

2020

# Clean Water Indian Set-Aside Grant Program



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# Clean Water Indian Set-Aside Grant Program

Promoting access to sustainable sanitation in Indian Country linking the development goals of the tribe with the need for wastewater services and infrastructure.

## **PUBLIC HEALTH BENEFITS**

Investment in wastewater services has helped reduce waterborne infectious diseases in American Indian and Alaska Native communities.



## **ENVIRONMENTAL BENEFITS**

Investment in wastewater infrastructure protects and restores water quality. It improves the health of the ecosystem for wildlife and fish, which are important subsistence food sources for many American Indian and Alaska Native people.



## **ECONOMIC BENEFITS**

Increased water infrastructure investments reduce health care costs, stimulate local economies, and create local jobs.



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## Introduction

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The 1987 amendments to the Clean Water Act (CWA) established the Clean Water Indian Set-Aside Grant Program (CWISA). CWISA's guiding mission is to protect public health and the environment by improving wastewater sanitation facilities for tribal communities.

Section 518 of the CWA, as amended by the 2014 Water Resources Reform & Development Act, governs the program and allows EPA to provide funding for the planning, design, and construction of wastewater treatment plant facilities that serve federally recognized Indian tribes, Alaska Native Villages (ANV), and certain tribes in Oklahoma.

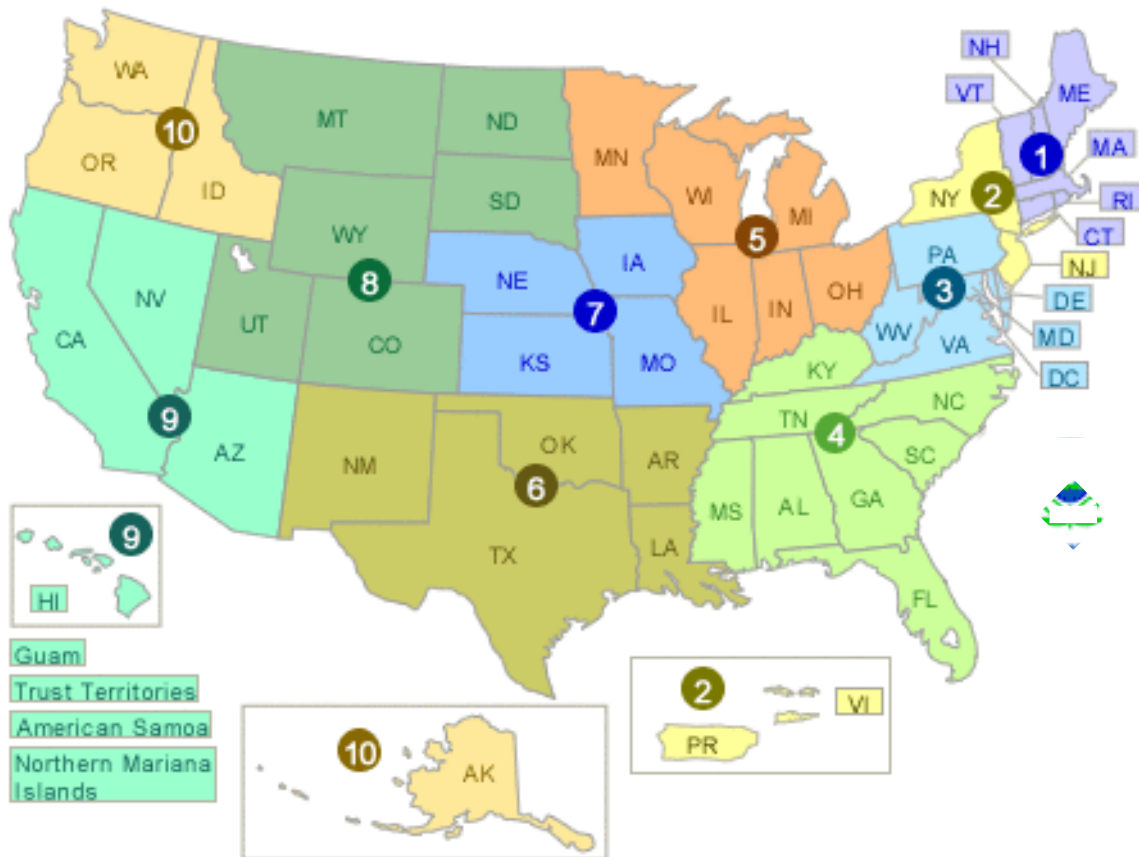
The 10 EPA Regions are responsible for the administration of the regional CWISA programs. EPA Headquarters provides national program coordination, oversight, and policy direction.

