Green Infrastructure for Small Systems: Exploring Real World Examples

September 18, 10 am PT/ 1 pm ET



Green Infrastructure for Small Systems:

Exploring Real World Example

0&A 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

September 18, 10 am T/1p > ET











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 <u>smallsystems@syr.edu</u>.



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 equitable, climate 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.







Please Complete the Post-Webinar Survey!

WEBINAR OBJECTIVES



Inspire broadened thinking about the types of strategies available to small, rural stormwater managers can use



Spotlight real world examples of smaller communities deploying green infrastructure



Equip you with knowledge about how to access technical assistance for integrating green infrastructure into infrastructure funding applications



Answer your questions about the benefits of using green infrastructure to manage stormwater

AGENDA

- Meet Today's Speakers
- Audience Polls
- Community Case Studies & Moderated Discussion
- Audience Q&A
- Technical Assistance Opportunities





Claire MaulhardtStormwater Utility Director
Capital Region Water, PA



Angela BrackbillStormwater Program Manager
City of Lancaster, PA



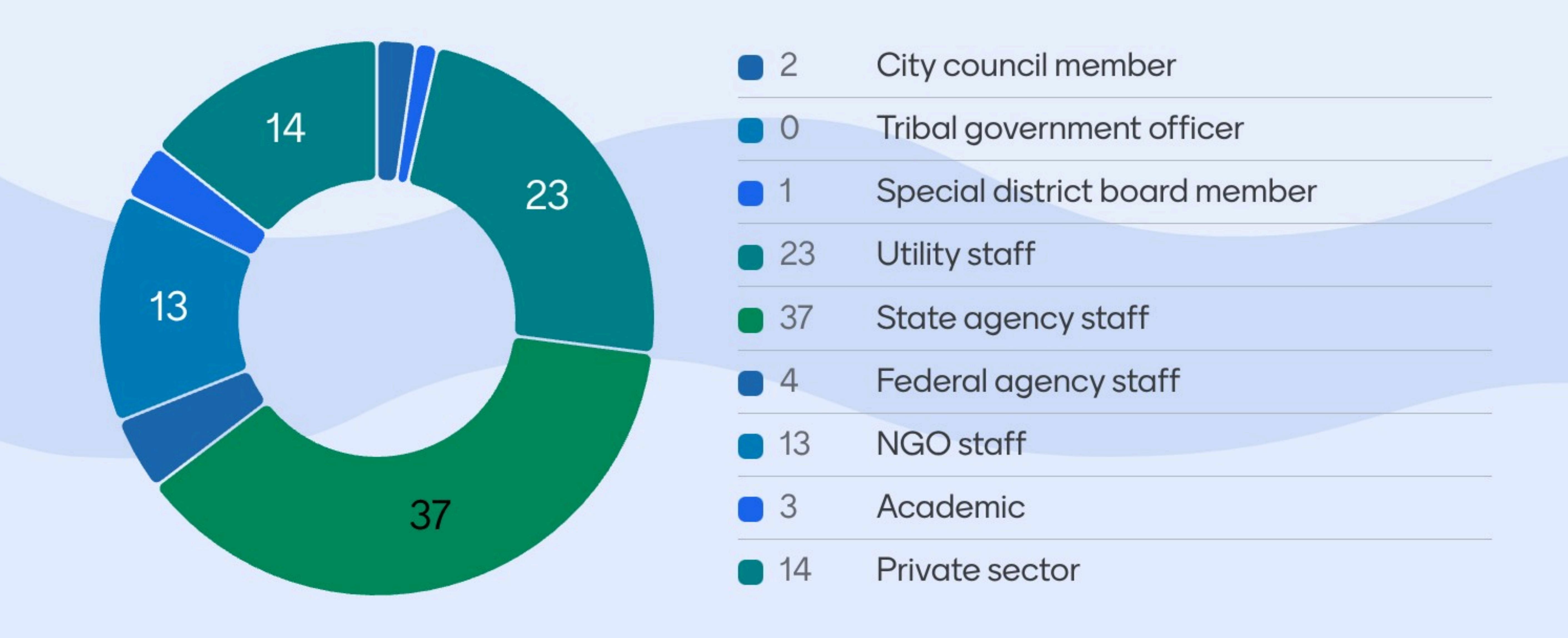


Matthew WilsonWater Resources Project Manager
Caledon, ON

Time for audience polls!

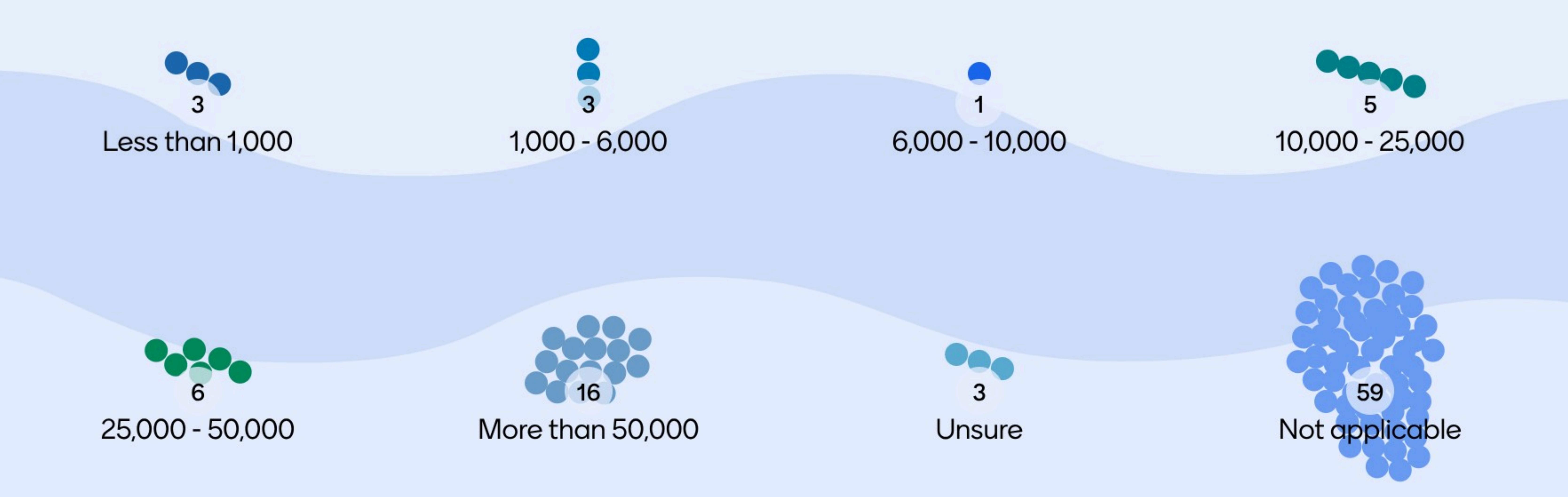


Who's in the room?





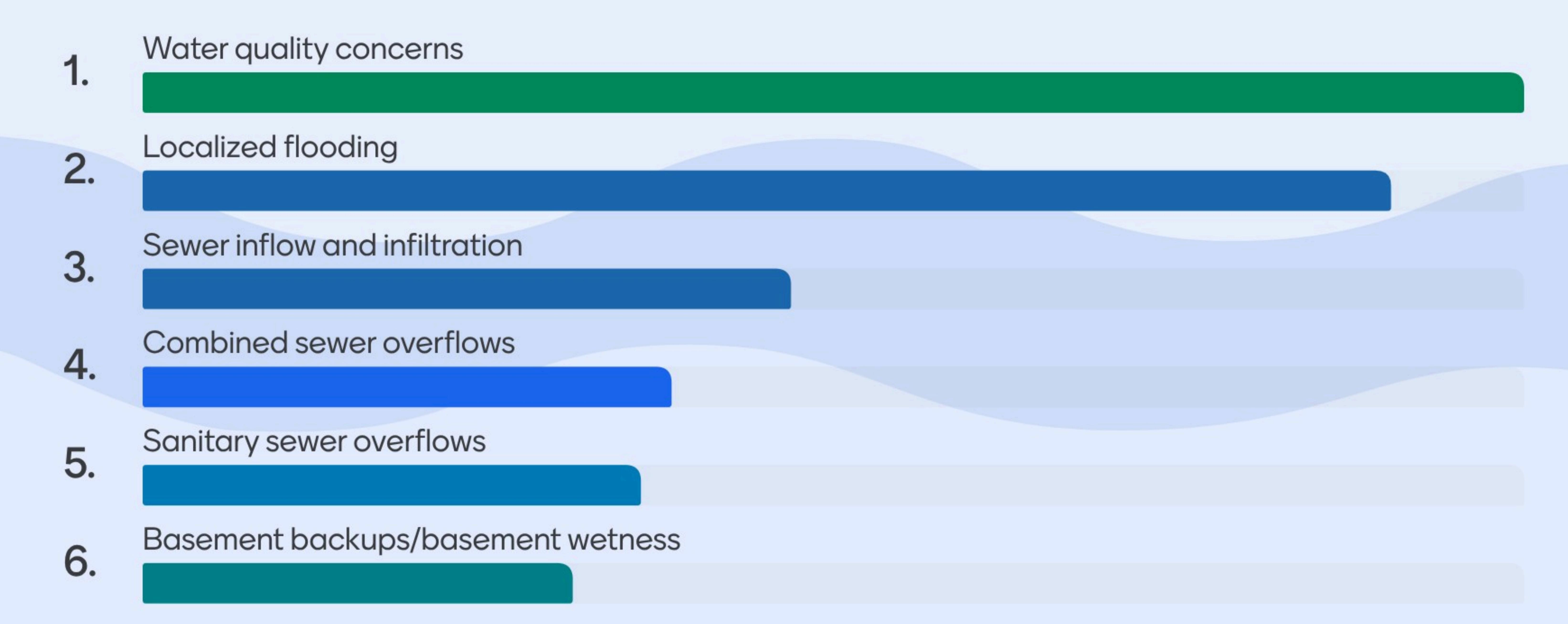
How many customers does your utility serve?



