

Creating a Critical Valve Program for the GLWA Transmission System

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Issues and Challenges

- *Aging Infrastructure*
- *Large Installed Capital Base*
- *Too much capacity*
- *Maintain balance between*
 - Efficiency - lowest life cycle costs
 - Level of Service – water is “always on”



Vision and Goals of Condition Assessment

Vision: Proactively increase reliability to meet levels of service and limit failures

Goals:

- *Know state of system and create a baseline*
- *Build foundation for Asset Management Program*
- *Prioritize repair, rehabilitation, and maintenance efforts*
- *Improve CIP expenditure and priorities*
- *Mitigate consequences of failures and other emergencies*

Program Objectives



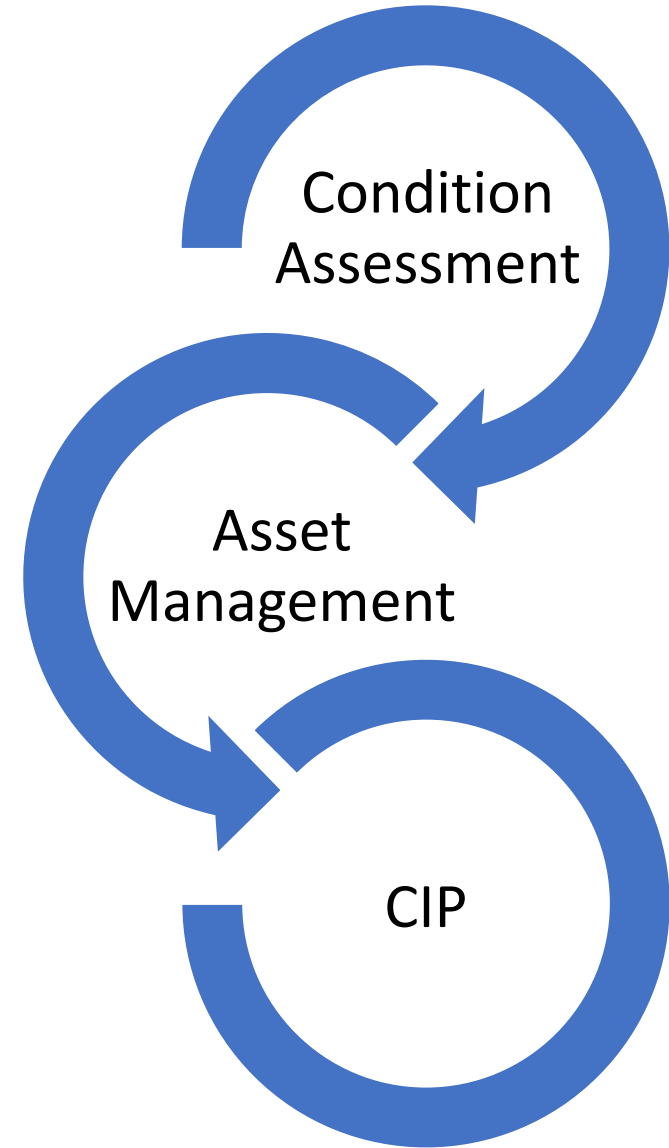
