PISCES

Performance and Innovation in the SRF Creating Environmental Success

A Program of the U.S. Environmental Protection Agency

George F. Ames

PISCES 2023 Recognition Program

FY 2023

EPA

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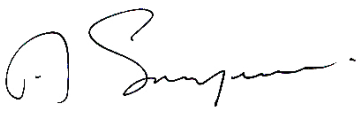
Cover photo credit: City of Ripley Sanitary Board

DIRECTOR'S **ADDRESS**

The Clean Water State Revolving Fund (CWSRF) is proud to recognize clean water projects that demonstrate excellence through the George F. Ames Performance and Innovation in the SRF Creating Environmental Success (PISCES) program. These projects promote EPA's mission of protecting human health and the environment and exemplify the innovative, flexible, and collaborative nature of the program. This year, we received PISCES nominations covering a wide variety of project types from 20 state CWSRF programs. These projects demonstrate leadership in innovative financing, system partnerships, community engagement, public health protection, and creative solutions.

New this year, to align with EPA's FY 2022-FY 2026 Strategic Plan, is an overall emphasis on projects that incorporate eligible activities to adapt to the impacts of climate change and increase climate resiliency in communities. CWSRF financing helps communities afford solutions that are innovative, modern, water and energy efficient, sustainable, and resilient to their water quality challenges in a changing climate. By working creatively with the future in mind, these communities have created lasting benefits for not only the environment, but for public health and the economy as well.

I congratulate all the assistance recipients recognized in this compendium, and I thank the CWSRF programs that highlighted them for recognition. We appreciate your dedication to ensuring water quality in our communities and as well as your commitment to the continuing success of this crucial program.



Andrew Sawyers, Ph.D., Director
Office of Wastewater Management

Photo credit: Spokane Conservation District

RECOGNIZING
EXCEPTIONAL SUCCESS

The CWSRF George F. Ames PISCES Recognition Program nationally recognizes CWSRF-funded projects for their exceptional focus on the environment and public health. These projects are examples of the high level of innovation possible with the CWSRF.

Participating states in this voluntary recognition program nominated one CWSRF project during the 2023 round. Nominations were based on the following criteria categories EPA selected one project from each category to be recognized as an Exceptional Project based on the project's overall impact in the category.

- **Innovative Financing:** Uses a creative financing mechanism that aligns with the needs of the community.
- **System Partnerships:** Creates a partnership that brings together stakeholder groups and resources to create a collaborative approach to addressing water quality needs.
- **Community Engagement:** Involves the community during the project design or includes a project element that encourages community engagement.
- **Environmental and Public Health Protection:** Employs a sophisticated approach to addressing water quality. These projects may include preemptive treatments, reduction in capacity loading, use of new technologies, or other aspects that focus on innovative design.
- **Creative Solutions:** Uses an unconventional approach in meeting the community's needs.

