

Addressing Water Main Breaks in Vader, Washington:

A Drinking Water State Revolving Fund (DWSRF) Small System Success

Vader is a small city roughly 25 miles north of the Oregon border in Lewis County, Washington. In 2010, Vader was facing an insurmountable crisis. The city had experienced 17 system-wide water outages over the past two years as a result of water main breaks they didn't have the funds to fix. To become eligible for financial aid, the city voluntarily transferred the ownership of their antiquated water system to Lewis County through a state-brokered receivership agreement in 2010.

Issues Facing the Water System

Vader has a direct filter plant on the Cowlitz River and did not have a way to allow high turbidity events to bypass the plant. This resulted in several treatment technique violations. Vader's water system was also losing nearly half of its treated water through brittle asbestos pipes and service line leaks. Between the treatment technique violations and water main breaks, the utility had 22 boil water events from 2006 to 2009.

Vader Demographics (Lewis County):

Population: 985

Median Household Income: \$54,970

WA MHI: \$77,006

Poverty: 13.3%

Employment Rate: 53.6%

Bachelor's Degree or Higher: 19.1%

Homeowner Rate: 70.4%

U.S. Census: 2019 American Community Survey 5-Year Estimates



Image from [Washington State's Department of Health StoryMap \(DWSRF success stories\)](#)



[Image from Lewis County Tribune](#)

Were there technical, financial, or managerial (TMF) capacity issues at the system?

Managerial issues resulted in a breakdown of financial and technical capacity. Without funds to repair leaks or maintain the technical level of expertise needed to operate a direct filtration plant, all levels of TMF were negatively impacted.

What approach was ultimately selected to solve the problem(s)?

The project included a change of ownership from the City to Lewis County and replacing about 6,000 feet of brittle 2- to 6-inch water lines with new 4- to 8-inch mains. It also included installing valves to isolate critical lines and at existing hydrants, placing hydrants at critical areas, installing approximately 245 service meters with automation technology, and building a bypass at the water treatment plant to discharge raw water directly to the backwash basins during high-turbidity events.

What funding and/or technical assistance was provided?

Lewis County acquired a \$714,675 Drinking Water State Revolving Fund loan with 50% subsidy after qualifying as a consolidation project for a disadvantaged community. Vader also received \$613,000 in Community Development Block Grant funds to help finance improvements for a total of \$1,334,822 in funds to address the system problems.

How have things turned out?

The system has been in substantial compliance since the completion of this project.

Lessons Learned:

- Managerial capacity can directly impact the technical and financial capacity of the system.
- Smaller communities do not always have the financial resources to maintain the level of personnel required to run a complicated treatment plant.
- Receivership was used effectively to correct lack of managerial and financial capacity.