



## ALTERNATIVES MEMORANDUM

### Village Safe Water Program

### City of Saint Paul

### Water Improvements PER & ER

---

Date: December 11, 2024

Project Number:

165.030738

To: Aaron Wheatall, EIT, VSW Program

From: Daniel Nichols, P.E., CCCA

---

Kuna has concluded a site visit to Saint Paul Island and met with staff from the VSW Program (VSW), David DeHaan, and City of Saint Paul (CSP). After a review of existing data, discussion of conditions, known available grant award to City of Saint Paul for water resiliency, and the site visit, we recommend the following alternatives be reviewed as part of the PER & ER process.

#### Feasible Alternatives

1. Do Nothing. The current water distribution systems are functioning, though they have deferred maintenance. Old town water piping contains old ductile iron piping that is corroded and has recurring problems. The city's water distribution system is currently leaking approximately 200,000 gallons per month leak at an unknown location within the below-ground piping network. This number can increase over time if left unaddressed, putting the community of Saint Paul at risk of complete loss of municipal drinking water. Currently there are three wells producing water, two wells with broken pumps, and two wells with siltation issues. This alternative is used as a baseline for comparison against the feasible alternatives presented within this section.
2. Partial Water Piping Replacement. This alternative includes replacement of all ductile iron water mains and services throughout the Old Town area. The New Town consists of HDPE piping and is not included in this alternative. Replacement of Old Town pipe would potentially address the most leaks. This alternative will not address the broken well pumps at South Well and Well #1, or the electrical instrumentation controlling the water collection and distribution system.
3. Comprehensive Water Infrastructure Replacement  
This alternative includes replacement of all water mains and public service lines within the Old Town area. This alternative will also address the corroded piping and fittings to increase the system's reliability and instill increased consumer confidence. In addition, this alternative would focus on rehabilitating or upgrading piping and instrumentation at the three(?) functional water producing



## ALTERNATIVES MEMORANDUM

wells, valve house, and the water treatment plant. Lastly, this alternative would eliminate all dead-ends within the water mains to improved system resiliency. This alternative would not repair or replace any piping, pumps or other instrumentation at the current two(?) nonfunctional wells. This alternative would not include the replacement of privately owned water service lines.

4. Complete Water System Replacement. This alternative will replace the water mains and public service lines throughout Old Town and New Town with HDPE piping. This alternative will replace the existing piping, distribution pumps, valves at the valve house, water treatment plant, and unify hydrants with City recommended Spartan Brand. This alternative would replace obsolete components with updated, available components.

### Unfeasible Alternatives

These alternatives have been deemed unfeasible.

1. Private Well Systems. The lot sizes are too small for private wells and septic systems. Bedrock is too shallow within the community to allow for private wells.
2. Cluster Well Systems. There are no outlying clusters of houses within the service area. All the houses are within two subdivisions that are close together.
3. Regionalization. There are no other communities on the island.