

Alameda County Water District

PFAS Treatment of Groundwater Facilities

November 16, 2023

Christ the King Lutheran Church – Carlson Hall
1301 Mowry Avenue, Fremont
6:30 p.m.

Presenters:

Rekha Ippagunta, Project Engineering Manager
Kerri Smyth, Associate Engineer

ACWD Overview

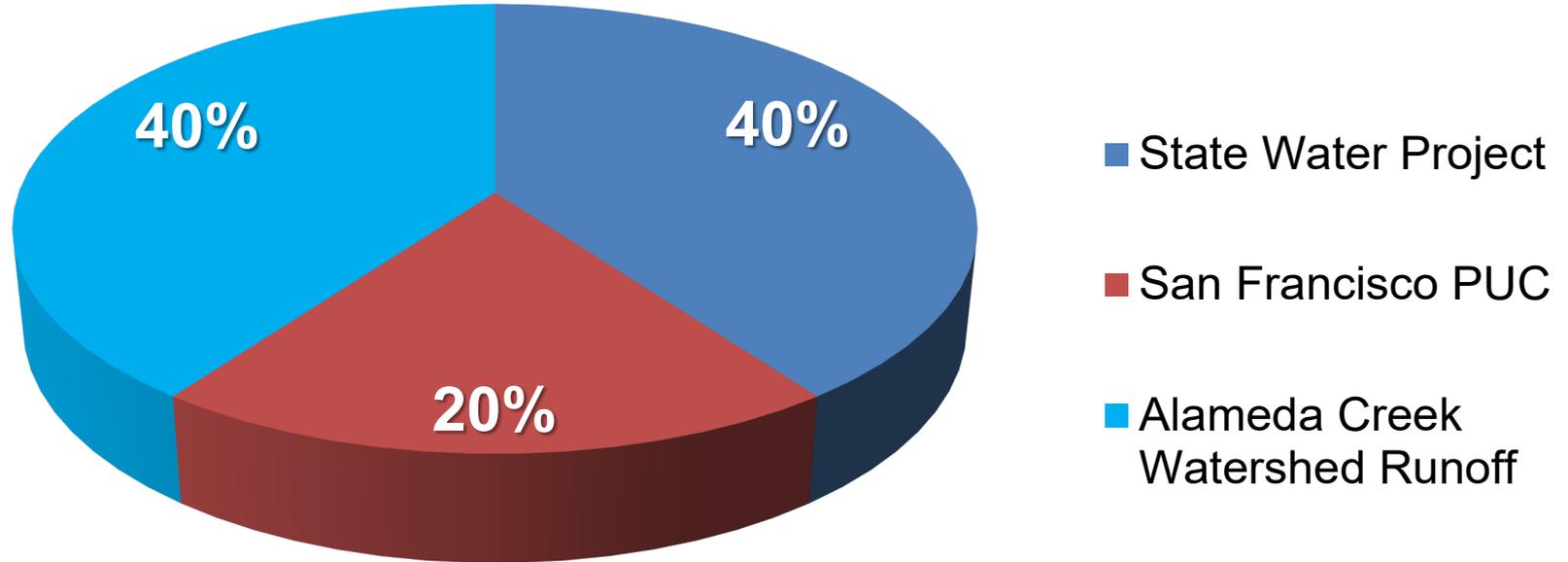
- Founded in 1914
- Population Served
 - 344,000+ customers
- 87,000+ connections

ACWD Service Area

Fremont, Newark, and Union City – 105 square miles



ACWD Water Sources Supply



What is PFAS?

What are PFAS?

PFAS are synthetic compounds that have been used to make carpets, clothing, fabrics for furniture, paper packaging for food, electronics, personal hygiene products, and other materials (e.g., cookware) designed to be waterproof, stain-resistant, or non-stick.

Why are PFAS in the water?

Used in many consumer and industrial products for their ability to repel stains, water, and oil, PFAS are persistent in the environment and do not readily degrade. They also are prevalent in many items we encounter daily – inside and outside the home.

PFAS Regulations

- PFOA, PFOS, PFBS, and PFHxS have state issued Notification Levels (NL) and Response Levels (RL)
 - Notification Levels are health-based advisory limits for contaminants that will likely be regulated in the future.
 - A Response Level is a recommended level where water utilities consider taking a water source out of service or provide additional water treatment.
- State and Federal Maximum Contaminant Levels (MCLs) have not yet been issued for PFAS. Draft MCLs have been proposed.

