

CITY OF HASTINGS – PFAS FEASIBILITY STUDY UPDATE AUGUST 2023



Photo: ANGELINA KATSANIS, STAR TRIBUNE

August 7, 2023

City Council Workshop



Agenda



- Status of MPCA Environmental Review
- Overview of Study Goals
- Evaluation of Options
- Estimated Costs
- Potential Funding Sources Update
- Next Steps

MPCA Site Assessment Program

- Determines Potential Sources and Responsible Parties
 - ▣ Phase 1 completed and Phase 2 started in February 2023
 - ▣ Meeting monthly on progress
 - ▣ Progress is slow (observation wells have not yet been installed)
- Deliverables we are waiting on
 - ▣ Modeling Results (although East Metro Model not meant for Hastings)
 - ▣ MGS Complexities (Faults/Underground Features/Contaminated Shores)
 - ▣ Phase II investigations of other potential sites (e.g., Pine Street Dump)
- Position of Co-Trustees is that a connection to the 3M Disposal Sites is necessary, at least enough to implicate a polluter

WARNING: DO NOT EAT THE FISH
Practice Catch & Release Fishing



This waterbody has a Do Not Eat Fish Advisory issued by the State of Minnesota due to PFAS in fish. Contact with the water is NOT a health concern.

Next Up with the MPCA



- Continue to wait on MPCA results...could take years
 - ▣ Updated modeling efforts
 - ▣ Pine Street Dump / Golf Course well samples
 - ▣ Fingerprinting
 - ▣ Observation Wells (could be a few months yet)
- Meeting w/ Co-Trustees on 8/31
 - ▣ We believe Hastings is eligible for Settlement Funds
 - ▣ Obtain a piece of Governor's \$25M for PFAS investigation and design
 - ▣ Status on Funding for Hastings
 - ▣ Concerns with spending down of Settlement Funds while we wait
- Anticipate receiving Drinking Water Advisories for all 6 wells

PFAS Feasibility Study Need

- Draft MCL from EPA provide new guidance on PFAS:
 - PFOA and PFOS can accumulate and persist in the human body for long periods of time and evidence from lab animal and human epidemiology studies indicate that exposure can cause cancer, reproductive, developmental (low birth weight), cardiovascular, liver, kidney, and immunological effects

Well No.	PFOA QRAA Concentration (µg/L)	EPA Draft MCL (µg/L)
3	0.010	0.004
4	0.002	
5	0.016	
6	0.005	
7	0.007	
8	0.022	
WTP No. 1	0.011	

Study Goals



- Evaluate options to mitigate PFAS from drinking water
- Update the Hasting Water Model to determine feasibility and updated cost estimates
- Provide recommendations on the most cost effective solution

Evaluation of Options



- Blend existing wells to dilute below limits
 - ▣ 5 or 6 wells anticipated to above health guidance
- Construct deeper wells to Mt. Simon-Hinkley
 - ▣ DNR Moratorium on this aquifer,
 - ▣ Future PFAS risk due to geological faults
 - ▣ Concerns for radium, which also requires treatment
- Purchase treated water from St. Paul Regional Water Services
 - ▣ 20 miles away
 - ▣ Lose control of rates
 - ▣ Long term reliability concerns
- Implement treatment on existing wells

Treatment Only Feasible Option

- Granular Activated Carbon (GAC) and Ion Exchange (IX) are the most common treatment technologies for PFAS
- City currently treats for Nitrates in Wells 3 & 5 and this need will continue
- Pretreatment analysis necessary to determine most efficient life cycle costs

Well No.	Max. PFAS HRI QRAA	Nitrate (as N) (mg/L)
3	0.48	9.1
4	0.09	4.1
5	0.76	7.7
6	0.29	7.9
7	0.57	5.9
8	0.94	7.7
WTP No. 1	0.47	5.2
Limit	1.0	10.0