Risk Management

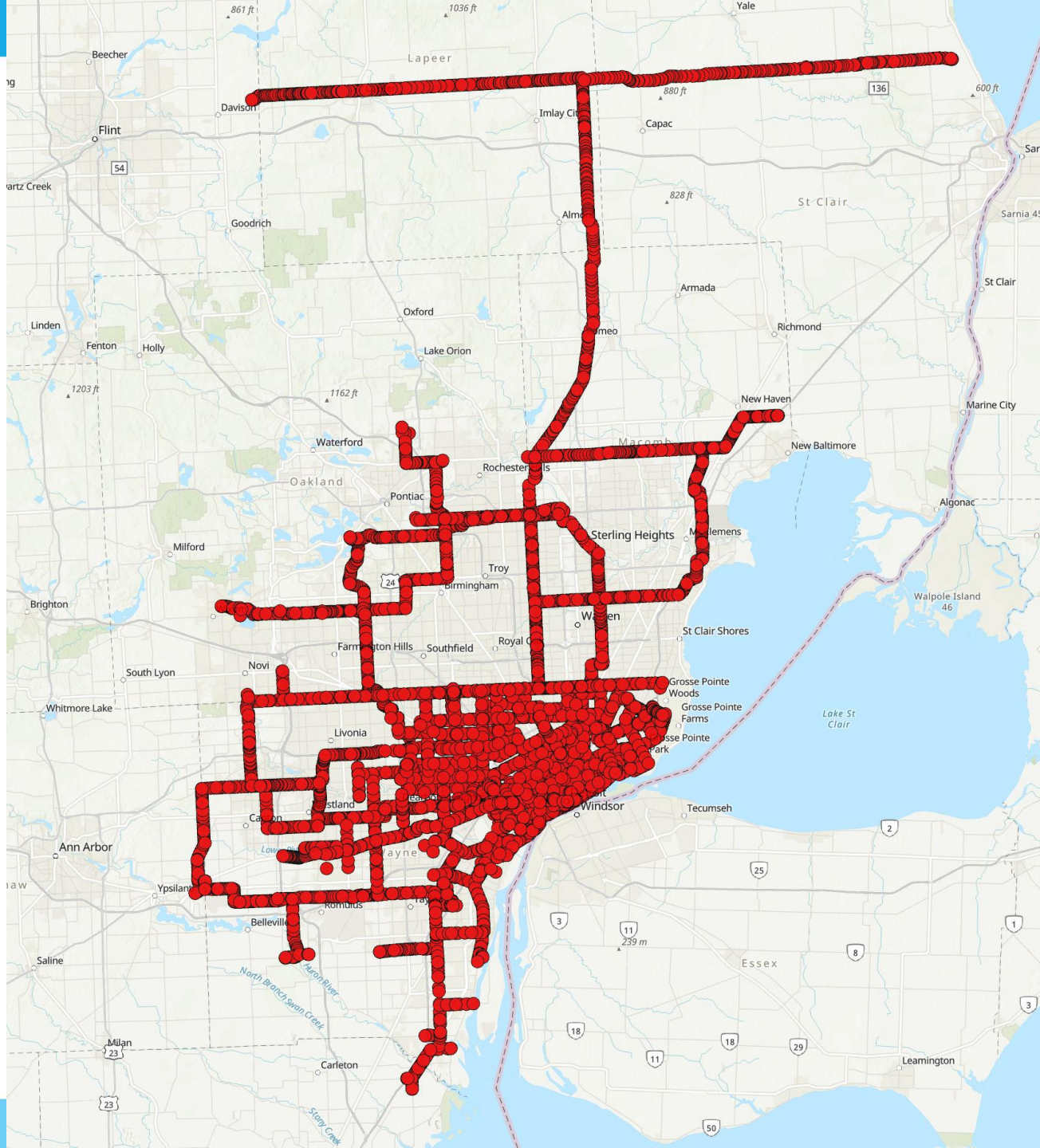


Budget Optimization

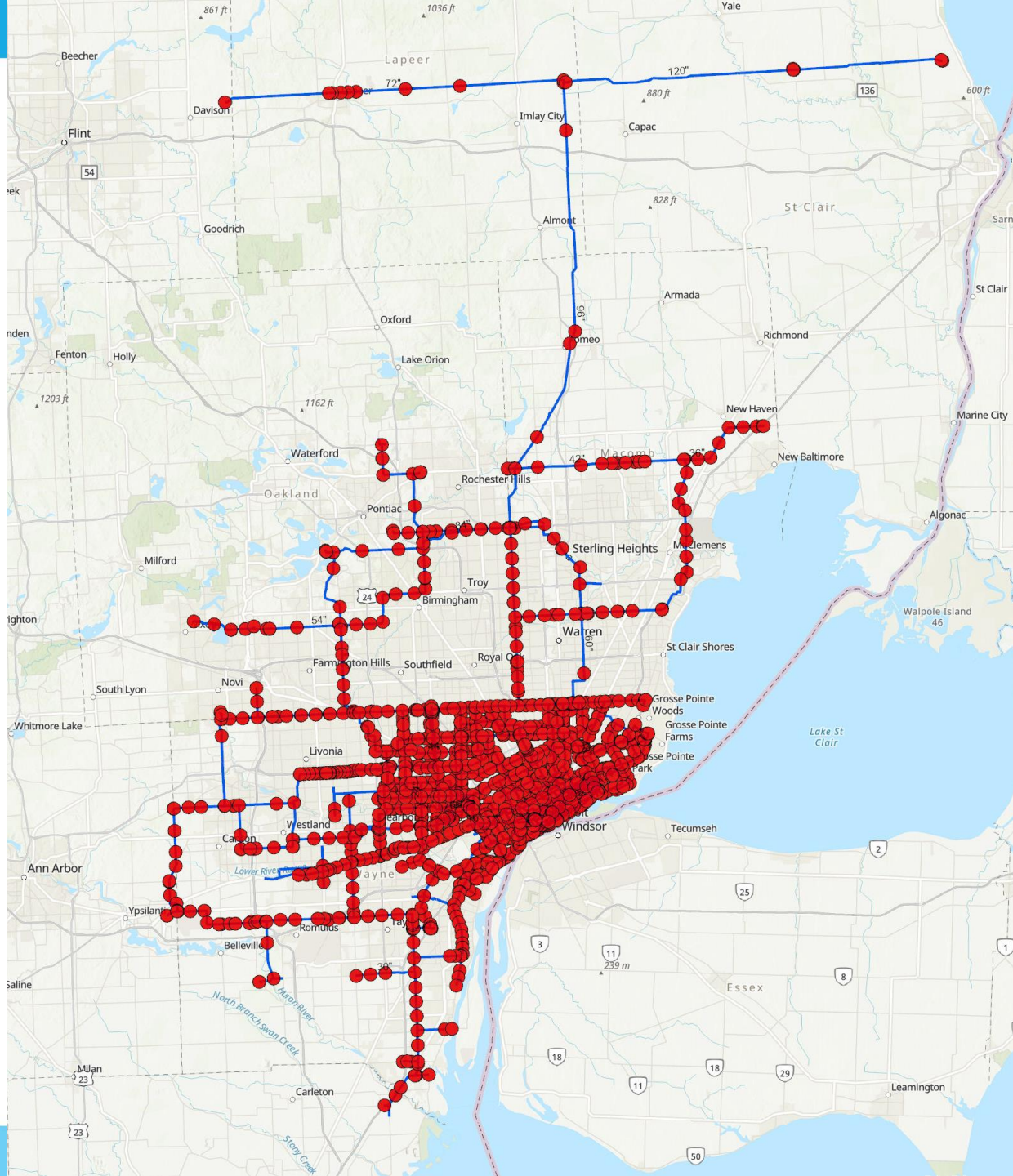


Best-In-Class System Management



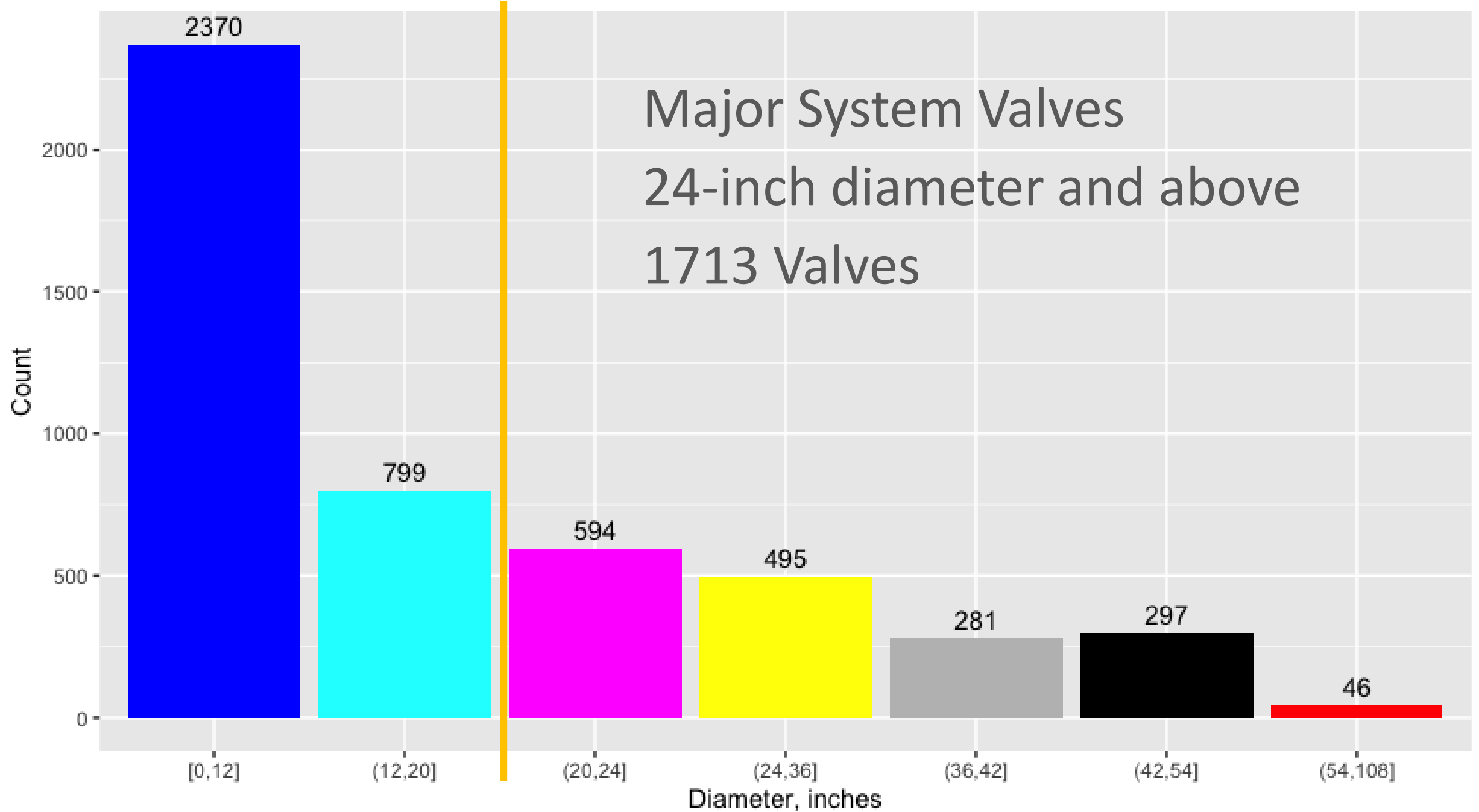


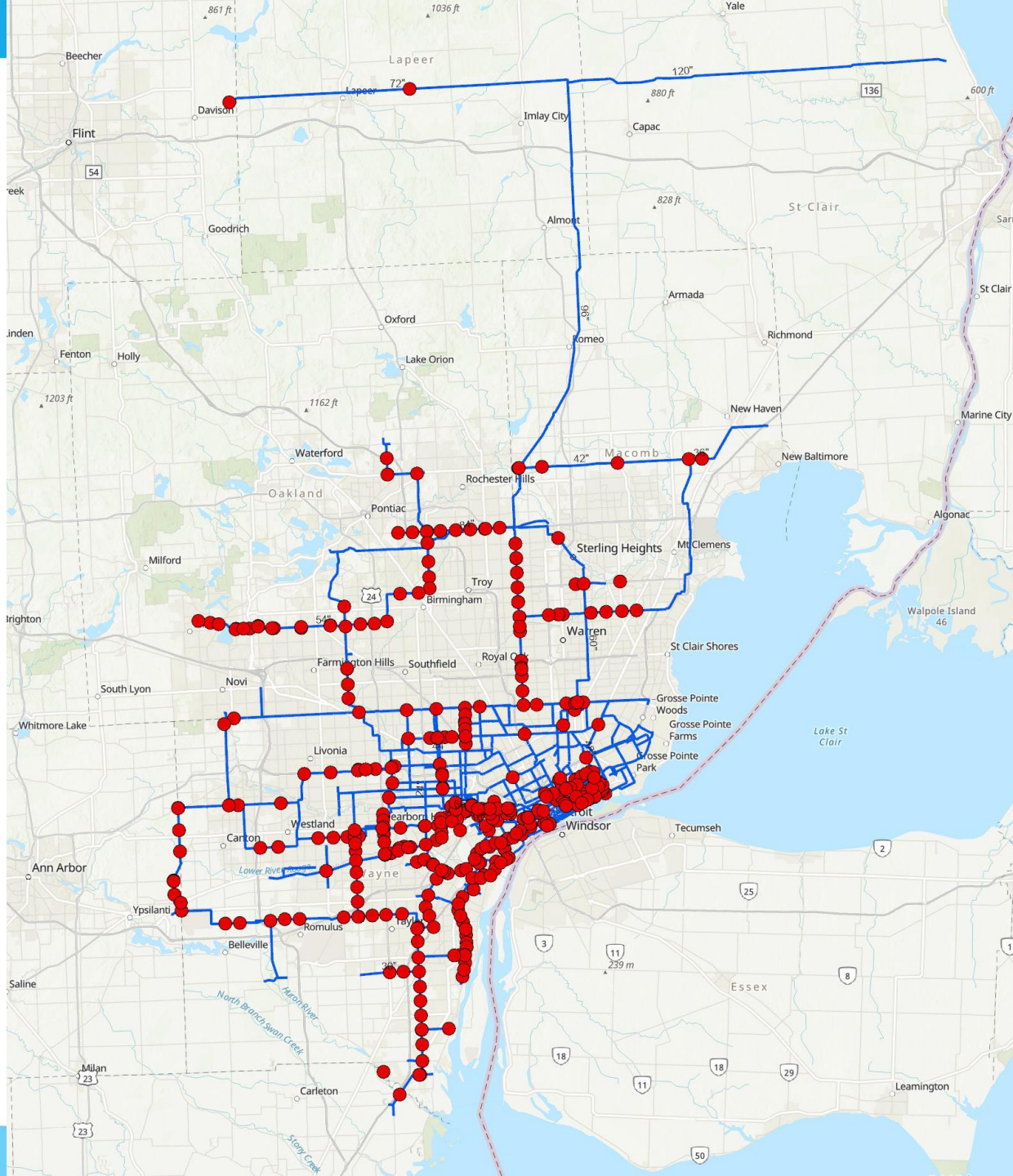
- Total Valves in System
 - 2891 Air/Vacuum
 - 1994 Blowoff
 - 39 Control
 - 37 Misc/Unknown
 - 4882 Isolation
- Total = 9843



