

EPA Region 10 DWSRF **WATERS** Awards



2018

WATERS

Well-Planned
Affordable
Transferable
Efficient
Resilient
Sustainable

2018 WATERS Award Winners

Alaska

- College Utilities Corporation

Idaho

- City of Ashton
- City of Weston

Washington

- City of Bellingham
- City of Olympia
- City of Pasco

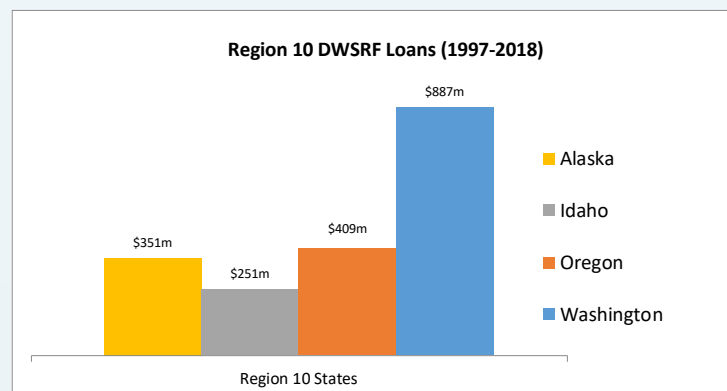
About The **WATERS** Awards

Recognizing the most innovative and effective DWSRF projects.

Since the first Drinking Water State Revolving Fund (DWSRF) loan was signed back in 1997, borrowers have utilized this program to fund projects that deliver a public health benefit as well as meet other related goals. The EPA Region 10 WATERS award program seeks to recognize exceptional DWSRF projects. These projects are nominated by state DWSRF staff and are ones that help water systems maintain or return to compliance with the Safe Drinking Water Act, as well as achieve one or more elements of the **WATERS** award. Those elements include projects that: are **Well-planned**, address **Affordability** issues, include innovative ideas or technology that is **Transferable** to other communities, provide benefits for water or energy **Efficiency**, or incorporate **Resiliency** and/or **Sustainability** attributes.

About the Region 10 DWSRF Program

Over the past 21 years, the Region 10 DWSRF program has been capitalized at a total of \$1.2 billion. To date, using those funds, along with state match, repayments and interest earnings, Region 10 states have provided \$1.9 billion in DWSRF loans.



About the DWSRF Program

The DWSRF program was created by the 1996 Amendments to SDWA. The first capitalization grants were awarded to states in 1997. To date, approximately \$20 billion in DWSRF grant funds have been awarded nationwide. Using those funds, along with state match, repayments and interest earnings, states have provided \$38 billion worth of DWSRF loans. These loans have funded approximately 14,800 projects, helping to provide clean and safe drinking water to an estimated 879 million residents.



College Utilities Corporation, Chena Marina Expansion Project

The College Utilities Corporation (CUC) is a privately owned public water system that provides water to customers outside the city limits of Fairbanks, Alaska. CUC initiated the Chena Marina Expansion Project in order to bring clean drinking water to nearly 300 residential lots in this area. Many of these residents rely on private wells that are failing or producing poor quality water. Other residents have to haul water to their homes. To address this situation CUC developed a “rural residential” model for construction of water mains to more affordably provide service to rural areas. Instead of the typical 6-inch cast iron water mains, CUC installed smaller high density polyethylene (HDPE) pipes. This piping costs approximately 75% less than cast iron, and installation is easier and cheaper. This project, which installed more than 46,000 feet of 4 inch and 6 inch transmission line, was financed with a \$3,075,175 DWSRF loan.





City of Ashton, Water System Upgrade Project

The public water system in the City of Ashton, Idaho serves approximately 1,100 people and is located in Idaho's Fremont county. The project, which was funded by a \$3.6 million DWSRF loan, added an ion exchange process to address high nitrate levels, replaced malfunctioning water meters with automated meters to conserve water and save on treatment and pumping costs, installed a variable frequency drive to optimize energy use, and replaced 12,000 feet of leaking distribution piping. The project provided a public health benefit of achieving compliance with nitrate rules, as well as annual savings of approximately 174,000kWh of energy and nearly 22 million gallons of water. These savings add up to more than \$35,000 per year due to the increased water and energy efficiency. The project was made more affordable by inclusion of \$436,000 in principal forgiveness, as well as a 30 year loan term and a 0% interest rate.

City of Weston, Water Storage and Transmission Upgrade Project

The City of Weston, Idaho, is using a \$2.2 million DWSRF loan to fund a water system upgrade project. After evaluating multiple alternatives to reduce operational costs and improve system capacity, the City seized the opportunity to eliminate the existing booster pump station by building a new storage tank on a hill to the north of the existing tanks. The increased elevation of the new tank, coupled with a new transmission line, will provide sufficient hydraulic head without the use of the booster pump station. The reduction in pumping will save the City an estimated \$500,000 in electrical charges over the life of the loan. In addition to this significant savings due to improved energy efficiency, the project was made more affordable by \$293,000 in principal forgiveness, as well as a 30 year loan term and a 1.75% interest rate.



