Drinking Water Infrastructure in the MAGIC Subregion

Prepared for the MAGIC Subregion
By the Metropolitan Area Planning Council (MAPC)
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Intent of this Memo

This memo summarizes insights gathered through informal, exploratory focus group conversations with municipal members of the Minuteman Advisory Group on Interlocal Coordination (MAGIC) regarding the current state of drinking water infrastructure in the region. The purpose of this exercise is to capture themes and observations of local needs and regional opportunities that we hope to inform future water-related planning and implementation efforts. Developed in collaboration with MAPC, the key takeaways and potential next steps included in this memo reflect the perspectives and feedback of some key stakeholders we were able to connect with for discussions and serve as a starting point for further discussion and collaboration. This document does not represent official regulatory or implementation commitment by either MAPC and/or MAGIC communities.

Introduction

In 2025, the Minuteman Advisory Group on Interlocal Coordination (MAGIC) subregion and Metropolitan Area Planning Council (MAPC) sought to document existing conditions and challenges of drinking water systems operating in the MAGIC subregion. The MAGIC subregion includes representatives from 13 communities: Acton, Bedford, Bolton, Boxborough, Carlisle, Concord, Hudson, Lexington, Lincoln, Littleton, Maynard, Stow, and Sudbury. The group, established in 1984 as a growth management committee, meets monthly to discuss and advise on a variety of issues, including environment, energy, open space, housing, economic development, and more. Early conversations within the group suggested that the current capacities of water systems in the MAGIC subregion are hindering housing or economic development. Furthermore, these systems must reconcile with an evolving climate and emerging contaminants. To approach the topic of the subregion's water systems thoughtfully, the group asked for MAPC to conduct some preliminary research. Focused on the conditions of drinking water, this memo aims to serve as a starting point for the MAGIC subregion to address the diminishing capacity of water infrastructure across the region.

Reliable drinking water resources and infrastructure are essential to the health, safety, and resilience of communities across the MAGIC subregion. The 2017 MAGIC Climate Resilience Plan identified drinking water as a regional vulnerability, noting that many communities face shared challenges including aging infrastructure, increasing water demand, groundwater depletion, water quality concerns, and the growing impacts of climate change. While these challenges vary across municipalities, they are interconnected through shared watersheds, regional infrastructure, and common regulatory and financial constraints. The Climate Resilience Plan also emphasized the importance of regional collaboration to strengthen long-term water security and build resilience to future climate impacts.

To build on this work, MAPC undertook an exploratory assessment of drinking water infrastructure and management across the MAGIC subregion. The objective of this effort was not to conduct a comprehensive technical analysis of individual water systems, but rather to develop a regional understanding of common challenges, emerging needs, and opportunities for collaboration. The project included a targeted review of some existing literature and planning documents, along with two focus group discussions that brought together municipal stakeholders from communities across the subregion to share their experiences, priorities, and perspectives.

This memorandum summarizes the key themes that emerged from the literature review and stakeholder discussions. It identifies common findings across participating communities and presents a set of potential next steps that MAGIC and its member municipalities can pursue to strengthen regional coordination, improve drinking water resilience, and inform future planning efforts.

Summary of Potential Next Steps to Further Explore:

Regional Collaboration

- *Create a regional collaborative for water resource management, water-sharing coordination, and advancement of shared funding priorities.*
- *Continue to explore strategies that secure long-term drinking water supply reliability across the subregion.*

Funding and Financing Mechanisms for Infrastructure

- *Explore new financing mechanisms and structures.*

Public Education and Communication

- *Coordinate with policymakers, town engineers, water superintendents and managers, and advocacy groups to develop public education strategies that proactively explain infrastructure investment needs and prepare residents for emerging water quality challenges.*
- *Equip practitioners with the public education and community engagement tools for meaningful conversations with town residents.*

Governance and Regulatory Structure

- *Consider how water governance and regulatory structures, at both the state and local levels, can address development, water supply, and wastewater capacity through a coordinated framework, rather than in isolation.*
- *Integrate technical and financial expertise into the contaminant standards-setting process to prevent misaligned capital planning.*

Infrastructure Investment and Asset Management

- *Explore ways to address the financial trade-off in needs between regulatory-driven treatment spending and basic asset replacement.*