- Isolation Valves
 - 4882
- Target for Pilot
 - 24-inch diameter and above
 - 1713
- Pilot = 450 valves
- 26 % of Target Valves

GLWA Valve Sizes

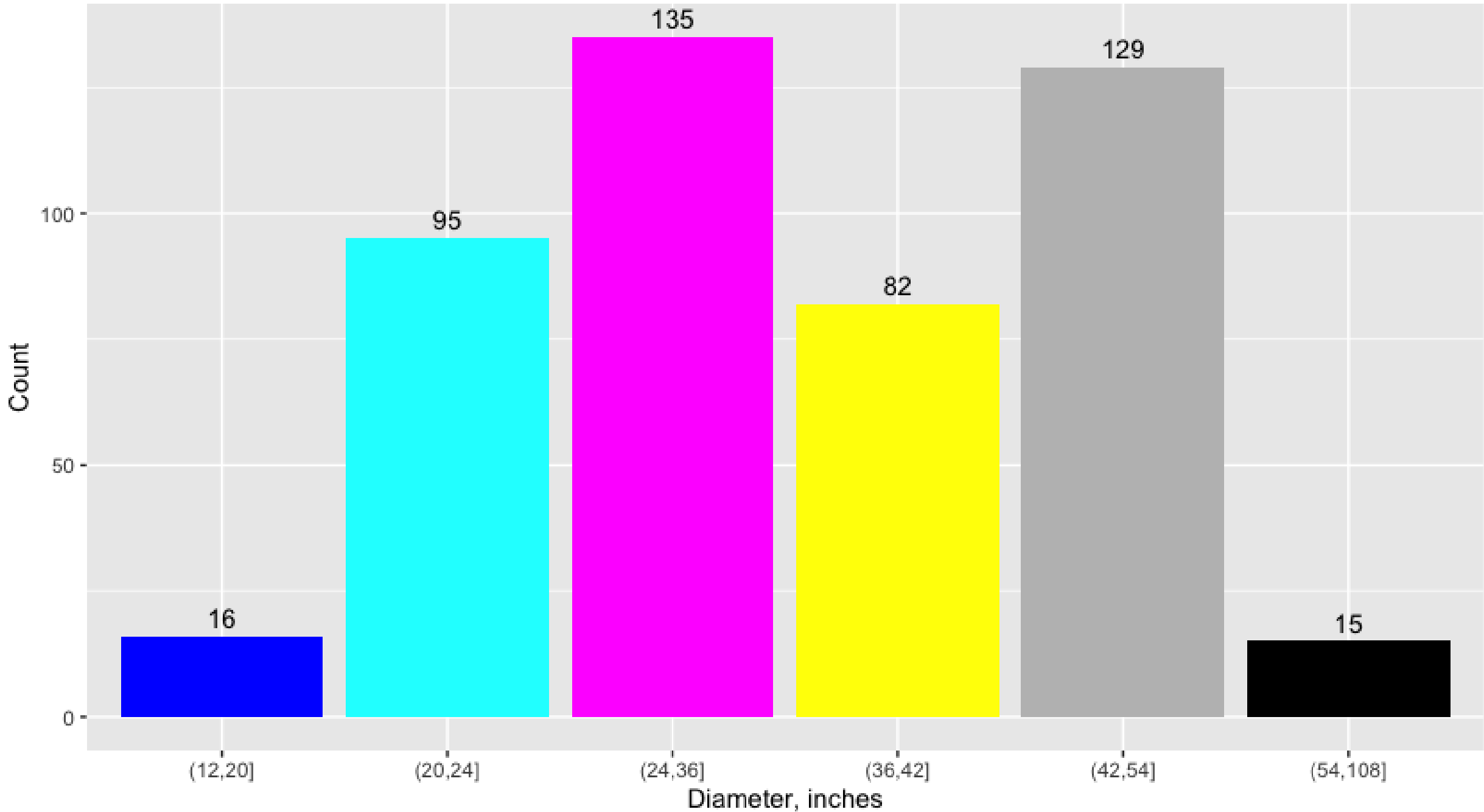




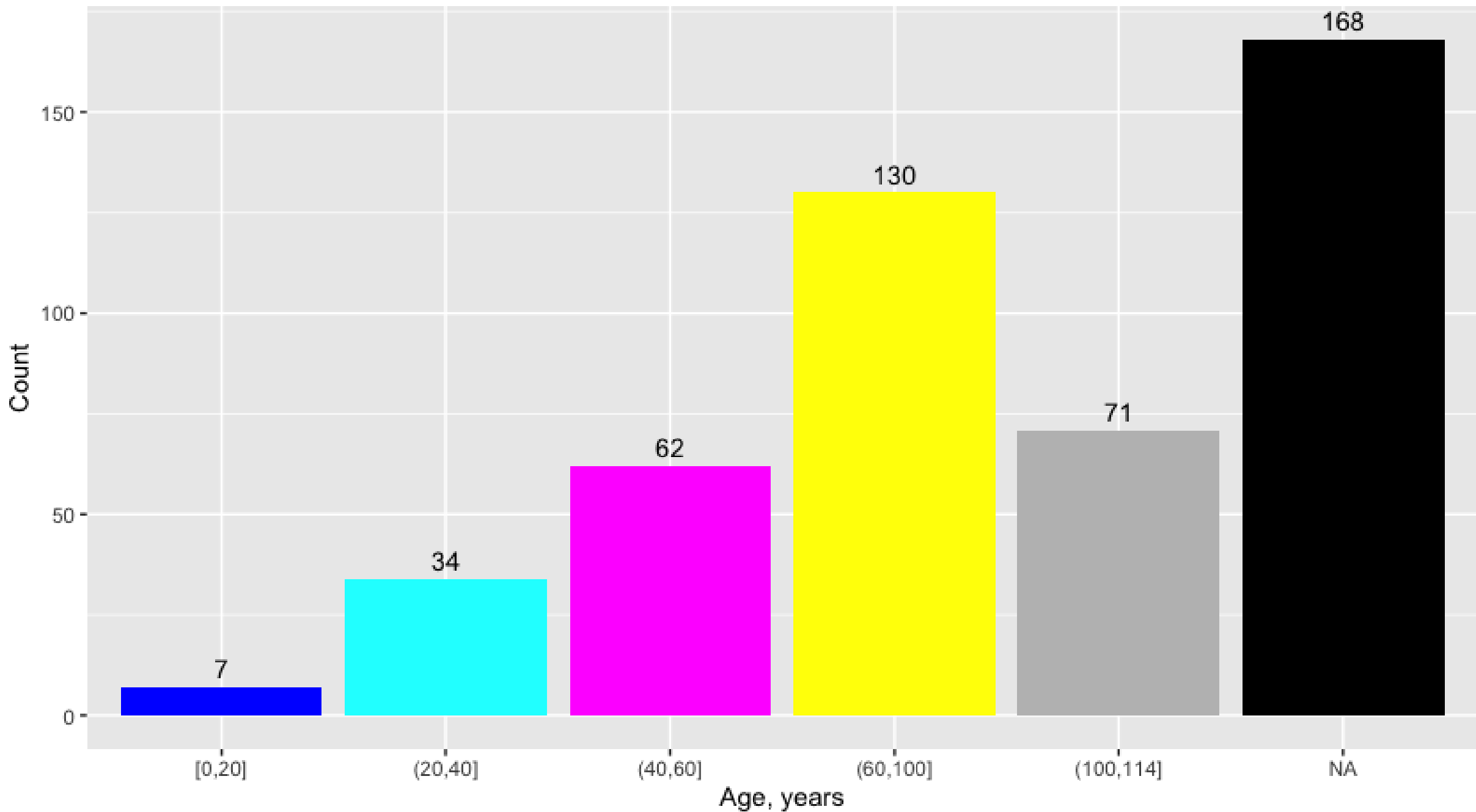
- Total Valves Evaluated
 - 454 = WS 695C
 - 18 = 14 Mile Pilot Study
- Total = 472



