

WATER STUDY & RECOMMENDATIONS

May 23, 2024



AGENDA

1. Water System Study Overview
2. Current Treatment Method
3. Treatment Options
4. Main Filter Plant Alternatives
5. Financial Plan
6. Community Engagement & Project Timeline
7. Recommendations

WATER SYSTEM STUDY

STUDY OVERVIEW

- Water system modeling for expansion and fire flows
- Evaluation of current water supply capacity and storage systems
- Evaluation of condition of existing water treatment plants
- Analysis of current and future water demand
- Analysis of Main Filter Plant alternatives
- Analysis of water treatment process, including options to reduce water hardness
- Water supply sources (groundwater and surface water)
- Asset management plan, including options for aging infrastructure

KAUKAUNA UTILITIES

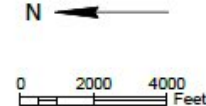
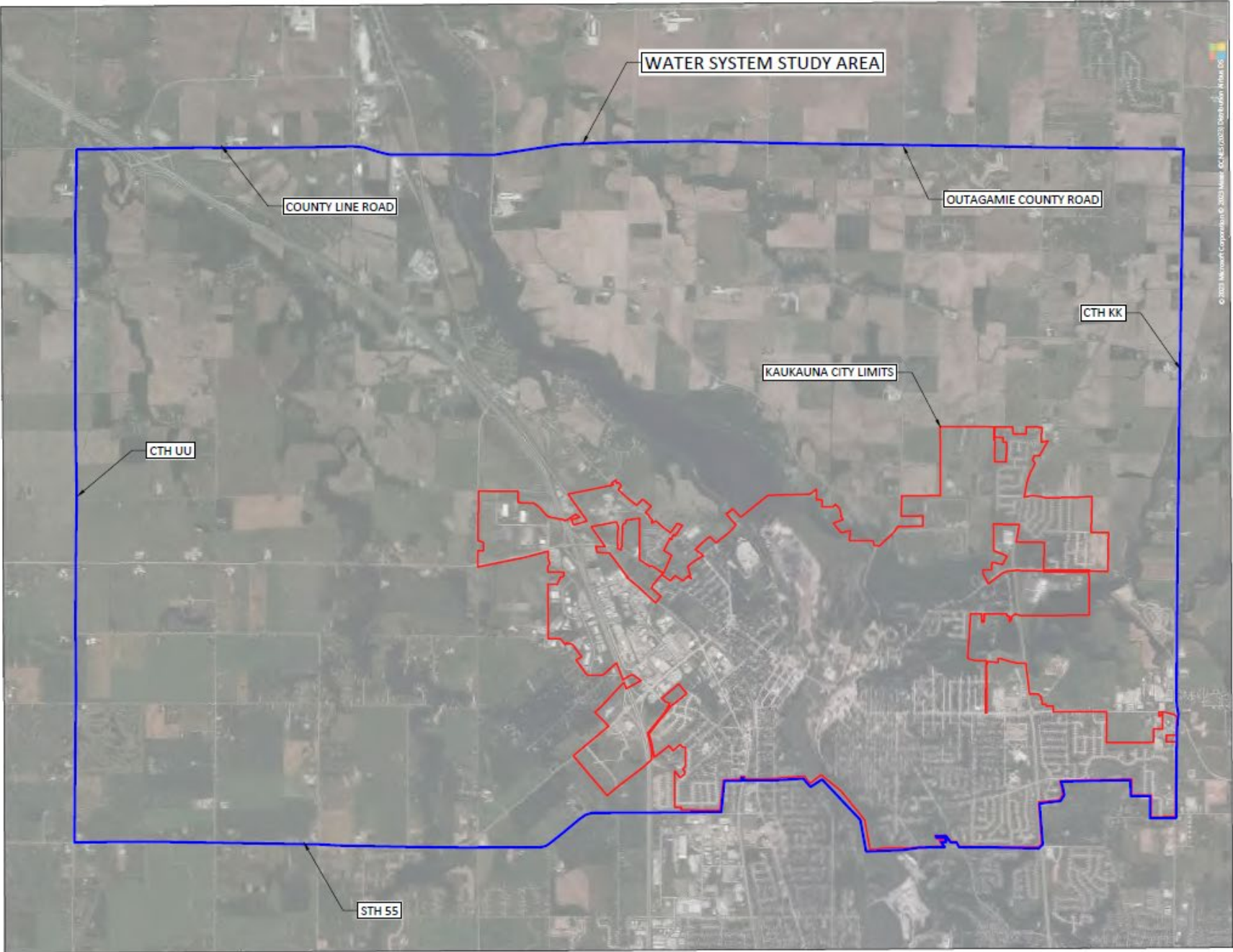


FIGURE 2:
WATER STUDY LIMITS



Engineers—Surveyors—Architects
2500 E. Enterprise Avenue
Suite A
Appleton, WI 54913
Phone: 920.574.3135
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WATER SYSTEM – CURRENT STATE

CURRENT TREATMENT METHOD

- HMO chemical addition (manganese sulfate and potassium permanganate) for radium removal
- Filtration for iron, manganese, and radionuclide removal
- Poly/Ortho 50/50 blend addition for corrosion control
- Sodium hypochlorite addition for disinfection
- **No hardness removal currently.** Customers still need to treat for hardness

TREATMENT OPTIONS

TREATMENT OPTIONS

1. Maintain Status Quo - No Hardness Removal
2. Ion Exchange
3. Reverse Osmosis (RO) or Nanofiltration
4. Pellet Softening
5. Purchase Surface Water