Since 1995, EPA has administered the CWISA Program in close cooperation with the Indian Health Service (IHS) Sanitation Facilities Construction Program. EPA Regions use the IHS Sanitation Deficiency System (SDS) database to identify projects for CWISA program funds. This cooperation streamlines project selection procedures by eliminating duplication of efforts between the two agencies.

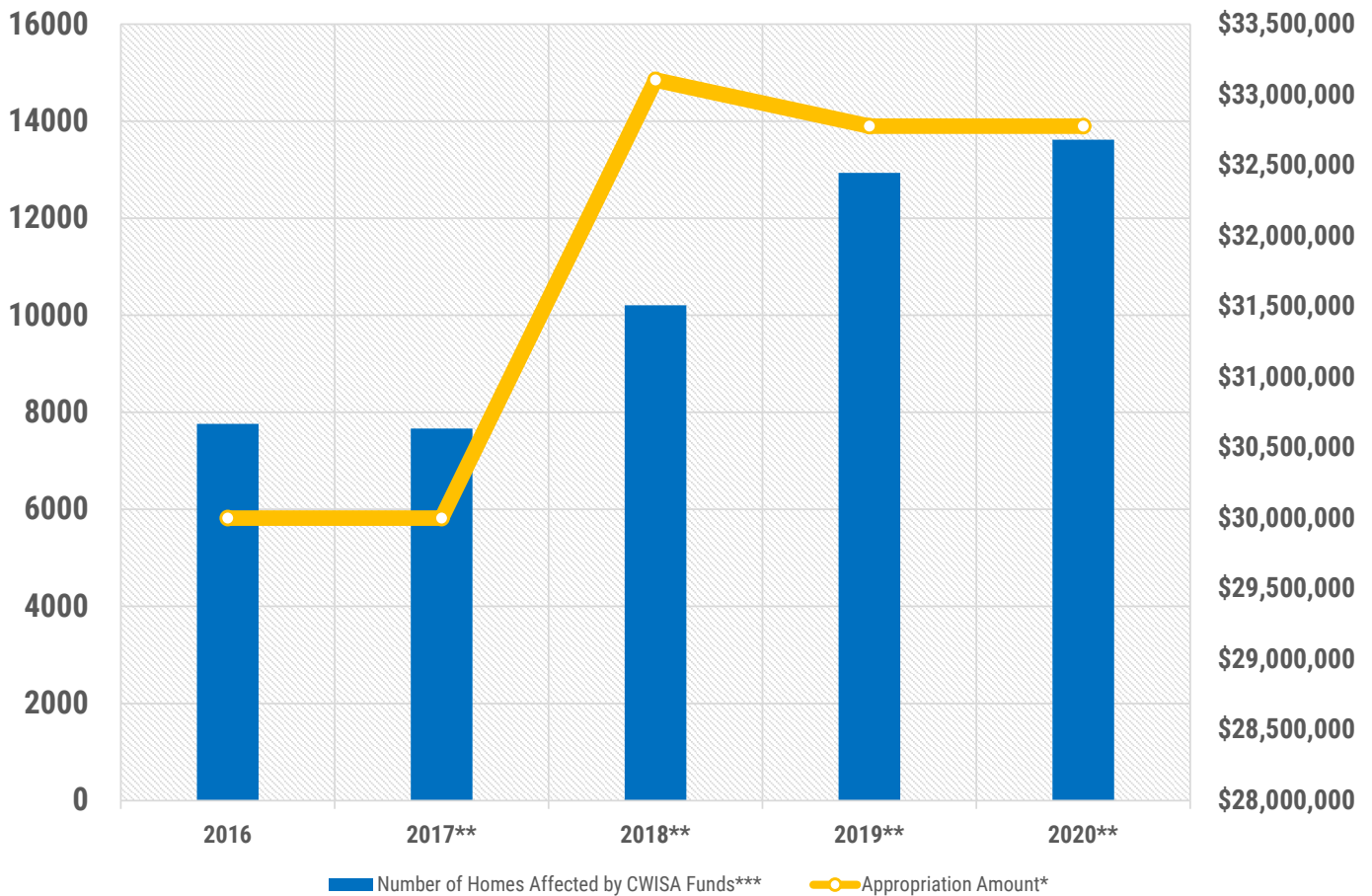
This report highlights the program accomplishments from 2016 through 2020.

