November 5, 2026

Eric Worrall, Regional Director
Massachusetts Department of Environmental Protection, Northeast Region
150 Presidential Way
Woburn, Massachusetts 01801

Re: Request to Declare a Water Supply Emergency, Haverhill, MA

Dear Mr. Worrall:

As we have discussed, the City of Haverhill is currently in a significant water supply deficit. The City's water supply consists of 3 surface water supplies with a combined permitted yield of 7.1 million gallons per day (MGD). The supplies rely solely on precipitation and surface runoff for replenishment. Over the past 2 to 3 years, precipitation and recharge have been well below what is required to maintain steady-state conditions. As a result, conditions have deteriorated, and the City is estimated to have approximately 4 months of available volume remaining. Without significant environmental improvement, human intervention is urgently needed.

Thus, the City requests that MassDEP declare a state of water supply emergency for Haverhill pursuant to M.G.L. c. 21G, sec. 15, 16, and 17 and authorize the emergency measures outlined herein, including expedited review and approval of a temporary intake from the Merrimack River. Without immediate intervention, the City's ability to maintain adequate drinking water for its residents and businesses will be jeopardized.

Haverhill's Water System

The City has a population of over 65,000 and provides drinking water to approximately 61,000 residents and numerous businesses. Current average and maximum daily demands are approximately 5.6 and 7.8 MGD, respectively. Drinking water is supplied by 3 separate reservoirs in Haverhill: Crystal Lake, Millvale Reservoir, and Kenoza Lake. The water from Kenoza Lake is treated at the City's water treatment plant (WTP) on the shore of Kenoza Lake using dissolved air flotation, automatic backwash sand filtration, granular activated carbon filtration, and a variety of chemicals needed to condition the water. Crystal Lake and Millvale Reservoir are pumped to Kenoza Lake as needed to maintain its volume.

The combined safe and permitted yield of Haverhill's supplies is 7.1 MGD. The City's 2010 Comprehensive Water System Master Plan identified the Merrimack River as the only water source having the needed volume to provide full backup to the current sources and recommended that the City immediately begin pursuing development of this resource.

For over 10 years, the City and its consultants have been working toward a permanent redundant supply solution: the design and construction of a radial collector well (RCW) along the bank of the Merrimack River. Preliminary studies and exploration have indicated that the City may be able to obtain between 5 and 10 MGD from the RCW. The project has advanced slowly because of the extensive permitting and approvals required for such an undertaking and to acquire the private property at 309 East Broadway where the optimal location for the RCW was identified.

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Design of the RCW, raw water transmission main, pumping, and electrical systems needed to put the RCW online is near completion. The City is working with Wright-Pierce to expedite these projects so they can begin construction in early 2027. It is likely that the City will not fully benefit from the new RCW until well into 2028. The City remains fully committed to completion of the RCW as its long-term redundant water supply solution. The emergency measures requested herein are intended solely to bridge the gap until the RCW becomes operational and are not intended to replace or delay implementation of the RCW project.

For decades, Haverhill has been diligent in improving the efficiency of its system and committed to extensive conservation practices. We have also been complying with all the terms of our current Water Management Act (WMA) permit, most notably maintaining our per capita water use, currently approximately 51 GPCD, well below the thresholds stipulated by the WMA permit. Examples of these initiatives include:

- Leak detection surveys every 3 years with follow-up repairs;
- Improved master metering using modern technologies;
- Residential and large meter replacement programs;
- Automatic meter reading technology that can flag high-use accounts and leaks;
- A recent update of Haverhill's water use restriction ordinance to be aligned with the State's non-essential outdoor use restrictions, as well as enforcement through the issuance of fines;
- Major upgrades to the WTP to increase reliability and efficiency;
- Unaccounted for water between 3.9% and 13% over the last 5 years;
- Low-flow showerheads and faucet aerators are made available to residents and businesses at no cost;
- Soon-to-be-proposed tiered rate system;
- Water-efficient fixtures in new and renovated construction projects under the MA plumbing code; and
- In plant operations strive to recycle as much water in the process as possible.

Emergency Condition

For more than 2 years, water levels in all 3 supplies have been steadily dropping due to the ongoing drought affecting northeastern Massachusetts. Today, Kenoza Lake is at a level never seen in our recorded history. Crystal Lake is currently only able to contribute an average of 1 to 2 MGD and is nearly depleted. Millvale Reservoir pumping has ceased because of the lack of inflow.