TARGET HARDNESS

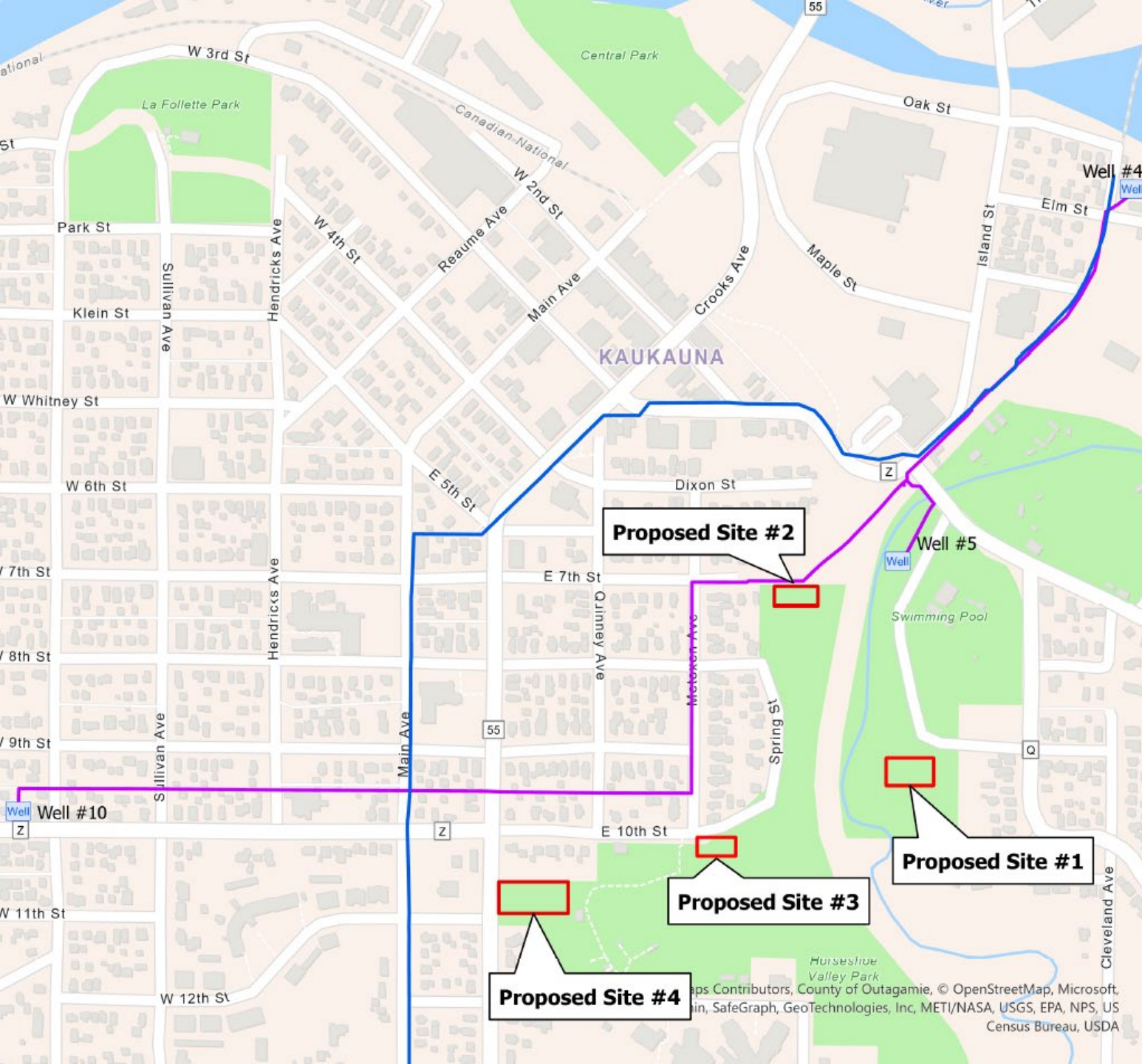
- The groundwater in Kaukauna has a total hardness level ranging from 563-838 mg/L (36-49 grains per gallon).
- The recommended hardness level for drinking water is 60-130 mg/L (3.5-7.5 grains per gallon).
- Appleton and Green Bay water have a hardness level of about 120-150 mg/L (7-9 grains per gallon) from the lakes. Appleton softens its water from Lake Winnebago (about 8 grains per gallon) to 4.7 grains per gallon.
- Little Chute, Kimberly and Darboy soften groundwater using ion exchange.

MAIN FILTER PLANT ALTERNATIVES

MAIN FILTER PLANT ALTERNATIVES

1. No Changes – React When Failure Occurs
2. Replace Iron Filter at Current Location
3. Rebuild Water Treatment Plant Building and Reservoirs at Current Locations
4. New Water Treatment Plant Building at New Location

Main Filter Plant Location Alternatives



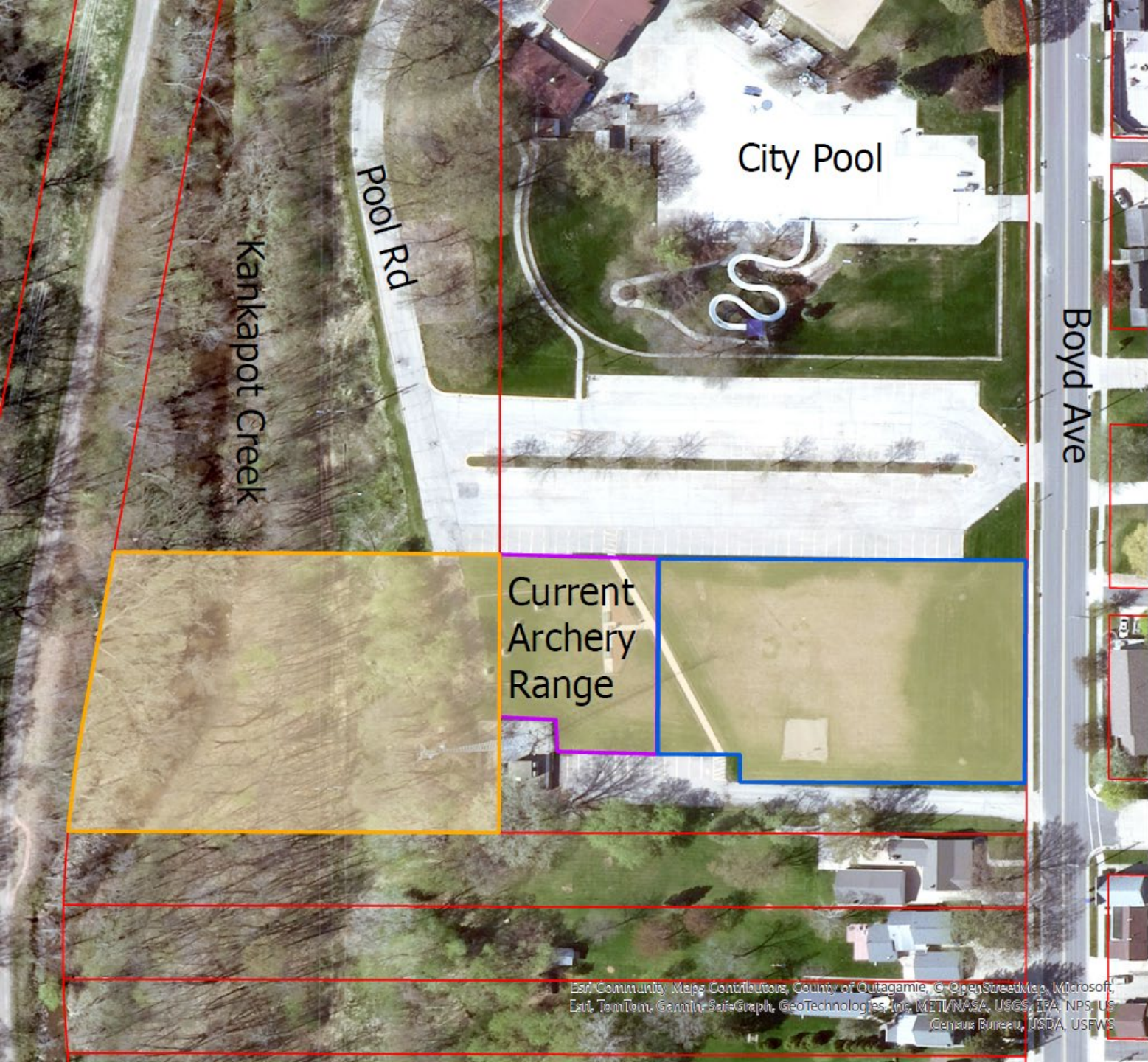
- Proposed Filter Plants
- Well
- 16" Water Main
- Raw Water

