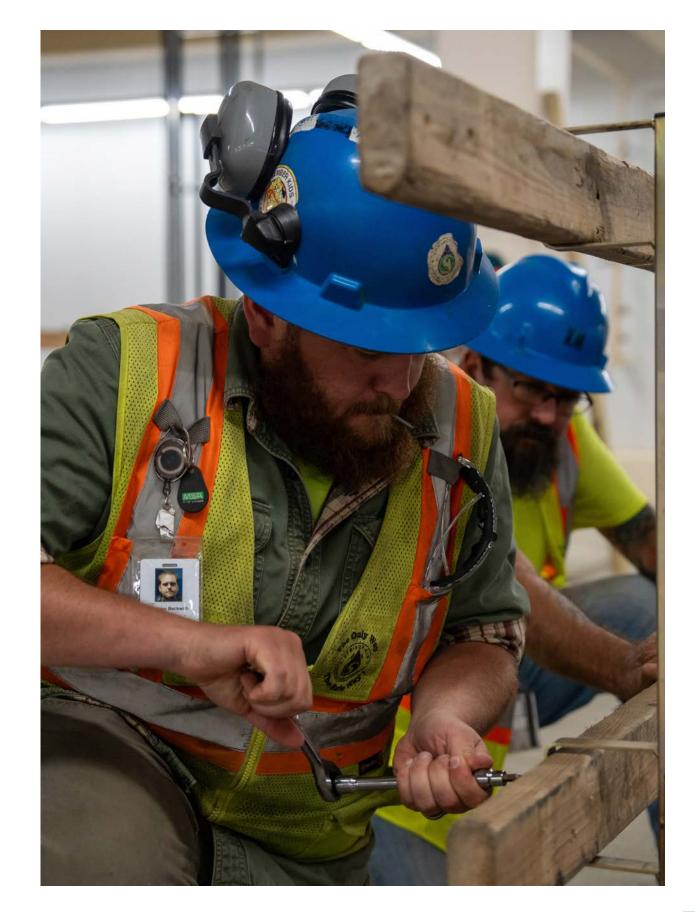


PHOTO: West Parish Filters staff prepare for maintenance of the rapid sand filters.





The wastewater collection system carries wastewater from buildings and homes in Springfield and features more than 470 miles of collection pipe, large portions of of which dates to the late 1800s. Wastewater from Springfield and seven surrounding communities Agawam, East Longmeadow, Longmeadow, Ludlow, Wilbraham, West Springfield, and part of Chicopee - flow to the Springfield Regional Wastewater Treatment Facility (SRWTF) on Bondi's Island in Agawam. While the Commission owns the SRWTF, Veolia is contracted to operate the facility and manage the treatment of the wastewater and its eventual return into the Connecticut River.

Veolia oversees the Commission's 33 pump stations, 24 combined sewer outfalls, and the transmission pipes that link to the collection

system. Backups, repairs, proactive maintenance, and other issues are managed by the Sewer Division.

In FY24, \$16,692,855 was spent to treat 17.1 billion gallons of wastewater.

#### **CSO Notification System**

The Combined Sewer Overflow (CSO) alert system notifies the public when the system discharges untreated or partially treated sewage into surrounding waterways. Combined sewers (pipes that collect both wastewater and stormwater) are found in the oldest portions of Springfield's sewer system, and CSO discharges can occur during rainfall events when stormwater occupies most of the pipe volume. CSO discharges are designed to prevent the backup of combined sewage into

streets and buildings. The Commission has spent approximately \$300 million on system upgrades since the 1990s, including the new York Street Pump Station project, to reduce the volume of CSO discharges. The notification system was established in May 2022 to comply with a new state law.

There were 508 CSO activations in FY24, for a total volume of 604,864,735 gallons. Due to wet weather, July 2023 accounted for the highest percentage (28%) of CSO discharge volume in the fiscal year. CSO discharge volume represented 3.54% of all wastewater treated at the SRWTF - in other words, in FY24, 96.46% of all flow to the SRWTF was captured and treated.

# **Asset Management &**

The AMMP prioritizes the cleaning and inspection of the sewer system to better inventory and prioritize rehabilitation projects.

In FY24, the Commission inspected and cleaned 38,832 feet of sewer pipe as part of the AMMP, in addition to 1,064,494 feet that underwent regular jetting and maintenance by Commission crews. There were 26 sanitary sewer overflows (SSOs) in

IN AMMP IN FY24

FY24.

To view the CSO

notification

system, scan the

QR code with your

smartphone.

increase from the seven that occurred

The Commission continued to use

VueWorks to manage its assets, maintenance activities, costs, and

in the prior the fiscal year.

**Facility Improvements** 

The SRWTF's Initial Capital

Improvements (ICIs) continued

Veolia in 2020. The ICIs include:

FEET OF SEWER PIPE

• ICI1 - Electrical: In FY24 the

this past fiscal year. ICIs are facility

upgrades that were incorporated into

the 20-year operations contract with

CLEANED AND ASSESSED

crew efforts.

WASTEWATER PUMP **STATIONS** 

**TREATED IN FY24** 

# Maintenance Program (AMMP)

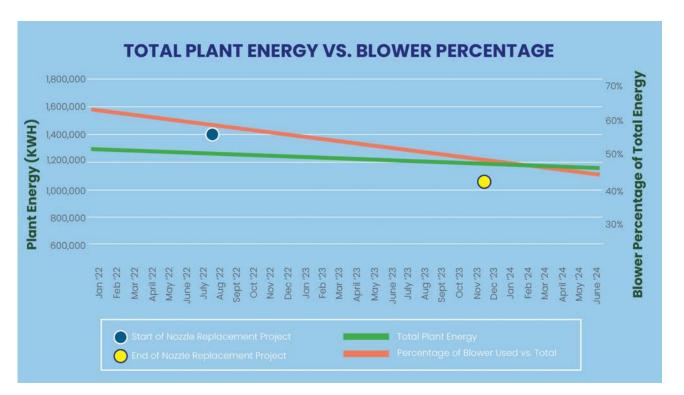
38,832

470

MILES OF SEWER PIPE IN **SPRINGFIELD** 

**BILLION GALLONS** 

Photo: Aeration basins at the Springfield Regional Wastewater Treatment Facility.



#### **Capital Investments Aimed at Increasing Efficiency**

Replacing the nozzles used in the secondary treatment aeration basins has resulted in an overall decrease in the amount of energy needed to run the blowers.

This means the nozzle replacement project has resulted in the reduction of nitrogen levels using less energy.

conduit and electrical lines were installed and pulled, and a required Eversource metering pit was constructed. Eversource will acquire the switchgear and metering equipment for Eversource to install in FY25, after which Veolia will complete the final connections to the new feeder systems. This project was on schedule and on budget in FY24.

• ICI 2 - Ventilation System: The ventilation system in the grit

- screening room at the SRWTF was completed in FY24, with final documentation of equipment and service manuals slated for completion in FY25.
- ICI 3 Distribution System: Air is used to activate microrganisms that break down and treat wastewater. The diffused aeration distribution system project, which included replacing thousands of air nozzles, was completed in FY24, improving both treatment and energy efficiency (see

chart above). The Commission is collecting data to optimize the reduction of nitrogen while limiting the production of biosolids.