Treatment Options for PFAS & Nitrates

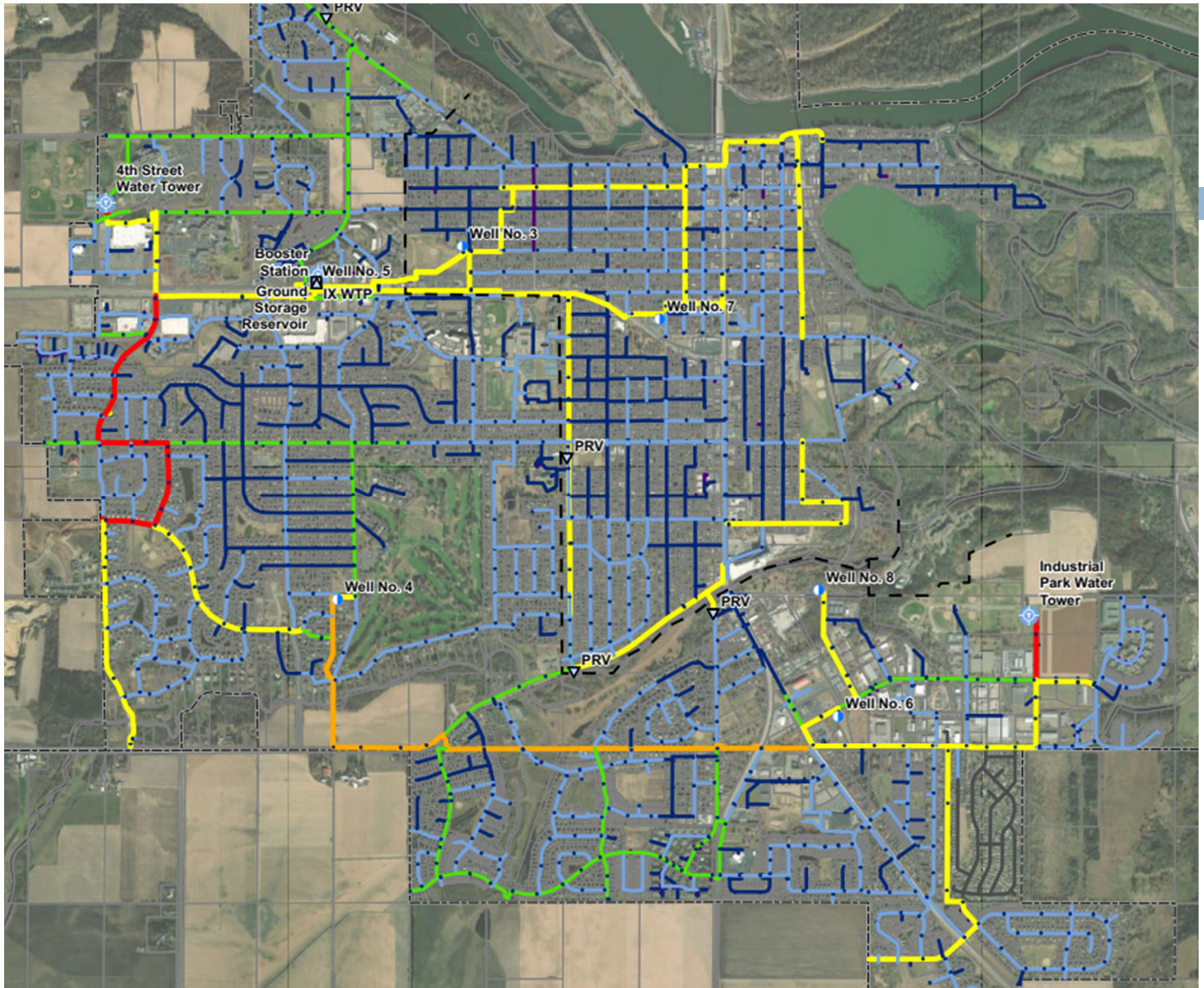
Treatment Technology	PFAS	Nitrate	Relative Cost
Chemical Addition	No	No	Low
Conventional Filtration	No	No	Medium
Biological Filtration	No	Yes	Medium
Granular Activated Carbon (GAC)	Yes	No	Medium
Ion Exchange (IX)	Partial*	Yes	Medium
Reverse Osmosis (RO)	Yes/No**	Yes	High
Nanofiltration (NF)	Yes/No**	Yes	High

