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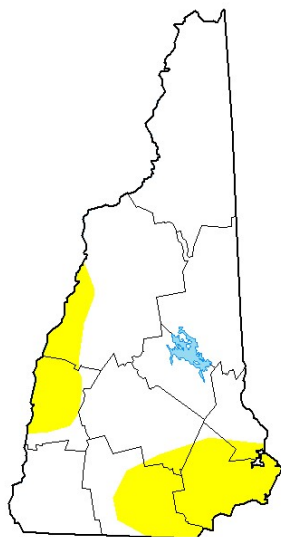
## Portsmouth and Pease International Tradeport Drinking Water Status Report 2024 – Second Quarter

### Current Water Demands

The Portsmouth and Pease drinking water systems are currently experiencing very high demands in the system due to irrigation and cooling system demands. As always, we ask that our customers be vigilant and efficient with their water usage and turn off their irrigation systems during rainy conditions. Current drought conditions per the U.S. Drought Monitor, show the Seacoast area as “Abnormally Dry.” Our water systems are currently meeting water demands, however, if conditions remain hot and dry we may request customers to reduce the use of irrigation.

*U.S. Drought Monitor*  
**New Hampshire**

**July 2, 2024**  
*(Released Wednesday, Jul. 3, 2024)*  
Valid 8 a.m. EDT



*Intensity:*

- None
- D0 Abnormally Dry
- D1 Moderate Drought
- D2 Severe Drought
- D3 Extreme Drought
- D4 Exceptional Drought

*The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. For more information on the Drought Monitor, go to <https://droughtmonitor.unl.edu/About.aspx>*

*Author:*

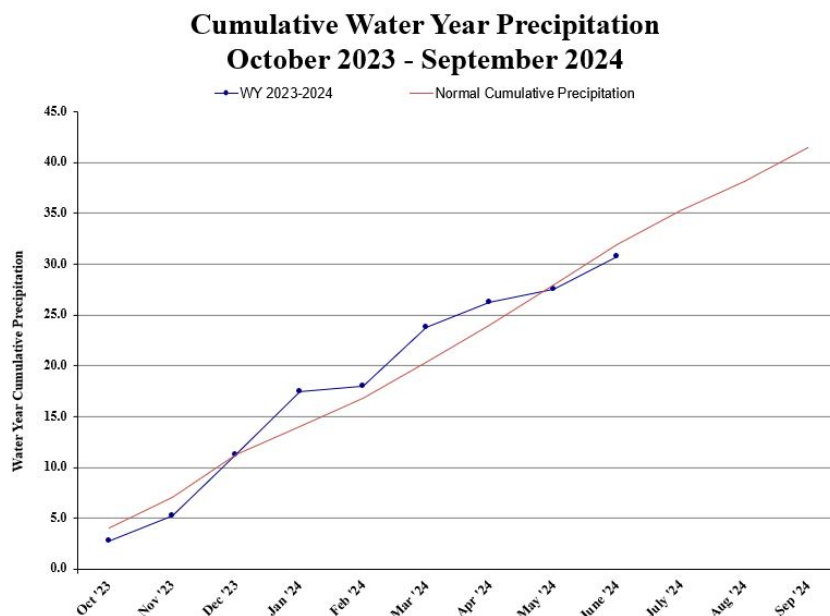
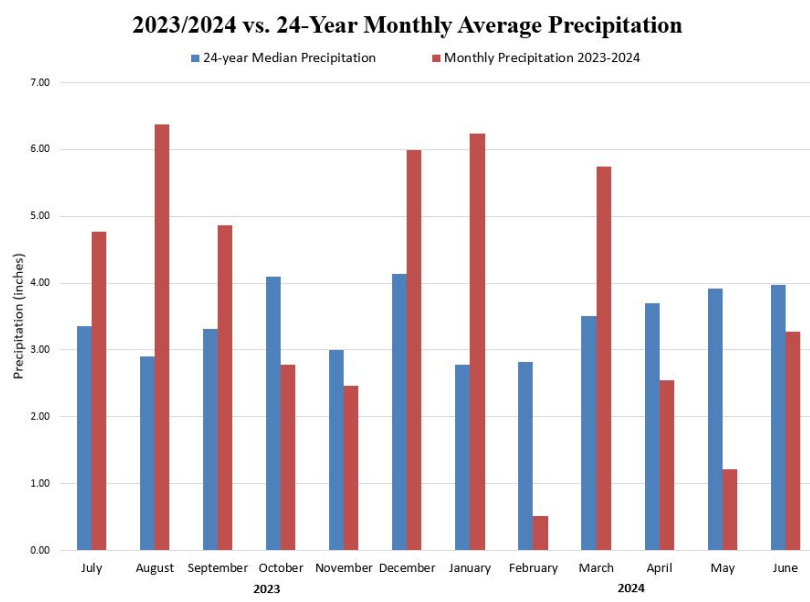
Adam Hartman  
NOAA/NWS/NCEP/CPC



[droughtmonitor.unl.edu](https://droughtmonitor.unl.edu)

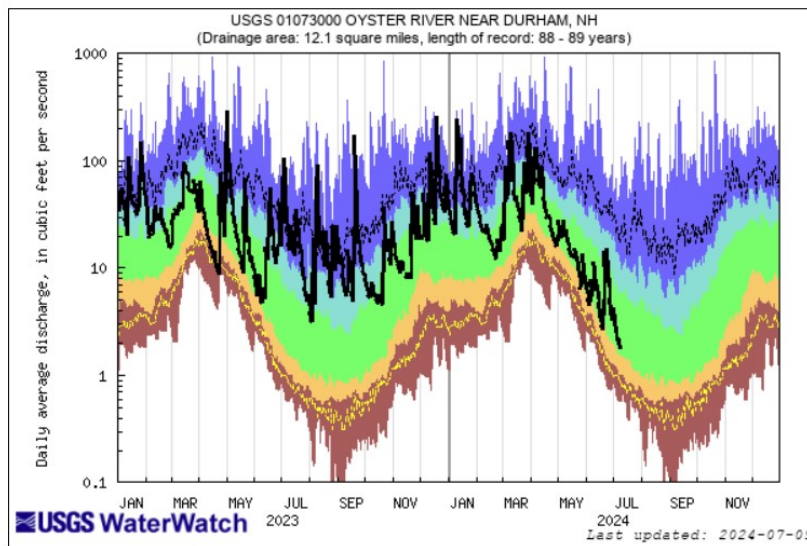
## Precipitation and Weather

As mentioned, hot and dry conditions are continuing in and around the Seacoast area. The following graph shows the variability of precipitation we have experienced in the last twelve months – Wet conditions during the end of summer last year, drier conditions in the late fall, followed by a rainy December and January. Only March of this year was above normal for precipitation. Fortunately, the cumulative precipitation (shown in the second graphic) is normal for this time of year. This is reflected in our source of supply capability

