

U.S. EPA's Creating Resilient Water Utilities



Our Mission

- Provide water sector utilities with the practical tools, training, and technical assistance needed to increase resilience to climate risks
- Promote a clear understanding of complex climate science and potential long-term adaptation options
- Collaborate with utilities and partners to increase our reach and improve our support and resources

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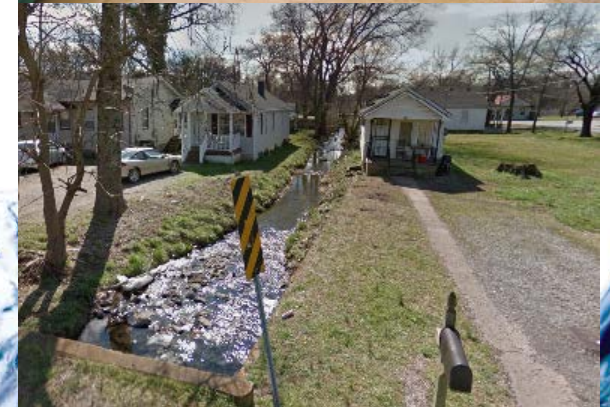
Utility Resilience Critical to Community Resilience

- Safe drinking water and clean water services are critical to public and environmental health
- Utilities are anchor institutions in their communities, providing critical services and leadership in climate resilience
- Available funding can accelerate the development of water infrastructure to bolster resilience and readiness to future climate impacts like extreme temperatures, precipitation, and natural disasters
- Effective preparedness and adaptation requires awareness and a clear understanding of climate science data and potential long-term adaptation options



CRWU - Tool Provision Accelerators

- EPA working with States and technical assistance providers to increase use of CRWU tools and resources in the Sector
- Efforts include training and leveraging networks to demonstrate value of using these resources to inform planning and support project funding decisions
- Increased application of resources builds a community of practice that can exchange their adaptation experience
- Experience informs other utilities planning projects, funding Agencies and their partners (like CRWU)



Resilient Strategies Guide

- Introduction to adaptation planning for those with limited knowledge or experience
- Final report documents priorities, vulnerable assets, and relevant strategies to explore during adaptation planning
- Provides financing advice and best practices from other utilities

The screenshot displays the 'Strategies' section of the Resilient Strategies Guide web application. At the top, a progress bar shows six steps: Getting Started (checked), Priorities, Assets, Strategies (checked), Funding, and Done! Below this, the 'Getting Started' section is visible, followed by the 'Strategies' section. The 'Strategies' section includes a filter panel on the left, a list of 47 strategies in the center, and a summary panel on the right. The filter panel shows 'Relevance' with 'Related to your selected priorities (47)' selected, and 'Category' with 'Communications & Technology (2)', 'Ecosystem & Land Use (6)', and 'Modeling (6)'. The strategy list shows three items: 'Engage with community partners' (Communications & Technology), 'Implement proactive approach to community alerts' (Communications & Technology), and 'Acquire and manage ecosystems' (Ecosystem & Land Use). The summary panel shows 'State/Territory: National', 'Utility Type: Wastewater / Stormwater', 'Population Served: Small (less than 10,000)', and 'Priorities: 3 selected +'. Below the screenshot is the EPA logo and the title 'Report: Resilient Strategies Guide for Water Utilities'. The report text states: 'This report is provided to help identify and organize adaptation options of interest. Use the information documented in this report as a preliminary step in the process of planning and building resilience strategies. As you continue to monitor conditions and begin implementing resilience options, revisit the Resilient Strategies Guide and revise this report accordingly to inform future planning efforts.' Below the text is the 'Utility Information' section, which lists 'Utility Type: Wastewater / Stormwater' and 'State/Territory: National'.

Getting Started

The Resilient Strategies Guide introduces drinking water, wastewater, and stormwater utilities to the adaptation planning process. Utilities can use the Guide to identify their planning priorities, vulnerable assets, potential adaptation strategies, and information you provide to adapt to climate change. When completed, the Guide provides a comprehensive assessment (CREAT).

Strategies

Select your strategies in this section. Use the filters on the left to narrow the strategies.

