

PISCES Recognition Program

2019 Compendium



Clean Water
State Revolving Fund



DIRECTOR'S ADDRESS

Dear Colleagues,

2019 marks the third year we recognize the great work of the Clean Water State Revolving Fund (CWSRF) assistance recipients and state programs through the Performance and Innovation in the SRF Creating Environmental Success (PISCES) program. Since its inception, the CWSRF has provided affordable financing for water infrastructure projects that protect public health and the environment. This Compendium highlights CWSRF projects that demonstrate performance in innovation; sustainability; and/or water quality, public health, or economic benefits.

Over the past 31 years, the CWSRF programs have provided more than \$138 billion in financing for water quality infrastructure. The projects recognized here celebrate the success the program has achieved across the nation. They underscore the flexibility of the CWSRF for meeting the water quality needs of communities and cover a wide range of eligibilities and project types – from large wastewater infrastructure projects to small decentralized and agriculture projects. Some projects even integrate community involvement and public amenities through grassroots development.

I want to express my appreciation to all of the assistance recipients recognized in this compendium for their contributions to improved wastewater infrastructure. I commend your dedication to providing water quality benefits for our communities. I hope that everyone will enjoy learning about this year's set of PISCES projects and that they will inspire creativity in how the CWSRF can be utilized to meet the diverse water quality needs of our communities. Thank you.

Sincerely,



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



RECOGNIZING SUCCESS

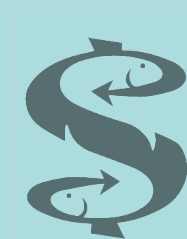
The Clean Water State Revolving Fund's Performance and Innovation in the SRF Creating Environmental Success (PISCES) program recognizes exceptional projects funded by the CWSRF at the national level. Each participating state program nominated one project that demonstrated one or more of the following evaluation criteria:

- Water Quality, Public Health, or Economic Benefits
- Sustainability
- Innovation

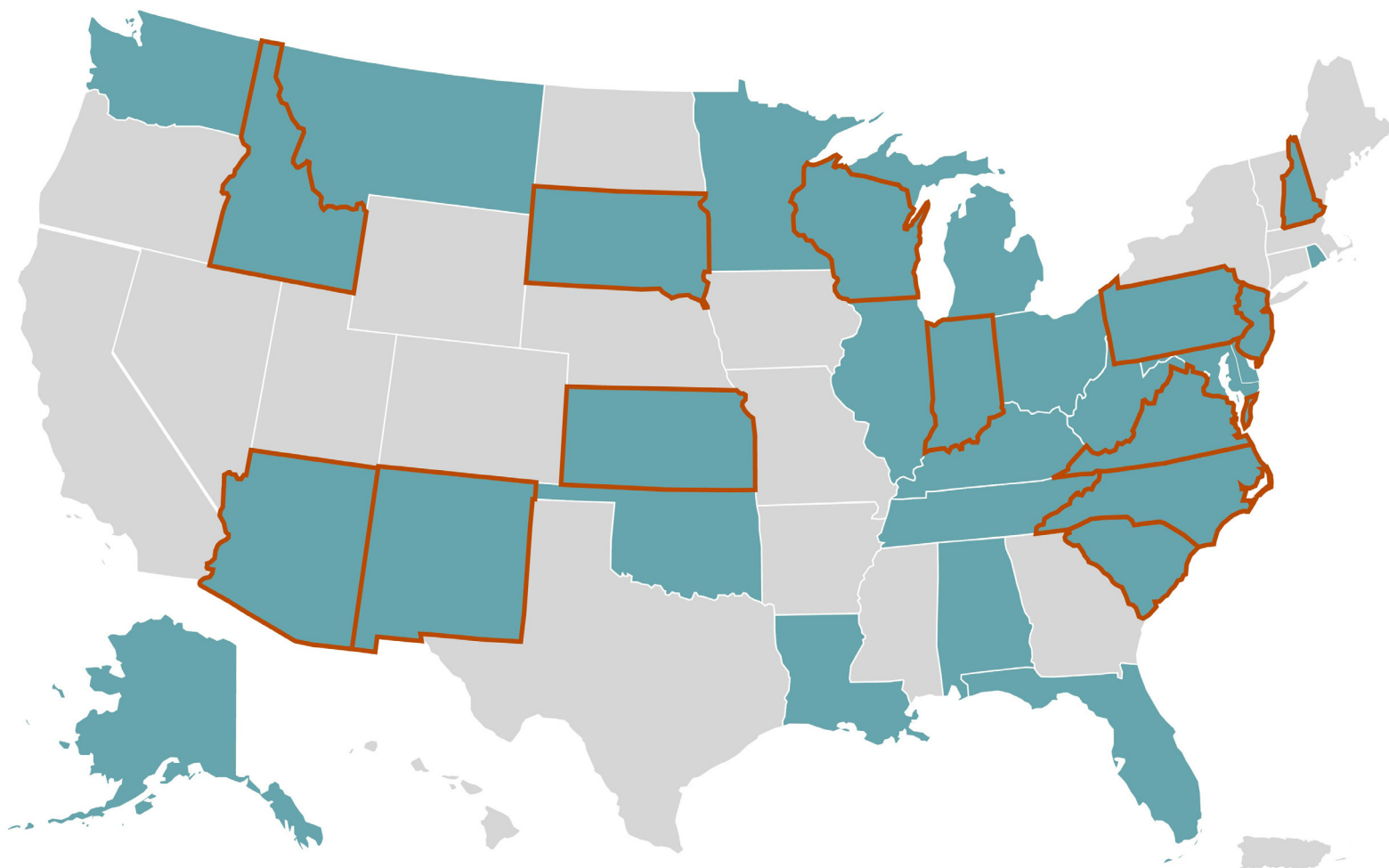
Eligible projects could be any size and must have an executed assistance agreement. Projects could be operational or in the planning phase. After all project nominations were reviewed and accepted for this year's recognition, at least one project in each EPA Region was selected to receive the Exceptional Project recognition based on meeting the evaluation criteria. The remaining nominated PISCES projects were selected to receive the Honorable Mention recognition.