# Environmental Protection in Indian Country

EPA's 10 Regions administer the CWISA regional programs



## Clean Water Indian Set-Aside FY 2016-2020 Funding Report and Number of Homes Affected by CWISA Funds



(\* Values as appropriated by Congress and not adjusted to current year dollars.) (\*\* \$2 million of the funds for each of these fiscal years were used for education, training, and technical assistance.) (\*\*\*) Number of homes affected by CWISA funds, in coordination with other agencies)

The CWISA program provides funding for wastewater infrastructure to American Indian tribes and Alaska Native Villages. In the past 5 years, CWISA provided \$126 million to help finance nearly 250 projects, from establishing first-time wastewater connections to constructing sewers and rehabilitating systems.

EPA administers the program in close coordination with the IHS Sanitation Facilities Construction Program. The CWA authorized CWISA program funding via one-half of one percent (0.5 percent) from the Construction Grants Program appropriations for fiscal years 1987 through 1990.

In 1992, Congress gave EPA the authority to take a 0.5 percent set-aside from the Clean Water State Revolving Fund (CWSRF) appropriation following the phase-out of the Construction Grants Program.

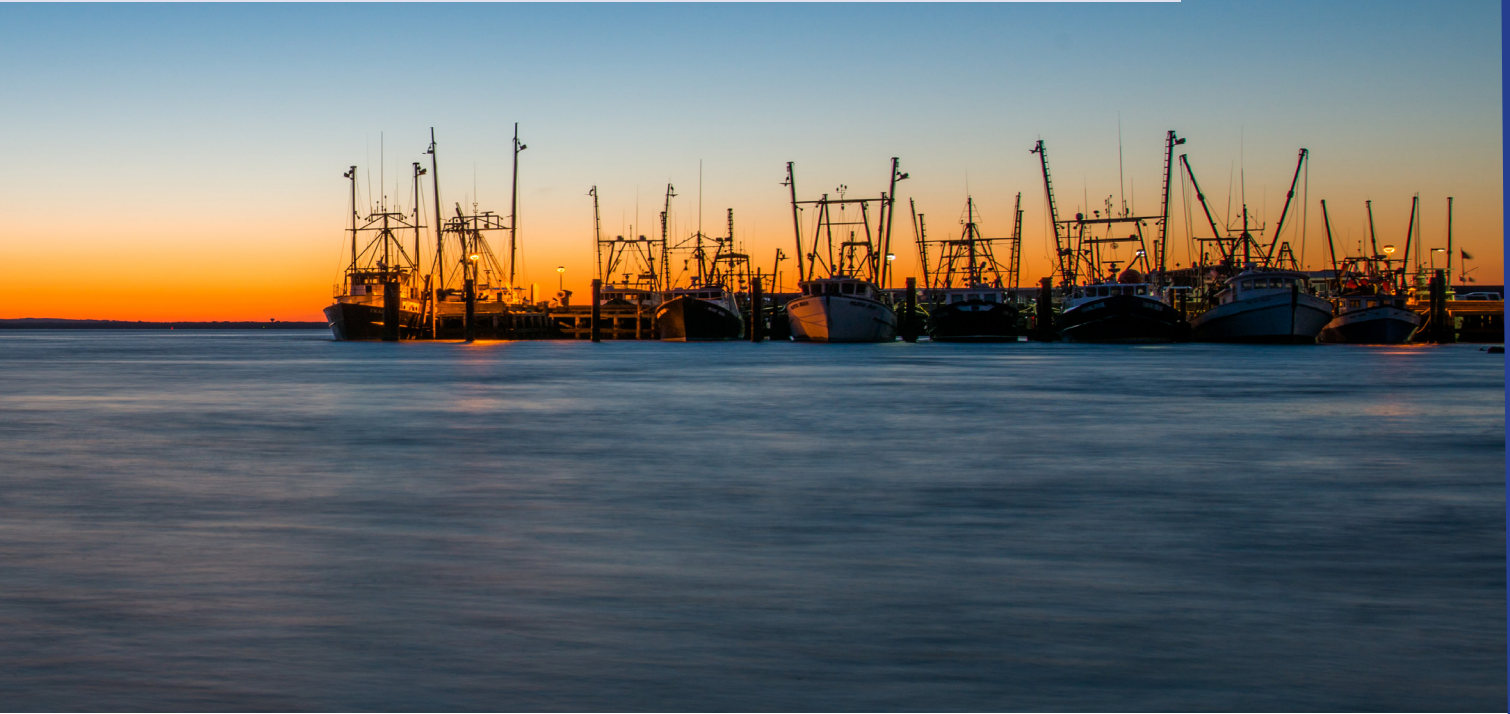
Beginning with EPA's FY 2001 Appropriation's Bill, Congress authorized an increase from 0.5 percent to 1.5 percent of the CWSRF appropriation for the CWISA Program.

