

Water 101: Exploring Wastewater Management & Financing Fundamentals for South Carolina Elected Officials

Part 1: July 24, 1 pm ET

Part 2: July 30, 1pm ET



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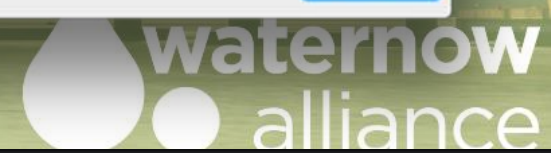
Q&A

You ask: 13:05
How do I use these awesome tools?

Joshua Jones answered: 13:06
You are already using one of the most awesome tools. We'll discuss the rest right away.

Please input your question

Send Anonymously Send



Certificate of Completion

This session has **NOT** been submitted for pre-approval of Continuing Education Credits, but eligible attendees will receive a certificate of attendance for their personal record.

To receive a certificate:

- You must attend the entire session
- You must register and attend using your real name and unique email address - group viewing credit will not be acceptable
- You must participate in polls
- Certificates will be sent via email within 30 days

If you have questions or need assistance, please contact smallsystems@syr.edu.

About EFCN

The **Environmental Finance Center Network (EFCN)** is a university- and non-profit-based organization creating innovative solutions to the difficult how-to-pay issues of environmental protection and water infrastructure.

The EFCN works collectively and as individual centers to address these issues across the entire U.S, including the 5 territories and the Navajo Nation. The EFCN aims to assist public and private sectors through training, direct professional assistance, production of durable resources, and innovative policy ideas.





WaterNow works to advance transformation in the urban water sector to accelerate the widespread adoption of resilient and environmentally sustainable strategies.

We do this as a national network for local water leaders and decision makers, empowering them with the technical assistance, resources, and tools they need to implement innovative One Water drinking water, stormwater, and wastewater solutions in their communities.



Agenda

- Meet Today's Speakers
- Wastewater Management Basics
- From Nuisance to Resource
- Introduction to How to Pay for Wastewater and Stormwater Investments



Today's Speakers



Brett Butz
Rural Assistance Coordinator
SCDES - Office of Rural Water



Amy Weinfurter
Director of Strategic Projects
WaterNow Alliance



Caroline Koch
Water Policy Director
WaterNow Alliance

Time for a poll!

Participate with Mentimeter

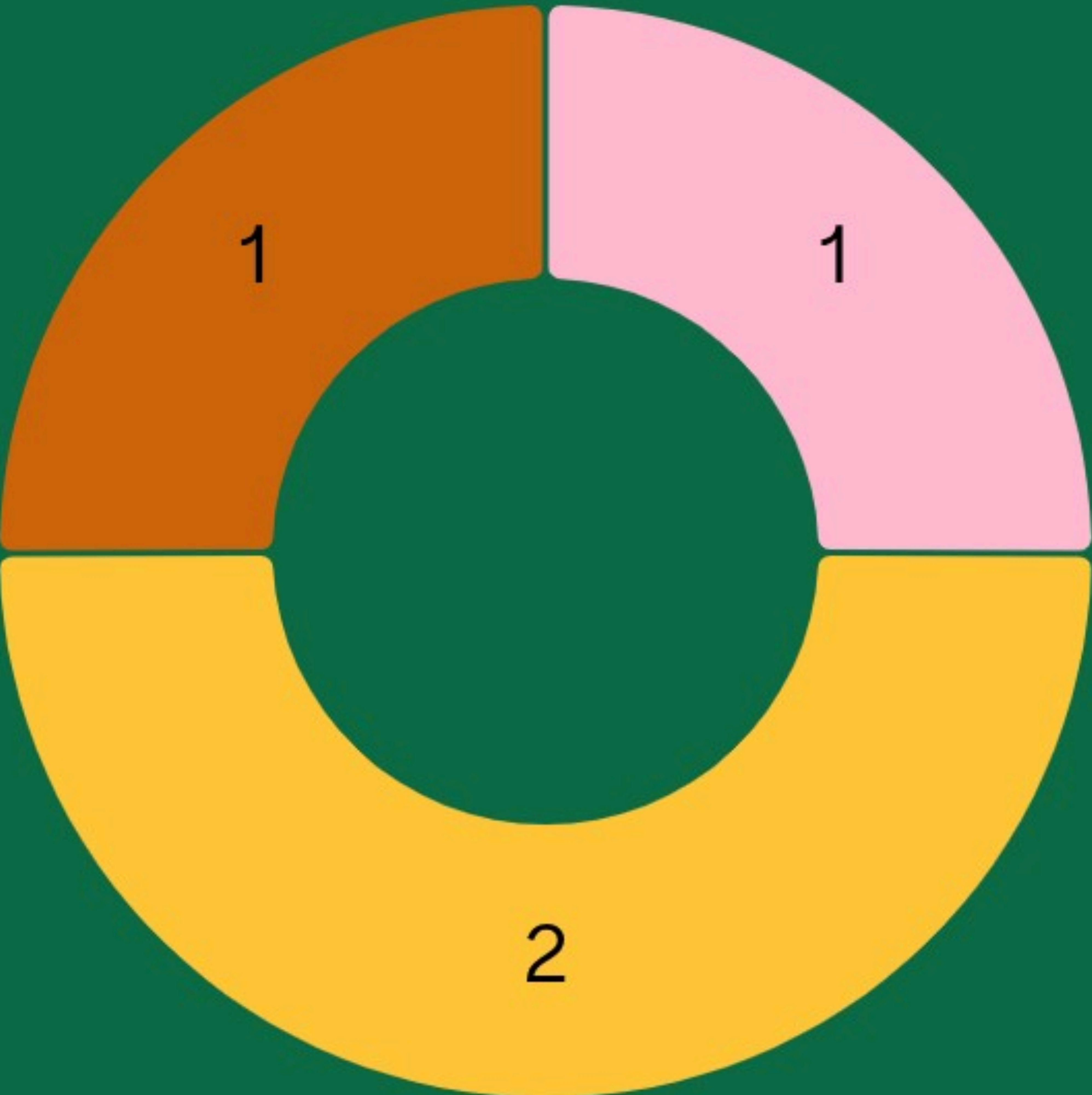
Go to: menti.com

Enter Code: 7803 3955

Or scan the QR code



Who's in the room?



- 1 City council member
- 0 Tribal government officer
- 0 Special district board member
- 2 Utility staff
- 1 State agency staff
- 0 Federal agency staff
- 0 NGO staff
- 0 Academic
- 0 Private sector

How many customers does your utility serve?



How many FTEs does your utility employ?

1
Less than 5

0
Between 6 and 10

0
Between 11 and 25

1
Between 26 and 50

1
More than 50

1
Unsure

1
Not applicable



SC DEPARTMENT *of*
**ENVIRONMENTAL
SERVICES**

Office of Rural Water

24 July 2025





SC DEPARTMENT *of*
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SERVICES**

Wastewater Management Basics

An Overview of Wastewater Systems

Agenda

- About the Office of Rural Water
 - Objectives of this Training
 - What is Wastewater and a Sewershed?
 - Types of Systems in South Carolina
 - Wastewater System Components
 - Interactions with Stormwater
 - Regulatory Framework
 - Q&A
-



About the Office

The Office of Rural Water (ORW) collaborates with local and national partners in adapting to changing infrastructures and providing technical assistance to small rural water systems. ORW works to support new, long-term solutions to aging systems.