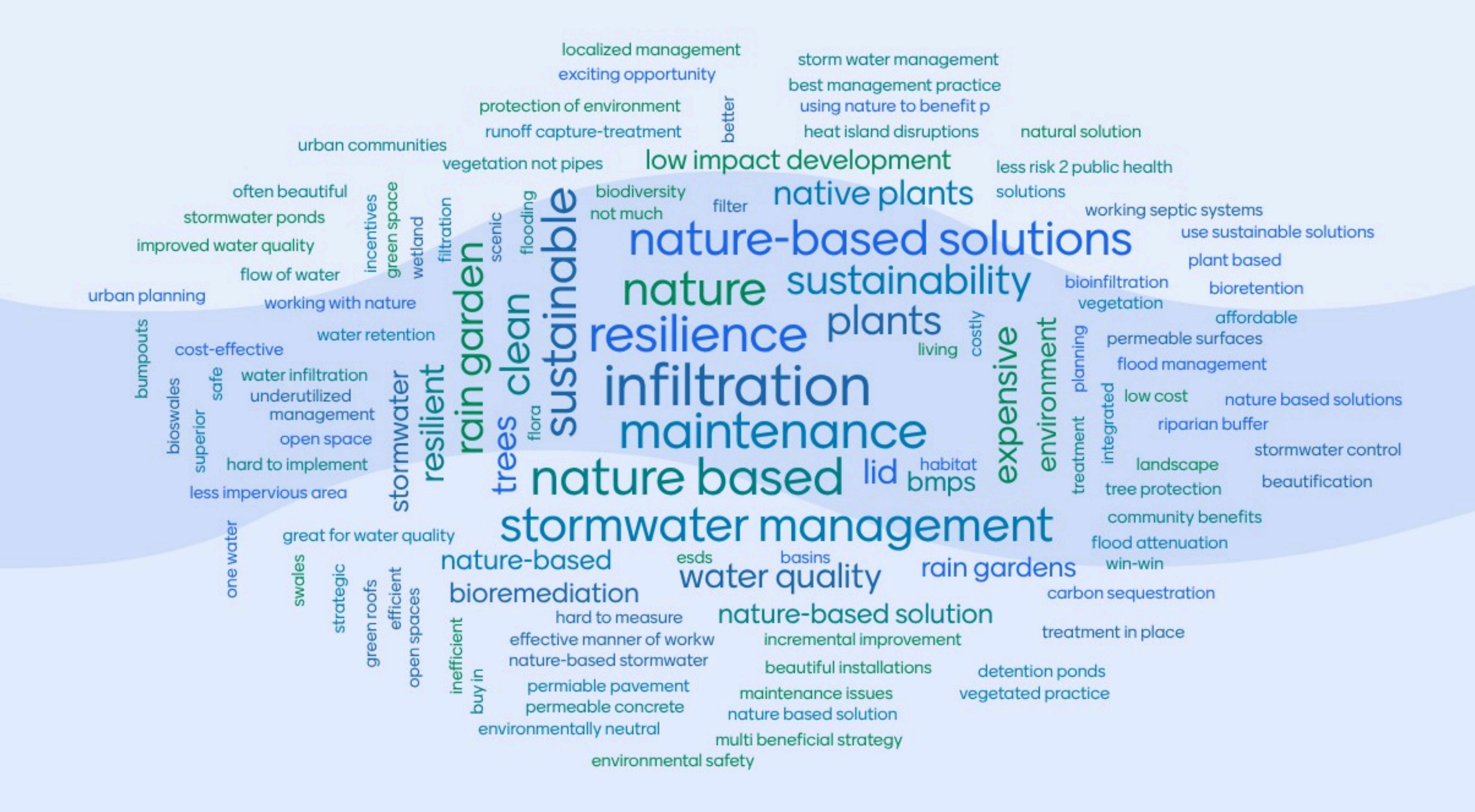


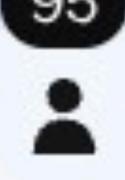


Rank the following challenges from most to least relevant in your community.



What do you think of when you hear "green infrastructure"?



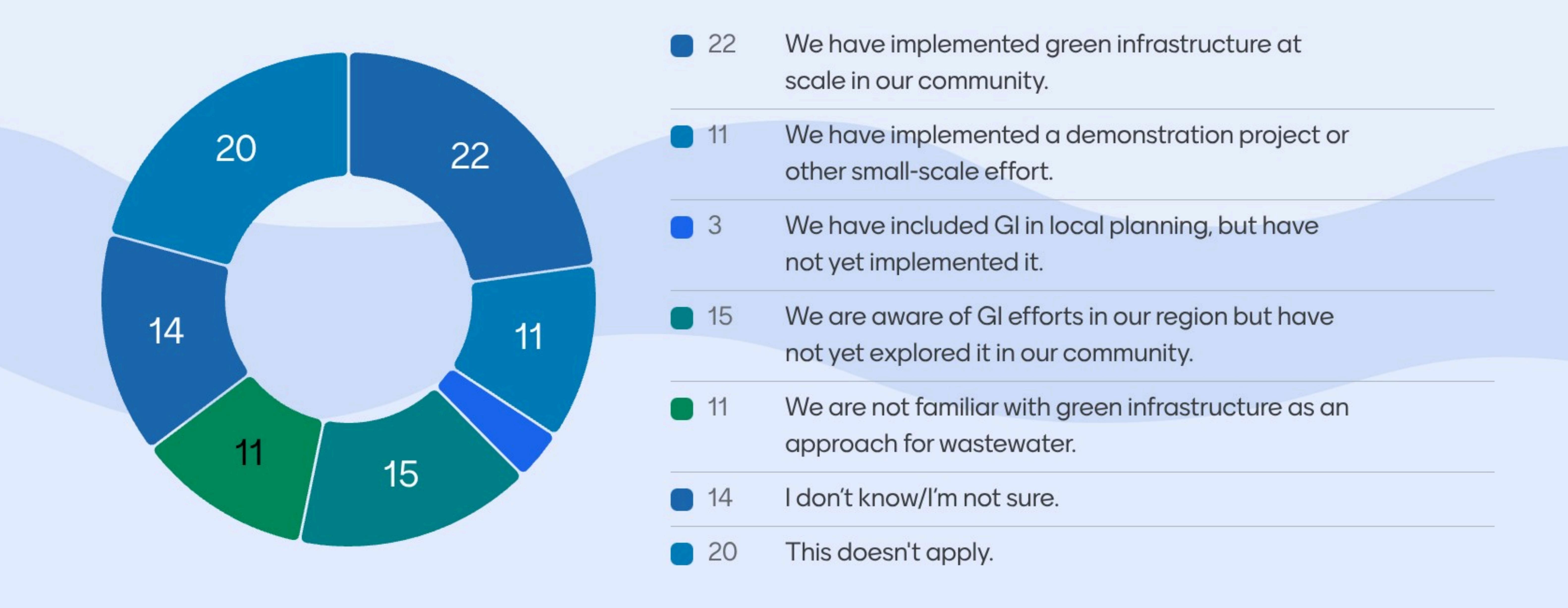


What is your community's level of familiarity with Green Infrastructure as an approach to manage or capture stormwater?