47 strategies found [Clear all selections](#)

Filter:

Relevance

- Related to your selected priorities (47)
- Related to all priorities (130)

Category

- Communications & Technology (2)
- Ecosystem & Land Use (6)
- Modeling (6)

Engage with community partners
\$ • Communications & Technology [More Info +](#)

Implement proactive approach to community alerts
\$ • Communications & Technology [More Info +](#)

Acquire and manage ecosystems
\$\$\$ • Ecosystem & Land Use [More Info +](#)

Summary

State/Territory: National

Utility Type: Wastewater / Stormwater

Population Served: Small (less than 10,000)

Priorities 3 selected +

EPA United States Environmental Protection Agency

Report: Resilient Strategies Guide for Water Utilities

This report is provided to help identify and organize adaptation options of interest. Use the information documented in this report as a preliminary step in the process of planning and building resilience strategies. As you continue to monitor conditions and begin implementing resilience options, revisit the Resilient Strategies Guide and revise this report accordingly to inform future planning efforts.

Utility Information

Utility Type: Wastewater / Stormwater
State/Territory: National

CRWU Data Services

- Access to decision-relevant climate data is a critical capacity gap for many water systems
- Understanding the applicability of available data often requires translation and context for making design and operational decisions as part of resilience planning
- Leveraging published data sets from Federal agencies and academic groups, and the experiences of our partners using these data, CRWU provides access to these data focused on water sector needs

The screenshot displays the CRWU Data Services website interface. At the top, there is a dark navigation bar with four tabs: 'Home', 'Index' (which is highlighted with a blue underline), 'Guide', and 'More Info'. Below the navigation bar, the main content area is organized into several sections, each with a title and a list of data services. Each service entry includes a representative image, a title, and a short description.

Climate Projections

- Average Annual Temperature**
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- Average Annual Precipitation**
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Flooding

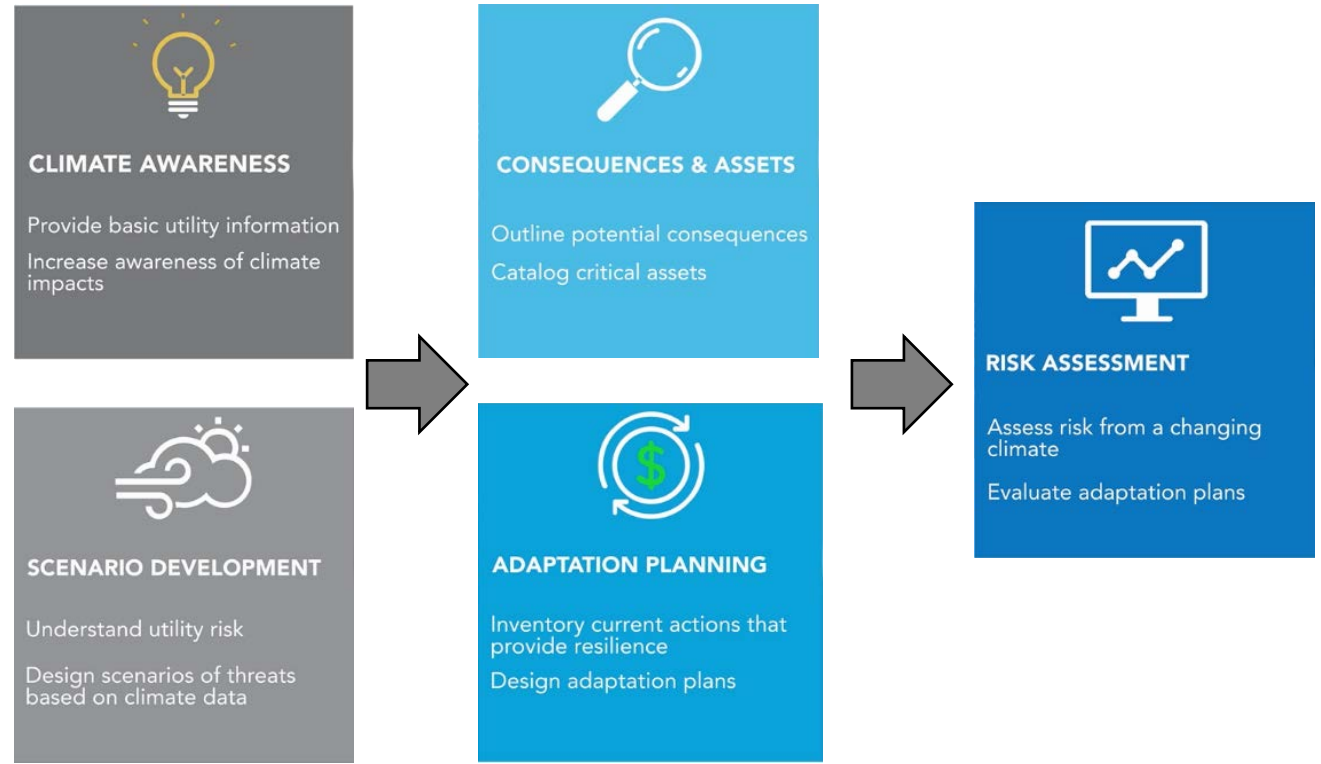
- Extreme Precipitation**
Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua.
- Hurricane Frequency**
Number of hurricanes that have struck locations along the Eastern seaboard in the past ___ years.
- Storm Surge Flooding**
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- Sea Level Rise**
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Drought, Heat, & Fire

