



Funding Wildfire Mitigation, Resiliency, and Recovery Projects with the Clean Water and Drinking Water State Revolving Fund Programs

Wildfires occur naturally and from man-made actions. Wildfires also play a long-term role in the health of our ecosystems. Some causes include warmer springs, longer summer dry seasons, drought, and drier soils and vegetation. These factors vary greatly by region. According to the National Oceanic and Atmospheric Administration, between 1980 and 2020 the United States experienced 18 wildfire events that each exceeded \$1 billion in damage; 15 of which have occurred since 2000. During 2020, in the western United States, over 100 wildfires devoured more than 10 million acres, and destroyed nearly 14,000 homes, in addition to buildings and infrastructure. The total estimated cost to fight these wildfires was approximately \$20 billion.¹

Wildfires can impact the quality and the quantity of available water, not only during the active burning but also for years afterward. For more information on resources at EPA to build wildfire resilience, please visit <https://www.epa.gov/waterutilityresponse/build-wildfire-resilience>. Due to the unpredictable nature of wildfires, drinking water and wastewater utilities face a considerable challenge in recovering from a wildfire and restoring essential infrastructure. Specific impacts to these utilities may include, but are not limited to:

- Damage to infrastructure, such as treatment facilities, distribution or collection systems, remote sites and equipment, service roads, and watersheds within the proximity of the fire;
- A change in water quality and quantity due to increased nutrients and other pollutants requiring alternative treatment processes;
- Decreased ground water supply resulting from change in soil properties leading to decreased infiltration;
- Increased sediment and debris in stormwater runoff and reservoirs as a result of flash floods from burned areas and erosion;
- Increased in-stream water temperatures due to loss of shading from forest canopy and riparian buffer zones; and
- Changes in seasonal timing of source water flow rates as loss of forest canopy can lead to increased evaporation and rapidly melting snowpack.

The Clean Water State Revolving Fund (CWSRF) and Drinking Water State Revolving Fund (DWSRF) programs can provide assistance to help repair, upgrade, and restore vital wastewater and drinking water services to support resiliency and reduce the environmental and public health threat both before and after a wildfire.

¹ <https://www.ncei.noaa.gov/access/billions/events>

SRF ASSISTANCE

The SRF programs can provide financial assistance to public, private, and non-profit entities for a wide variety of water quality and public health protection projects. Under both the CWSRF and DWSRF, EPA provides grants to all 50 states plus Puerto Rico to capitalize SRF loan programs.

The states contribute an additional 20 percent to match the federal grants. These SRF programs function like infrastructure banks by providing below market rate loans to eligible recipients for water and wastewater infrastructure projects. As money is paid back into the state's revolving loan fund, the state makes new loans to other assistance recipients. These recycled payments of loan principal and interest earnings allow the funds to "revolve" over time.

The SRF programs are state implemented and operated programs that have a wide range of flexibility to target resources to the priorities and needs of the communities they support. The SRF programs can offer even greater savings to communities through additional subsidization, where states must provide a percentage of their federal capitalization grant in the form of loan principal forgiveness, negative interest loans, and grants. Additional subsidization is targeted towards communities that would have difficulty financing projects without it or to provide incentives for certain types of projects. This ultimately reduces or eliminates the amount of assistance that needs to be repaid.

ELIGIBILITY CRITERIA

Projects and activities that meet the eligibilities set forth in the Clean Water Act and/or the Safe Drinking Water Act are eligible to receive SRF financial assistance. The CWSRF has 12 project eligibilities, including the construction of publicly owned treatment works, decentralized wastewater treatment, projects that address nonpoint sources of pollution, stormwater management, and more. The DWSRF may provide assistance for source, treatment, transmission and distribution, storage, consolidation of systems, and more. Additionally, states may use approximately one third of each annual DWSRF capitalization grant, for "set-asides," to help water systems build technical, managerial, and financial capacity. Within these SRF eligibility parameters, there are significant opportunities to help communities recover from, and make themselves more resilient to, wildfires. See Table 1 for SRF Wildfire Project Eligibilities and Table 2 for DWSRF Set-Asides for Wildfire Projects.

HOW THE SRF PROGRAMS SUPPORT RESILIENT INFRASTRUCTURE

Congress has provided supplemental disaster funding through the SRF programs to impacted states to augment funding from other federal agencies such as the Federal Emergency Management Agency (FEMA). There are many ways that the CWSRF and DWSRF programs can support communities and water and wastewater systems so that they are more resilient to disasters such as wildfires. For instance, some SRF programs have programmatic goals to encourage resilience activities or they may offer incentives that promote resiliency projects such as priority ranking points, reduced interest rates for loans, and additional subsidization. In addition, complementary funding programs, emergency funding, coordination with other funding entities, technical assistance, and marketing strategies for information sharing can also help communities become more resilient to wildfires.