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2019 PISCES PROJECTS



RECOGNIZED PROJECTS ARE LOCATED IN THE STATES SHOWN IN BLUE.

EXCEPTIONAL PROJECTS ARE OUTLINED IN ORANGE.

EXCEPTIONAL RECOGNITION

<u>ARIZONA:</u>	Adonis Sewer Connection to Town of Marana
<u>IDAHO:</u>	Boise Public School District Lead Remediation
<u>INDIANA:</u>	Stormwater and Deicing Capacity Project
<u>KANSAS:</u>	Storm Sewer Restoration and Repair
<u>NORTH CAROLINA:</u>	Bioenergy Recovery Project
<u>NEW HAMPSHIRE:</u>	Town of Newmarket Wastewater Treatment Facility Upgrade
<u>NEW JERSEY:</u>	Jersey City Municipal Utilities Authority Green Infrastructure Project
<u>NEW MEXICO:</u>	Peralta Regional Sanitary Sewer Project
<u>PENNSYLVANIA:</u>	Lyme PA Headwaters/Sterling Run Conservation and Restoration
<u>SOUTH CAROLINA:</u>	Timmonsville System Adoption by the City of Florence Project
<u>SOUTH DAKOTA:</u>	Dell Rapids Wastewater Treatment Facility
<u>VIRGINIA:</u>	Living Shorelines Resiliency Loan Program
<u>WISCONSIN:</u>	Pumping Station Rehabilitation

HONORABLE MENTION RECOGNITION

<u>ALASKA:</u>	Scow Bay Pump Station 1 Upgrade
<u>ALABAMA:</u>	Hanceville WWTP Solar Energy System
<u>DELAWARE:</u>	Ocean Outfall and WWTP Upgrade
<u>FLORIDA:</u>	Biosolids Energy Efficiency Project
<u>ILLINOIS:</u>	West Washington Street Stormwater Improvements
<u>KENTUCKY:</u>	West Hickman WWTP Wet Weather Storage and Headworks
<u>LOUISIANA:</u>	Wastewater System Consolidation
<u>MARYLAND:</u>	Conococheague WWTP Enhanced Nutrient Removal
<u>MICHIGAN:</u>	Pontiac WWTF: Biosolids, Dewatering/Storage, & Septage Receiving
<u>MINNESOTA:</u>	St. Cloud Nutrient and Energy Recovery Project
<u>MONTANA:</u>	Havre Wastewater System Improvements
<u>OHIO:</u>	Wastewater Treatment Plant Upgrades
<u>OKLAHOMA:</u>	City of Elk City Downtown Streetscape Project
<u>RHODE ISLAND:</u>	Block Island Landfill Slope Repair Project
<u>TENNESSEE:</u>	Water Reclamation Facility Modifications & Expansion
<u>WASHINGTON:</u>	Oak Harbor Clean Water Facility Project
<u>WEST VIRGINIA:</u>	Morgantown Wastewater Treatment Facility Upgrade

PISCES EXCEPTIONAL PROJECT: ARIZONA

Program: Arizona Water Infrastructure Finance Authority

Assistance Recipient: Town of Marana

Project Title: Adonis Sewer Connection to Town of Marana



The Adonis Mobile Home Subdivision Association (MHSA), a historic neighborhood in the Town of Marana, has two facultative lagoons that have been operating over capacity, which could potentially contaminate the aquifer. These lagoons were located within a Federal Emergency Management Administration (FEMA)-designated floodplain along the Santa Cruz River and were a significant human health and environmental concern. MHSA is a private entity with a population of 441 that consists of low and moderate-income homeowners. The Water Infrastructure Finance Authority of Arizona (WIFA) provided a loan for approximately \$1.5 million to the Town of Marana to take over MHSA's wastewater conveyance system. A lift station was constructed to convey the neighborhood's sewage north to the Marana municipal sewer collection system, and WIFA approved 50% in principal forgiveness, or nearly \$750,000, making the loan more affordable to residents.

The project qualifies as a water efficiency project because the total flow from the Town's Water Reclamation Facility, including the effluent from Adonis Mobile Home Park, is treated to Class A+ reclaimed water standards and discharged to the aquifer at the Marana Water Reclamation Facility. Other financing entities were unable to assist this needed project, but the CWSRF made it possible to solve an aquifer contamination issue and avert a possible impact to the Santa Cruz River.

PISCES EXCEPTIONAL PROJECT: IDAHO

Program: Idaho's Department of Environmental Quality

Assistance Recipient: Boise Public School District

Project Title: Boise Public School District Lead Remediation



Old Hallway Fountain Old Lavatory Faucet



New Hallway Fountain New Lavatory Faucet

The Boise School District (BSD) tested drinking water sources from its schools built before 1986 and found that 20 schools required remediation for lead exposure. Resolving this concern and removing the sources of lead contamination required a fast response, but in Idaho, a bond passage is required for any municipal long-term debt that significantly extends the period necessary to begin capital projects. The Idaho SRF provided BSD with a 100% principal forgiveness loan of \$500,000, and with the entire loan forgiven, time-consuming loan underwriting was not required and BSD quickly remediated the lead exposure.

The source of lead contamination at these schools originated from old lead faucets, so the school initially flushed water lines daily to reduce lead exposure. Idaho's SRF program issued a proactive categorical exclusion for the entire class of lead remediation activities since old fixtures were replaced with like-kind new lead-free parts. The project is eligible for CWSRF financing because it provides a water efficiency benefit to the public water system. This project replaced 1,597 faucets with new water-efficient fixtures which eliminated the required daily flushing and is estimated to save over 1.7 million gallons of water a year. This creative project reduced lead exposure in drinking water for students while conserving water which provided many benefits for BSD.