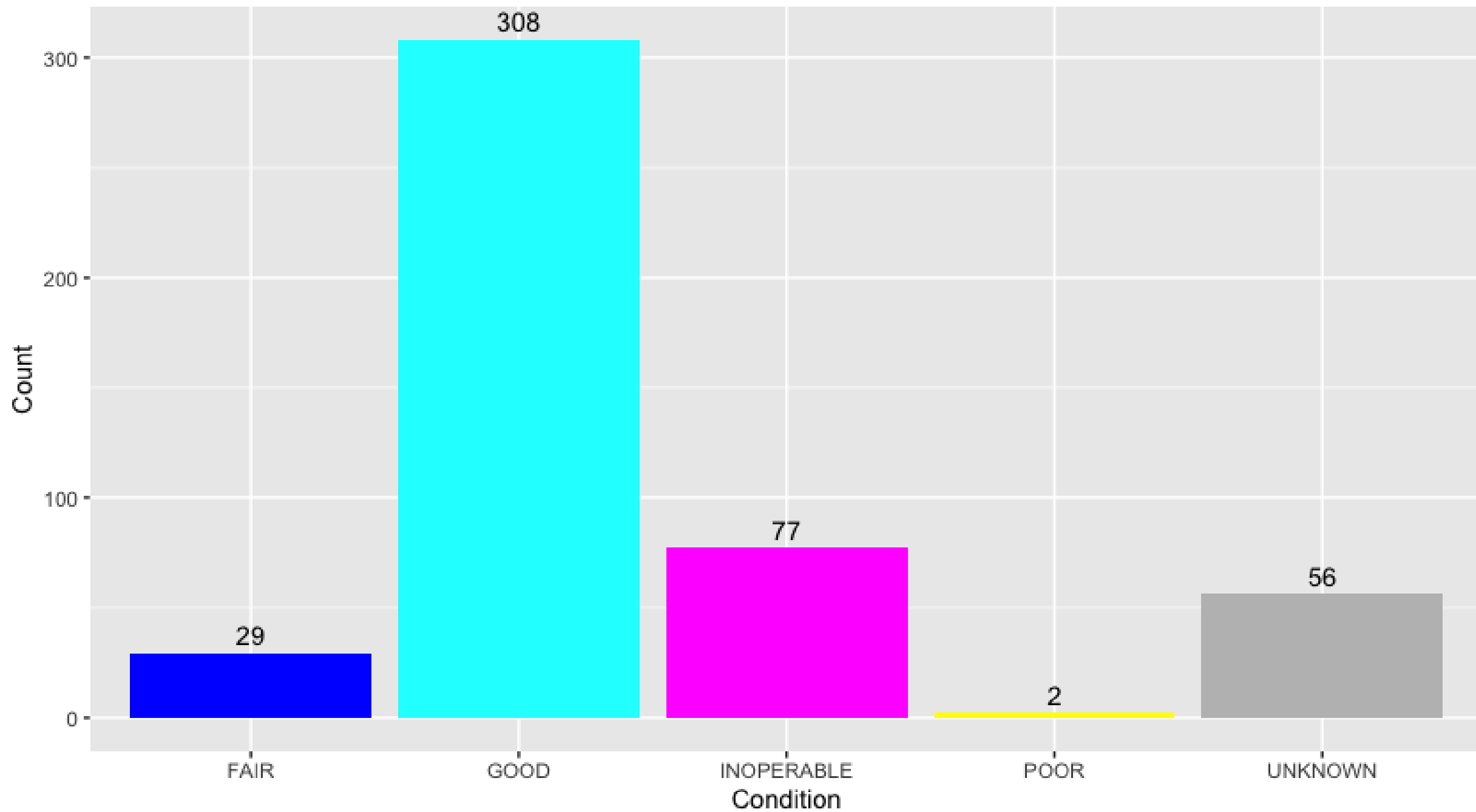
GLWA Evaluated Valve Sizes



GLWA Evaluated Valve Ages



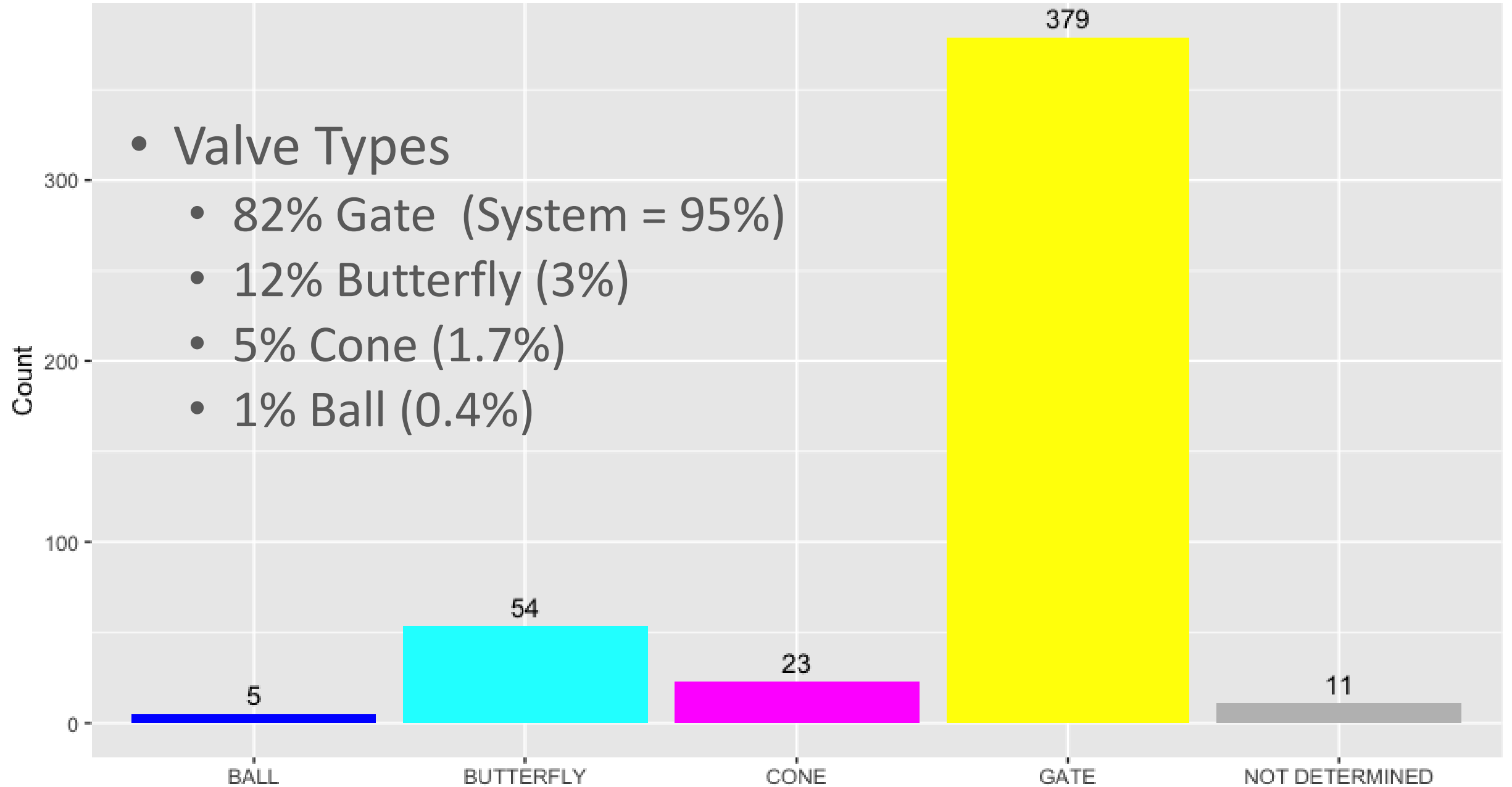
GLWA Valve Condition