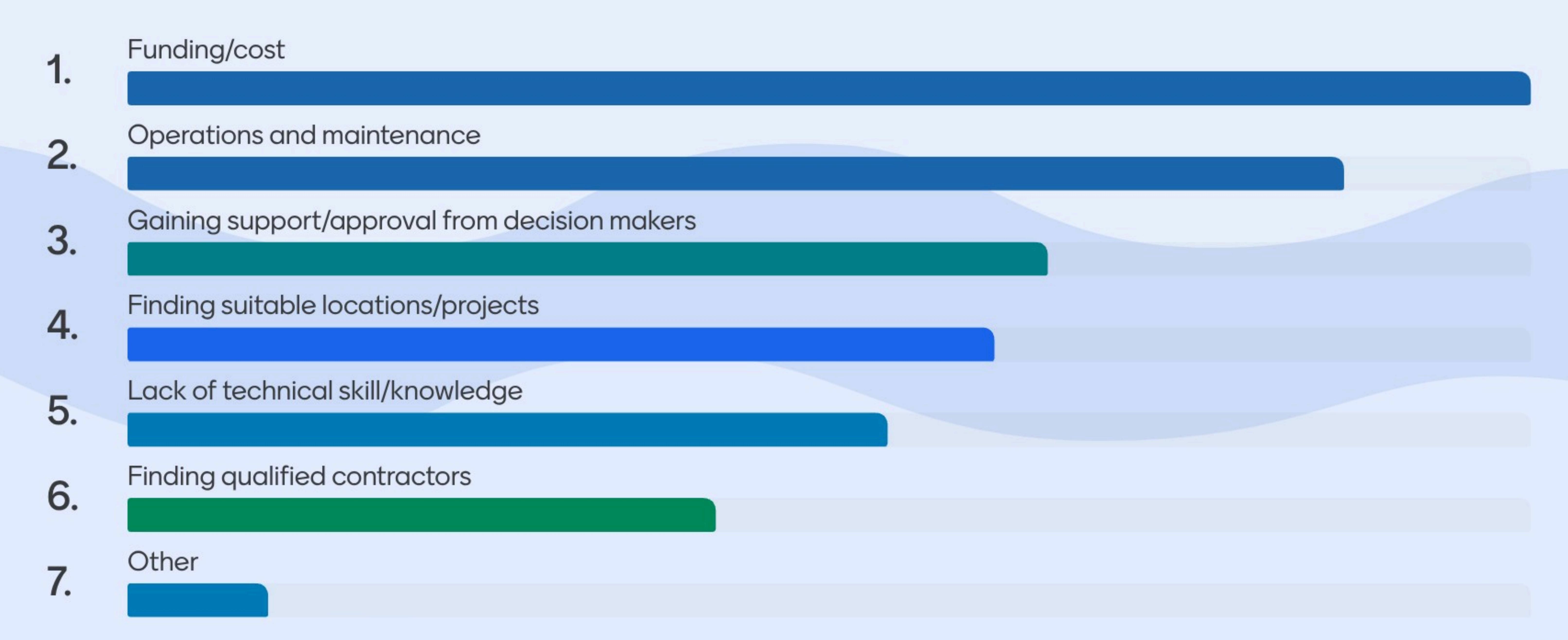


What is your community's level of familiarity with Green Infrastructure as a way to support its wastewater system?



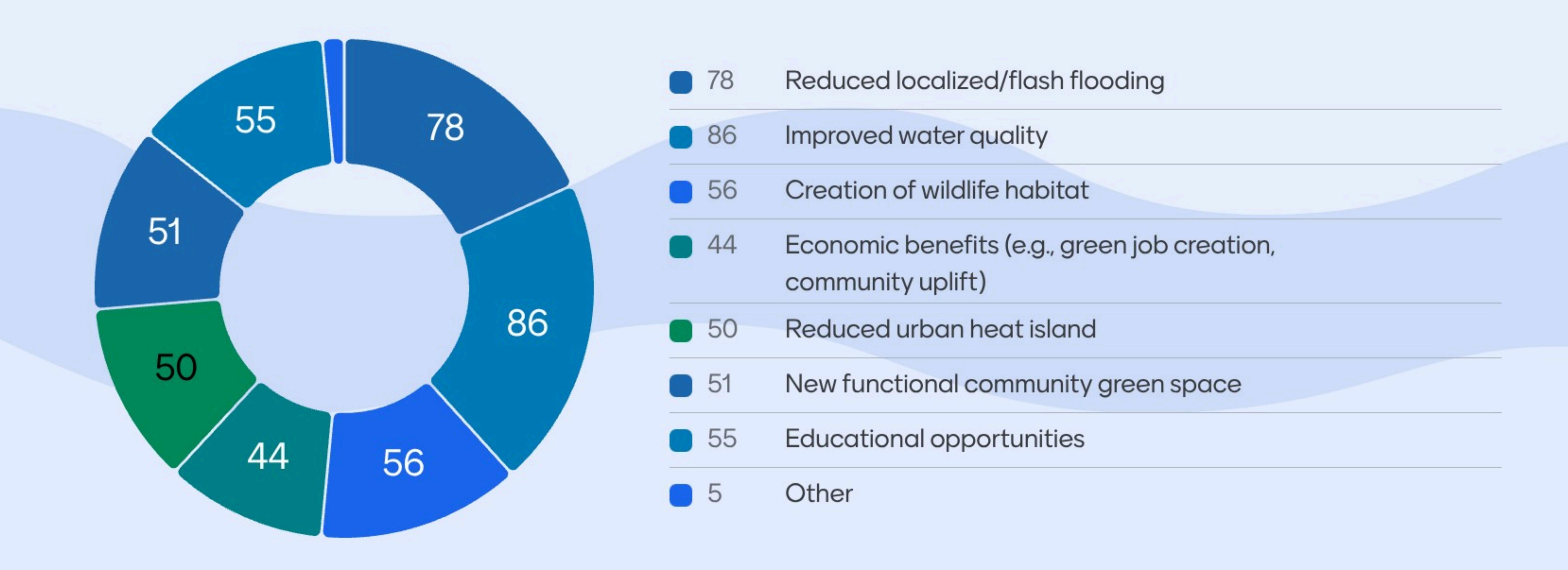


When it comes to green infrastructure, what have been your greatest challenges? (Rank from most challenging to least)





Which potential benefits of green infrastructure would be most desirable or impactful in your community? (Select all that apply)



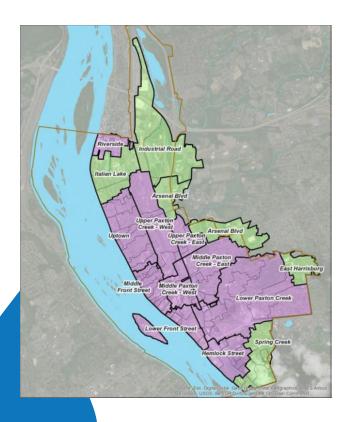


City Beautiful H20 Program Plan

Capital Region Water's Integrated Plan to Address
Community Resilience - Environmental Stewardship Regulatory Compliance

September 18, 2025





City of Harrisburg

- CRW uses both combined sewer system (CSS) and municipal separate sewer system (MSS) to capture and convey stormwater in Harrisburg.
- CRW's Advanced Wastewater Treatment Facility (AWTF) typically treats stormwater from CSS.
- During heavy storm events, flow volumes can exceed the capacity of CSS and/or the AWTF to treat the stormwater, resulting in combined sewer overflow (CSO) discharge into Paxton Creek and the Susquehanna River.
- In MS4 areas (in green), stormwater is discharged directly into the City's
 waterways. The MS4 system can also become inundated during storm
 events, leading to system surcharges, localized flooding, sediment pollution
 in waterways and bank erosion.



How did we get here?

U.S. Environmental
Protection Agency (EPA)
Clean Water Act
NPDES

City Beautiful H₂O

PROGRAM PLAN

Pennsylvania
Department of
Environmental
Protection (DEP)

Capital Region Water CSS & MS4



City Beautiful

A COMMUNITY-BASED CAMPAIGN FOR CLEAN WATER AND NEIGHBORHOOD IMPROVEMENTS

Then & Now

• The City Beautiful movement was an early 20th-century campaign that modernized, beautified, and cleaned up cities nationwide. In Harrisburg, the movement lasted from **1900 to 1930** and included significant improvements in sanitation, paving, and architecture.

 A key component of the movement in Harrisburg was the creation of parks for recreation and, of course, beauty. Riverfront and Wildwood parks are two examples that you can see today.

Now is a good time for every man, woman and child to make up their minds that they, too, will take a personal part in the effort to make our city a part of and not a contrast to the beautiful frame that surrounds it.