PISCES EXCEPTIONAL PROJECT: INDIANA

Program: Indiana State Revolving Fund Loan Program

Assistance Recipient: Indianapolis Airport Authority

Project Title: Stormwater and Deicing Capacity Project



The Indianapolis Airport Authority (IAA) collaborated with the Indiana SRF to fund the construction of a stormwater improvement project that enhances water quality treatment at the Indianapolis International Airport, the principal airport serving Indianapolis and central Indiana. A \$30 million loan was used to install new stormwater and deicing runoff infrastructure to accommodate the expansion of impervious surface area for air carrier operations. Infrastructure improvements across three locations will include: demolition of an undersized facility, construction of multiple storage structures, construction of diameter storm sewers, construction of pump stations, and more.

This project manages stormwater by directing runoff to areas capable of accepting the flow. By sampling and monitoring at different locations, the IAA can discharge runoff to designated outfalls in accordance with their NPDES permit, without the need for treatment at the nearby wastewater treatment plant. Though flows may be conveyed to the plant for treatment when necessary due to chemicals used in deicing, this strategy will minimize unnecessary treatment, save energy and money, and increase efficiency.

PISCES EXCEPTIONAL PROJECT: KANSAS

Program: Kansas Water Pollution Control Revolving Fund

Assistance Recipient: Westwood Hills

Project Title: Storm Sewer Restoration and Repair



The Kansas Water Pollution Control Revolving Fund funded a storm sewer project that rehabilitated a 1920s collection system in the City of Westwood Hills. This was the program's first time funding a storm sewer project, and upgrades were made to reduce erosion around culverts, curb inlets, junction boxes, and storm sewer pipes. Repairs were also made to broken curb inlets, curb inlet throats and tops, and culverts with structural issues.

This incorporated community located in the greater Kansas City metropolitan area has a population of around 400, and the community's general fund only finances two services: street transportation and drainage services. Additional funds for sewer repairs were needed, so a new revenue stream for this project was generated by increasing property taxes to cover the cost of the project. This creative funding solution produced an additional \$23,700 per year (\$141.90 per household per year), which fully covers loan repayments and allows this community to address much-needed stormwater infrastructure improvements.

PISCES EXCEPTIONAL PROJECT: NORTH CAROLINA

Program: North Carolina Department of Environmental and Natural Resources

Assistance Recipient: City of Raleigh Public Utilities Department

Project Title: Bioenergy Recovery Project



The City of Raleigh is transforming a waste product from its wastewater recovery facility into fuel for their natural gas bus fleet. The City received a \$50 million Green Project Reserve loan for the Bioenergy Recovery Project (BRP), which will allow them to sustainably manage biosolids generated at the City's Neuse River Resource Recovery Facility. The bioenergy facility's innovative thermal hydrolysis pretreatment and mesophilic anaerobic digestion process increases biogas production and produces a high-quality Class A biosolids product.

The process will reduce the volume of biosolids produced at the plant by 48%, significantly reducing hauling and disposal costs as well as associated emissions. Captured biogas at the BRP is used as fuel for the City's natural gas bus fleet. To maximize the benefit of the BRP, the City's Transportation Department constructed a compressed natural gas fueling station and purchased 40 compressed natural gas busses with the assistance of the Federal Transit Administration Grant funding program. The fueling station will utilize all the natural gas generated at the bioenergy facility.

PISCES EXCEPTIONAL PROJECT: NEW HAMPSHIRE

Program: New Hampshire Department of Environmental Services

Assistance Recipient: Town of Newmarket

Project Title: Town of Newmarket Wastewater Treatment Facility Upgrade



The Town of Newmarket received \$14.1 million in CWSRF funds, with \$1.7 million provided in principal forgiveness, to upgrade their wastewater treatment plant. The upgrade included the conversion of a trickling filter process to a new 4-Stage Bardenpho process for nitrification and denitrification, putting Newmarket in a position to meet total nitrogen effluent limits and improve water quality in the Lamprey River and Great Bay watersheds. The upgrade also improved energy efficiency through the installation of hybrid aeration blowers and low-speed dewatering technology. Not only will Newmarket save money on their energy bill, they also received monetary incentives through a partnership with their energy provider.

Newmarket received significant cost savings by financing the project through both the CWSRF and U.S. Department of Agriculture (USDA) Rural Development. The Town's efforts to maximize performance and minimize energy consumption, combined with their active participation in collaborative watershed partnerships, shows an exemplary commitment to improving water quality in the Great Bay Estuary in order to protect this national treasure.

PISCES EXCEPTIONAL PROJECT: NEW JERSEY

Program: New Jersey Department of Environmental Protection

Assistance Recipient: Jersey City Municipal Utilities Authority

Project Title: Jersey City Municipal Utilities Authority Green Infrastructure



The Jersey City Municipal Utilities Authority (JCMUA) received a \$6.6 million loan with \$1.3 million in principal forgiveness to implement a green infrastructure (GI) project designed to reduce flooding and increase resiliency to potential extreme weather events and sea level rise. Students at the Jersey City Public School No. 5 approached their science teacher after noticing that the area in front of their school flooded on a regular basis. The teacher reached out to the Rutgers Cooperative Extension Water Resources program (Rutgers CoopX) about conducting a GI evaluation at the school. In the meantime, the students calculated rainfall and analyzed how much GI would be necessary to solve the flooding issues. Rutgers CoopX then validated the data compiled by the students.

The students recognized that their school wasn't the only area in Jersey City that flooded and pitched their plans to the City Council, which led to the development of a project at their school and at the JCMUA Administrative Building to intercept, treat, and filter stormwater runoff. Best management practices were installed that included replacing impermeable pavement with porous and permeable surfaces, relocating trees at the school, and planting rain gardens at the Administrative Building. This project demonstrates how community action and strategic planning enabled the JCMUA to invest in state-of-the-art resiliency measures to benefit their community for years to come.