- We are non-regulatory
- If we cannot help, we know someone who can
- Key Partners: USDA RD, EPA, SC Rural Water Association, SCADA Integrators, SERCAP, Moonshot Missions, COGs, MASC, RIA, WaterNow
- Work directly with water and wastewater enforcement teams
- Success Stories: Drinking water and wastewater improvements, system cooperations, fine reduction, AI integration pilots

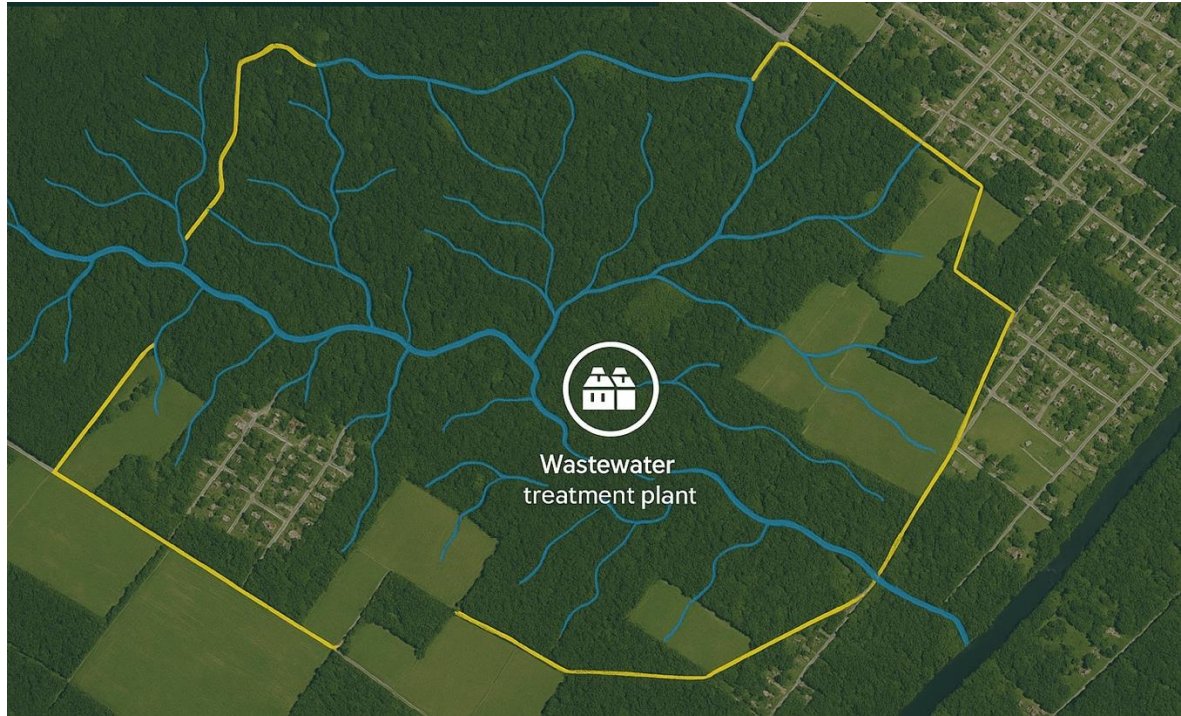


Objectives of this Training

- Understand the fundamentals of wastewater and stormwater management.
- Recognize the role of local officials in infrastructure decisions.
- Discover how wastewater and stormwater can offer community benefits.



What is Wastewater and a Sewershed?



- Wastewater: water that has been used in homes, industries, or businesses.
- Sewershed: area where all wastewater flows to a single point or system.
- Important for public health, maintenance, and system planning.

Types of Wastewater Systems in SC

- Publicly Owned Treatment Works (POTWs).
- Decentralized systems, including septic tanks.
- Combined vs. separate sewer systems.*
 - Only separate systems in South Carolina
- Considerations differ between rural and urban areas.

Wastewater System components

- *Collection systems*: pipes, manholes, pump stations.
- *Treatment*: primary, secondary, tertiary processes.
- *Effluent*: disposal or reuse systems.
- Sludge and biosolids management practices.



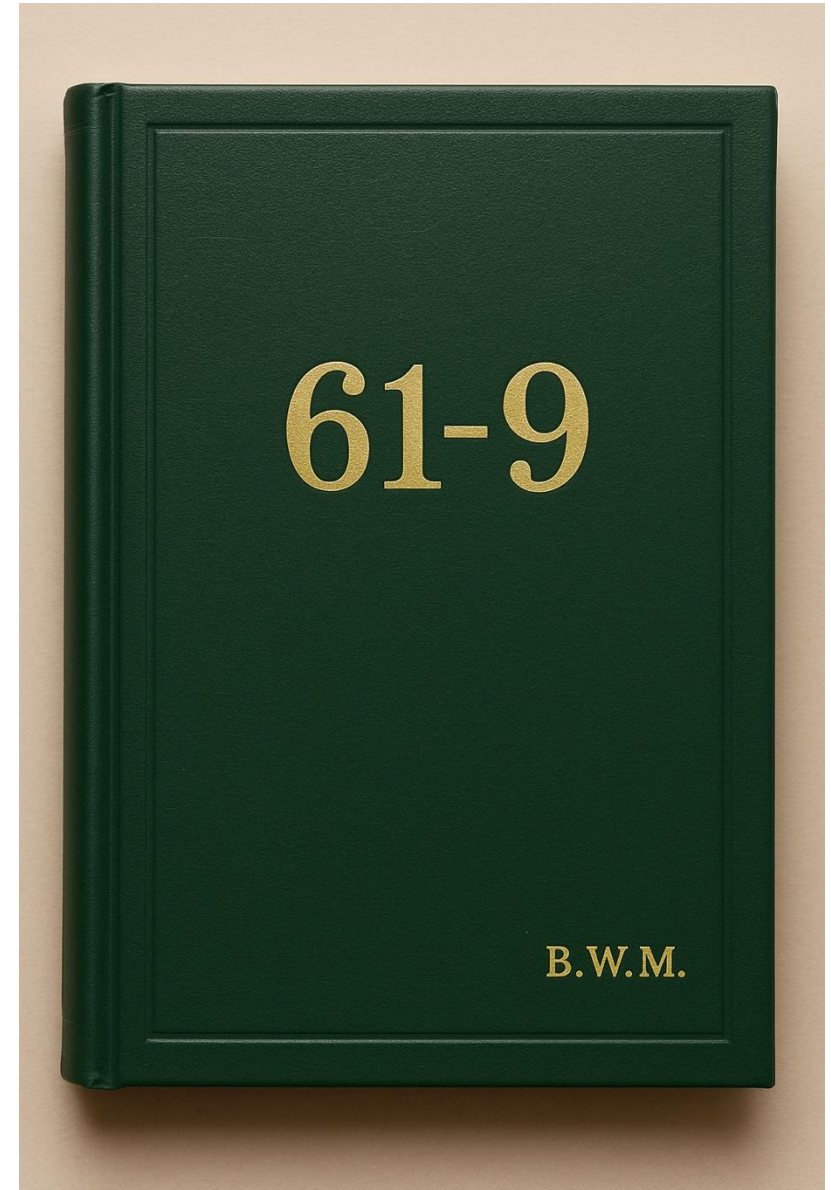
Interactions with Stormwater



- Stormwater can infiltrate sewer systems, increasing treatment needs.
- Combined systems handle both wastewater and stormwater.*
*Note: No combined systems in SC
- Green infrastructure helps manage runoff and protect water quality.

Regulatory Framework

- DES regulates wastewater and stormwater systems.
- Key rules: R.61-9, R.61-67, and R.72-300+.
- NPDES and MS4 permits govern discharges and stormwater management.



Q&A



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Get in touch

Brett Butz // Rural Assistance Coordinator


Brett.Butz@des.sc.gov

803.862.2482

des.sc.gov

@SouthCarolinaDES





From Nuisance to Resource: One Water Approaches

Amy Weinfurter

Director of Strategic Projects
WaterNow Alliance

Who are water leaders?