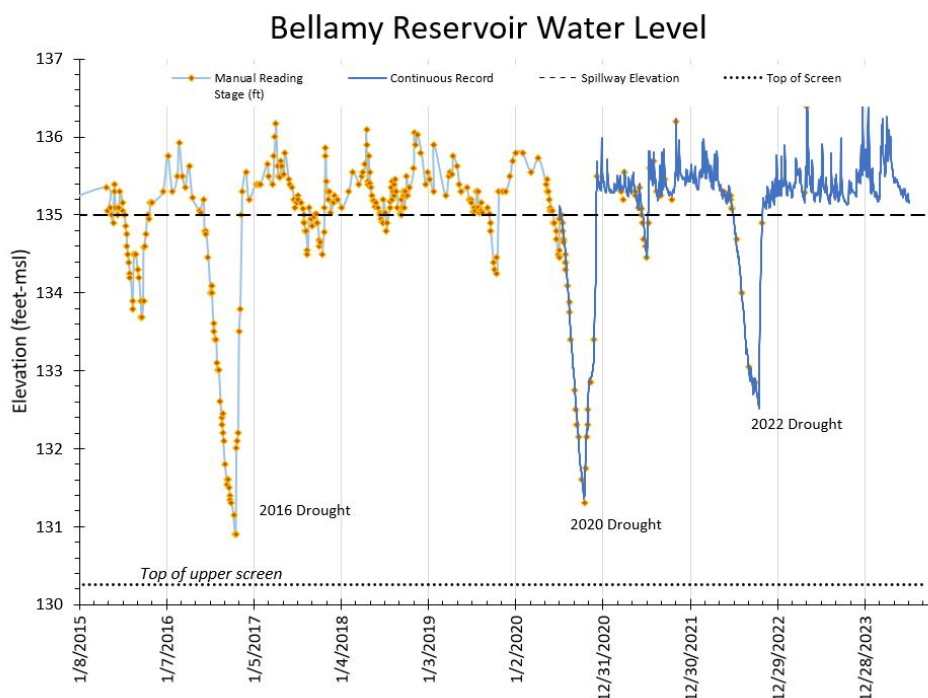


## River Flows and Reservoir Levels

The following graphic shows the flow trend, according to the gauged Oyster River, which we use to assess the flow into the Bellamy Reservoir. Higher than normal flows persisted until May of this year. Currently the flows are just below normal for this time of year.



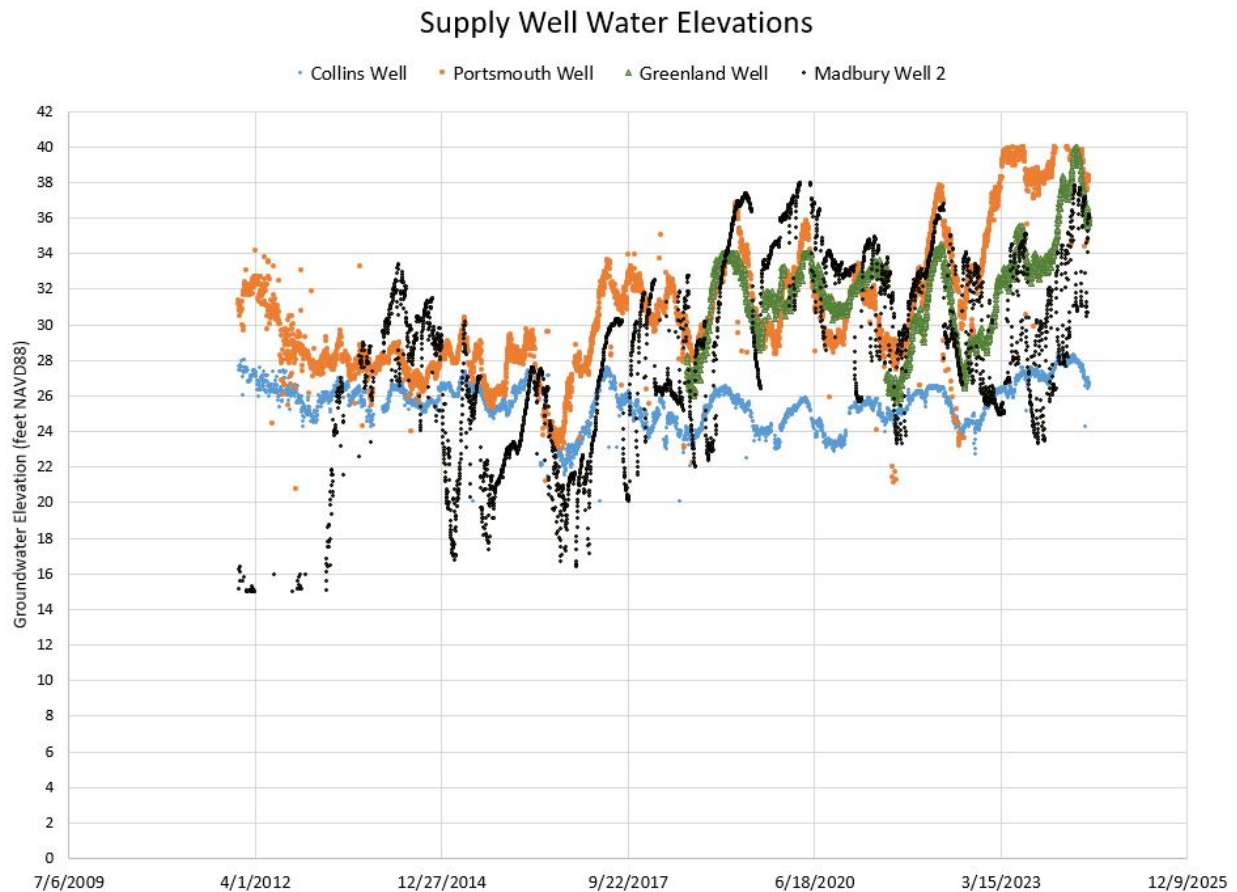
The Bellamy Reservoir trends also show the extreme drought experienced in 2016 as well as the 2020 drought, which was almost as dry as 2016. Recent water levels show a response to the wetter than normal period we experienced last year. With dryer weather we are seeing the water level at the reservoir starting to drop just below the spillway.



