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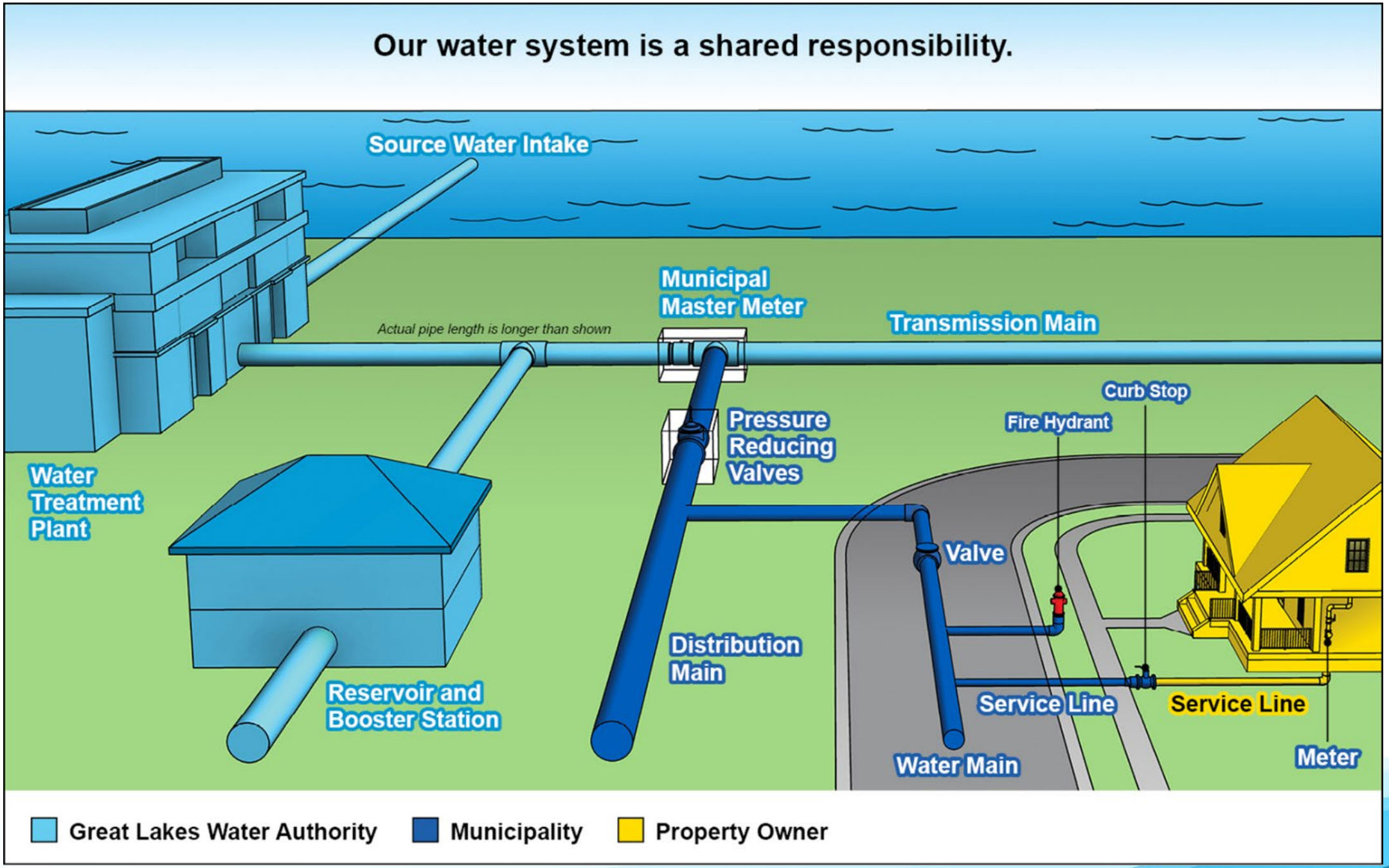
Great Lakes Water Authority