Mira Lloyd Dock
Harrisburg City Be autiful Movement Lea



Large-scale Combined Sewer System Projects

At a glance

Harrisburg is one of nearly 800 cities across the United States with a combined sewer system, which means, stormwater and wastewater are conveyed in the same pipes. During normal conditions, the mixture is transported to CRW's Advanced Wastewater Treatment Facility (AWTF) to be treated before clean water is released into the Susquehanna River. However, during heavy rain, pipes can become too full, and the untreated mixture sometimes overflows.

Key Performance Indicators



\$200M + Invested since 2013

Our goal is improved water quality and implementation of targeted, verified system improvements that will move us toward regulatory compliance, including during wet-weather events.

Maintenance is a key component in our effort to restore system capacity and reduce the negative impacts of unauth orized releases.

FRONT STREET INTERCEPTOR PROJECT



Cured-in-Place-Piping Rehabilitation

Status: Complete Timeline: 2022-2023

Scope: A durable liner will be installed to restore the integrity, functionality, and hydraulic capacity of the structurally compromised concrete interceptor, extending the 111-yearold pipe's lifespan by about 50 years while also improving its flow capture; reducing combined sewer overflows.

INTERSTATE 83 EXPANSION & STORM SEWER PROJECT



Storm Sewer Diversion Phase 1

Status: Construction Timeline: 2023-2025

Scope: A 48-inch sewer pipe will be relocated and replaced as part of the Pennsylvania Department of Transportation's widening of I-83 in the Harrisburg area. Pipe will be installed during the first phase of the project.

Storm Sewer Diversion Phase 2

Status: Design Timeline: 2031-2032

Scope: During the second phase of the project, the storm pipe diversion will be completed, in addition to the installation of surface-level detention improvements and water quality management measures.

PAXTON CREEK INTERCEPTOR



Sewer Restoration

Status: Design Timeline: 2027-2030

Scope: Rehabilitation work is necessary to repair the severely compromised concrete interceptor after inspection revealed visible defects throughout the 120-year-old structure. Lining, replacement, and/or other restoration work will restore the pipe's structural integrity and functionality.

PAXTON CREEK GREENWAY COLLAB.



Greenway Project Collaboration

Status: Evaluation & Design Timeline: 2027-2030

Scope: CRW is co-leading the charge to improve the Paxton Creek and surrounding greenway. By restoring the creek's ecosystem and reestablishing its natural function, various benefits will be realized - improved water quality, enhanced recreational opportunities, community connectivity and redevelopment, flood control and mitigation, and habitat restoration.

Conveyance & Collection System Projects

At a glance

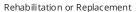
CRW maintains more than 134 miles of sewer pipe, including 3,000 manholes, in the City of Harrisburg. Our AWTF also treats sewage from Steelton, Paxtang, and Penbrook boroughs, as well as Susquehanna Township, and portions of Lower Paxton and Swatara townships.





4,000 stormdrains

SPRING CREEK PUMP STATION & INTERCEPTOR



Status: Planning & Design Timeline: 2023-2030

Scope: The pump station will be rehabilitated or replaced to increase its capacity to handle larger flow volumes. Enhancements also will be made to maximize flow from the station to CRW's AWTF.

PRIMARY CLARIFIER IMPROVEMENTS

Equipment Replacement & Upgrades

Status: Planning & Design Timeline: 2023-2024

Scope: Structural rehabilitation work and equipment replacement

will enhance the AWTF's primary clarifier.

NMC 6 PROJECT

Collection System Improvements

Status: Ongoing Timeline: Through 2030

Scope: Storm inlets and catch basins will be modified and rehabilitated to improve control of solids and floatable materials in the CRW collection system.

ASSET MANAGEMENT

 $System\ Inspection\ \&\ Assessment$

Status: Ongoing

Timeline: 2023-2032 (Three phases)
Scope: Pipes and other infrastructure will

be inspected and assessed to find deficiencies and to address growing challenges in CRW's aging system. In the system, inspections will be conducted by

video, and assessment of the footage will

help to identify problem areas and to prioritize improvement projects.

CONTINUED ENHANCEMENTS TO AWTF

Ongoing Improvements

Status: Ongoing Timeline: 2022-2032

Scope: Numerous upgrades are planned to improve operations at CRW's AWTF over the

next decade.

Green Infrastructure Projects



INFRASTRUCTURE IMPROVEMENTS



Camp Curtin YMCA GSI & Bellevue Park Pond Retro-fit

Status: Complete Timeline: 2021-2022 Acres Managed: 21

Scope: Visible green infrastructure will be installed to manage stormwater runoff and prevent it from entering the combined sewer, reducing overflows and improving the health of local waterways while also beautifying surrounding neighborhoods.

Pennyest Pro-fi Phase 4

Status: Complete Timeline: 2022-2024 Acres Managed: 21

Scope: A combination of GSI and storm sewer upgrades will be employed to manage stormwater runoff into the combined sewer to control wet weather and reduce overflows in targeted areas where existing controls have been less effective.

Pennvest Pro-fi Phase 5

Status: Construction Timeline: 2023-2025 Acres Managed: 9

Scope: Work will continue to manage wet-weather runoff in targeted priority areas — Lower Front Street,

Lower Paxton Creek and Uptown.

ADDITIONAL IMPROVEMENTS



Systemwide GSI Projects

Status: Planning and Design Timeline: Through 2032 Acres Managed: 50

Scope: Additional systemwide GSI projects will be planned to Improve the health of local waterways, reduce combined sewer overflows, and beautify surrounding neighborhoods.



Key Performance Indicators



100 ACRES Managed Run-off

Managed Run-o

Our decentralized approach enhances the economic and social health of the community by implementing projects that account for and offset acres of stormwater runoff, lessening the flow to our combined sewer pipes.



GREEN & GREY IN ACTION!



Trees, gardens, and other technologies are designed to help reduce stormwater runoff by absorbing or storing it for slow release. The vegetation and soil also act like a filter, trapping oils, heavy metals, dirt/road grime, and trash - preventing it from entering our waterways.



GRADIENT RATE OF INFILTRATION:

Green infrastructure mimics nature and captures rainwater where it falls. What natural features absorbs the most rainwater?





