
City of Portsmouth

Department of Public Works



Portsmouth and Pease International Tradeport Drinking Water Status Report 2025 – Third Quarter (July 1, 2025 – September 30, 2025)

The City of Portsmouth's water supply sources have shown resilience in the face of ongoing drought conditions that began in June. While the Bellamy Reservoir, Portsmouth's primary source of supply, reached a low level in September comparable to that seen during the 2022 drought, it has not dropped to the more severe low levels recorded in 2020 and 2024. Currently, both surface and groundwater levels are below normal; however, they are not affecting the system's ability to meet water demand. Seasonal changes have helped ease demand, as cooler temperatures and reduced irrigation use have lowered water consumption.

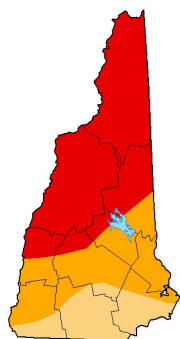
If drought conditions continue through the winter and into the spring, water use restrictions may become necessary in the coming year. As always, the City Water Department encourages all customers to use water efficiently and remain mindful of their water usage to help preserve this critical resource.

Precipitation and Weather

As of October 7, 2025, 83% of New Hampshire (including the Seacoast region) was experiencing Severe Drought conditions, with 53% of the northern part of the state classified under Extreme Drought. According to the U.S. Drought Monitor, areas under a Severe Drought designation are facing significant water shortages along with stressed vegetation and ecosystems.

U.S. Drought Monitor
New Hampshire

October 7, 2025
(Released Thursday, Oct. 9, 2025)
Valid 8 a.m. EDT



Intensity:

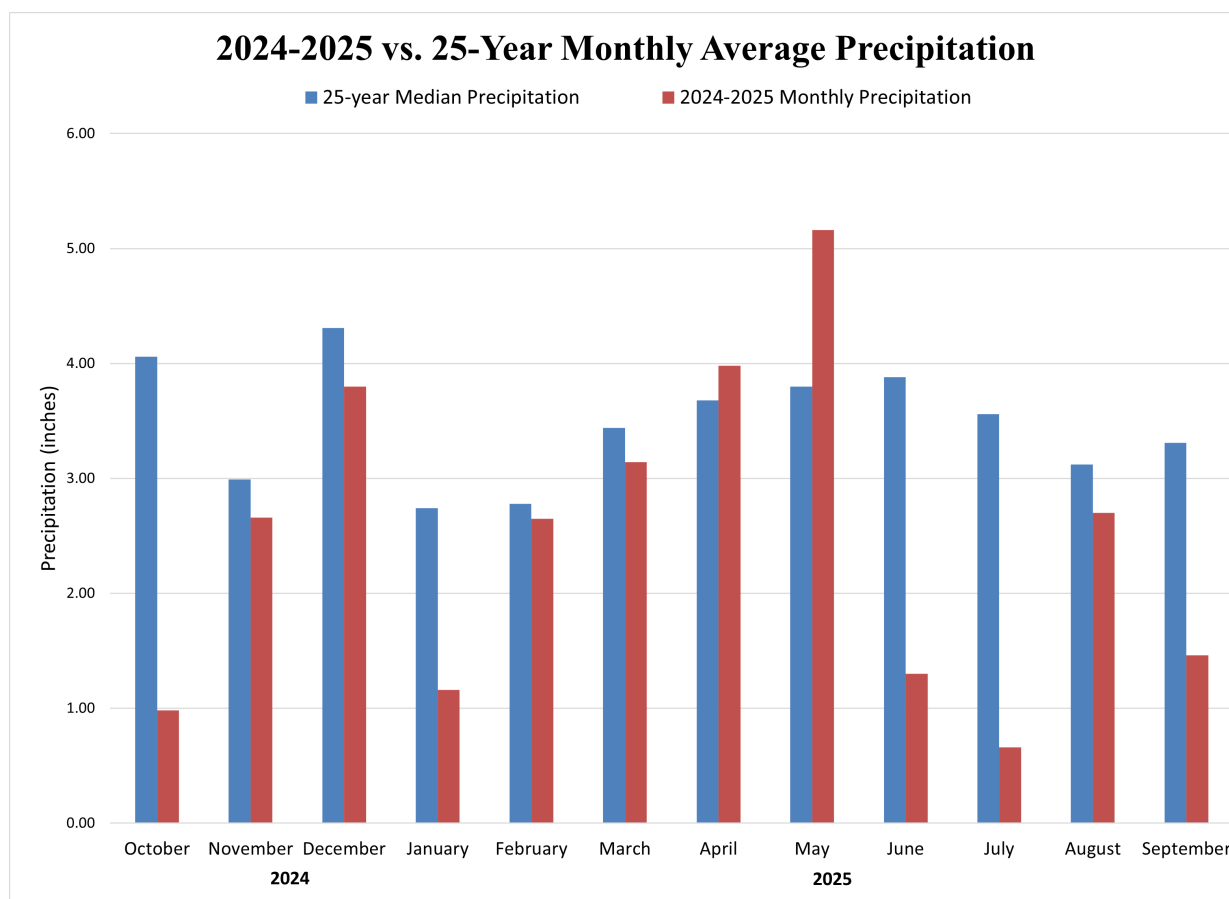
- None
- D0 Abnormally Dry
- D1 Moderate Drought
- D2 Severe Drought
- D3 Extreme Drought
- D4 Exceptional Drought

