

Approaches for Improving Great Lakes Water Infrastructure: A Blueprint

This blueprint shares **Priority Areas** to advance water infrastructure improvements in the Great Lakes basin. For the purposes of this work, water infrastructure encompasses services related to drinking water, wastewater, and stormwater. While these services have historically been managed (and regulated) separately, this blueprint considers water infrastructure as a system of interconnected services. Created by a **regional working group**, with feedback from key partners¹, this blueprint articulates approaches for rebuilding the basin’s water infrastructure in a manner that addresses historic inequities in water infrastructure investment and prepares for future climate conditions.

Drinking water crises and more frequent flooding events in recent years have highlighted the need to address disparities in how communities access funding sources to replace aging infrastructure and eliminate threats to public health. Funding needs are likely to grow in the coming years as engineers and communities are challenged to design systems to manage volumes of rain and snowmelt not historically experienced in the Great Lakes basin. Challenges will be exacerbated if forecasts characterizing the Great Lakes basin as a refuge for climate migrants become a reality, with population increases correspondingly increasing pressure on existing water infrastructure systems.

This blueprint aims to support federal and state elected officials, state agency staff, and local leaders seeking to take advantage of the U.S. Infrastructure Investment and Jobs Act (IIJA), to advance and accelerate water infrastructure projects. When appropriate, specific actors or levels of government are identified. Otherwise, blueprint approaches are intended to be flexible, recognizing the unique situations of Great Lakes localities.

This blueprint is presented in **layers** by **Priority Area**. The layers include:

- **Framing Layer:** state and regional agency support systems, along with local planning and prioritization efforts informed by meaningful community² input.
- **Financing Layer:** funding mechanisms overseen by the federal government and states.
- **Finishing Layer:** improvements implemented by local governments, utilities, and communities with affected communities, assuring clear, two-way communication of objectives and anticipated benefits.

Scan this QR code to see how utilities, government agencies, and other organizations are implementing blueprint approaches.



¹ Regional working group members, supported by GLC staff, solicited feedback from key national and regional partners working to advance infrastructure investment. Mechanisms for public input included a virtual listening session and a web-based tool for submitting ideas.

² “Community” is used throughout this blueprint to mean groups of individuals working together toward shared, local goals, whether organized as a group or ad hoc in nature, as well as individual citizens engaging on issues of importance to them.

The four **Priority Areas** that apply to each layer of the blueprint are: (1) **public health and safety**, (2) **community engagement and trust-building**, (3) **equitable distribution of investments and benefits**, and (4) **asset management and workforce development**. No single area stands alone, and all intersect with fundamental goals of addressing inequity and building toward a climate resilient Great Lakes basin. Several approaches focus on the Drinking Water and Clean Water State Revolving Funds (DW/CW SRFs) as these programs are the main vehicle for IJJA water infrastructure funding distribution and provide large investments in water infrastructure improvements. Opportunities to adapt approaches to expand the reach and impact of both SRF programs are identified. Over time, implementation tactics will be shared, detailing how blueprint approaches are deployed across the Great Lakes basin.

PRIORITY 1: Public health and safety

Public health and safety are core tenets of each Priority Area and approach in the blueprint. Whether through the supply of safe drinking water, the collection and treatment of sewage, or the management of stormwater, public health and safety is a central purpose of federal and state funding for water infrastructure systems.

Framing:

- Lead service lines and combined sewer systems are disproportionately present in the Great Lakes basin when compared to the rest of the United States; prioritize investments these older communities and city centers.
- Advance source water protection efforts, including restoring waterways impacted by pollution from PFAS, nutrients, harmful algal blooms, and emerging contaminants.
- States and drinking water utilities work together to create public inventories of lead service lines to fulfill the requirements of the revised federal Lead and Copper Rule.
- Incorporate climate forecasts and natural infrastructure into traditional approaches for managing water and preventing flooding.
- Regulation should be used as a tool to help identify and support the need for infrastructure improvements.
- Infrastructure improvements have support from multiple stakeholders—most importantly, the public and elected officials.

Financing:

- Support programs that completely remove lead and galvanized service lines on public and private property.
- Enable a “One Water” approach by allowing funding streams to support integration across projects addressing: drinking water quality, aging and undersized distribution and collection infrastructure, localized and other flooding challenges, and combined sewer overflows.
- Expand support for green infrastructure and other nature-based solutions to manage stormwater in the face of changing climate conditions.

- Expand support for the implementation of source water protection plans and connections across similar programs addressing watershed issues.
- Consider programs to support well replacement when private well-owners draw water from a compromised source.

Finishing:

- Communities and utilities exercise multiple approaches to communicate public health and safety messages to diverse audiences.
- Utilities deploy a One Water approach to water management.

PRIORITY 2: Community engagement and trust-building

At its core, water infrastructure exists to meet the needs of people. This Priority Area shares approaches leaders may deploy to ensure water infrastructure projects address the needs of *all* people—especially those who have historically been excluded from the benefits of infrastructure investment or experience disproportionate water stresses. The regional working group acknowledges trust is an earned asset in communities and does not suggest that rebuilding trust in instances where it has been lost is easy or even possible.

Framing:

- All levels of government and utilities prioritize and make planning decisions *with* a community, rather than *for* a community.
- Federal, state, and local governments endeavor to identify, acknowledge, and begin to address cases of lost public trust in water services.
- Government agencies and utilities work with local leaders to create systems for meaningful inclusion of groups and neighborhoods historically excluded from planning processes and often disproportionately impacted by water policy decisions and service inequity.
- Re-examine the roles of governmental institutions to assure that planned investments ultimately yield community benefits.
- Consider the “human capital” in a community and work with civic and business leaders to unify water infrastructure investments and resources with realistic community needs for the future.
- Local governments and utilities involve community members in discussions around economic trade-offs between cost and level of service.
- Planning and prioritization outcomes should reflect community-driven needs.