PISCES EXCEPTIONAL PROJECT: NEW MEXICO

Program: New Mexico Environment Department

Assistance Recipient: The Town of Peralta

Project Title: Peralta Regional Sanitary Sewer Project



The small Town of Peralta had no wastewater collection or treatment system, and individual homes were using aging septic systems that were not properly maintained. Many shallow domestic wells were densely located among these septic systems, which created a risk of high drinking water contamination. To begin planning and design for their sewer system, Peralta entered into a Memorandum of Understanding with the neighboring Town of Bosque Farms to allow Peralta to connect to their sewer system and wastewater treatment plant (WWTP), as Bosque Farms had the capacity to treat additional flow.

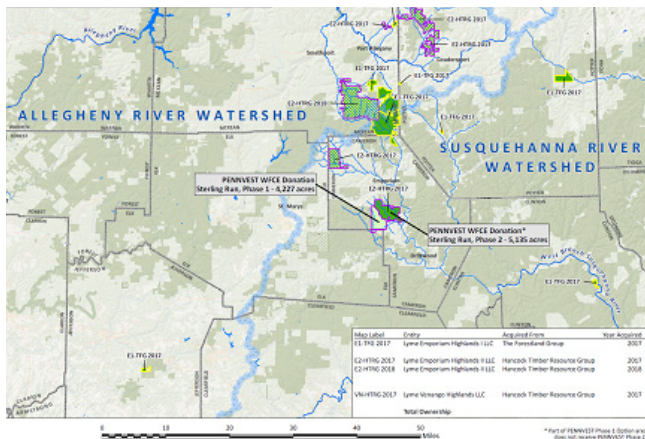
A traditional gravity sewer collection system with sewer lift stations would not work due to the shallow groundwater depth and narrow right-of-ways, so the new regional sanitary sewer collection system will use a low-pressure grinder pump system. This low-pressure system will allow two six-inch diameter collection lines to be installed at a constant depth of three to four feet below finished grade. This intermunicipal agreement demonstrates cooperative planning to address significant public health concerns for local community members. This project was financed with a \$3 million loan from the New Mexico Environment Department.

PISCES EXCEPTIONAL PROJECT: PENNSYLVANIA

Program: PENNVEST

Assistance Recipient: Lyme Emporium Highlands II LLC

Project Title: Lyme PA Headwaters/Sterling Run Conservation and Restoration



The Lyme Timber Company LP (Lyme) is a private timberland investment management organization that specializes in structuring working forest conservation easements that restrict or eliminate property subdivision and allow for public recreation. In 2018, Lyme applied to PENNVEST for funding to assist in the purchase of 63,500 acres of forestland. The funding consisted of a \$50 million loan at a 1% interest rate and a 20-year term with an interest-only payment for up to five years and 15 years of repayment. With this loan, Lyme put a working forest conservation easement on 9,500 acres which will later be granted to the Pennsylvania Department of Conservation and Natural Resources with an approximate value of \$8 million. By following a sustainable timber management plan, revenues from timber harvests will finance the repayments for this loan. The agreement also grants the Commonwealth the right to purchase conservation easements on an additional 50,700 acres for a period of seven years.

This project protects a drinking water supply for 12,500 nearby residents and has created over 100 quality jobs in the forest industry. Additionally, \$750,000 will go towards acid mine drainage remediation work on three sites. This innovative project provides for enhanced stream protection, public recreation and access, and ensures that the property remains forested and sustainably managed in perpetuity.

PISCES EXCEPTIONAL PROJECT: SOUTH CAROLINA

Program: South Carolina Department of Health and Environmental Control

Assistance Recipient: City of Florence

Project Title: Timmonsville System Adoption by the City of Florence Project



The Town of Timmonsville's thousand-customer system, which provides wastewater and drinking water services, was not being properly operated or maintained. Sewage frequently escaped from manholes and the primary facultative treatment and secondary aerated treatment systems failed to meet effluent discharge limits. To address these issues, Timmonsville formed a partnership with the City of Florence where Florence took over the Town's system to restore its viability. Florence's interest was to stabilize the Timmonsville community, restore environmental quality, and support local business and residences.

Florence secured funding for the system improvements through a combination of city system revenues and three CWSRF loans totaling \$8.5 million, with \$1 million in principal forgiveness. CWSRF funded projects included: repairs and upgrades to the wastewater treatment plant; rehabilitation of sewer lines, manholes and pump stations; and installation of new sewer lines. These upgrades were accomplished while maintaining existing rate structures for both Florence and Timmonsville. This project is a great example of regulatory agencies, municipalities, and stakeholders coming together to solve a problem through the implementation of long-term solutions and cooperative finance programs.

PISCES EXCEPTIONAL PROJECT: SOUTH DAKOTA

Program: South Dakota Water and Waste Funding Program

Assistance Recipient: City of Dell Rapids

Project Title: Dell Rapids Wastewater Treatment Facility



The City of Dell Rapids has a population of approximately 4,000 people and has been experiencing a 2% growth rate in recent years. To meet growing capacity needs and future permit conditions, the CWSRF funded nearly half of a \$5.8 million expansion and upgrade project for the City's WWTP. The facility is located near the Big Sioux River and the Dells of the Sioux River, which present physical design constraints. The bedrock obstructed new construction and made it difficult to access additional potable water. Based on the land availability, operational flexibility, expandability, design life, and capital costs the city constructed a sequencing batch reactor treatment system, new inlet works building, an on-site surge watering tank, and an ultraviolet disinfection system. To minimize the startup time needed to achieve adequate effluent levels, the City obtained free seed sludge and placed it in the sequencing batch reactor to accelerate the treatment process. This allowed limits to be met only 14 days after starting to accept raw sewerage. This new and reliable system reduces odors and produces cleaner effluent than the former lagoon systems.