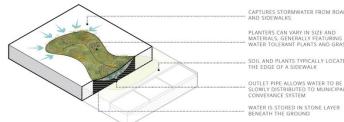




Wetlands/ Rain Gardens



STORMWATER RAIN GARDEN



CAPTURES STORMWATER FROM ROADS AND SIDEWALKS

PLANTERS CAN VARY IN SIZE AND MATERIALS, GENERALLY FEATURING WATER TOLERANT PLANTS AND GRASSES

SOIL AND PLANTS TYPICALLY LOCATED AT THE EDGE OF A SIDEWALK

SLOWLY DISTRIBUTED TO MUNICIPAL CONVEYANCE SYSTEM WATER IS STORED IN STONE LAYER

SOCIAL BENEFITS

- ENGAGE THE COMMUNITY
- IMPROVE PUBLIC HEALTH
- REDUCE HEAT
- ENHANCE RECREATION

ENVIRONMENTAL BENEFITS

- IMPROVE WATER QUALITY
- RESTORE ECOSYSTEMS
- IMPROVE AIR QUALITY
- SAVE ENERGY

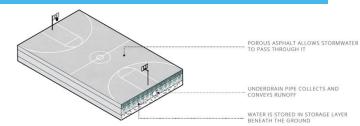
ECONOMIC BENEFITS

- SPUR PRIVATE INVESTMENT
- CREATE JOBS
- REVITALIZE NEIGHBORHOODS





POROUS BASKETBALL COURT



SOCIAL BENEFITS

- ENGAGE THE COMMUNITY
- IMPROVE PUBLIC HEALTH REDUCE HEAT
- ENHANCE RECREATION

ENVIRONMENTAL BENEFITS

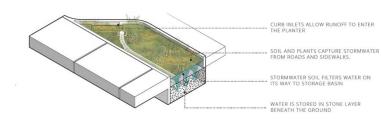
- IMPROVE WATER QUALITY RESTORE ECOSYSTEMS
- IMPROVE AIR QUALITY
- SAVE ENERGY

ECONOMIC BENEFITS

SPUR PRIVATE INVESTMENT

- CREATE JOBS
- REVITALIZE NEIGHBORHOODS

STORMWATER BUMPOUT



ENGAGE THE COMMUNITY

SOCIAL BENEFITS

- IMPROVE PUBLIC HEALTH REDUCE HEAT
- ENHANCE RECREATION

ENVIRONMENTAL BENEFITS

- IMPROVE WATER QUALITY
- RESTORE ECOSYSTEMS
- IMPROVE AIR QUALITY SAVE ENERGY

ECONOMIC BENEFITS

- SPUR PRIVATE INVESTMENT
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- REVITALIZE NEIGHBORHOODS













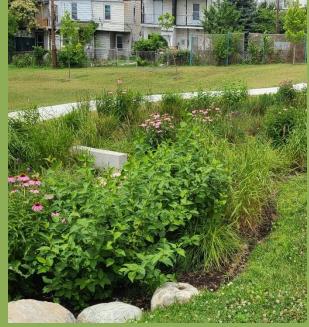


NEIGHBORHOOD BEAUTIFICATION
Summit Terrace GSI











COLLABORATIVE ECONOMIC IMPACTS
City Parks Revitalization





LEVERAGING LARGE INFRASTRUCTURE PennDOT Projects





EDUCATIONAL HUB
Camp Curtin
YMCA GSI





HISTORIC PRESERVATION Bellevue Park SW Ponds Retrofit



EQUITABLE RESILIENT COMMUNITY Boys & Girls Club GSI



Lancaster City's Green Infrastructure Overview

2025 RST WEBINAR, WATER NOW SEPTEMBER 18, 2025





Introduction

Angela Brackbill

Stormwater Program Manager

Department of Public Works





The City of Lancaster: Overview

- Environmental Justice Community
- Incorporated in 1742 as a borough and in 1818 as a City
- ~60,000 residents in the 2020 census
- 7.34 square miles
- Historic building stock (median home age of 100 years)
- Served as the temporary National Capital during the Revolution
- Surrounded by some of the most productive non-irrigated farmland in the U.S.

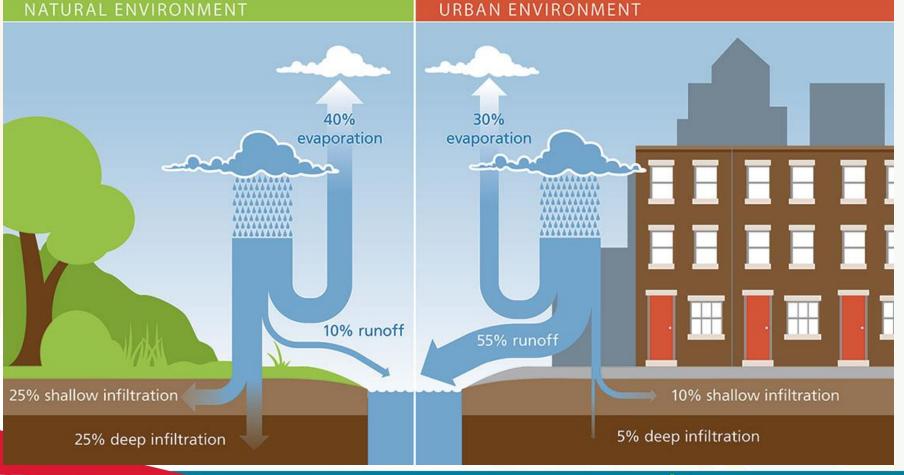








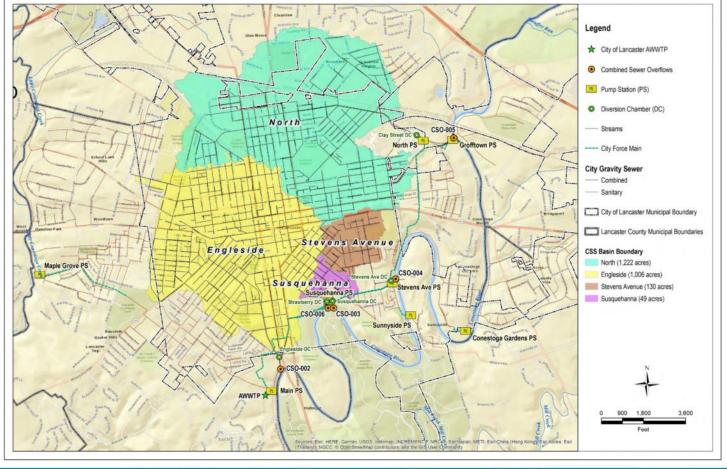








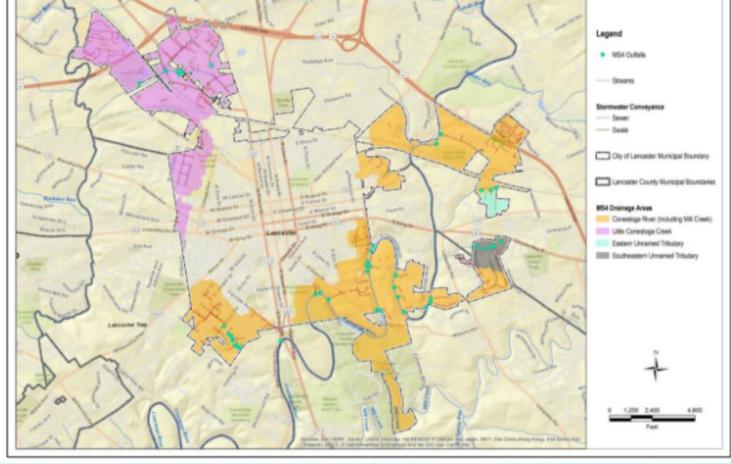
Lancaster's Combined Sewer Systems







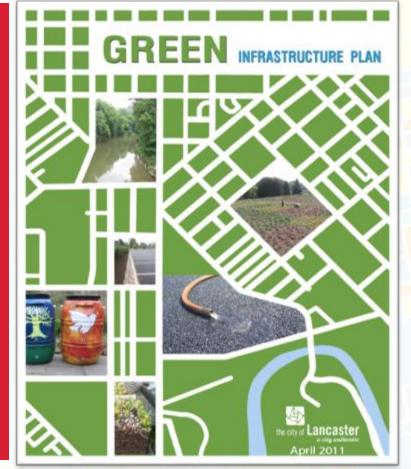
Lancaster's Separate Sewer Systems







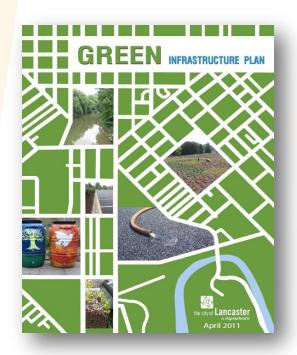
LANCASTER'S 2011 GREEN INFRASTRUCTURE PLAN







2011 Green Infrastructure Plan



Mission

To provide more livable, sustainable neighborhoods for City residents and reduce combined sewer overflows and nutrient loads.

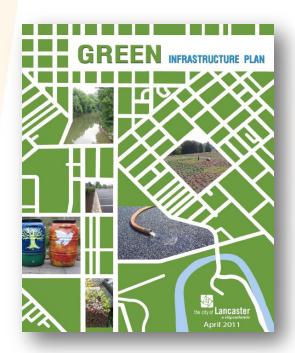
Goals

- 1. Reduce runoff and improve water quality in receiving waters
- Reduce CSOs by linking clean water solutions & community improvements
- 3. Implement a comprehensive demonstration program
- 4. Implement policy actions
- 5. Conduct extensive partnering and outreach
- 6. Develop technical tools/studies





2011 Green Infrastructure Plan



Key Plan Recommendations

- 1. Implement a comprehensive demonstration program
 - a) Review existing CIPs
 - b) GI Funding for Private
- 2. Implement policy actions
 - a) Revise details and specs
 - b) Revise Stormwater Ordinance for Redevelopment
 - c) Stormwater Utility
- 3. Conduct extensive partnering and outreach
- 4. Develop technical tools/studies to support GI
 - a) Models / Project Tracking, etc.