GAC Treatment Recommended for PFAS



GAC Treatment Recommended for PFAS





Centralized vs. Decentralized

Description	Central WTP Estimated Cost	Decentralized WTPs Estimated Cost
Watermain Improvements	\$25,130,000	\$3,600,000
IX Treatment	\$21,300,000	\$29,280,000
GAC Treatment	\$23,740,000	\$35,480,000
Total Capital Costs	\$70,170,000	\$68,900,000
Total 30-Year Life Cycle Costs	\$98,870,000	\$98,060,000

- For Hastings, decentralized treatment is preferred:
 - Construction of facilities can be phased (to be completed in 2027)
 - Operational flexibility and resiliency
 - Wells can continue to pump into existing pressure zones and avoid “double pumping”
 - Existing distribution mains are adequately sized to accommodate the hydraulics

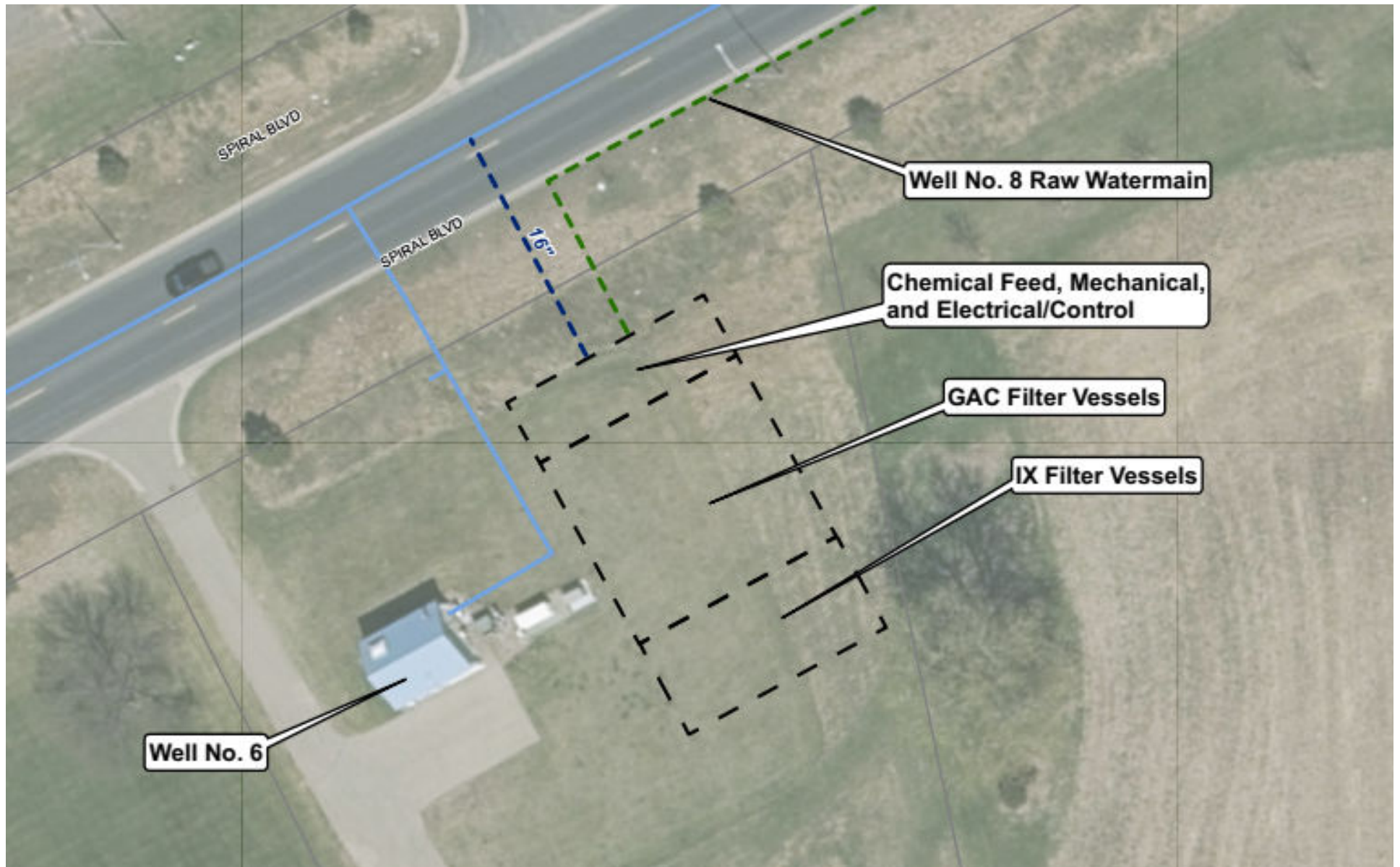
Example Photo of WTP for PFAS



