

Tanglewilde-Thompson Place 600 Water System Capital Replacement and Improvements

- PFAS Treatment Project
- Water Main Replacements
- Chlorine Generation System

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Overview

Planned Capital investment in the Tanglewilde-Thompson Place water system is estimated to amount to approximately \$33,000,000 over the next 15 years. This includes an estimated:

- \$3,531,219 for PFAS treatment
- \$28,300,000 for water main replacement
- \$80,000 for onsite chlorine generation
- \$1,000,000 in other minor capital replacement projects

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What Is PFAS?

- Thurston PUD found Per- and polyfluoroalkyl substances (PFAS) in the Tanglewilde sources of drinking water
- PFAS are a large family of human-made chemicals used to make stain-resistant, water resistant, and nonstick consumer products They are referred to as “forever chemicals”
 - Examples of products that utilize PFAS are food packaging, outdoor clothing, and nonstick pans
 - A major source of PFAS in our area is from fire fighting foam used by the military, local fire departments, and airports
 - PFAS in drinking water is a nationwide problem
- PFAS contamination is a public health concern for people. Higher exposure to certain PFAS over time can cause health problems

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What are the Health Concerns with PFAS?

- PFAS in your drinking water is not good
- Exposure to PFAS may lead to:
 - Increased cholesterol levels
 - Decreased birth weights
 - Decreased immune response to vaccines
 - Changes in liver enzymes that indicate liver damage
 - Increased risk of blood pressure problems during pregnancy
 - Increased risk of thyroid disease
 - Increased risk of testicular and kidney cancer
- For more information visit the Washington State Department of Health website: www.doh.wa.gov/community-and-environment/contaminants/pfas
 - This website includes information on individual home filter options

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PFAS Treatment Project

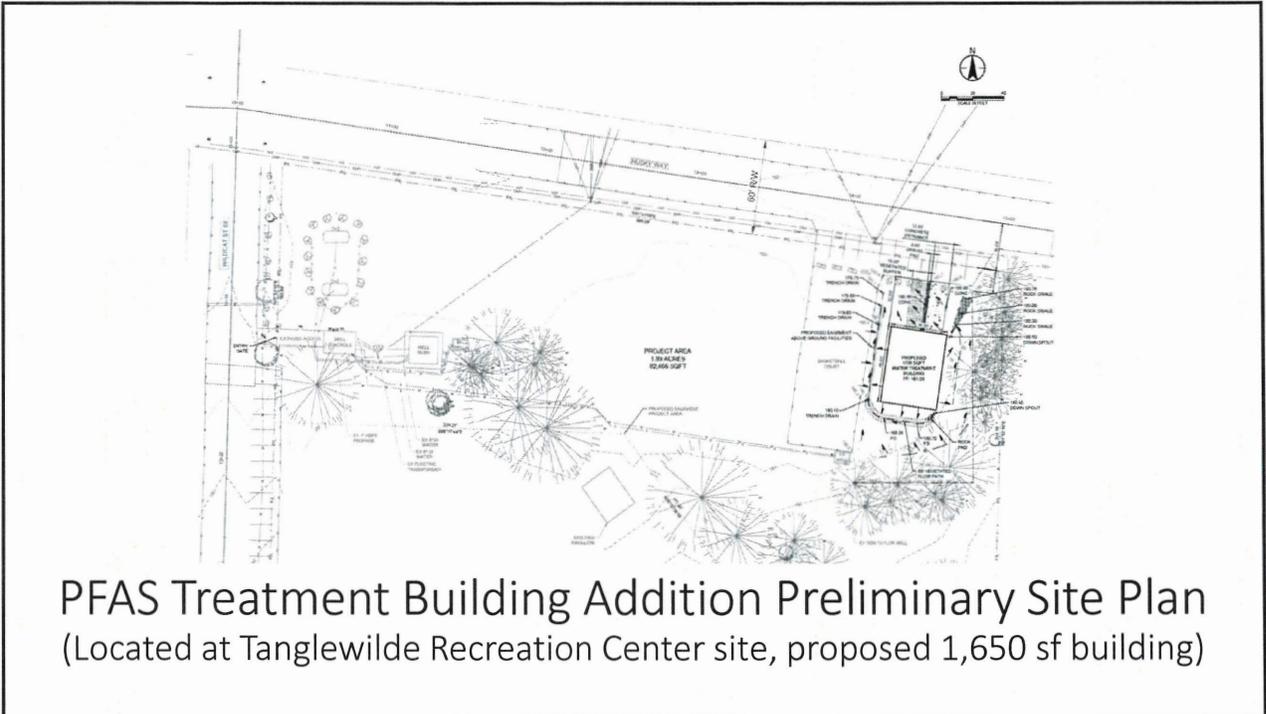
- Tanglewilde's levels of PFAS are low compared to contamination in other state and nationwide water systems
 - Tanglewilde PFAS is below the state action level (SAL) but does slightly exceed the federal EPA maximum contaminant level (MCL) that goes into effect in 2028
- Thurston PUD was an early implementor of PFAS testing and identified the somewhat elevated levels of PFAS at the Tanglewilde-Thompson Place water system before testing was done by most other municipalities
- Largely because of this proactive approach to identifying presence of PFAS, Thurston PUD has secured a grant of \$3,531,219 to install treatment for the Tanglewilde water system