## Groundwater Levels and Status

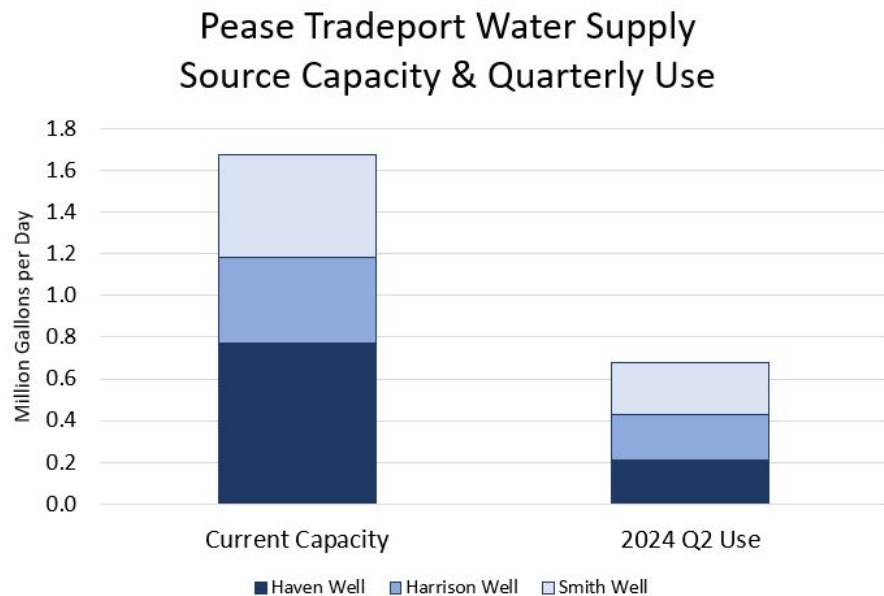
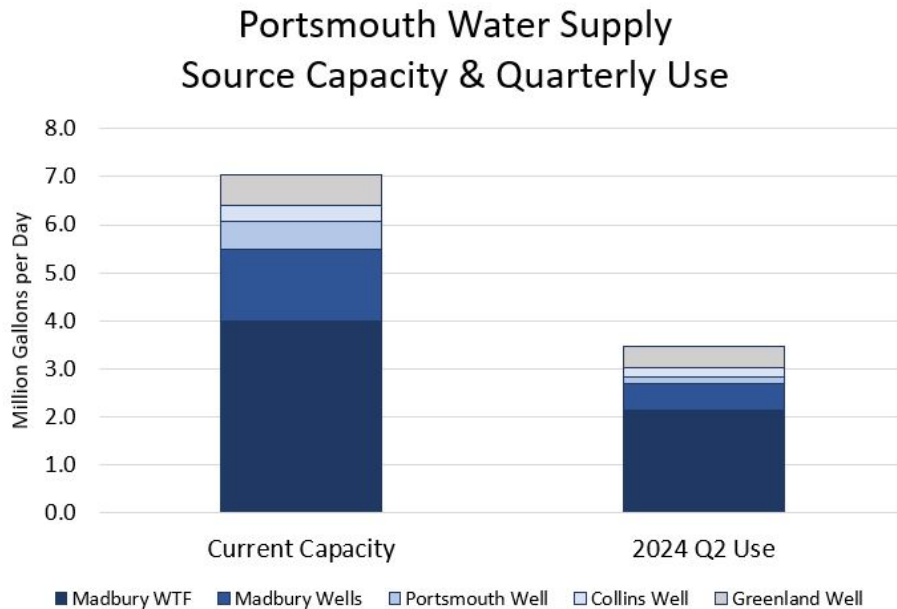
Groundwater levels in most of our water sources are as high as they have been in the last twenty years. This can be attributed to the way we received precipitation, however, it can also be attributed to our water operations staff's optimization of the use of surface water versus groundwater. Cutting back our groundwater withdrawals has allowed well levels to be maintained in a sustainable manner and more water availability for the system to meet peak demand. Each well has a continuous water level meter and the water pumped is also metered. This allows system operators the capability of assessing groundwater level trends and we are able to determine overall source of supply capability.

The following graphic shows the overall well trend of a number of the water supply sources over time:

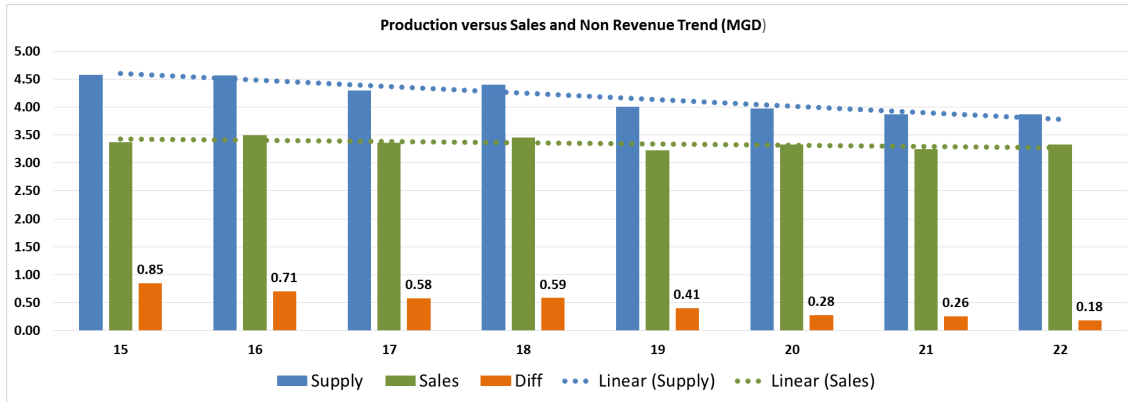


## Water Production Trends

The following graphics are new to the Water Supply Update. They break down the current supply capability and past quarter usage for the Portsmouth and Pease Drinking Water System Sources of Supply. As shown, both systems are showing a good buffer of available supply versus demand.



The next graphic shows the running Water Balance for the system. This is the difference between the water the combined Portsmouth and Pease drinking water systems produce versus the sales and other known uses in the system. System improvements in metering upgrades, water main replacements and leak detection have improved the water balance considerably from where it was just a few years ago.