ICI 4 - Recycle System: The hybrid biological nutrient removal (BNR) system mixed liquor recycle pump was replaced in FY24. This increases the facility's ability to remove nitrogen from the system by allowing all flows to pass through the aeration system twice.

# Wastewater Grit Removal Improvements

During initial treatment, wastewater is treated to remove solids and grit, such as sand, gravel, coffee grounds, and food scraps, which can enter wastewater and accumulate in pipes, basins, and machinery. The Grit Project, which was underway in FY24, improves the removal of grit from the treatment process. In FY24 the initial electrical layout was completed. The piles for the foundation will be installed in FY25, with concrete work scheduled for fall 2024. The concrete work will continue through the winter, with equipment installation occurring in spring and summer 2025.

#### **Biosolids**

Biosolids are produced as a result of the treatment process. The disposal of biosolids is increasingly challenging and costly as disposal sites and methods become more distant and limited, respectively. To find solutions, the Commission is a part of a regional biosolids collaboration that in FY24 advanced an initial study on a potential regional biosolids processing facility. The team will continue in FY25 to work on developing a completed study for the partners to review and determine next steps.

#### A Look Ahead

The full closeout of the YSPS and Connecticut River Cross Project is planned, along with the acquisition of the electrical feeder system for the SRWTF. This will help create a reliable and redundant electrical service.

The Commission will also continue to monitor the treatment process at the SRWTF and the energy used to carry out that task, including if there are opportunities for alternative energy sources to continue moving toward sustainable processes.



Photo: Inspecting sewer mains using a robotic camera.

SPRINGFIELD WATER AND SEWER COMMISSION



The Little River watershed is the origin of the region's drinking water. In recent years, climate change impacts have forced the watershed team to adapt to unexpected changes. Staff have trained to be adaptable and responsive to more frequent and highvolume storms, from identifying sites to fortify and protect the night before rainfall, to quickly assessing damage and repairing roads in the days after. In FY24 culvert repair and drainage improvement projects were initiated as a response to erosion and damage from unexpected high-volume storm events. These events are becoming increasingly more common, and the Commission is working to make watershed infrastructure more resilient in the face of these new high-volume flows to protect water quality.

In addition to fortifying the

Commission's property in the Little River and Ludlow Reservoir watersheds, the team's stewardship also includes:

- Maintaining watershed roads and culverts
- Advancing forest management plans
- Seeking opportunities for additional conservation land

#### **Forestry Planning**

The North Blandford Forest Stewardship Plan was completed at the end of FY24 and covers 2,111 acres of Commission property in the watershed located north of Cobble Mountain Reservoir. This plan, completed by a consulting forester, provides detailed information on the forest, including the presence of invasive species. It also provides

Photo: Land Stewards monitor the watershed..

management recommendations in keeping with the Commission's goal of having a forest diverse in both species and vertical stratification that is also capable of regenerating itself overtime.

# Watershed Maintenance & Monitoring

The Commission recognizes the importance of a resilient forest ecosystem as it greatly benefits source water protection. As such, the department has added a new forest ecologist position, which is responsible for carrying out forest management practices as recommended by the consulting forester, including:

- Tracking, removing, and monitoring invasive species
- Monitoring deer exclosures and future slash walls
- Implementing non-harvest thinning recommendations
- Assisting Land Stewards with parcel monitoring and boundary maintenance duties

Forestry management is an intensive task and is largely done in part by the Commission's Land Stewards.
The stewards help conduct vigorous monitoring of the approximately 18,000



acres of property in the Little River and Ludlow watersheds to ensure property is adequately protected. In FY24, Land Stewards maintained 32.8 miles of boundaries, including adding signage, refreshing boundary markers, checking for encroachments, and documenting boundary monuments through GPS to make Commission records more accurate. Land Stewards also inspected 137 culverts to identify blockages, erosion and other issues. They also monitored 4,560 acres of watershed, which identifies activities that may pose a risk to source water quality. Land Stewards ensure activities

14,803

ACRES OF LITTLE RIVER
WATERSHED PROTECTED
BY THE COMMISSION

4,560

ACRES INSPECTED IN FY24

**137** 

CULVERTS INSPECTED

33

MILES OF BOUNDARY LINES
INSPECTED IN FY24

Photo: The Forest Ecologist measures the distance between invasive plants in preparation for treatment



at the reservoir shorelines and accompanying wildlife are in keeping with conservation restrictions. They watch closely for invasive species, unauthorized use of land, and illegal dumping.

Additional Land Steward and Commission staff efforts support:

- Invasive species removal.
   Staff work with the consulting forester to take inventory of sites around the watershed with invasive vegetation. Staff have implemented several mechanical methods of removal and continue to document regrowth and treat as needed.
- Maintaining deer exclosures.
   Staff monitor and maintain four deer fence exclosures in recently harvested areas of the watershed. These structures

keep deer and moose out of these sites, allowing trees to grow back without the threat of animals eating them.

- Non-harvesting management.
   Staff implement non-harvesting management, which is small-scale work that promotes continued growth of healthy trees.
   Some of these practices include:
  - Grape vine removal: grape vines grow upwards into trees, damaging them and restricting the growth of trees in the canopy. Staff cut vines to alleviate these issues in about 33 acres of watershed forest.
  - Tree girdling: In sensitive areas where trees cannot be accessed by traditional logging equipment and are experiencing overcrowding conditions, staff stunt the

growth of surrounding trees to promote the growth of other trees, and especially target uncommon or desired species in the area. These trees can then get more sunlight, space, and other resources needed to mature. Staff have girdled hundreds of trees in watershed forests.

The Water Resources Department is collaborating with the GIS Department to document and plan future forestry work using the map-based software VUEWorks. This method allows staff to plan, document fieldwork, and develop a catalogue of forest management efforts. Land Stewards input much of their observed data

into GIS and VUEWorks.

Land Stewards at Ludlow Reservoir are responsible for continual maintenance of more than 7 miles of canals. They also monitor Knight's Pond and Cherry Valley dams and spillways for potential hazards.

#### **Land Conservation**

The department collaborated with a local land trust to support conservation efforts and identify property in the watershed with the potential for conservation. Nearly 50% of the forested land in the Little River Watershed is owned by the Commission. An additional 9% is protected by public or non-profit land



Photo: The Hull Conservation Area is maintained by the Commission for bird habitat.

Photo: Members of the Watershed Protection team.



protection organizations.