The normal high-water elevation of Kenoza Lake is 114.5'. Its current elevation is 97.2'. The WTP intake elevation is 83.5'. Assuming the status quo, the City's remaining supply capacity will be depleted in approximately 4 months, and both Crystal Lake and Millvale Reservoir will be dry creating a significant and direct threat to public health, safety, and welfare.

Regarding the previously noted RCW project, it could be 1 to 2 years before the proposed RCW system is fully commissioned and available to Haverhill. That is far too long to solve the current emergency conditions. The levels of all the City's water supplies are at the point where we must take action immediately.

We respectfully request that MassDEP declare a state of water supply emergency and authorize the temporary emergency measures described below to protect public health and ensure a reliable drinking water supply for the community.

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Proposed Solution

The City has been working closely with its consultants over the past year to identify potential solutions to improve Haverhill's current water supply deficit, which has been completely out of our control. We must identify a source that has enough capacity to replenish the supply system and begin implementation to bring that supply on line immediately. Anything less is unlikely to prevent continued decline, resulting in the depletion of the water supply.

A screening analysis of possible supplemental supply alternatives has been conducted. The following briefly details each alternative:

- Expedite the current RCW project - The RCW, pumping infrastructure, and raw water transmission main design could potentially be expedited and bid for construction as soon as January 2027. This will require expedited reviews by the applicable agencies and sufficient consultant resources to complete. However, even then, a fully permitted RCW would not be complete until mid to late 2028.
- Temporary interconnections to adjacent communities - Interconnections were considered with the following communities: Boxford, Groveland, Merrimac, Methuen, North Andover, West Newbury, Atkinson, Plaistow, and Salem, NH. Haverhill has engaged Methuen as one of the only communities having excess supply capacity. However, their surplus capacity is limited to approximately 1 MGD and only during lower demand periods. Methuen also has differing corrosion control chemistry from Haverhill. Methuen has indicated to us that it has a permit application before MassDEP to switch to zinc orthophosphate. Haverhill would ask that MassDEP prioritize and expedite the permit process to accelerate the implementation of this emergency measure.
- Utilize the existing test well and/or construct additional test wells - A temporary large diameter test well is located on the RCW site and was constructed for preliminary hydrogeologic evaluation of the proposed RCW. In May and June 2026, the well was pumped for 30 days to collect additional water quality data and to rate the capacity of the well for potential emergency use. The testing determined that the well could produce up to 0.6 MGD. The assumption is that additional test wells would produce similar volumes, but even multiple test wells would be far below what Haverhill would need to replenish its supplies.
- Treat and utilize Johnson's Pond, a listed emergency source for Haverhill - Johnson Pond has a safe yield of 2.1 MGD; however, Haverhill only has a legal right to withdraw an average of 1.0 MGD. Johnsons Pond water will require treatment prior to introduction into Haverhill's distribution system. Pumping to Haverhill's WTP would require a 5-mile pipeline with a Merrimack River crossing. Temporary portable treatment at Johnsons Pond assumes that potable treatment units are readily available (many are being utilized for PFAS treatment). Even if treatment is available, the supply capacity is a fraction of what is needed by Haverhill and would not alleviate current conditions.
- Install temporary pumping at Kenoza Lake to extract volume beneath the current intake - The existing intake is located at elevation 83.5'. Based on available bathymetry data, the lake has a maximum depth of elevation 55. A temporary intake, pump system, and discharge main were considered to withdraw the remaining available volume below the existing intake and pump it to the wetwell of their raw water pump station. However, it was determined that the available volume below the intake would only be sufficient for 7 to 14 days.
- Construct a temporary direct intake in the Merrimack River - A temporary intake could be installed in the Merrimack River at the proposed RCW site at 309 East Broadway, along with a temporary pump system that could be installed onshore and connected to a water main, either permanent or temporary, to deliver water to Millvale Reservoir. The Millvale Pumping Station

would pump, as it normally does, through the existing water main from Millvale Reservoir to Kenoza Lake for treatment at the WTP. The temporary intake and pumping system would be designed to provide up to 9 MGD, Millvale Pumping Station's capacity, providing the quantity of water desperately needed by Haverhill.

As noted previously, part of the permanent RCW project requires that a raw water main be constructed from the RCW to the WTP. It is anticipated that this raw water main could be under construction in early 2027. The contractor will be directed to focus on the initial 4,600 linear feet of main, bringing it to Millvale Reservoir by early 2027. Installing and using this permanent water main is our preference. However, in the interest of saving time the City has not ruled out installing a temporary main above ground.