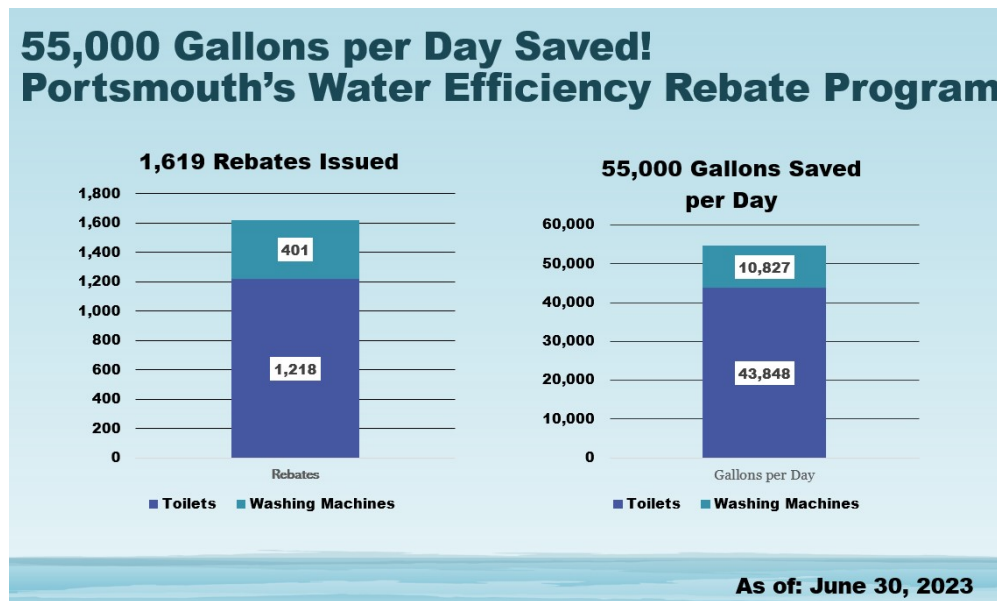
## Water Efficiency

The City continues to offer water efficiency rebates of \$100 per low flow toilet and \$150 for the purchase of a high efficiency washing machine. These are available to all residential customers, including multi-family customers. To date, over 1,610 rebates have been issued. According to the NHDES we are currently the only public water system in New Hampshire offering these rebates.

Additional information on this program can be obtained from the City’s water billing department or from the City’s website:

<https://www.cityofportsmouth.com/publicworks/water-efficiency-rebate-program>

The following graphic shows the breakdown of the rebates issued and the estimated water savings per day, which is currently 55,000 gallons-per-day:



We intend to continue with the rebate program and expand our outreach efforts to focus on ways that customers can be more efficient with summertime water use for irrigation and cooling needs.

### **Water Quality Information**

Annual Water Quality Reports for the Portsmouth and Pease Drinking Water Systems were issued to all customers in June 2024. Copies of these reports are also available online from the City's website.



The Portsmouth Water Division routinely monitors water quality parameters and performs water quality sampling and analysis as directed by the Federal Safe Drinking Water Act and the New Hampshire Department of Environmental Services. Water sources are monitored for radioactive, biological, inorganic, volatile organic, or synthetic organic contaminants. Critical water treatment parameters for turbidity, pH, chlorine, orthophosphate and fluoride are continually monitored and tracked by our system operators. The regulations require us to monitor for certain substances less often than once per year because the concentrations of these substances do not change frequently. In these cases, the most recent sample data are reported, along with the year in which the sample was taken. Annual Water Quality Reports for both water systems detail these efforts and are mailed to each water system customer annually. They are also available on the City's website at:

<https://www.cityofportsmouth.com/publicworks/water/drinking-water-quality>

### **PFAS Water Quality Sampling and Tracking**

Our efforts to track and treat the PFAS contamination at the Pease International Tradeport continue. PFAS stands for a broad group of perfluoroalkyl and polyfluoroalkyl substances,

produced and found in many commercial products and also used in firefighting foam. Per- and polyfluoroalkyl substances (PFAS) are currently unregulated by the Safe Drinking Water Act. However, the EPA Health Advisory concentration standard is 70 parts per trillion (ppt) for perfluorooctane-sulfonic acid (PFOS) and perfluorooctanoic acid (PFOA). In response to the discovery of PFOS in the Haven Well in May 2014 at levels that exceeded the EPA Provisional Health Advisory (200 ppt at that time), the Haven Well was removed from service. With the completion of the new Pease Water Treatment Facility with resin and activated carbon filters, the Haven Well was reactivated in August 2021. The source of the PFAS at the Tradeport was aqueous film-forming foam that had been used to extinguish fires and in training exercises at the former Air Force Base. Since 2014, the Harrison Well and Smith Well on the Pease Tradeport water system, and Portsmouth Well #1 and Collins Well in the Portsmouth water system, have been routinely monitored for PFAS by the Air Force.

Activated carbon filters treated the Harrison and Smith wells at Pease from 2016 to 2021 while an entirely new treatment facility was constructed to treat those two wells together with the reactivation of the Haven well. PFAS tracking of the other Portsmouth surface and groundwater drinking sources continues on a quarterly basis and all data is posted on the city’s website.

The State of New Hampshire promulgated maximum contaminant level (MCL) regulations for four compounds in 2019 – PFOA, PFOS, PFHxS and PFNA. The City has been sampling quarterly according to these regulations and periodically posts that data on the City’s website at: [www.cityofportsmouth.com/publicworks/water](http://www.cityofportsmouth.com/publicworks/water). The following graphic provides a summary of the rolling average of the quarterly sampling of the Portsmouth water supply sources:

**PFAS Average – 12 Month Rolling  
New Hampshire Regulated Compounds  
- All Sources In Compliance (April 2023-March 2024)**

| 12-MONTH ROLLING AVERAGE 2024 Q2               |      | EPA MCL (2024) | NH MCL | RAW* | MADBURY WTP FINISHED | MADBURY WELL 2 | MADBURY WELL 3 | MADBURY WELL 4 | MADBURY WELL 5 | PORTSMOUTH WELL | COLLINS WELL | GREENLAND WELL | PEASE WTP |
|--|------|----------------|--------|------|----------------------|----------------|----------------|----------------|----------------|-----------------|--------------|----------------|-----------|
| Perfluorohexanesulfonic acid(PFHxS)            | ng/L | 10             | 18     | 0.0  | 0.0                  | 0.0            | 0.0            | 0.0            | 0.0            | 6.0             | 1.8          | 0.0            | 0.0       |
| Perfluorooctanesulfonic acid (PFOS)            | ng/L | 4              | 15     | 0.0  | 0.0                  | 0.0            | 0.0            | 0.0            | 0.0            | 5.1             | 4.4          | 3.0            | 0.0       |
| Perfluorooctanoic acid (PFOA)                  | ng/L | 4              | 12     | 2.5  | 2.5                  | 2.5            | 3.0            | 1.0            | 2.9            | 7.0             | 3.8          | 4.5            | 0.0       |
| Perfluorononanoic acid (PFNA)                  | ng/L | 10             | 11     | 0.0  | 0.0                  | 0.0            | 0.0            | 0.0            | 0.0            | 0.0             | 0.0          | 0.0            | 0.0       |
| Hexafluoropropylene oxide dimer acid (HFPO-DA) | ng/L | 10             |        | 0.0  | 0.0                  | 0.0            | 0.0            | 0.0            | 0.7            | 1.8             | 4.9          | 1.3            | 0.0       |
| Perfluorobutanesulfonic acid (PFBS)            | ng/L |                |        | 0.0  | 0.0                  | 0.0            | 0.0            | 0.0            | 2.8            | 5.6             | 8.6          | 2.3            | 0.0       |
| <b>Hazard Index*</b>                           |      | <b>1</b>       |        | 0.0  | 0.0                  | 0.0            | 0.0            | 0.0            | 0.1            | 0.8             | 0.7          | 0.1            | 0.0       |

\* Hazard Index MCL = (HFPO-DA/10)+(PFBS/2000)+(PFNA/10)+(PFHxS/10)

On April 10, 2024, the Environmental Protection Agency (EPA) announced the final National Primary Drinking Water Regulation (NPDWR) establishing legally enforceable levels, called Maximum Contaminant Levels (MCLs), for six PFAS in drinking water. Those compounds include: PFOA, PFOS, PFHxS, PFNA, and HFPO-DA as contaminants with individual MCLs, and PFAS mixtures containing at least two or more of PFHxS, PFNA, HFPO-DA, and PFBS. The new regulation uses a Hazard Index MCL to account for the combined and co-occurring



levels of these PFAS in drinking water. EPA also finalized health-based, non-enforceable Maximum Contaminant Level Goals (MCLGs) for these PFAS.