0 250 500 Feet
Scale is approximate and is not based on legally recorded or surveyed data.



POTENTIAL SITES

Map Contributors, County of Outagamie, © OpenStreetMap, Microsoft, Esri, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, US Census Bureau, USDA



Proposed Main Filter Plant

- Parcels
- Proposed Filter Plant
- Future Site
- Property for Drainage to Creek

0 250 500 Feet

Scale is approximate and is not based on legally recorded or surveyed data.



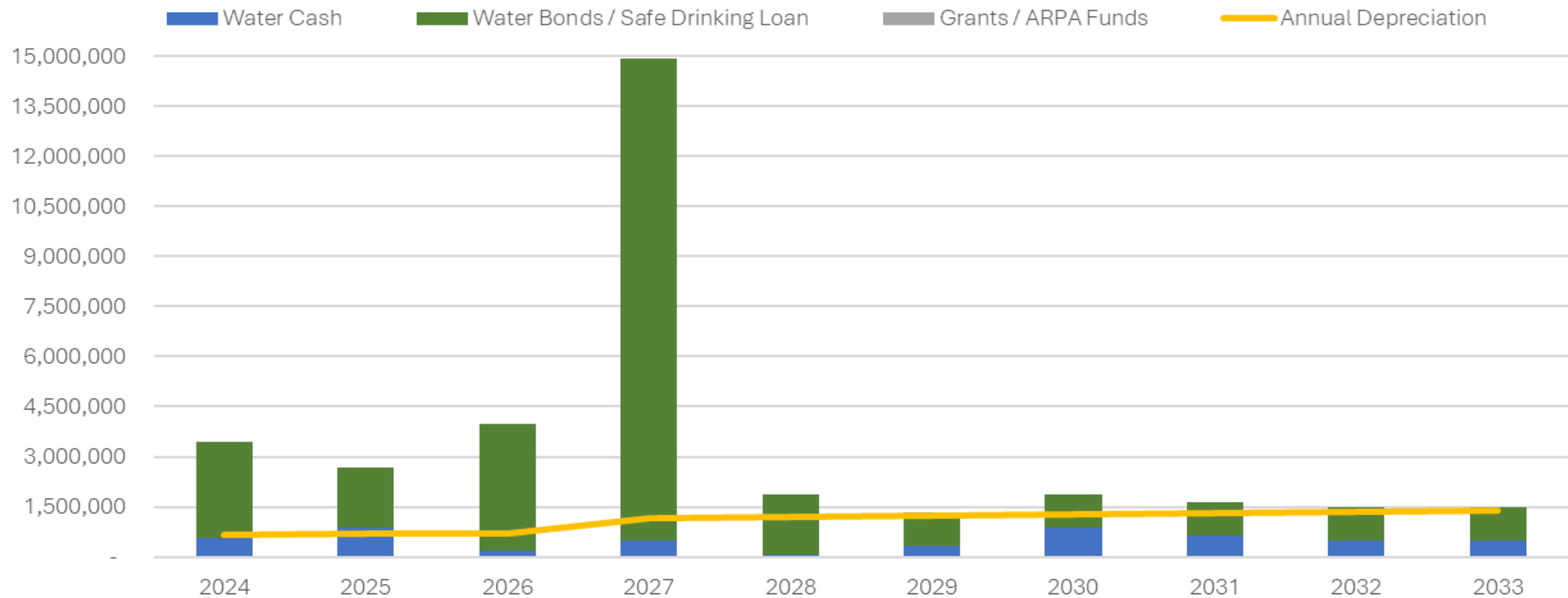
This map provides data containing geographic information about the Kaukauna Utilities service area. The data was obtained from multiple sources and agencies. Kaukauna Utilities provides this information with the understanding that it is not

