



ONE
WATER
**BIG
IDEA**

3.

Sustain adequate funding for water
infrastructure.

This is one in a series of policy briefs that comprise the One Water for America Policy Framework.

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America's water supplies and services are at risk. Climate change, growing income disparities, and the threats posed by our aging water infrastructure call into question the continued availability of safe water supplies and reliable, affordable water service. In light of these challenges, we must come together and create a new era of water management in America—one that secures economic, environmental, and community wellbeing.

To that end, the US Water Alliance worked with more than 40 partner organizations to host 15 One Water for America Listening Sessions across the country. These discussions engaged more than 500 leaders, including water utility managers, public officials, business executives, farmers, environmental and watershed advocates, community leaders, philanthropic organizations, planners, and researchers.



One Water for America
Listening Sessions



What we heard from these stakeholders was truly inspiring. Across the nation, people from all walks of life are collaborating and innovating to advance sustainable water management solutions. Now is the time to spread and scale up these successes to benefit more communities across the country. In these seven policy briefs, we have compiled the strongest, most consistent themes from the One Water for America Listening Sessions into **seven big ideas for the sustainable management of water in the United States**:

- 1. Advance regional collaboration on water management**
- 2. Accelerate agriculture-utility partnerships to improve water quality**
- 3. Sustain adequate funding for water infrastructure**
- 4. Blend public and private expertise and investment to address water infrastructure needs**
- 5. Redefine affordability for the 21st century**
- 6. Reduce lead risks, and embrace the mission of protecting public health**
- 7. Accelerate technology adoption to build efficiency and improve water service**

Each of these policy briefs digs further into one of these big ideas—exploring the key issues behind it; presenting policy solutions that are working at the local, regional, state, and national levels; and providing real world examples of how these solutions *are* being implemented and *do* produce positive results.

The One Water for America Policy Framework is a clarion call to action to accelerate solutions for the water management problems of our age. In doing so, we secure a brighter future for all.



Sustain adequate funding for water infrastructure.

Context

Funding for water infrastructure was a prominent theme in every one of our listening sessions. Communities' needs for capital are growing all the time to meet the challenges of water system development and renewal, regulatory compliance, the rising costs of day-to-day utility operations, and more unpredictable weather patterns. The US Environmental Protection Agency estimates that utilities will need to spend \$655 billion over the next 20 years to maintain, upgrade, or replace water and wastewater infrastructure.¹ This amount does not fully represent the costs of replacing lead service lines, which has been estimated at another \$30 billion.² Nor does it include the cost of adapting our water, sewer, and stormwater infrastructure to the effects of a changing climate, which is estimated at an additional \$448 to \$944 billion from 2010 to 2050.³

Forty years ago, the federal government contributed 63 percent of total capital spending on water infrastructure. Today, the federal government funds nine percent of our water infrastructure spending. In comparison, federal spending on transportation infrastructure remained constant over the same period.⁴ While the US water industry is still supported, in part, by tax-exempt financing and subsidized borrowing programs like SRF loans, this subsidization does not approach the levels needed for reinvestment in our aging systems. A resurgence in federal funding for water is unlikely in the foreseeable future. Therefore, revenue from water, sewer, and stormwater rates and charges will continue to be the primary source of funds. Our focus must be on fully representing the cost of water management, making water services more cost-effective, and continuing to educate the public on our infrastructure needs.

In this policy brief we review the key issues influencing water infrastructure funding, followed by recommended policy solutions and case studies at the local, regional, state, and national levels.

Key issue:

Maintaining the funding programs that work

The Clean Water and Drinking Water State Revolving Fund (SRF) loan programs, administered by the US EPA and individual states, are a significant source of investment in water infrastructure, with the federal portion of SRF-funded projects coming out to 23 percent.⁵ All 50 states and Puerto Rico have SRF programs that are capitalized by federal dollars and typically supplemented by state general funds. In recent years, federal appropriations for SRFs have decreased, making this form of subsidy less reliable as a sustaining funding source for ongoing capital investments.⁶ Federal programs such as the Water Infrastructure Finance and Innovation Act (WIFIA) are augmenting funding for “regionally significant” projects, but more is needed to fill the gap, especially for small and medium-sized systems.