PISCES EXCEPTIONAL PROJECT: VIRGINIA

Program: Virginia Department of Environmental Quality

Assistance Recipient: Middle Peninsula Planning District Commission

Project Title: Living Shorelines Resiliency Loan Program



The Middle Peninsula Planning District Commission (MPPDC) has created a Living Shoreline Revolving Loan Program for homeowners within their district. Known as the Shoreline Resiliency Program, the program will provide an innovative, long-term source of low-interest financing that establishes living shorelines to protect or improve water quality and prevent the pollution of state waters. All loans greater than \$3,000 are secured with a deed of trust granted to the MPPDC, and grants may be made for projects that help protect high erosion shorelines. The first loan for \$250,000 in 2017 resulted in the installation of five projects ranging in cost from \$14,133 to \$182,867. The second loan was issued in 2019 for the same amount. This program received so much interest from small businesses within the district that the Virginia General Assembly expanded eligible applicants to include bed and breakfast operations, campgrounds, restaurants, and businesses that use working waterfronts. Living shorelines not only preserve and provide habitat for coastal plants and animals, but also provide aesthetic benefits to landowners and the public.

PISCES EXCEPTIONAL PROJECT: WISCONSIN

Program: Wisconsin Department of Natural Resources

Assistance Recipient: Madison Metropolitan Sewerage District

Project Title: Pumping Station 15 Rehabilitation



The Madison Metropolitan Sewerage District (MMSD) began a major rehabilitation project in 2016 of Pumping Station 15 due to its age and anticipated nearby land development. This regional pumping station is located between a boat ramp and a heavily used bike path in Marshall Park. The project's structural and mechanical engineering costs included installation of a photovoltaic cell array on the roof, new high efficiency pumps, variable frequency drives, and two separated electrical feeds. These upgrades make the pump station more resilient against extreme weather events. The station conveys an average of 1.32 million gallons of wastewater per day with capacity up to 8.8 million gallons per day, which is expected to meet the needs of the service area through 2045.

In addition to the pump upgrades, the heavily-trafficked location prompted the construction of public restrooms, two aquatic invasive species boat wash hydrants, and a bike repair station. Sustainable design practices were incorporated and included installation of bioretention ponds, a green roof, rain gardens, and permeable pavement walkways. The project includes a real-time information display that is visible to the public, showing information about pumping speeds, water flow, and other data associated with the pumping station. Incorporating educational aspects into this project provides a community engagement opportunity while addressing water quality issues by updating an outdated pumping station.

HONORABLE MENTIONS

Program: Alaska SRF

Recipient: Petersburg Borough

Project: Scow Bay Pump Station 1 Upgrade

The Scow Bay 1 station pumps continuously during storm events due to inadequate wet weather storage capacity and worn pumps. The existing suction lift pumps were installed in 1990 and are estimated to operate at only 25% of their original efficiency, and often both pumps must run to keep up with system flows. Sometimes, in heavy storm events, the pump station reaches maximum capacity and needs to bypass flow out of the collection system to protect electrical components from flooding. To address this, the Borough will use a CWSRF loan to replace the pump station with new high efficiency submersible pumps and an intelligent electronic control system featuring variable frequency drives that will provide energy savings and help optimize system efficiency. The Borough anticipates power usage to decrease sharply with energy costs decreasing 52% overall, making this an excellent energy efficiency capital improvement project. Further efficiencies are anticipated through component standardization providing significant reduction in overall operations and maintenance costs in addition to increased reliability.



Program: Alabama SRF

Recipient: Hanceville Water Works and Sewer Board

Project: Hanceville Solar Energy System

The Hanceville Water Works and Sewer Board borrowed \$345,000 from the Alabama CWSRF, combined with a grant from the Tennessee Valley Authority, to install a solar panel array at its WWTP. The solar energy facility was installed in July of 2018 and has seven solar arrays with a generating capacity of 170 kW. The project utilized the renewable resource to provide a significant long-term operational cost savings for the Board. It is projected to result in over \$300,000 worth of energy savings for the WWTP during the life of the solar panels. Significant energy savings have been achieved by WWTP optimization, but the solar energy facility will help Hanceville achieve steady and continued energy savings for years to come. This was the first installation of a solar energy facility co-located with a wastewater utility in Alabama.



HONORABLE MENTIONS

Program: Delaware SRF

Recipient: City of Rehoboth Beach

Project: Ocean Outfall and WWTP Upgrade

The City of Rehoboth Beach and Sussex County developed a partnership to address water quality and land conservation in Rehoboth Beach and surrounding communities. The project constructed a 6,000-foot ocean outfall pipe, a pump station, a force main, and a diffuser. This project eliminates discharges to the Lewes and Rehoboth Canal while complying with the Inland Bays Total Maximum Daily Load (TMDL), which requires the elimination of all point sources into the watershed. Upgrades were also made to improve effluent quality, which will remove approximately 17,120 pounds of nitrogen and 1,180 pounds of phosphorus from entering Rehoboth Bay annually. This project also sponsored a land conservation and water quality project for Sussex County that included land acquisition of 60 acres of forest and open space along a tributary of Rehoboth Bay. Land conservation efforts will include reforestation, stream restoration, and wetland creation that will protect habitat, create public trails, and better manage stormwater. The Delaware CWSRF funded this project which received a reduced interest rate of 2% for sponsoring the land conservation project.



Program: Florida SRF

Recipient: City of Lakeland

Project: Biosolids Energy Efficiency

The City of Lakeland partnered with Schneider Electric to construct a comprehensive biosolids energy efficiency project at their Glendale Wastewater Reclamation Facility. This project encompasses both process-related capital improvements and the installation of a combined heat and power system that will capture and condition previously flared biogas from the plant's anaerobic digesters. The captured energy will power a 400-kW generator, reducing the facility's electricity needs by over 41%. Lakeland is also improving its sludge pumping and mixing systems, which will ensure continued production of Class AA biosolids and minimize transportation and disposal costs. This project will save the City more than \$1.4 million in avoided utility, operation, maintenance, and capital costs in the first year following completion, while averaging nearly \$680,000 annually thereafter. The City will also engage with the local community and schools through educational programs and student enrichment activities held at the wastewater reclamation facility.