Corrosion Control Study Updates and Draft Recommendations

February 28, 2024 | Cheryl Porter, COO Water & Field Services


Our water system is a shared responsibility.
Source Water Intake
Municipal Master Meter
Transmission Main
Actual pipe length is longer than shown
Curb Stop
Fire Hydrant
Pressure Reducing Valves
Water Treatment Plant
Valve
Distribution Main
Reservoir and Booster Station
Service Line
Service Line
Meter
Water Main
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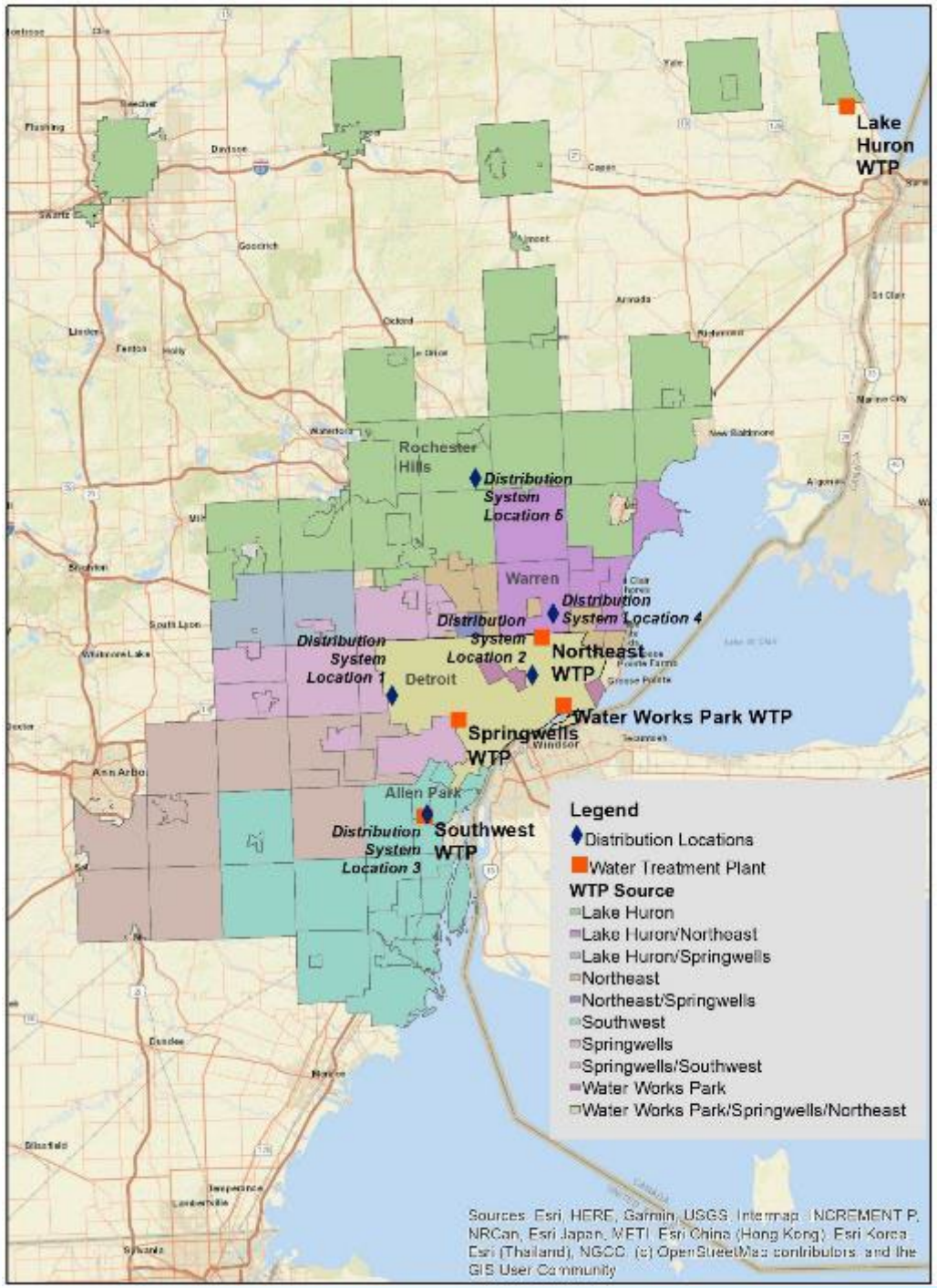
Municipality
Property Owner

GLWA's Corrosion Control Program

- Optimal dosing study conducted in the 1990's
- Requires maintaining pH levels and orthophosphate dosage **at treatment plant tap**



10 Pipe Rig Locations

Water Treatment Plants (WTP)

- Water Works Park WTP
- Lake Huron WTP
- Springwells WTP
- Southwest WTP
- Northeast WTP

Distribution Locations

- Allen Park
- Detroit (Central Services Facility)
- Detroit (West Yard)
- Rochester Hills
- Warren

Harvesting Partners

- Oakland County WRC
- Southeastern Oakland County Water Authority
- Hazel park
- Detroit
- Royal Oak
- Birmingham
- Warren
- Ypsilanti
- Southgate
- Melvindale
- Farmington
- Plymouth
- Pontiac