#### **Public Access**

The Commission monitors more than 1,900 acres of public access property. In FY24, Ludlow Reservoir welcomed 14,661 visitors. To continue providing access to acres of trails and public ways, watershed maintenance crews perform frequent maintenance on public access properties, including:

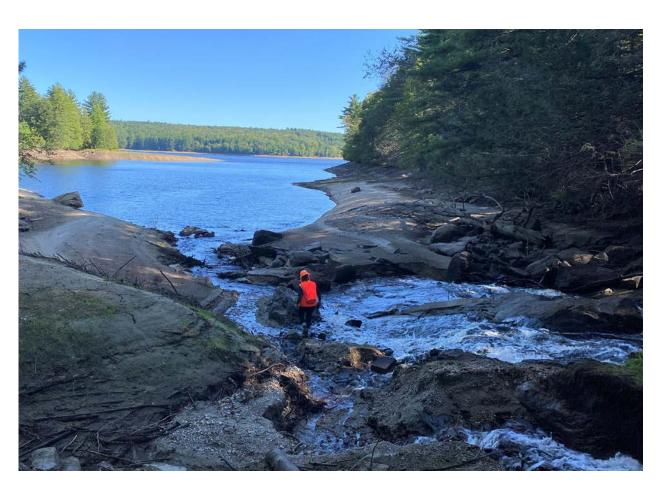
- Maintaining informational signage and repairing access roads and parking areas.
- Improving gravel roads.
  Commission staff resurfaced, regraded, and improved drainage on 2 miles of unpaved roads around the watershed.
  These efforts helped repair runoff damage from rain events, limit erosion and sedimentation to source waters, and improve accessibility around Commission watershed property. To

implement these and other surface improvements, the Commission collaborated with instructors from Baystate Roads, a local technical assistance program that offers roadway construction instruction and support to agencies and municipalities. This partnership has allowed the Commission to learn of new methods and materials to improve its road maintenance program.

- Implementing bridge repairs.
   The Commission contributed
   \$135,000 to the Town of
   Granville's bridge repair
   project, which rehabilitated a
   concrete bridge crossing Alder
   Brook, a tributary to Borden Brook
   Reservoir. The bridge provides
   essential access to watershed
   infrastructure.
- Designing new drainage projects. The Commission is working with a consultant to redesign drainage along two gravel roads around Cobble Mountain Reservoir to help mitigate erosion and make infrastructure more resilient.

#### **Wildlife Monitoring**

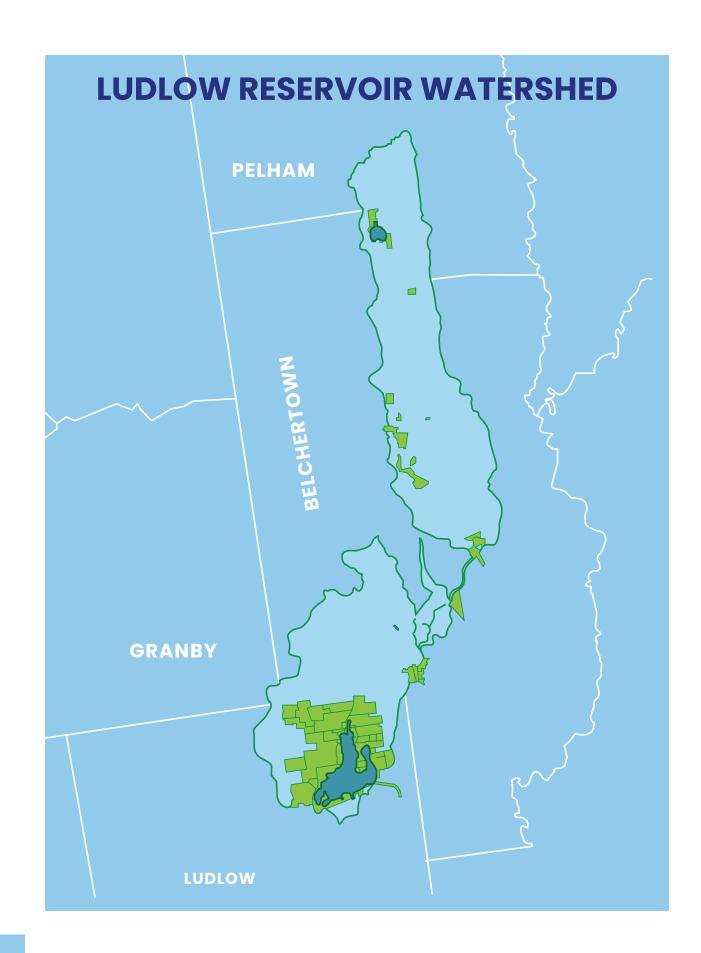
The Commission mows a 6-acre field at Hull Conservation Area, a public access property in Blandford that features a bird and pollinator habitat and is part of a 10-acre corridor that is home to native grassland birds. Maintenance involves mowing the field in the late summer to prevent tree growth. Maintaining the open, grassland condition of the field creates habitat for rare native birds not typical



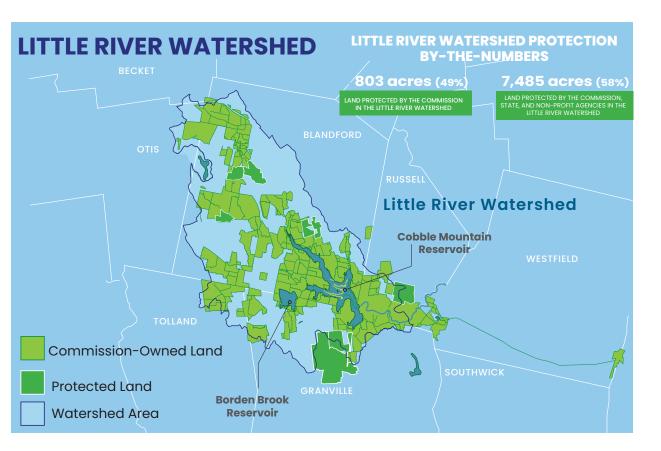


Top: A Land Steward monitors the Borden Brook Reservoir shoreline. Bottom: A wetland in the Little River watershed..

Photo: A Land Steward encounters a vernal pool while monitoring property in the watershed.









of those found in a forested habitat.

Staff also implemented a waterfowl monitoring program to document geese, ducks, and other waterfowl in Commission source waters. The goal of this program is to develop baseline observations pertaining to waterfowl in the reservoirs.

#### **Culvert Maintenance**

Culverts are located throughout the Little River Watershed and Ludlow Reservoir. They help channel water away from critical roads and paths, making their care all the more critical. Maintenance crew cleaned pipes, added and or repaired headwalls, and added erosion protection where needed. The department conducted the following major culvert projects:

• Cobble Mountain Culvert Daylighting: The Commission

worked with a consultant to remove a blocked culvert that drains to Cobble Mountain Reservoir. Removing the culvert, or "daylighting" the stream, reduces future erosion and sedimentation, promotes aquatic passage, and ultimately returns the site to its natural condition.

Replacement: The Commission worked with a consultant to rehabilitate a blocked culvert beneath the Jabish Canal, which feeds Ludlow Reservoir. Cleaning and potentially replacing the culvert improves flow out of the wetland adjacent to the canal and access roads, and limits erosion and road overtopping from elevated water levels in the wetland.

#### **New Partnerships**

In FY24 construction began on the Appalachian Mountain Club's (AMC) All Persons Trail at Noble View Outdoor Center in Russell. The Commission partnered with AMC on the project, which involved resurfacing and improving drainage along an existing trail. The trail is part of a network of other trails, woodlands, and abandoned farm fields spread among 360 acres in the Connecticut Valley.

