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**Water and Wastewater Infrastructure:
Grants to Territories and D.C.**



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Clean Water and Drinking Water State Revolving Fund Construction Grants Programs for the District of Columbia and U.S. Territories

EPA’s Construction Grants Program supports the agency’s mission to protect human health and the environment by providing communities in the District of Columbia and four U.S. territories with necessary infrastructure to meet the standards established in the Clean Water Act (CWA) and Safe Drinking Water Act (SDWA).

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Introduction

EPA allots a portion of the Drinking Water State Revolving Fund (DWSRF) and Clean Water State Revolving Fund (CWSRF) as grants to Washington D.C., and the U.S. territories of the U.S. Virgin Islands (USVI), Guam, American Samoa, and the Commonwealth of the Northern Mariana Islands (CNMI) for drinking water and wastewater infrastructure.

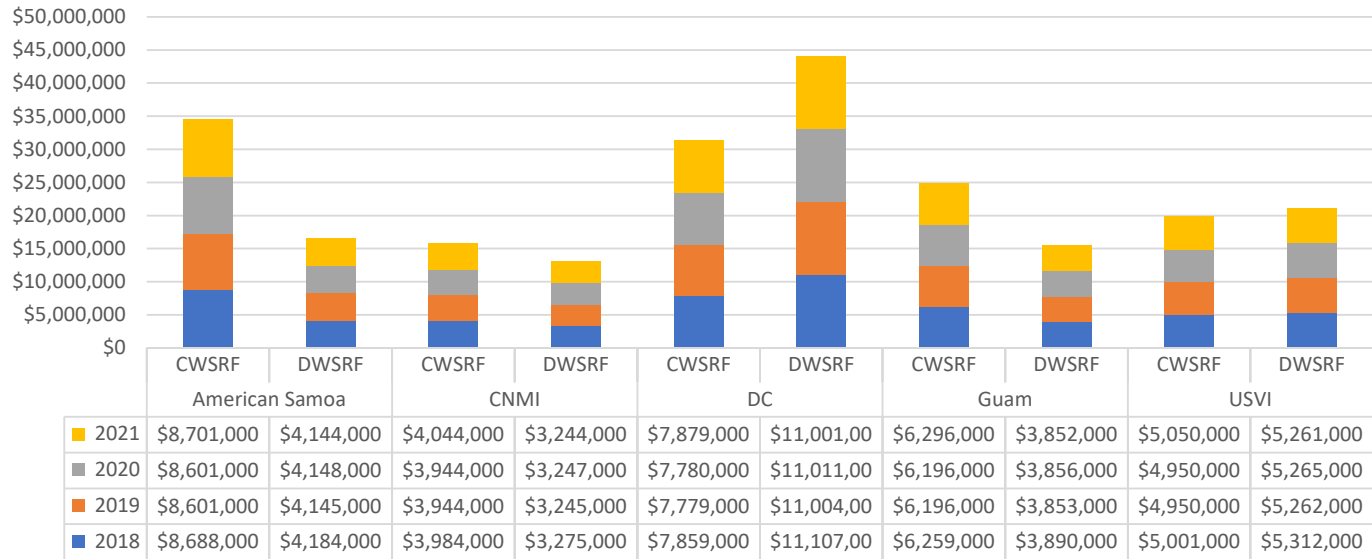
When the State Revolving Fund loan programs were established, D.C. and the U.S. territories elected to continue to receive their water infrastructure funds as grants, as opposed to loans. The grants have similar eligibilities to the SRF assistance.

The grant program allows the U.S. territories and D.C. to improve compliance with the SDWA and CWA, provide safe drinking water, and protect the environment.

This FY 2021 report includes examples of the work performed using DWSRF and CWSRF funding from each of the U.S. territories and D.C.

EPA Region 2 (USVI), Region 3 (D.C.), and Region 9 (Guam, American Samoa, CNMI) award and manage these grants.

Clean Water and Drinking Water State Revolving Fund 2018-2021 Allocations



EPA supports public health and environmental protection in D.C. and the U.S. territories by helping communities develop and maintain their water infrastructure through funding, tools, training, and technical assistance.

Over the past four years, the [CWSRF](#) and [DWSRF](#) program has provided over \$237 million to fund wastewater and drinking water projects, as well as watershed-based programs meant to improve the quality of D.C. and U.S. territories' water systems.

From FY 2018 through 2021, D.C. and the U.S. territories received the following percentages of the total CWSRF and DWSRF allotment:

CWSRF	
American Samoa:	0.5418%
Guam:	0.3920%
USVI:	0.3144%
CNMI:	0.2518%
DWSRF	
American Samoa:	0.3767%
Guam:	0.3502%
USVI:	0.4782%
CNMI:	0.2949%

The District of Columbia receives funding equal to 0.4984% of the total remaining CWSRF and 1.0% of the total remaining DWSRF annual allotment, after allotments made for the tribes, U.S. territories, and American Iron and Steel oversight.





The Industrial Equipment Corporation (INECO) began upgrading the Figtree Pump Station in St. Croix in September 2015.