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>

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National Drought Mitigation Center



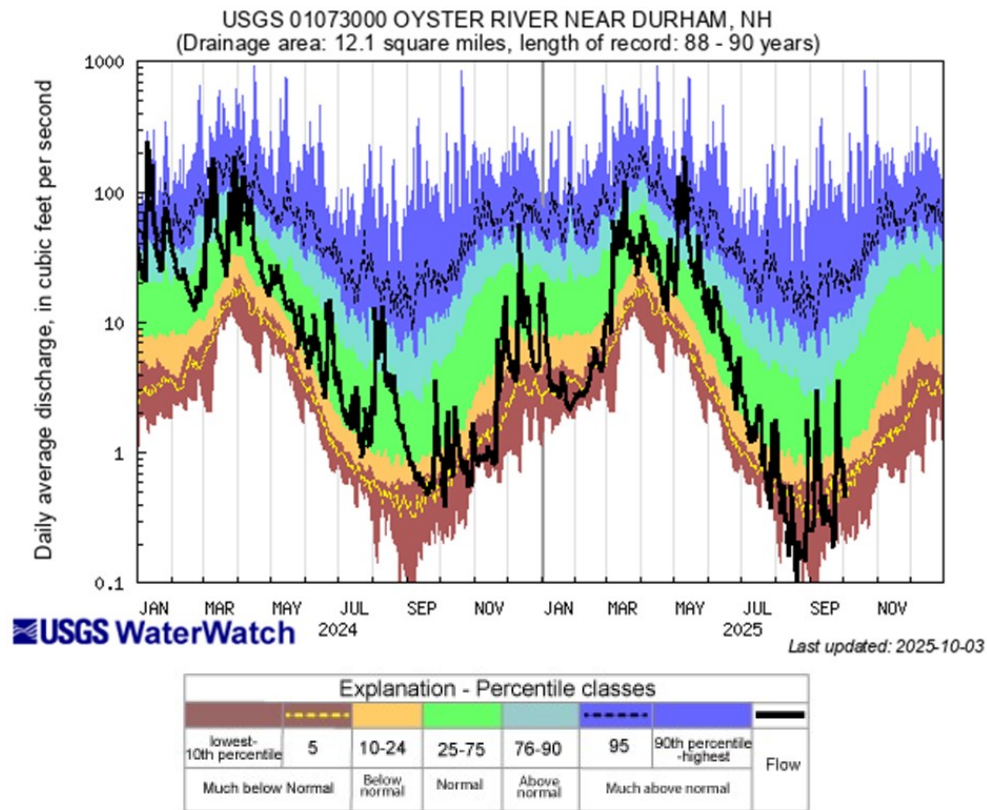
The graph below illustrates the variability in precipitation experienced in Portsmouth over the past twelve months. From 2024 through March 2025, total precipitation consistently remained below the 25-year average, contributing to drier-than-normal conditions. A brief improvement occurred in April and May, with precipitation levels rising to 8% and 36% above the 25-year average, respectively. However, dry conditions returned in June and continued throughout the summer, with July standing out as the driest month as precipitation levels reached 82% below the historical monthly average.



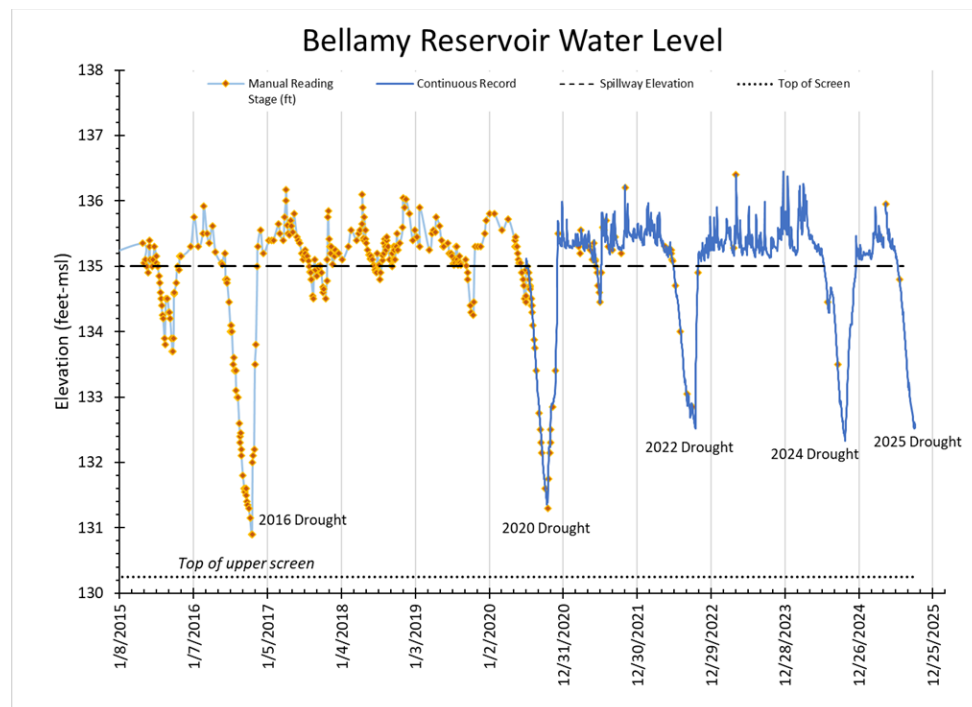
The 12-month rolling average precipitation through September 2025 was 29% below normal at a total of 29.7 inches versus the normal of 41.7 inches.