Financing:

- Use federal resources to support staffing for state and local agencies and utilities to meet people where they are and listen to where they want to be (This approach aligns with the “level of service” concept deployed in traditional asset management systems).

- Governments proactively prioritize funding and technical support for vulnerable communities within state and local planning efforts.
- State agencies can build community capacity through increased development of templates and tools to identify and increase access to financial resources.
- Federal agencies should supply resources to enhance or expand state agency staffing through collaboration with existing partner organizations providing technical expertise to communities requiring assistance.
- Provide resources dedicated to state and local staff outreach to assure groups or individuals historically excluded from local discussions are provided a path to engage.

Finishing:

- Local governments implement water infrastructure improvements with a focus on long-term sustainability, assuring that resources remain available once a discrete event has passed or a solution has been installed.
- Leaders of the region's utilities take advantage of training opportunities on affordable and equitable rate-setting and effective, compassionate assistance options for customers in need of assistance.
- Utilities provide easy access to customer assistance programs for those in need.
- Local governments and utilities spend time on public/customer education efforts through normal times and in crisis situations, helping those who benefit from water services understand needs for maintaining or improving existing services.
- Local governments and utilities assure transparency in billing for water and wastewater services.

PRIORITY 3: Equitable distribution of investments and benefits

The need for water infrastructure investment in the Great Lakes basin spans across the region's states, affecting urban centers, rural areas, and the suburban expanse in between. This Priority Area focuses on approaches to ensure that federal and state funds are equitably distributed to assure tangible benefits to the basin's citizens, regardless of their zip code.

Framing:

- Utilities collect and make available information on their service areas to improve efforts to successfully locate communities in need.
- Federal and state agencies consider cost-benefit analyses for infrastructure investments to better understand and measure potential outcomes including community and ecosystem benefits not traditionally tied to financial systems, and potential unintended financial or environmental consequences.
- Federal, regional, or state agencies develop mentoring networks for communities to develop capacity to apply for and administer SRF-supported projects.

- Federal and state agencies provide support for communities to identify and prioritize water infrastructure improvements in areas more likely to face consequences from changing climatic conditions, such as increased flooding events and coastal erosion.

Financing:

- Improve mechanisms to support communities taking a proactive approach toward planning and rate-setting.
- Ensure all allocated SRF dollars are spent, prioritizing providing technical assistance, grants and principal forgiveness for disadvantaged communities.
- Assure that SRF project scoring based on median household income is balanced with cost of living.

Finishing:

Communities and utilities allocate resources to conduct improved outreach with customers throughout service areas.

- Local governments provide feedback and evaluation of state efforts in support of the Justice 40 Initiative³, ensuring that perspectives are gathered from community members.

PRIORITY 4: Asset management and workforce development

While much of the Great Lakes basin's expansive water infrastructure system is buried and out of sight, numerous water professionals are keeping watch over the myriad pumps, pipes, plants, and basins relied on for water services. Skilled workers and infrastructure systems are aging, putting additional strain on the region's water infrastructure system. This Priority Area focuses on asset management as a holistic program to plan for the future, including development of the next generation of water professionals.

Framing:

- Promote "asset management" as a program with a stepwise process to reduce perceived barriers for capacity-constrained communities (i.e., mitigate aversion to what may be perceived as a burdensome and expensive planning effort).
- Utilities evaluate affordability of capital and operation and maintenance costs in tandem with longer-term federal and state assistance.
- Utilities pursue regionalization when clear benefits are anticipated; decision-making is community-determined and transparent; and affected communities support change once they have reviewed all possible options.

³ A January 27, 2021 Executive Order (EO 14008) issued by President Biden created a government-wide Justice 40 Initiative with the goal of delivering 40% of overall benefits of relevant federal investments to disadvantaged communities and tracking performance through a to-be-developed Environmental Justice Scorecard.

- Governments prioritize improvement of data aggregation and sharing to enable monitoring of progress and planning.
- Prioritize training programs to support the development of minority- and women-owned businesses in the water sector, acknowledging the full range of opportunities and skill levels and assure these businesses are considered as potential partners during contracting.
- Ensure that utility workforces represent the communities being served and collaborate with other sectors to remove barriers to entry for disadvantaged populations.
- Create and support business directories and applicant portals that are both easy to access and join, to enable improved visibility of businesses capable of supporting water infrastructure construction and maintenance needs.

Financing:

- Offer longer-term funding opportunities, allowing communities to “gear up to do good work,” including bringing diverse voices to the table and building internal capacity to lead and implement projects.
- Fund planning efforts that align with future funding opportunities geared toward implementation.
- Consider upfront funding challenges as well as operation and maintenance costs as part of the financial burdens on communities.
- Support training programs for a broad range of water sector jobs, with points of entry for people of color to join.
- Enforce federal funding requirements designed to support local, minority-owned, or women-owned businesses.
- Create opportunities for “umbrella” programming as an alternative to regionalization by supporting the bundling of shared services among communities.
- Expand support for job growth opportunities tied to long-term maintenance.

Finishing:

- Local governments and utilities inventory available assets as a critical first step toward asset management and rate-setting.
- Procurement policies are reviewed to identify barriers to local, minority-owned, or women-owned businesses.
- Local governments and utilities support and fund staff participation in training opportunities.
- Create avenues to employment for community members as neighborhood ambassadors for infrastructure projects.
- Diversify staff and utility boards and create resident advisory councils to secure sustained community input.

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