The City of Portsmouth continues to comply with all standards regulating levels of PFAS in both the Portsmouth Regional and Pease International Tradeport Drinking Water Systems. Until the EPA rule is finalized, and its requirements go into effect, Portsmouth, along with all community water suppliers in New Hampshire, must continue to comply with the PFAS maximum contaminant levels (MCLs) established by the DES in 2019 for four PFAS compounds.

**According to information provided by the DES on April 10, 2024:**

The final federal PFAS regulation was just released this morning, and NHDES has not had a chance to thoroughly review it. NHDES will have additional information on the new federal PFAS drinking water regulation in the coming weeks/months. **No immediate action by water systems is required at this time.** A general summary of how and when the new regulations will impact NHDES and water systems from a regulatory standpoint based on our initial understanding is provided below:

- 1) **NHDES Rulemaking:** NHDES will need to adopt rules that are no less stringent than the new federal PFAS drinking water regulations within two years. The rules will not only include MCLs and MCLGs, but also parameters around the frequency and type of testing that must occur as well as specific requirements pertaining to public notification of violations.
- 2) **Water System Sampling: Applicable water systems will need to complete initial monitoring to comply with the new federal PFAS drinking water regulations within three years.** Water systems in New Hampshire have completed initial monitoring for PFAS dating back to 2019/2020 to comply with New Hampshire's drinking water standards. Water systems that completed testing for all analytes covered by USEPA Methods 533 or 537.1 as recommended by NHDES in 2019 may have the data needed to satisfy the initial monitoring requirements of the new federal PFAS regulations. Water systems that only analyzed for the four PFAS (PFOA, PFOS, PFNA and PFHxS) that New Hampshire regulates will have to complete initial monitoring for HFPO-DA and PFBS even though these compounds very likely will not occur at a concentration that will exceed the new federal drinking water standards.
- 3) **Water System Public Notification:** Applicable public water systems will need to notify the public if finished drinking water exceeds the new federal PFAS drinking water regulations within three years. The notification to the public will not specifically be required and enforced by NHDES until its rulemaking (described in item 1, above) is complete. However, public water systems already have PFAS results for PFOA, PFOS, PFNA and PFHxS and can notify the public in the near future. NHDES will follow-up this email in the near future with recommended notification language for water systems that elect to notify the public sooner than required by the new federal PFAS regulation.
- 4) **Water System Drinking Water Quality Compliance and Violations: Applicable public water systems will need to comply with the new federal PFAS standards for the six PFAS within five years.** Public water systems that produce drinking water that will exceed the federal drinking water standards may implement

corrective action sooner than five years to protect public health and avoid violations of the federal standard and the associated public notification requirements.

**The City has tracked, sampled and responded to PFAS regulation since these compounds were first discovered in the Pease drinking water sources in May 2014. The City of Portsmouth maintains a multi-prong approach. Actions include:**

- Sampling all Portsmouth drinking water sources quarterly for PFAS compounds to assess the 12-month rolling averages for the four New Hampshire regulated compounds. Working with regulators and other waterworks professionals to track and respond to the evolving water quality information, regulations and treatment technologies related to PFAS compounds.
- Evaluating the need for and piloting effective treatments that may be necessary at any other drinking water sources of supply serving the City’s drinking water system.
- Designing and constructing a dual resin and granular activated carbon treatment system for the Pease water system wells that removes the PFAS compounds. We have also been working with the Air Force monitoring and responding to PFAS compounds in the water sources in the Pease southern wellfield aquifer.
- Recommending and getting approval from our City Council to budget \$2.5 million to design and install treatment on the Greenland Well, which is currently just over the 4 parts per trillion level of PFOA. An engineer is currently engaged in this design work, with bidding and construction anticipated later this year.
- Undertaking preliminary design of treatment for the Portsmouth and Collins wells.

According to our ongoing monitoring, the following water sources have detection averages above the EPA’s proposed MCLs:

- Portsmouth well: 5.0 ppt of PFOS, 6.5 ppt of PFOA
- Collins well: 4.1 ppt of PFOA
- Greenland well: 4.2 ppt of PFOA
- No sources are currently over the Hazard Index
- The Pease Water Treatment Facility is removing these compounds from the Pease wells

The Pease Tradeport’s dual treatment system of ion exchange and granular activated carbon continues to perform very well. The graphic below shows the summary of water quality results since that system went online in April 2021. After nearly three years of operation and nearly 630 million gallons of water treated, the levels of the regulated compounds remain “Non-Detect.”

### **Total Trihalomethanes (TTHMs)**

Total Trihalomethanes (TTHMs) are disinfection byproducts (DBPs) which are created when chlorine disinfectants used to treat tap water combine with naturally-occurring organic and inorganic matter present in the water. On average, the Water Treatment Facility in Madbury removes about 71% of the total organic carbon (TOC) through the treatment process. The EPA

Disinfectants and Disinfection Byproducts Rules (Stage 1 and Stage 2) requires TOC removal of 50% for the type of water that is typical from the Bellamy Reservoir. The TOC that remains in the water after treatment reacts with the chlorine and creates DBPs. Historically the TTHM concentration in the Portsmouth Water System had averaged 56 parts per billion (ppb).

A storage tank mixer and aeration system were installed at the Newington Booster Pumping Station as part of the upgrade to that facility. These systems became operational in September 2019. These improvements were designed to reduce the concentrations of trihalomethanes in the water distribution system. The highest average TTHM in the distribution system in 2023 was 36 ppb. The Pease system has almost non-detections for TTHM due to the source water quality and the Pease Water Treatment system which includes granular activated carbon.