The pump station upgrades introduced a wide variety of technologies and best practices for pump stations by replacing the floor gratings and plates with aluminum and installing a safety line in the wet well. The safety line allows for anyone wearing a harness to tie-off that helps with safety and fall prevention.

In addition, a sluice gate was installed to allow the inlet to flow into the wet well from the collector manhole. The gate can be closed electronically or manually from the pump station's main floor. This is a significant safety feature that prevents exposure to wastewater when the well-inlet flow is being isolated.

Finally, the surge tank pressure gauge was relocated to ground level. Initially, the pressure gauge was located on the top of the surge drum, and the operators would have to climb on the roof of the pump station on a daily basis to read the surge tank pressure.

The following items were also installed as part of the project:

- Vapor tight aluminum wet well access hatch with removable handrails
- Force main surge tank and flow meter
- Soft starters (replaced house pumps and variable frequency drives)
- Generator fuel tank and pipeline
- Mechanical bar screen cleaner



Figtree Pumpstation New Sluice Gate

District of Columbia: Dix Street Green Infrastructure Retrofits



Bioretention Bulbouts at Intersection of 53rd and Dix Streets NE

This District Department of Transportation (DDOT) project retrofitted three blocks of Dix Street NE in the Deanwood neighborhood with 12 green infrastructure best management practices: bioretention areas in curb bulbouts, trees, and permeable pavers. Dix Street NE is an urban, residential street that parallels the south bank of Watts Branch, D.C.'s largest non-tidal tributary to the Anacostia River and D.C.'s priority stream in a disadvantaged community.

The District Department of Energy and Environment (DOEE) sponsored community-driven conceptual plans in 2011 to manage the area's stormwater pollution. Based on those plans, DDOT subsequently applied for a Construction Grants award to design and construct the project. Formal design work began in 2016 and included extensive, additional community outreach in the design component. The designs accommodated community priorities of enhanced livability through features such as curb bioretention bulbouts that narrowed the street and promoted reduced motorist speeds and a permeable paver transition to the streamside trail.

Construction was completed below the project's \$1.75 million budget, so DDOT removed additional impervious surface from the stream's north bank with the remaining \$340,000. Additional

features include conversion of two stub streets into a permeable lane and a landscaped area with a pedestrian path, replacing jersey barriers at a T-intersection with a bioretention basin, 10 pervious sidewalk tree boxes and 28 additional trees.

In total, the project resulted in managing approximately 74,000 gallons of stormwater from a 116,000 square foot contributing drainage area during a 1.2" storm event, removed nearly 13,000 square feet of impervious surface, and added 38 new trees to the urban neighborhood's canopy. All work was completed by December 2019.



Bioretention Basin and New Tree Plantings at Deane and Division Avenues NE, Formerly a Stub Street with Jersey Barriers



Friendship Public Charter School-Woodridge: Bioretention

The District's Department of Energy and Environment (DOEE) RiverSmart Schools program used Construction Grants funds to retrofit 15 public and charter schoolyards to date.

Schoolyards present some of the best opportunities to employ low impact development techniques in urban environments due to their large impervious surface areas and community benefits.

Green infrastructure (GI), such as bioswales, bioretention basins, butterfly gardens, rainwater storage cisterns, and outdoor classrooms, enhances the learning environment, stimulates ecological lessons, and promotes community pride.

Schools are annually chosen for retrofits on a competitive basis and coordinate with DOEE's contractor throughout the project. In 2019, the District's Construction Grants program funded RiverSmart Schools retrofits at Bunker Hill Elementary, Center City Public Charter: Capitol Hill, and Friendship Public Charter School-Woodridge.

In total, the project resulted in these three urban school sites retaining and treating approximately 27,900 gallons of stormwater from a 1.2" rainfall event from a contributing drainage area of about 65,000 square feet through GI that includes 3 outdoor classrooms, 15 trees, 3 bioretention areas, a bioswale, a rainwater cistern, planter boxes, and numerous other vegetation.



Bunker Hill Elementary School: Bioretention Basin and Outdoor Classroom



NMC Old (left) and New Water Tank (right), As Lito, Distribution Upgrades/Service Lateral Replacement Project

CNMI is a 300-mile archipelago consisting of 14 islands, with a total land area of 183.5 square miles. The principal inhabited islands are Saipan, Rota, and Tinian.

These islands are a host to an expanding tourist market with associated increases in the construction and garment manufacturing industries. This has resulted in a large migrant labor population, now outnumbering native island residents. From 1980-1997, CNMI's population increased from 16,780 to 63,000.

The development boom has increased land prices and caused rapid inflation. It also led to the construction of many hotels, resorts, apartments, golf courses, and commercial establishments. Such tremendous growth has strained the ability of the local government to provide adequate infrastructure.

The Commonwealth Utilities Corporation (CUC) provides CNMI with power, water, and sewer services. While it has made progress to meet the growing demand, it is still struggling to ensure its drinking water and waste treatment systems meet EPA and local standards. Over the past two years, CUC has continued to work tirelessly to address these water infrastructure challenges facing the region.