Though federal subsidies have decreased, publicly owned water systems still have the advantage of being able to borrow money for capital needs via municipal bonds, in which investors’ earnings are not subject to federal taxes. Tax-exempt municipal bonds have been the most important source of funding for infrastructure projects in the US, including water and sewer infrastructure, since the early 20th century. From time to time, proposals are made to eliminate or restrict the tax-exempt status of municipal debt. Given the \$38 billion that US communities issued in municipal bonds in 2016, fully taxing the interest on those bonds would have increased debt service costs by \$16 billion over loan repayment periods—an increase of 25 percent—effectively imposing a new tax.⁷ Removing tax-exempt status from municipal debt would have a devastating impact on public financing for water infrastructure.

Key issue:

Understanding the full cost of service

When our extensive water systems were built, the costs for system renewal and replacement were not always factored into rates. Overall, water rates were low and stable through the 20th century, largely because we were under-investing in system renewal and replacement, and because the federal construction grants program subsidized large capital projects, like wastewater treatment plants. Now, as so many of our water assets reach the end of their useful service lives, our rates and charges must catch up with the growing costs of operating, maintaining, renewing, expanding, and replacing our infrastructure.

As a basis for setting rates and charges, we have to understand the full costs of providing service. That includes not only all the costs associated with day-to-day utility operations, but also needed investments in system renewal and rehabilitation—costs that many utilities have historically underrepresented. On that basis, a utility can design a rate structure and financial management strategy that will protect its financial health and encourage efficient use of resources, while *also* providing assurance of affordable water service for all. With rate setting, as with all water management decisions, open and transparent communication, outreach, and engagement with stakeholders is essential. Utilities must work with elected officials, ratepayers, community groups, business organizations, the media, and local institutions to build awareness of the full cost of service. Communities are more supportive of rate increases when they understand the challenges and trust the utility to make decisions in each community’s interest.

Key issue:

“Finding money” through best practices

A utility’s operating efficiency can significantly affect the cost of service and the availability of funds for system investment. For example, water loss is a key cause of inefficiency in many older utility systems; some systems lose (through leakage or illegal connections) as much as 20 or 30 percent of the water they produce. Even in water-rich areas, excessive costs can be spent treating and pumping water that ends up in the street, undermining other infrastructure. Many utilities can also benefit from improving project delivery performance, with the goal of better controlling the considerable costs of implementing capital infrastructure projects.

Beyond improving efficiency, utilities also need sound financial planning to help ensure that funds are available for day-to-day operation and maintenance, capital programs, debt retirement, and pension program funding. A utility’s financial strategy often involves a combination of cash and debt financing for capital needs. Utility debt financing largely goes toward water and sewer infrastructure development and rehabilitation, expenses that would be difficult for most communities to cash fund. While some communities may be at the limit of their borrowing capacity, they may have options to ease the borrowing burden; other utilities may not be fully leveraging their debt capacity. Finding the right balance is essential to manage the cost burdens that utilities place on the communities they serve. Sound financial management can also help communities achieve a strong credit rating, which reduces the long-term costs of borrowing.

Policy Solutions

Local Level	Regional & State Level	National Level
<ul style="list-style-type: none">• Optimize utility financial management• Free up funds through operational efficiencies and technology innovation	<ul style="list-style-type: none">• Prioritize funding for state loan and grant (SRF) programs• Adopt stronger standards for utility management and oversight	<ul style="list-style-type: none">• Keep what works

Solutions: Local Level

Solution:

Optimize utility financial management

A strategic financial plan supports a water utility's financial resiliency and ensures adequate revenues for system needs, now and in the future. These plans can lay out approaches for optimizing a utility's financial assets, including finding the right balance of cash, grant and loan funds, and debt financing to meet capital needs, while spreading capital cost burdens over longer periods of time. The right balance of debt and cash financing can support orderly rate adjustments, and it can help balance the cost of system investments across current and future generations, as appropriate. As part of financial planning, utilities also can consider alternative revenue sources, such as municipal option sales taxes, and borrowing vehicles that provide more flexibility than traditional approaches. By demonstrating good financial management, utilities can also improve their chances of receiving strong credit ratings, which can lower the cost of debt financing.