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PFAS Treatment Project (Continued)

- In August 2024 Thurston PUD retained the services of the engineering firm Stantec for design of a PFAS treatment system for Tanglewilde-Thompson Place
- A pilot (test program) was recently completed. Based on results of testing and piloting, Stantec is developing a full-scale water treatment design
- Construction is expected to start in late 2025 and complete in Autumn 2026

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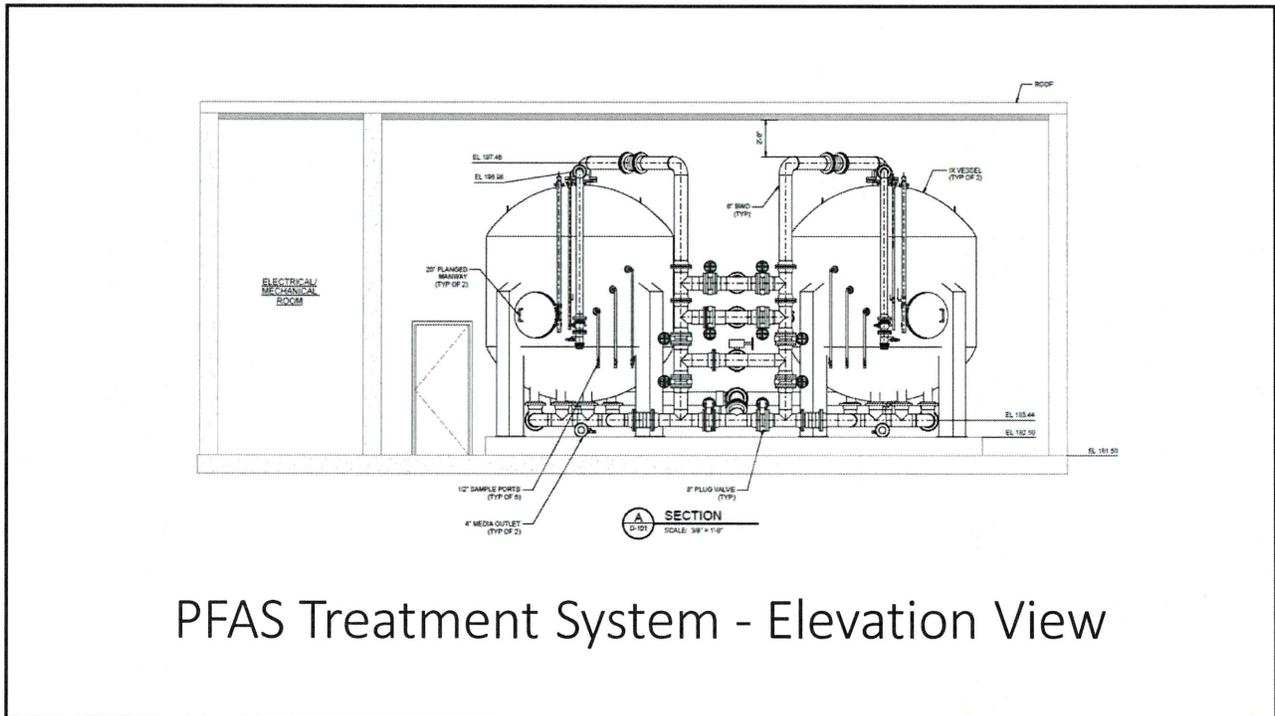