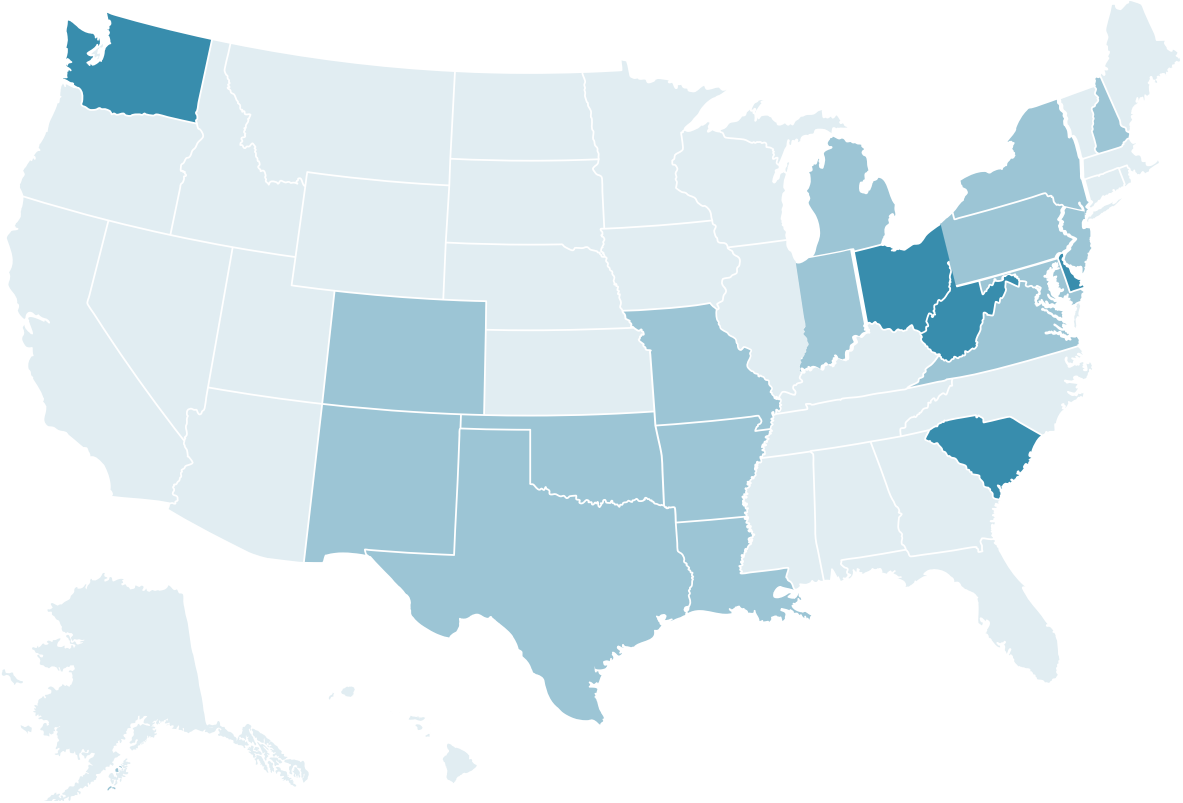


Photo credit: Spokane Conservation District

Creative Solutions

Washington State Department of Ecology

Project Name: Farmed Smart Certification & Direct Seed Loan Implementation Program

Assistance Recipient: Spokane Conservation District

The Spokane Conservation District is tackling nonpoint source water quality issues in Eastern Washington through partnerships with local agricultural producers. The Spokane Conservation District received $3 million in CWSRF loans to implement a Direct Seed Loan Implementation Program and nearly $475,000 in state grant funds to implement their Farmed Smart Certification program and direct seed cost-share. These programs aim to improve water quality through reductions in sedimentation, temperature, dissolved oxygen, pH, and nutrients in the dry-land production agriculture regions within Washington State with an emphasis on the Spokane River and Palouse River Watersheds. Farmed Smart is an environmental conservation on-farm certification program that was developed to differentiate agricultural producers that are willing to adopt conservation practices on their land. The Washington State Department of Ecology recognizes certified producers with a letter, stating that they meet water quality requirements with their farming practices. Through Farmed Smart, six agricultural producers received certification to regenerative soil health practices. Two producers utilized direct seed cost-share on a total of 1,135 acres acres, preventing the runoff of an estimated 7,000 tons of sediment from entering adjacent water bodies. This CWSRF loan allowed the Spokane Conservation District to make 32 loans for direct seed equipment, implementing conservation practices on over 107,000 acres.

Since 2000, the District has utilized a conduit lending approach to provide CWSRF loans to offer low-interest loans to agricultural producers in Eastern Washington. As of November 2023, the District has provided over $23.3 million in CWSRF funding to transition land to agricultural practices that support healthy soils and improve water quality. The District was recently awarded an additional $3.8 million CWSRF loan to continue the direct seed local loan program.

Photo credit: City of Ripley Sanitary Board

Environmental & Public Health Protection

West Virginia Department of Environmental Protection

Project Name: Ripley Wastewater Treatment Plant

Assistance Recipient: City of Ripley Sanitary Board

The City of Ripley is upgrading its existing wastewater treatment and collection systems to address years of regulatory compliance issues and treatment capacity constraints in accordance with consent orders and administrative orders received by the facility. The existing treatment lagoons were hydraulically overloaded and not able to meet current effluent quality standards on Mill Creek, a perennial tributary of the Ohio River. The lagoons will be replaced with a sequencing batch reactor (SBR) plant, which will allow Ripley to add additional treatment trains in the future to accommodate any increases in flow. Once the lagoons are decommissioned and all sludge has been removed, the area will be graded and re-vegetated for future beneficial use by the City of Ripley.

As a direct result of this project, two small, rural communities with decades-long failing wastewater lagoons will have clean safe wastewater services. The elimination of the failing lagoons will benefit Mill Creek and the Ohio River by reducing the amount of fecal coliform and iron entering the stream. The project includes mitigation measures to protect system components from potential flood damage since portions of the project are located within the 100- year floodplain.

The total cost of the project exceeds $31 million, a substantial capital investment for a utility that serves approximately 2,260 customers. As a result, twelve funding sources, including a $10.5 million CWSRF loan, were brought together to finance this very important water quality and public health priority for the City of Ripley and its residents.

Photo credit: Town of Carlisle

System Partnerships

South Carolina Department of Health and Environmental Control

Project Name: Carlisle/Union Regional Sewer Extension

Assistance Recipient: Town of Carlisle

For decades, the Town of Carlisle was dependent on a textile plant for their wastewater treatment. When the mill facility closed in 2020 and the associated wastewater treatment plant (WWTP) closed in 2023, the Town sought assistance from regional utilities, as well as multiple funding sources, to address its wastewater treatment needs. The City of Union, on behalf of Carlisle, sought the services of an engineering firm to evaluate alternatives for the treatment of the Town's wastewater. Ultimately, pumping Carlisle's wastewater to the City of Union WWTP, while a greater initial capital cost, was determined to be the most economical solution for the residents of the Town and the City of Union.