Process

MAPC led this initial research effort, with support from MAGIC members. MAPC first reviewed municipal and statewide resources to better understand the environmental and infrastructural landscape within the MAGIC subregion, and to inform the questions MAPC developed for stakeholder engagement. MAPC then developed a stakeholder analysis, specifying types of roles (town engineers, water commissioners, etc.) within the ecosystem of water governance and management. Using the stakeholder analysis, MAPC identified and engaged potential participants and interviewees for outreach activities. Engagement activities took the form of two small group conversations and two interviews. The small group meetings allowed participants to respond to open-ended prompts and discuss key water supply and infrastructural challenges. MAPC used interviews to supplement findings from the small group conversations.

MAPC would like to thank all those who participated in the small group conversations and interviews:

- Barry Rosen, Commissioner for Acton Water District
- Corey Godfrey, Deputy District Manager for Acton Water District
- Matthew Mostoller, District Manager for Acton Water District
- Pamela Harding, Town Planner, Town of Bolton
- Leslie Fox, Chair of Water Resources Committee, Town of Boxborough
- Julie Mercier, Town Planner, Town of Carlisle
- Alan Cathcart, Director of Public Works, Town of Concord
- Melissa Simoncini, Senior Environmental and Regulatory Coordinator, Town of Concord
- Kristina Johnson, Director of Planning and Community Development, Town of Hudson
- Pam Helinek, Assistant Director of Planning, Town of Hudson
- David Pinsonneault, Director of Public Works, Town of Lexington
- Richard Nolli, Water Superintendent, Town of Lincoln
- Matt Silverman, Water & Sewer Superintendent, Town of Littleton
- Julia Flanary, Environmental Compliance & Data Manager, Town of Maynard
- Justin DeMarco, Director of Public Works, Town of Maynard
- Adam Burney, Director of Planning and Community Development, Town of Sudbury

Geographic Context[i]

Geographically, the MAGIC subregion sits on gently rolling terrain shaped by glacial till and outwash plains, with elevations ranging from roughly 50 to 500 feet, draining via tributaries into the Sudbury/Concord river system. Lexington and Bedford currently draw on MWRA water, while most other communities rely on groundwater and wells. Groundwater plays a larger role in outlying towns such as Acton, Boxborough, Stow, and Sudbury, which tap stratified-drift aquifer areas capable of yielding over 1,000 gallons per minute. This infrastructure has been assessed as highly vulnerable to drought and shifting precipitation patterns: as of 2016, nearly a third of the subregion's watershed sub-basins were classified as "net depleted" under the state's Sustainable Water Management Initiative, meaning groundwater withdrawal already exceeds natural recharge in those basins (MAPC, 2017).

Regulatory Context[ii]

Drinking water in the MAGIC subregion is regulated across several layers of state and local authority. MassDEP's Drinking Water Program holds primacy under the federal Safe Drinking Water Act and extends that authority to local water commissioners, who must manage their systems to remain in compliance. New or expanded groundwater sources go through MassDEP's Source Approval process, and any source yielding over 100,000 gallons per day is also subject to the Water Management Act, which requires conservation and demand management. MassDEP likewise oversees treatment facility compliance with EPA's Surface Water Treatment Rule and its later amendments, as well as storage and pumping infrastructure. Privately owned water utilities are also regulated by MassDEP in the same way. Larger infrastructure projects can also trigger state environmental and wetlands review under MEPA and the Wetlands Protection Act, among may others.

Locally, municipal water departments, water districts, or DPW divisions manage day-to-day operations, thinking about source protection, rate-setting, and capital planning. Water commissioners (or select boards acting in that role) discuss and vote on these topics. Towns further shape water infrastructure through local bylaws and through zoning and subdivision regulations, which restrict high-risk land uses in wellhead protection areas and supply watersheds. Planning boards and conservation commissions add another layer of oversight, often conditioning development approval on new or upsized water infrastructure. Overall, decisions about water supply, treatment, and capacity in the MAGIC subregion are rarely made by a single actor, a dynamic that focus group members and interviewees repeatedly highlighted and that is documented in the next section.

