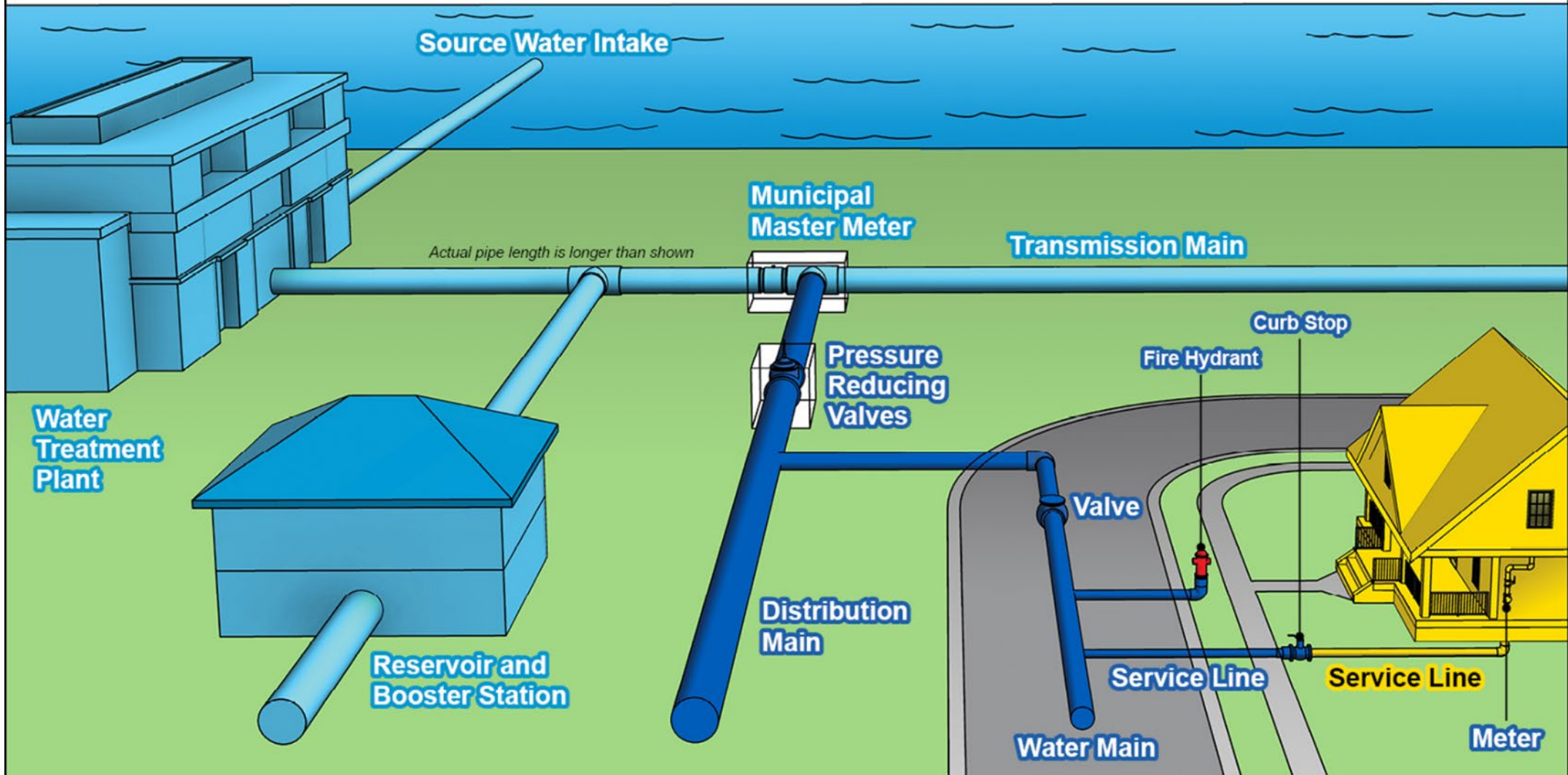




Corrosion Control Study Updates and Draft Recommendations

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

Our water system is a shared responsibility.