Integrating GI





site-specific concepts

"area-wide disconnection"

CIP for park improvements

education opportunities



streets

reconstruction

2-way conversion

water/sewer

paving plan



other ROW

trees

alleys

sidewalks

SW easements



private property

incentives

regulatory

tree program

parking lots













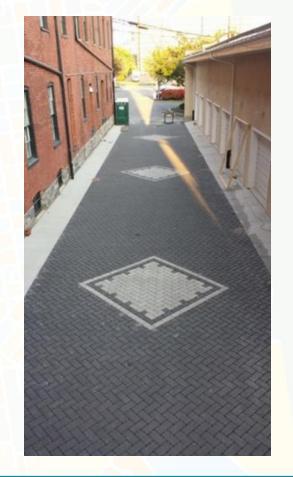


























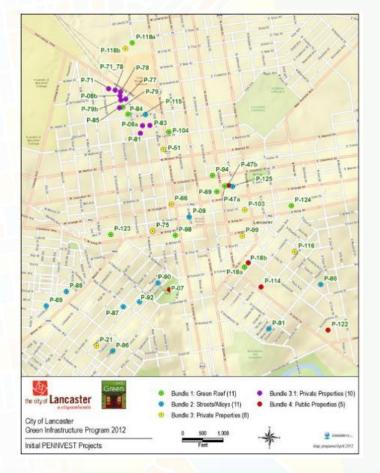






Early Funding Strategies

- \$7M SRF PENNVEST Loan to fund implementation of GI on public & private property
- Public-Private Partnerships enables private investments in CWA progress
- 45 initial GI/BMP sites
- City pays up to 90% of GI Costs
- Property owner pays remainder and signs on to long-term maintenance agreement
- SW Utility implementation also motivating additional private investment in CWA controls



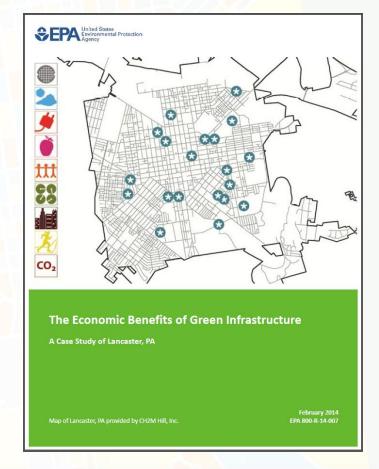




Triple Bottom Line Benefits

2014 EPA report estimates the following benefits of implementing the GI Plan:

- \$4.2 million/year in energy, air quality, and climate-related benefits
- \$660,000 annually in reduced wastewater pumping and treatment costs (at current costs)
- \$120 million in avoided gray infrastructure (e.g., tanks, tunnels)
- For a GI investment of \$80 \$140 million (depending on level of integration)







LANCASTER'S 2019 UPDATED GI PLAN



Green It! Lancaster



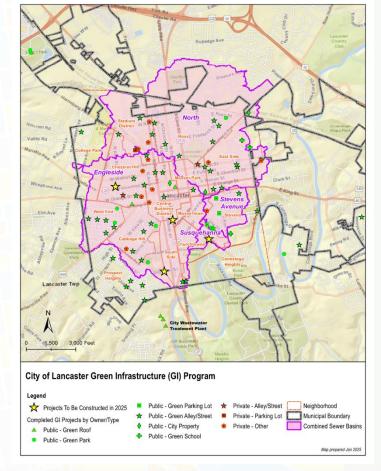




Green Infrastructure Program Accomplishments

2010 - 2024

- 83 projects implemented
- 82 acres impervious area managed
- 66 million gal/yr total estimated annual runoff capture volume
- Other significant metrics to demonstrate the impact that the GI Program has had since 1st GI Plan was published in 2011

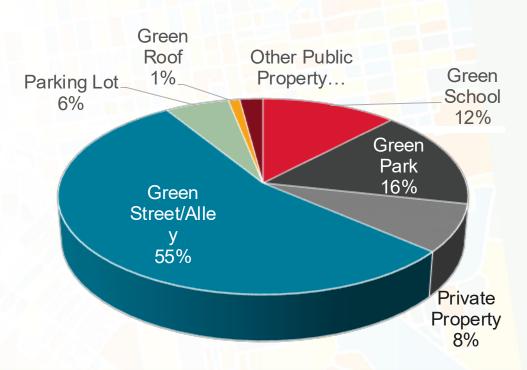






GI Program 2010 - 2024

- Green Streets comprise largest portion of annual runoff volume capture
- Green Streets and Green Parks provided highest cost efficiency
- Variety of GI technologies







How We Pay For It All

- Clean Water State Revolving Funds/PennVest
- PennDOT Liquid Fuels Program
- PennDOT Automated Red Light Enforcement (ARLE) Program
- Smart Growth Transportation Program (SGT), Lancaster County MPO
- PA DEP Growing Greener
- PA DCNR Dirt and Gravel Roads Maintenance Program
- National Fish and Wildlife Foundation Chesapeake Bay Trust Green Streets Green Jobs Green Towns
- Susquehanna River Basin Commission
- Stormwater Utility implemented in 2014 to provide a Dedicated Funding Source
 - Equity: fees are determined based on amount of impervious area All properties pay;
 - Reduces reliance on general fund;
 - Stable and reliable funding source
 - Credits can be provided for a property's on-site treatment of impervious area.





GI Maintenance









Featured Project:

The Wetlands at Long's Park

- 2025 BUBBA Grand Prize Winner
- 2025 Governor's Award for Environmental Excellence
- 2024 Diamond Award for Engineering Excellence, Jacobs
- 2024 Excellence in Construction Award, Flyway Excavating











The Wetlands at Long's Park





DEPT. OF PUBLIC WORKS, SUSTAINABILITY & ENVIRONMENT DIVISION

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717.239.9296







WaterNow Alliance National Training #6 Green Infrastructure for Small Systems: Exploring Real World Examples

Town of Caledon, Ontario
Community case study
Sept 18 / 2025

Agenda

- Caledon background and context
- Guiding principles for GI in Rapidly developing Rural Communities
- How Caledon's stormwater / GSI program works
- Real World Examples
- Successes and Lessons learned



Caledon - Context

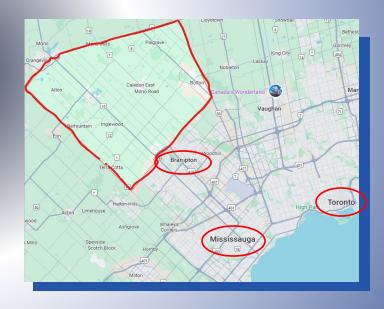
The town of Caledon has a geographic area of 688 km². Caledon is the northernmost of the three municipalities (Brampton, Mississauga) in the Greater Toronto Area of Ontario, Canada. Caledon is primarily rural in character with several hamlets and small villages but also contains the larger community of Bolton.

Development Pressures

Spillover urbanization is currently accelerating along the border shared with Brampton, as Caledon is poised to become one of Ontario's fastest growing communities with a projected population of 300,000 and 125,000 jobs by 2051.

Greenbelt

Over 75% of the geographic area of Caledon is protected by the Provinces Greater Golden Horseshoe Greenbelt Plan.



Caledon – Planning

The Town of Caledon is proud of its approach to land use planning and climate change. Environmental leadership is one of the pillars identified in Caledon's Strategic Plan (2023-2035).

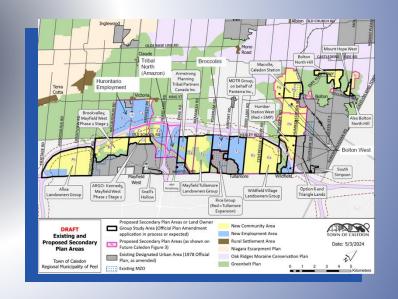


New Official Plan

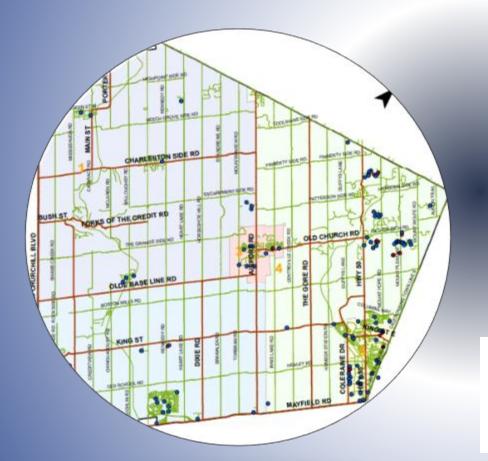
The new official plan guides urban growth in alignment with provincial objectives and community-driven priorities

Local Subwatershed Studies

For each (over a dozen) advancing secondary plan, a local subwatershed study must be completed to confirm and refine the natural heritage and water resource systems management approach



Caledon – Stormwater



The Town operates and maintains 144 SWM facilities including (dry ponds, wet ponds, wetlands, online detention, Infiltration Ponds, infiltration basins, Dry kettles, OGS units, natural ponds).

A SW MP update (2026) will examine:

- A sustainable funding strategy for SWM
- Updates to policies, guidelines
- Updated hydrologic and hydraulic models, and
- A comprehensive SWM strategy for the 2051 planning horizon (including GSI)

Legend

- Manufactured Treatment Device
- Stormwater Management Pond
- Regional Road
 - Town Road

GI on Agricultural Lands

Typical Practices

- Bioswales
- Filter strips
- Hedgerows
- Riparian zones
- Tree canopy expansion
- Support for farmers engaged in stewardship activities



GSI - Rural Roads

Deep and Narrow

Shallow and Wide

Swale with vegetation and a subsurface component

Ditches



Swales



Bioswales



O

Conveys water well (low retention), some water quality benefit

Moderate retention (infiltration) of water and water quality benefit

High Retention, high water quality benefit

Drainage System Improvementsin the Hamlet of Cataract

GSI is often reserved for the urban fabric but what role does it play along rural roads?