### TTHM Running Average – 2024 – Portsmouth Water System

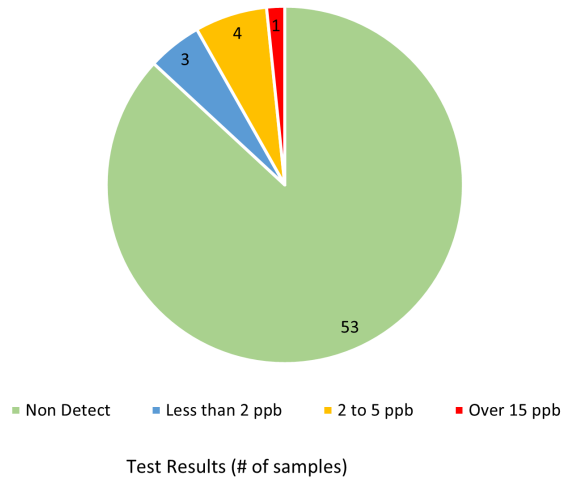
| DATE            | SITE                       | MCL's =>  | TTHM                       | HAA5                       |
|-----------------|----------------------------|-----------|----------------------------|----------------------------|
| Quarter II 2024 |                            | Reference | 80                         | 60                         |
| ID #            |                            |           | ppb                        | ppb                        |
| Q4              | Locational Running Average |           | Locational Running Average | Locational Running Average |
| 321             | 30 SPINNAKER WAY           |           | 34                         | 48                         |
| 325             | 1550 WOODBURY PLAZA        |           | 28                         | 44                         |
| 323             | 120 SPAULDING TURNPIKE     |           | 26                         | 42                         |
| 324             | WATER STREET               |           | 33                         | 47                         |

### Lead Sampling

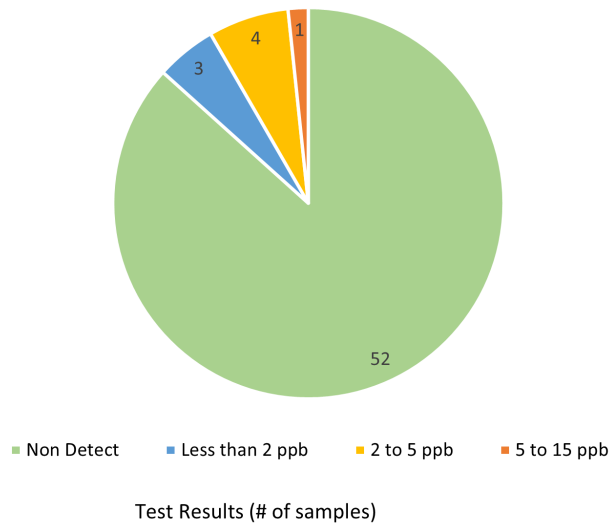
The City of Portsmouth implemented a Lead & Copper Corrosion Control Program in 2003 and has been in compliance with its requirements ever since. The general purpose of the Corrosion Control Program is to minimize the potential for water supplied by the City to leach potentially harmful metals such as lead and copper from pipes, fixtures and solder containing lead. The primary source of lead and copper in drinking water comes from internal household plumbing systems, plumbing components within other privately owned buildings, and the service lines feeding these properties. The City of Portsmouth water supply sources do not contain measurable quantities of lead.

Sampling conducted in 2023 throughout the Portsmouth water system found 16 locations with measurable concentrations of lead out of 121 residential locations. Of these 16 detections, only one exceeded the action level concentration of 15 parts per billion (ppb), while another was measured at 9 ppb, and the remaining tested below 4 ppb. This left a total of 105 water samples with no traces of lead (see figures below).

### 2023 Portsmouth Lead Monitoring Results - Round 1



### 2023 Portsmouth Lead Monitoring Results - Round 2



Lead is not present in the water when it leaves our treatment and well facilities, or in the water mains that run below the streets. However, lead can be present in old service line connections that tie homes to the water system or plumbing inside homes and businesses. Due to the age of many homes in Portsmouth and surrounding towns, and the associated potential for leaded plumbing components, we encourage customers to have their water tested by a certified laboratory, especially if there are children under six or pregnant women in the household. We

actively adjust the water chemistry at the treatment facility and well facilities according to our Corrosion Control Program, to reduce the potential for lead in households to dissolve into the water and end up at the tap. But if lead is present in your plumbing system, and is in contact with water, some risk remains. Information about our Corrosion Control Program can be accessed online: [cityofportsmouth.com/publicworks/water](http://cityofportsmouth.com/publicworks/water).

In cooperation with the City's Safe Water Advisory Group, the City's Water Division started offering free lead water testing kits available to Portsmouth water customers, while supplies last. To request a kit, residents can contact Mason Caceres, Water Quality Specialist II, at (603) 312-3804 or [mecaceres@cityofportsmouth.com](mailto:mecaceres@cityofportsmouth.com) for the one-time code that allows them to retrieve the kit. Full instructions on use are included and the results will be reported to the homeowner.



**FREE WATER TESTING  
FOR QUALIFIED WATER CUSTOMERS**

The City of Portsmouth Water Division monitors for lead in drinking water in the Portsmouth and Pease Tradeport Water Systems to make sure there is no detectable lead in the City's supply. However, buildings with old plumbing systems could have lead components that may leach lead into tap water. Lead is particularly harmful for children under 6 years old.

**PORTSMOUTH WATER CUSTOMERS MAY QUALIFY FOR FREE TESTING**

The City is contracting with an accredited laboratory to provide one sample kit (per residential customer) to test for lead in drinking water for customers served by the Portsmouth and Pease Tradeport Water Systems.

**HOW CAN I TAKE ADVANTAGE OF THIS OPPORTUNITY?**

Contact Mason Caceres, Water Quality Specialist II, at (603) 312-3804 or [mecaceres@cityofportsmouth.com](mailto:mecaceres@cityofportsmouth.com) for a one-time code that will allow you to obtain a sample kit. Detailed instructions will be provided.

\* The city has budgeted \$2,500 for this program. Kits will be distributed while supplies last.

Think Blue!



### **Safe Water Advisory Group (SWAG)**

The Safe Water Advisory Group was created with the approval of City Council on October 5, 2020. Its mission is to review and communicate the latest science on the health and environmental effects of drinking water contaminants (with a heavy focus on PFAS), to monitor federal and state level legislative changes, and to anticipate policy changes that could impact the city of Portsmouth.