- Great Lakes Water Authority
- 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

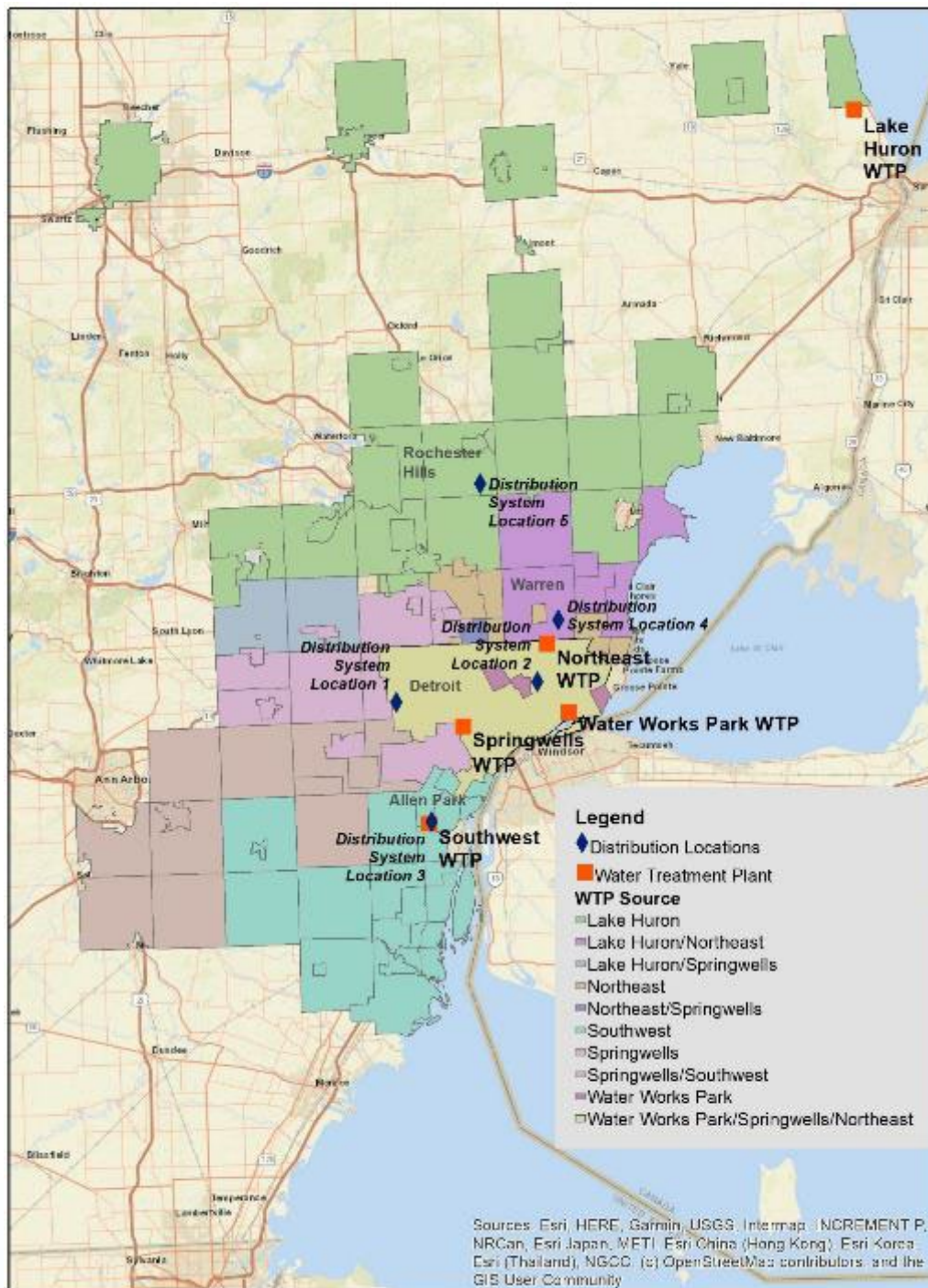
10 Pipe Rig Locations

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