#### **Source Water Protection**

Commission staff continued to update the Commission's Source Water Protection Plan to include recent watershed management efforts and new goals for protection efforts for the next three years. The plan will help identify, evaluate, and propose mitigation strategies for potential threats to water quality in the Little River Watershed.

#### **A Look Ahead**

The Water Resources Department will continue to identify, treat, and monitor invasive species in the watershed.

Management goals and efforts will be documented in an Invasive Species

Management Plan in FY25.

The Group will continue thinning and regeneration cutting at a property on South Street near Cobble Mountain Reservoir as part of its silvicultural management practices. The cutting will remove trees that are overcrowded or in poor health. This will make room for neighboring, healthy trees to mature. Regeneration cutting will remove a portion of the overstory and midstory trees, generally in groups



or patches, dominated by large trees of poor health, structure, or at risk of succumbing to emerald ash borer beetles.

After the regeneration cutting, slash walls will be constructed from harvested timber and slash. These structures will help exclude large animals from the recently cut areas, giving trees the chance to grow without browsing pressure from deer and moose.

Photo: 2023 Pipeline Program interns assist with culvert inspections.

Photo: Construction of the new Appalachian Mountain Club (AMC) All Persons Trail at Noble View Outdoor Center

SPRINGFIELD WATER AND SEWER COMMISSION 4



The Commission's Field Services division works daily to maintain the intricate, large network of underground water and sewer pipes that lays beneath the streets. The system also includes assets like hydrants and manholes.

In addition to conducting regularly scheduled maintenance, the group manages water consumption surveys, replaces water and sewer service lines, performs water quality checks, and jumps into action to resolve emergency main breaks and service line repairs.

In FY24 the Field Services conducted their regular maintenance programs while also undertaking a large service line replacement program, which required sustained and dedicated staff time. The galvanized service line replacement program is a proactive effort to identify and remove all

galvanized steel water service lines in advance of the new Lead and Copper Rule Revisions (LCRR) set to go into effect in October 2024. Field Services crews worked closely with Customer Service to reach out to customers with galvanized or unknown water service lines and schedule replacements.



Top and bottom: Field Services team members at work



#### **Abbey Brook Water Main Break**

Though water main breaks are nothing new to Field Services, the 36" water main break at Abbey Brook in September 2023 was memorable. The large break resulted in a temporary drop in water pressure in parts of Springfield and Ludlow, leading to a city-wide boil water notice and school cancellation. The area where the break occurred was destabilized due to an intense rain storm. At least 5 to 10 million gallons of water was lost due to the break.

Crews from the WCG worked into the night to find, isolate, and restore service as quickly as possible. Significant coordination with Water Operations, laboratory staff, and the Massachusetts Department of Environmental Protection was required to ensure water was suficiently treated before rescinding the boil-water order. Due to the large nature of the break, significant reconstruction followed, which was overseen by the Commission's **Engineering Department.** 

#### **Water Infrastructure** Maintenance & Upgrades

In FY24, the Team responded to 21 main breaks and repaired or replaced 139 service lines. The Field Services Group repaired and upgraded more than 5,700 linear feet of water main, including 9,000 linear feet in Ludlow.



#### **Galvanized Service Line Replacement Program**

The galvanized service line replacement program was launched in 2021 in preparation for new regulations requiring the removal of all lead and galvanized steel service lines. After some initial challenges due to supply chain issues, the Field Services group worked closely with Customer Service to reach customers and steadily replace service lines. In FY24, the project was nearing completion, with 66 galvanized since the program began. In addition, as of 2005, the Commission had already removed all known lead service lines.

# TOTAL # OF GALVANIZED SERVICE LINES REPLACED TO DATE

66

TOTAL # REMOVED IN FY24

#### **Water Consumption and Tracking**

The Commission's Meter Group manages water meters, which measures and records water consumption to ensure accurate billing. During routine appointments, meters are assessed for potential replacement with Advanced Metering Infrastructure (AMI), or "smart meters." In most cases when there are older meters or new water service lines. smart meters are installed to allow customers to monitor their water consumption in real-time through a web portal. Of approximately 47,000 meters, 32% are now AMI meters. In FY24, 1,749 meters were upgraded to smart meters.

With the increase in smart meters, Customer Service representatives were able to help more customers without the need to dispatch a service crew as the real-time data assists in proactively reaching out to customers if ununusal consumption is detected, or for customers themselves to respond immediately to unintential high use, saving them time and money.

Field Services staff conducted 394 water consumption (or "leak"

**TOTAL # OF KNOWN OR** SUSPECTED REMAINING AT FND OF FY24

detection") assessments in customer homes in FY24. In addition, Field Services coordinated with the Engineering Department on a new Leak Detection program utilizing acoustic technology. Field Services crews assisted by pre-inspecting valve boxes. Phase 1 of this program involved acoustic monitoring on 124 miles of water main, with Field Services investigating active leaks found. Phase 2 of the Leak Detection Program is scheduled for FY25. The determined preferred method from Phase 1 will be utilized in subsequent phases, resulting in approximately 1/4 of the system inspected each fiscal year through FY27

#### **Wastewater Collection System Operations**

The Field Services' Sewer Group upkeeps the sewer system that transports wastewater to the Springfield Regional Wastewater Treatment Facility (SRWTF) on Bondi's Island. The Group reairs sewer mains and services, cleans and repairs manholes, jets sewer mains and syphons, and actively addresses emergency situations. In FY24, the Sewer Group responded to 612 sewer backups.

#### FIELD SEDVICES STATISTICS & ACTIVITIES EV24

WATER AND SEWER SYSTEM	
Miles of Water Main	579
Number of Valves	19,858
Number of Hydrants	6,234
Number of Meters	47,049
Miles of Wastewater Mains	474
Number of Wastewater Manholes	11,518
WATER QUALITY GROUP	
Hydrants Inspected	1,955
Hydrants Repaired/Rebuilt	89
Valves Exercised	4,241
Miles of Mains Flushed (UDF Program)	105
WATER CONSTRUCTION GROUP	
New Hydrants Installed	12
Hydrants Replaced	87
Water Main Breaks Repaired	21
Water Service Replacements	139
New Valves Installed	49
Valves Replaced	34
METER AND FIELD SERVICES GROUP	
Meters Installed (Primary and Auxiliary)	6,058
Water Consumption Assessments	394

Water Consumption Assessments

#### **SEWER GROUP**

Manholes Cleaned	224
Sewer Jetted (feet)	1,064,49
Sewer Backup Responses	612
Sewer System Repairs	21
Cave In Responses	72
Residential Sewer Service Line Repairs	31

#### **Cross Connection Control**

Cross-connections are points where a drinking water line is connected to a potential source of pollution, such as HVAC systems, that could potentially "backflow" into the public water system in the event of a drop in pressure. Cross connection control is mandated by the Massachusetts Department of Environmental Protection and ensures buildings throughout Springfield and Ludlow have operable backflow prevention devices. This equipment is especially critical for equipment or other systems potentially containing chemicals or dirty water. In FY24, this Cross Connection Control Program conducted 4,738 backflow inspections at 910 facilities.

in the field, and progress on work is reported back to ensure completion in accordance to expectations.