HONORABLE MENTIONS

Program: Illinois SRF

Recipient: City of Champaign

Project: West Washington Street Stormwater Upgrade

To address severe flooding, the City of Champaign received \$18.9 million in CWSRF funding for one of the first green stormwater projects funded by the state. With a CWSRF loan, the City was able to fund the second and third phase of its West Washington Street Stormwater Improvements project. Phase 1 was completed in 2014 and included an 11 acre-feet detention basin and sewer pipes. Phase 2 constructed a 17.8 acre-feet detention basin with storm sewers that connect to the Phase 1 detention basin. This phase included native plants, rain garden/bio-retention, and curb cuts that drain into bioswales. In addition, new green spaces were created around the detention basins. Phase 3 proposes the construction of storm sewers to allow surface drainage into the collection system from flood prone areas.



Program: Kentucky SRF

Recipient: Lexington-Fayette Urban County

Project: West Hickman Wet Weather Storage

West Hickman WWTP made system enhancements and increased sewer capacity through a \$63.4 million Wet Weather Storage and Headworks Facility project. The project constructed a new mechanical screening and grit removal system, a facility odor control system, two non-potable water pumping stations, auxiliary power to operate the entire complex, a 20 million gallon above ground storage tank, and a 140 million gallon a day (MGD) pump station that allowed for the elimination of two smaller pump stations. The project provides future public sewer capacity in an area expected to see expansive development. Construction of these enhancements provides the City with the appropriate sewer capacity and eliminates the need for future private septic systems and additional wastewater treatment plants.



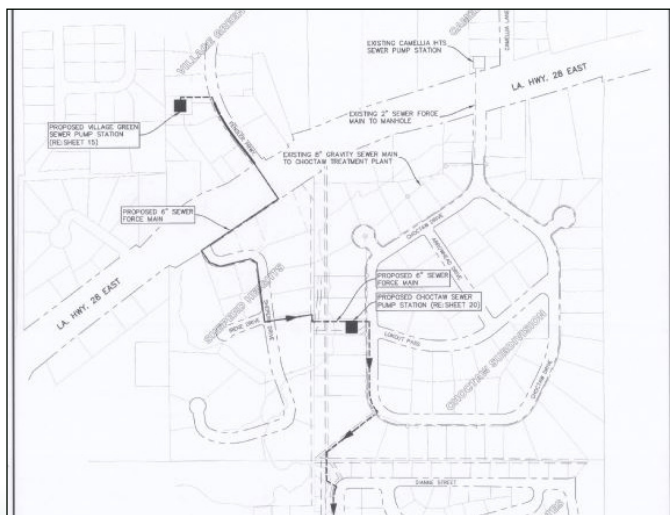
HONORABLE MENTIONS

Program: Louisiana SRF

Recipient: Rapides Parish Sewer District No. 2

Project: Wastewater System Consolidation

The Rapides Parish Sewer District No. 2 provides sewerage services to the unincorporated areas of the Parish north of the Red River. This is done using two 40-year-old WWTPs that need significant repair. The District received a \$2.5 million CWSRF loan to consolidate the wastewater treatment and replace the existing plants by constructing a new 150,000 GPD extended aeration WWTP. This project is the most economic option for the Parish, and the new facility will increase capacity for further consolidation. The existing Village Green and Choctaw Hills treatment plants will be replaced by lift stations, which will pump wastewater through approximately 5,000 linear feet of 6-inch and 8-inch force main to the new treatment plant site. Consolidation of these wastewater facilities with a modern facility will provide reliable treatment system that the District can maintain more effectively.



Program: Maryland SRF

Recipient: Washington County

Project: Conococheague Enhanced Nutrient Removal

The Conococheague WWTP reduced nutrient pollution in the Potomac River and Chesapeake Bay through an enhanced nutrient removal (ENR) upgrade. The project expanded treatment capacity from 4.1 to 4.5 MGD, reduced nitrogen discharges from 8.0 mg/L to 3.0 mg/L, and reduced phosphorus discharges from 2.0 mg/L to 0.3 mg/L. Nutrient loading was reduced by approximately 62,000 pounds for nitrogen, a 60% reduction, and about 21,000 pounds for phosphorus, an 84% reduction. The Maryland Water Quality Financing Administration (MWQFA) provided a loan for approximately \$1.4 million, along with \$462,415 in principal forgiveness, toward the total upgrade cost of \$32 million. As of March 2019, MWQFA has funded ENR implementation at all 67 of Maryland's major wastewater treatment plants that have flow greater than 500,000 GPD. These ENR changes have exceeded nutrient reduction goals established for the Chesapeake Bay through the Chesapeake Bay TMDL plan and the Chesapeake Bay Program Watershed Implementation Plan.



HONORABLE MENTIONS

Program: Michigan SRF

Recipient: Clinton River Water District

Project: Pontiac WWTF Biosolids Dewatering

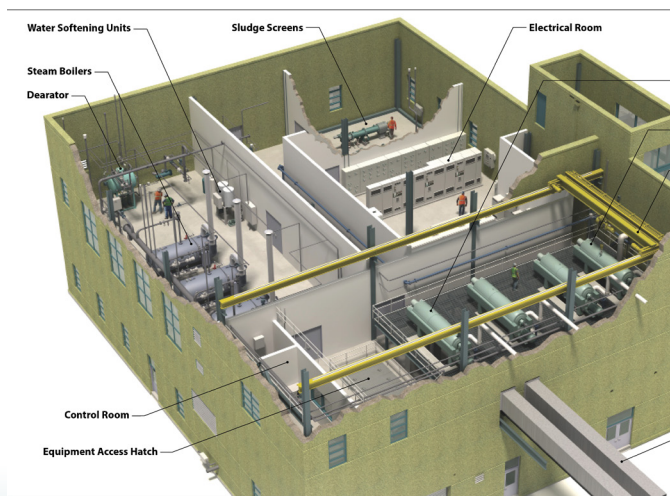
The City of Pontiac received \$31.9 million in funding from the Michigan CWSRF to upgrade their Clinton River WWTP. This Green Project Reserve project includes a Thermal Hydrolysis Pretreatment (THP) system that has the unique distinction of being the second plant in the Nation and the first in Michigan to use this emerging technology with anaerobic digestion. This cutting-edge method for conditioning sludge prior to digestion produces a finer digested sludge and exceptional quality Class A biosolid. With this project, useful materials are recycled and dispersed on land, and harmful contaminants are kept out of lakes, rivers, and streams. This kind of application provides advancements in both energy efficiency and sustainability. As a result, there are long-term economic benefits anticipated for the 14 communities that send their sanitary wastewater flows to be treated at this facility.