In FY 2010, Congress authorized an increase from 1.5 percent to 2 percent from the CWSRF for the CWISA Program. Since FY 2016, the CWISA appropriation from Congress has been either 2 percent of the CWSRF or \$30 million, whichever is greater.

From a 2012 baseline to present, the CWISA Program has provided over 120,000 tribal homes with access to basic wastewater sanitation systems, and from 2016 to 2020, the program improved sanitation for over 52,000 homes.



# Individual Wastewater Services Project: The Shinnecock Indian Nation



For many years, the Shinnecock Nation community (located on the eastern end of Long Island, New York) relied on cesspools and leaching pits for wastewater disposal.

However, due to system failures, the community started to experience surface discharge of untreated wastewater, causing significant public health and environmental concerns.

A residential cesspool discharge can contribute a significant amount of nitrogen. This can contribute to the degradation of marshes, bays, beaches, and even enhance growth of harmful algal blooms.

Given these sanitation challenges, the Shinnecock Nation submitted a 200-home project proposal in 2018 to upgrade the wastewater disposal system.

After conducting a Project Engineering Assessment Report, the Shinnecock Nation determined that many of the identified homes require Innovative & Alternative, Onsite Wastewater Treatment Systems (OWTS).

Homeowners were offered flexibility in what type of OWTS to install at their site. The Shinnecock Nation recommended where to install a nitrogen-reducing system; however, if a homeowner chose to install a lower-maintenance conventional system, the homeowner had the option to do so.

The advanced systems were installed in areas that were at higher risk for groundwater contamination along coastal areas.

The Center for Clean Water Technology at Stony Brook University provided homeowners with installation support. In addition, to facilitate future maintenance and repair of these facilities, the Shinnecock Nation also provided homeowners information on:

- Pump description, operation instructions, and warranty
- Developed as-built drawings of water service line, septic tank, and disposal field
- Operation and maintenance training provided by IHS.



# Improvements to Wastewater Treatment Facilities: Yavapai-Apache Indian Reservation



The Yavapai-Apache Nation requested assistance to improve their wastewater treatment facilities for residents of Middle Verde, on the Yavapai-Apache Indian Reservation, in central Arizona.

In response to the Nation's request, the Phoenix Area IHS began planning the design and construction of the facilities.

A wastewater masterplan was completed as part of the IHS project. The plan included deep anaerobic fermentation cells lined with high density polyethylene and sedimentation ponds adjacent to the existing lagoon system.

On July 12, 2019, the IHS finalized the Yavapai-Apache wastewater treatment project. The new facilities provided an additional wastewater treatment percolation pond, or cell. In addition, the project rehabilitated the existing three-celled facultative lagoon into two efficient ponds.


Rehabilitation of the existing cells and the addition of one more percolation pond increased efficiency in treatment and also added capacity

Overall, the primary cell volume increased from 611,567 to 3,126,307 gallons. This additional volume will accommodate longer detention times for treatment and more capacity for community growth.



*Finish grading of lagoon cell #2*



A large black pipe is shown in a trench, partially installed. The pipe is dark and has a ribbed texture. It is surrounded by brown soil and some gravel. The pipe is angled downwards from the top left towards the bottom right.

# Tule River South Reservation Road Sewer Extension Project: Tule River Indian Tribe

The Tule River Sewer Extension Project was the result of many years of planning and coordination by the Tule River Indian Tribe, the California Area IHS Sacramento District Office, and EPA Region 9.

In the past, 34 homes on South Reservation Road had failing Septic Tank Drainfield Systems (STDFs) because soil conditions in the area were not suitable for these types of systems.

The community commissioned a new wastewater treatment plant and sewer collection system in 2011 that services 108 homes. This 2018 project added the 34 homes on South Reservation Road to the 2011 wastewater treatment plant system.

In 2018, the IHS Sacramento District Office completed the design for the Tule River Sewer Extension project. Given that many of the homes on this project were lower in elevation than the original sewer collection system, this project utilized a combination of gravity and low-pressure sewer systems.

The first construction phase of the 2018 plan installed a sewer collection system that included approximately 4,100 linear feet of gravity sewer main and 6,200 linear feet of low-pressure sewer force main, and six community grinder pump stations. The sewer system was fully tested and final connections made in late 2019.

This phase of the project overcame many challenges including rock excavation for the installation of sewer mains, adverse and varying terrain, and unforeseen subsurface conditions. Even with these challenges, the construction process sought to minimize road and home access disruptions in this active community. The IHS and the Tribe worked together to communicate with residents and to assure the job was successful and on time.