Thank you

Corrosion Control Study Timeline

2021

Install Pipe Rigs and Harvest Lead Service Lines (LSLs)

April 2022

Begin Conditioning

June 2022

EGLE OWQP Designation Letters

*Optimal Water Quality Parameters (OWQP)

October 2022

Begin Testing Phase

September 2023

End Testing Phase

November 2023

Proposed USEPA LCRI

10 ppb

*Lead & Copper Rule Improvements (LCRI)

October 16, 2024

USEPA LCRR Compliance

15 ppb; trigger 10 ppb

*Lead & Copper Rule Revisions (LCRR)

Current

Final Report and Recommendations

January 2025

Michigan LCR

12 ppb

*Lead & Copper Rule (LCR)

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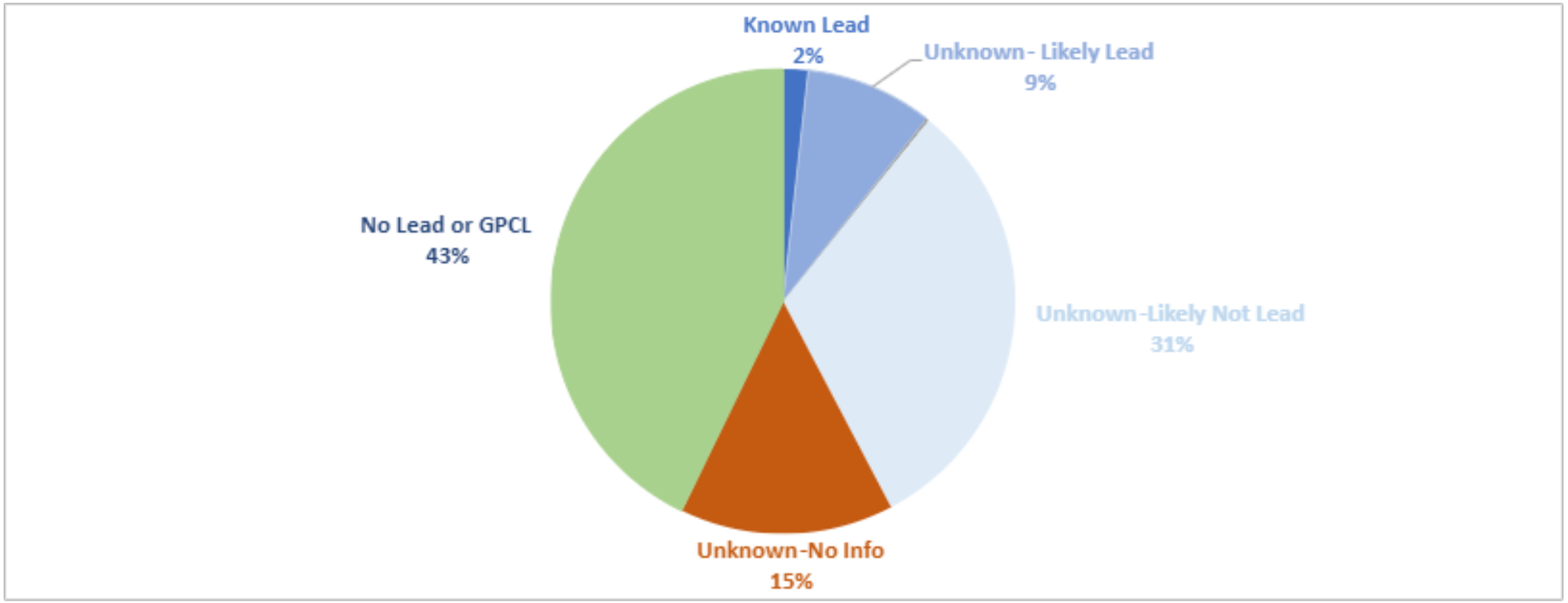
Removing Lead from Systems is the Best Defense



- Michigan - LCR requires all Lead Service Lines to be removed by 2041
- If approved, the Draft USEPA LCRI would require removal by 2037