Mayors



City Councilmembers and Tribal Leaders



Special District Board Members



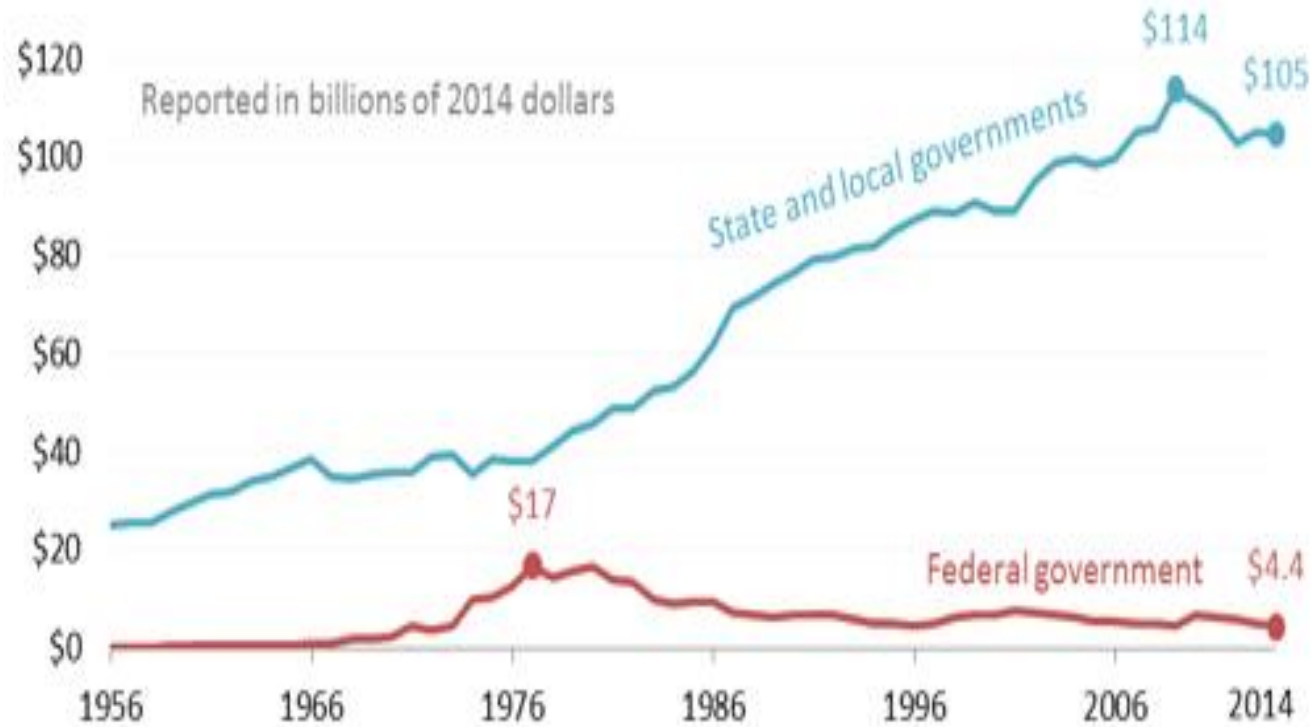
County Supervisors



Public Utility Commissions

The decision makers who vote on all things water, from policy to programs to rates, and who are ultimately accountable to the public

Why local decision makers?

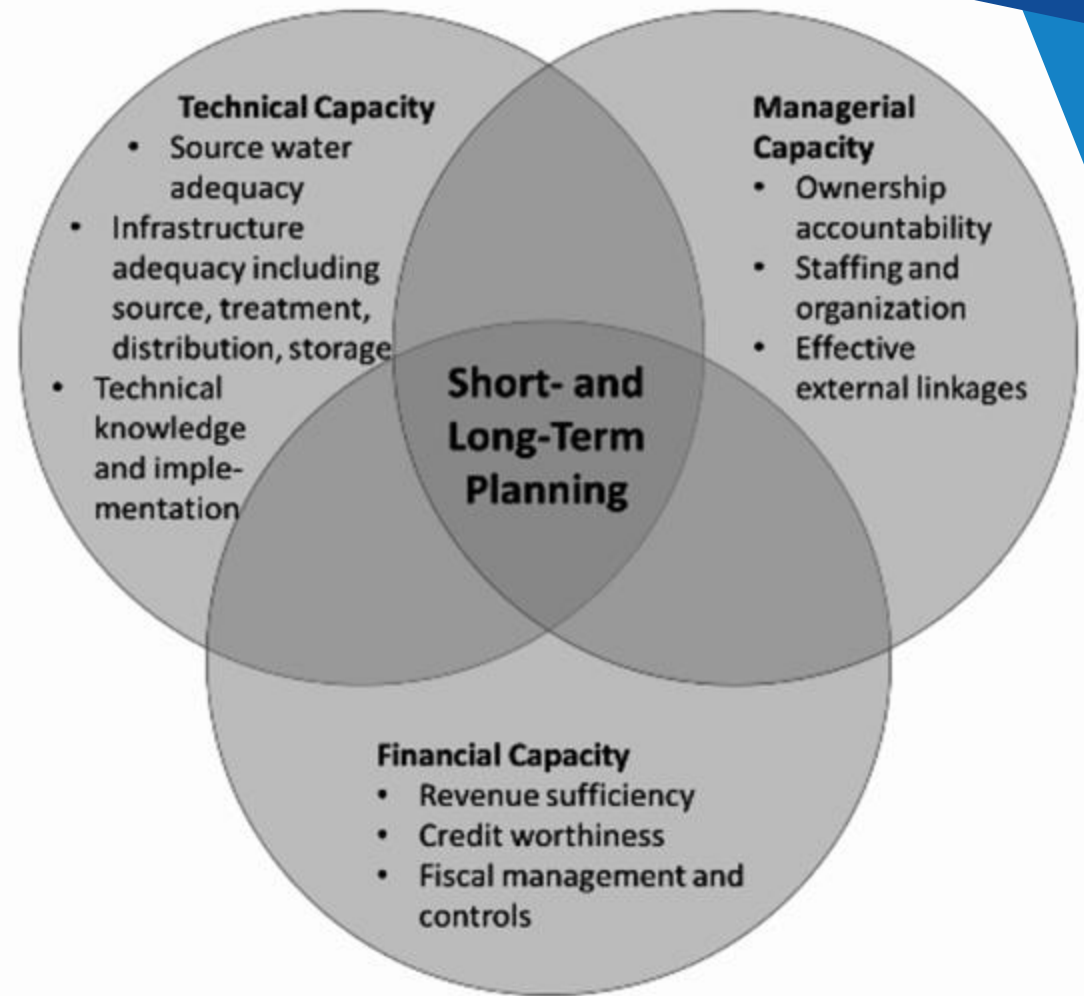


95% of water infrastructure investments made by local ratepayers

85+% U.S. water infrastructure is publicly owned

Role of elected officials

- Prioritization and Decision-Making
- Setting Policy
- Oversight Responsibility
- Public Engagement and Communication
- Collaboration and Partnerships
- Financing and Funding