River Flows and Reservoir Levels

The graph below shows streamflow trends in the Oyster River, measured by the U.S. Geological Survey gauge. The City uses this data to help evaluate the flow into the Bellamy Reservoir surface water supply source. In July 2025, flows in the Oyster River dropped sharply below the seasonal average due to high temperatures and limited rainfall. While a few rain events in September caused temporary increases in flow, overall conditions remain classified as “much below normal” compared to the 88–90-year historical average.



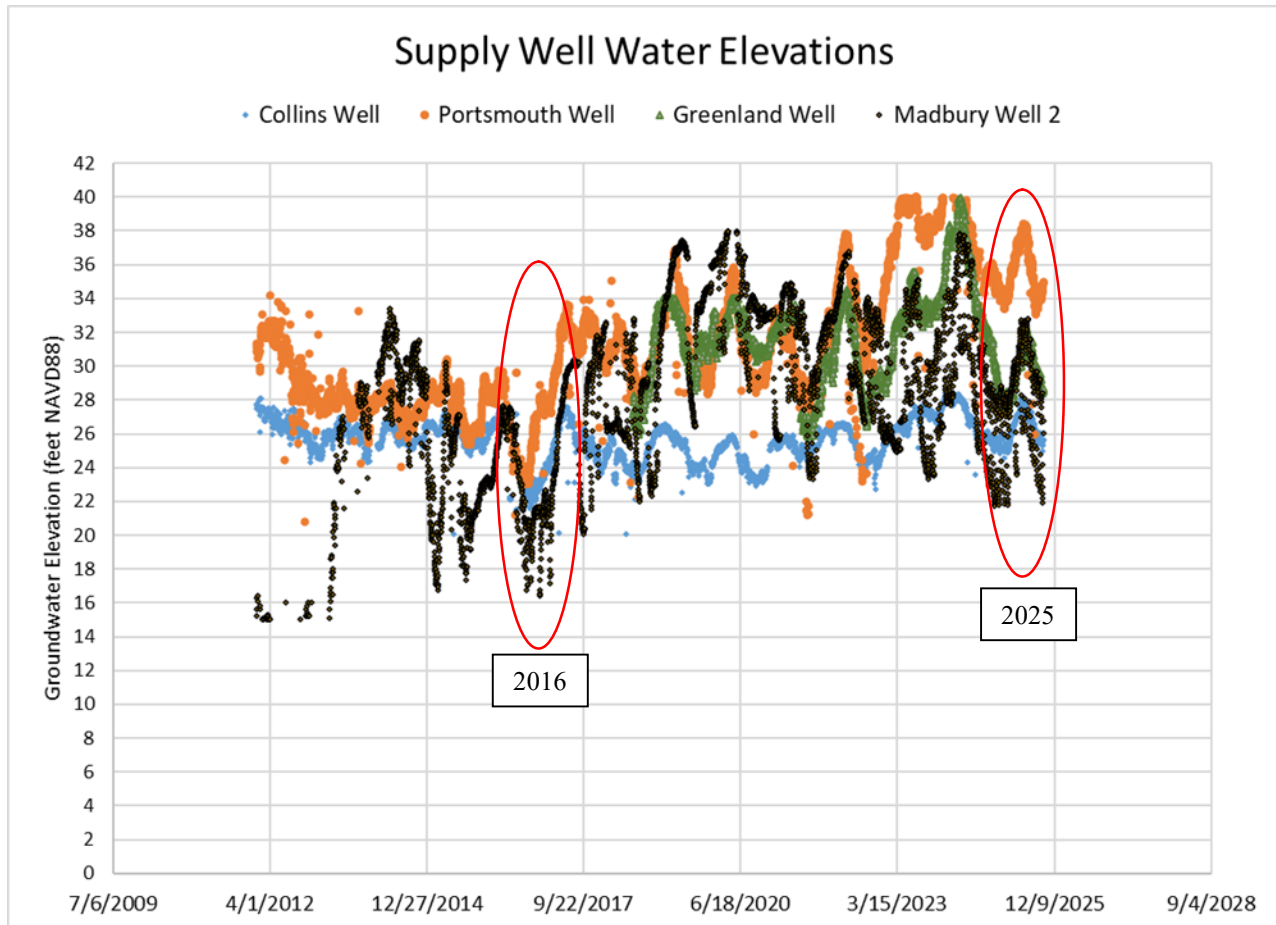
The graph below compares this year's reservoir levels to those recorded during previous drought years, including 2016, 2020, 2022, and 2024. In 2024, the Bellamy Reservoir dropped below 2022 levels by October, but recovered following early November storms, late-winter snowmelt, and consistent spring rainfall. Given this historical pattern and anticipated precipitation and evaporation changes in the fall and early winter, the reservoir is expected to recover by spring.