The SWAG has met twice this year. The public is invited to attend future meetings and encouraged to be involved with the community and informed of all aspects of the City's water supply. The next quarterly meeting is scheduled for September 10, 2024. Video recordings,

information, meeting agendas and minutes, and annual reports of the SWAG are posted on the City's website and YouTube channel:

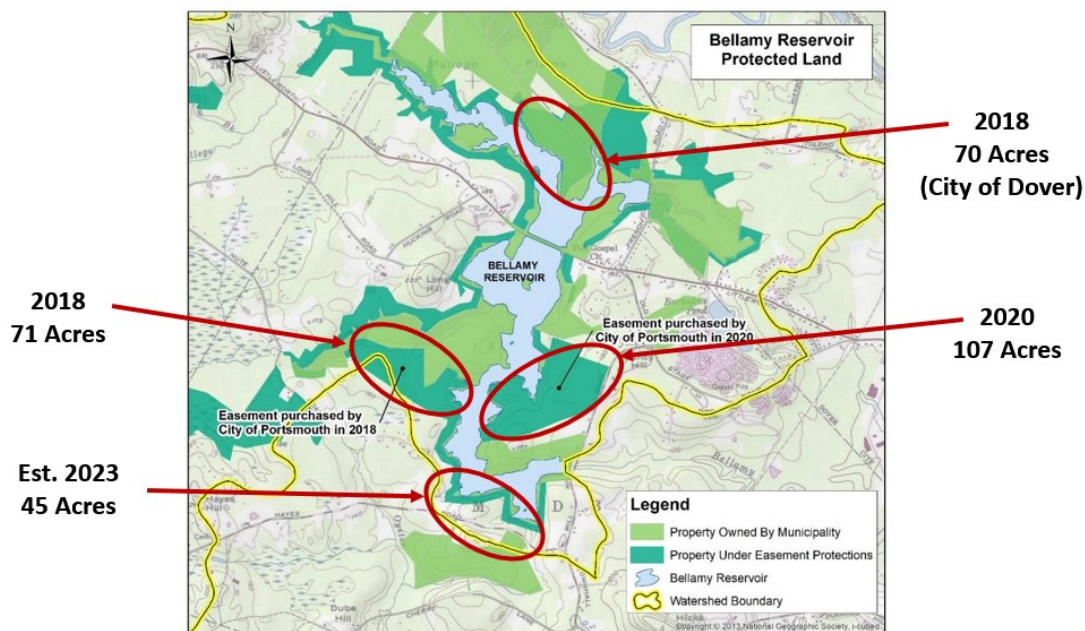
<https://www.cityofportsmouth.com/citycouncil/safe-water-advisory-group>

## Source Water Protection

### Bellamy Reservoir

The City continues to work with the communities of Madbury and Dover to monitor and track the land within the Bellamy Reservoir watershed. The City of Portsmouth's water division either owns or has easements around the entire reservoir. This provides a protective water quality buffer for the surface water that is piped to and treated at the Madbury Water Treatment Facility. In addition to these buffers, the water division, in cooperation with the Town of Madbury and the New Hampshire Department of Environmental Services, has historically restricted activities in and around the reservoir. The following activities are not permitted: swimming, motor boats and campfires. Kayaks, canoes and other non-motorized boats are permitted on the reservoir.

## Portsmouth – Bellamy Reservoir Source Water Protection Efforts



The City has acquired conservation easements in 2018 and 2020 of properties that abut the Bellamy Reservoir. Easements on these parcels, totaling 179 acres, were obtained through the combined efforts of the City, Southeast Land Trust and the Town of Madbury to coordinate due diligence activities and prepare the easement documents. The City received approximately \$487,000 in grant funds for these easements from the New Hampshire Groundwater and Drinking Water Trust Fund and approximately \$14,500 from the Great Bay Resource Protection Partnership. We are currently working on acquiring a 45-acre parcel near our surface water intake.

| SOURCE WATER PROTECTION<br>LAND AND EASEMENT PURCHASE RECORD |                           |                |                       |                    |             |       |  |            |           |          |                |               |            |  |
|--|---------------------------|----------------|-----------------------|--------------------|-------------|-------|--|------------|-----------|----------|----------------|---------------|------------|--|
| SOURCE   | PARCEL/ PROJECT NAME      | DATE PROTECTED | PROTECTION            | PORTSMOUTH<br>ROLE | BOOK & PAGE | ACRES | PROXIMITY TO<br>SOURCE                 | CITY FUNDS | DWGTG     | GBRPP    | OWNER<br>FUNDS | TOWN<br>FUNDS | TOWN       |  |
| Harrison Well  | Sherburne Rd Property     | 5/21/2003      | City Property         | Owner              | 4035-2172   | 4.34  | Adjacent to<br>Harrison Well<br>Parcel |            |           |          |                |               |            |  |
| Bellamy Reservoir  | Souther Property          | 3/15/2018      | Dover Owned           | None               | 1506-295    | 69.3  | Adjacent to<br>Reservoir               | \$0        |           |          |                | \$125,000     | Dover      |  |
| Bellamy Reservoir  | Olson Easement            | 12/18/2018     | Conservation Easement | Easement<br>Holder | 4624-0179   | 70.8  | Adjacent to<br>Reservoir               | \$223,130  | \$200,000 |          |                |               | Madbury    |  |
| Bellamy Reservoir  | Haley-Rubinstein-Goodwill | 2/21/2020      | Conservation Easement | None               | 4735-874    | 210   | Watershed                              | \$10,000   | ?         |          |                | ?             | Barrington |  |
| Bellamy Reservoir  | Duffy Easement            | 12/29/2020     | Conservation Easement | Easement<br>Holder | 4851-456    | 107   | Adjacent to<br>Reservoir               | \$271,403  | \$283,600 | \$11,504 | \$1,000        | \$0           | Madbury    |  |
| Greenland Well   | Chick Property            | 11/6/2020      | Portsmouth Property   | Owner              | 6191-124    | 3.11  | Within 400 ft SPA<br>of Well           | \$220,000  |           |          |                |               | Greenland  |  |
| Bellamy Reservoir  | Fernald Property          |                | Conservation Easement | Easement<br>Holder |             | 45    | Adjacent to<br>Reservoir               |            |           |          |                |               | Madbury    |  |

The protection of the Bellamy Reservoir is a high priority for the City of Portsmouth because the Reservoir is the primary water supply for the City. The Bellamy surface water is treated at the City’s Water Treatment Facility in Madbury and delivered to regional communities around the seacoast. Conserving land within the watershed and areas that abut the reservoir and surrounding wetlands, rivers, and streams, protects the water quality from the pressures of development and helps the municipal water system provide quality drinking water.

The City of Dover continues to update our water system staff about their efforts to track and remediate their closed landfill, which is in the Bellamy Reservoir watershed. Dover must comply with EPA and DES requirements regarding the level of remediation they need to perform to protect all water sources around their site. Recent sampling by Dover has included more watershed delineation of contaminants of concern. City staff continue to be in communication with Dover staff and their consultants regarding these results and Dover’s response.

## **Water System Operations and Infrastructure Projects**

### **System Maintenance and Improvements**

The City continues to invest in water system capital improvement programs. Every year projects are identified to replace aging infrastructure. Water mains were replaced as part of the Islington and Union Street projects. System staff also performed continual maintenance on the system, including replacing non-operable valves on Market Street. Doing this project in-house and at night took a lot of coordination and saved a considerable amount of money and time with their efforts.