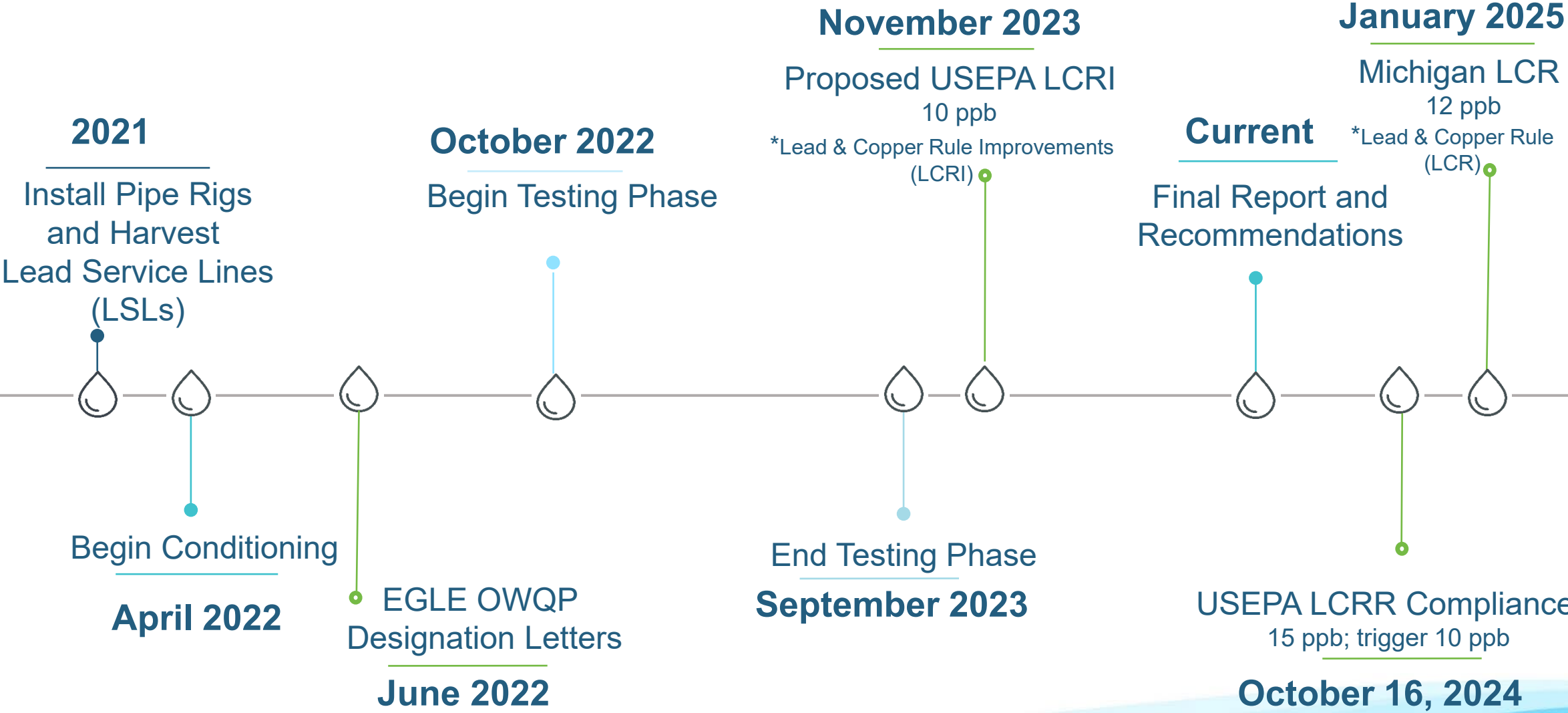


Harvesting Partners

- ◆ 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

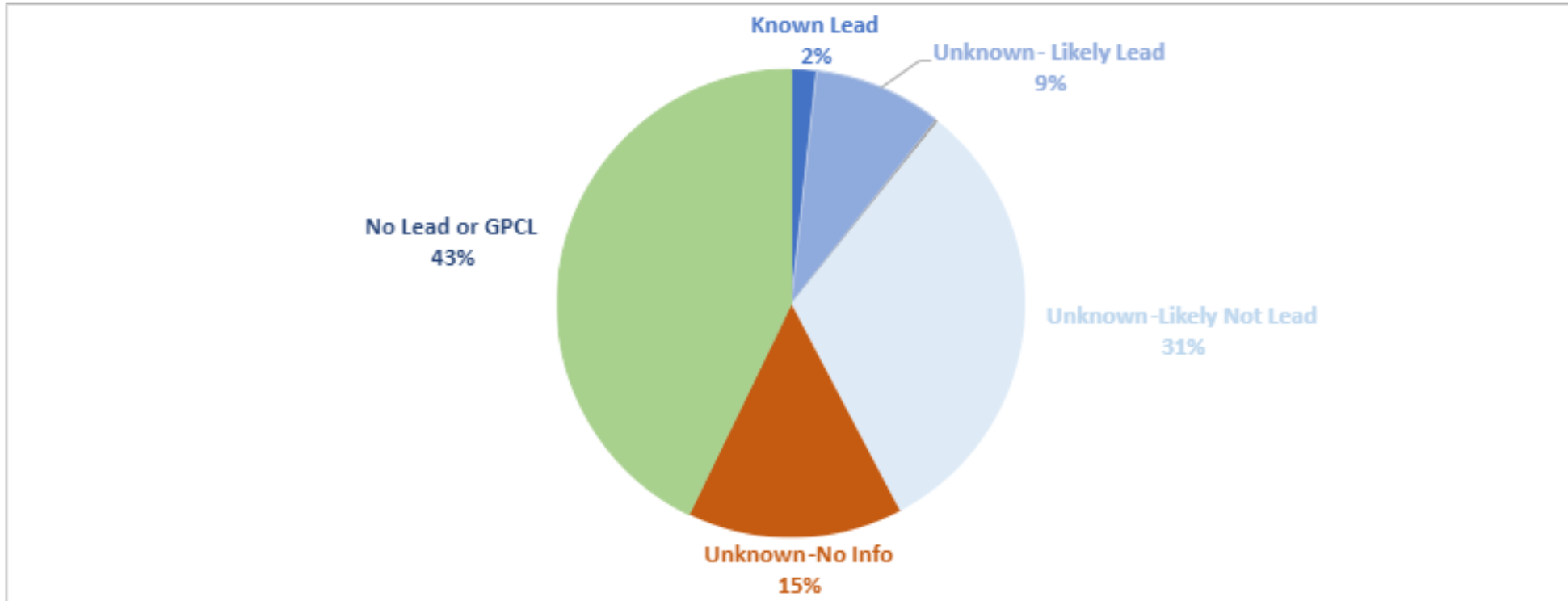


*Optimal Water Quality Parameters (OWQP)

*Lead & Copper Rule Revisions (LCRR)