MEMORANDUM OF UNDERSTANDING BETWEEN EPA AND FEMA

After a wildfire, utilities and communities may be concerned with the costs associated with repairs to damaged water infrastructure, as well as and loss of revenue. If the wildfire has received a Presidential Disaster Declaration, funding may be available from FEMA for public and private non-profit utilities under the [Memorandum of Understanding \(MOU\) between EPA and FEMA](#). This MOU is meant to streamline coordination between FEMA and the SRF programs to ensure that funding for the restoration of vital water infrastructure is readily available after a Presidential-declared disaster. Traditionally, a community would have to spend its own money first and wait for reimbursement through a FEMA grant or some other form of emergency funding. However, through the MOU, FEMA and the SRF programs can work together to assist a community as quickly as possible to enable recovery and repair efforts to proceed in advance of FEMA reimbursement. This can come in the form of a no-interest or low interest loan from the SRF to help pay for the immediate restoration of vital drinking water and wastewater infrastructure until federal reimbursement from FEMA goes to a community.

Table 1. SRF Wildfire Project Eligibilities

Clean Water State Revolving Fund	Drinking Water State Revolving Fund
<ul style="list-style-type: none"> • Planning and Design • Rebuild/Replace damaged or destroyed wastewater treatment plant (WWTP) • Rebuild/replace damaged or destroyed wastewater collection and transmission system • Relocate WWTP to safer location • Rebuild onsite septic systems • Replace damaged onsite septic systems with hook-ups to municipal plumbing • Purchase forest land for source water protection • Forest thinning and other healthier forest practices • Forest and riparian buffer zone replanting to protect a watershed • Backup generators for WWTP • Construct natural or artificial buffers • Install redundant equipment and infrastructure at WWTP • Install communication and telemetry equipment at WWTP • Physical hardening of a WWTP • Fire suppression equipment for a WWTP • Wildfire vulnerability assessment, adaptation, and mitigation plans • Emergency response plans 	<ul style="list-style-type: none"> • Planning and Design • Rebuild/Replace damaged drinking water treatment plant, distribution system and storage facilities • Relocate treatment plant, treatment facilities, pump stations, to safer location • Replace service lines up to premise plumbing • Backup generators • Purchase package treatment plant • Purchase water quality monitoring equipment, e.g., turbidimeter, harmful algal blooms (HABs) early warning • Extend water service to homes previously on wells that were damaged by wildfire • Construct natural or artificial buffers at water facilities • Install redundant equipment and water system infrastructure • Install/upgrade communication and telemetry equipment at water facilities • Construct infrastructure necessary for trucked-in water (Note: the cost of the trucked-in water is not eligible) • Physical hardening at water facilities • Fire suppression equipment at water facilities • Replace/install fire hydrants and other distribution system appurtenances • Projects that cite they are “designed to meet fire flow” are eligible if they are not “primarily” for fire flow • Wildfire vulnerability assessment, adaptation, and mitigation plans

Table 2. DWSRF Set-Asides for Wildfire Projects

<ul style="list-style-type: none"> • Planning and Design • Purchase land for source water protection • Forest thinning and other healthier forest practices • Forest replanting to protect a watershed • Sample for water quality, as long as it’s not for compliance purposes, e.g., firefighting chemicals, HAB’s, volatile organic compounds • Purchase water quality monitoring equipment, e.g, turbidimeter, HABs early warning • Disaster preparedness training and outreach • Technical assistance, including applications for funding • Planning grants for hiring consulting engineers to help communities figure out how to rebuild better • Wildfire vulnerability assessment, adaptation, and mitigation plans • Emergency response plans
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LEARN MORE ABOUT FUNDING

The SRF programs are managed by the states and assistance is distributed directly from the states revolve over time. Procedures for funding of eligible projects may vary according to the priorities of each state. Contact information for each program’s state is available at <https://www.epa.gov/cwsrf/state-cwsrf-program-contacts> and <https://www.epa.gov/dwsrf/statedwsrf-website-and-contacts>.



SUCCESSFUL WILDFIRE MITIGATION, RESILIENCY, AND RECOVERY PROJECTS

Arizona's Forest Management for Wildfire Mitigation

In the summer of 2010, the Shultz wildfire burned over 15,000 acres of forest in the Coconino National Forest, devastating parts of the Rio de Flag and Lake Mary watersheds, outside the City of Flagstaff, Arizona. In this mountainous region, post-fire flooding destroyed parts of a water supply line and caused nearly \$147 million in damage. Heavy monsoon along burn scar produced a swift floodwaters that carried dangerous debris through sloping neighborhoods.

Through this experience, community leaders and residents realized that forest thinning and fire prevention is an investment in the community's health and resilience, not unlike investments in a water or wastewater treatment facility. As a result, the City voters supported a bond measure to fund large-scale projects to thin forests and undertake better vegetative management practices on city, state, tribal, and federal lands. The City received an additional \$6 million CWSRF loan from Arizona's Water Infrastructure Financing Authority (WIFA) to support this work, of which \$1 million was principal forgiveness, with an interest rate of less than 2%. So far, nearly 5,000 acres of forest have been thinned or harvested. This was the first time the City considered including a natural infrastructure project of this kind on a capital improvement plan and in their water infrastructure budget.