With the assistance of a coalition of partners including Union County, the City of Union, South Carolina Department of Commerce, South Carolina Rural Infrastructure Authority, and a $1 million CWSRF loan, Carlisle's wastewater is now being pumped to the City of Union WWTP, regionalizing the systems. The City of Union and the Town of Carlisle have implemented the project to adapt to climate change by constructing two modern pump stations, upgrading an existing one, and installing 60,000 linear feet of force main, thereby reducing energy costs and increasing community climate resiliency. Regionalization of the systems will provide a reliable method of treatment for Carlisle's wastewater and eliminate the staffing and financial burdens of supporting sewer treatment facilities for the Town.

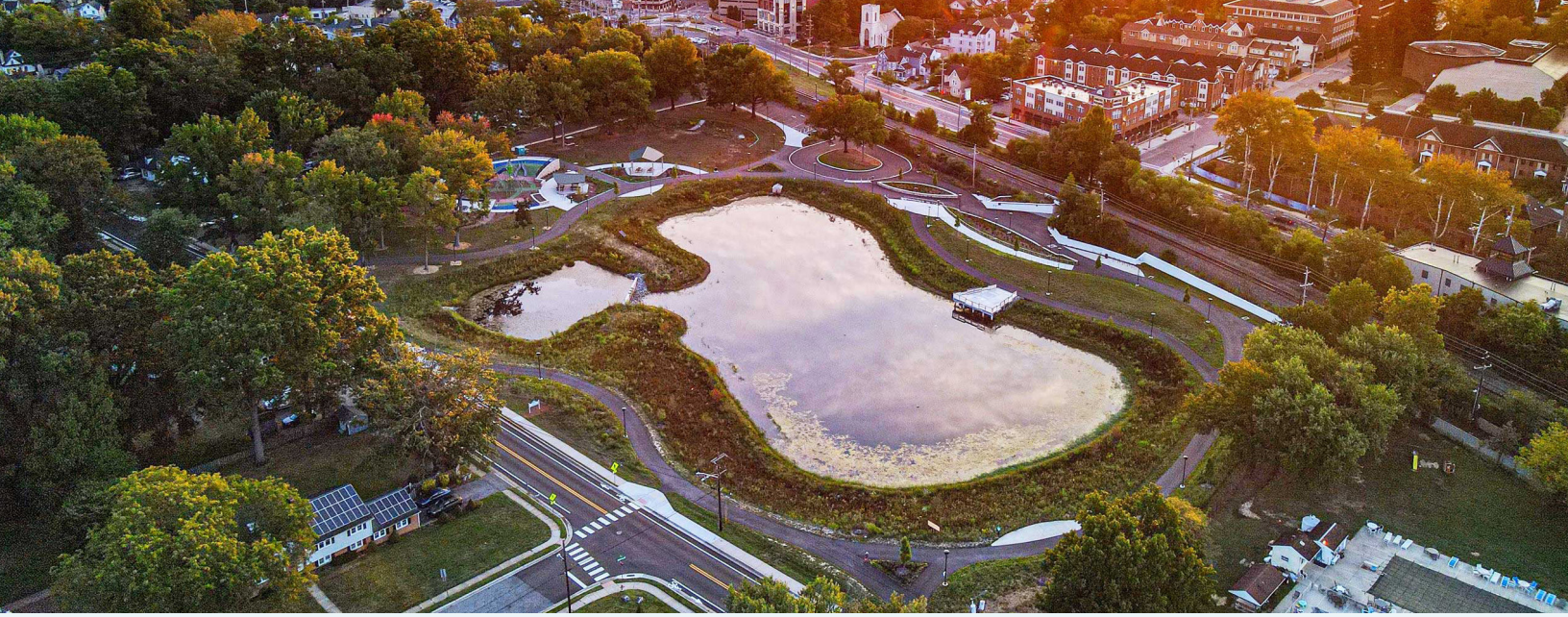


Photo credit: City of Newark

Community Engagement

Delaware Department of Natural Resources and Environmental Control

Project Name: Rodney Dormitory Site Storm Water Management Park

Assistance Recipient: City of Newark

The City of Newark has faced recurring flooding during wet weather events. Climate change creates rain events that often exceed the capacity of the City's stormwater management system. When the University of Delaware closed the Caesar Rodney Dormitory Complex in May 2014, the City identified an opportunity to acquire the 7.24-acre property and repurpose it as a multiuse site, providing the community with a state-of-the-art stormwater management facility along with recreational and educational components. The City demonstrated its commitment to public involvement and input from the early stages of project development, hosting three separate community workshops in 2017 to collaborate on the design and amenities of the new site. The City implemented a robust public participation program to re-imagine the site and make the final product something Newark residents and visitors will proudly utilize for years to come. The final conceptual design was presented to City Council in December 2017 and approved for CWSRF loan funding in early 2018. A $9 million CWSRF loan supported several phases of construction to bring the project to fruition – from building demolition, to the construction of a stormwater management pond, to soil management. The City combined their CWSRF loan with Delaware Department of Natural Resources and Environmental Control (DNREC) support from a Community Environmental Project Fund grant, a Brownfield Development grant, and a surface water stormwater planning grant. Together, these funds helped pay for the design and installation of educational signage at the park facility.