Groundwater Levels and Status

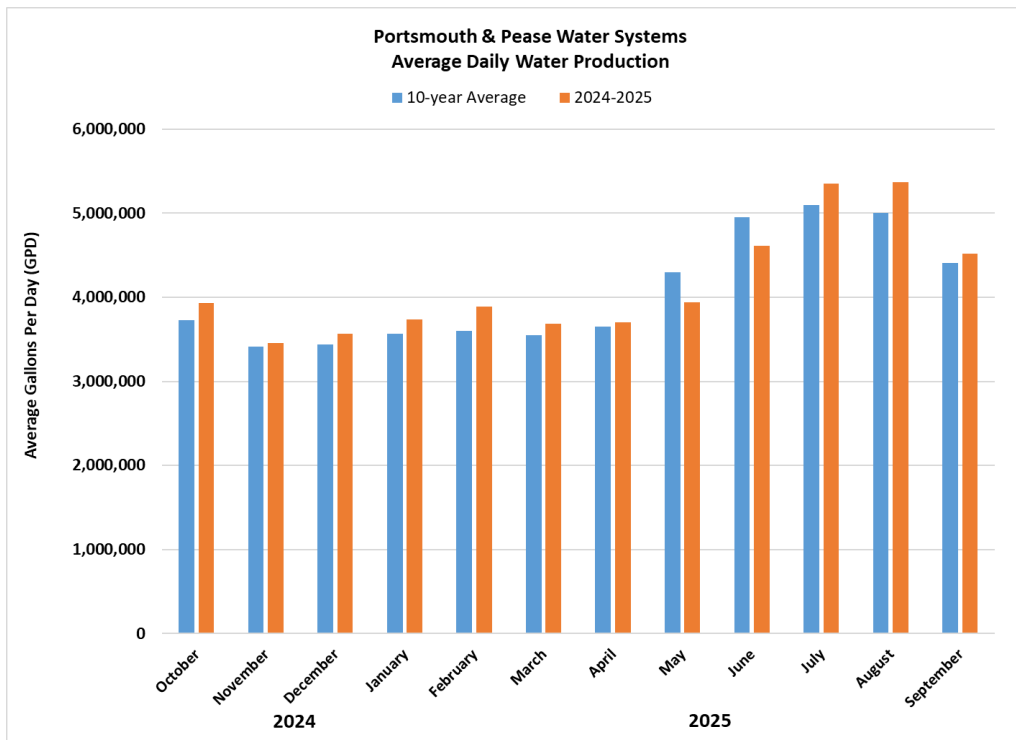
As expected, groundwater levels in the City's supply wells declined over the summer months due to seasonal demand and dry conditions. However, since spring water levels were higher than normal in most wells, this decline remained within typical seasonal ranges. To support the water system and meet high demands during late summer, Portsmouth's water treatment operators increased the use of the Madbury wells to supplement withdrawals from the Bellamy Reservoir. As a result, groundwater levels in Madbury were slightly lower than those observed over the past six years. Looking ahead, the expected reduction in water demand during the winter will allow City operators to scale back well usage, giving aquifers time to recharge before demand increases again next year.

The following graphic illustrates recent water level trends for four of the City's groundwater supply wells. Note the considerably higher groundwater levels observed this year relative to the low levels that occurred during the 2016 drought.