PREFERRED SITE

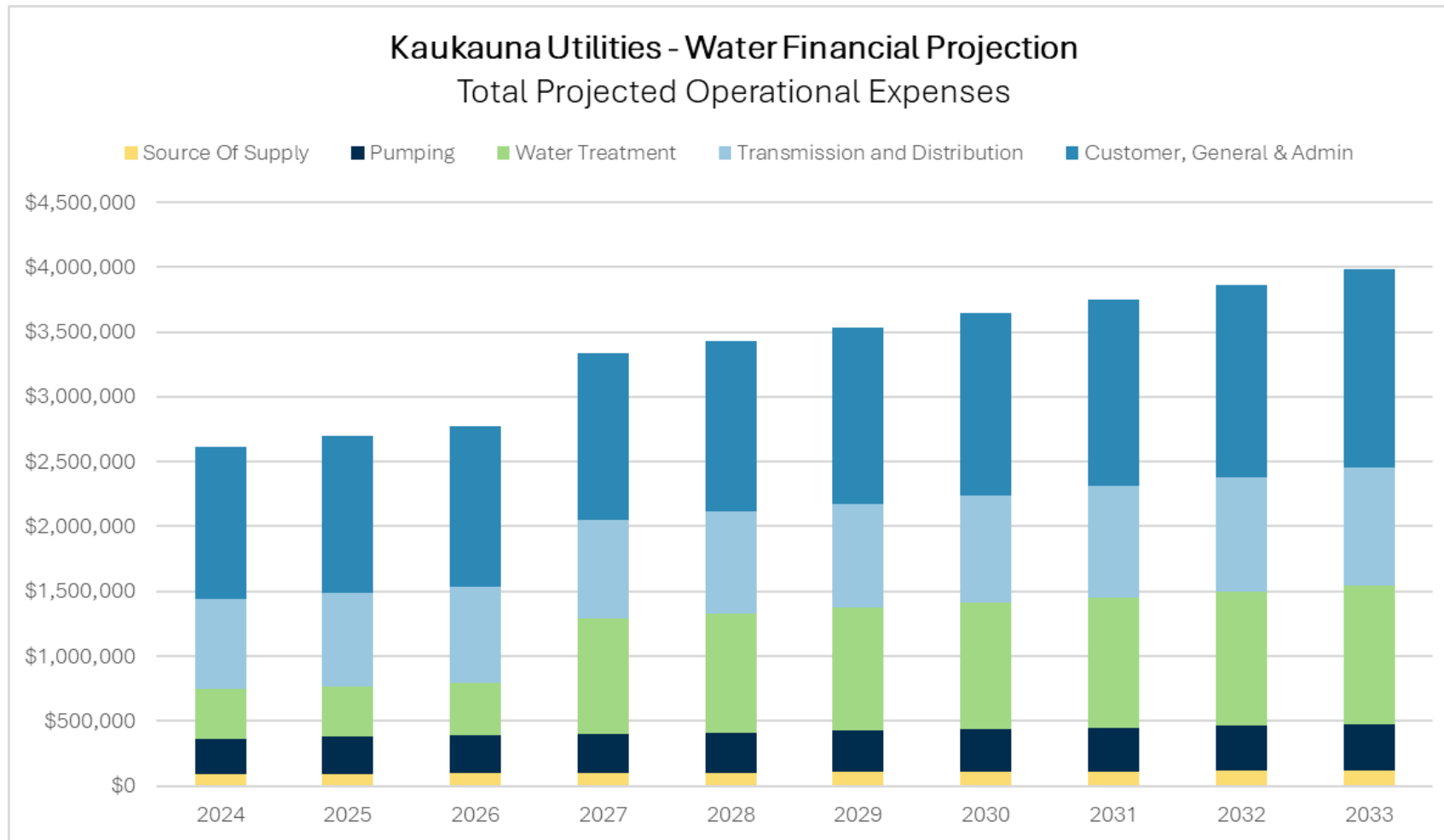
FINANCIAL PLAN

FINANCIAL PLAN

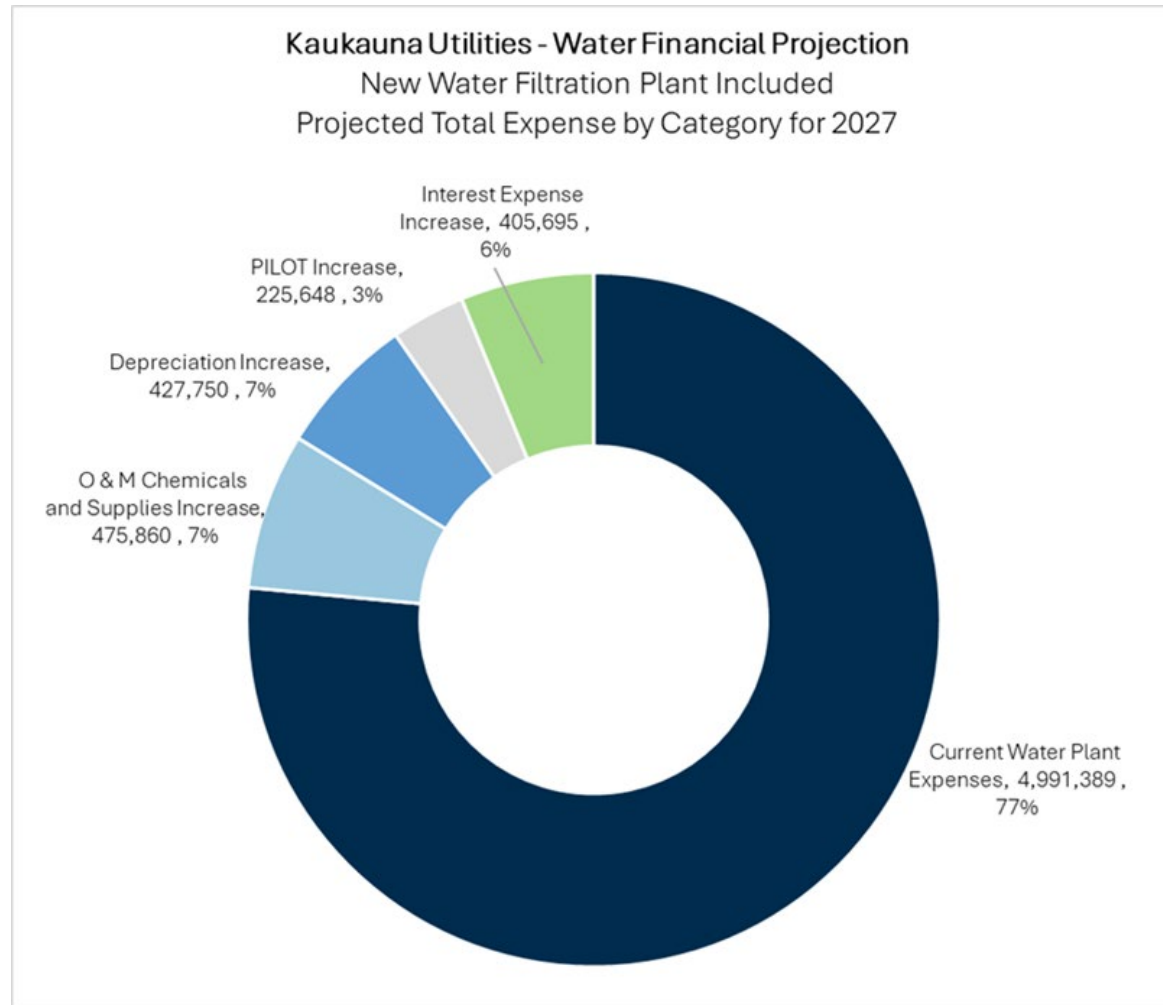
Kaukauna Utilities - Water Financial Projection
Planned Capital Investment by Funding