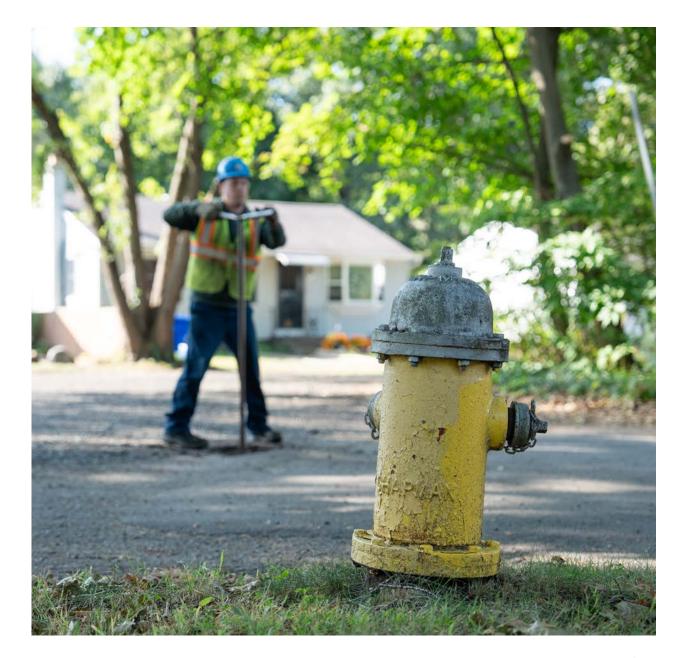
Field Services also utilizes Microsoft
Power BI, which inputs work orders from
VueWorks to track overall progress,
evaluate needs, and reallocate
resources as necessary. Real-time
data shared between Billing and Field
Services also allows for more timely
service response than was previously
possible.

#### **Technology Changes**

Field Services leverages the use of Mobilevue and Workforce digital platforms for maximization of its staff and services. Work orders are are electronically assisgned to those



Photo: Field Services crews visit a customer about a possible leak.



#### A look ahead

Field Services plans to sustain or exceed a goal of 5,000 AMI smart meter upgrades based on current capital account budgeting. The group will continue to expand the training on using the analytical tools offered by AMI platforms with customers and Commission staff, and seek to move forward into a singular AMI system network in the coming fiscal year.

Work will also proceed on Phase 2 of the leak detection project in FY25.

As always, Field Services will continue to stay proactive and ready to support all Commission needs.

Photo: Exercising valves and inspecting hydrants are important proactive maintenance activities to protect public health and safety.

SPRINGFIELD WATER AND SEWER COMMISSION



The Commission's complex digital infrastructure requires a high level of investment and maintenance. The Technology Infrastructure team is responsible for maintaining high-quality service to customers to ensure continuity in delivering essential services, while remaining vigilant against ever-expanding cyber threats and keeping systems up to date.

#### **Cybersecurity Protection**

The IT Department works diligently to ensure all systems are protected from ongoing cyber threats. This includes mitigating vulnerabilities through system patching, implementing firewall policies, enhancing email and endpoint security, deploying intrusion detection systems, monitoring networks,

enforcing network segregation, and offering comprehensive employee awareness training. A multi-layered approach ensures the Commission stays strong in protecting against potential threats.

An ongoing partnership with CISA (Cybersecurity and Infrastructure Security Agency) in FY24 provided regular network scanning to monitor for cyber vulnerabilities and threats.

The team continued to replace endof-life Cisco network switches and systems so that they are supported by the manufacturer and can be updated to protect against exploits and vulnerabilities. This is an ongoing project

Additional layers of cyber protection in FY24 included:

Photo: A remote camera inspects a sewer line.

- Adding new cybersecurity subscriptions for ID protection and to monitor for password compromise.
- Expanding MFA (Multi Factor Authentication) to include all remote connections.
- Continuing to harden IT and OT networks
- Expanding email security by including checks to see if emails are not being impersonated

#### **Business Intelligence/CMMS**

The Business Intelligence team was established in September 2023 and works to find technological solutions to enhance business functions and customer experiences. In FY24, two new staff members joined the team and contributed to developing and testing a modern budgeting solution for all departments. This solution streamlined the budgeting process by eliminating hours of report generation and reducing significant duplication of effort.

The team also published several Finance and Customer Service dashboards allowing staff to better track down missed revenue, manage inactive accounts, and improve overall processes that impact



#### ratepayers.

A huge milestone for FY24 was the submission of the Commission's draft water service line inventory to MassDEP. This mandated project was the culmination of years of work through a joint effort of the CMMS/ BI, GIS, Operations and Water Quality teams.

# **TECH ASSETS**

#### TOOLS TO INCREASE **EFFICIENCY**

47

**SECURITY CAMERAS INSTALLED IN FY24** 

26

POWER BI DASHBOARDS **PUBLISHED IN FY24** 

115

DRONE INSPECTIONS **FLOWN IN FY24** 

Photo: A security camera in the watershed.

Additional Technology Infrastructure achievements in FY24 included:

- Development of a Mobile
   Water Station Request form
   to streamline the process for
   community groups to request
   a Commission water station for
   public events. The team also
   created automated internal
   processes to ensure crews,
   equipment, and staff are
   dispatched to water station
   events in an efficient manner.
- Replacing all end-of-life server and storage equipment in the data center, ensuring the Commission remains current on hardware and software. This keeps downtime to a minimum and maintains the Commission's access to data communications secure, reliable and efficient.
- Deploying WIFI hardware to all Commission locations including remote buildings.
- Continuing to rebuild SCADA data center servers, storage, and network at two locations for system-fault tolerance and high availability. This project is expected to be completed in FY25.

- Upgrading software for centralized gate/door access and surveillance system, while completely replacing the previous gate/door access system.
- Implementing the Everbridge mass-notification (Reverse 9-1-1) system for more effective communication with both ratepayers and staff.
- Adding high-resolution ortho imagery to the catalogue of products that can be provided from drone flights.

#### A Look Ahead

The IT Team will focus on several key initiatives, including setting up secure one-way data extraction for the OT environment (SCADA) to enhance data utilization through Power Bl and prepare for the new West Parish Water Treatment Plant. They will also continue replacing end-of-life networking equipment, expanding Business Intelligence services, and procuring a survey drone equipped with advanced payloads such as LiDAR.



Photo: An IT staff member inspects technology in the watershed.



The Customer Service Group (CSG) is the first line of support when a customer needs help. With more than 43,000 service points, the Commission is the largest public water utility in the region, making quality customer service essential to maintaining the success of its operations.

#### **Customer Support and Outreach**

The Customer Service Representatives (CSRs) handle two main areas: billing and accounts, and field operations. The billing and accounts team provides solutions to payment and account inquiries. The team fielded 39,951 calls in FY24. The customer service/billing supervisor and collection teams work collaboratively to achieve customer satisfaction. From setting up a payment plan to assisting with , the team takes pride in being the first point

of the contact to customers.