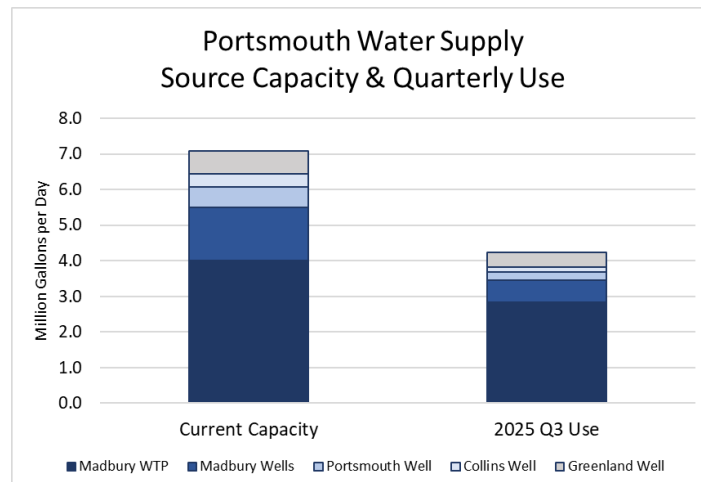


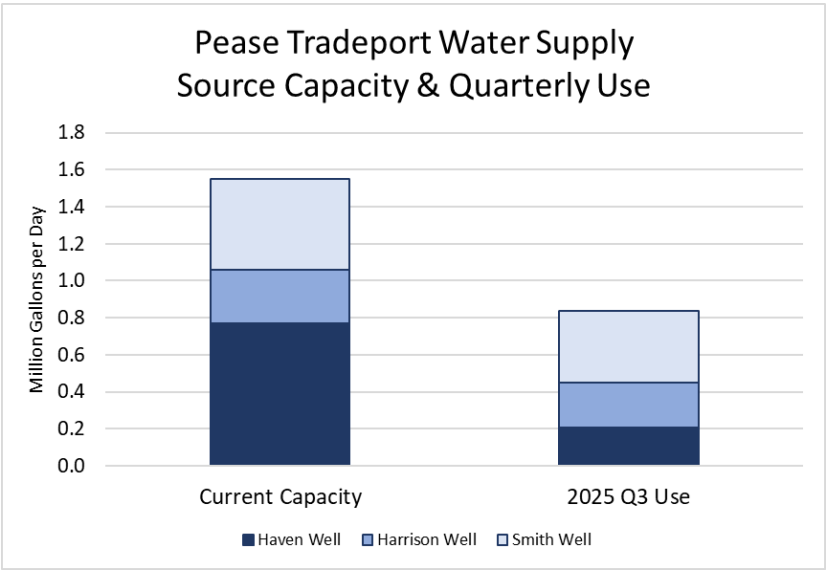
Current Water Production and Demand

From January through the end of April, the Portsmouth and Pease Drinking Water Systems experienced slightly higher-than-average water demand. In May, however, water production dropped below the 10-year average; primarily due to increased rainfall, which typically leads to reduced outdoor water use, such as lawn irrigation. In contrast, during the hot and dry conditions from July through September, system demand rose above the 10-year average as residents and businesses relied more heavily on water in response to the prolonged drought.

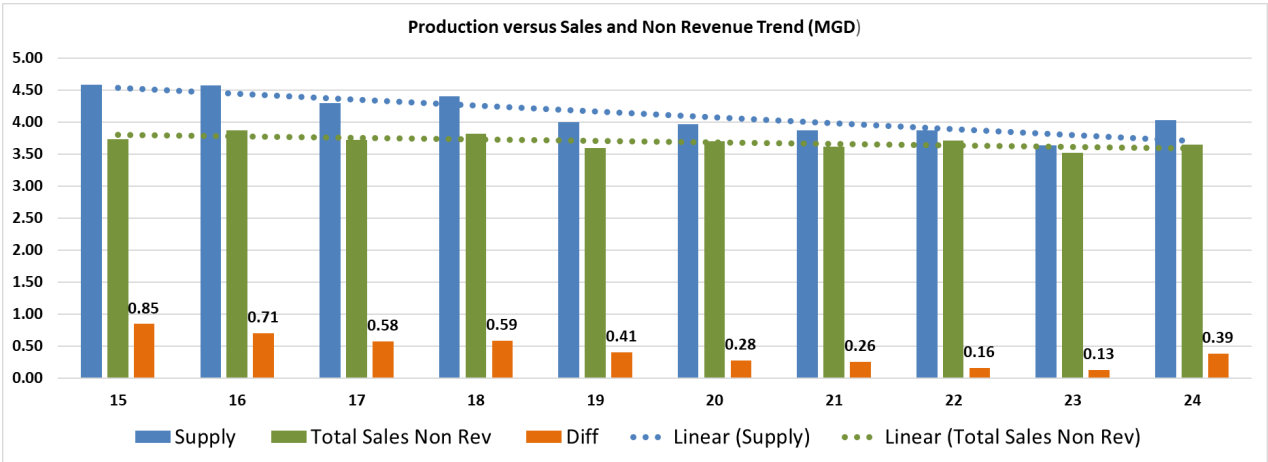


The following graphs illustrate the current quarter's water production relative to the current supply capability for the Portsmouth and Pease Drinking Water System supply sources. Both systems are showing a good buffer of available supply versus demand. The current supply capability varies depending upon the conditions of the source including water levels and source water quality.





The next graph shows the running water balance for the Portsmouth and Pease Drinking Water Systems. This value is the difference between the volume of water that both systems produce, versus the demand from sales and other uses in each system. System improvements in metering upgrades, water main replacements and leak detection have considerably improved the water balance over time, but in 2024, both systems experienced several water main breaks that led to unbilled water loss.