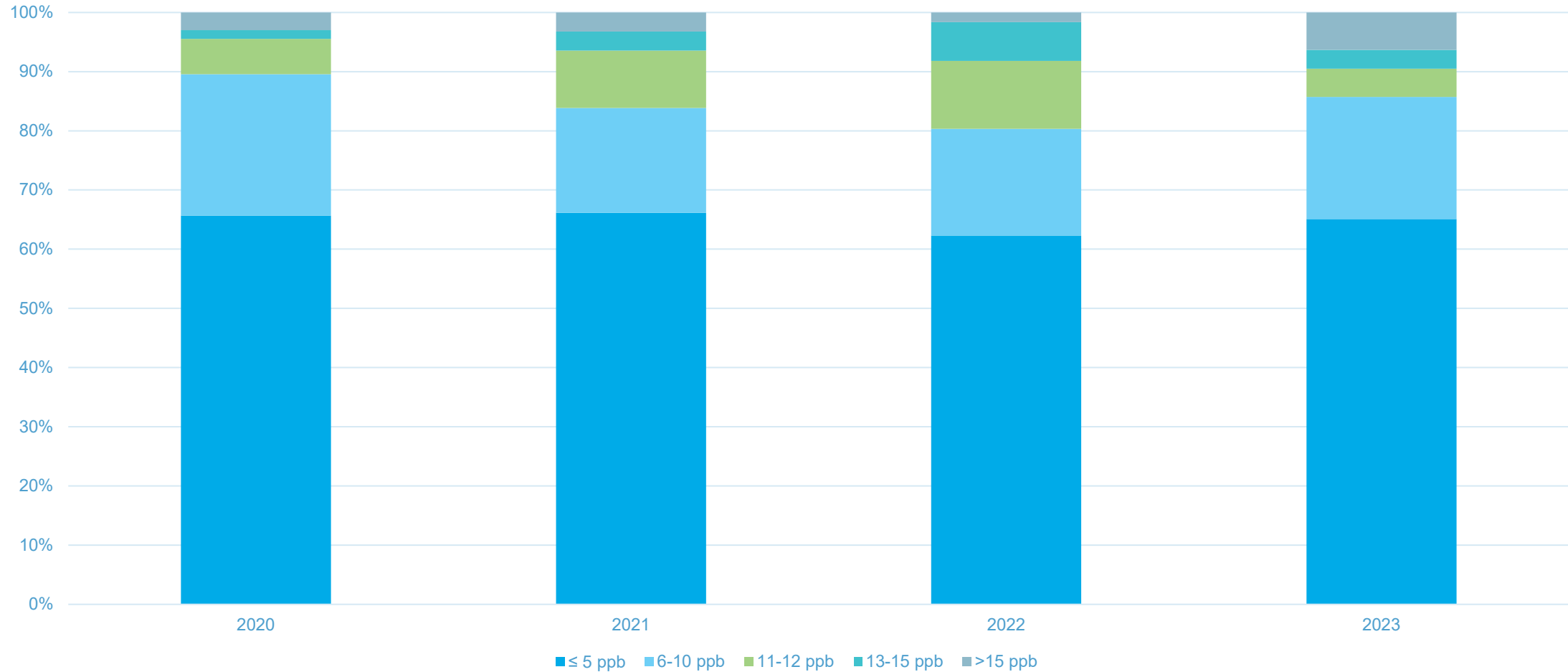


Removing Lead from Systems is the Best Defense



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

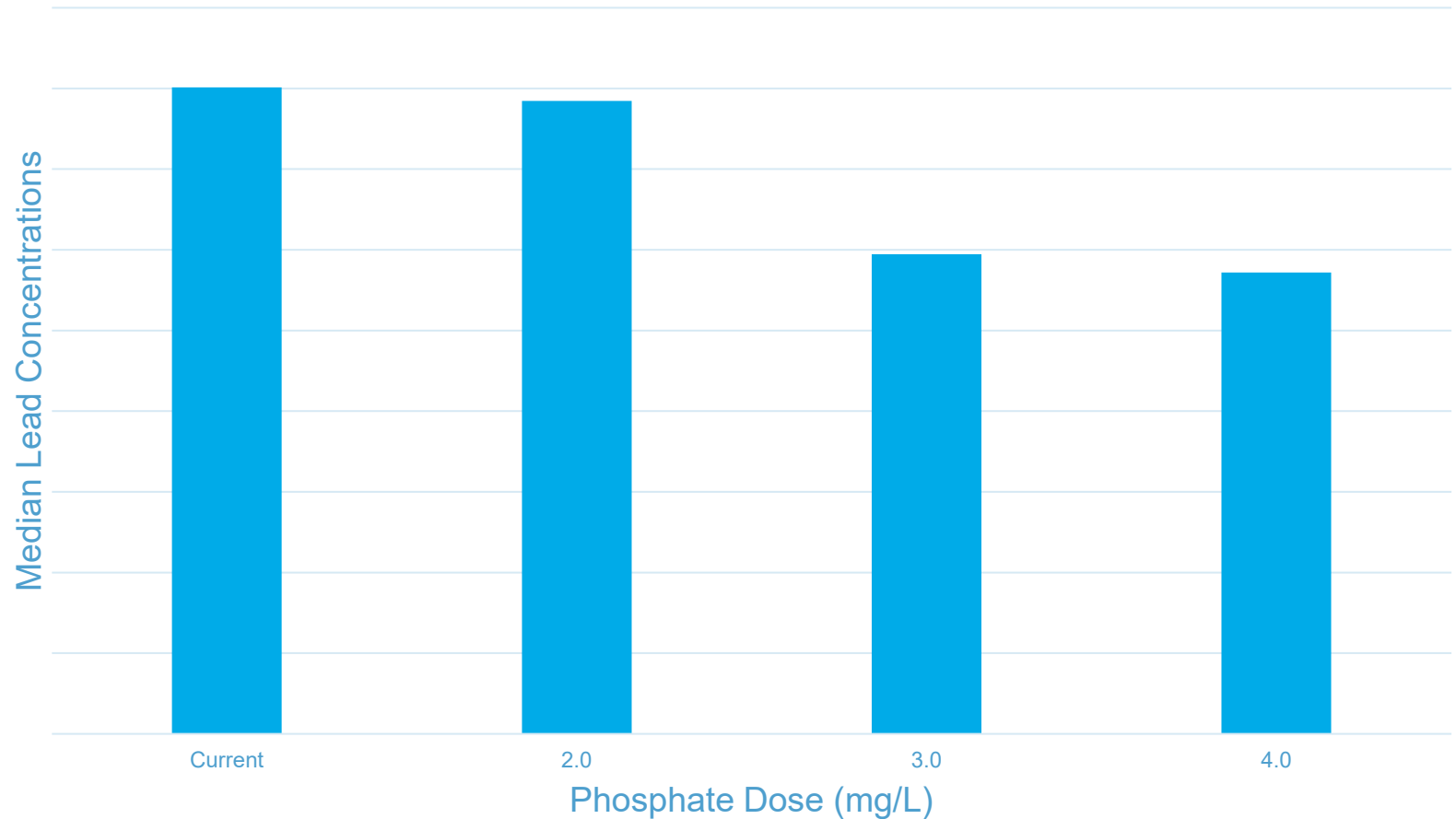
90th Percentile Member Partner Lead Results



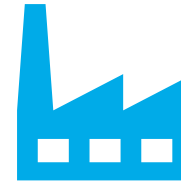
Preliminary Results

- 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

Total Lead Concentrations All Sites



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

- 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.



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

¹Based 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.

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