Program: Minnesota SRF

Recipient: City of St. Cloud

Project: St. Cloud Nutrient & Energy Recovery

The City of St. Cloud's Nutrient, Energy, and Water Recovery Facility received a \$16.7 million CWSRF loan for its innovative Nutrient and Energy Recovery Project. The project converts Class B biosolids to Class A products and converts phosphorus into a fertilizer component. The project also installed a biogas membrane and a combined heat and power engine-generator and converted a storage digester to a primary digester. These upgrades decreased biosolids by 70% which resulted in a decrease in staff processing time and hauling costs. The nutrient recovery reactor, the first installed in Minnesota and the 10th worldwide, will allow the facility to generate over 100 tons of struvite product that will be used where there are phosphorus deficiencies in the soil. The City also entered into a unique long-term agreement with a local brewing company wherein the City will convert byproducts from the brewery into energy, which will be used in the engine-generator at the Recovery Facility. The brewery contributed \$391,000 of capital toward a new engine-generator and will pay tipping fees to offset any additional operation and maintenance costs. In 2018, the facility produced 82% of its electrical demand on-site using biofuel and solar, leading to a corresponding decrease in utility bill costs. As a result of the installation of the second engine-generator, the facility will be net zero in 2020.



HONORABLE MENTIONS

Program: Montana SRF

Recipient: City of Havre

Project: Wastewater System Improvements

The Montana Water Pollution Control SRF provided over \$10 million in assistance to the City of Havre to fund necessary improvements to their activated sludge treatment plant. This nearly 40-year-old WWTP needed upgrades to help meet their final ammonia and residual chlorine limits. The existing treatment system was converted to a 1.8 MGD biological nutrient removal system and existing aerobic basins were rehabilitated. Additional basins were constructed to create anaerobic, anoxic, and aerobic environments needed for treatment. These basin configurations promote nitrification and denitrification for nitrogen removal, as well as enhanced biological phosphorus removal. The existing chlorination system was replaced with an ultraviolet disinfection system. To further enhance the biological phosphorus removal process, 10 gallons of waste barley mash from a local brewery gets added daily as an external source of carbon and volatile fatty acid supplement. These improvements have allowed the facility to continuously meet all permit effluent limits and has significantly improved the operability, reliability, and treatment capability of the facility. These upgrades have greatly improved the quality of wastewater effluent discharged to the Milk River, particularly with respect to nutrient levels and ammonia toxicity.

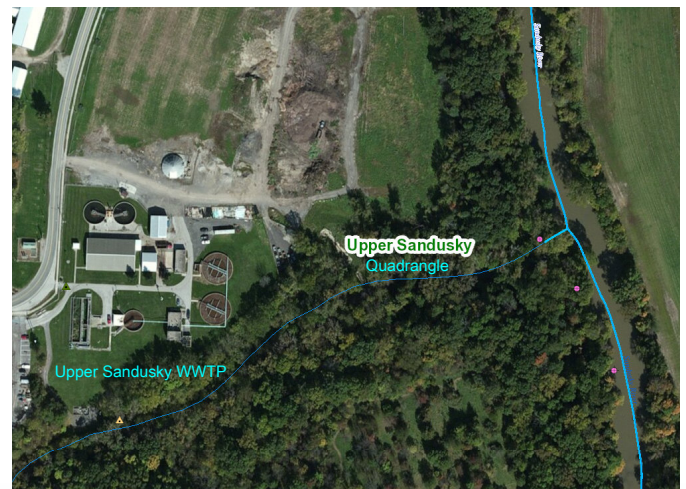


Program: Ohio EPA

Recipient: Upper Sandusky

Project: Wastewater Treatment Plant Upgrade

Upper Sandusky is a small community in northwest Ohio with less than 7,000 people. Like many communities in the state, it has a combined sewer system that overflows during wet weather, which leads to water quality and potential public health problems. The city's WWTP experiences bypasses during excessive wet weather events, and during one storm in 2011, discharged 9.28 million gallons into the Sandusky River. To help address the bypasses and remaining CSOs, Upper Sandusky received a \$27 million loan from Ohio EPA's Water Pollution Control Loan Fund (WPCLF) to increase the treatment capacity and capability of the WWTP. The low loan rate of 0.1% saved the small community \$18 million. Since the WWTP discharges to the Sandusky River, which is both a State Scenic River and a major tributary to Lake Erie, Upper Sandusky has also added phosphorus removal to its treatment process. Other aspects of the project include influent sewer improvements, preliminary treatment, and UV disinfection, among other upgrades that will increase treatment capacity and energy efficiency and reduce nutrient loading in Lake Erie.