Water Efficiency

The City continues to offer water efficiency rebates of \$100 for the purchase of a low-flow toilet and \$150 for the purchase of a high-efficiency washing machine. These rebates are available to all residential Water customers, including multi-family customers. To date, the City has issued over 1,600 rebates. According to the NH Department of Environmental Services (NHDES), Portsmouth is currently the only public water system in New Hampshire offering these rebates.

Additional information on this program is available from the City's water billing department and on the City's website: <https://portsnh.co/water-efficiency-rebate>

Water Efficiency Rebate Program
Introduced in 2015
The First (and still only) Water Efficiency Rebate Program in New Hampshire



\$100 **\$150**

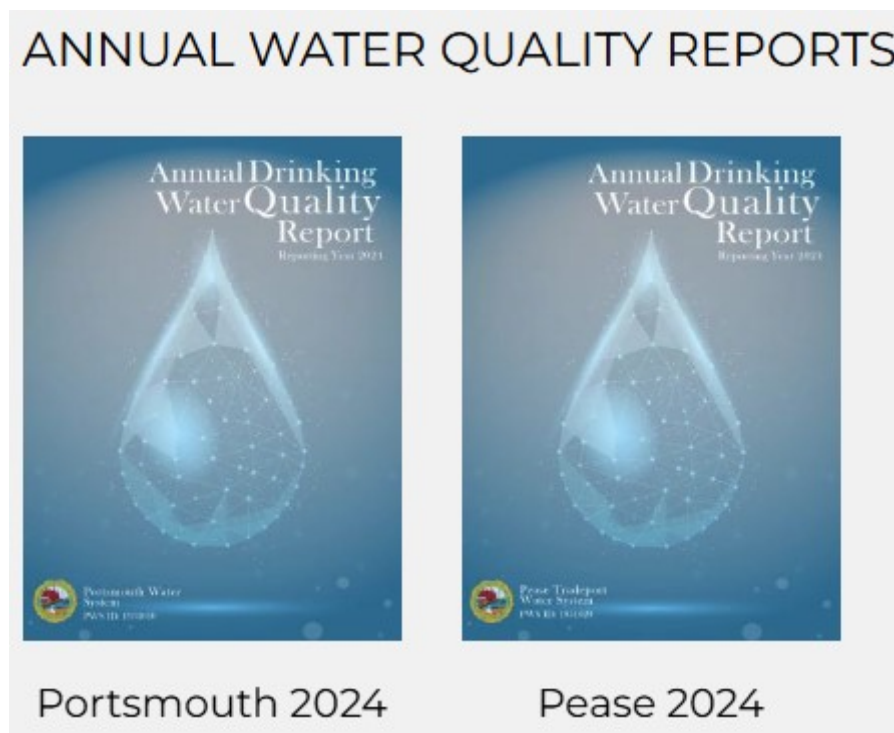
Residential Toilet and Washing Machine Rebate Program
Additional Information

Q. Why is Portsmouth offering toilet and washing machine rebates?
A. We are offering this program to our customers as an incentive to replace older, inefficient toilets and washing machines with high efficiency models. This is another step toward making our water and sewer systems as efficient as possible. When customers use less water then we have to produce and treat less water and wastewater, which saves water and money for everyone in the long run.

The City intends to continue with the rebate program and expand 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, which summarize all water quality data collected throughout 2024 and provide detailed information about each system, were distributed to all customers during the last week of June 2025. Updated copies of these reports are also available on the City's website: <https://portsnh.co/3Rn5yVi>.



The Portsmouth Water Division conducts routine monitoring and analysis of water quality parameters in accordance with the Federal Safe Drinking Water Act and regulations established by the New Hampshire Department of Environmental Services (NHDES). Water sources are regularly tested for a range of potential contaminants, including radioactive, biological, inorganic, volatile organic, and synthetic organic compounds. Key treatment parameters - such as turbidity, pH, chlorine, orthophosphate, and fluoride - are continuously monitored and recorded by Water System operators. Regulatory guidelines permit less frequent monitoring for certain substances whose concentrations typically remain stable over time. In such cases, the most recent available data is included in the report, along with the year the samples were collected.

PFAS Water Quality Sampling and Tracking

The City's work to track and treat PFAS contamination at the Pease International Tradeport and Portsmouth Water System continues. The term "PFAS" covers a broad group of perfluoroalkyl and polyfluoroalkyl substances found in many commercial products including firefighting foam. On September 30, 2019, the state's NHDES established limits on the concentrations of four per- and polyfluoroalkyl substances (PFAS) in drinking water. The NHDES maximum contaminant levels (MCL) for drinking water and groundwater remain at 15 parts per trillion (ppt) for perfluorooctane-sulfonic acid (PFOS), 12 ppt for perfluorooctanoic acid (PFOA), 11 ppt for Perfluorononanoic Acid (PFNA), and 18 ppt for Perfluorohexane sulfonic acid (PFHxS). These limits were based on an annual rolling average of sample results collected throughout the state.