City of Bellingham, Dissolved Air Flotation (DAF) Treatment and On-Site Hypochlorite Generation Project

In summer of 2009, the City of Bellingham experienced filter clogging and reduced filter run times as a result of algae in Lake Whatcom, the City's surface water supply source. The reduced filter run times resulted in less treated water being produced and more treated water needed to backwash the filters. This mode of operation is expensive and diminishes the City's treated water supply for consumption. The City implements a robust watershed protection plan in collaboration with Whatcom County, Lake Whatcom Water and Sewer District, and homeowners in the watershed to reduce nutrient loading to Lake Whatcom. However, algae has continued to bloom and is expected to increase in intensity in the future based on years of quarterly testing in the lake. The City evaluated a number of alternatives to address high summer suspended organic loads and selected dissolved air flotation given its superior ability to mitigate the filter-clogging algae. Dissolved air flotation was pilot tested and proved to be very effective at removing algae, resulting in substantially increased filter run times and more predictable source water quality. Current filter run times in the summer are approximately 12 hours but are anticipated to be as high as 40 hours once dissolved air flotation is placed into service. Dissolved air flotation had the added benefit of reducing organic loads and minimizing the formation of disinfection byproducts by up to 25 percent.

In addition to dissolved air flotation treatment, the City converted the existing gas chlorination system to on-site hypochlorite generation for safety reasons and updated its treatment plant controls to accommodate the new processes. The City received a DWSRF loan for approximately \$12 million to complete this project at 1.5% interest for a 20-year term. The City is also installing solar panels (funded by a grant from Northwest Clean Air Agency) to off-set energy demands of the dissolved air flotation process. The City serves approximately 90,000 people.



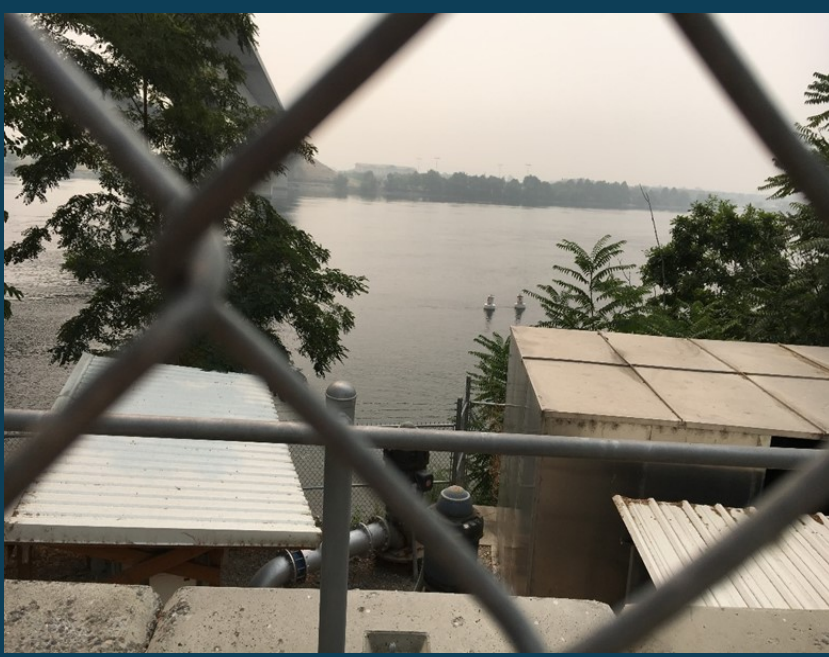
City of Olympia, McAllister Well Field Corrosion Control Facility Project

In 2014, the City of Olympia, Washington's state capitol, switched from an unfiltered surface water source to the McAllister Well Field, which produces over 10,000 gallons of ground water per minute and provides about 80 percent of the city's drinking water. To comply with the Lead and Copper Rule, the city was required to install corrosion control on the new wells. The well water has a rather low natural pH of 6.5, which can cause lead and copper to leach from metallic pipes in the distribution system. Olympia already had aeration towers on two other permanent groundwater sources in the system. So the city did a pilot study to determine whether packed tower aeration treatment would increase the pH of the McAllister well water to 7.5 or greater. The pilot study showed the towers would raise the pH to about 7.6.

Using a \$4.1 million DWSRF construction loan to complete the project, Olympia constructed three towers; each filled with plastic spheres. Air blown into the towers lowers the pH of the water by removing carbon dioxide. They constructed the facility to allow construction of a fourth tower when needed to meet future demands. The new treatment plant went into service in April 2018 and pH measured throughout the distribution system is about 7.7. The city notified all customers about the change in pH.

City of Olympia is now able to provide safe and reliable drinking water with a pH that is not corrosive, minimizing the potential of lead or copper to leach into the drinking water.





City of Pasco, Columbia River Water Supply Project

In 2015, the City of Pasco, which serves approximately 70,000 people, received a DWSRF loan to replace an existing intake on the Columbia River. The City treats water from the Columbia River at their membrane filtration plant adjacent to the river. The existing intake was in need of replacement to address seasonal intake clogging due to milfoil. Milfoil is an invasive species that exists throughout the Columbia River system and has clogged recreational areas and intakes along the river. To address the clogging issue, the 6 million gallons per day (MGD) treatment plant is temporarily shut down and a professional diver is hired to physically remove the milfoil from the intake. This mode of operation is time intensive, costly, and dangerous due to in-water work by the diver. The City elected to install a new intake with a mechanical cleaning system, which eliminates the need for in-water work. A 30-foot diameter, 85 feet deep caisson was constructed first near the existing river intake. The new intake was installed via microtunnelling from the caisson to the river. Two new pumps reside on top of the caisson slab, each with a capacity of 5.5 MGD to match the current water treatment plant rating and provide redundancy. In addition, the new pumps and controls are located in a safer location than existing intake pumps and are now securely housed in an enclosed, locked structure. The pump house has the ability to expand for additional pumps to meet the City's future needs. The new intake also has been sized to match the treatment plant capacity and is equipped with proper fish screens. The existing intake will remain in service to be used by City of Pasco Irrigation District and if needed, can be used as a back-up to serve the water treatment plant.

The City received a DWSRF construction loan for approximately \$6.8 million to complete this project at 1.5% interest for a 20-year term.