Photo credit: Athens County Commissioners

Innovative Financing

Ohio Environmental Protection Agency

Project Name: US 50 Sanitary Sewer Improvements Phase 6 & 7

Assistance Recipient: Athens County Commissioners

Athens County, Ohio, partnered with the City of Athens to develop a regional solution to meet the area's wastewater needs. The City will receive and treat the sewage collected and pumped from the surrounding unsewered areas in the County. The area served by this project is part of Ohio's Appalachia region, which is characterized by a lack of financial and infrastructure resources. Many of the residents served by the new regional sewer system have aging and failing household sewage treatment systems, which cannot be upgraded due to technical and affordability limitations.

The Phase 6 & 7 sewer improvement project is designed to serve approximately 1,280 users through the regional sewer system. The proposed service area was divided into project phases to make the County's sewer installation work more manageable and to maximize opportunities for securing grant and SRF loan funding. To help ensure that the proposed sewer system could be affordably implemented for the area's many lower income residents, Athens County secured $7.1 million in CWSRF funds ($4,000,000 in principal forgiveness and $3,097,500 as a 0% interest rate loan), $2.6 million in local American Rescue Plan Act funds, $750,000 in Community Development Block Grant money, and $500,000 in Appalachian Regional Commission grant dollars to pay for the $10.9 million project. This combination of funding has helped make the new sewers and central wastewater treatment affordable for residents.

This project eliminates potential health threats associated with failing household sewage treatment systems and restores and protects water quality in area streams and rivers. Since flooding is an increasing threat in many parts of the project service area, a well-managed central wastewater system, including back-up power sources for pumps and other critical components, will help ensure that residents have adequate sewage disposal even during times of flood.

Recognized Projects

New Hampshire Department of Environmental Services

Project Name: Wastewater Treatment Facility Phase 3A Capital Improvements Project

Assistance Recipient: Town of Hooksett

The Town of Hooksett's wastewater treatment plant (WWTP) collects wastewater from various sources, including the Town of Hooksett and Southern New Hampshire University, and provides secondary treatment before discharging into the Merrimack River. In 2011, an upgrade was performed to increase the facility's capacity from 1.1 to 2.2 million gallons per day (MGD). However, a hydraulic failure in March 2011 led to the release of millions of integrated fixed-film activated sludge (IFAS) plastic disks into the Merrimack River that discharges into the Atlantic Ocean. It cost over $1 million to clean up beaches in New Hampshire and Massachusetts.

To minimize the risk of another disk release, Hooksett installed additional fixed screens. After extensive research, Hooksett received a $3.5 million CWSRF loan to implement its WWTP 3A Capital Improvements Project, which increased the plant's capacity to treat peak loads and meet average daily and peak hourly flows. The project demonstrates Hooksett's commitment to producing high quality effluent though continuous upgrades such as installing three treatment tanks for each treatment train and new screening equipment. The project improves water quality in the Merrimack River by increasing hydraulic and organic loading, enhancing energy efficiency, and reducing operation costs. It was designed to minimize capital and operational costs, reduce water consumption, and achieve energy savings through aeration controls and return activated sludge wasting controls.

Photo credit: Town of Hooksett

New Jersey Department of Environmental Protection

Project Name: University Hospital Co-Generation Plant Upgrades

Assistance Recipient: University Hospital

University Hospital is New Jersey's principal teaching hospital and is the state's only public academic medical center. It provides essential services, including trauma care, in the state's largest and most overburdened communities. The hospital previously generated heat and electricity through a combined heat and power (CHP) system that utilized water injection turbines to reduce nitrous oxide (NOx) emissions. This system, which was costly to operate and generated high volumes of wastewater discharge while achieving only moderate NOx reductions, was noncompliant with New Jersey Department of Environmental Protection (NJDEP) regulations.

By leveraging $7.34 million in assistance from the NJ Water Bank with funding from the NJ Energy Resilience Bank, University Hospital was able to replace and upgrade to highly efficient natural gas turbines, thus reducing emissions by 50%. This upgrade saves the Newark campus eight million gallons of water annually, significantly decreasing the hospital's discharge of wastewater. The upgrades also provide a resilient power source to the hospital's wastewater pumping stations and stormwater pumps. With the upgraded CHP energy system, the hospital can generate power without relying on external electric transmission, ensuring continuity of hospital care as climate change increases the frequency of storm events and the risk of power outages.