Table 1: Overview of MAGIC Subregion Water Systems

Municipality	Population*	# of Households*	Water Supply	Public or Private Wastewater
Acton	23,961	9,085	Acton Water District; Concord (supplies ~70 properties, ~500 private wells, and 3 small public water systems)	Mixed (Town has public system but most properties rely on septic; private collection/treatment exists)
Bedford	14,343	5,797	MWRA (via Lexington)	Public (MWRA)
Bolton	5,698	1,990	Private Wells	Private
Boxborough	5,468	2,210	Private Wells; partial connection to Littleton (LELWD)	Private
Carlisle	5,209	1,726	Private Wells	Private
Concord	18,226	6.144	Concord Water and Sewer Division	Mixed (Town has public system but many properties rely on septic)
Hudson	19,959	8,041	Hudson Water Division	Private
Lexington	34,085	12,337	MWRA	Public (MWRA)
Lincoln	6,946	2,670	Lincoln Water Dept + Private Wells	Private
Littleton	10,150	3,673	Littleton Electric Light and Water Dept (LELWD)	Mixed (public and private)
Maynard	10,663	4,673	Maynard DPW Water Division	Public (Town-owned but operations and maintenance contracted out)
Stow	7,109	2,731	Private Wells	Private
Sudbury	19,607	6,327	Sudbury Water District	Mixed (Town has public system but many properties rely on septic)

**Source: US Census, American Community Survey, 2019-2023*

Key Takeaways

Source Water Constraints and Supply Limitations

- **Planners, public works staff, and other water management officials described increasing difficulty and/or long-term concerns about securing adequate water supply to meet current and future demand.** In some cases, this reflects physical scarcity; in other cases, it reflects regulatory and permitting barriers to developing new sources even where water may be physically available. For example, restrictions tied to endangered species habitat or stream flow requirements can prevent a new well from being sited where it's needed. Regardless of the origin of the scarcity, the constraints place limitations on development. The Town of Maynard, for example, had to deny over 1,000 housing units due to water supply constraints.

- Although this memo is focused on drinking water, **wastewater emerged as a challenge deeply intertwined with drinking water**. Many MAGIC-region towns rely heavily or entirely on private septic systems rather than municipal sewer, which several focus group participants linked directly to groundwater and surface water quality concerns - including nutrient loading (e.g., phosphorus), algae blooms, and the long-term risk of PFAS or other contaminants cycling from septic effluent back into drinking water sources via surface water or groundwater.

- For towns without a public water supply, **commercial and housing development that requires public water has, in some cases, been difficult or impossible to accommodate, limiting economic development and housing options.** Some rural towns rely entirely on private wells and have limited or no data for understanding regional groundwater conditions, well depth trends, or aggregate water use. As one planner noted, this complicates any effort to plan realistically for the future.

Aging Infrastructure and Rising Costs for Repairs and Maintenance

- **Water mains, tanks, and pump stations in many towns date back to the early-to-mid 20th century and are reaching or exceeding their useful life.** DPW staff, water district/department officials, and superintendents described this as largely invisible to the public since it is buried underground, making it politically difficult to prioritize against more visible and pressing needs, such as continuing to invest in local school facilities.

- DPW staff, water districts/department officials, and superintendents also described **costs escalating well beyond what utilities were built to handle.** Replacement costs were described as running 10 to 20 times higher than original construction costs due to inflation,

and treatment facility upgrades that might once have cost several million dollars now run into the tens of millions. Public works officials noted how a project's cost can grow from roughly $5 million to $20 million once new regulatory requirements (e.g., PFAS treatment) were layered onto standard replacement work.

- Planners, water district/department officials and water superintendents reported having **no realistic mechanism to keep pace with replacement given the sheer scale and cost involved**; one planner described the current approach as effectively "waiting for it to break," since proactively replacing infrastructure means disrupting residents' water service for work that may not be perceived as necessary (not considered “urgently” needed, relative to other town functions and priorities).

- Public works, water district/department officials, and superintendents also noted that a **large share of available capital is now being consumed by regulatory-driven treatment upgrades**, leaving little left over for basic asset replacement, which they described as a long term structural deficit rather than a short term funding gap. They specifically mentioned spending significantly on PFAS treatment (e.g. filter media replacements), which can also include a significant maintenance cost; this exacerbates the already-heavy cost burden of replacing aging water mains that can be up to 130 years old.

