

Water Infrastructure Surcharge Public Education

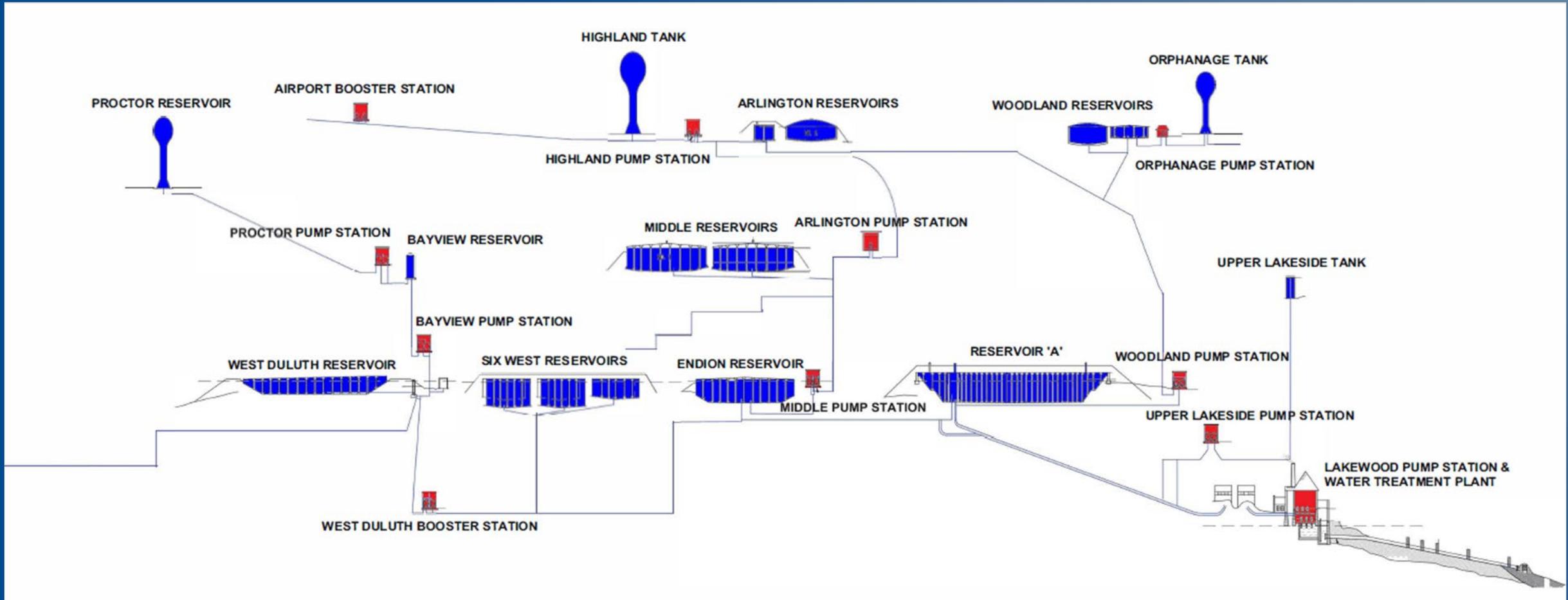
February 2025



System Components

- Water Treatment Facility
 - Pumphouse (1898) & Lakewood Treatment Plant (1975)
- Transmission Mains
 - 42" (1898)
- Pump Stations
 - 11 pumping facilities throughout system
- Reservoirs
 - 15 reservoirs and tanks throughout system
 - Over 67 million gallon capacity
- Distribution Mains
 - 433.30 miles of water main
- Service Lines
 - 28,842 customers as of 2024

System Components



LAKEWOOD WATER TREATMENT PLANT



- Original filtration plant built in 1975
- Much of the equipment is original and needs replacement

LAKEWOOD PUMPHOUSE



- Historic pumphouse built in 1898 still in use
- Much of the equipment is original and needs replacement
- Corrosion due to high moisture levels

LAKEWOOD WATER PUMPHOUSE

- 2 types of pumps: Low Lift (from lake) & High Lift (treated to distribution system)
- Rated for 32 million gals/day (MGD)
- Average Daily Volume of 9.7 million gallons is pumped through our system



LAKEWOOD WATER PUMPHOUSE

Outdated electrical components



TRANSMISSION MAINS

42 Inch Water Main

1935 maintenance



TRANSMISSION MAINS

42 Inch Water Main



- **Installed in 1898**
- **49,224 feet in length**
- **Bad break in 2015**
- **>\$20,000,000 replacement cost**