Photo credit: University Hospital

Recognized Projects

New York Environmental Facilities Corporation

Project Name: Beaver Creek Clean River Project

Assistance Recipient: City of Albany

Six communities, known as the Albany CSO Pool Communities Corporation, have joined in an inter-municipal venture to address the impact of combined sewer overflows (CSOs) to the local area served by the Albany County and Rensselaer County Sewer Districts. It is estimated that this sewer system discharges an average of 500 million gallons of wastewater annually to the Hudson River. The City of Albany received a $55.5 million CWSRF loan for this project to address CSOs.

Stormwater from the Beaver Creek sewershed has a major impact on the local wastewater treatment plant. As a combined sewer, untreated wastewater discharges to the Hudson River from the Beaver Creek sewershed during wet weather events through permitted combined sewer outfalls. The Beaver Creek Satellite Treatment Facility was designed to intercept wet weather flows and provide screening and chemical disinfection prior to discharge. The design team identified an existing underutilized storm sewer that could be used to convey screenings directly to the wastewater treatment plant. The project also mitigated a sinkhole in the Beaver Creek trunk sewer located in a public park where raw sewage has been observed after intense rain events. The area will be redeveloped into a ravine garden with historical and environmental educational signage.

Photo credit: City of Albany

Maryland Department of the Environment

Project Name: Leveraging CWSRF for ENR Upgrades of Maryland's 67 Major WWTPs

Assistance Recipient: Multiple Wastewater Treatment Plants statewide

Maryland employed a creative financing mechanism by pairing CWSRF dollars with the State's Bay Restoration Fund (BRF) to accelerate water quality restoration in the Chesapeake Bay. Wastewater constitutes a large component of the Chesapeake Bay water quality impairment. To remedy the inputs of nutrients, bacteria, and pathogens, the state's major wastewater treatment plants (WWTPs) required upgrades.

Since 2004, the BRF has expended nearly $1.3 billion on the WWTP improvements and, in lock step, the CWSRF has contributed $1.4 billion to complete the upgrades of 65 operational plants to date, with two more to complete in 2024, on the twentieth anniversary of the BRF. This extraordinary infusion of capital funds over two decades has reduced statewide nutrient pollution in the Bay by a total of 8.2 million pounds of nitrogen and 945,971 pounds of phosphorus on an annual basis. The initiative to upgrade Maryland's 67 Significant WWTPs to enhanced nutrient removal (ENR) functionality demonstrates how CWSRF investments have been leveraged with state capital dollars through the Bay Restoration Fund.

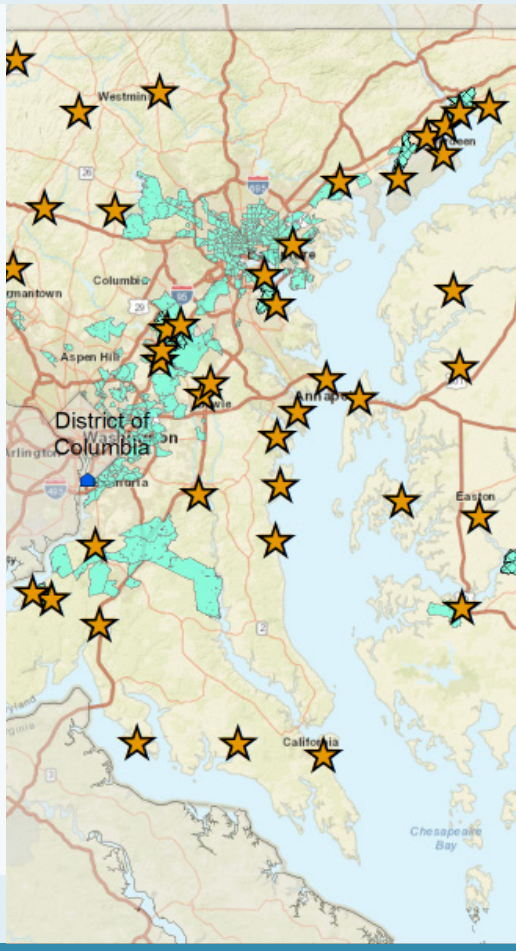


Photo credit: Maryland Department of the Environment

Recognized Projects

Pennsylvania Infrastructure Investment Authority

Project name: Capital Region Water - Green Stormwater Infrastructure Programmatic Financing

Assistance Recipient: Capital Region Water

Capital Region Water (CRW) has been tasked with reducing excessive inflow to a combined sewer system. This will protect system capacity, increase capacity available to handle more extreme weather events, and reduce sewer overflows. CRW developed a capital improvement plan to manage stormwater flows by constructing a series of green stormwater infrastructure source control practices throughout the City of Harrisburg over the next 4 years. The projects may include porous pavement in parking lots, paths, alleys, and streets; infiltration and bioretention systems; green roofs; rain gardens; and cisterns.