In Action:

- **City of Atlanta.** Facing huge capital outlays for sewer consent decree compliance, the City of Atlanta adopted a financial strategy that included a one-cent municipal option sales tax (MOST), which allows visitors and business people who use the city's water and sewer infrastructure, but do not pay city water/sewer bills, to help pay for upgrading and maintaining the infrastructure. Since it was implemented in 2004, the MOST has raised more than \$1 billion to help fund the city's water infrastructure needs. To build more flexibility into its borrowing strategy, the city also implemented a tax-exempt commercial paper program, which allowed short-term financing to better match the utility's debt obligations to its cash flow needs.
- **City and County of Honolulu.** In designing utility rates and charges, it is important to understand the customer base and ensure full cost recovery from users who access the utility system. For example, acknowledging the large tourist population that uses its wastewater infrastructure, the City and County of Honolulu modified its non-residential customer class, which applies to hotels, to include a fixed rate reflecting full occupancy capacity needs in addition to charges based on water use.

Solution:

Free up funds through operational efficiencies and technology innovation

A significant way for many utilities to increase available capital is to make their operations more efficient, freeing up more rate revenues to invest in infrastructure development and renewal. Asset management programs can optimize the service lives of assets, and organizational development can help streamline organizations and business processes. A “least-cost planning” perspective encourages creative thinking about how to meet water needs at lower costs—for example, instead of building additional storage, a community can enter into a cooperative agreement with a neighboring water system, use conservation rate structures, or fix leaky transmission lines. Encouraging water conservation and water efficiency can keep utility costs down over time (though rate structures must be balanced to promote revenue resiliency as water use declines). Utilities can also improve the efficiency of capital project delivery through measures such as increased transparency in contracting, improved budget and schedule controls, a sharper focus on life cycle costs, and contract incentives that tie a portion of compensation to performance metrics (like safety, schedule, and cost). Emerging technologies for data collection, data management, and operations optimization also hold the potential for efficiency gains, with up-front investments that are often offset by longer term savings. Through resource recovery and energy generation technologies, communities can also monetize the value of their wastewater, further offsetting annual utility costs.⁸

In Action:

- **Boston Water and Sewer Commission.** The Boston Water and Sewer Commission’s (BWSC) asset management approach dramatically reduced water pipe failures, and its aggressive leak detection program has substantially reduced water loss. For the past four years, BWSC’s water that has been unaccounted for has been approximately eight percent—well below standards set by the US EPA, the Massachusetts Department of Environmental Protection, and the American Water Works Association. By installing automatic meter readers (AMRs) in 2004, the utility ensured that billing would be based on actual usage, increasing customer satisfaction. The utility is currently upgrading the AMRs to implement the latest information technology, improving service and limiting costs to ratepayers.
- **City of South Bend.** South Bend, IN invested in real-time control and decision support technology to reduce combined sewer overflows (CSOs), effectively avoiding millions of dollars in capital expenditures associated with established, more conventional engineering approaches. The utility uses CSOnet™ technology to monitor and control wastewater flows through a network of wireless sensors embedded in the sewer system, providing 24/7 data on the depth and flow of storm water and sewage in its sewer network, including information from the 35 combined sewer outfall points within the city. Using real-time analysis of available treatment plant and interceptor capacity, the system increases flow to the interceptor from CSO regulators that are about to overflow, using “smart” valves with motorized controls to capture as much first flush as possible and prevent overflows. The system also controls stormwater retention basins using predictive forecasting and downstream capacity analysis to optimize storage in the separated area of the sewershed. The system alerts crews to preventive maintenance hotspots and bottlenecks, which has helped reduce CSOs and eliminate dry weather overflows. In combination with a relatively small amount of sewer separation projects in city neighborhoods, South Bend has used its smart sewer system to reduce CSO overflow volume from more than two billion to fewer than 500 million gallons annually.