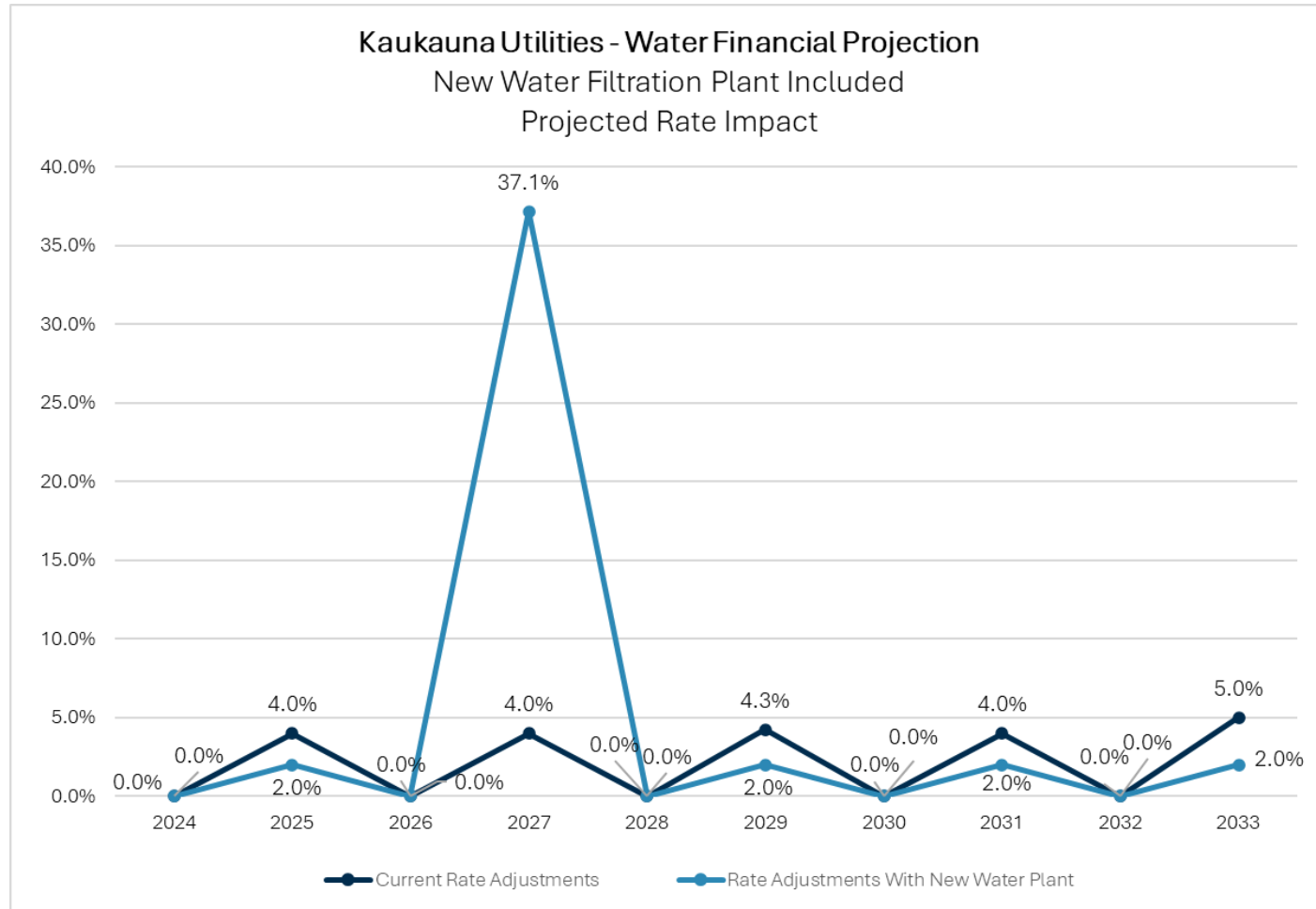
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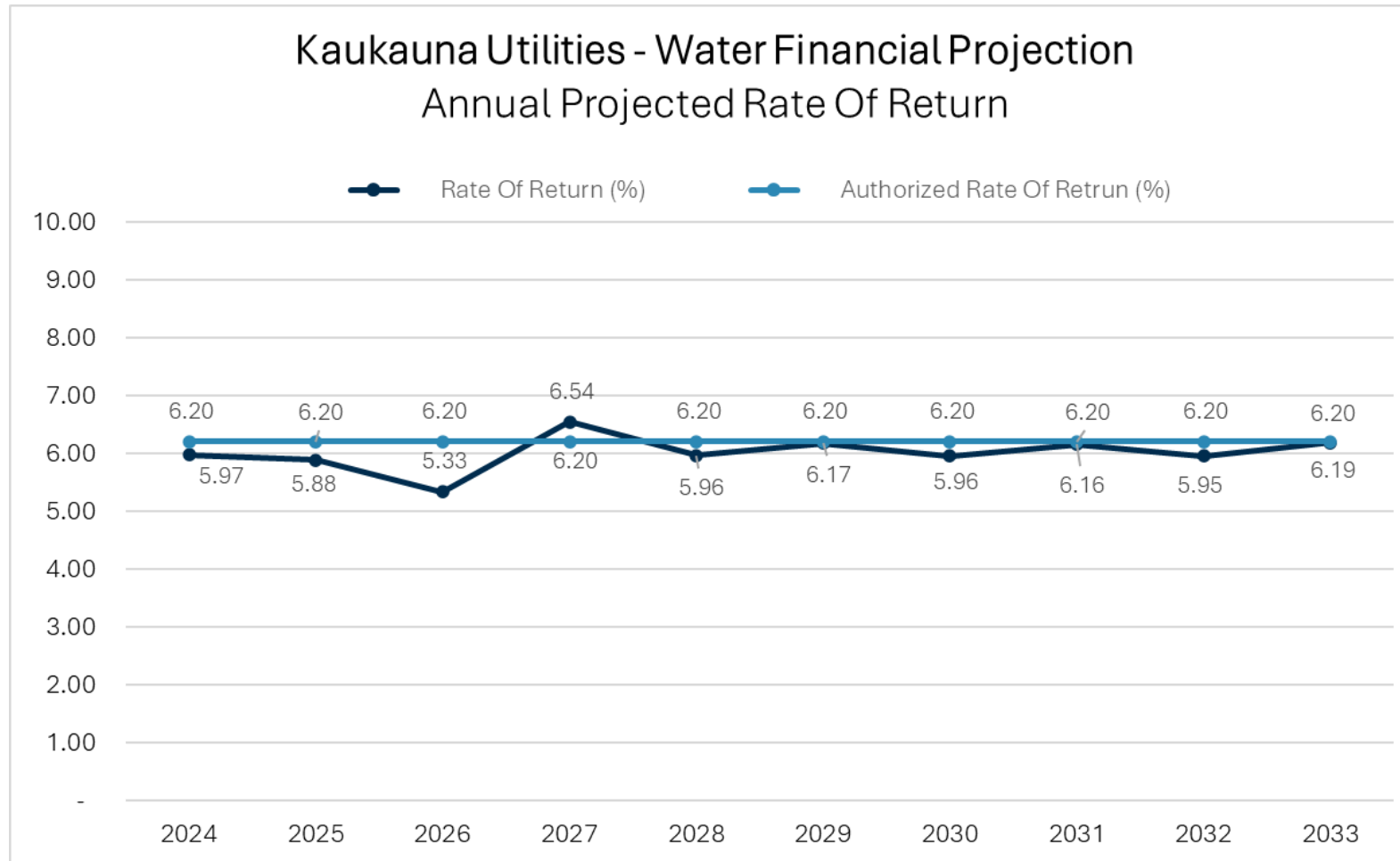
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