Traditional Consulting Proposal

Replacement of all driveway culverts with a larger diameter

Clean out and regrade existing ditches alongside rural roads

Upsize the study area outlet to the Credit River

Assess slope stability of the valley wall that receives additional stormwater runoff

Cost for design: approx. \$155,000

Innovative Consulting Proposal

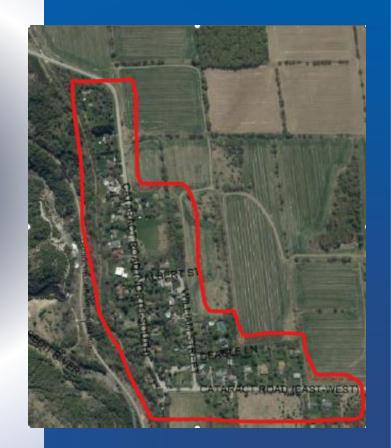
Augment depression storage found within the landscape?

Includes bioswales, enhanced grassed swales and infiltration facilities

Objective: reduce the amount of stormwater runoff directed to the outlet and Credit River

Cost for design: approx. \$375,000

Save on outlet upgrades, slope stability work and stream rehabilitation?



Palgrave Estates



- Many rural areas experience estate developments, particularly if near to urban centers
- This example includes three small wetland features that mitigate the impact of the development while blending into the natural setting
- The small-scale controls mimic the natural hydrology modelled in the watershed study and augment the water quality performance of the vegetated drainage path
- Due to the planting, these facilities resemble the natural wetland pockets prevalent in the area



Palgrave Estates



 The road was designed with three low points, consistent with the natural topography

- The wetland pockets are adjacent to the road at the low points
- The design encourages infiltration and rechanges the local streams, wetlands and aquifers



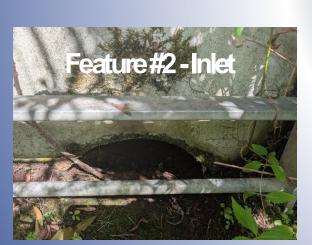


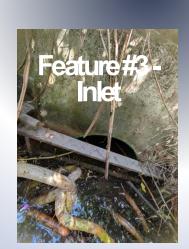




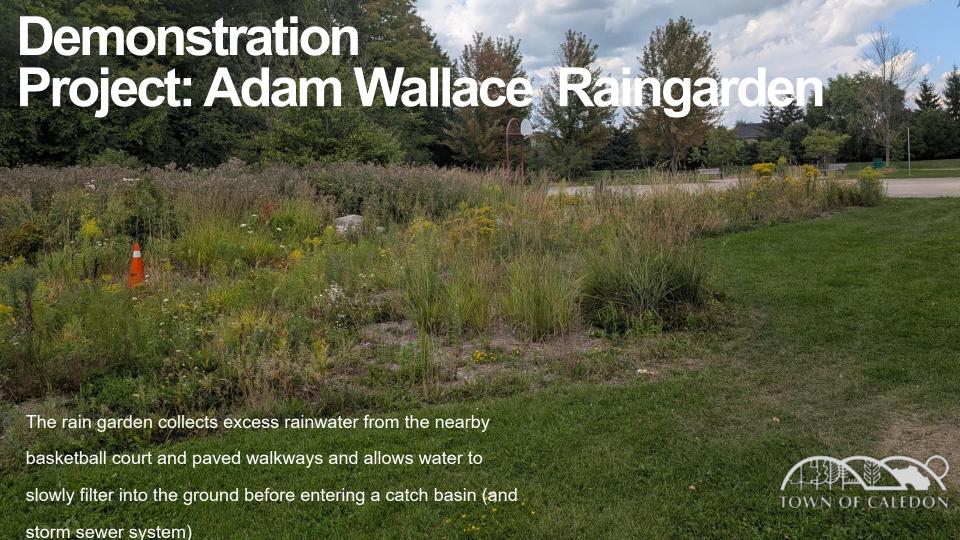


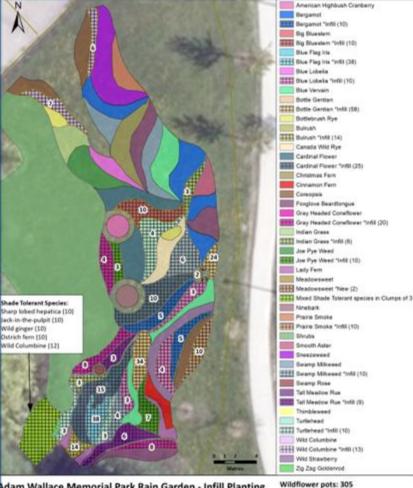












Adam Wallace Memorial Park Rain Garden - Infill Planting 28 Cedargrove Rd, Caledon

completed from a service of section of dates. The TECL takes no expossibility for among at sensence in the Complete of the Com

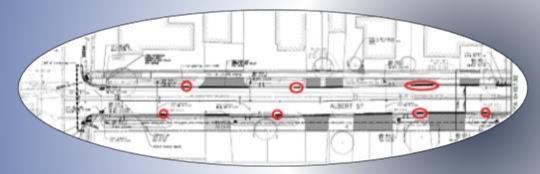
Sec. 2 Secrete and Region Conservation Advanty Day 274/2023 Greated by Mysteration and Infraging Original Media Library

PLANTING PLAN

Native wildflowers and shrubs were planted to provide habitat for pollinators like bees, butterflies, and other beneficial insects.



Lessons Learned: Roadside Swale Fail on Albert Street



The curb cuts weren't installed - only the concrete spillways. The spillways do bring some water in but were intended for overflow back to the road during large storms





Success Story: McCardy Court Bioswale

The bioswale was installed in 2011. It treats approximately 2ha (5 ac) of impervious area (residential townhome and roads)

Compliance did not rely on any of the benefits provided by the bioswale. All water quality, quantity and water balance targets are achieved though other means

Despite the reluctance of agencies to credit the feature toward SWM criteria in 2011, recent infiltration testing (2024) shows excellent performance

McCardy Court Bioswale - Design

- Stormwater enters the bioswale through curb depressions on both sides of the facility
- The bioswale uses special soil and a buried stone reservoir to help stormwater infiltrate into the ground promoting a more natural water cycle
- The vegetation and soil filter stormwater runoff to remove pollutants so cleaner water drains into Centreville Creek, a tributary of the Humber River.

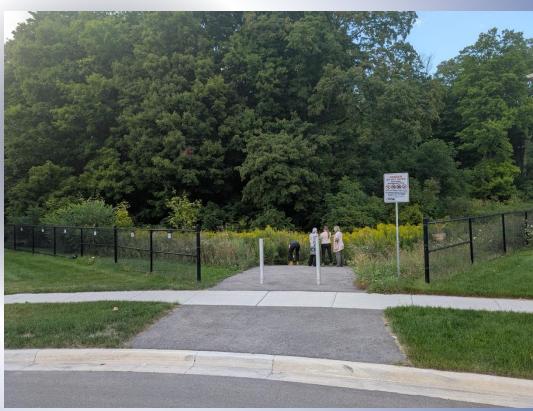






Caledon East Subdivision – Bioswales and Cultec Chambers







Stormwater strategy

- Infiltration of chlorides was recommended to be avoided. To achieve water balance objectives for the proposed development the bioswales intercept and infiltrate clean runoff from undeveloped areas (57.6 ha) external to the site
- Overflow from the bioswales spills to DICBs and storm sewers that convey the overflow (up to the 100-year flows) to the SWM Pond
- Soakaway pits were also installed on most residential units. This involves collecting rainwater from roofs in underground pits filled with stone where the water can infiltrate into the soil

Questions?

Matt Wilson Senior PM, Water Resources Town of Caledon Matthew.Wilson@caledon.ca





developing o&m plans

no

Ways to generate recurring funds for them

Maintenance approaches

specific funding sources

Long term maintenance and costs.

Is there a good broadly applicable design resource for these project types?

Funding sources on the nation-wide level





Funding options if no stormwater fee/credit is in use yet

More about workforce development/contract professionals for GI in rural areas, specifically in the West

how GI can protect drinking water, including groundwater. program planning- not so much the actual projects, but how municipalities developed their programs and found support

How to convince city management and residents to support green infrastructure projects? Challenges implementing Gl in rural communities vs urban communities Maybe some case studiesfrom feasibility to design to construction.