On May 30, 2018, CUC completed the NMC Water Tank Replacement Project. The project improved water supply and increased water pressure in the service area. The work replaced the old steel water storage tank with a new pre-stressed concrete water storage chamber. Also, the project included a chlorination system, a booster pump station, and a flow meter to better track water flow and pressure in the system.

The same year, CUC finished As Lito, Saipan, Distribution Upgrades, and Service Lateral Replacement Projects. The projects replaced old distribution and service laterals to address water pressure, supply, and water loss. Drinking water loss is a significant issue for CUC's drinking water system. EPA is working with CUC to address non-revenue water.

In December 2019, CUC finished the S6 and S10 Lift Station Renovations Project. The Commonwealth Utilities Corporation S6 and S10 Lift Station Renovations were necessary to address aging lift stations and ensure the prevention of sewage spills to waters of the U.S. The project completely renovated the lift stations' wet wells, pumps, motors, and piping.

EPA will continue to work with CUC to improve other lift stations in need of renovations.

American Samoa: Replacement and Improvement Projects



Upper Pago Water Improvement Project (left) and Upper Amouli Water Storage Tank Project (right)

American Samoa became a U.S. territory by deed of Accession in 1900. The tuna canning industry is a major employer. The per capita income of American Samoa is only \$8,000, by far the lowest in the United States. American Samoa faces significant environmental and public health challenges including inadequate indoor plumbing and water pollution due to heavy metals in portions of Pago Pago Harbor. American Samoa continues to make progress in addressing these challenges.

In 2019, American Samoa replaced the Upper Amouli Water Storage Tank. The existing Upper Amouli Water Storage Tank deteriorated due to the extreme climatic conditions at this location. The tank was non-repairable and necessitated replacement. The old tank was leaking and could cause catastrophic property damage if it failed. American Samoa Power Authority (ASPA) had the old tank filled to only one-third capacity to minimize the possibility of failure. This requires the booster pump to run continuously to meet the demand in this area, driving electricity costs higher.

This project included the design and installation of a 320,000 gallon bolted steel tank to replace the existing deteriorated tank and the installation of a perimeter fence, and improvements to the existing access road to the tank. This is a critical Water Storage Tank (WST) in the eastern section of the island as this project ensures the sustainability of the water distribution system and provides water to underserved areas on the east side of the island of Tutuila. The new Upper Amouli water storage tank will eliminate the likelihood of a catastrophic event.

That same year, ASPA completed the Upper Pago Water Improvement Project. ASPA water supply was limited to the geographic area to the northeast of the water treatment plant. A six-inch diameter pipeline was constructed in 2004 to convey water to Fagasa Pass to the southwest and serve the population of Vaipito (Upper Pago Pago) by gravity. However, the Vaipito water treatment plant was deactivated and there was an inadequate supply of water for the pipeline. Two new wells were drilled to serve this sub-system consisting of 472 existing service connections and over 160 unserved houses.

The project consisted of installing a new bolted steel water storage tank at the Fagasa Pass, a pumping station and facilities to pump water up to the Pago Pass, a pipeline distribution system to the Fagasa side, and a transmission line to fill the tank.

Storage Tank: A new 100,000-gallon bolted steel tank was installed at the Pass and will be used as an operational storage for this sub-system.

Pumping Station: The pumping station pumps 100 gallons per minute of water over 260 feet elevation from the wellhead up to the Storage Tank at the Pago Pass. This construction included electrical, telemetry, and SCADA works.

Pipeline Distribution System: A new pipeline was installed from the pumping station to the storage tank and to the Fagasa system with pressure reducing valves and other required appurtenances along with additional pipeline to connect to the existing system.



D-Series Guam Deep Water (DW) Well Rehabilitation Ribbon Cutting

Deep Water Well Rehabilitation Project: Guam

Guam Waterworks Authority (GWA) owns and maintains a potable water system that serves 41,000 connections on Guam. Most of the resources come from 120 deep wells tapping the sole source Northern Guam Lens Aquifer.

The D-Series project was proposed to EPA to address existing water supply deficiencies due to failing wells by rehabilitating five out-of-service deep water wells.

The design/build project included hydrogeologic investigations to determine the viability of each well's rehabilitation. All five wells received the go ahead and received a full renovation. The project was initiated on August 19, 2016 and completed on September 20, 2019 at a cost of \$7.28 million.



Installing CIPP Liner for Rt. 4 Sewer Rehab on Guam

The Rt. 4 Sewer Rehab – CIPP Phase Project: Guam

GWA owns and maintains a wastewater collection and treatment system consisting of 315 miles of gravity sewers, 74 sewer pumps stations, and 6 wastewater treatment facilities.

In 2014, the Rt. 4 sewer line was at full capacity and experiencing frequent sanitary sewer overflows (SSOs). GWA proposed a project to upgrade the line to EPA that year. The purpose of the project was to rehabilitate and replace, as needed, an old, out-of-service line running parallel to Rt. 4 and thereby increase capacity and reduce SSOs.

The project was divided into two separate contracts to accommodate the need for two separate technical disciplines – Cure in Place Pipe (CIPP) sewer line and manhole replacement. The CIPP contract, which lined the parallel line, was initiated on August 29, 2018 and completed in June of 2020 at the cost of \$4 million.



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