Phase 1 – Wells 6 & 8



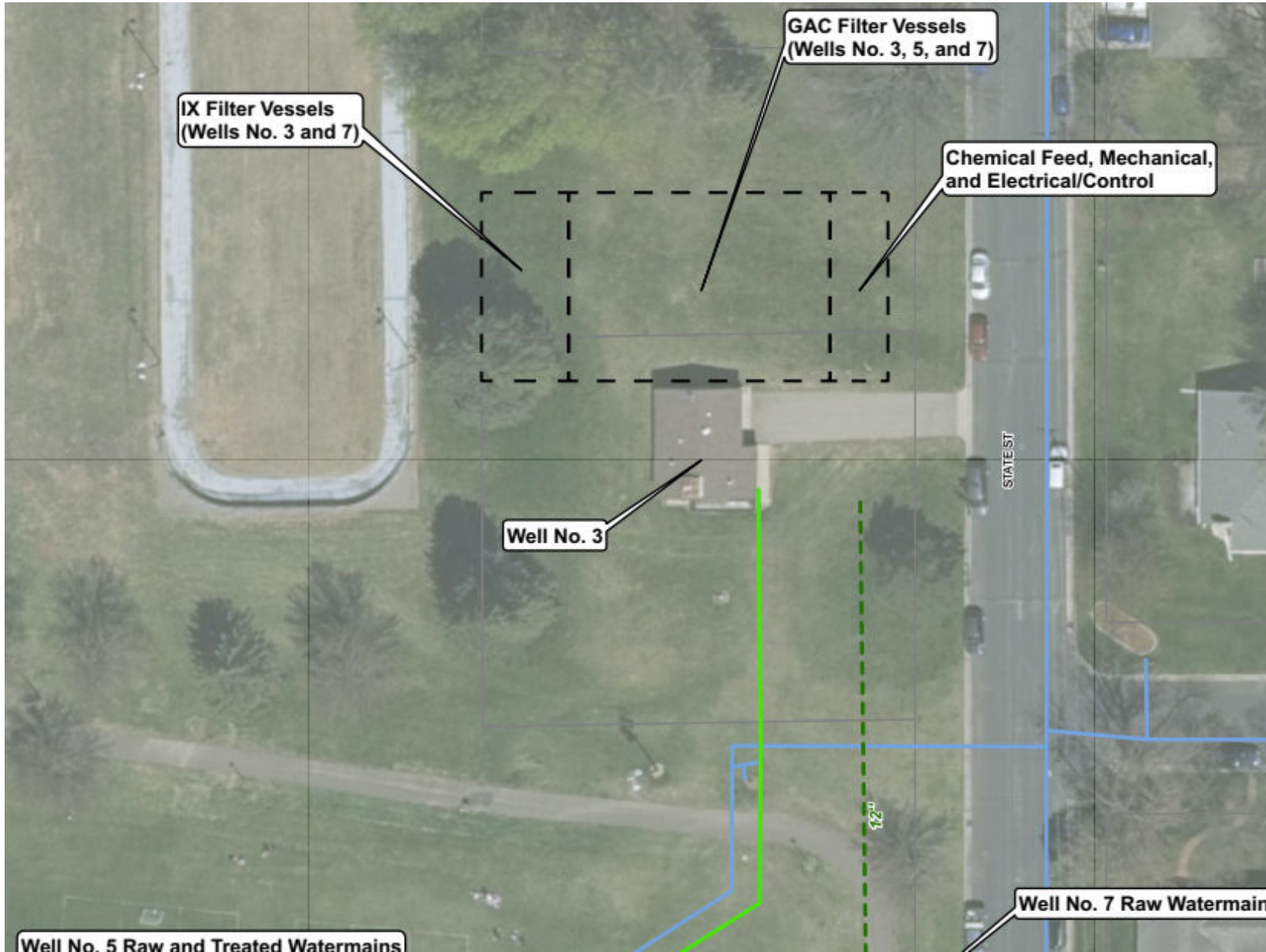
Phase 1 – WTP No. 1



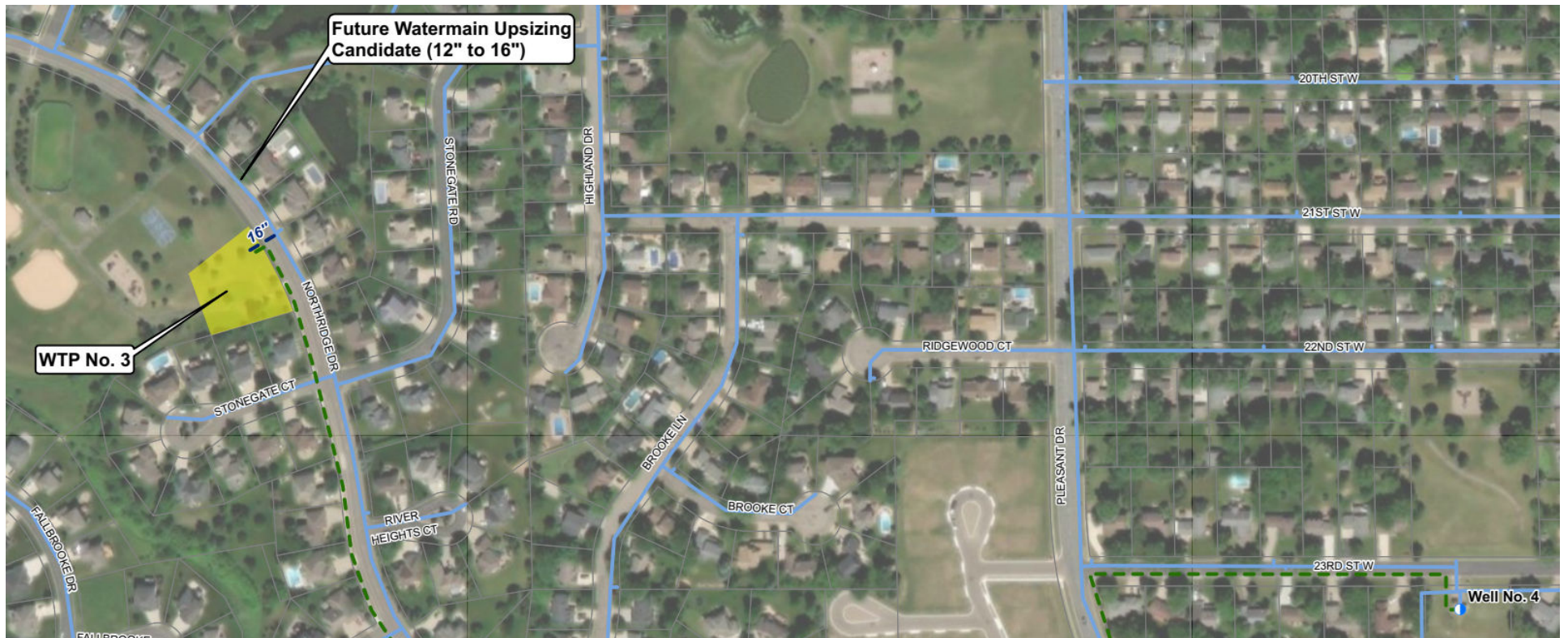
Phase 2 – Wells 3, 5, & 7



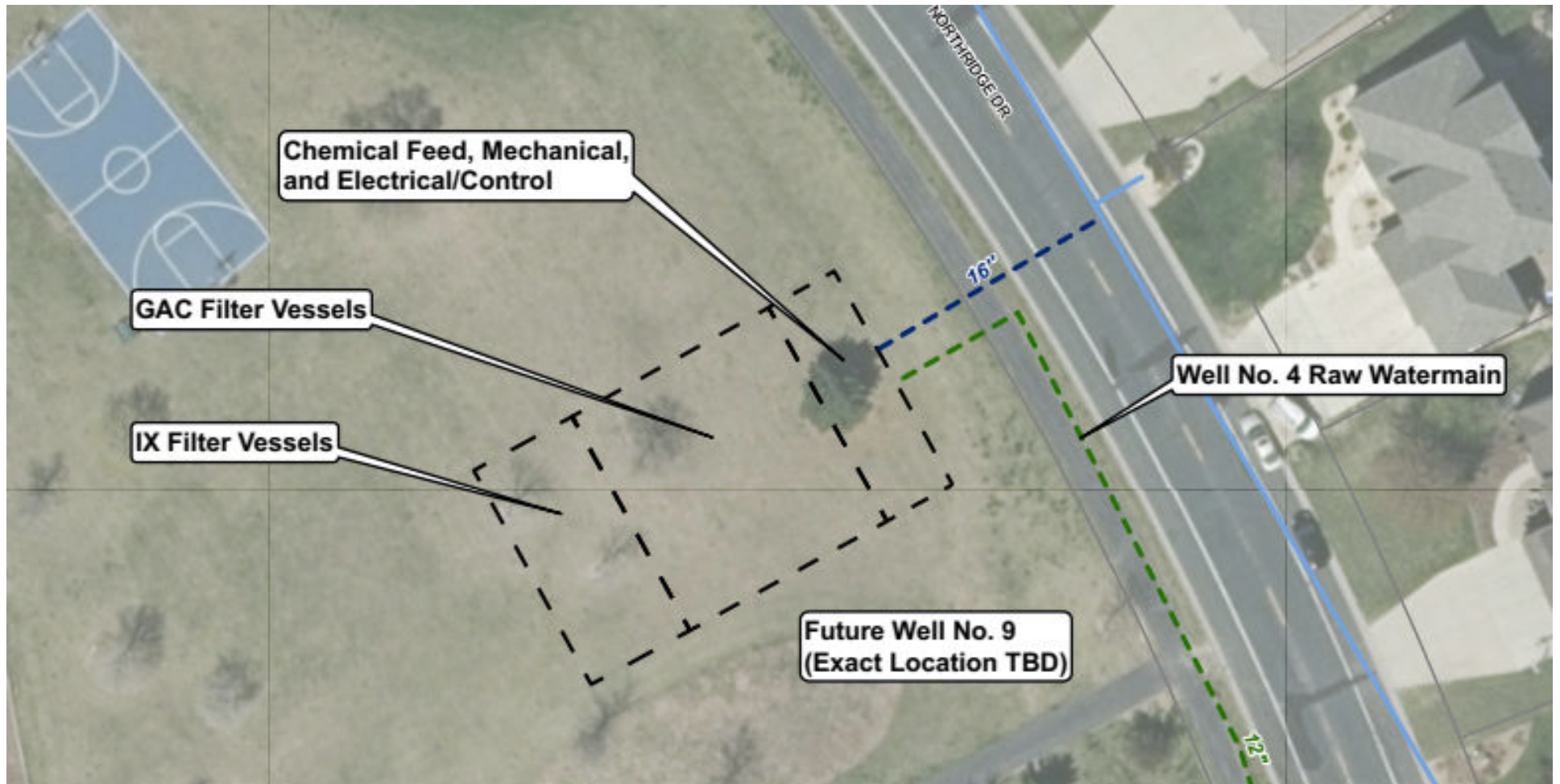
Phase 2 – WTP No. 2



Phase 3 – Wells 4 & 9 (Future)