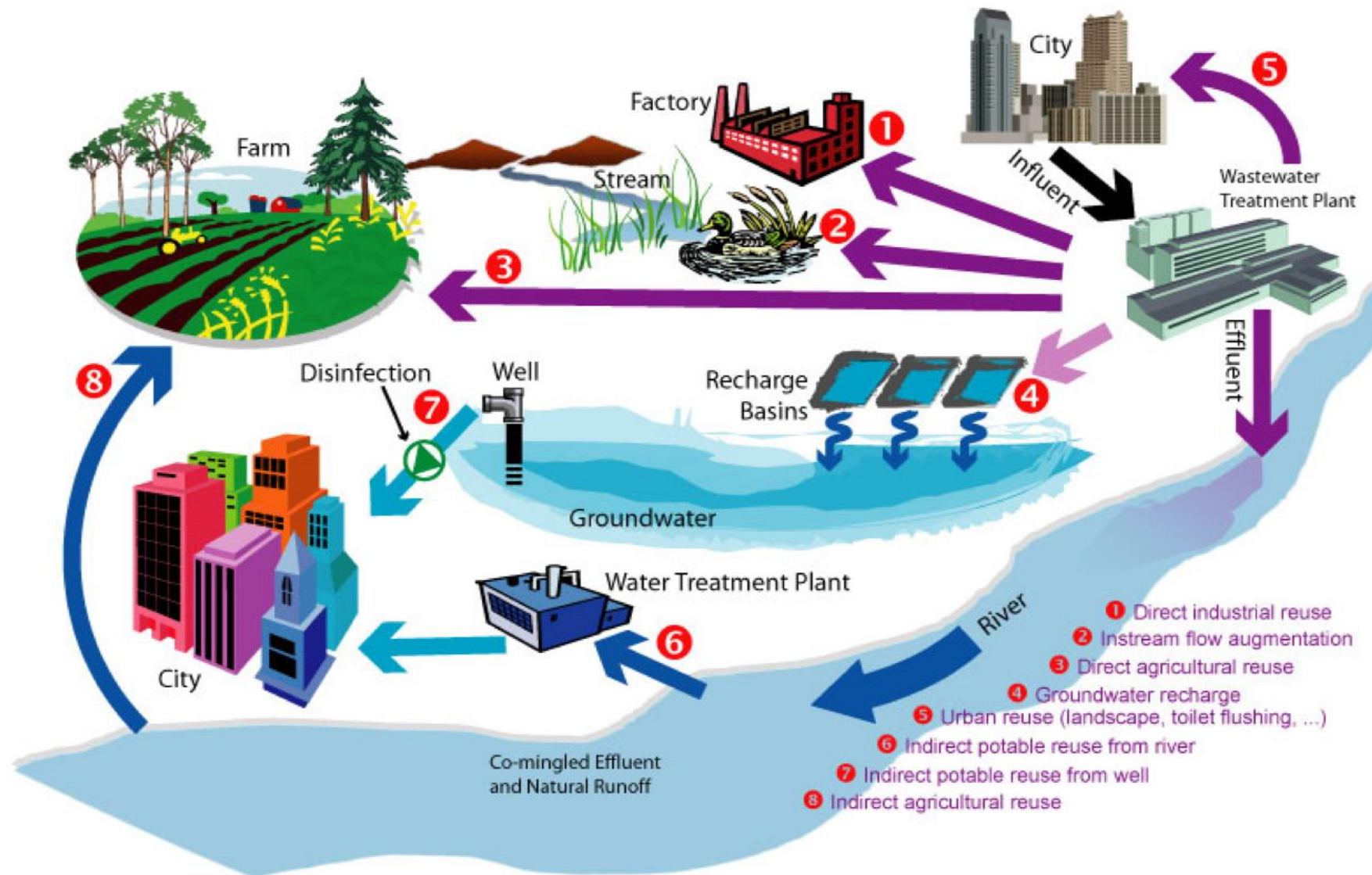
Source: EPA

Learn about your community's wastewater and stormwater systems

- **Who is responsible** for wastewater and stormwater for my community? As a local leader, do I have **oversight responsibility**?
- How is our **wastewater treated** and **where does it go** when it is discharged?
- Is our **stormwater** well managed? Do we have **flooding** problems?
- Are wastewater and stormwater services **affordable** and **accessible** across my community?

You can find more questions to help you “Know Your Water Sector Systems” [here](#)

From nuisance to resource



21st century solutions for 21st century problems



- All water has value
- Water is integrated
- Water facilities can be decentralized

The water systems



Drinking Water



Wastewater



Stormwater

Onsite technologies and strategies can perform many or most of these functions

Expanding the concept of infrastructure: Onsite water solutions

Big picture benefits of localized strategies



More affordable than rebuilding or repairing centralized infrastructure



Less time-intensive to install than centralized infrastructure



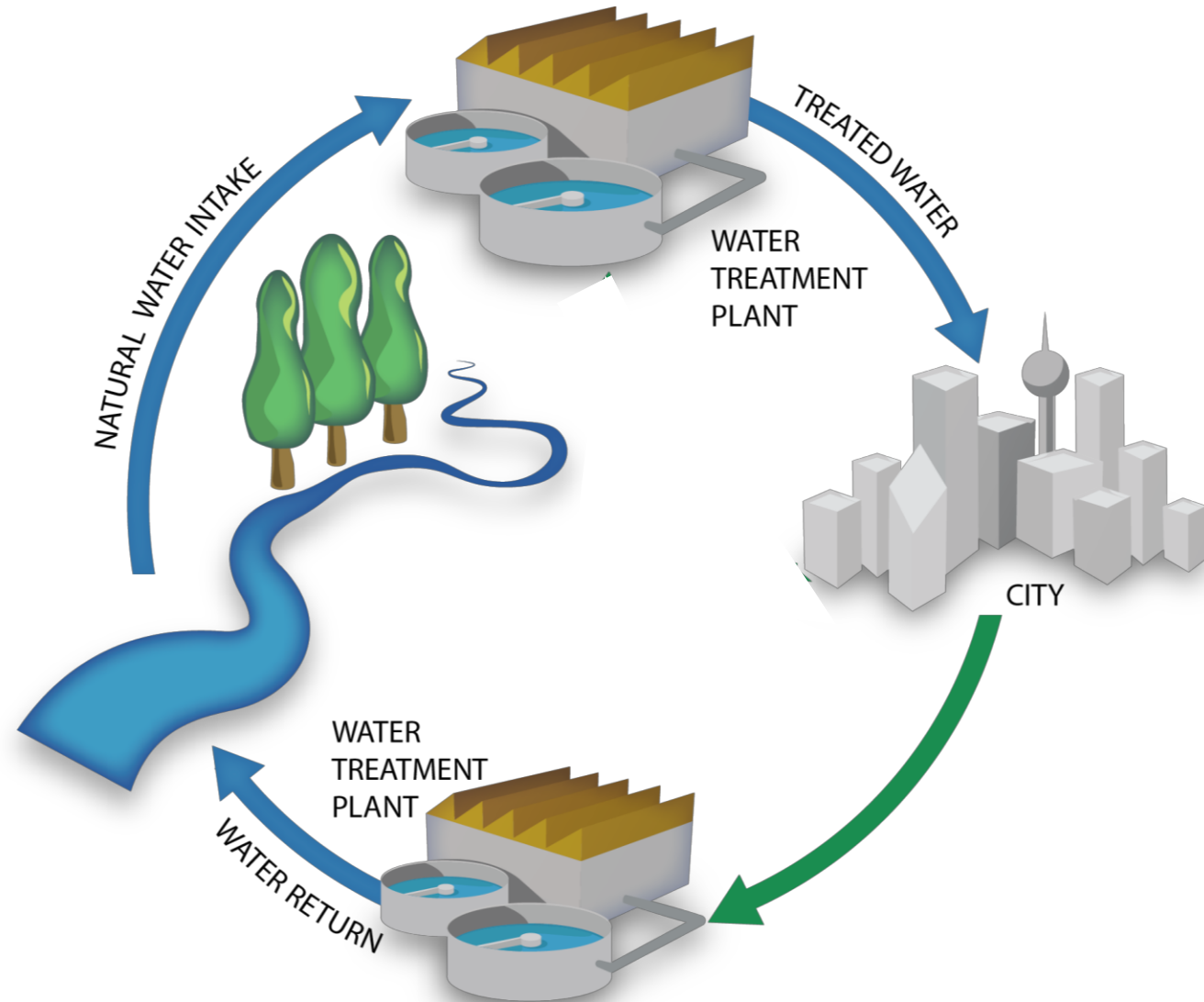
Work with the natural environment to enhance water supply resilience and health