This project has a direct impact on improving the health of the community members on the Reservation.



# Tule River North Reservation Road Sewer Extension Project:

## Tule River Indian Tribe



*Manhole Install of the North Reservation Road Sewer Extension Project*

Following the completion of the previously described 2018 project, the crew was hard at work on the North Reservation Road Sewer Extension. This project will connect an additional 31 homes with failing drainfields to the community collection system.

This phase will add approximately 6,700 linear feet of sewer force main, 8 community grinder pump stations, 2 individual grinder pump stations, and approximately 7,000 linear feet of home sewer service laterals to the existing system.

The Tule River Utility staff have learned a lot from their work on the south reservation road and have optimized their crew and order of operations to minimize project duration. The force account crew increased productivity and installed up to 500 linear feet of force main per day. The Tribe completed this phase of the project in fall 2020.

The Tribe and IHS are preparing for the next two phases of construction: the community Scatter Site project to connect an additional 18 homes to the existing mainline and the Apple Valley Sewer Extension to connect 22 homes via a combined gravity and force main.

Together the funding partners reviewed the plans and made adjustments to cut costs and save time during construction. The Tribe will start on these projects once North Reservation Road is complete. The target end date for these activities is in summer 2021.



*Tule River Rock Excavation*



# Sells Sewer Main and Lagoon Upgrade Project: Tohono O'odham Nation

*Rehabilitated Treatment Cell back in use*

Sells, Arizona is a tribal community of approximately 3,500 people and the center of government for the Tohono O'odham Nation. The most recent wastewater treatment expansion and upgrade was completed in 1999 when the lagoon system was converted into a hybridized Advanced Integrated Waste Pond System (AIWPS).

First, the IHS completed a planning project. Wastewater was overflowing at manholes upstream of the Sells Lagoon system. This was due to an accumulation of sludge in the existing fermentation pits of the hybridized AIWPS ponds. The high amount of sludge accumulation in the fermentation pits meant the AIWPS was not functioning correctly.

In addition, the wastewater inflow was in exceedance of the design capacity of the lagoon system. Lastly, lagoon liner systems typically have a design life of 20 years. Since the existing liner was installed in 1999, the lagoon liner was approaching the end of its design life.

Due to the aforementioned factors, the IHS and EPA cooperatively funded an expansion of the Sells Lagoon to provide capacity for the current wastewater inflow and for community growth over the next 20 years.

As part of the expansion, the fermentation pits were removed and the lagoon system has been returned to a traditional facultative wastewater lagoon design.

Under the new design, the wastewater inflow enters the lagoon system from the surface, not from the bottom of the lagoon. This minimizes the clogging and surcharging issues that the Tohono O'odham Utility Authority was experiencing under the old design. The redesigned four treatment cells have been expanded from 17 to 28 acres.

In addition, approximately 3,300 feet of sewer main upstream of the Sells Lagoon was upgraded to allow for increased capacity and to bring the sewer main up to grade with the surface elevation of the lagoon system. The expanded lagoon and sewer system is now fully in use with no operational issues noted.



*Inlet Piping in Cell#1*



# Sand Point Outfall Project

## EPA Region 10



*Hole rubbed in the original outfall due to excessive exposure to wave action on the rocks*

Sand Point, Alaska, is located on Popof Island in the Aleutian Island chain. Commercial fishing operations started in here in 1898 and fishing remains the town's major industry with one of the largest fishing fleets in the Aleutians. Nearly half the 976 inhabitants support themselves by fishing in the Gulf of Alaska or by working at the fish processing plant in town.

The community has recently seen the completion of a major water and sewer project that replaced and extended the Kelly Avenue sewer outfall with 1,115 linear feet of 10-inch high-density polyethylene (HDPE) outfall pipe, as well as new HDPE sludge lagoon piping.

Because of unique site conditions, the new outfall pipe and cast-iron weights were assembled on a beach staging area three miles from its installation point. The 60,000-pound assembly was towed to the construction site using inflated inner tubes, 55-gallon drums, and buoys. It was then aligned and submerged into place. Using diver assistance the air tubes were deflated and endcaps removed.

The topography presented other challenges to the old outfall, including exposure to excessive wave action that damaged the pipe. Built in the 1980s, the original outfall had floated twice when its anchors failed. The new outfall was moved to the west, and placement of "armor rock" provided pipe protection in the surf zone.



*Proposed outfall location to be constructed between the crevice in the center of the photo*



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