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Draft PFAS Treatment Building - Front View

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PFAS Treatment System - Elevation View

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Water Main Replacement

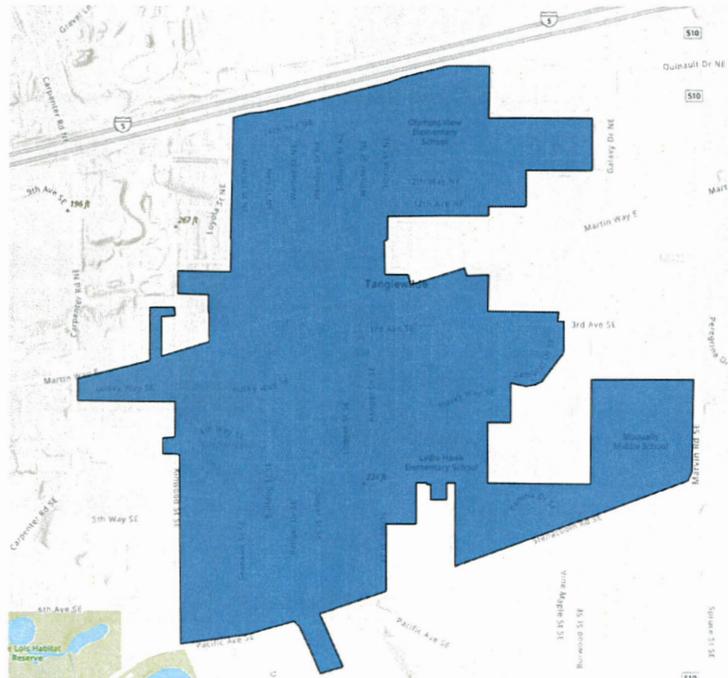
- The Tanglewilde-Thompson Place water system was primarily constructed in the 1950's and 1960's
- The system now provides water and fire flow service to approximately 2,000 homes and businesses
- Most of the existing water mains are aging and in need of replacement
- Approximately 80,000 lineal feet of mains planned for replacement over next 15 years (funding dependent)
- Thurston PUD obtained a \$10,000,000 loan at 1.72 percent to fund initial replacement activities. This funding will be used to replace approximately 30,000 lineal feet of mains over five years
- Thurston PUD intends to require the contractor to provide a cost/option to replace your own private water line (from the water meter to your home) at your cost if you so choose

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Tanglewilde-Thompson Place 600 Water System Service Area

Construction Phases:

- Phase 1: \$10,000,000
 - 2025 – 2029
- Phase 2: \$10,000,000
 - 2030 – 2035
- Phase 3: \$10,000,000
 - 2035 – 2040



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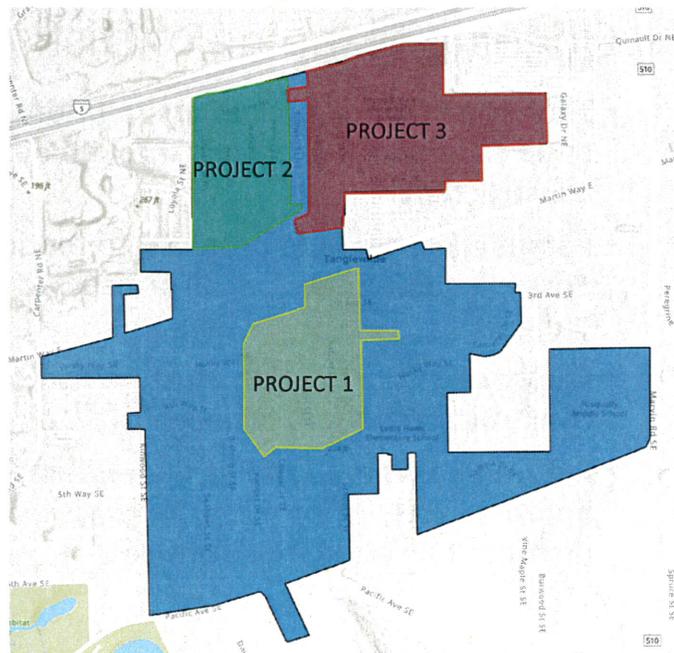
Targeted Replacement Areas