Also, WIFA worked with EPA to create a Measurable Benefits Tool that estimates the environmental, financial, economic, and social benefits associated with undertaking forest thinning projects. The tool can be adapted by other states and customized by city, county, or national forest. It uses specific metrics such as costs of wildfire suppression and rehabilitation, impacts on property values, lost recreational value and economic activity, job losses, impacts to drinking water treatment costs, public health, and local economic prosperity. This allows users to create targeted marketing and education packages customized by the location and characteristics of the community and stakeholders. Such targeted marketing is intended to increase the effectiveness of the effort, as it provides local citizens with a picture of the potential impact that wildfire can have on their wallets, health, and community. WIFA also developed fact sheets to accompany each metric in the tool. As part of a coordinated and strategic outreach effort, WIFA is ready to continue this long-standing commitment to serving Arizona's communities and tribal lands.

Oregon's Use of DWSRF Set-Asides for Critical Post-Fire Testing and Mitigation Efforts

The Rogue River Basin in southwestern Oregon is an ecologically and economically diverse region that supplies essential services including drinking water, recreational opportunities, tourism, and critical habitat for fish and wildlife. The Rogue River and its key tributaries serve as the public drinking water source for over 200,000

residents in this area, including those served by Medford Water Commission (MWC) – the Cities of Medford, Ashland, Central Point, Eagle Point, Jacksonville, White City, Talent, and Phoenix, and the cities with their own water systems - Grants Pass, Rogue River, Gold Hill and Shady Cove. The Rogue River and many other waterways in the basin are impaired due to a variety of contaminants such as E. coli, nutrients, algae, sediment, and turbidity. Contaminants in source water are often a challenge to drinking water treatment plants, especially during high turbidity events that typically follow wildfires, which can cause temporary source water intake shut-downs. The catastrophic Almeda and Obenchain wildfires that struck the Basin in 2020 created new threats to the region’s drinking water quality, ranging from toxins from burned materials and structures in commercial/residential zones, to erosion concerns in areas where fires destroyed vegetation, leaving the soil exposed along waterways and on steep slopes.

Collaborative efforts to protect source water in the Basin were well underway before the 2020 wildfires, thanks to the focused work of the Rogue Drinking Water Partnership. The Partnership is composed of drinking water providers and partners, such as Rogue Valley Council of Governments and Rogue River Watershed Council, that share the common goal of protecting and improving source water quality throughout the Basin. Between 2015 and 2020, a total of \$180K in Oregon Health Authority (OHA) source water protection grant was awarded to partners in the Basin² with highlighted accomplishments described below.

In 2017, the City of Grants Pass and MWC utilized a OHA source water protection grant to address drinking water threats in the Basin. Important work accomplished in the Rogue Basin with this DWSRF set-aside funding included, (1) refining the list of potential contaminant risks to drinking water, (2) determining high priority concerns and identifying initial strategies to prevent or reduce risks, (3) designing and presenting information at a 2019 wildfire-focused workshop (funded by EPA Region 10), (4) implementing initial education and outreach measures, and (5) developing strategies to address drinking water impacts from drought, fire, and other disasters.

The wildfire-related work accomplished by the Partnership during this project helped water systems and partners collaborate and effectively respond to the devastating impacts of the wildfires. In 2020, the Partnership began developing a Geographic Response Plan to protect sensitive drinking water sources in the event of hazardous spills or disasters such as wildfires. This effort involves coordination with local Fire Districts, other specialists and landowners to create plans that address spill response and wildfire-related water quality issues such as sediment, turbidity, increased risk of harmful algae blooms, and nutrients. The grant also supported Partnership participation and coordination in a follow-up 2021 wildfire and drinking water workshop (funded by EPA Region 10) focused on enhancing emergency response, monitoring, mitigation, and restoration efforts.

In 2021, the City of Grants Pass was awarded over \$42K in OHA emergency source water protection grant funding³ on behalf of the Partnership to better understand post-fire impacts and conditions. This DWSRF grant will be used to expand the region’s water quality monitoring and sampling network and analyze and share data. Findings will help the Partnership prioritize areas for water quality restoration and pursue funding for implementation. The Partnership also recently collaborated with Oregon State University and other entities on a grant application to the Oregon Watershed Enhancement Board to fund a large-scale monitoring and research project to determine the long-term effects of the September 2020 wildfires on drinking water and aquatic health.

² <https://www.oregon.gov/oha/PH/HealthyEnvironments/DrinkingWater/SRF/Pages/spf.aspx>

³ Other water systems impacted by the 2020 fires in Oregon were awarded emergency grant assistance through the DWSRF. To date, these include: City of Gates, Breitenbush Hot Springs, and Panther Creek Water District.