The projects will capture urban stormwater runoff prior to entering the CRW's combined sewer system, reducing the volume and frequency of combined sewer overflows (CSOs) to the Susquehanna River and Paxton Creek. To implement the capital improvement plan, CRW turned to the Pennsylvania Infrastructure Investment Authority (PENNVEST) for an innovative financing vehicle capable of meeting multi-year cash flow needs. A programmatic CWSRF loan of $13 million was executed to cover the projects on the capital improvement plan as opposed to a traditional project-specific lending strategy. This created efficiencies and achieved improvements to CSO control by capturing approximately 20 to 40 million gallons per year.

Photo credit: Capital Region Water

Virginia Department of Environmental Quality

Project Name: Southwest Virginia Pilot Program, Max Meadows Collection System Improvements

Assistance Recipient: Wythe County, Virginia

Wythe County is part of a cohort that participated in the Virginia Clean Water Revolving Loan Fund's Southwest Virginia Pilot Program. Significant population loss and a depressed economy – due to the decades-long decline of the coal industry in Southwest Virginia – present a challenge to communities who need to invest in water infrastructure. Wythe County needs to address ongoing issues with sanitary sewer overflows (SSOs) and hydraulic overloads at wastewater treatment plants exacerbated by more frequent extreme rainfall events associated with climate change. The area's wastewater systems were designed and constructed to serve and be maintained by a much larger population. As a result, communities in this area of the state need financial assistance to make needed repairs efficiently and affordably.

To address these challenges, in 2019, the Virginia Clean Water Revolving Loan Fund launched a pilot program to identify priority repairs with a focus on asset management. The program funded Sanitary Sewer Evaluation Studies with up to 75% principal forgiveness. Following the completion of the report, the participants in the program worked with Virginia CWSRF program staff to submit an application to complete the needed repairs, with the construction portion of the program incentivized by up to 75% principal forgiveness. Wythe County closed their $1.37 million CWSRF loan in April of 2023 and priority repairs are underway, leading to a comprehensive effort to improve their collection system.

Photo credit: Wythe County

Recognized Projects

Indiana Finance Authority

Project Name: City of Jasonville Wastewater Improvements Project

Assistance Recipient: City of Jasonville

Within Clay County, Indiana, the unincorporated community of Coalmont faced environmental and public health issues resulting from failing septic systems and direct discharge of residential wastewater to local roadside ditches. Since December 2022, the Clay County Commissioners have worked to address nonpoint source pollution in the Coalmont area. This project received $9.5 million in CWSRF funding to expand nearby Jasonville's wastewater facilities and provide connections to the Coalmont community, located north of Jasonville and Shakamak State Park wastewater treatment facility. This project eliminates up to 131 failing septic systems and CWSRF savings avoided raising rates for the community. Reduced nutrient and pathogen loading to two impaired waterways on the 303(d)-list will improve water quality and provide safe access to activities like swimming, fishing, and boating in the nearby Shakamak State Park.

The project incorporates innovative climate mitigation approaches in its design. For example, the project will install sewer linings and equalization basins that will reduce and mitigate impacts of inflow and infiltration caused by increased precipitation intensity, and the project will use improved technologies which will remove ammonia more efficiently at lower temperatures during extreme weather events.

Photo credit: City of Jasonville

Michigan Department of Environment, Great Lakes, and Energy

Project Name: Marquette Wastewater Treatment Plant Solids Handling Improvements

Assistance Recipient: City of Marquette

The City of Marquette struggled with the management of residual solids from its wastewater treatment plant (WWTP). The City's plant also struggled to comply with dissolved oxygen levels in its effluent when Lake Superior has high water levels. In response to these challenges, the City of Marquette is constructing a new dewatering facility that will thicken and dewater residual solids. Anaerobic digestion will produce biogas to help power and heat the WWTP. The City's goal is to process 100,000 gallons of sewage monthly, which would result in an estimated 34% increase in biogas production and energy, offsetting the facility's reliance on natural gas. The WWTP will also transition from primarily liquid to dewatered biosolids. Liquid biosolids disposal volume is estimated to be reduced by 700,000-gallons per year, or approximately 120 6,000-gallon trucks. The upgraded plant will also feature an energy efficient fine bubble diffuser, which will increase dissolved oxygen concentrations in the plant's effluent and help to protect the water quality and freshwater ecosystem of Lake Superior. The project received $12.5 million in CWSRF assistance, including $5.9 million in principal forgiveness.