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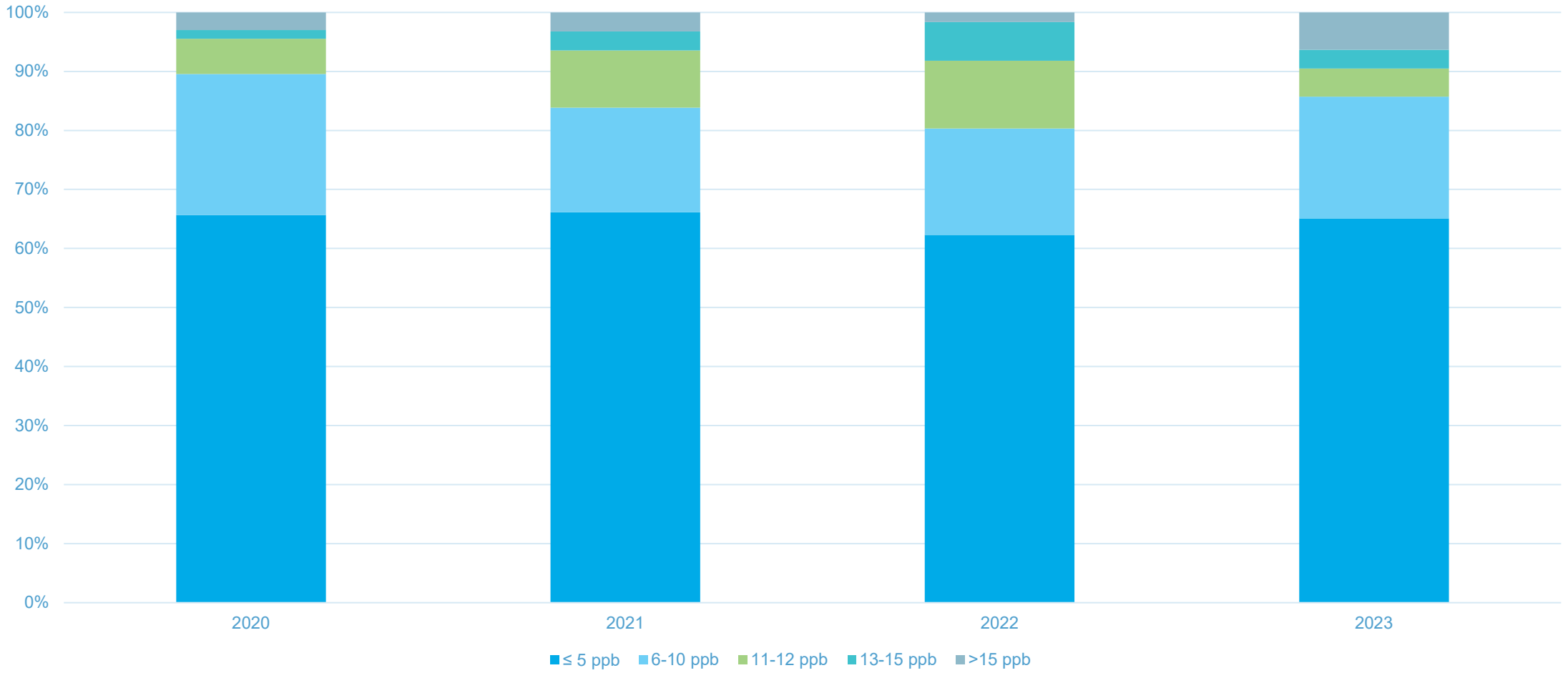
90th Percentile Member Partner Lead Results