Regulatory Environment and Emerging Contaminants

- **Contamination and treatment are a defining and ongoing issues for the region.** For example, one planner noted the PFAS contamination that surfaced in Hudson several years ago, when an industrial plan near its wells was found to have been lawfully discharging PFAS-contaminated wastewater to its onsite septic system, as PFAS was not yet regulated at the time; the town had to provide bottled water to residents, undertake a major remediation, and require the responsible party to connect a number of affected private wells to the municipal system. Public works and other water management staff described building multi-million-dollar (ranging from $50 million to $100 million) PFAS treatment plants in direct response to tightening state and federal standards, with per-town costs commonly cited in the tens of millions of dollars per treatment phase.

  One water and sewer planner discussed how microplastics have been specifically named as an “emerging contaminant” now entering the EPA's monitoring pipeline (the Unregulated Contaminant Monitoring Rule), following the same pathway that PFAS went through roughly a decade ago. Other water and public works officials chimed in, raising concern around pharmaceutical byproducts entering the water cycle through wastewater.

A participant noted that polluters should pay to ease the burden on communities already balancing other financial needs, with hazardous waste site cleanup regulations returning to a focus on protecting public water supply interests.

- Public works officials discussed how **PFAS standards have tightened from parts-per-billion to parts-per-trillion thresholds - faster than reliable, cost-effective treatment technology has been able to keep up.** They felt that current treatment approaches (e.g., activated carbon, etc.) are effective but costly and create secondary disposal challenges of their own.
    - They further argued that spending disproportionately to move water supply concentrations by a few parts per trillion (for "non-detectable contaminant levels") may not meaningfully reduce overall exposure relative to the cost involved.

Development Pressure and Land Use Conflicts

- Almost all participants described significant tension between political pressure to support new housing and economic development and the physical/regulatory capacity of local water and wastewater systems. **They noted that new multifamily development projects often don't match the hydraulic capacity that late 19th or early 20th century systems were originally designed around**, which were frequently built for single-family residential use decades ago. Related to this point, MAPC also noted that dispersed single-family residential uses can require a large distribution network of water infrastructure, which may not produce enough tax revenue per acre to sustain itself.

- **A few water district/department officials noted that major developments have, in some cases, been approved with little or no advance consultation with the local water department or district**, leaving those departments to react after the fact with an obligation to serve the development regardless of existing constraints.

- While planners and public works staff understood the goal of enabling more options and choices to address housing affordability, they also noted that legislation like the MBTA Communities Act needs to account for how local water and sewer infrastructure will support the resulting density. For such developments, they noted the **desire for active coordination and collaborative thinking on long-term effects when dealing with site constraints, and the ways new development can fund the water and sewer improvements it requires**.

Government and Institutional Coordination Challenges

- Planners and water department/district officials described **water-related governance in the region as divided across multiple, sometimes uncoordinated** local bodies

(Departments of Public Works, Boards of Health, Planning Boards, Conservation Commissions, and independent water districts). Each board or group has different authority, priorities, and (in the case of elected boards) political accountability structures.
    - For example, some planners described elected Boards of Health as capable of setting significant water- and land-use policy for development without necessarily being equipped with the data, technical expertise, or coordination with other town departments to do so consistently. This is not always the case, but **lack of experience can meaningfully affect how well a town is equipped to evaluate complex private well/septic questions tied to new development**.

- A few public works officials observed a shift in staffing over time in state regulatory agencies (e.g. MassDEP), from staff with engineering backgrounds toward staff with policy backgrounds, which they felt **reduced the depth of technical dialogue between regulators and local operators,** compared to prior decades.

- Overall, participants generally agreed that **water, wastewater, and stormwater management in Massachusetts has become three largely separate "siloed advocacy" domains rather than a unified system**, despite being deeply interdependent.