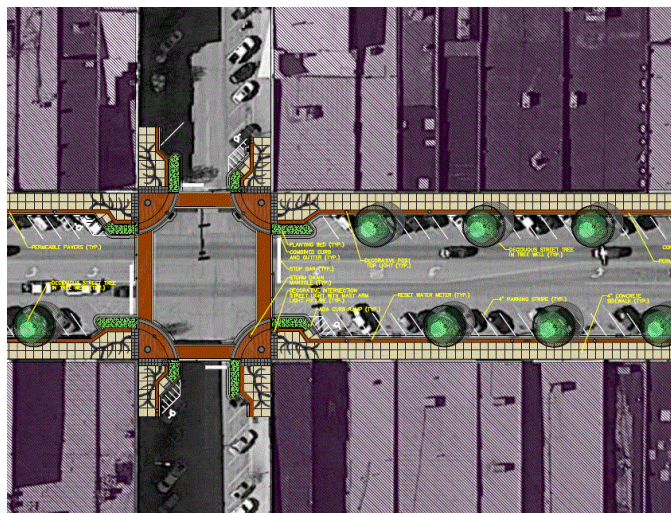
HONORABLE MENTIONS

Program: Oklahoma SRF

Recipient: Elk City Public Works Authority

Project: Downtown Streetscape

The Elk City Downtown Streetscape project is the initial funding partnership between the Oklahoma Department of Transportation's Transportation Alternatives Program and the Oklahoma CWSRF. The project was designed to provide a safe environment by addressing Americans with Disabilities Act (ADA) compliance issues pertaining to more effectively managing weather events, sidewalks, and parking in urban settings. CWSRF financing was used to reposition natural tree boxes from the sidewalk to the parking medians to provide a larger stormwater collection and drainage area and to replace impervious concrete with permeable concrete pavers to afford a higher infiltration rate and more pollutant removal from stormwater. This intergovernmental partnership modernized Elk City's downtown to make it safer and more attractive while providing nonpoint source water quality benefits. This project has become one of Oklahoma's Downtown Streetscape models for smaller communities across the state.



Program: Rhode Island SRF

Recipient: Town of New Shoreham

Project: Block Island Landfill Slope Repair

Block Island is a small land mass located nine miles off the southern coast of Rhode Island. The Block Island Landfill is located on the northwest shore of the Island, which is subject to extreme beach erosion. Super Storm Sandy's days-long assault on the Island cut away the cover on the seaward slope of the landfill, washing trash and debris into the Atlantic Ocean. New Shoreham, the Island's only town, borrowed \$1.9 million from the CWSRF to repair the landfill slope. The project entailed pulling back the ocean facing slope of the landfill and creating a stone revetment along the toe of the slope that consisted of two layers of boulders weighing three tons each. In addition, 117 tons of heavy metal that was disposed at this site was collected and recycled. The rest of the slope was planted with beach grass for stabilization and a fenced hiking path was created along its top for the protection of both pedestrians and the grasses.



HONORABLE MENTIONS

Program: Tennessee SRF

Recipient: City of Franklin

Project: Water Reclamation Facility Modification

With a loan from the Tennessee Department of Environment and Conservation, the City of Franklin will expand its existing WWTP from its current capacity of 12 MGD to 16 MGD to accommodate a growing population. The project will also expand the existing on-site reclaimed water pump station to serve additional reclaimed water customers. This system will greatly reduce energy consumption and annual operating costs and include a new UV disinfection system, a new biosolids treatment system, and a biogas recapture system. The UV system is expected to result in an operating cost savings of approximately \$2.3 million over a 20-year period. The system will also reduce power consumption by approximately 15.6 million kWh over 20 years. The biosolids treatment system is expected to provide a 20-year net present worth hauling and disposal cost savings of approximately \$58 million. The system will also eliminate approximately 3.3 million hauling miles over 20 years, resulting in a significant reduction in vehicle emissions and diesel fuel consumption. This will also eliminate the dependence on a single disposal option for sludge that depends on continuation of a disposal facility permit. Lastly, the new combined heat and power system is anticipated to provide a net present worth savings in electricity of about \$8.5 million.



Program: Washington SRF

Recipient: City of Oak Harbor

Project: Oak Harbor Clean Water Facility

The City of Oak Harbor received a \$100 million CWSRF loan to construct a new membrane bioreactor (MBR) system to replace two aging wastewater facilities that were nearing their treatment capacity and were not equipped to meet future water quality standards. The new MBR system doubled treatment capacity and produces a high-quality effluent that can be used as reclaimed water for irrigation. The City used a parallel design and construction approach to streamline getting the MBR facility into operation. A Memorandum of Agreement was developed between seven Tribes, Oak Harbor, the Department of Ecology, and the EPA to appropriately handle the discovery of cultural resources during construction. The MBR facility was built at one of the former treatment sites which was adjacent to Windjammer Park. The City worked with community members to create the Windjammer Park Integration Plan which consisted of low-impact green infrastructure, connecting walkways, and a central pavilion at the new facility. The pavilion serves as an entrance to the administration office and acts as a public plaza suitable for community events where visitors can learn about the new facility and reclaimed resources. This new high performing facility with integrated community space provides many environmental and social benefits for the City of Oak Harbor.



HONORABLE MENTIONS

Program: West Virginia SRF

Recipient: Morgantown Utility Board

Project: Wastewater Facility Upgrade

The City of Morgantown will upgrade their WWTP to address the overflow of untreated combined storm/sanitary wastewater during wet weather events. The facility will be upgraded from a 12 MGD rotating biological contactor to a 16 MGD membrane bioreactor within their existing activated sludge system to combat excessive biomass, air, and energy accumulation and increase total kjeldahl nitrogen removal. High efficiency LED units will replace the facility's current lighting system which is projected to save an estimated 2.1 million kilowatt hours annually. In addition to the \$25.5 million in CWSRF financing for this project, \$75.5 million was leveraged from the Morgantown Utility Board and municipal bonds, allowing the community to also address infiltration and inflow on their main interceptor. Morgantown is one of the fastest growing areas in the State of West Virginia and the community depends on the utility to maintain a high level of service for all customers. This project will achieve multiple benefits, improving water quality through reduced CSO discharges and increasing energy efficiency at the utility.



For more information about the Clean Water
State Revolving Fund, please contact us at:

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