TRANSMISSION MAINS

42 Inch Water Main

Break (crack) at 63rd Avenue East



Water Mains Installed by Decade

Decade	Length of Pipe (Miles)
1880-1889	25.38
1890-1899	26.46
1900-1909	39.08
1910-1919	74.84
1920-1929	44.42
1930-1939	20.97
1940-1949	23.95
1950-1959	34.36

Decade	Length of Pipe (Miles)
1960-1969	26.10
1970-1979	26.81
1980-1989	14.57
1990-9999	24.58
2000-2009	43.62
2010-2019	25.19
2020-2024	7.15

- Approximately 50% of the system is greater than 90 years old

PUMPING STATIONS

Woodland Station

Constructed in 1914

Scheduled to be replaced by June 2026



RESERVOIRS & TANKS

Endion Reservoir Construction in 1922
(1517 E 6th Street)



RESERVOIRS & TANKS

Sedimentation Basin at Water Treatment Plant



Highland Tower



EPA Administrative Order on Consent

January 15, 2025

EPA Timeline

- EPA completed inspection August 16th and 17th 2023
- City received a Notice of Significant Deficiency in September 2023 and Additional Deficiencies to be corrected in November 2023
- City submitted initial corrected deficiencies on September 14, 2023
- EPA and City negotiated an Administrative Order; Order language was agreed upon on November 25, 2024
- Order approved by City Council on December 16, 2024
- Administrative Order fully executed January 15, 2025

Summary: Areas of Concern (AOCs)

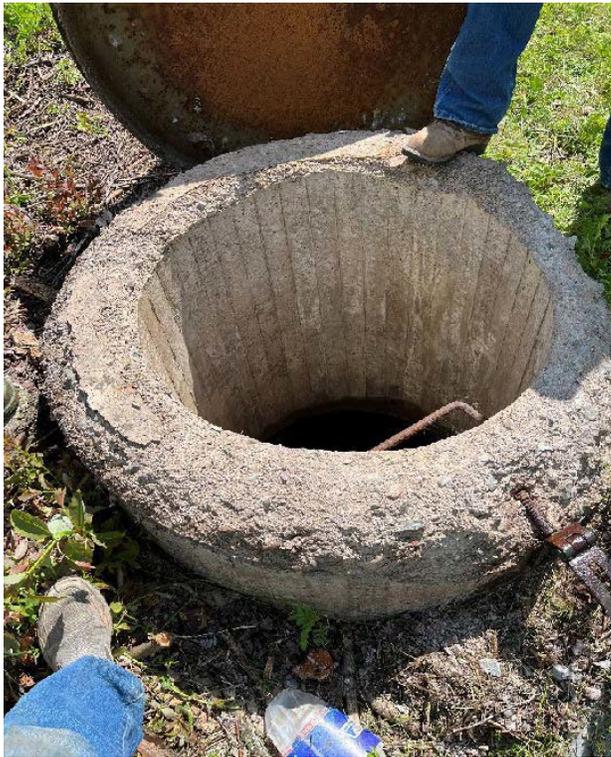
- Lab
 - Lead service sampling
 - Turbidity sampling
- Flocculation/Sedimentation
 - Restore operational process
- Treatment Plant
 - Filter operation & inspection
 - Inspect and repair clearwells & clarifiers
 - Valve inspections
 - Lack of redundant source
 - Power interruptions
- Pump Station Maintenance
 - Airport Booster redundancy
 - Woodland Pump Station (rebuild underway)
 - Lakewood Pumphouse structure
- Reservoir Maintenance per Inspection Reports
 - Six West
 - Proctor Tower, Middle
 - Endion, Orphanage Tower
 - Arlington, Bayview
 - Reservoir A, West Duluth
- Ongoing Preventative Maintenance
 - Asset Management
 - Documentation of maintenance activities
 - Vegetation removal

Corrected Deficiencies

- Bayview Reservoir drained & cleaned
- Inspected ground reservoirs and storage structures
- Structural inspection at Lakewood Water Plant
- West Woodland Reservoir drainage issues were repaired
- Vegetation removal at various sites throughout the city
- Removed threaded sample taps
- Submitted various RPM Forms to monitor equipment and sites
- Valve replacement at Water Plant
- Clearwell inspections
- Built and installed access ladders in all filter basins
- Replaced swing check valves at Orphanage Station
- Replaced chemical room windows at Lakewood Water Treatment Plant