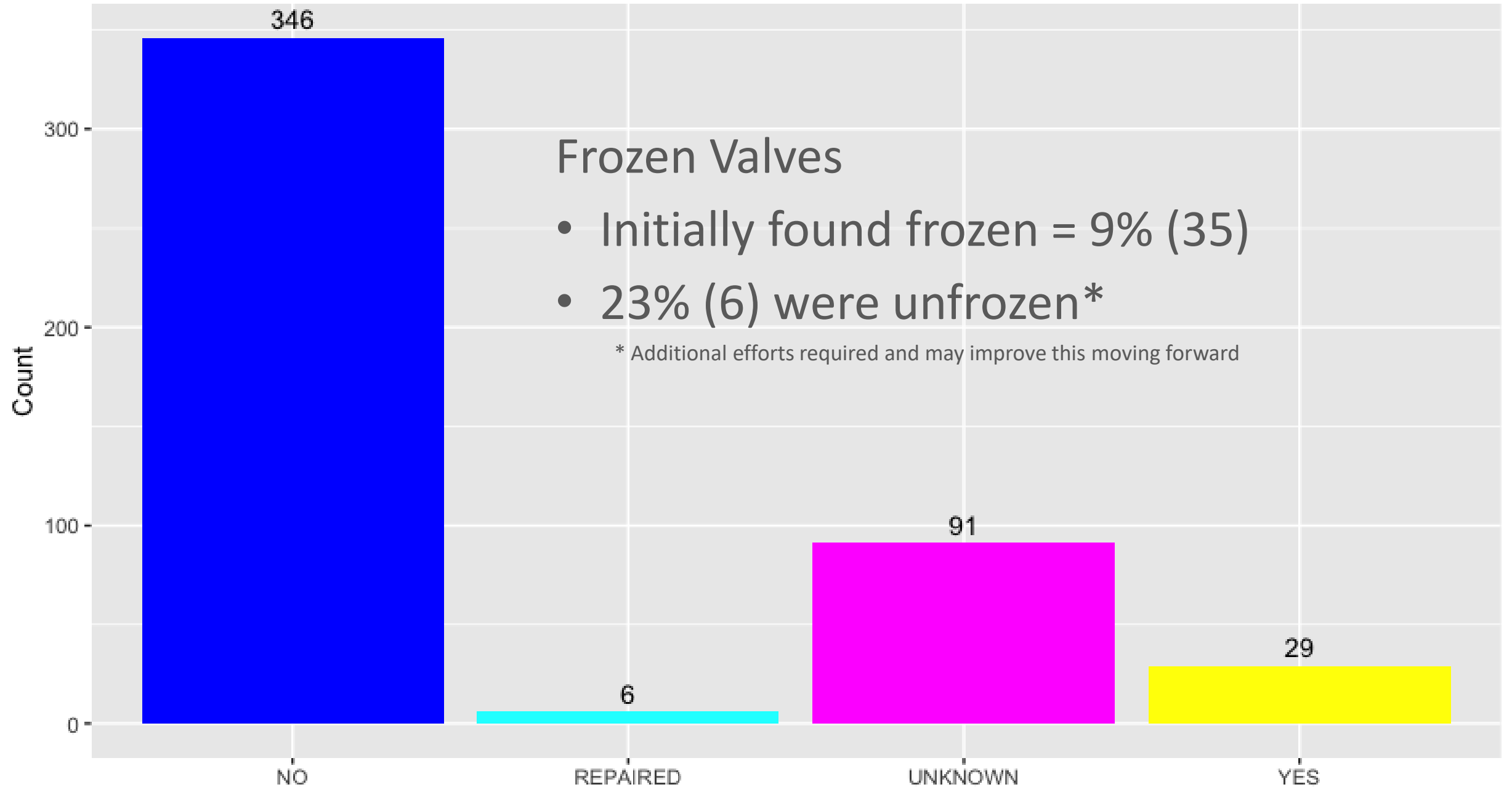
Evaluated Valve Types

- Valve Types

- 82% Gate (System = 95%)
- 12% Butterfly (3%)
- 5% Cone (1.7%)
- 1% Ball (0.4%)