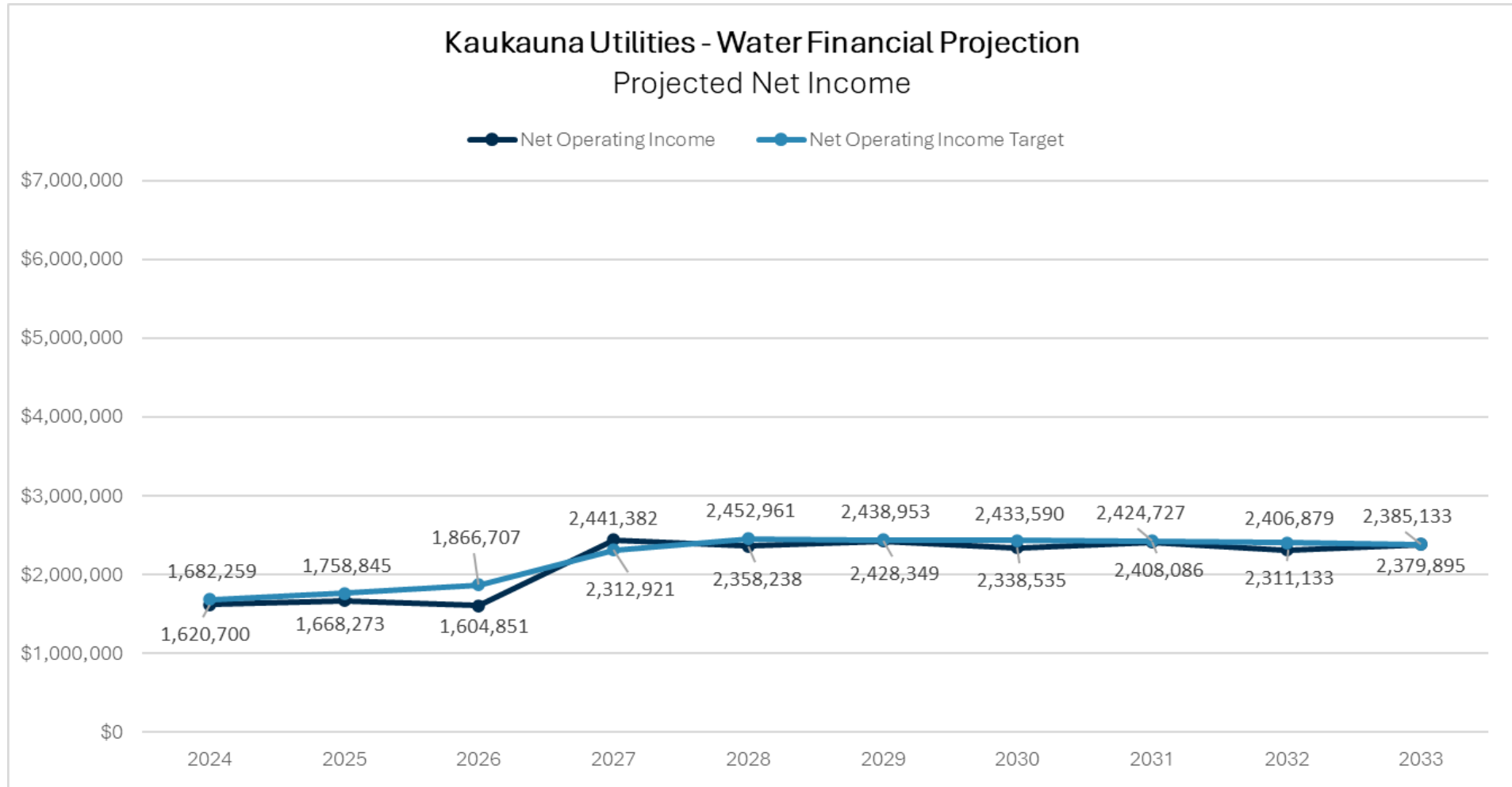
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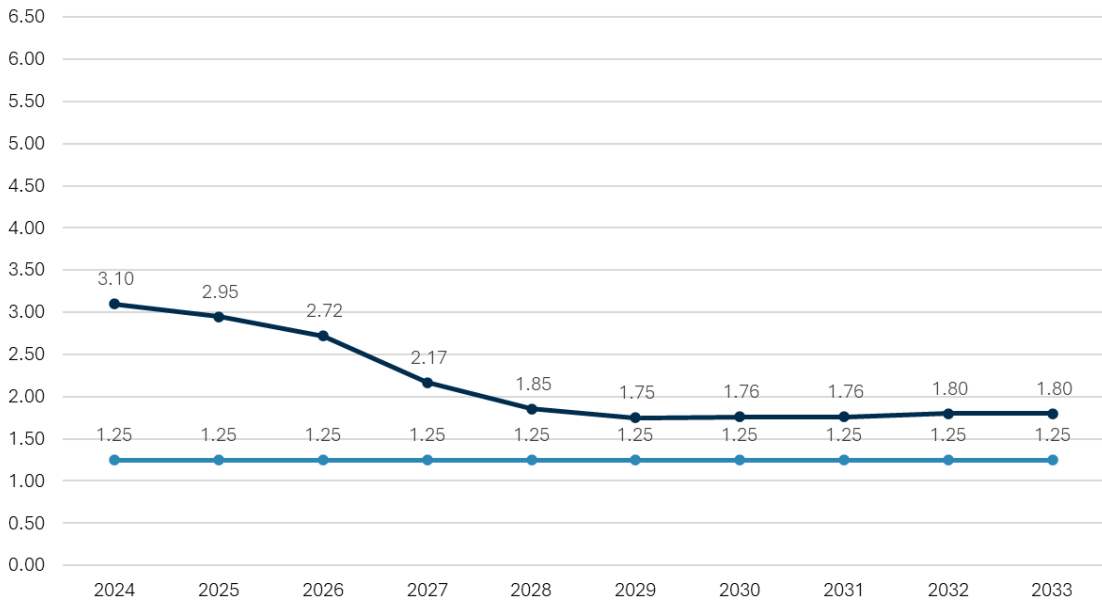