Funding for Water Infrastructure

- Planners and public works staff described being caught between rising costs (regulatory compliance, aging infrastructure, inflation) and limited tools to fund them: **they described existing grant programs (e.g., MassWorks) and low-interest state revolving loan funds as valuable but insufficient at the scale now required**. Water and sewer capital projects compete directly (and in participants' opinions, unfavorably for smaller towns) against larger, better-resourced cities for the same discretionary grants. One participant also noted that timing of these programs can also create issues when a project's needs and planning don't align.

- **One public works official described rate increases as necessary but politically difficult when describing them to residents**. For example, the Town of Concord raised rates by 12.5% annually three years ago – they described how public works officials and planners need to actively justify this to residents. Noting that local rate-setting bodies are themselves composed of ratepayers, they considered how a utility rate regulation system, in which an independent third party sets rates rather than the same local body accountable to the payers, may be better.

- Public works officials noted that municipal water and sewer currently **lack a reliable, formula-based, and recurring state funding stream that municipalities can plan around**. They cited Chapter 90 funding, which exists for transportation projects, as an

example of a funding source that could work for water and sewer infrastructure. The Chapter 90 Program provides state-funded annual formula funding for all 351 municipalities, drawing from vehicle taxation and other transportation revenue sources; one public works official noted this program gives municipalities a recurring and predictable supplemental fund they can count on and plan around, enabling consistent upgrades across a portfolio over time.

- Public works officials also noted that **messaging from the state around funding availability (e.g., recent environmental bond bill headlines) can overstate real dollars reaching communities relative to actual need**, and that "essential" infrastructure needs (maintenance/replacement versus true expansion) are often not clearly distinguished in public funding conversations. One public works official noted that for example, the headline of the recent environmental bond bill may seem like it's answering funding needs, but a deeper dive into the bill demonstrates how it is more like "a promise" of potential funding; there will still be a real cost incurred by communities.

Public Communication, Trust and Political Dynamics

- Water departments, planners, and public works staff across both focus groups described a **marked shift in how residents engage with water issues over the past 10–15 years**. More scrutiny and more (sometimes inaccurate) public information drives resident expectations. Some described having to significantly expand the time and effort spent explaining routine issues to residents, compared to a decade or more ago.

- Public works officials noted there is difficulty in communicating genuinely complex, long-timeline infrastructure needs compared to more visible, easily understood public investments like roads. **They further elaborated that DPW staff and water operators are generally reluctant, ill-equipped, or under-resourced to engage in sustained public advocacy**, which they felt leaves the sector under-represented in policy conversations relative to its actual importance.

Reliance on Private Wells and Data Gaps

- **Some MAGIC-region towns (e.g. Bolton, Carlisle, Boxborough, Stow) rely partly or entirely on private, unregulated wells rather than public water systems, which introduces a distinct set of challenges.** For example, private wells may have limited to no town-level oversight of well water quality; inconsistent or absent testing (particularly for PFAS and other emerging contaminants); and, in some of these towns, very limited aggregate data on well depth, water quality trends, or groundwater capacity across the town as a whole.

- **Some planners and water district/department officials described private well reliance as functioning, whether intentionally or not, as a de facto barrier to development,** since the ability to site a new compliant well or septic system is one of the few local levers available to manage growth. One planner noted that in the absence of solid data, the phrase "we don't know what the groundwater can support" has effectively become a rationale for inaction on both water infrastructure planning and development policy, rather than a problem being actively studied and resolved.

Potential Next Steps to Explore

Regional Collaboration

- **Potential Next Step #1: Create a regional collaborative for water resource management, water-sharing coordination, and advancement of shared funding priorities**. Beyond MWRA, public works officials, superintendents, planners, environmental departments, and water departments/districts called for more serious, less siloed conversations about regional water-sharing day-to-day, to help neighboring towns manage current supply and demand imbalances. They also called for water professionals to build more unified political and legislative support as a field, rather than competing narratives, to advance shared funding priorities.

  Some noted that Massachusetts manages water at a more localized level than other states and regions and suggested this is worth revisiting. The overarching sentiment, echoed by nearly every participant across both groups, was that water infrastructure does not respect municipal boundaries, and that bringing multiple towns and disciplines to the same table is necessary in order to adapt. One planner noted for example, that Maynard's system has operational capacity to expand, while a neighboring town like Stow needs water but lacks the capacity to produce its own, as noted out of the region's MWRA feasibility study. A water department official cited Littleton Electric, Light, and Water's longstanding informal role in supporting private wells and non-community water systems for businesses in Boxborough as another early, low-visibility example of regional support. A few public works officials noted that rather than building another round of standalone single-town water systems that will end up competing for a shrinking pool of funding, the region has an opportunity to plan collectively now, while several towns' interests happen to be aligned.