Provide visibility, access, and direct economic benefits to ratepayers



Potable wastewater reuse



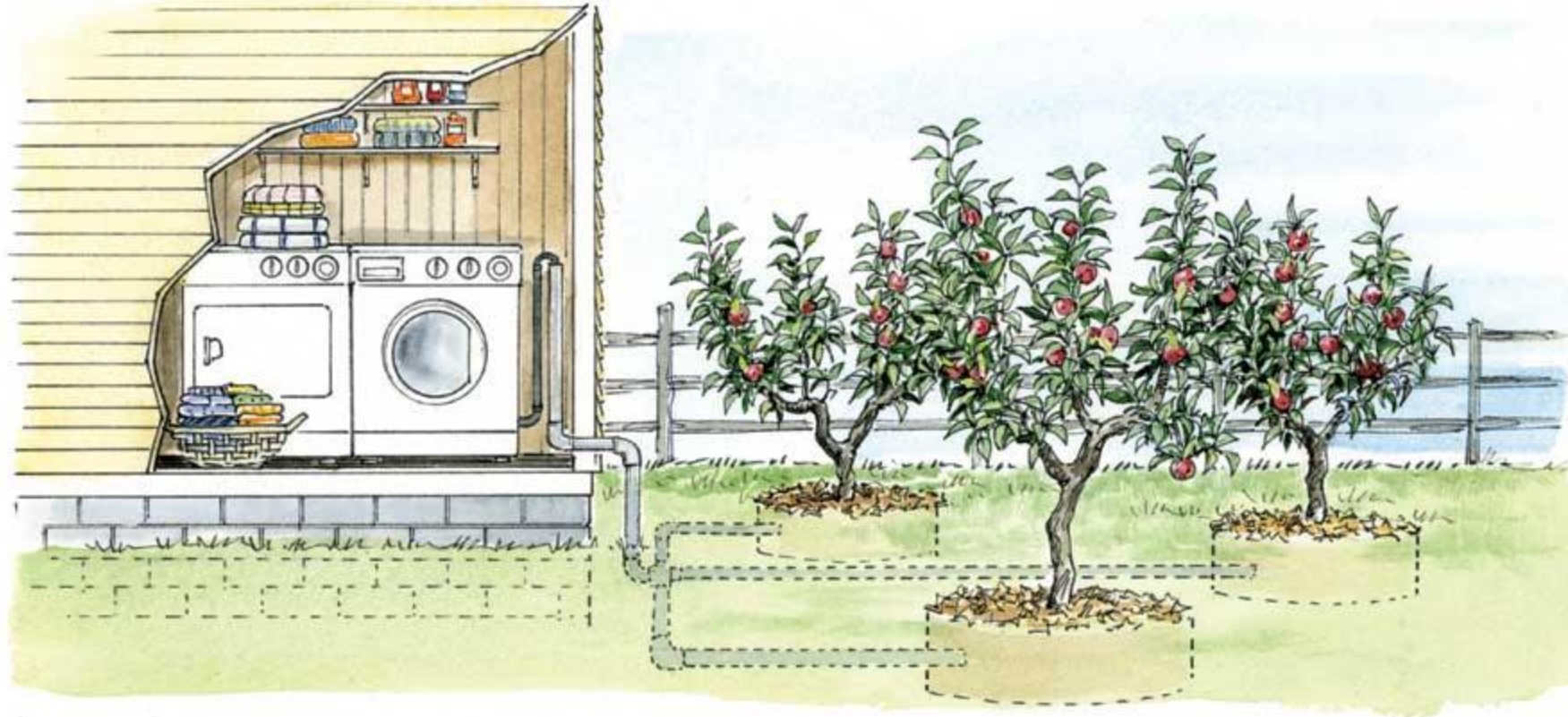
Non-potable wastewater reuse



Onsite reuse



Onsite reuse



Bioswales



Permeable Pavement



Green Roofs and Rain Gardens



Constructed wetlands

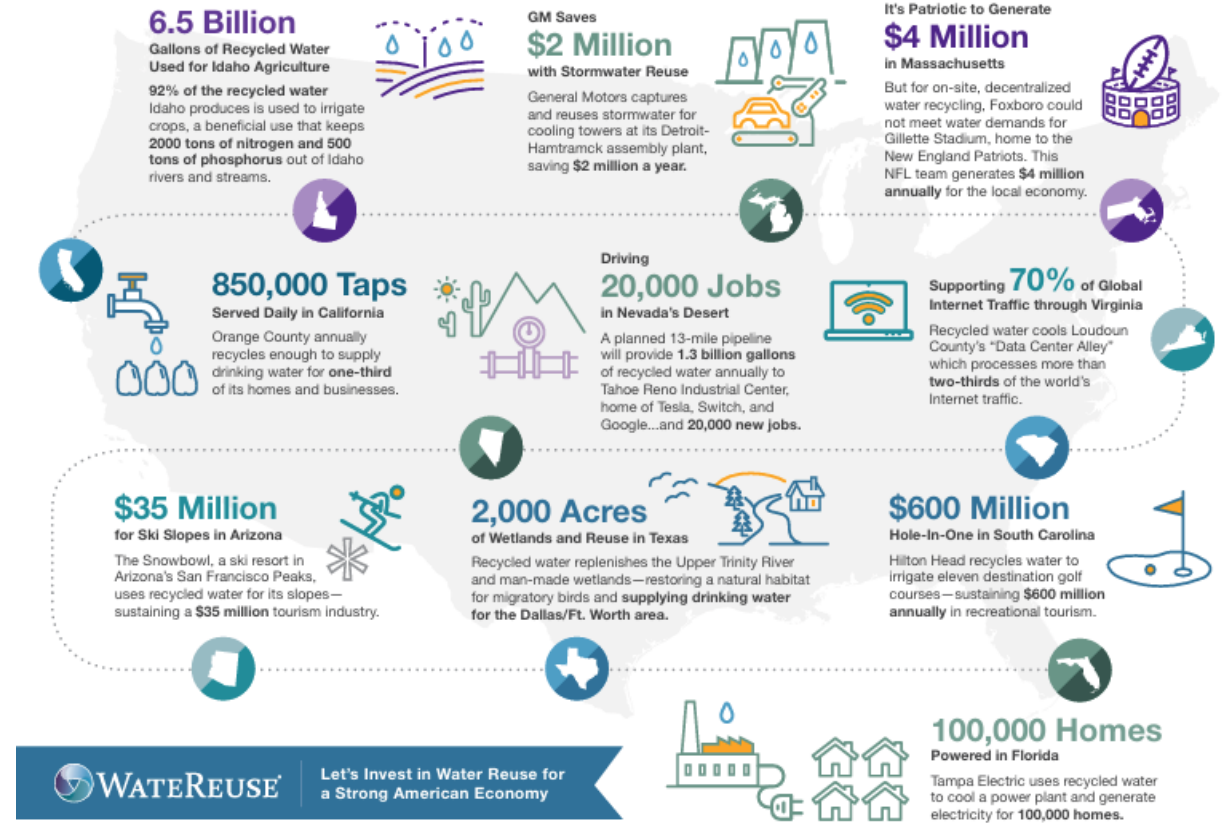


Co-Benefits



Distributed water management strategies can address water challenges while generating **economic, environmental, and community co-benefits.**

RECYCLED WATER COAST-TO-COAST



Let's Invest in Water Reuse for a Strong American Economy

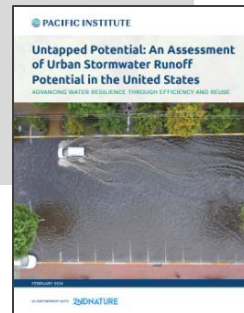


Tampa Electric uses recycled water to cool a power plant and generate electricity for 100,000 homes.

Sources: Pacific Institute, WaterReuse

Co-Benefits

The average annual volumetric potential for **urban stormwater runoff** is **59.5 million AFY**, equivalent to **93%** of the water withdrawals for municipal and industrial uses in 2015.