Photo credit: City of Marquette

Recognized Projects

Arkansas Department of Agriculture

Project Name: Flippin Wastewater Treatment Plant

Assistance Recipient: City of Flippin, Arkansas

The City of Flippin, Arkansas, operates a wastewater treatment plant (WWTP) that discharges into the White River, a river of significant economic, recreational, and natural value that has been designated a National Blueway. The plant had been operating beyond hydraulic capacity, requiring operators to manipulate the treatment process to prevent biosolids from being discharged into the river. Operators were forced to choose between allowing effluent to exceed permit limitations or discharging untreated sludge.

This project will use $4.1 million in CWSRF assistance to expand the capacity of the Flippin WWTP. The City will make upgrades to the WWTP including the installation of a new influent pump station, headworks, and a 0.3 MGD Sequential Batch Reactor (SBR). These improvements will enable the plant to effectively treat all the City's sewage and bring the facility into compliance. There will no longer be spillovers of untreated sewage into the White River, improving water quality and protecting public health for downstream communities and businesses. The new energy-efficient equipment will also reduce operations costs and contribute to future plant sustainability.

Photo credit: City of Flippin

Louisiana Department of Environmental Quality

Project Name: Pointe Coupee Parish Sewer District 1 Consolidation

Assistance Recipient: Pointe Coupee Parish Sewer Board

Pointe Coupee Parish Sewer Board, located in New Roads, Louisiana, operated two aging wastewater treatment plants that were failing to meet discharge limits and posed a risk to both the environment and public health. To address these issues, the Pointe Coupee Parish Sewer Board proposed to decommission the two facilities and replace them each with a new pump station and install a force main network to convey wastewater to an existing system in another district. This project also eliminates the problem of infiltration and inflow (I/I) into the system, which will reduce the loading on the system from other water sources.

To ensure adequate outreach, the Pointe Coupee Parish Sewerage District Consolidation Project engaged the community through a public hearing, worked with community leaders, and attended community events. These proactive engagements ensured the community had a voice in shaping the project's direction and outcomes, fostering a sense of ownership and support among community members. Supported by a $1.3 million CWSRF loan, the $4.2 million project not only improves water quality and protects public health but also supports economic development in the parish through the creation of jobs associated with the new construction.

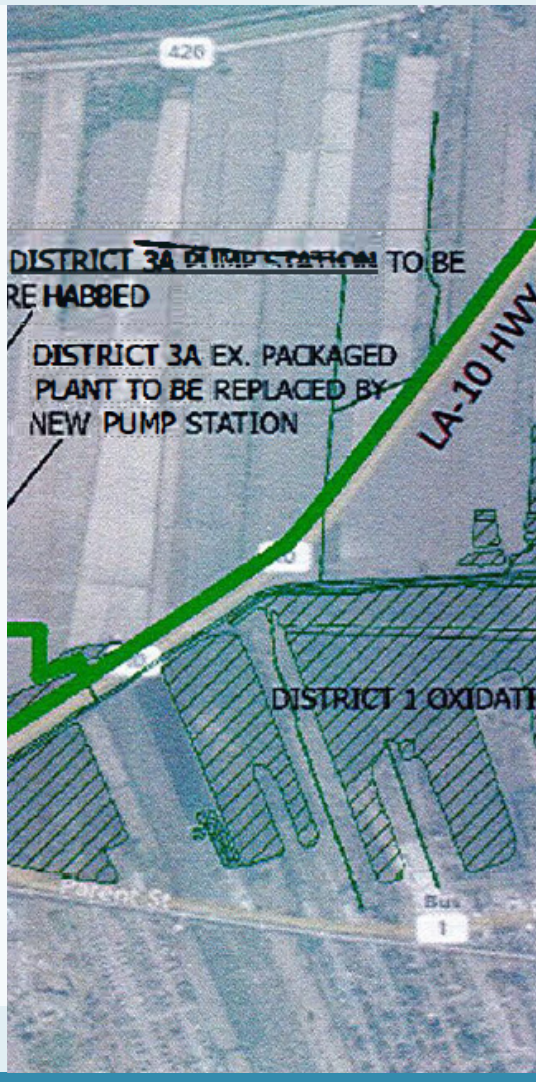


Photo credit: Pointe Coupee Parish Sewer Board

Recognized Projects

New Mexico Environment Department

Project Name: City of Santa Fe River Repair and Bank Stabilization Project

Assistance Recipient: City of Santa Fe

The Santa Fe River flows when water is released by the City from two upstream reservoirs and from rain events and snow melt. In 2018, when historic flooding struck, the stormwater degraded riverbanks, allowing agricultural runoff pollution and trash to enter the water system. Post-flood water sampling identified E. coli; elevated levels of aluminum, total nitrogen, total phosphorus; and heavy sediment loading.