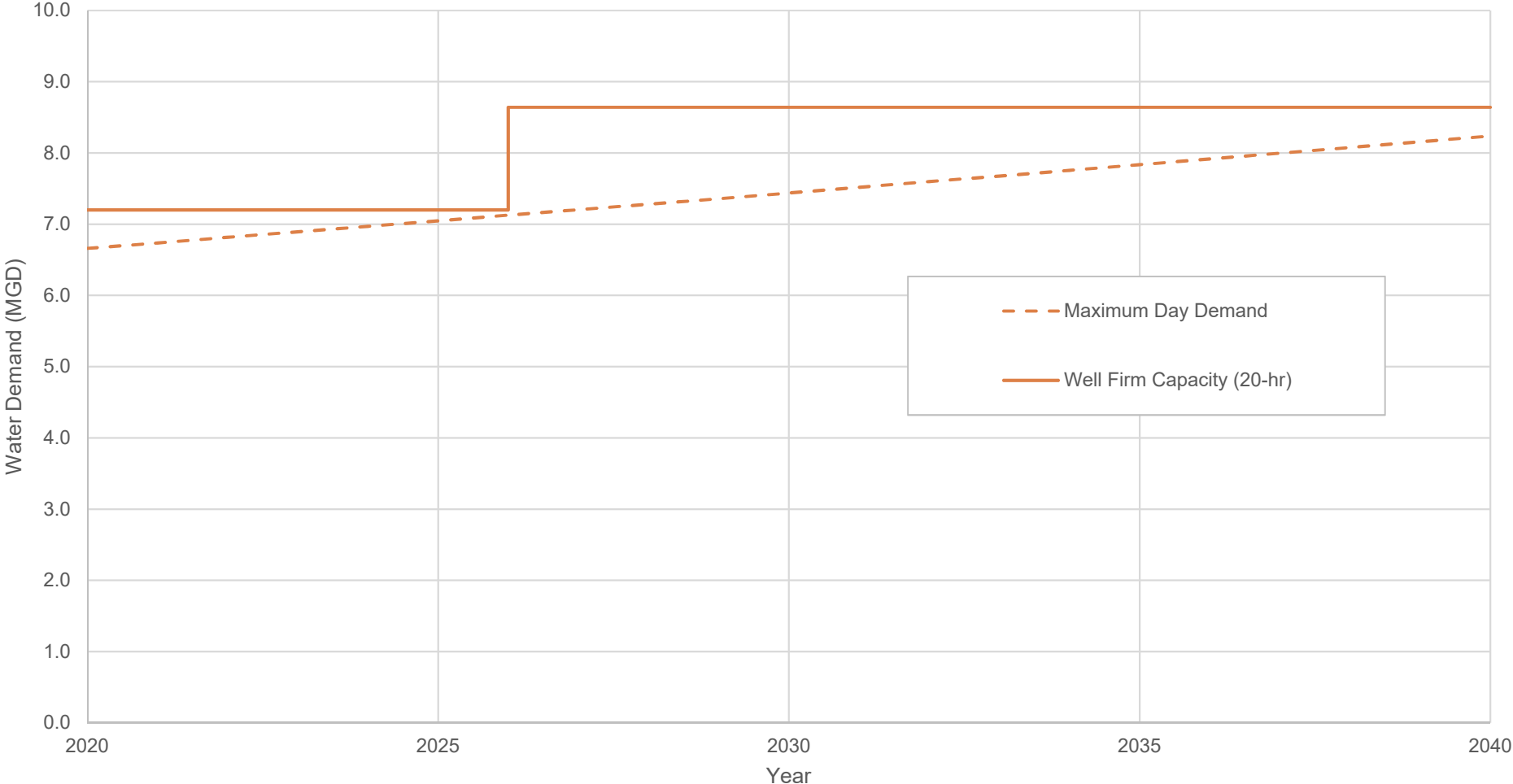


Phase 3 – WTP No. 3



Future Water Supply

Figure 2 - Water Supply Trigger Chart
City of Hastings, MN

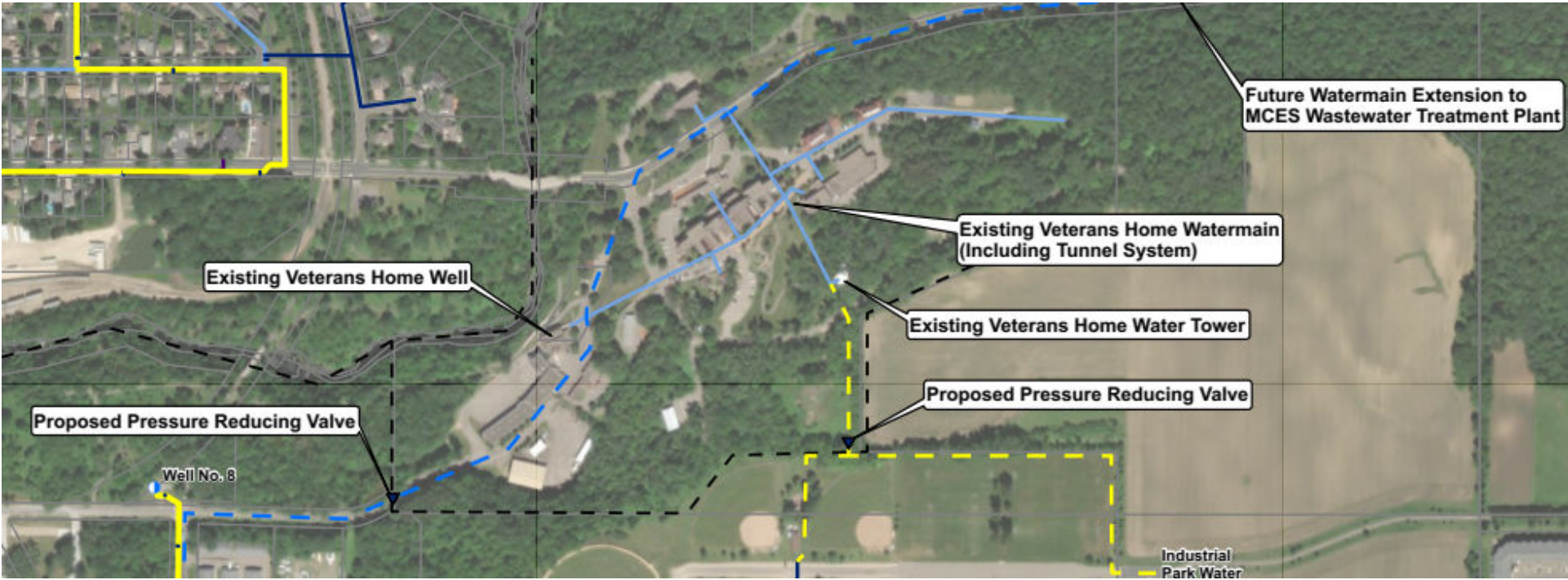


Total Project Costs

Construction Costs (sum of highlighted area)	\$45,268,480
Contingency (20%)	\$9,053,696
Indirect Costs (Engineering, Legal, and Administration) (25%)	\$13,580,544
Land and/or Easement Acquisition	\$1,000,000
Total Capital Cost	\$68,902,720
30-Year Cost Including O&M	\$98,055,457

- \$69M in total project costs
- Estimated annual O&M is \$800K to \$1M
- Includes WTP Rehab every 10 years (replacing coatings, valves, chemical feed, mechanical, electrical)

Veterans Home Site (\$ not included)



Future O&M Must be Considered

- Both Nitrate and PFAS treatment needs regular O&M
- Nitrate (IX) is estimated to add \$85K to \$110K Annually
 - ▣ Resin change out
- PFAS (GAC) is estimated to add \$660K to \$850K Annually
 - ▣ Carbon change out
- Added Labor for the treatment plants estimated \$40K Annually
- 3M Settlement Final Drinking Water Supply Plan includes 20 years of O&M for East Metro

Potential Funding Sources



- Water rates – preliminary estimates from Northland
 - ▣ 26.4% annual increase next 5 years
 - ▣ 14.5% annual increase following 5 years