On April 10, 2024, the US EPA finalized regulations that limit acceptable concentrations of six PFAS compounds in drinking water; establishing nationally-enforceable maximum contaminant levels for six PFAS substances in drinking water. Those compounds include: PFOA, PFOS, PFHxS, PFNA, and HFPO-DA contaminants with individual MCLs, and PFAS mixtures containing at least two or more of PFHxS, PFNA, HFPO-DA, and PFBS. The new regulation use a Hazard Index MCL to account for the combined and co-occurring levels of these PFAS in drinking water. At that time, the US EPA gave public water systems until 2029 to comply with the MCLs.

On May 14, 2025, EPA announced the agency will keep the current National Primary Drinking Water Regulations (NPDWR) for PFOA and PFOS. As part of this action, EPA also announced its intent to extend the PFOA and PFOS Maximum Contaminant Level compliance deadlines and establish a federal exemption framework.

On September 11, 2025, EPA filed a motion in federal court to eliminate enforceable drinking water standards for GenX, PFHxS, PFNA and PFBS.

The City of Portsmouth continues to comply with all standards regulating levels of PFAS in both the Portsmouth and Pease Drinking Water Systems. Until the EPA rules go into effect, currently proposed in 2031, Portsmouth, along with all community water suppliers in New Hampshire, must continue to comply with the NH PFAS MCLs established in 2019 by the NHDES for four regulated PFAS compounds.

The City samples for PFAS in its water supply sources quarterly and periodically posts this data on the City's website at: <https://portsnh.co/PFASTesting>

PFAS 12-Month Rolling Average New Hampshire Regulated Compounds - All Sources in Compliance (October 2024 – September 2025)

12-MONTH ROLLING AVERAGE 2025 Q3		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
Perfluorohexanesulfonic acid (PFHxS)	ng/L	10	18	0.0	0.2	0.4	0.4	0.6	1.4	7.7	2.5	1.9
Perfluorooctanesulfonic acid (PFOS)	ng/L	4	15	1.3	1.2	1.3	1.4	0.6	1.0	5.4	4.7	3.4
Perfluorooctanoic acid (PFOA)	ng/L	4	12	2.3	2.5	2.3	2.6	1.9	3.0	7.2	4.3	4.1
Perfluorononanoic acid (PFNA)	ng/L	10	11	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.0
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ng/L	10		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Perfluorobutanesulfonic acid (PFBS)	ng/L			0.9	1.1	1.4	1.3	1.3	2.4	4.2	12.0	2.2
Hazard Index*		1		0.0	0.0	0.0	0.0	0.1	0.1	0.8	0.3	0.2

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

According to the City’s ongoing monitoring, the following water sources have detection averages above the projected EPA finalized MCLs:

- Portsmouth well: 5.4 ppt of PFOS, 7.2 ppt of PFOA
- Collins well: 4.7 ppt of PFOS, 4.3 ppt of PFOA
- Greenland well: 4.1 ppt of PFOA
- The Pease Water Treatment Facility continues to remove these compounds from the system’s supply wells.

The Pease Tradeport’s dual treatment system of ion exchange and granular activated carbon continues to perform very well. After four years of operation and over 1 billion gallons of water treated, the levels of the regulated compounds remain below laboratory method detection levels.

Total Trihalomethanes (TTHMs)

Total Trihalomethanes (TTHMs) are disinfection byproducts (DBPs) which are created when added chlorine disinfectants (sodium hypochlorite) react with natural organic matter in the water. On average, the Water Treatment Facility in Madbury removes about 69% of the total organic carbon (TOC) through the treatment process. The EPA Disinfectants and Disinfection Byproducts Rules (Stage 1 and Stage 2) require 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 chlorine and creates DBPs. Historically the TTHM concentration in the Portsmouth Water System 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 in September 2019. These improvements were designed to reduce the concentration of trihalomethanes in the water distribution system. So far, the highest average TTHM in the distribution system in 2025 was 42 ppb. The Pease system has near “Non-Detect” TTHM concentrations due to the source water quality and the Pease Water Treatment process which includes granular activated carbon filtration.

TTHM & HAA5 Running Average – 2025 – Portsmouth Water System

DATE	SITE		TTHM	HAA5
Quarter III 2025		MCL's =>	80	60
ID #		Reference	ppb	ppb
Q3	Locational Running Average		Locational Running Average	Locational Running Average
321	30 SPINNAKER WAY		37	48
325	1550 WOODBURY PLAZA		34	45
323	120 SPAULDING TURNPIKE		36	46
324	WATER STREET		42	50