Corrected Deficiencies

- Installed sump pump & heater at Proctor Tank
- Filled all vacant positions at Water Treatment Plant
- Completed construction of Middle Pumping Station
- Bayview Pumping Station excavation & repairs
- Installed humidity meters throughout Water Plant and stations
- Woodland Reservoir inspection
- Replaced overflow screen at Highland Tank
- Certified the backwash process
- Certified Reservoir A valve status
- Certified Lakewood gate valve operation
- Installed air vent screens and access hatch sanitary seals
- Certified Backflow Prevention Program



CITYWIDE WORK COMPLETED

- Sanitary seals were installed on access hatches
- Reservoir A access hatch is pictured here



CITYWIDE WORK COMPLETED

- Air vent screens updated to meet current standards
- Reservoir A East vent is pictured here



CITYWIDE WORK COMPLETED

- Windows throughout the Water Plant were replaced
- Before and after photos of two locations are pictured here

The City is preparing the following plans:

Water Treatment Plant

- Flocculator
- Filter
- Power Service Disruption
- Alternative Water Source

Distribution System

- Auxiliary Power Source
- Airport Booster Station Redundancy
- Security
- Woodland Reservoir
- Upper Lakeside Tank

Construction timelines to be approved by EPA

Other Projects

- Lakewood Pump House Rehabilitation
- Water Storage Improvements (Tanks and Reservoirs)
- Annual Vegetation Removal
- Clarifier Inspection and Improvements
- Clearwell Improvements
- City-Owned Backflow Device Inspections

Rehabilitate Filters 1-5 and Construct Filter 6

Estimated Project Cost \$11,500,000



Flocculator & Sedimentation Tank Repairs

Estimated Project Cost \$220,000



Upper Lakeside Interconnect

Estimated Project Cost \$1,400,000



Auxiliary Power Source

Estimated Project Cost \$4,036,500



Lakewood Pumphouse Roof and Structural Modifications (1898)

Estimated Project Cost \$3,162,500



Pumphouse Exterior Structure



Pumphouse Interior Structure



Airport Booster Redundancy

Estimated Project Cost \$1,385,700



Water System Facility Security Upgrades

Estimated Project Cost \$230,000



Water Storage Projects:

Middle Reservoir	\$7,739,500
Woodland Reservoir	\$3,565,000
Reservoir A	\$2,875,000
Tanks: Bayview, Highland, Orphanage & Proctor	\$1,840,000
Other Reservoirs:	\$4,065,300



Middle Reservoir



Reservoir A



Arlington Reservoir



Woodland Reservoir



Endion Reservoir



Highland
Tank



Bayview
Tank



Orphanage
Tank



Proctor
Tank

FUNDING STRATEGIES TO COMPLY WITH EPA ORDER

- Existing Water Capital Projects
 - Annual budget \$4 Million
- State and Federal Bonding Opportunities
- Proposed Water Infrastructure Surcharge (WIS)
 - WIS funds are specific to Water Capital Projects
 - 20-year lifetime or less
 - DPUC reviews surcharge annually
 - Proposed implementation date of May 2025
 - Clean Water Surcharge (\$4.90) terminates in 2025 and will offset the WIS

WIS Projects

Flocculator & Sedimentation Tank Repairs	\$ 220,000
Upper Lakeside Interconnect	\$ 1,400,000
Rehabilitate Filters 1-5 and Construct Filter 6	\$ 11,500,000
Middle Reservoir Modifications	\$ 7,739,500
Auxiliary Power Source	\$ 4,036,500
Woodland Reservoir Modifications	\$ 3,565,000
Lakewood Pumphouse Structural Modifications	\$ 3,162,500
Reservoir A Modifications	\$ 2,875,000

WIS Projects continued

Tank Modifications: Bayview, Highland, Orphanage, and Proctor	\$ 1,840,000
Airport Booster Redundancy	\$ 1,385,700
Reservoir/Tank Modifications: Endion and Middle	\$ 2,696,800
Water Storage Facility Security Upgrades	\$ 230,000
Reservoir Modifications: Six West #1-6 and Arlington	\$ 1,368,500
Lakewood WTP Clearwell and Clarifier modifications	\$ 396,700
Estimated Total for Water Infrastructure Surcharge Projects	\$ 42,416,200

Residential 1 (R1) Class

0-32 CCF

26,519 customers of 28,943 (91.6%)

Customer Profile:

Single family homes

Duplexes

Quadplexes

Avg. consumption in this rate class:

- 4.69 CCF/month x \$0.980
 - \$4.69/month
 - \$55.15/year

Residential 2 (R2) Class

32-80 CCF

129 customers of 28,943 (0.4%)