Pacific Institute, 2024

-  Reduced urban heat island
-  Green & recreational space
-  Habitat creation
-  Community aesthetics
-  Meet water quality targets
-  Reduced flooding & CSOs
-  Recharge groundwater aquifers

Stormwater solutions



Benefits



Expected to save MMSD in traditional infrastructure upgrades



Reduces sewer overflow incidences by 96%, from 50 to 60 per year to only 2.3 per year



Creates 500 green maintenance jobs at full implementation



Produces 160 construction jobs on average per year



Increases property values by an estimated \$667 million



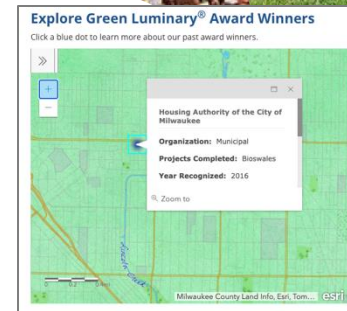
Educates the public about water resources and sustainable solutions



Improves environmental health by reducing carbon emissions, conserving energy, and improving air and water quality



Improves quality of life and aesthetics by providing additional green spaces and recreational opportunities



Stormwater solutions



Here's how we are taking action with GSI.

- CITY GSI INITIATIVES →
1. LEAD BY EXAMPLE →
 2. SUPPORT AND INCENTIVIZE PRIVATE DEVELOPERS →
 3. INCLUDE GSI IN REZONING DECISIONS →
 4. INCLUDE GSI IN CITY'S PLANNING REPORTS →
 5. PROPOSE REGULATION CHANGES TO SUPPORT GSI →
 6. BUILD A PROGRAM FOR MAINTAINING CITY-OWNED GSI →

OPTIONS FOR GREENING RALEIGH Low-Density Residential Development Stormwater Management



February 2024

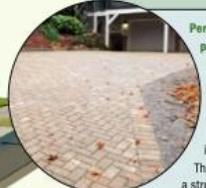
Green roofs reduce runoff volume and rates by intercepting rainfall in a layer of rooftop growing media that is typically six inches (extensive) or deeper (intensive). Green roofs offer an array of benefits, including extended roof lifespan (due to additional sealing, liners, and insulation), improved building insulation and energy use, reduction of urban heat island effects, opportunities for recreation and rooftop gardening, noise attenuation, air quality improvement, bird and insect habitat, and improved aesthetics.



Bioretention areas, or rain gardens, are engineered landscape features that reduce runoff volume and pollution by capturing and temporarily storing or infiltrating runoff through soil, stone, and vegetation. They can also provide bird and insect habitat and improved aesthetics.



Permeable pavement in driveways allows rainwater and runoff from surrounding hard surfaces to filter into the ground. This solution offers a strong, appealing driveway surface and lowers the property's overall impervious area.



Bioretention areas planted with turf grass have been shown to provide similar treatment as those planted with trees and shrubs.



Vegetated swales are shallow, open grass channels that can be an alternative to traditional curbs and gutters. Vegetated swales are designed to convey runoff while providing limited pollutant removal by sedimentation and horizontal filtration through vegetation.



Cost Savings for Low-Density Residential Green Stormwater Management

Boulder Hills Development

- Pelham, NH
- Porous asphalt instead of conventional pavement
- Saved \$50,000 (6%) by avoiding curbing, outlet control structures, large stormwater detention ponds



Village Homes Development

- Davis, CA
- Vegetated swales, rain gardens, open space, narrow streets, clustered lots
- Saved \$800 per lot, \$192,000 for entire neighborhood compared to conventional development



2nd Avenue Neighborhood

- Seattle, WA
- Bioswales, added vegetation, wetlands, reduced impervious area
- Saved \$217,255 (25%) compared to conventional retrofits



Gap Creek Subdivision

- Sherwood, AR
- Preserved natural drainage areas, traffic-calming circles, reduced street width
- Saved \$4,800 per lot, \$678,500 (15%) total compared to conventional development



Auburn Hills Subdivision

- Racine, WI
- 40% of site preserved as open space with wetlands, green space, added open swales, bioretention
- Saved \$761,396 compared to conventional development



Downspout Disconnection Program

- Portland, OR
- City offers financial incentives for disconnections (\$13-\$53 per downspout)
- Estimated reduction = 1 billion gallons of stormwater annually, \$250 million reduction in construction for underground pipes citywide (based on 44,000 homeowners participating)



Source: City of Raleigh

Stormwater solutions

City of Hanahan moving forward with downtown stormwater improvement project



Winnsboro, SC: Fortune Springs Park Restoration

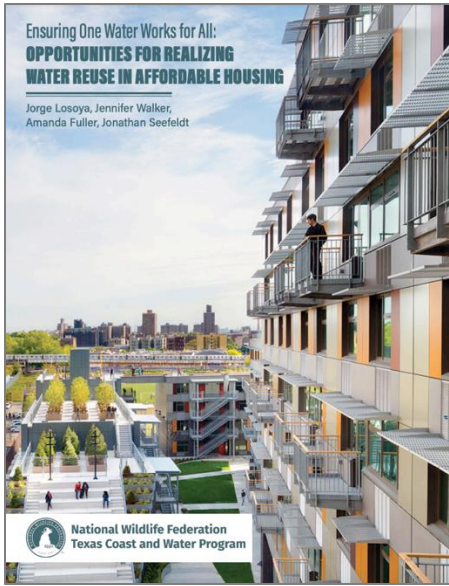
Hanahan, SC: Downtown Stormwater Improvement Project



*“Projects like this one are great examples of improving an area’s resilience because, in addition to **reducing flood risks**, critical services such as **fire and transportation** are less likely to be obstructed during storm events.”*

- Ben Duncan, South Carolina Chief Resilience Officer (SCOR)

Wastewater solutions



Golden, CO:
 "Laundry-to-Landscape"
 graywater ordinance



Los Angeles, CA: onsite water reuse can reduce MFR potable water demand **38%**



Graywater is wastewater generated from domestic activities such as laundry and bathing, which can be recycled onsite for uses such as landscape irrigation and toilet flushing.

KNOW YOUR WATER

CLEAR WATER	GRAY WATER	BLACK WATER
Faucet/Tap	Baths, Showers, Sinks, Washing Machines	Toilets, Dishwashers, Kitchen Sinks

Benefits of graywater:

- Save water & money on your water bill
- Save energy used to produce & distribute potable water
- Return nutrients to soil
- Reduce demand on wastewater treatment plant

Laundry-to-Landscape (L2L) is the simplest, most affordable graywater system

- Gravity-fed water discharges from a washing machine into mulch basins to water plants.
- Does not require tanks, pumps, or filters
- ~\$200 - \$250 for all materials
- Very little maintenance required

Interested in installing an L2L system in your home?
 Graywater reuse was legalized in Colorado in 2013 and Golden is currently exploring an ordinance to allow for L2L graywater systems in single family homes in Golden. If you're interested in learning more about installing an L2L system in your home, please contact Golden's Sustainability Coordinator, Theresa Worsham @ TWorsham@cityofgolden.net.

