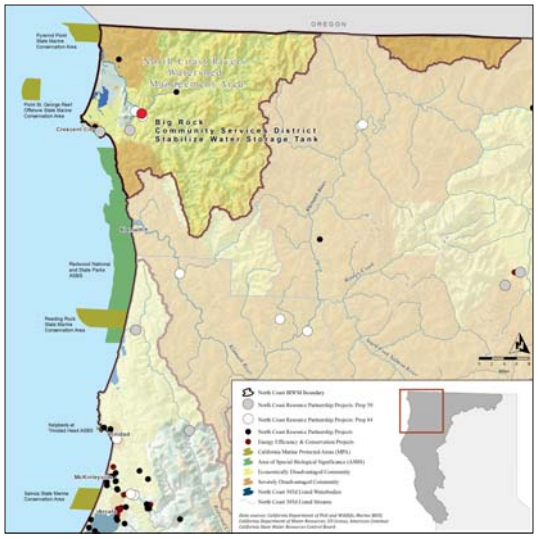
Water Tank Stabilization Project

BIG ROCK COMMUNITY SERVICES DISTRICT



STATEMENT OF THE PROBLEM

The Special District's water system is aging and in need of replacement. Its 100,000 gallon Redwood water storage tank was built in 1971 on a steep hillside with grades between 50 and 70%. Runoff from above has eroded the tank's foundation, increasing the probability that the gravel fill prism under the tank will fail during a 5.5 or greater magnitude earthquake and a wet winter. If this occurs, a massive landslide would follow, destroying the Township's water system, approximately 19 homes in Hiouchi, and portions of Highway 199. The damage would include probable loss of life and disruption of water service to other customers. The catastrophic debris front could reach the Smith River in minutes, depositing a large sediment and debris load into the river. The intensifying catastrophe would generate collateral water-quality issues for downstream water users and seriously harm salmonid habitat in a Wild and Scenic River.

PROJECT GOALS

1. Protect public health
2. Ensure water supply reliability
3. Minimize impacts to the environment
4. Maintain firefighting storage capacity

PROJECT IMPLEMENTATION

Primary engineer and contractor is GHD Engineering. The project replaces the system's existing water storage tank with a new steel tank built to modern seismic standards and anchored in granite bedrock. The Community Services District will locate the tank on land immediately adjacent to the existing site. Before construction, the District plans to improve the access road to the storage tank area. A temporary water system will be activated using an existing 50,000 gallon tank to maintain minimum water pressure in the system. Unfortunately water flow to the community will be somewhat reduced at that point. To address shortages, the District intends to enact water conservation measures and will expect fire suppression agencies to find alternative sources of water until the new water system is operational.

The construction phase includes excavating the new site to bedrock, building a concrete retaining wall, and pouring a concrete tank foundation and footings. Site drainage improvements and features to prevent damage to downslope properties will be added. The District will then install the new tank, piping, and valves, including a seismic shut-off valve to prevent a broken pipe from draining the entire tank. Communications, lighting, security, and monitoring equipment are next in the schedule of events.

When construction is complete, the new tank will undergo disinfection and water quality testing before being placed online. The District then will lift water-use limitations, restore fire protection services, dismantle the existing 100,000 gallon tank, and sell the Redwood staves.

PROJECT BUDGET

IRWM funds:	*$ 875,221*
Leveraged funds:	*$ 648,979*
TOTAL	**$ 1,524,200**

BENEFITS

Economic

- Estimated $9,019 per year for avoided costs of property damage
- Estimated $1,400 per year for reduced operations and maintenance costs
- Estimated $19,808,156 for avoided injury and death
- Estimated $829,549 for avoided costs of improved water supply reliability

Water Quality

While this project is designed to protect the community from a massive landslide—thereby avoiding a catastrophic release of sediment, housing, and forest debris upon a populated area—it would preserve the pristine water quality of the Smith River.

Watershed Rehabilitation

- Improved fish and wildlife habitat
  - » Avoiding damage to salmonid habitat will help to maintain instream habitat for spawning and rearing, preventing decreases in steelhead and salmon populations

Social

- Avoided serious threats to public health, including the effects of disrupted emergency services
- Avoided damage to one of only three evacuation routes from Del Norte County and the associated utility lines

Jobs and Local Economy

- Over $1,500,000 will be spent locally using local labor and supplies when possible, thus contributing to State goals for environmental justice and social equity
- Other local economic benefits, including avoided losses of public and commercial thoroughfare into and out of Del Norte County and principal electrical/communications utility lines
- Avoided loss of access and water service disruptions to campgrounds and parks
- Avoided costs of emergency repairs
- Avoided costs of sediment and debris loading

NEXT STEPS & RECOMMENDATIONS

The Special District will maintain and monitor the new storage tank and continue to seek funding for and implement projects to upgrade aging infrastructure.

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NORTH COAST RESOURCE PARTNERSHIP