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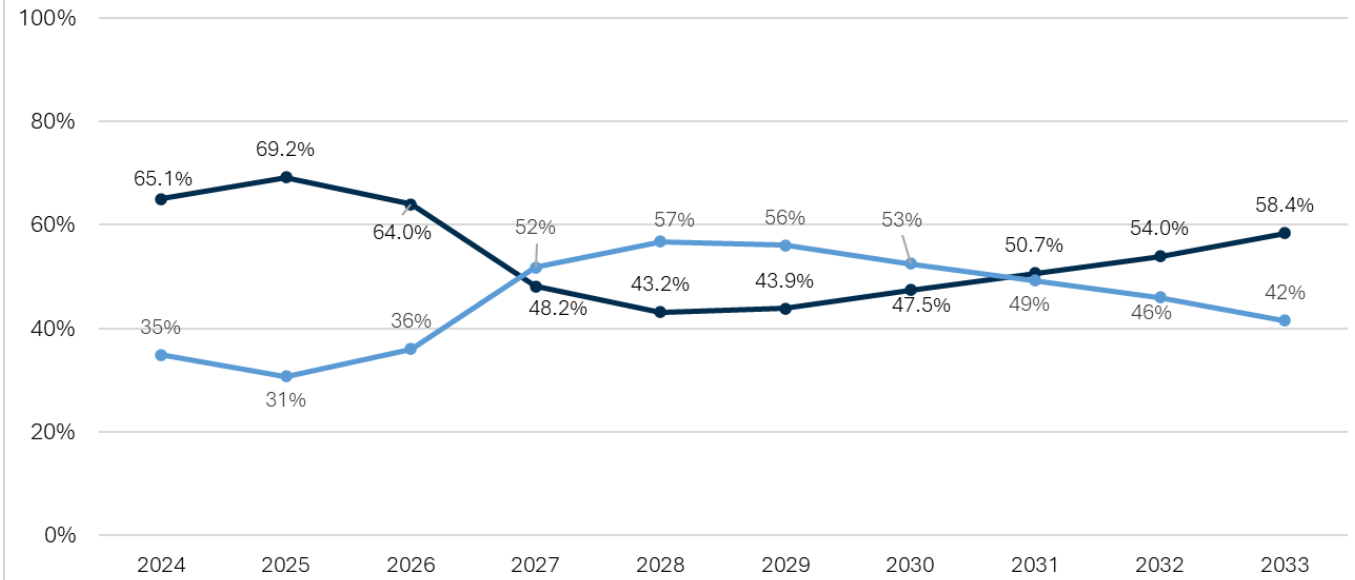
Kaukauna Utilities - Water Financial Projection
Annual Actual and Projected Debt Coverage