Solutions: Regional & State Level

Solution:

Prioritize funding for state loan and grant (SRF) programs

States should prioritize funding of water-related loan and grant programs to help communities meet spending needs. To make limited dollars go further, states can combine multiple loan funds into comprehensive programs to increase their collective impact and reach. States have a great deal of flexibility to set appropriations for water and wastewater SRF programs, to decide what types of projects are eligible for funding, and to establish prioritization criteria. States should give these programs priority for funding and build in more flexibility to accommodate green infrastructure solutions as a component of stormwater management that qualifies for SRF funding. This can help reduce burdens on communities that are looking to green infrastructure as a way to offset “gray” infrastructure spending needs.

In Action:

- **State of North Carolina.** In 2013, the State of North Carolina combined their Drinking Water SRF, Clean Water SRF, and Community Development Block Grant infrastructure programs into one division for a more streamlined and effectively prioritized funding approach. The objectives were to make limited dollars go further and to encourage comprehensive planning at the community level. The same year, the State Water Infrastructure Authority was created as an independent body with primary responsibility for awarding both federal and state funding for water and wastewater infrastructure projects. In this nine-member authority, three members are leaders of state government departments or divisions, and six are appointed by the governor and leaders of the state legislature. The authority is also responsible for developing a state water infrastructure master plan (published in 2017²) that recommends ways to maximize the use of available funding sources, examines best and emerging practices, and assesses the needs of troubled systems.

- **State of Texas.** The State Water Implementation Fund for Texas (SWIFT) was created by the Texas legislature to provide affordable, ongoing state financial assistance for projects in the state water plan. The program helps communities develop cost-effective water supplies by providing low-interest loans, extended repayment terms, deferral of loan repayments, and incremental repurchase terms. Through fiscal year 2016, SWIFT committed over \$4.6 billion for water projects across Texas.

Solution:

Adopt stronger standards for utility management and oversight

Most state governments have some level of oversight over water utilities, often including the authority to prescribe management practices. States should consider requiring more rigorous business practices—including asset management and full-cost accounting—for water utilities to help ensure the delivery of safe, efficient, and sustainable service. These requirements can be incentivized through SRF funds and grant awards. Standard utility reporting may help ensure that utilities have adequate asset management systems in place; that system revenue requirements are defined to fund minimum annual renewal and rehabilitation needs and regulatory compliance expenses; and that projected cash flows fully recover annual O&M and capital financing expenses, while retaining adequate reserves to manage inherent risks. For utilities that already have strong business practices in place, complying with these requirements should be a simple matter. For others, these practices can improve protection of public health and enhance operating efficiency.

In Action:

- **Flint Water Interagency Coordinating Committee.** In Michigan, the Flint Water Interagency Coordinating Committee—established in response to the Flint water crisis—issued a number of recommendations for state oversight of water utilities. For one, the committee recommended that the state “encourage enterprise organization of water utilities with political and financial separation from local governments and requirements for representative governance, accountability, and transparency” (for example, through formation of authorities or districts for water management). The committee also recommended that the state impose requirements for operations optimization, financial

reporting and benchmarking, water loss reduction, affordability programs, and acceleration of lead service line replacement for utilities across the state. Another recommendation was that the state link its grant and loan programs to utility performance improvement goals.

- **NC Department of Environmental Quality.** States can incentivize management best practices by making grant and loan funding contingent on having best practices in place. In the SRF program today, funding eligibility is contingent on preparing a plan of financial viability, including managing utility accounts in accordance with accepted accounting procedures. However, this SRF requirement often is not enforced, and funding often is provided to systems without a viable financial plan. These accounting requirements should be enforced, and this information should be made available for public review. Furthermore, state regulatory agencies should encourage Effective Utility Management (EUM) and best practices, including full-cost accounting, in their oversight of water utilities. Specific grant programs also can be used to incentivize management best practices. For example, in North Carolina, the Department of Environmental Quality provides grants for utilities to inventory their existing systems, document the condition of the inventoried infrastructure, and take the next steps to define and prioritize critical projects.