Customer Profile:

Small apartment bldg.
(4-6)

Retreat resorts

Small senior
apartments

Avg. consumption in this rate class:

- 4.69 CCF/month x \$0.918
 - \$34.89/month
 - \$418.67/year

Residential 3 (R3) Class

80-240 CCF

95 customers of 28,943 (0.3%)

Customer Profile:

Med. apartment bldg.
(8-10)

Assisted living facility

Senior apartments
complexes

Avg. consumption in this rate class:

- 110.79 CCF/month x \$0.807
 - \$89.44/month
 - \$1,073.27/year

Residential 4 (R4) Class

>240 CCF

31 customers of 28,943 (0.1%)

Customer Profile:

Large apartment
bldg. (>10)

Mobile home park

Jail/prison

Avg. consumption in this rate class:

- 405.81 CCF/month x \$0.710
 - \$288.23/month
 - \$3,458.75/year

Commercial-Industrial 1 (CI1) Class

0-40 CCF

1,800 customers of 28,943 (6.2%)

Customer Profile:

Athletic facilities
Small restaurant/cafe
Bed & Breakfast

Avg. consumption in this rate class:

- 16.18 CCF/month x \$0.980
 - \$15.86/month
 - \$190.28/year

Commercial-Industrial 2 (CI2) Class

40-200 CCF

242 customers of 28,943 (0.83%)

Customer Profile:

Med. business office
bldg.
Mid-sized restaurant
Clubhouse

Avg. consumption in this rate class:

- 4.69 CCF/month x \$0.918
 - \$34.89/month
 - \$418.67/year

Commercial-Industrial 3 (CI3) Class

200-1,000 CCF

99 customers of 28,943 (0.34%)

Customer Profile:

Hotels
Office bldg.
Medical clinic

Avg. consumption in this rate class:

- 110.79 CCF/month x \$0.807
 - \$89.44/month
 - \$1,073.27/year

Commercial-Industrial Large (CILarge) Class

>1,000 CCF

23 customers of 28,943 (0.08%)

Customer Profile:

Large athletic facility
Large office bldg.
Hospital or large
medical clinic

Avg. consumption in this rate class:

- 405.81 CCF/month x \$0.710
 - \$288.23/month
 - \$3,458.75/year

WIS Rate Discount mirrors User Rate Discount

Rate Category	2024 Rate	Rate Discount	WIS Rate	Estimated Revenue
R1	\$5.05	0.0%	\$0.980	\$1,233,651
R2	\$4.73	6.3%	\$0.918	\$56,573
R3	\$4.16	17.6%	\$0.807	\$96,574
R4	\$3.66	27.5%	\$0.710	\$151,682
CI1	\$5.05	0.0%	\$0.980	\$300,704
CI2	\$4.23	16.2%	\$0.821	\$164,889
CI3	\$3.40	32.7%	\$0.660	\$231,898
CI Large	\$2.60	48.5%	\$0.505	\$415,740
HERMANTOWN	\$4.15	17.8%	\$0.805	\$216,161
PROCTOR	\$4.15	17.8%	\$0.805	\$111,492
RICE LAKE	\$4.15	17.8%	\$0.805	\$20,636
Grand Total				\$3,000,000

Proposed Surcharge Structure

Volume charge correlated to rate classification

Residential

Rate Class	Volume Rate /CCF	Surcharge Rate /CCF
R1	5.05	0.980
R2	4.73	0.918
R3	4.16	0.807
R4	3.66	0.710

Commercial-Industrial

Rate Class	Volume Rate /CCF	Surcharge Rate /CCF
CI1	5.05	0.980
CI2	4.23	0.821
CI3	3.40	0.660
CI-Large*	2.60	0.505

Assumptions: based on 2024 annual consumption & rates and debt P&I of \$3M/yr on \$42M principle for 20-year term at 3.2% interest

*Combined CI4, CI5, and CI6

Implementation Timeline

- **Public Education Meetings:**
 - Tuesday, February 18, 2025
 - 12:00 PM Virtual Presentation
 - 5:15 PM City Council Chambers
- **Community Presentation Meetings:**
 - Wednesday, February 19, 2025
 - Isaak Walton League & Duluth League of Women Voters
 - 6:30 PM Hartley Nature Center
- **Public Hearing:**
 - Tuesday, March 18, 2025
 - 5:15 PM City Council Chambers
- **Implementation:**
 - May 1st billing cycle

THANK YOU!

Open for Questions