ACWD has a proactive PFAS response plan

- District began voluntarily monitoring groundwater in June 2020 prior to receiving monitoring orders in January 2023.
- PFAS compounds above the Notification Limit (NL) were found in PT and Mowry groundwater wells that supply the Blending Facility.
- District has a strategic goal to deliver water with PFAS concentrations below NL.
- Operational strategies have been implemented to meet the District's goal are impacting production capacities and increasing SFPUC imported water purchase.
- District is implementing a Groundwater PFAS Treatment Facility Project to remove PFAS compounds from groundwater and deliver water with PFAS concentrations below NLs.

Groundwater Sampling

Water quality samples at the District's PT and Mowry Wellfields

Chemical	Notification Level (NL)	Response Level (RL)	Draft MCL	Mowry Wellfield	PT Wellfield
PFOS	6.5 ppt	40 ppt	4.0 ppt	ND-16 ppt	7.3-14 ppt
PFOA	5.1 ppt	10 ppt	4.0 ppt	ND-5.2 ppt	ND-6.4 ppt
PFBS	500 ppt	5,000 ppt	1.0 Hazard Index	ND-6.9 ppt	4.0-7.1 ppt
PFHxS	3 ppt	20 ppt		ND-8.1 ppt	3.8-7.5 ppt
PFNA	N/A	N/A		ND	ND-2.1
HFPO-DA	N/A	N/A		ND	ND

Managing PFAS at ACWD's Groundwater Facilities

Blending Facility



- Blending groundwater with surface water allows for operations to maintain PFAS levels below the Notification Limits.
- The addition of PFAS treatment will restore needed facility capacity.

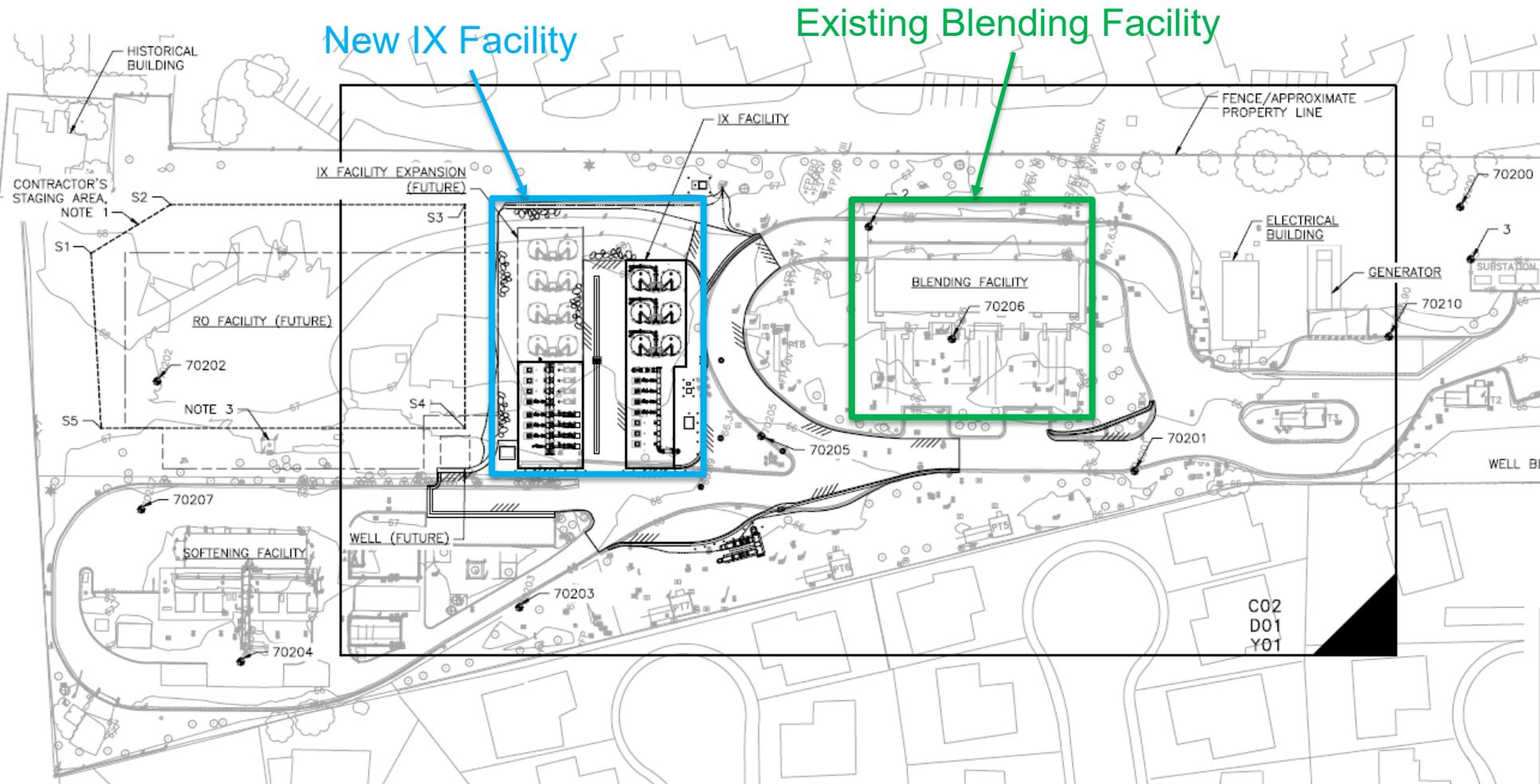
New Groundwater PFAS Treatment Facility at Blending Facility