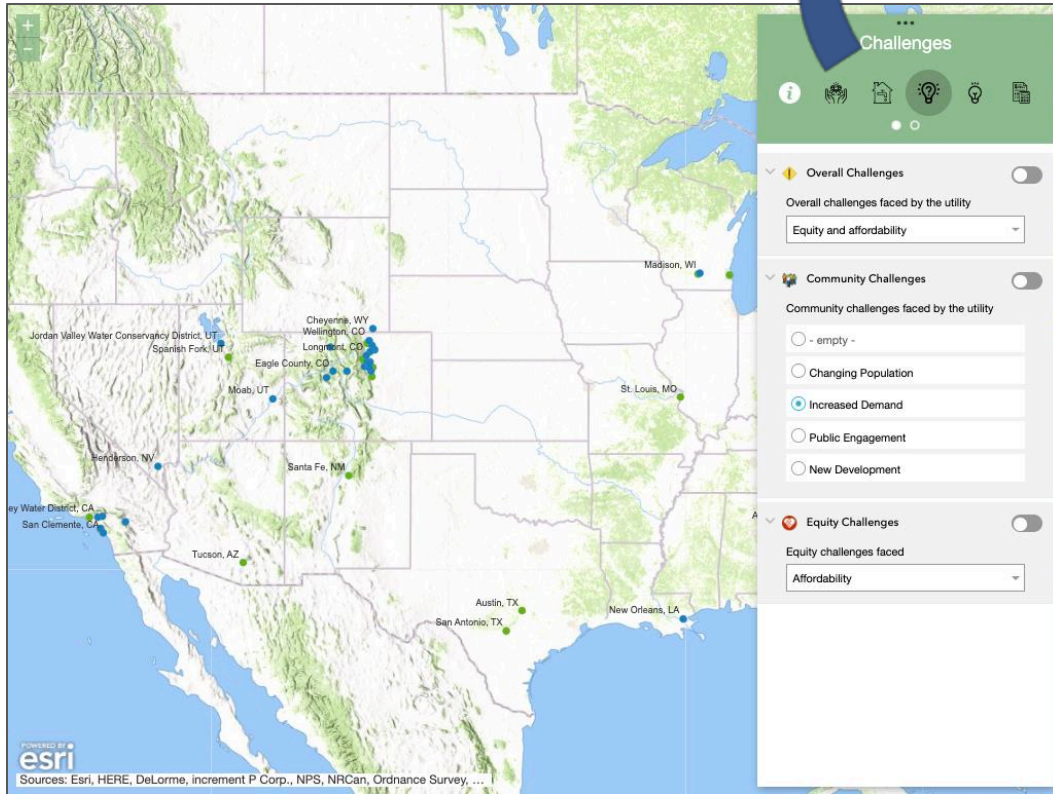
City of Golden | WESTERN RESOURCE DEVELOPMENT | waternow alliance



Homer, LA:
 Reclaimed wastewater irrigates municipal golf course



Case studies



San Antonio Water System

By treating conservation as a source of supply San Antonio Water System reduced water consumption in its service area by 50%.

[Read more](#)

San Francisco Public Utilities Commission

SFPUC's OneWaterSF approach is estimated to save 2 million gallons per day of drinking water among many other benefits.

[Read more](#)

Santa Fe Water Division

Santa Fe's local conservation ordinance and financial incentives have reduced use by 42% since 1996, and brought total system demand down by ~30% as compared with 20 years ago.

[Read more](#)

Santa Rosa

Enhancements to efficiency programs to reach Latex customers with potential to save additional 10.9 acre-feet of water per year.

[Read more](#)

Seattle Public Utilities

Debt financing effort rebates for private p...

[Read more](#)

Spanish Fork

[Read more](#)

Tucson Water

Tucson Water prioritized comprehensive conservation programs that saved 1 billion gallons of water over the past d...

[Read more](#)

COMING SOON

Long-standing effi... resulting in real wat...

[Read more](#)

Tucson Water

Tucson Water prioritized conservation over traditional sources of supply through residential and commercial financial incentives and free programs for income-qualified households. These comprehensive programs significantly lowered water consumption notwithstanding population growth and helped Tucson avoid costs of more than \$155 million.

Project at a Glance

<p>Utility Overview</p> <ul style="list-style-type: none"> Utility: Tucson Water Location: Tucson, Arizona Population served: 720,000 Service area: 227 square miles <p>Challenges</p> <ul style="list-style-type: none"> Declining water supply availability and reliability Prolonged drought Climate change State-mandated conservation for groundwater 	<p>Solution</p> <ul style="list-style-type: none"> Comprehensive water efficiency rebate programs to prioritize conservation as a source of supply. <p>Costs and Funding Sources</p> <ul style="list-style-type: none"> Annual program budget: \$3.5 million <ul style="list-style-type: none"> Conservation rebates and incentives budget: \$1.4 million Education programs: \$750,000 Neighborhood-scale Stormwater Harvesting Program: \$350,000 Public relations and advertising: \$30,000 Funding sources: Dedicated fee on water use
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<https://tapin.waternow.org/meet-communities/#casestudies>

Resources for elected officials

- [Board Members: Find Out if your Water or Wastewater Utility is Financially Viable in the Long-Term](#)
- [Effective Water Utility Management Practices](#)
- [EPA Local Water Infrastructure Investment Stories](#)
- [Know your Water Sector Systems](#)
- [Learn about Capacity Development and Capacity Development Resources for States and Small Systems](#)
- [One Water Toolkit](#)
- [Things Local Officials Should Know about Effective Water Infrastructure](#)
- [Wastewater Management Handbook for Local Representatives](#)
- [WaterNow Alliance TiR Toolkit](#)



The Ten Attributes to an Effectively Managed Utility and Five Keys to Management Success

The background of the slide is a dense, overlapping collage of colorful sticky notes. The colors include various shades of blue, teal, green, and purple. Each sticky note features a large, dark blue question mark. The notes are scattered across the frame, creating a textured and busy visual effect.

Q&A

A background image showing a pair of hands cupped together, holding a stream of water. The image is semi-transparent and overlaid with a blue gradient. The text is in a bold, dark blue font.

Introduction to How to Pay for Wastewater and Stormwater Investments

Caroline Koch

Policy Director
WaterNow Alliance

WATERNOW ALLIANCE

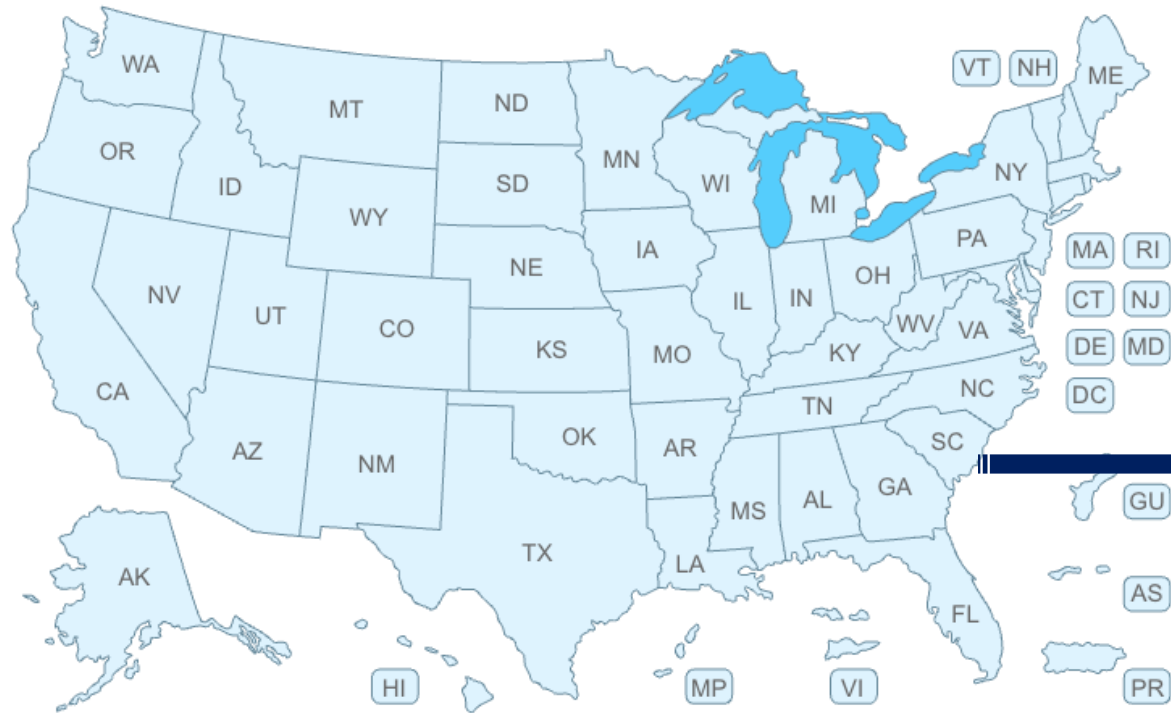
Create a Funding & Financing Portfolio



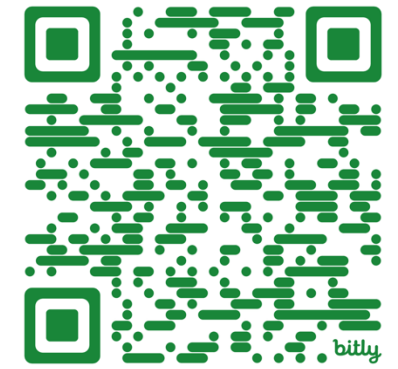
Combining grants and debt financing helps communities make investments in wastewater and stormwater infrastructure while keeping rates down

Funding Sources By State Or Territory

We work with state and federal agencies to make sure that current funding opportunities are consolidated in one place. Click the map below to find water and wastewater funding sources for your state or territory.