  Specific legal tools and examples that were noted include the Interbasin Transfer Act (which governs the Massachusetts Water Resources Commission's authority to approve or deny water/wastewater transfers across river basins) and water banking legislation, both of which could function as either tools or obstacles depending on how they're applied. An existing EPA/MassDEP integrated water resource management approach and a North Shore regional collaborative were referenced as potential models for how a MAGIC-area group

could organize, and noted their own active efforts to help push a MAGIC regional collaborative forward using that same model. Broader regulatory relief to allow a sharing of resources was also discussed.

- **Potential Next Step #2: Continue to explore strategies that secure long-term drinking water supply reliability across the subregion**. Water superintendents, public works officials, and planners noted how some towns are already pursuing water-sharing, offering examples of inter-municipal collaboration. Littleton is plans to pipe treated water to roughly 1,000 residents in western Boxborough, with hookups to three condo complexes nearly complete. Focus group members noted that if Boxborough ever needs external water at scale, its preference would be to buy from Acton and/or Littleton rather than build a standalone municipal system. In another example, public works officials noted how Lexington and Burlington have developed a working precedent, with Burlington running a line through Lexington to connect to an MWRA main under a shared maintenance and operations agreement.

  Additionally, public works officials and planners noted that a larger scale, multi-town effort is underway to bring MWRA water to the broader region, including analysis of how project costs would be distributed. A planner noted that for the communities in this area, the total estimated cost would be over $1 billion regionally – an amount that focus group members across both sessions described as requiring significant external funding support to be politically and financially feasible. They specifically called for substantial federal funding support to make expansion financially viable, noting that most towns would not approve costs of this scale without it.

Funding and Financing Mechanisms for Infrastructure

- **Potential Next Step #3: Explore new financing mechanisms and structures.** Planners and water department staff called for several specific changes: easier access to state and federal funding and principal forgiveness, more effective low-interest loan programs, and new financing structures altogether, potentially requiring state-level intervention, since current tools (grants, standard bonding, bond bill earmarks) were described as inadequate for the scale of investment needed.

  Public works officials noted the idea of including a dedicated, recurring state funding stream for water and sewer infrastructure, modeled on Chapter 90 transportation funding. The federal Water Infrastructure Finance and Innovation Act (WIFIA) was flagged as an underused, creative long-range financing tool worth exploring further for regional-scale projects. The State Revolving Fund (SRF) programs were noted by a few as shrinking and only ever a fraction of actual need. Enterprise fund structures (where water/sewer revenue

is legally restricted to water/sewer use) were noted as a sound accounting safeguard but dependent on strong, consistent local leadership.

Public Education and Communication

- **Potential Next Step #4: Coordinate with policymakers, town engineers, water superintendents and managers, and advocacy groups to develop public education strategies that proactively explain infrastructure investment needs and prepare residents for emerging water quality challenges.** Focus group members suggested reframing how investment needs are communicated: one planner suggested that rather than tying infrastructure investment primarily to housing production or state mandates like the MBTA Communities Act, such investment needs could be framed around infrastructure age, necessity, and public health. This can make communication around key infrastructural issues more effective and less politically charged. Additionally, water and environmental planners/coordinators suggested that public education efforts should get ahead of emerging and future contaminants (e.g., pharmaceuticals, microplastics) before they become regulatory requirements, so that residents and taxpayers are better prepared for the next round of required investment.