- Thurston PUD is targeting the current funding to replacement in areas that will most benefit the public
- Key areas with insufficient operable valves
- Areas with insufficient fire flow or fire hydrants
- Areas with the most frequent occurrence of main breaks or highest water leakage
- Replacement of mains, valves, hydrants, and services up to meters in most areas
- New mains will be heavy duty water pipe, 6-inch to 10-inch nominal

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Projected Targeted Replacement Areas in Phase 1

- **Project 1** estimated construction start date June 2025, estimated completion date January 2026
- Estimated **Project 2** construction start date Spring 2026, end December 2026
- Estimated **Project 3** construction start date Spring 2027, end December 2027



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Current Status of Distribution Replacement

- Thurston PUD contracted Project 1 design and engineering services with Northwest Water Systems Inc.
- Plans and environmental requirements are 95 percent completed
- Current estimated **Project 1** construction start date of **June 2025**, estimated construction completion date of January 2026
- Water service will be maintained throughout project, with periodic limited service interruptions.
- 72 hour advance notice on service interruption, 8 hour limit.
- Partial or full street closures of up to 1 block, however local access to be maintained except for up to 8 hours when excavation is directly in front of private accesses, to be minimized as much as practical.
- Replacement in Wildcat ST SE fronting Tangelwilde Recreation center will not start until after September 8, 2025 to minimize pool access impact.
- Private improvements are prohibited in the right-of-way, however Thurston PUD's contractor will make a reasonable effort to restore to existing condition.

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Ongoing Planning of Distribution Projects

- Thurston PUD will update assumptions on future project construction costs as project 1 proceeds through design, permitting, bidding, and construction
- Possible alteration of project 3 to reduce scope/cost as necessary, or possible addition of a small project 4 if project is trending under budget
- All phase 1 construction must be completed by end of loan construction period, ending March 27, 2029
- Future phases are funding dependent; a total of three phases and approximately 10 projects are envisioned to complete water distribution system replacement

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Onsite Chlorine Production

- Most drinking water in USA is treated with chlorine to provide protection against any inadvertent bacterial contamination. Tanglewilde uses a very low level of sodium hypochlorite (liquid chlorine bleach)
- Supply chain difficulties in 2021 resulted in very limited supply and difficulty sourcing sodium hypochlorite for local utilities
- As both a cost savings measure and to mitigate against future supply interruptions, Thurston PUD will be installing Onsite Sodium Hypochlorite Generation (OSHG)
- OSHG uses salt and electricity to produce very safe, low concentration liquid sodium hypochlorite for onsite use. Concentration is about 0.8 percent, roughly one sixth that of household bleach

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Onsite Chlorine Production (Continued)

- OSHG is very simple and safe and consists of using an electrode to ionize saltwater
- Thurston PUD plans to install a small, self-contained system; the generation unit is roughly the size of a standard kitchen appliance and is very low maintenance
- Upfront cost of installing the system is approximately \$80,000. Once installed, cost of salt and electricity to generate chlorine is roughly 1/10th that of purchased chlorine
- Thurston PUD has agreed to provide chlorine at cost to TRC for the community pool
- Long-term cost (including consumables, upfront equipment cost, maintenance, and replacement) is about one-third (1/3) to one-half (1/2) that of purchased chlorine

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Example: 0.8% Sodium Hypochlorite Generation System

CL Generator and Storage Tank



CL Generator, Power Supply, and Controller



CL Generator Cells



Photos courtesy of Fruitland Water Co.

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Summary

- Thurston PUD is investing significant resources in the Tanglewilde-Thompson Place water system over the next 15 years
- These projects are in the best interest of the health and welfare of the community
- These items are budgeted and covered by customers PUD-wide through water rates and capital surcharges
- Thurston PUD has worked diligently to secure over \$3.5 million in grant funding and \$10 million in very low interest loans
- Thurston PUD will continue to pursue grants and other funding to minimize cost burden on PUD customers

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Questions?

Questions or comments after the meeting? Contact Thurston PUD staff using one of the methods below:

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