Solutions: National Level

- **Keep what works.** The federal government should preserve tax exemption for municipal debt vehicles. It should also consider increasing appropriations to SRF programs for water and wastewater, and make them more expansive—for example, incorporating green infrastructure and expanding the Clean Water SRF program so it is available to wastewater facilities other than publicly owned treatment works. A recent study showed that for every dollar spent on the SRFs, 93 cents goes back to the US treasury. The study also showed that for every \$1 million in the SRFs, 16.5 jobs were created with salaries of \$60,000 on average.¹⁰ Finally, the federal government should maintain the Water Infrastructure Financing and Innovation Act (WIFIA) and increase its funding to the fully authorized level. WIFIA provides funding for “regionally significant” projects; other solutions are still required for smaller utilities with critical capital needs.

Conclusion

Given the growing needs and rising costs of water management, we must strengthen our focus on optimizing the sources of funds that are available to us. While we must act to preserve—and improve—the federal and state funding programs that work, each community’s highest attention belongs on the rates and charges that customers pay for water, sewer, and stormwater service. Utilities and communities need to fully understand the true cost of providing those services in a manner that protects public health. Those costs need to be balanced across generations as appropriate and recovered through well-designed rate structures that provide for a community’s affordability needs. Also, utilities should be prepared to demonstrate that they are getting the best value out of every ratepayer dollar. By making smart financial decisions and boosting their operating efficiency, utilities can build community trust and acceptance of responsible rates and sustainable water management strategies.

Endnotes

- 1 “The Time to Invest in America’s Water Infrastructure is Now,” *U.S. Environmental Protection Agency*, 2016, <https://blog.epa.gov/blog/2016/07/the-time-to-invest-in-americas-water-infrastructure-is-now/>
- 2 “Together, let’s get the lead out,” *American Water Works Association*, 2016, <https://www.awwa.org/publications/connections/connections-story/articleid/4081/together-lets-get-the-lead-out.aspx>
- 3 “Confronting Climate Change: An Early Analysis of Water and Wastewater Adaptation Costs,” *NACWA and AMWA*, 2009, <https://www.nacwa.org/docs/default-source/news-publications/White-Papers/2009-10-28ccreport.pdf?sfvrsn=2>
- 4 “The Economic Benefits of Investing in Water Infrastructure,” *Value of Water Campaign*, 2017, http://thevalueofwater.org/sites/default/files/Economic%20Impact%20of%20Investing%20in%20Water%20Infrastructure_VOW_FINAL_pages.pdf
- 5 “The Economic, Job Creation, and Federal Tax Revenue Benefits of Increased Funding for the State Revolving Fund Programs,” *Water Environment Federation and WaterReuse*, 2016, <https://www.wef.org/globalassets/assets-wef/5---advocacy/wef-wra-srf-economic-impact-study-report-april-29-2016.pdf>
- 6 “Water Infrastructure Financing: History of EPA Appropriations,” *Congressional Research Service*, 2012, <https://fas.org/sgp/crs/misc/96-647.pdf>
- 7 “Affordable Water Infrastructure Relies on Municipal Bonds,” *NACWA and AMWA*, accessed 2017, <https://www.nacwa.org/docs/default-source/resources---public/tax-exempt-muni-bond-hub/2017-02-16muni-bonds.pdf?sfvrsn=4>
- 8 “Research Area: Resource Recovery,” *Water Environment & Reuse Foundation*, accessed 2017, http://www.werf.org/i/ka/Resource_Recovery/a/ka/Resource_Recovery.aspx?hkey=07bf0712-bbc5-410c-b318-e0108e5b9021
- 9 “2017 Master Plan,” *North Carolina Department of Environmental Quality*, 2017, <http://portal.ncdenr.org/web/wi/master-plan>
- 10 “The Economic, Job Creation, and Federal Tax Revenue Benefits of Increased Funding for the State Revolving Fund Programs,” *Water Environment Federation and WaterReuse*, 2016, <https://www.wef.org/globalassets/assets-wef/5---advocacy/wef-wra-srf-economic-impact-study-report-april-29-2016.pdf>

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