Operation and maintenance procedures and planning





Regional perspective on GI

Developing a project concept from an idea in order to produce a competitive grant application

Are MS4 partners working to invest in equipment and maintenance over time together? Shared equipment, etc?

Are Gl implementations successful in drought-prone areas?

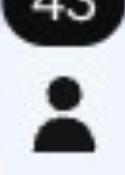
O&M Training

None

no

How you coordinate with other Munis (contracts, stormwater credits, etc)





Statistics on the impacts of the various BMPs, O&M plan development, lessons learned

training for landscape workers who maintain Gl

Application of Gl for climate resilience

How to sustain budget for GI maintenance - long-term maintenance of GI. Non governmental funding.

Getting buy-in for having staff specifically dedicated to GI maintenance

Post-implementation monitoring of GI infrastructure (GW recharge, infiltration, water quantity benefits) What techniques work best?
What are good funding sources
without consistent federal
leadership? Is it better for
cities/counties to perform
maintenance with full-time staff
or contracted experts?

How do you get citizens involved with GSI?



Funding options

How can communities under 5000 get assistance with comprehensive stormwater management plans that include GI?

Best pre-treatment option for surface inlets - riverstone or sediment pad? Is it better to have a CB fed or surface inlets to lid practices?

more effectively integrating Gl with other water/stormwater funding such as SRF

Continued funding, Gl & its relation to drinking water, Rural Gl options

how GI is handled from regulatory perspective for nutrient removal credit

project ideas

Tracking Systems,
Operations and
Maintenance agreements
for privately owned GI





Are there financing relationshlips between neighboring communities that value and invest in neighbor GI?

funding and design.

I'm ISI Envision ENV SP. I'd like to know if GI and ISI can be coordinating with each other.

A list of possible innovative approaches for applying GI in various settings.

project ideas and funding for the private homeowner or a neighborhood What about environmental impact bonds? How would a partnership for environmental impact bonds to support GI be built?

promoting working collaboratively across multiple adjacent properties (for private landowners)

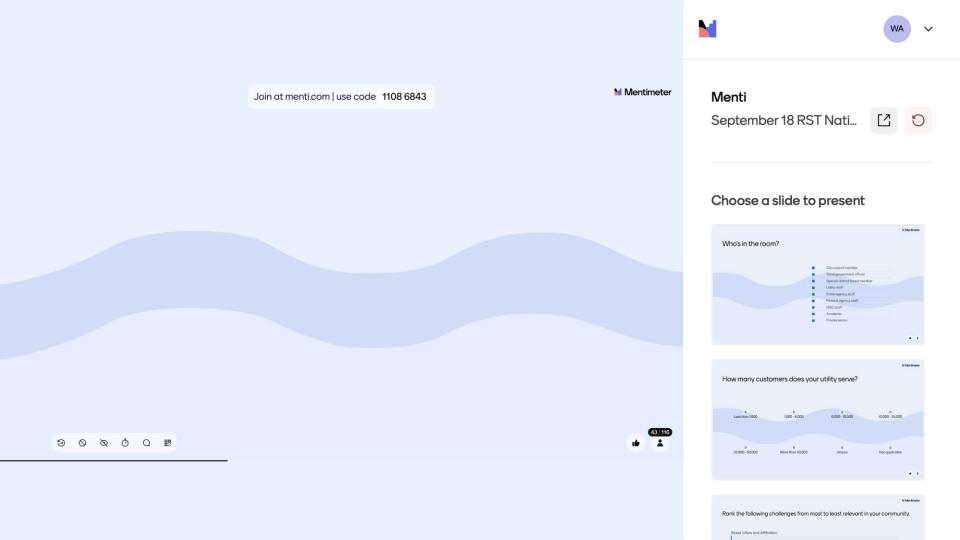
how to set it up.





More progression photos with specifics related to amount of water managed/treated.

How can we implement Gl into suburban areas as well as parking lots for commercial areas. Also, could Gl assist with flooding in coastal areas that are tidally influenced?



What support is available?

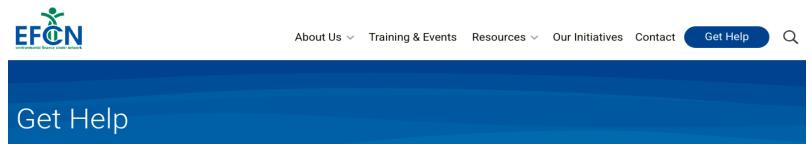
WaterNow can provide technical assistance for rural, small and tribal systems in a variety of ways:

- Support for planning and assessing system needs
- Building technical, financial, and managerial capacity
- Support for engaging the community to map challenges and assets
- Identifying funding and financing opportunities
- Navigating grant and loan application processes



Specialized Technical Assistance: Rural, Small, & Tribal Systems

- Pro bono support for wastewater and stormwater systems serving ≤10,000
- National scope utilities in all states and regions are eligible



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/

What to expect?

- Dedicated team of subject matter experts to help answer your questions
- **Step-by-step assistance** to help rural, small, and tribal water systems address storm and wastewater challenges
- Resources & guidance to ensure compliance with all applicable federal, state, and local regulations
- The technical assistance process includes:



Getting Started: Determine Project "Readiness"

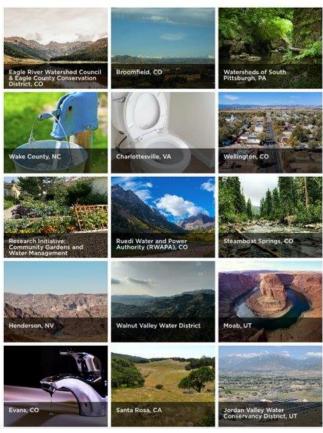
- What is the **primary purpose** of your project and what outcomes are expected?
- Where are you in the planning and design process?
- Have you selected an architectural or engineering firm?
- What is your project schedule?
- If planning to utilize a loan, what the project's sources of repayment?
- What is the total estimated project cost?



Project Accelerator Support

- 250 hours of pro bono technical assistance
- Over a 6-12 month period
- City/Agency identified project, driven by local priorities
- Jump start innovative water management initiatives

FEATURED PROJECTS



Technical Assistance: Accelerating Investments Sustainable Projects

Become a TiR Pilot Community

Ready to bring your localized water infrastructure strategies to scale? Become a TiR Pilot Community!

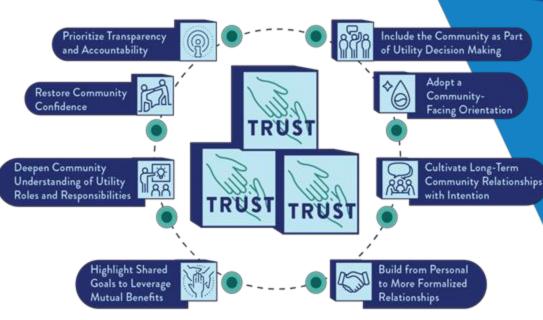
WaterNow and our TiR Experts are available to provide up to **300 hours of hands-on technical support** to cities and utilities interested in activating and scaling-up innovative water strategies in their communities to address water security challenges. TiR communities have access to legal, policy, finance, and accounting expertise over a **6-12 month period, free of charge**, to help them strategize the full scale financing of their particular localized infrastructure project.

Benefits include:

- Access to a team of financing, bond, tax, and accounting experts to identify and execute on financing options.
- Tailored research and analysis on using debt financing mechanisms to pay for localized infrastructure.
- Facilitation of stakeholder meetings to build consensus on localized infrastructure financing options.
- Support on developing bond packets, capital improvement plans, city council resolutions, ordinances, or other materials to advance full scale localized infrastructure financing.
- Guidance on best practices for communicating with customers about localized infrastructure.
- Become a national leader on sustainable water management.

To find out more about becoming a TiR Pilot Community fill out this short form, and WaterNow staff will be in touch.

Building Blocks of Trust: Best Practices for Authentic Partnerships & Community Engagement



Building Blocks of Trust Training Series

Based on the Building Blocks of Trust report, this online, self-paced training series covers the 8 "Foundations of Trust." Created to support community groups and water utilities in building strong relationships for clean and safe water, this training aims to uplift long-term partnerships with mutual benefits.

Sign Up Now







JOIN THE ALLIANCE

LEARN MORE AND SIGN UP



www.waternow.org/join-the-leaders







Please Complete the Post-Webinar Survey!

THANK YOU!



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Resources:

efcnetwork.org/ waternow.org tapin.waternow.org