The field operations team handles water and sewer emergencies, service appointments, and inspections. The team answered 15,317 calls this fiscal year. Staff receive constant training to offer the most productive results to customers and the Commission.

Thanks to robust communications and outreach, the field operations customer service team helped Field Services crews finish the majority of its galvanized service line replacements in FY24, including the identification of unknown pipe materials.

Outreach for Henderson box meter pit replacements also neared completion, resolving a safety issue presented by that type of meter pit.

In FY24, turnaround on feedback, memorandum issuance, and assistance with scheduling applications became quicker due to updated and new online forms, and refreshed work processes. The field operations customer service team is also implementing a more intensive vetting process for Commission-approved contract applications. The continued expansion into online communication effectively supports customers requiring services, meter replacements, and those needing additional information.

#### **Customer Assistance Programs**

The Commission routinely offers various programs and assistance to customers needing help managing their bills, and the billing and accounts customer service team regularly informs customers of program availability.

In FY24 there were 1,179 accepted applications for the Commission's Customer Assistance Program (CAP). The CAP provides up to a \$250 annual credit for single-family account holders that qualify for heating fuel assistance.

Customer Service also received 743 new senior/disabled/disabled

Veteran discount applications and renewed 1,106 discounts, totaling to 1,631 approved discounts. In addition, the Commission issued 174 non-beneficial (leak) abatements. The Commission conducts the following to provide financial assistance to customers:

- Works closely with Way Finders to quickly qualify customers for financial assistance to avoid their water from being shut off or to bring it back online quickly.
- Works closely with Valley Opportunity Council (VOC) to provide eligible heating fuel assistance customers with a CAP application.
- Offering a Non-Beneficial Use Allowance ("leak abatement"), which aims to educate customers about water conservation through leak detection and timely repair, and grants financial relief. In FY24, 174 customers took advantage of this allowance.

#### **Leak Detection Program**

The team reaches out to customers quickly to notify them of potential water use issues. In FY24, more than 1,500 emails and more than 2,500

**743** 

NEW DISCOUNT APPLICATIONS

1,106

DISCOUNTS RENEWED 174

LEAK ABATEMENTS

Photo: A CSR assists with an account at Ray Jordan Senior Center.

SPRINGFIELD WATER AND SEWER COMMISSION

mailings were sent to customers. Of these, 170 resulted in leak investigations, and 121 resulted in leak abatements.

Customer service representatives also guide customers in taking advantage of the free consumer portals available once a smart meter or AMI upgrade has been completed at their residence. These portals benefit many different types of customers: absentee homeowners, landlords, property management companies, municipal, commercial, and industrial account holders. CSRs routinely provide customers with smart meter technology information about when a water use issue started and if that issue appears to have been resolved.

In FY24, 1,749 smart meters were installed, 612 of which resulted from usage investigations that usually started through proactive outreach from customer service.

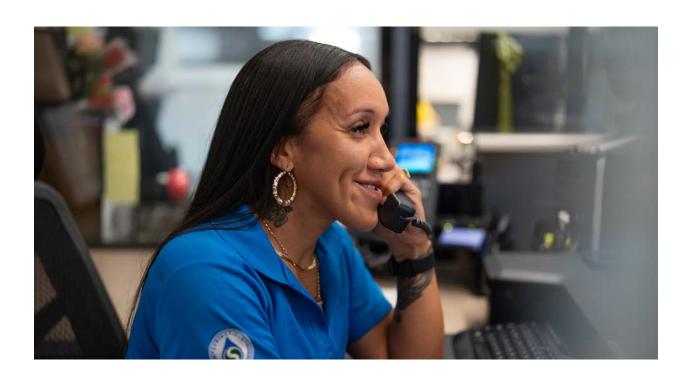
#### **A Look Ahead**

A "First Call Resolution" effort has greatly improved and will continue to do so as CSRs receive more training to achieve customer satisfaction.

The goal of the effort is to ensure CSRs resolve issues and customer dissatisfaction during the first call with a customer.

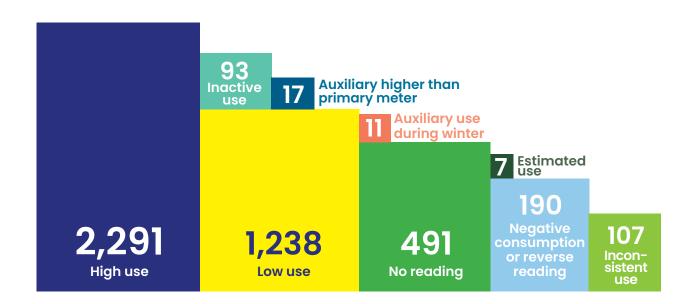
Customer Service will continue to work closely with the Field Services
Group and Meters team to investigate inactive meters with high balances, like those of vacation properties, on a monthly and annual basis.

Technological improvements to online payment processes will continue to help streamline payments and reduce the amount of back and forth with customers.



#### Photo: A member of Field Services customer service speaks with a customer.

#### **VARIOUS TYPES OF UNUSUAL USAGE DETECTED**



# SMART METER INSTALLATIONS RESULTING FROM USAGE INVESTIGATIONS

USAGE INVESTIGATION REASON	# OF SMART METERS INSTALLED AS A RESULT OF INVESTIGATION
Estimated Usage	2
High Usage	179
Inactive Meter with No Read	8
Inconsistent Usage	19
Low Usage	100
No Read	206
Zero Usage	98



With a generational-scale reinvestment underway, communications and outreach to customers and legislators alike has never been more important than it was in FY24. The Commission plays a vital role in supporting the region, and community outreach

efforts are crucial in informing people of this support.

FY24 saw many successes, but perhaps some of the most exciting were the kick-off of the Pipeline Program and two successful open houses that showcased the two first reinvestment projects completed.



Top: The 2023 Pipeline Program interns with Commissioners, Mayor Sarno, and other utility leaders, August 2023. Bottom: The Commission received two awards for its work on the Pipeline Program and Water Management Act outreach from the Massachusetts Water Works Association in November 2023...



#### PIPELINE PROGRAM

#### **Pipeline Program**

This program provides meaningful engagement about water careers with Springfield high school students. The first Pipeline Program cohort/ class began at end of FY23 and ran through August, the beginning of FY24. The FY24 program included more hands-on and interdisciplinary activities and exposure to the water sector.

One such activity included a "Leadership Lunch" in August 2023, featuring the first cohort and members of the media and news cameras. Interns spoke during the event and networked with members

The goal of the program is to elevate the water sector among students as a potential career path that offers

many options for different interests and educational backgrounds. In FY24, 12 paid interns from Springfield high schools were accepted from an applicant pool of approximately 80 students. This was double the amount of applicants from the previous year.

The program is a partnership with the Massachusetts Water Works Association (MWWA), Veolia and Springfield Public Schools-to-Career Program to promote the water sector

#### **Water Station**

The Water Station has been active in hydrating attendees of public events. This fiscal year, the Commission handed out approximately 12,000 water bottles at 28 events with the water station, including at the Pancake Breakfast, Star Spangled Springfield, Jazz Fest, Springfield Museum's Earth Day, and many other events. The water station offers an opportunity for customers to meet Commission staff, ask questions about the water and services, and for the Commission to be a part of community events.