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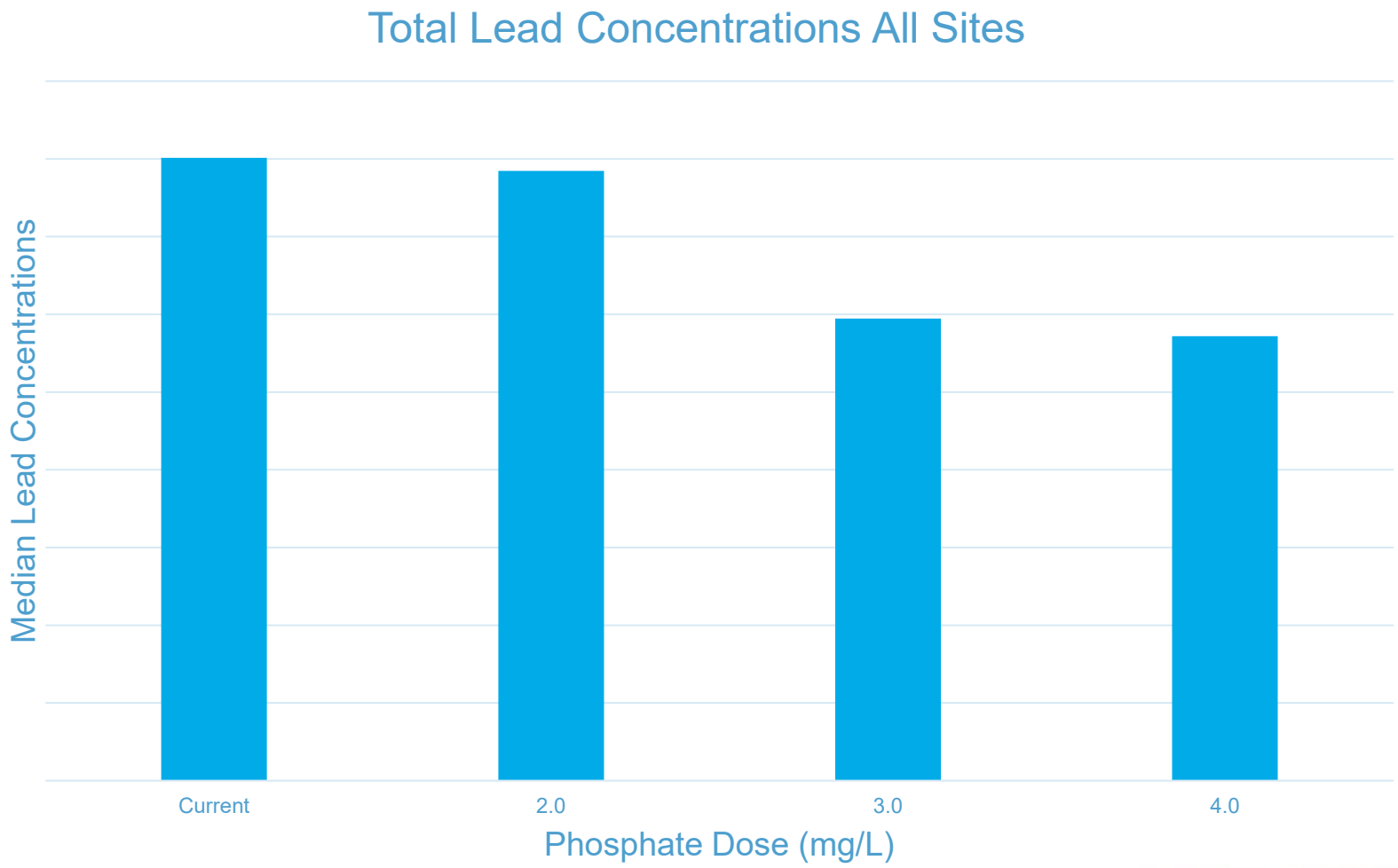
Preliminary Results

- No statistically significant difference between lead concentrations at the control (Current) and orthophosphate dose of 2.0 mg/L
- **Statistically significant difference between lead concentrations at a dose of 2.0 mg/L and 3.0 mg/L**
- No statistically significant difference between lead concentrations at a dose of 3.0 mg/L and 4.0 mg/L



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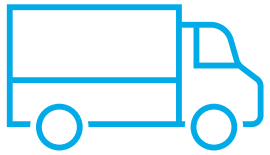
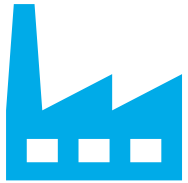
Implementation Considerations

Capacity limitations of our existing chemical feed systems (See Appendix)



Chemical supply chain concerns

Water quality parameter (WQP) monitoring results at the points of entry and throughout the distribution systems



Increased phosphorus loading at the Water Resource Recovery Facility (WRRF)

Customer feedback

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- Existing chemical storage and delivery systems at select plants limit the concentration that can be dosed to 2.4 mg/L.

- Challenges to maintaining sufficient supply on hand, especially with current supply chain issues.

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Current Orthophosphate Plant Storage Capacity for Average Flow

GLWA WTP	Average Flow (MGD) [1]	Dose as o-PO_4	Supply (Days)	Dose as o-PO_4	Supply (Days)
Lake Huron WTP	120	2.4 mg/L	30	3.0 mg/L	24
Springwells WTP	120		32		26
Water Works Park WTP	60		65		52
Southwest WTP	50		71		57
Northeast WTP	85		42		33

[1]Based on flow data from December 1, 2022 – November 29, 2023

Highlighted sites do not meet the 30-day storage requirement for a given flow and dose scenario.

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Implementation Plan & Recommendations

- Increase the dose to 2.4 mg/L as orthophosphate
  - Monitor conditions for a full lead and copper rule compliance monitoring period (through 2025)
- Evaluate secondary impacts and compliance data
    - If required based on full-system results, move forward with construction of chemical system improvements to increase the orthophosphate dose to 3.0 mg/L at the plants.
- Move forward with the recognition that while Corrosion Control can reduce dissolved lead concentrations, it may not fully control particulate lead release.
  - Getting the lead out of systems is the best safeguard

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