### **Water Transmission Main Resiliency Project**

The ongoing project to add a third water line under the Little Bay from Durham to Newington went out to bid in August of 2023. Unfortunately, only one bid was received and it was well over the engineer’s estimate and the budget. Therefore, this bid was rejected and the project was then split into two phases; the first phase, replacing the valves on both sides of the bay and tapping the existing water main to allot for future connection of the third water line. The valve project went out to bid in late 2023 and SUR construction was awarded the project. Valves on the Newington side of the bay were installed first, following valves on the Durham side. As part of this project, the existing 20-inch waterlines under the bay were tapped for the new valves.

Inspection of the pipe materials revealed that the condition of the pipe was much better than expected. Additionally, when the system was tested with one of the two lines closed under the bay, we were still able to pump a sufficient amount of water through one pipe. Now, if a leak were to occur on either of the two lines under the bay the leaking line can be isolated and shut down to be fixed. All of this work and follow-up investigations have improved the system resiliency should a leak occur on one of the lines under the bay.



**Installing New Valves on the Newington Side of the Little Bay Water Line**

The second phase, to add the third water line, is currently in redesign after a constructability review. We are also in discussion with the regulators regarding their providing a larger window of time for the in-water construction. The bid for this phase is anticipated to go out in late summer/early fall.

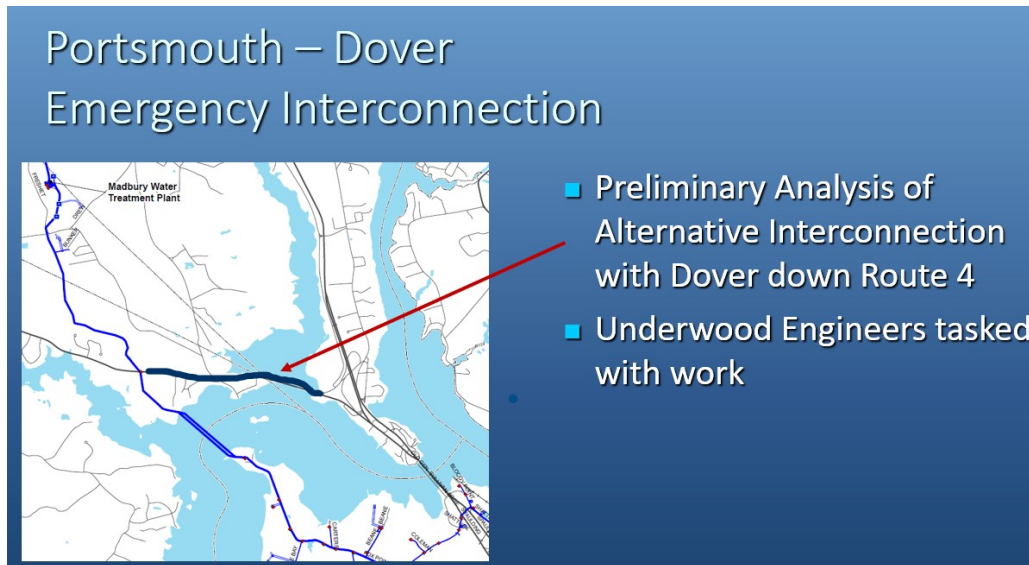
### **Dover/Portsmouth Water System Emergency Interconnection**

The New Hampshire DOT bid the replacement bridge project for the General Sullivan bicycle/pedestrian bridge in the summer of 2023. They received only one bid and it was rejected because the cost was too high. Part of this project included a new pipe to provide an emergency interconnection between the Portsmouth and Dover drinking water systems. Funding had been obtained from the state's Drinking Water and Groundwater Trust Fund to pay for the design.



Additional congressional funding has also been acquired for payment of the waterline, with Dover and Portsmouth each contributing 25% to the project.

As an alternative, the City has engaged the services of an engineering consultant to explore the potential for an interconnection with the Dover system via the Route 4 corridor. This will connect Portsmouth to Dover via the Madbury water transmission main and connect with Dover's system at the traffic circle as shown in the following graphic.



## Collins Well #2

After investigating the geology in the area of the existing Collins Well through the drilling and construction of test wells, a hydrogeologically favorable location was identified for the construction of a new well, Collins Well #2. This well is intended to provide mechanical redundancy to the existing source as well as allow the water yield capacity to be recovered to the 450 gallons per minute that were originally available from the Collins Well. Over time the withdrawal rate from the Collins Well has declined and routine cleaning of the well screen and redevelopment of the gravel pack has resulted in only moderate recovery of the well yield.

Collins Well 2 has been drilled and constructed, and the City's consultant, Emery & Garrett Groundwater Investigations (EGGI), conducted a pumping test in October 2022. The results of this test have been submitted to the NHDES for their evaluation in the permitting process. Final design of the infrastructure will occur in tandem with whatever might be necessary for treatment of the Portsmouth/Collins wells for PFAS compliance.

## Collins Well Upgrades and Portsmouth/Collins PFAS Treatment System



- New well complete and well screen installed
- Pump test report submitted to DES
- Design for construction of pumps and pipelines to follow
- Preliminary design underway to assess a potential treatment site and infrastructure for PFAS treatment. Full system construction pending final EPA MCLs for PFOA and PFOS.
- Have been in communication with Air Force to fund since these wells are on the edge of the Pease southern wellfield

### Master Planning Update and Seacoast Drinking Water Commission Regional Interconnection Study

The City has engaged the services of an engineering consultant to assess potential infrastructure needs to meet water flow needs for the southern portion of the system, together with the Greenland town area. An update of the entire water system's hydraulic pipeline flow model will also be performed to guide future infrastructure capital needs.

## Master Planning – 2023/2024 - Currently Under Way with Haley Ward Engineers

- Tank Inspections and Cleaning
  - Completed during summer of 2023
- Hydraulic Assessment of Southern Portion of System and Greenland Area Pressure
  - Currently under way
- Update the Entire Water System Hydraulic Model
  - Will occur in 2024 (Weston & Sampson)

### Seacoast Interconnection Study

Underwood Engineers has been selected by the Seacoast Drinking Water Commission's Advisory Committee (chaired by Brian Goetz) to perform an interconnection assessment of all the Seacoast drinking water systems. The work for this study began early in 2024 and will

continue throughout the year. Analysis of each water system's customer demographics, supply capabilities, water quality and water demands will be performed. Projections for future needs along with the infrastructure improvements that would be required to further interconnect water systems will be performed.

### **Further Updates and Information**

This information will be distributed electronically on the City of Portsmouth's website in the Department of Public Works > Operations > Water section. If anyone needs additional information or has questions contact Al Pratt, Water Supply Operations Manager at 520-0622 or Brian Goetz, Deputy Director of Public Works at 766-1420.