WATER BOTTLES DISTRIBUTED AT MOBILE WATER STATIONS IN FY24

**EVENTS IN FY24** 

WATER STATIONS

**STAFF VOLUNTEERS** 

Photo description goes here

Forty-two of the Commission's staff members volunteered for water station events throughout the fiscal year. Information also included the updated water station scheduling system and the new online form to request the water station.



#### **Videos**

The Commission is using the big screen as a way to share its projects and other successes with the community. The Commission produced a new video, titled "Modernizing Our Water System for the 21st Century," that explains how water is treated, why a new plant is needed, and how the new plant will resolve issues with disinfection byproducts. The video featured many staff members from West Parish Filters on camera.

This, and other videos awaiting production, will be used to educate customers about what goes into providing water and wastewater services. The videos also serve as effective outreach to high school students about the Pipeline Program.

To view the video scan the OR code on the right with your smartphone.



#### **Public Outreach**

Two open houses offered the public a glimpse into the workings of the Commission.

Visitors explored West Parish Filters for Imagine a Day Without Water in October FY24 where they were able to see the past, present and future of the water treatment plant. More than 100 people attended, including Mayor Sarno.

A ribbon-cutting event in November 2024 celebrated the completion of the York Street Pump Station and Connecticut River Crossing Project, the first major project of the Water and Wastewater Infrastructure Renewal Program. Local and regional dignitaries, members of the media, Commission leadership, consultants, and others were in attendance. The event also included a public open house for attendees to walk around inside and view their new investment in-person.

Members of the Commission also visited several neighborhood councils, civic associations, and senior centers to provide an update on the Commission's activities, answer customer questions, and assist with customer assistance programs. Members also met with the City



Council Subcommittee on Health and Human Services to explain ongoing issue with disinfection byproducts and answer questions about the new water treatment plant.

#### **Legislative Outreach**

The Commission participated in New **England Water Works Association** and New England Water Environment Association's Water Policy Fly-in in Washington, D.C., to advocate for water infrastructure funding and educate legislators on impacts of new regulations.

Tangible success of these efforts include securing \$4.6 million in federal funds earmarked for the new West Parish Water Treatment

Plant. Funding was secured by Senator Ed Markey and Senator Flizabeth Warren.

In other continued outreach, the Commission held a legislative outreach event for regional state elected officials to learn the progress made on combined sewer overflows and cleanup of the Connecticut River, and the need for continued support and funding.

#### **Educational Outreach**

The Commission aims to educate and reach out to customers of all ages. Its educational initiatives are strong and included hosting Springfield fifth-graders at Ludlow Reservoir and Cobble Mountain

Photo: Executive Director Josh Schimmel explains the need for funding for combined sewer overflow (CSO)

Reservoir in partnership with Mass Audubon to provide hands-on, engaging outdoor education about watershed ecosystems and protection. Springfield high school students and several college students also toured the watershed and West Parish Filters as part of additional outreach efforts.

In addition, the Commission supported Springfield Public Schools in their successful application for an Environmental Science Innovation Career Pathways Grant Program for the Renaissance School. This grant will provide opportunities for more students to gain exposure to concepts behind water supply protection and treatment, and water careers.

SPRINGFIELD WATER AND SEWER COMMISSION

### Other educational initiatives included:

- Participation in Springfield Public School's "Portrait of a Graduate" career fair to highlight water careers.
- Participation in three district career fairs and three schoolbased pairs.
- Presentation on water careers and the Pipeline Program to four Springfield high schools.
- Hosting an Apprenticeship Fair that drew nearly 300 attendees. The Commission partnered with trade groups involved in the construction of the new West Parish Filters Water Treatment Plant to showcase apprenticeship and career opportunities. This is



Photo: Over 300 participants attended the Apprenticeship Fair hosted by the Commission at the UMass Amherst Center at Springfield in June 2023.







part of a larger effort to capitalize on this generational project to benefit the lives of community members.

#### A Look Ahead

The Commission plans to continue its robust efforts to reach customers and share the efforts

of the Commission by attending community events and seeking out stakeholders. The Commission will also work to make the Pipeline Program more seamless and engage folks on the possibilities of water careers. Outreach will continue to educate all ages of the importance of the Commission's work.

FISCAL YEAR 2024 ANNUAL REPORT

Top Left: Commission staff visit with Putnam Vocational Technical Academy during a career fair in December 2023. Top right: The Commission presents at a Sixteen Acres Civic Association meeting in February 2024. Bottom: Visitors tour West Parish Filters during a public open house in October 2023.

West Parish Filters during a public open house in October 2023.



#### **Management's Discussion** and Analysis

This narrative provides an overview and analysis of the financial activities of the Springfield Water and Sewer Commission for the fiscal year ended June 30, 2024. Full financial information can be found in the FY24 Annual Comprehensive Financial Report (ACFR).

#### **Overview of the Financial** Statements and Financial **Highlights**

This discussion and analysis is intended to serve as an introduction to the basic financial statements. The basic financial statements are comprised of (1) the Statement of Net Position, (2) the Statement of Revenues, Expenses, and Changes

in Net Position, (3) the Statement of Cash Flows, (4) the Statement of Fiduciary Net Position, (5) the Statement of Changes in Fiduciary Net Position and (6) Notes to Basic Financial Statements. This report also contains required and other supplementary information and other information in addition to the basic financial statements themselves.

The Statement of Net Position is designed to indicate our financial position as of a specific point in time. At the close of FY24, net position was \$168,959,216.

The Statement of Revenues, Expenses, and Changes in Fund Position summarizes our operating results. The Commission's change in net position for the year ended June 30, 2024, was a change of \$12,372,121

in comparison to the prior year net position.

The Statement of Cash Flows provides information about the cash receipts and cash payments during the accounting period. It also provides information about the investing and financing activities for the same period.

The Statement of Fiduciary Net Position and Statement of Changes in Fiduciary Net Position account for resources held for the benefit of parties outside the Commission.

#### Financial Analysis of the Commission

The Commission ended the year with operating income of approximately \$24 million. The following paragraphs give an overview of the fiscal year activity.

It has been the practice of the Commission to establish its rates and charges for water and wastewater services at levels sufficient to produce revenues adequate to defray all operation and maintenance expenses, debt service, and reserve deposits projected by the Commission's consulting engineers and to maintain net revenues

available for debt service in excess of the coverage requirements mandated by the General Bond Resolution. Until fiscal year 2010, the Commission had historically adjusted its rates and charges for water and wastewater services on a basis, which stabilized rates and charges over a multi-year period. Beginning in fiscal year 2011, the Commission has adopted single-year rate schedules to match revenues more closely to expenditures.

The Commission is required to file each year with Electronic Municipal Market Access (EMMA), the Commission's Annual Comprehensive Financial Report (1) the filing is being made merely to comply with contractual commitments, not to provide all information material to an investment in the linked securities, and does not purport to provide all such information, (2) consequently, the information set forth in the filing should not be relied upon as indicative of future financial performance.