- Ion exchange (IX) treatment will be used to remove PFAS
 - PFAS binds to IX resin producing treated water with PFAS concentrations below detection limits
- PFAS-treated water will blend with groundwater and surface water at the Blending Facility
 - Maintain PFAS levels below notification levels
 - Restore Blending Facility capacity
- Phase I: 6 MGD capacity
- Phase II: Future expansion to 15 MGD capacity, if necessary for future MCLs

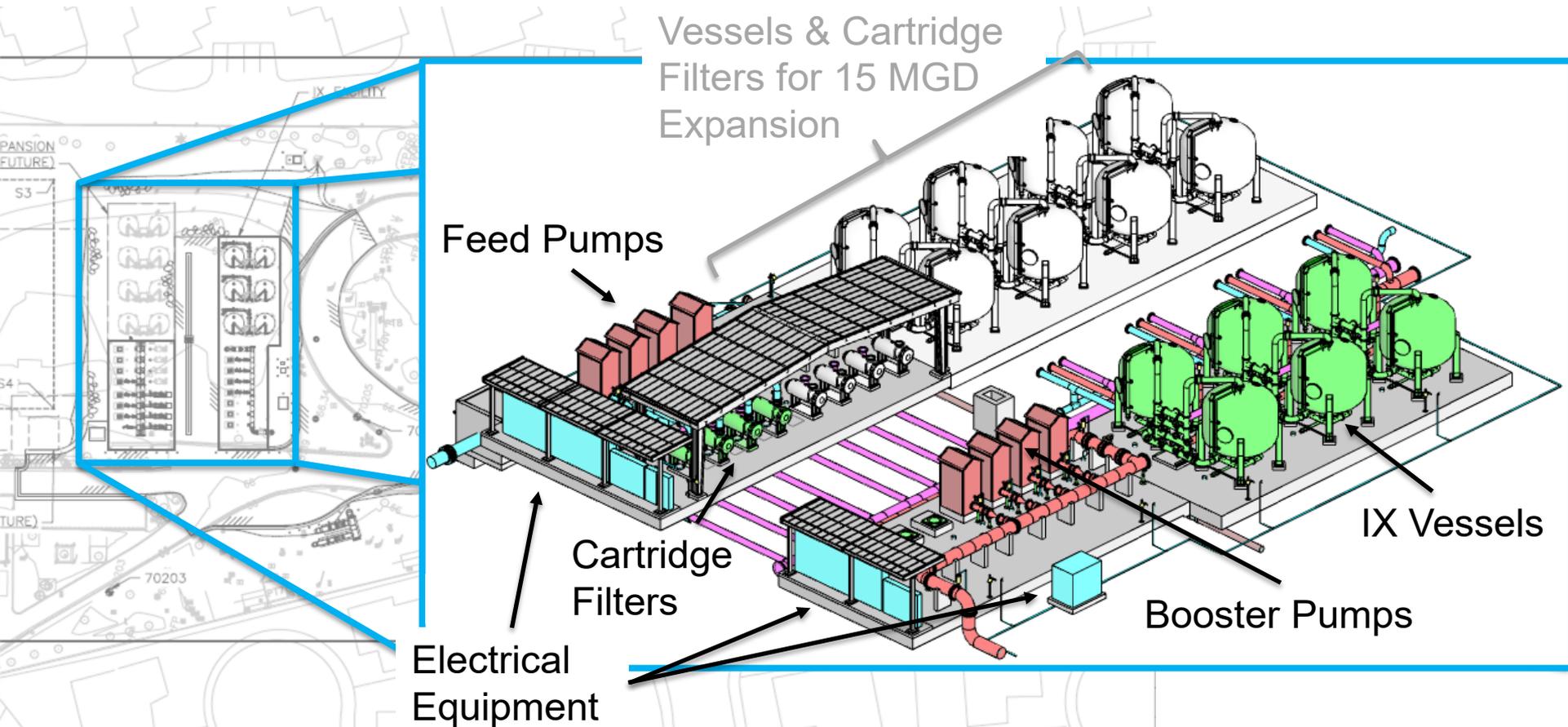


Ion exchange resin

Project Location and Layout

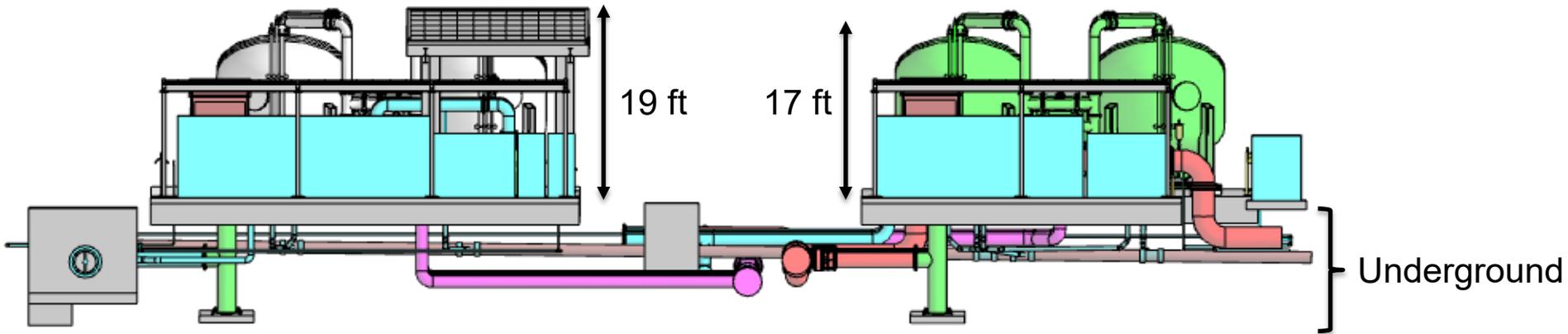


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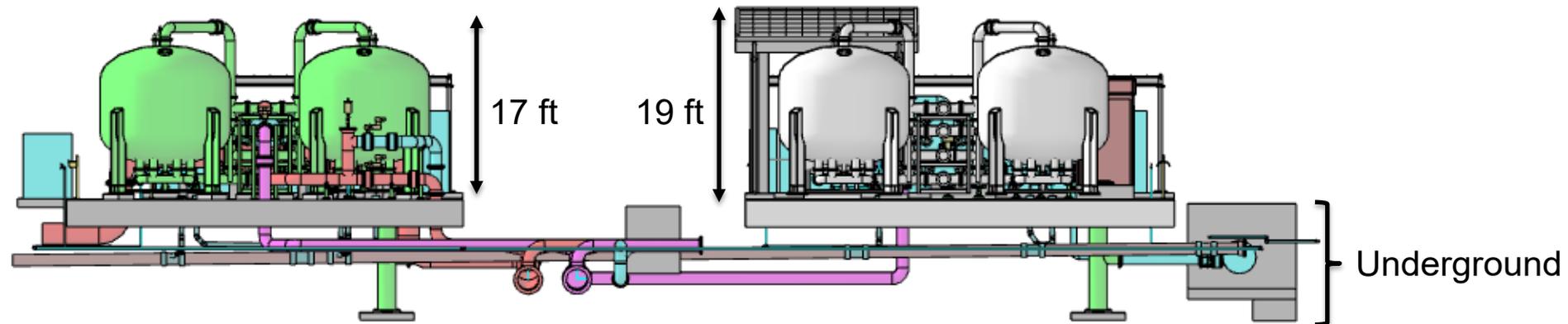


Profile In East and West Directions

Looking East



Looking West



Construction

- Construction is anticipated between December 2023 and April 2025.
- Most active construction period December 2023 – June 2024.
- Facility on-line beginning July 2024.
- No evening, weekend, or holiday work currently planned.

Construction

- Demolition: asphalt, vegetation removal (NOT perimeter trees)
- Excavation for underground piping
- Installation of concrete and paving
- Installation of above ground piping, equipment, canopies
- Delivery of materials to site
- Contractor and District staff on site

Operation

- Facility will comply with Fremont noise ordinance
- Traffic impacts during operation will be minimal
 - Increased District staff presence
 - Infrequent material shipments

Questions?

Project Contact:

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