Frozen Valves

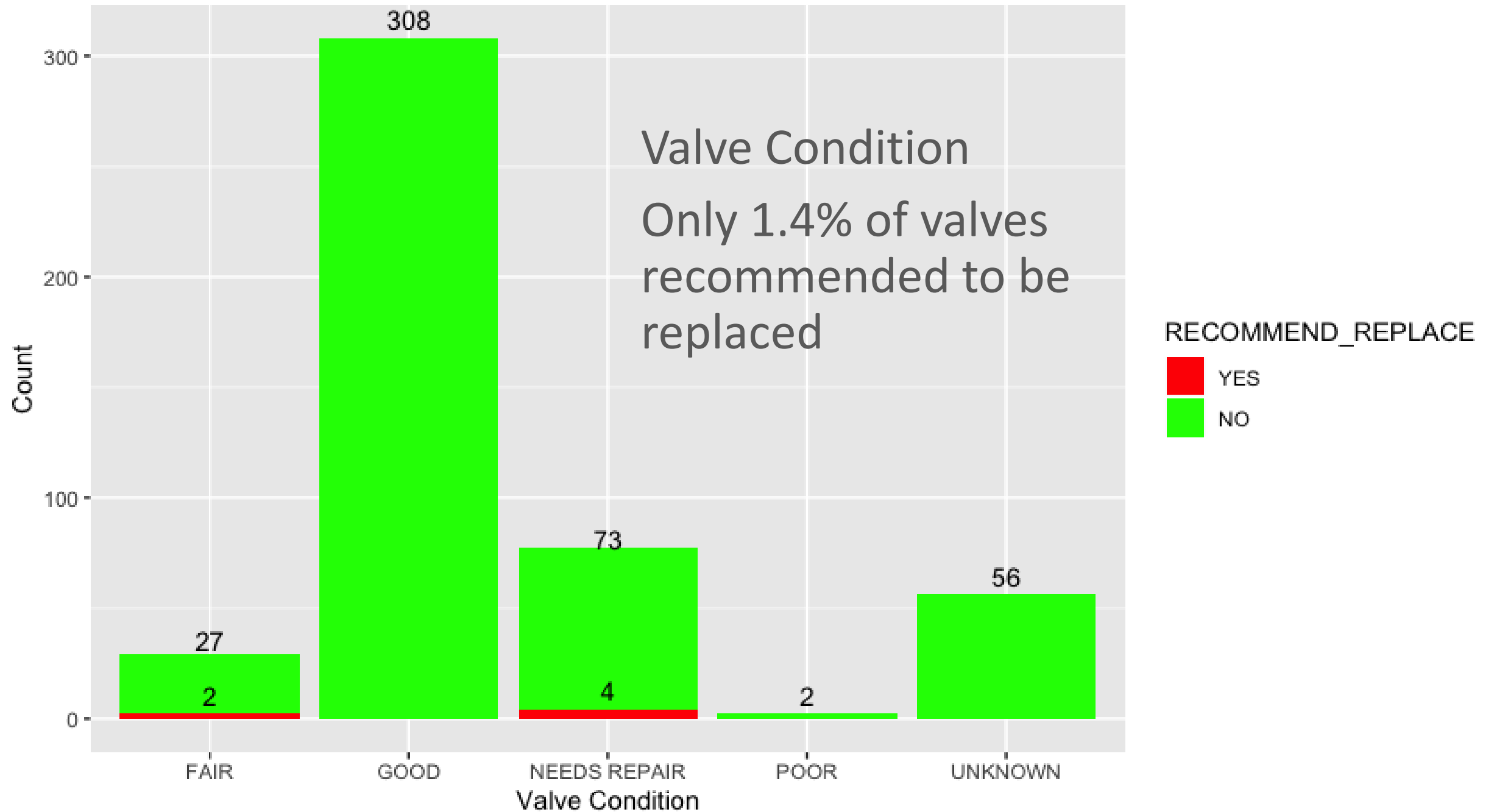


Frozen Valves

- Initially found frozen = 9% (35)
- 23% (6) were unfrozen*

* Additional efforts required and may improve this moving forward

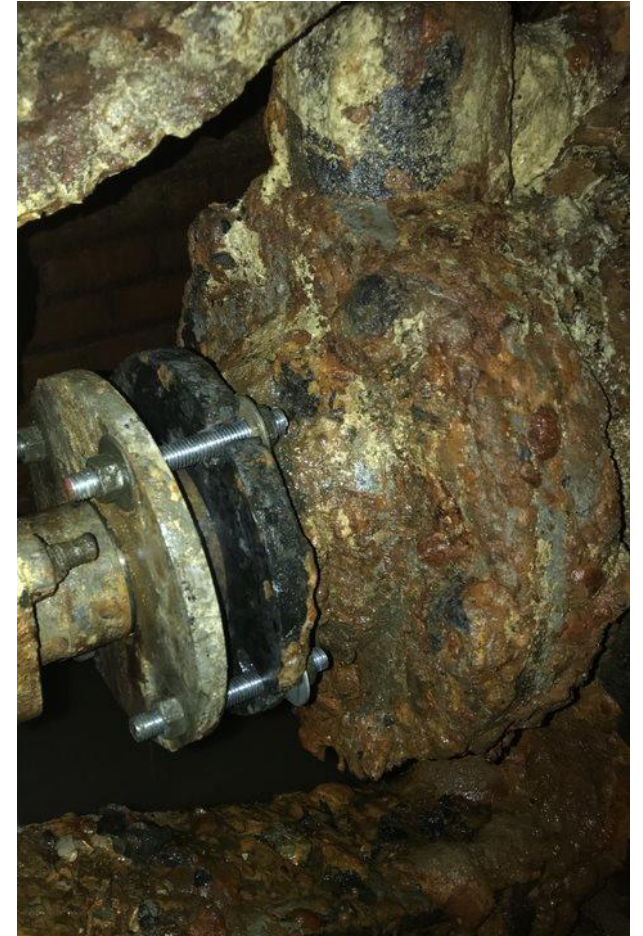
Valve Condition



4" Bypass – Packing Replaced



36" Internal Geared Gate – Packing Repair (69 Leaks Total)

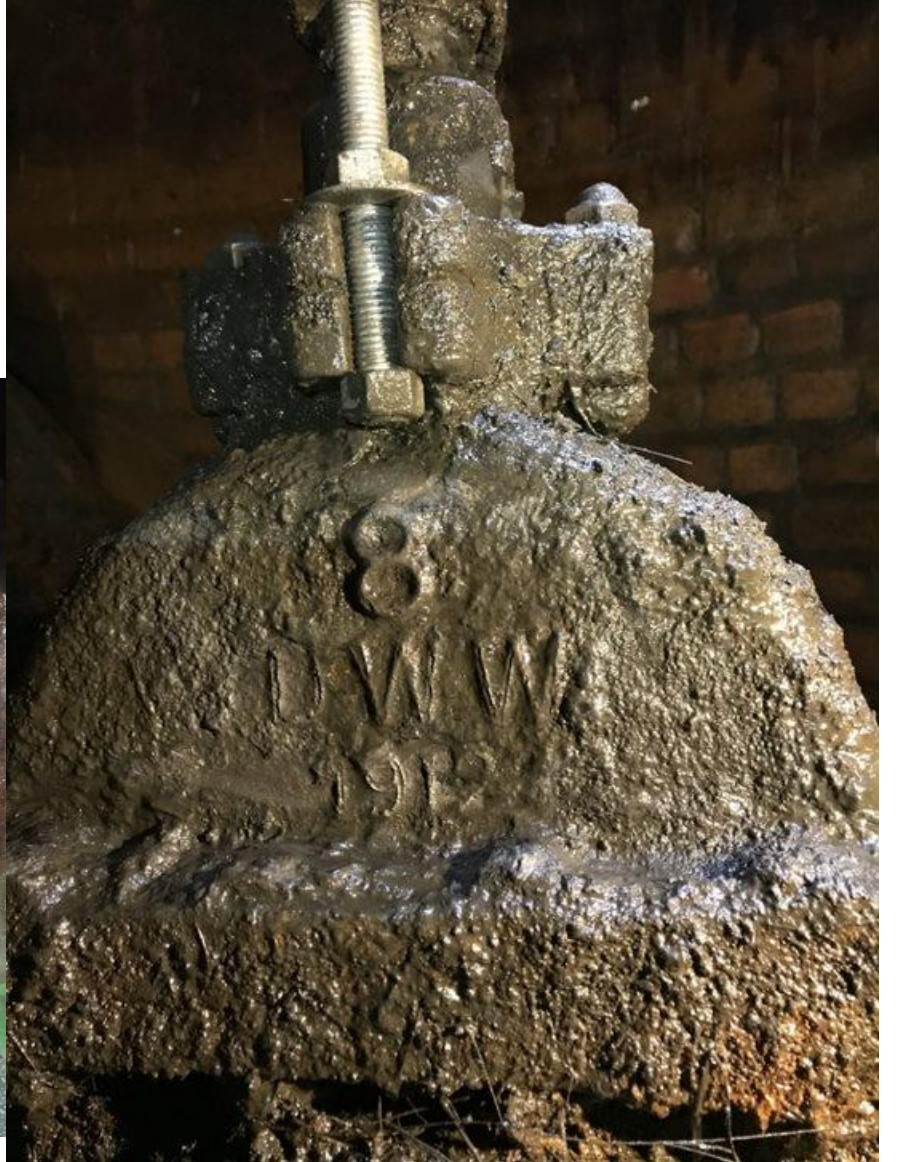


Ridge & Geddes Washtenaw



Pleasant & Campbell





Pilot Scope, Schedule, Budget

- Completed on Schedule – March 2020
- Spent \$2.6 million vs. \$3.7 million budget

Lessons Learned From the Pilot

- Future valve exercising work will:
 - Continue throughout the year, even during high use months
 - Combine partial and full exercise tasks to eliminate one re-mobilization event
 - Include a time and materials crew rate to work “frozen valves”
 - Include provisions for simple repairs like gear and operational nut replacements
 - Include sideline, air release, and blow-off valves

Going Forward

- Request for proposals to be issued for remaining valves
- Will include sideline, Air Release, and Blow-off Valves
- Coordinate repairs with transmission main evaluations
- Adopt Many of the “Lessons Learned”
- Will add provisions for Member Partner pricing



GLWA

Great Lakes Water Authority

