

Water Treatment Plant Upgrade Design

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Background



Water Plant Upgrade History/dates

- City's Water Treatment Plant first put into service in 1895
- First Plant upgrade occurred in 1970-Trident conventional clarification-filtration system installed
- Second Plant upgrade occurred in 1990-addition was built to house microfloc upflow clarification system with filter beds replacing the Trident clarification and filter system previously installed.
- New High Lift Pump station was built at the Plant in 2001, to improve on water production.
- New EPA Drinking Water Standards and in response planned for a new treatment system, 2005-2008

Background



Schedule of current design and progress

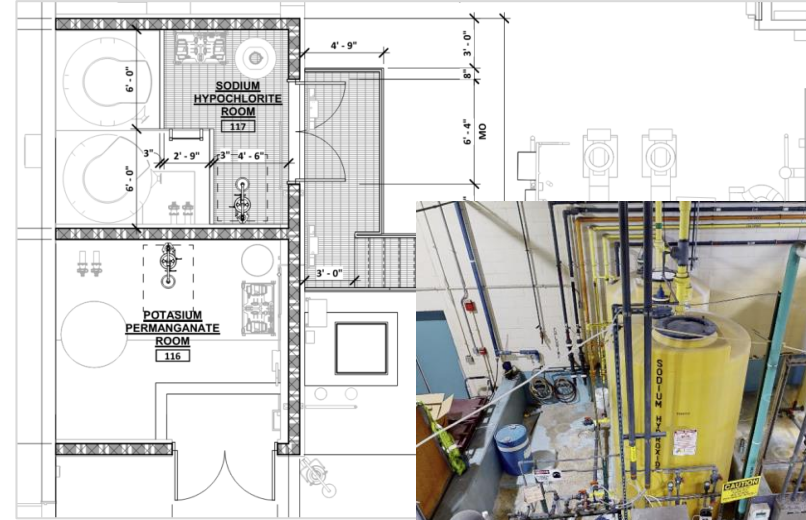
- Engineering and design plans at 30%, began September 2025
- Final design plan expected Fall of 2027
 - Pending decision to implement in phases
- Evaluating possible priority phasing of improvements for cost considerations

Existing Conditions & Priorities



Filters

- Improve access and illumination
- Replace pumps, blowers, valves
- Repair failing underdrains