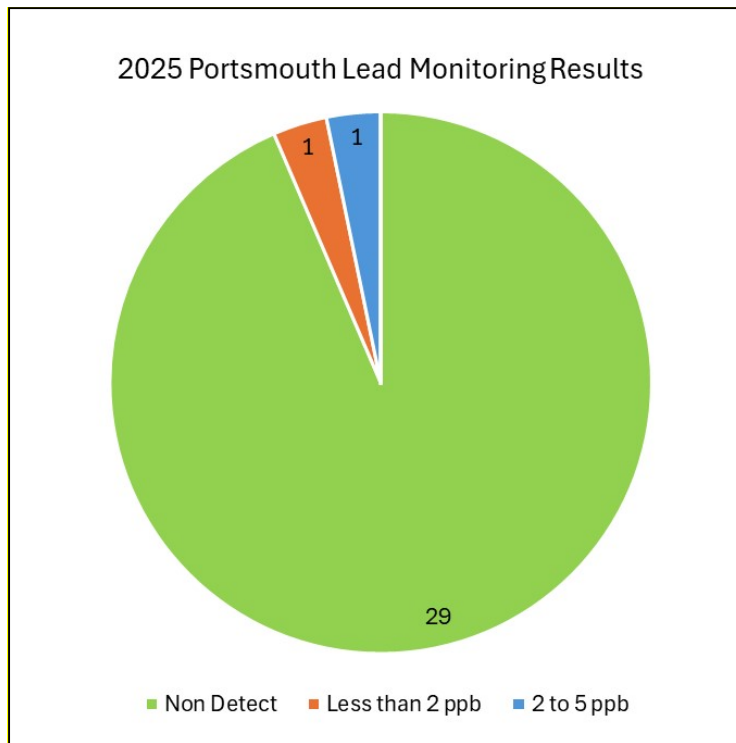
TTHM & HAA5 Running Average – 2025 – Pease Water System

DATE	SITE		TTHM	HAA5
Quarter III 2025		MCL's =>	80	60
ID #		Reference	ppb	ppb
Q3	Locational Running Average		Locational Running Average	Locational Running Average
321	135 CORPORATE DRIVE		2	ND
322	14 MANCHESTER SQUARE		4	ND

Lead Sampling

The City of Portsmouth implemented a Lead & Copper Corrosion Control Program in 2003 and remains in compliance with its requirements. 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 into drinking water. Because the City of Portsmouth water supply sources that are regularly monitored do not contain measurable quantities of lead, the primary source of any lead and copper detected in drinking water comes from internal household plumbing systems, plumbing components within other privately owned buildings and the service lines feeding these properties.

Household water sampling conducted in 2025 throughout the Portsmouth Water System found two residential locations (out of 31 sampled) with measurable concentrations of lead. The highest detection of lead was reported at a concentration of 2.9 ppb, which is less than a fifth of the “action level exceedance” concentration of 15 parts per billion (ppb). The other 29 water samples had no traces of lead.



Lead is not present in the water when it leaves the City’s well and treatment 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 (built before leaded solder was banned in 1986, and the associated potential for leaded plumbing components eliminated), the City encourages customers to have their water tested by a certified laboratory, especially if there are children under six or pregnant women in the household. The City actively adjusts the water chemistry at the treatment facility and well facilities according to the established 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 a private plumbing system, and is in contact with water, some risk remains. Information about the Corrosion Control Program can be accessed on the City website: <https://portsnh.co/LeadCopperProgram>.

Service Line Inventory Efforts

The U.S. Environmental Protection Agency (EPA) Lead and Copper Rule Revision required all public water suppliers including the City of Portsmouth to submit a baseline inventory of every service line and its material composition by October 16, 2024. The City of Portsmouth Water Division submitted this inventory for the Portsmouth and Pease Tradeport Water Systems and notified customers whose water service line material was identified as galvanized steel or whose service line material has not been identified. These notifications are intended to raise awareness of service line materials and help customers avoid possible exposure to lead from their household plumbing in their drinking water.

No lead service lines have been identified in the Portsmouth or Pease Water Systems.

Customers who received a notification letter are being asked to assist the City by following the directions outlined in the notice. The information letters include:

- A statement that the service line material is either galvanized steel and requires replacement, or is unknown;
- Information on replacing galvanized steel service lines requiring replacement;
- Actions to take if the material of the water service line is unknown;
- An explanation of the health effects of lead; and
- Steps to reduce any exposure to lead.

In accordance with the federal regulation, letters must be sent to property owners on an annual basis until service lines that might contain lead are removed, or the public water system is able to verify that a service line does not contain lead. These notification letters will be sent to homeowners again in November 2025. Those who do not receive a letter by the end of the year should be assured that the Water Division has determined that their service line material does not contain lead.

More detailed information about this inventory effort can be found on the City website: <https://portsnh.co/serviceinventory>.

Safe Water Advisory Group (SWAG)

The Safe Water Advisory Group was created by the Mayor and 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 water systems.

Video recordings, information, meeting agendas and minutes, and annual reports of all SWAG meetings are posted on the City's website: <https://portsnh.co/safe-water-advisory-group>. 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.

Further Updates and Information

This information is updated on the City of Portsmouth's website in the Department of Public Works > Operations > Water section. More detailed updates on capital improvement projects can be found here: <https://www.portsmouthnh.gov/publicworks/projects>

For additional information or questions contact Al Pratt, Water Resource Director at anpratt@portsmouthnh.gov / 603-520-0622 or Mason Caceres, Assistant Water Resource Manager at mecaceres@portsmouthnh.gov / 603-312-3804.