

# Addressing Degrading Infrastructure in Port Royal, Virginia:

## A Drinking Water State Revolving Fund Success

Port Royal is a small town in eastern Virginia, a little over 20 miles east of Fredericksburg. This separation puts it out of the path of economic development in the I-95 corridor and makes consolidation problematic. The household median income is below both Caroline County and Virginia median household income levels. The majority of the residents are classified as low-income, with about 65% of residents having income below \$45,000 (2010 Census data).

The water system was initially constructed in 1942 as part of the military construction of Fort AP Hill. The original cypress tank was replaced in 1967 with a 21,000-gallon steel tank. The system is supplied by two wells with the first well (8" diameter) drilled in 1942 and second well (6" diameter) drilled in 1999. In 2014, the distribution system consisted of 12,600 feet of pipe, ranging in size from 1 ½ inch to 4-inch diameter, mostly of cast iron or PVC. Water meters are in place and some function and others don't.

### Issues Facing Town of Port Royal's Water System

Several significant deficiencies had been noted in previous sanitary surveys. The



elevated tank had significant rust issues with structural problems leading to police crime scene tape being wrapped around the spindle legs of the tank. Water loss was significant due to failing distribution system pipes. Revenue collection was problematic as nobody wanted to shut off the water to any residents in the Town.

### Port Royal Demographics:

Population: 196

Median Household Income: \$43,882

VA MHI: \$76,456

Poverty: 13.4%

Employment Rate: 69%

Bachelor's Degree or Higher: 21.9%

Homeowner Rate: 51.6%

[U.S. Census: 2019 American Community Survey 5-Year Estimates](#)

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

Inconsistent revenue collection combined with a lack of functioning water meters resulted in minimal funding for operations and maintenance. The system's paper records were a mess and jammed in a corner of the Town's office. The Town's leadership stepped up to find a consulting engineer that was knowledgeable on small system issues and to complete the applications and associated paperwork for the financial assistance. However, construction oversight from the consulting engineer was necessary for the successful completion of the construction.

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

This project originally began with discussions regarding whether the Town of Port Royal should sell their water system to a private company or keep it and undertake the necessary capital improvement projects. This was not a simple decision, as it took a while for the residents to understand the details of each option. Several public meetings were conducted, and the Town decided keeping the system was in the community's best interest. The Town reached out to several organizations, leading to collaboration among several Federal/state/technical assistance entities. It should be noted that the two Town "champions" (the town manager and the planning commissioner) spent many volunteer hours working through the funding paperwork.

## What funding and/or technical assistance was provided?

This \$1.4 million project received funding from several sources—\$990,000 from the Virginia Drinking Water State Revolving Loan Fund (DWSRF) program (\$594,000 in principal forgiveness), \$429,000 from USDA, and \$30,000 from Southeast Rural Community Assistance Project (SERCAP). Additionally, the Town received free technical assistance from SERCAP, the Community Engineering Corps, and the Virginia Office of Drinking Water (ODW). Caroline County took over operations, billing, and revenue collection for the Town. The project manager for the consulting engineer had worked with comparable towns and was able to value-engineer the system to ensure that the construction costs were affordable.



Image from: [Town of Port Royal |](https://www.portroyalva.com/)

Project components included demolition of the elevated water storage tank, installation of a 26,000-gallon above-ground storage tank, construction of housing for booster pumps, and installation of over 5,000 linear feet of waterline and 100 water meters.

## How have things turned out?

These capital improvements helped the Town comply with current state regulations and eliminated deficiencies identified in previous sanitary surveys and records. There were many benefits of this DWSRF project: substantially decreased water loss, increased system efficiency, and affordability for the residents.

### Lessons Learned:

- Systems need a "champion" (or two) to shepherd the community through the process
- Communities need basic training on how to provide appropriate financial oversight and project management for construction projects
- A consulting engineer that understands value engineering for small systems is invaluable