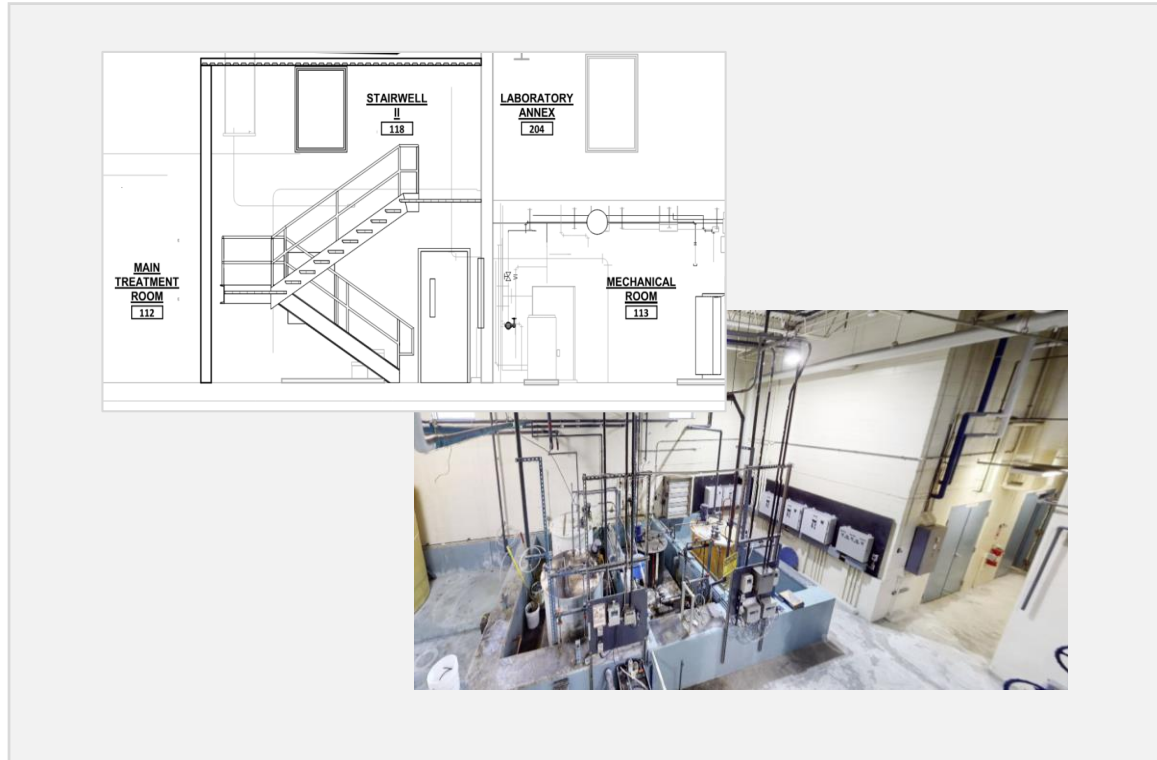


Chemical Feed Systems

- Upgrade equipment for control and reliability
- Isolate chemicals to reduce hazards
- Improve access, life safety, fire protection, and storage systems for worker safety

Existing Conditions & Priorities – Architectural

-Distribution Office Improvements



-Egress Stair by Laboratory

- Photos of plant from Matterport scan



-Bathroom Expansion and Renovations

- Photo of areas that need attention

Existing Conditions & Priorities – Mechanical

HVAC Improvements



- Replace aging boiler



- Fire protection for caustic chemicals



- Upgrade temporary cooling systems

Proposed Improvements

Capacity improvements

- Upgrades to equipment will increase efficiency/resiliency
- Increases water treatment production 25%
- Assist with meeting current and future water use demand in the city.

Age of equipment/replacement

- Drives for Actiflo process
- Pumps, blowers and valves for filters

Maintenance upgrades

- Removal of steel framing over filters
- Slate roof surface and structural repairs
- Filter underdrains and media
- Upgrades to electrical system

Code upgrades/ fire-life safety

- Interior egress staircase by laboratory
- Fire door and vestibule modifications
- Bathroom renovations
- Primary electrical feed changes

Cost & Opportunities



- **Original cost, \$7,100,000**
 - **Current SRF loan in place for \$7,100,000 with 30% principal forgiveness (\$2.1 Million debt erased)**
 - **\$5,000,000 borrowed**
- **New total construction cost including construction inspection/administration after preliminary design \$16,900,000**
 - **NHDES presented option to revise SRF loan to full amount of \$16,900,000 (\$5 Million debt erased)**
 - **\$11,900,000 borrowed**

How We Got Here

- **Facility Capital Improvement Plan completed in 2024**
- **Design began in 2025 based on the Plan**
 - **SRF loan secured at \$7,100,000 with 30% principal forgiveness**
- **During design, additional scope drove costs upward**
- **City staff pursued an additional SRF application this spring for the additional scope to take advantage of SRF funds available now**
- **The State responded accepting the application and revised their loan availability offer to \$16,900,000 with 30% principal forgiveness**

Additional Scope Driving Costs



Primary cost drivers – Electrical Scope

- Primary electrical feed and routing
- Elevate transformer to bring out of floodplain
- Improved resiliency/electrical connectivity

Additional cost drivers

- Chemical feed reorganization – Code issues
- Egress – Code issues
- State/Federal procurement requirements (BABA, Davis-Bacon)
- Additional process enhancements
- Market and anticipated inflation

Possible Phasing Options



- **Phase 1** - Priority Process and Facility Improvements
 - Addresses the most urgent treatment-process, safety, building, filter, lagoon, and chemical-line improvements. **Estimated cost: \$7.1 million.**
- **Phase 2** – Electrical, Chemical-Feed, and Remaining Facility Upgrades
 - Completes the electrical, instrumentation, chemical-feed, HVAC, structural, architectural, and deferred improvement work. **Estimated cost: \$9.8 million*.**
- **Total Estimated Project Cost \$16.9 million**

***Estimate only: schedule, economy and codes are factors that may change costs in the future should Phase option be used.**

Financial Implications:

- **Currently Council has approved SRF Funding of \$7,180,000 (30% Principal Forgiveness) leaving \$5,026,000 to be repaid over 20 years.**
- **Total Forgiveness: \$2,154,000**

- **If Additional SRF Funding is approved at the 30% Loan Forgiveness on \$16,900,000, then \$11,830,000 will be repaid over 20 years.**
- **Total Forgiveness: \$5,070,000**
- **The Estimated First Payment would be due in FY 31.**

Conclusion

- **Next Steps:**
 - **Amend the previous resolution to Council from December 8, 2025**
 - **Amend loan amount from \$7,100,000 to \$16,900,000**
 - **Present amended Council Resolution for Council consideration on September 21 (First Read) and on October 5 (Second Read)**
 - **Notify NHDES Officials of Decision on amended SRF Loan**
 - **Authorize Wright Pierce Engineering to proceed with final design of additional scope should City Council approve amended SRF Loan**

THANK YOU