Actual Debt Coverage Coverage Factor



Kaukauna Utilities - Water Financial Projection
Annual Projected Debt to Equity Ratio

Equity Ratio Debt Ratio

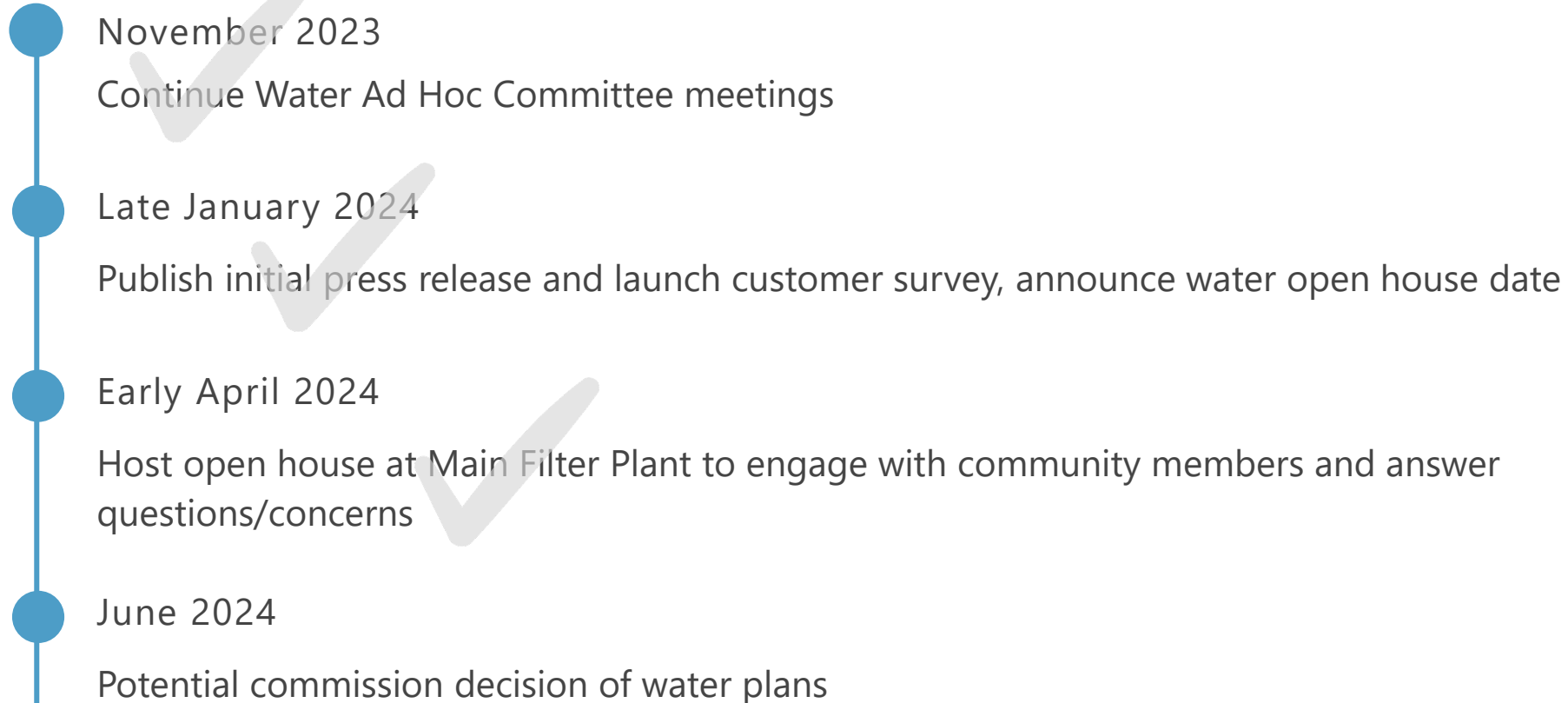


COMMUNITY ENGAGEMENT & PROJECT TIMELINE

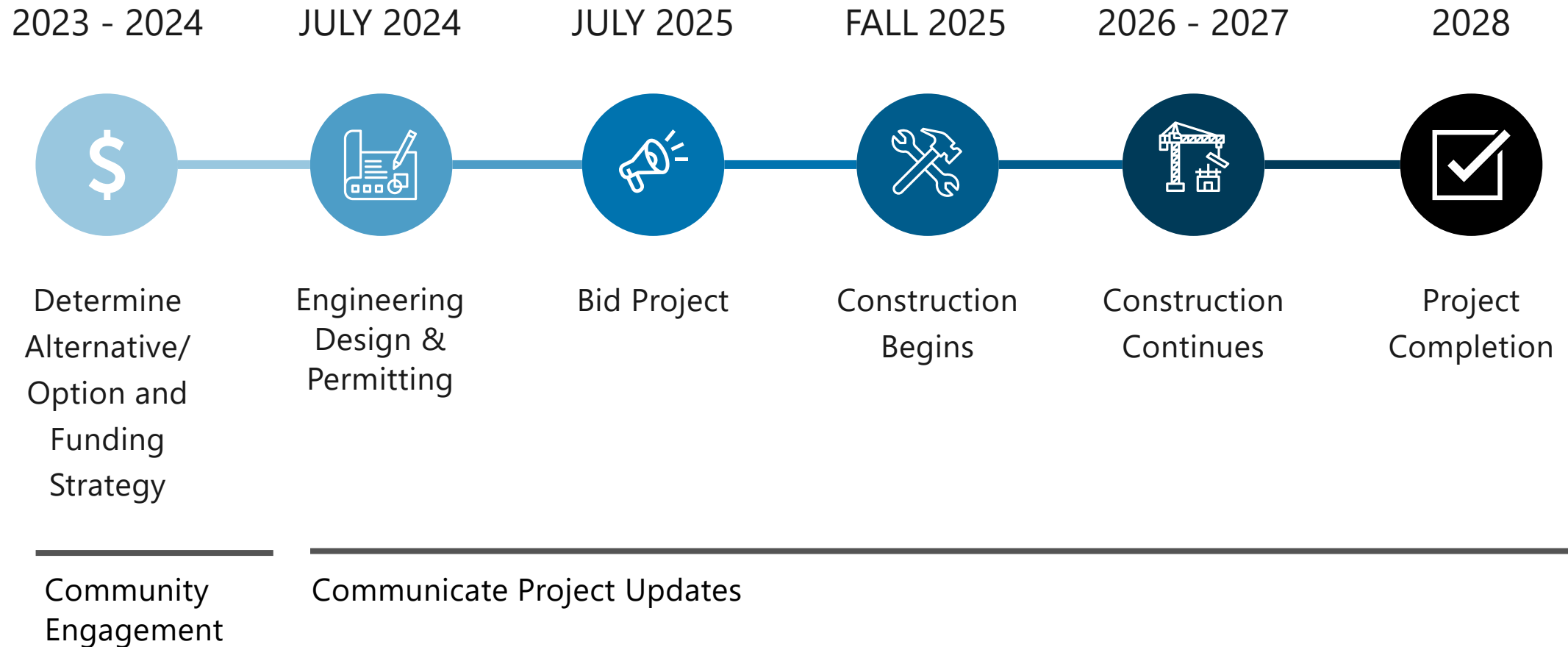
COMMUNITY ENGAGEMENT

- Water Ad Hoc Committee established in July 2023
- Published initial press release in November 2023
- Presentation to Common Council in December 2023
- Customer survey in January/February 2024
- Open House press release in March 2024
- Coffee & Conversation at Library in April 2024
- Open House in April 2024
- Water Ad Hoc Committee recommendations in April 2024
- Common Council and City Committees in May 2024
- Utility Commission presentation in May/June 2024

COMMUNICATIONS TIMELINE

- 
- November 2023
Continue Water Ad Hoc Committee meetings
 - Late January 2024
Publish initial press release and launch customer survey, announce water open house date
 - Early April 2024
Host open house at Main Filter Plant to engage with community members and answer questions/concerns
 - June 2024
Potential commission decision of water plans

POTENTIAL PROJECT TIMELINE



RECOMMENDATIONS

RECOMMENDATIONS

- Approve the Draft Water Study
- Change water treatment process to Option 3 (Reverse Osmosis or Nanofiltration)
- Proceed with Alternative 4 (New Water Treatment Plant Building at New Location)
- Proceed with the Main Filter Plant being relocated to proposed site #1 (next to the Kaukauna city pool)

THANK YOU!