The City responded to this catastrophic event by applying for $4.2 million in CWSRF funding to restore the damaged river utilizing green infrastructure principles and soft engineering. This project will help protect public health and restore and reinvigorate local ecosystems. This project will reduce stormwater pollution, control erosion, improve water quality, and repair and restore the health of the river corridor.

Photo credit: City of Santa Fe

Oklahoma Water Resources Board

Project Name: City of Duncan, Clear Creek Lake Dam Rehabilitation

Assistance Recipient: Duncan Public Utilities Authority

The Clear Creek Lake Dam, which is owned and operated by the City of Duncan, Oklahoma, is an aging dam in need of upgrades to maintain functionality and ensure the continued protection of downstream water quality. In 2022, an Embankment Evaluation and Rehabilitation Alternatives Study revealed that the dam's safety factors did not meet the design criteria, rendering the dam vulnerable to a future flood event. Uneven slopes, tree roots, beaver activity, and several sinkholes with active seepage all contributed to its vulnerability. The failure of the dam would cause significant impairment to downstream water bodies in addition to threatening infrastructure in the community.

The City of Duncan is proactively addressing the threat of dam failure by constructing a new spillway to meet significant-hazard standards. The City received $15.4 million in CWSRF assistance to complete the dam rehabilitation. The new spillway will be flood resilient, protecting downstream waterbodies and infrastructure as severe wet weather events become more frequent due to climate change. Additional dam improvements will also allow water releases that improve water quality in the lake.

Photo credit: Duncan Public Utilities Authority

Recognized Projects

Texas Water Development Board

Project Name: Transfer to Baytown WWTP

Assistance Recipient: Cedar Bayou Park Utility District

The Cedar Park Bayou Utility District's Wastewater Treatment Plant (WWTP) was located within a floodplain and discharged to Cedar Bayou, an impaired water body. To address water quality, increase resiliency, and protect public health, Cedar Park Bayou Utility District decided to remove the existing WWTP and lift station, replacing the two facilities with one lift station and consolidating wastewater treatment with the City of Baytown. The City of Baytown accepted the additional flows within their collection system for treatment at their WWTP.

Cedar Park Bayou Utility District received a $1.34 million loan to implement this project. It also removed an outfall into Cedar Bayou, which lessened the chance of raw sewage discharges during flood events. The project removed a WWTP located within a floodplain, elevated the new lift station to be more resilient against future flooding, and raised electrical equipment and critical infrastructure above 500-year flood elevations.

Photo credit: Cedar Bayou Park Utility District

Missouri Department of Natural Resources

Project Name: Perryville Southeast Wastewater Treatment Plant Improvements

Assistance Recipient: City of Perryville, Missouri

The City of Perryville's aging infrastructure limited its ability to continue meeting permit effluent limits. To address these concerns, the City garnered support from the community to invest in new wastewater treatment improvements to increase the design flow from 1.8 to 2.5 million gallons per day (MGD) and enhance the treatment capabilities, including those for nutrients and metals. The treatment plant's design increased flexibility in handling flow variations with changing weather patterns. The new components included a new three-channel oxidation ditch, a new influent pump station, headworks, clarifiers, a return activated sludge pump station, two tertiary disc filters, and an ultraviolet disinfection system. A $27 million CWSRF loan and the chosen Progressive Design-Build construction delivery approach helped expedite the project timeline.

Water quality was a key factor in the new treatment plant design and studies were used to help refine the effluent discharge limits for metals. The receiving stream, Cinque Hommes Creek, is a tributary to the Mississippi River, so nutrient levels and downstream impact on Gulf Hypoxia were a factor. Another water quality consideration is the presence of grotto sculpins in the vicinity, which are endangered cave-dwelling fish that only occur in Perry County.

Photo credit: City of Perryville

Colorado Water Resources and Power Development Authority

Project Name: Collection System Improvements

Assistance Recipient: Town of Yampa

The Town of Yampa, located in Northwestern Colorado, wanted to improve their wastewater treatment works but were dismayed by the potential rate increase associated with their project cost estimates. The Town worked closely with the State to assess project alternatives. They decided to approach improvements to the collection system and the treatment system upgrades as separate projects and seek separate funding sources for each.

The Town determined that the CWSRF would fund the collection system improvements and USDA Rural Development would fund the replacement of the Town's lagoon system with a mechanical treatment plant. This enabled the Town to leverage principal forgiveness opportunities available from both funding sources. Additionally, by splitting the project in two, the Town was able to apply for two state grants for $1 million each from the Colorado Department of Local Affairs. The Town also developed a business case to establish their status as a disadvantaged community, which qualified the community for a design and engineering assistance grant. The Town is still developing the lagoon replacement project plan with USDA Rural Development. The SRF funded collection system project will cost $2.3 million, $1.7 million of which is likely eligible for principal forgiveness, with a repayable amount of $500,000 – avoiding further user rate increases for the Town.

Photo credit: Town of Yampa

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