- Extreme Heat**
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- Drought Intensity**
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- Wildfire Trends**
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Climate Risk Assessments

- Module-based process
- Presents available climate data in multiple scenarios
- Process prioritizes the threats posed by climate conditions and the values of specific utility components to the utility and their community
- Results can help evaluate current levels of risk and performance
- Technical assistance provides a basis for further exploration of the potential to reduce risk through adaptation



EPA
WATER AND WASTEWATER PLANNING FOR RESILIENCE
MARYLAND—The Cities of Cambridge and Crisfield and the Town of Chesapeake Beach

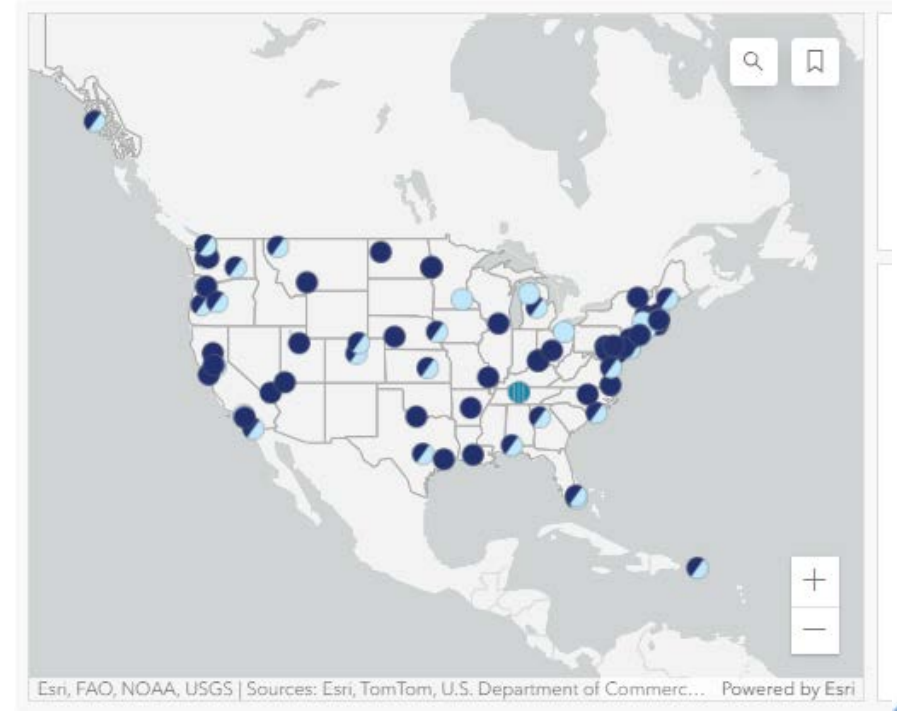
ABOUT
Cambridge manages a public wastewater system that borders the Choptank River and serves 16,600 residents. It treats an average flow of about 4 million gallons per day (MGD).