Recommendations

Haverhill is facing an existing and impending water shortage that will endanger public health, safety, and welfare. Despite conservation efforts, infrastructure investments, and compliance with all applicable Water Management Act permit requirements, the available supply continues to decline due to prolonged drought conditions and inadequate recharge of the City's surface water system. The City requires an immediate solution which provides the capacity to replenish and maintain the water level in Kenoza Lake. While the City will continue to expedite design, bid, and installation of the RCW, the City respectfully requests that MassDEP:

1. Declare a Water Supply Emergency for the City of Haverhill;
2. Authorize construction and operation of a temporary intake in the Merrimack River to withdraw up to 9 MGD;
3. Expedite all permitting and regulatory reviews associated with the City's RCW project;
4. Expedite approvals necessary to implement an emergency interconnection with the City of Methuen; and
5. Coordinate with other state agencies, as necessary, to facilitate emergency response actions required to protect the City's water supply.

As noted in the MassDEP's policy regarding declarations of state of water supply emergency (Policy #87-05), where the MassDEP finds that there is an existing or impending shortage of water which endangers public health, safety, or welfare, the MassDEP has broad authority to issue a declaration of water supply emergency and order to allow specific actions to resolve the shortage of water. As detailed above, the City has taken multiple steps to reduce consumption; however, at this stage such measures alone cannot solve the emergency. Further, the options highlighted above, including interconnection to Methuen, use of the test wells at the RCW site and activation of Johnson's Pond provide at most 2.5 MGD (at substantial cost), far below what is necessary to stabilize the supply should current drought conditions continue. Thus, the City requests approval of the plan to implement a temporary direct intake and interconnection with Methuen pursuant to M.G.L. c. 21G and MassDEP policy.

In combination with a direct intake, we are committed to expediting the construction of the RCW, raw water main, and related work with the goal of having the RCW available for use – before final approvals – mid 2027. This will alleviate several concerns. If hydrogeological and environmental conditions improve and increase the availability of the existing supply, the duration of the temporary direct intake could be minimized significantly.

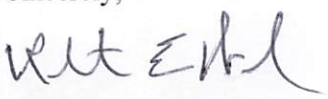
We recommend that the approval be conditioned upon the following operational parameters:

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1. The City expedite the design, bidding, and construction of all work related to the proposed permanent RCW. The City asks that MassDEP commit to expediting its review and approval of all aspects of the RCW to accelerate this ultimate solution.
2. The City be allowed to withdraw up to 9 MGD from the Merrimack River through the proposed temporary intake, as necessary. If we receive adequate rainfall to refill Millvale Reservoir, we will reduce or even halt the pumping of water from the Merrimack River.
3. Temporary withdrawals will not occur during wet weather events that have the potential for causing a combined sewer overflow. The system will be shut down prior to a forecasted significant wet weather event, and if there is a notified combined sewer overflow, pumping will not restart for a minimum of 24 hours following the end of any combined sewer overflow event.
4. The temporary intake will be designed to be supported in the water column of the river, off the bottom, to minimize intake velocities, and to reduce impact to protected fisheries.
5. Under temporary pumping conditions, water will be pumped to Millvale Reservoir. Millvale Reservoir is a warm water impoundment that fills only from precipitation and runoff. Under typical conditions, the reservoir is too low to be utilized during summer periods.
6. Under temporary pumping conditions, water from Millvale Reservoir will be pumped using the existing Millvale pump system directly to the existing discharge at the outlet to Kenoza Lake. The advantage of this discharge location is that the outlet is the farthest location from the WTP. The proximity to the WTP will allow the existing and pumped water to slowly mix and stabilize prior to being introduced to the WTP.
7. Finished water from the WTP shall meet water treatment goals and requirements at all times. We believe that the existing WTP has the proper and required processes to adequately treat the mixed water to meet all state and federal limits. Prior to the introduction of water into Kenoza Lake, jar testing and other analytical procedures will be used to characterize the mixed water quality and to identify potential adjustments needed to optimize existing processes.
8. Once the proposed RCW is constructed, tested, accepted, and permitted, the City will dismantle the temporary intake system.

We appreciate MassDEP's immediate attention to this request. Because of the serious nature of our emergency, we respectfully request an in-person meeting with MassDEP staff at the earliest possible opportunity to discuss the emergency declaration and proposed response measures. We can be available this week or early next week.

Sincerely,



Robert E. Ward
Director of Public Works – Water/Wastewater

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