In fiscal year 2024, water and sewer usage revenues increased by approximately \$1.5 million. This was the result of an overall increase in rates of approximately 6.5%, offset

\$168,959,216 NET POSITION

\$1.5 M \$1.8 M

**INCREASE IN USAGE REVENUES** 

DECREASE IN OTHER **REVENUES** 

**S&P BOND RATING IN FY24** 

by decreases in consumption.
Other revenues decreased by approximately \$1.8 million. In the prior year, the Commission received approximately \$2.1 million in insurance proceeds from a lawsuit associated with the 42" main project. These and other factors resulted in total operating revenue of approximately \$100 million in fiscal year 2024, which is a decrease of approximately \$300,000 from the prior year.

Operating expenses increased by \$5,055,206. This increase was due to new hires to fill vacant positions causing an increase in salary and benefit costs. There was also an increase in debt service interest costs as the Commission's debt has been increasing each year and an overall increase in other costs due to inflation, gas prices, etc.

To accommodate the rate-making process, the Commission follows the accounting standards set forth in Governmental Accounting Standards Board Statement No. 62 (GASB 62), Codification of Accounting and Financial Reporting Guidance Contained in Pre-November 30, 1989 FASB and AICPA Pronouncements. GASB 62 allows certain board approved (a) revenues provided for future allowable costs to be deferred until the costs are actually incurred (deferred inflows) and (b) costs incurred to be capitalized if future recovery is reasonably assured (deferred outflows). In the Commission's case, revenue intended to fund capital asset acquisitions is set aside (deferred) and is recognized equal to the annual depreciation expense on those

assets; depreciation expense on assets funded in other ways (such as through bonds) is removed from the statement of revenues, expenses, and changes in net position because those costs are not factored into the budget process; conversely, because principal debt repayment costs are funded through the budget, those costs are reflected in the statement of revenues, expense, and changes in net position as a reduction to net position. The net effect of these adjustments is reported under the line "Excess revenues used to fund deferrals" on the Statement of Revenues, Expenses, and Changes in Net Position. This was a decrease of \$(19,689,418) for fiscal year 2024.

As a result of the key elements described above, the activities for the year resulted in a change in net position of \$12,372,121.

# Capital Assets and Debt Administration

#### **Capital Assets**

Total investment in capital assets at year-end amounted to \$583,911,695 (net of accumulated depreciation). This investment in capital assets includes land, buildings and improvements, furniture and fixtures, vehicles and equipment, infrastructure, and construction in progress.

Major capital assets events during the current fiscal year included the following (in thousands) on the next page:

Depreciation Expense	(\$10.2 million)		
Hydrant Projects	\$174,000		
Water Production Facility Projects	\$14.2 million		
Water Treatment System Improvement Projects	\$2.3 million		
Wastewater Treatment System Improvements Projects	\$10.9 million		
York Street and CT River Design Projects	\$8.5 millior		
Sewer Main Rehabilitation Projects	\$2.7 million		
Collection System Assessment and Rehabilitation	\$690,000		
Distribution System Rehabilitation Projects	\$1.3 millior		
Provin Reservoir Tank Projects	\$178,000		
Biosolids	\$102,000		
New Vehicle and Equipment Purchases	\$2 millior		
Computer Software and Equipment Purchases	\$783,000		
Various Other Rehab and Improvement Projects	\$15.4 million		

#### **Long-Term Debt**

At the end of the current fiscal year, total bonded debt outstanding was \$335,402,656, all of which was backed by dedicated revenues.

The Commission maintained their AA credit rating from Standard & Poor's (S&P) in the most recent bond rating in June 2021 for the secured loan issued by the U.S. Environmental Protection

Agency under the Water Infrastructure Finance and Innovation Act (the "WIFIA loan"). At the same time, S&P affirmed the AA rating on the Commission's parity debt outstanding.

Additional information on the Commission's long-term debt can be found in the Notes to Basic Financial Statements, Note 13, Long-Term Debt of the FY24 ACFR.

SPRINGFIELD WATER AND SEWER COMMISSION

71

#### 2024 (\$) 2023 (\$) **SUMMARY OF NET POSITION Current Assets** 164,411,904 143,952,250 Capital Assets, Net 583,911,695 535,011,410 678,963,660 748,323,599 **Total Assets** Deferred Outflows of Resources 108,302,826 107,109,393 **Current Liabilities** 52,363,121 54,926,245 371,839,892 Non-Current Liabilities 413,611,469 **Total Liabilities** 465,974,590 426,766,137 Deferred Inflows of Resources 221,692,619 202,719,821 Net Investment in Capital Assets 223,239,138 212,911,511 67,717,316 Restricted 71,679,968 Unrestricted (125,959,890) (124,041,732) 168,959,216 Total Net Position 156,587,095 Operating Revenues 99,984,908 99,677,611 Operating Expenses 70,583,294 75,638,500 Operating Income 29,401,614 24,039,111 Non-Operating Revenues (Expenses) 8,022,428 750,255 (19,689,418) (12,858,420) Excess Revenues Used to Fund Deferrals Increase (Decrease) in Net Position 12,372,121 17,293,449 **Beginning Net Position** 156,587,095 139,293,646 **Ending Net Position** 156,587,095 168,959,216

#### **RATES FOR LAST FIVE FISCAL YEARS**

Water Rates (\$ per 100 CF) Residential Commercial Municipal Industrial Solutia contract Town contracts (per million gals)	2025 5.15 5.15 3.85 3.85 3.77 2,632.81	2024 4.75 4.75 3.55 3.55 3.48 2,028.37	2023 4.46 4.46 3.33 3.33 3.26 1,950.32	2022 4.19 4.19 3.13 3.13 3.07 1,656.62	2021 3.96 3.96 2.96 2.96 2.90 1,340.94
Residential Water % Change	8.4%	6.5%	6.4%	5.8%	9.4%
Sewer Rates (\$ per 100 CF)	2025	2024	2023	2022	2021
Residential	7.85	7.51	7.05	6.62	6.25
Commercial	8.64	8.26	7.76	7.28	6.88
Industrial	9.42	9.01	8.46	7.94	7.50
Municipal	7.85	7.51	7.05	6.62	6.25
Food Service	10.20	9.76	9.17	8.61	8.13
Medical	8.64	8.26	7.76	7.28	6.88
Regional contracts (per million gals)	1,672.02	1,392.86	1,326.36	1,288.93	1,340.94
Residential Sewer % Change	4.5%	6.5%	6.5%	5.9%	9.5%
Average Combined Rate Increase	6.5%	6.5%	6.5%	5.9%	9.4%

Source: Commission's adopted FY24 Rules and Regulations Chapter 5.

#### **REQUESTS FOR INFORMATION**

This financial report is designed to provide a general overview for all those with an interest in the Springfield Water and Sewer Commission's finances. Questions concerning any of the information provided in this report or requests for additional financial information should be addressed to:

Communications Manager Springfield Water and Sewer Commission P.O. Box 995 Springfield, MA 01101-0995 To see the full FY24 ACFR, scan the QR code below