- **Potential Next Step #5: Equip practitioners with the public education and community engagement tools for meaningful conversations with town residents.** Planners and water superintendents brought up the need for continuing and expanding direct, in-person engagement. Many focus group members described various forms of public communication efforts and offered specific examples of what has worked. For example, an information table was set up at Lincoln's annual town meeting and staffed by department personnel to explain water main age, PFAS status, and the reasoning behind rate increases directly to residents. This was described as very well received, generating follow-up thank-yous and improved understanding among residents. Other water district/department officials described a broader shift over the past 10–15 years toward more proactive, ongoing communication with residents (for example, asking residents to report anomalies like unexplained puddles to the town, as those could indicate a break), compared to a historical approach of minimal public engagement. Another example was noted in Boxborough, where the water resources committee is running an active public-relations campaign to encourage private well owners to test their water and septic systems, and has secured regular local newspaper coverage of water issues.

Governance and Regulatory Structure

- **Potential Next Step #6: Consider how water governance and regulatory structures, at both the state and local levels, can address development, water supply, and wastewater capacity through a coordinated framework, rather than in isolation.** Focus

group members generally called for treating source water, land use planning, and wastewater management as a single coordinated framework. One water district/department official suggested adding a fourth "leg" (land use) to the traditional three-legged stool of drinking water, wastewater, and stormwater when it comes to infrastructure planning. Some town planners also raised significant concerns about the structure of local water governance. They discussed higher-level structural reform, such as moving toward appointed rather than elected boards regarding water and public health, whether through state-level policy change or local charter amendments.

- **Potential Next Step #7: Integrate technical and financial expertise into the contaminant standards-setting process to prevent misaligned capital planning.** Some public works officials noted that policy and treatment targets (e.g., specific PFAS thresholds in parts per trillion) are frequently set and tightened before the underlying technology or full health-risk research can catch up, which they said can result in significant, sometimes duplicative capital spending as standards shift. They suggested that directly involving engineers, finance/risk professionals, and operators *alongside* federal and state policymakers in such decisions, which are often set by policy staff in isolation, would help clarify trade-offs between different contaminant-reduction targets and other infrastructure needs competing for the same limited funding.

Infrastructure Investment and Asset Management

- **Potential Next Step #8: Explore ways to address the financial trade-off in needs between regulatory-driven treatment spending and basic asset replacement.** Focus group members provided concrete examples of recent infrastructure investment. Acton Water District has built three PFAS treatment plants and brought two new deep bedrock wells online, partly enabled by a land purchase (with support from Sudbury Valley Trustees and town funding) that also preserved open space. Hudson completed PFAS remediation infrastructure following a contamination event, with the responsible party required to connect affected private wells to the town water system. Lincoln is in the middle of a multi-year, multi-phase water main replacement project along its two main roads, expected to conclude in 2027. Lexington has installed a pressure-regulating valve to manage the impact of Bedford's water withdrawal on its own system.

  Water district/department officials, public works officials, and water superintendents noted that spending on regulatory-driven treatment upgrades (especially PFAS) is crowding out funding for basic asset replacement, such as aging water mains, and suggested this trade-off needs to be addressed structurally rather than resolved project-by-project. Lincoln was brought up, as their town owns several aging buildings and facilities in need of work; and while the town is trying to plan ahead rather than defer maintenance, funding remains a significant constraint.

Next Steps for MAPC and MAGIC Subregion

Based on the findings of this memo, MAPC would like to explore a second, larger phase of work focused on (1) further research on wastewater systems and (2) advancing Potential Next Step #1 (regional collaboration) from this memo. A similar research effort on wastewater systems would help build a more complete picture of the region's water infrastructure and solidify the foundation established through this initial phase. In parallel, MAPC would also like to explore the feasibility of convening a regional water summit (or a similar type of event) as a potential next step toward advancing Potential Next Step #1 and establishing a regional water collaborative. Such an event could bring together key regional stakeholders to identify shared challenges and priorities, creating an opportunity for sustained collaboration.

Sources

[i] Links to sources for "Geographic Context" section:

- Climate Change Impacts on Groundwater in MAPC Communities (2022)
- Access National Hydrography Products | U.S. Geological Survey
- Massachusetts Groundwater Flooding Study
- MassGIS Data: Public Water Supplies | Mass.gov

[ii] Links to sources for "Regulatory Context" section:

- https://www.mass.gov/info-details/guidelines-for-public-water-systems
- https://www.mass.gov/info-details/guidelines-for-public-water-systems
- https://tataandhoward.com/water-distribution-systems-in-new-england/