 - ▣ Shows need for outside funding
 - ▣ Additional Impact of O&M
- 3M Settlement Funds
 - ▣ Open question and may include O&M
- \$25M was approved in Governor's Budget
 - ▣ For PFAS Planning (would include design engineering)

Potential Funding Sources (continued)



- State Legislation
 - ▣ Regular Updates Given to Elected Officials
 - ▣ Direct legislation for next session (could reimburse design work)
 - ▣ State Bonding request submitted in spring 2023
- Federal Funding
 - ▣ Community Project Funds (Federal)
 - ▣ Bipartisan Infrastructure Law
- City's Project is on the Project Priority List (PPL)
 - ▣ Emerging contaminant category (possible \$3M grant)

Next Steps



- Continue working with Co-Trustees and Environmental Attorney
- Prepare any available State or Federal Grants
- Continue Transparency w/ the Public
 - ▣ Keep website up to date
 - ▣ Plan open house in coordination with Drinking Water Advisories
- City Council to decide on authorization of design phase work
 - ▣ Keeps Hastings ahead of the curve and prepared to start addressing PFAS in 2024
 - ▣ Shovel Ready for grant opportunities
 - ▣ Strong likelihood for reimbursement with the \$25M in Governor's Budget, but this will be competitive
 - ▣ Water Fund can float cash in the ballpark estimated amount of \$850K

QUESTIONS?