CLIMATE CHANGE CHALLENGES
Many coastal communities in the Chesapeake Bay region have historically faced flooding threats, which are expected to worsen due to climate change. The three coastal municipalities of Cambridge, Chesapeake Beach, and Crisfield face ongoing flooding impacts from a combination of coastal storm surge, intense precipitation events, tidal flooding, and sea level rise. Flooding is increasingly overwhelming the municipalities' stormwater systems and affecting the ability of the wastewater systems to provide reliable services.



Direct Technical Assistance and Training

- Climate Change Risk Assessment Technical Assistance:
 - FY23: 71 communities benefited from 50 assessments through direct assistance
 - FY24: 50 additional assessments planned to benefit similar number of communities through direct CRWU support
- Workshops and Training
 - Virtual and In-Person
 - [CRWU Training and Engagement Center](#)



South Monmouth Regional Sewerage Authority (NJ)

- The South Monmouth Regional Sewerage Authority (SMRSA) is located in Monmouth County, New Jersey, and serves over 50,000 people in eight coastal communities,
- A long history of coastal flooding and storm surge motivated their assessment and recent improvements (portable pumping stations)
- Technical assistance guided their use of CREAT, helping to evaluate the performance of several projects they are considering:
 - Relocate the pump station to higher elevation
 - Install flood doors
 - Build a sea wall around pump stations
- The Authority partnered with EPA to host training event for other coastal systems to share experiences and promote climate change considerations when preparing for the next storm



Montague and South Hadley (MA)

- Montague Water Pollution Control Facility and South Hadley Water Pollution Control Division serve 2,000 and 17,000 residents, respectively
- Focus of their assessment was on impacts of changing storms and challenges to collection and treatment
- Technical assistance guided their use of CREAT, helping to evaluate the performance of several current practices (storage, pumping, upgrades/elevation) and potential improvements:
 - Natural Flow Improvements
 - Pump Replacements
 - Inflow and Infiltration Assessment / Pipe Lining
- Participants included Massachusetts Department of Environmental Protection and the Pioneer Valley Planning Commission, fostering the consideration of climate change and potential adaptation into their relationships with State and watershed organizations



City of Crisfield (MD)

- Crisfield provides stormwater services for 2,400 people living on MD's Eastern Shore using a ditch and sewer system designed for 1 million gallons per day (MGD)
- Focus of their assessment was on flooding driven by combination of coastal storm surge, intense precipitation events, tidal flooding, and sea level rise
- Technical assistance guided their use of CREAT, helping to evaluate the performance of two options for a portion of their current system:
 - Ditch Maintenance
 - Convert to Closed System
- Participants are working concurrently with NOAA, FEMA and the Nature Conservancy on projects aimed to build resilience in Crisfield



Traverse City (MI)

- Traverse City provides wastewater services to about 50,000 customers across five townships
- Their assessment focused on flooding along the shoreline of Lake Michigan caused by heavy precipitation events
- Technical assistance guided their use of CREAT, helping to evaluate the performance of two options to mitigate overflows in a portion of their service area:
 - Increased Wet Well Storage Capacity
 - Relocate and Upsize Riverfront Main
- Results of this assessment helped inform changes to SRF-funded project that accommodates higher flow events under some future climate scenarios



Clackamas County (OR)

- Water Environment Services (WES) provides wastewater collection and treatment services to approximately 190,000 people
- Focus of their assessment was on flooding of pump station in the channel migration zone (CMZ) along the Sandy River and potential to add to their current practices in response to flooding events (backup power, temporary barriers)
- Technical assistance guided their use of CREAT, helping to evaluate the performance of several projects they are considering to mitigate flood damage to vulnerable facilities:
 - Replace with submersible facility or relocate outside CMZ
 - Bypass through higher elevation pumps and new treatment plant



Expanded Technical Assistance and Funding Network

- Services available through EPA's larger WaterTA network
 - National and Regional Environmental Finance Centers
- Funding Coordination
 - Clean Water & Drinking Water State Revolving Funds (States and HQ)
 - EPA's WIFIA
 - FEMA's BRIC Program
 - USDA's Rural Utility Service
- Workshops and Training
 - EPA Regional Staff
 - Tribal Networks
 - Rural Water
 - Water Sector Association Conferences and Training Events