*South Carolina
Funding Table*



Economic Development Administration Public Works Grants

Grants

Federal

Objective

- Help distressed communities revitalize, expand, and upgrade their physical infrastructure and attract new industry, encourage business expansion, generate local investment, and create or retain long-term jobs

Eligible Applicants

- County governments
- City governments
- Native American tribal governments (Federally recognized)
- Special district governments

Eligible Projects

- Water and sewer system improvements
- Design and engineering, construction, rehabilitation, alteration, expansion, or improvement of public works

Available Funding & How to Apply

- Avg. grant, \$1.4M (50% match required)
- FY24, \$100M
- Applications accepted on a rolling basis
- Grants.gov

SC Department of Commerce Community Development Block Grants

Grants

State

Objective

- Improve the well-being of all South Carolinians in a manner that supports and enhances a high quality of life and strengthen communities through revitalization and improvement of neighborhoods, public infrastructure, and the local economy

Eligible Applicants

- All units of general local government
- Except 11 large cities and 7 urban counties

Eligible Projects

- Construction of public facilities and improvements
- Assistance to neighborhood-based non-profit organizations, local development corporations or for-profit entities to carry out economic development activities

Available Funding & How to Apply

- Max grant, \$1M
- FY25, \$9M (Community Infrastructure)
- 2 funding rounds / year
- Request application from SC Dept. of Commerce

South Carolina Clean Water State Revolving Fund

Debt

State Revolving Fund

Objective

- Provide low-interest rate loans for building or repairing wastewater plants, collection systems, and stormwater quality improvement projects

Eligible Applicants

- Municipalities
- Counties
- Special purpose districts

Eligible Projects

- Wastewater Treatment Plant upgrade and expansion
- Sewer Line rehab and replacement
- Collection systems for areas on septic tanks
- Non-point source projects
- Environmentally innovative "green" practices

Available Funding & How to Apply

- SFY26, \$177M
- Contact Department of Environmental Services
- Submit a project questionnaire

HUD Section 108 Loan Guarantee Program

Debt

Loan Guarantees

Objective

- Leverage portions of CDBG funds into federally guaranteed loans large enough to pursue physical and economic revitalization projects capable of redeveloping entire neighborhoods

Eligible Applicants

- CDBG entitlement cities
- Urban counties
- Non-entitlement cities

Eligible Projects

- Rehabilitation of publicly owned real property
- Construction, reconstruction, or installation of public facilities
- Green infrastructure improvements

Available Funding & How to Apply

- FY25, \$101M (SC non-entitlement allocation)
- Contact HUD for pre-submission meeting

Tap into Resilience Toolkit

Resource for finding additional federal and state funding and financing options & information about how debt financing can create inter-generational equity

Affordable Water Infrastructure Investments

Water utilities serving frontline communities not only face water management challenges, but also encounter difficulties in accessing funding and financing mechanisms to invest in needed water infrastructure upgrades. Frontline communities' special challenges accessing the funding required to invest in vital water infrastructure range from **severely reduced federal financial support** for local water systems over the years, to **financially distressed rate bases** that cannot afford the cost of needed infrastructure, **declining populations** leading to a smaller number of customers within the utility service area, and/or **lack of internal capacity and expertise** to apply for the grant and support programs that are available. The COVID-19 pandemic intensified these already pressing issues as revenue losses hit urban areas hard.

Click through the sub-sections below to learn about available **federal and state grant and loan options for frontline communities** and how to **ensure inter-generational equity** when making water infrastructure investments.

Federal and State Grant and Loan Options for Frontline Communities >

Ensuring Inter-Generational Equity >

<https://tapin.waternow.org/toolkit/?item=frontline-invest>

Tap into Resilience Toolkit

Resource with ideas on how partnering with community groups and local non-profits can add capacity for water utilities experiencing resource constraints

Identifying Partners Who Can Add Value

Utilities no longer need to go it alone. Partnerships with community groups, NGOs, and other

"Building partnerships can be a little messy. ... However, when partnerships are done right, starting with creating an environment of trust, there are multiple benefits to be had by all—particularly as we think about effectively addressing water inequity. So, if done right, powerful partnerships can help everyone get access to clean and affordable water, manage wastewater, and build more resilient systems that can withstand the impacts of climate change."

~Dr. Jalonnie L. White-Newsome, Founder,
Empowering a Green Environment and Economy

cities and utilities can effectively engage the public, extend and supplement limited utility resources, and advance the goal of an equitable water future for everyone.

There are multiple avenues for utilities to establish trust-based partnerships, including:

- ✓ Getting out into the community and building personal relationships with trusted community leaders that can grow into collaborative, mutually beneficial partnerships
- ✓ Participating in community events to put a personal face to the utility which can sometimes be seen as an institutional black box
- ✓ Creating citizen advisory groups to actively involve the community in utility decision-making
- ✓ Engaging in workforce development programs that **train utility leaders of the future** and can provide **well-paying jobs** including for **at-risk youth**
- ✓ Establishing the utility as an **Anchor Institution**—an organization rooted in a specific location that has a long-term interest in the economic and social vitality of the surrounding community

<https://tapin.waternow.org/toolkit/?item=partners-add-value>

Environmental Finance Center Network Resources



Tools & Publications

Read or view a report, assess your financial or managerial performance with a tool or checklist, or take your analysis to the next level with an interactive rates dashboard.

[Browse Tools & Publications](#)



Multimedia Library

Seeking inspiration? Our podcasts, blogs, and video content offer fresh new perspectives on environmental infrastructure.

[View Multimedia Library](#)



Funding Tables

We work with state and federal agencies to make sure that current funding opportunities are consolidated in one place.

[View Funding Tables](#)

<https://efcnetwork.org/resources/>

Specialized Technical Assistance: Rural, Small, & Tribal Systems



About Us ▾

Training & Events

Resources ▾

Our Initiatives

Contact

Get Help



Get Help

Tackle Your Technical, Managerial, and Financial Challenges: Services from the EFCN

We offer free, customized support services to water and wastewater systems, decentralized systems, local governments, and others seeking technical, managerial, and financial (TMF) solutions to environmental infrastructure challenges. Our team of experts work hand-in-hand with operators, elected officials, utility directors, and other utility staff to identify barriers and address challenges head-on.

Request Help Now

<https://efcnetwork.org/get-help/>

The background of the slide is a dense, overlapping collage of colorful sticky notes. The colors include various shades of blue, green, and purple. Each sticky note features a large, dark blue question mark. The notes are scattered across the frame, creating a textured and busy visual effect.

Q&A

JOIN WATERNOW

LEARN MORE AND SIGN UP



www.waternow.org/join-the-leaders





Please Complete the Post-Training Survey!

Preview: Part 2

- Federal Wastewater Infrastructure Funding Landscape
 - Carolyn Berndt, National League of Cities
- Deep Dive: State Grants
 - Robin Cooley, Rural Infrastructure Authority
- Deep Dive: CWSRF
 - Brett Butz, South Carolina Department of Environmental Services
- Accessing Technical Assistance



THANK YOU!



For more information email:

[Brett Butz, brett.Butz@des.sc.gov](mailto:brett.Butz@des.sc.gov)

[Amy Weinfurter, aw@waternow.org](mailto:aw@waternow.org)

[Caroline Koch, cak@waternow.org](mailto:cak@waternow.org)



Resources:

waternow.org

tapin.waternow.org/toolkit

efcnetwork.org/get-help/