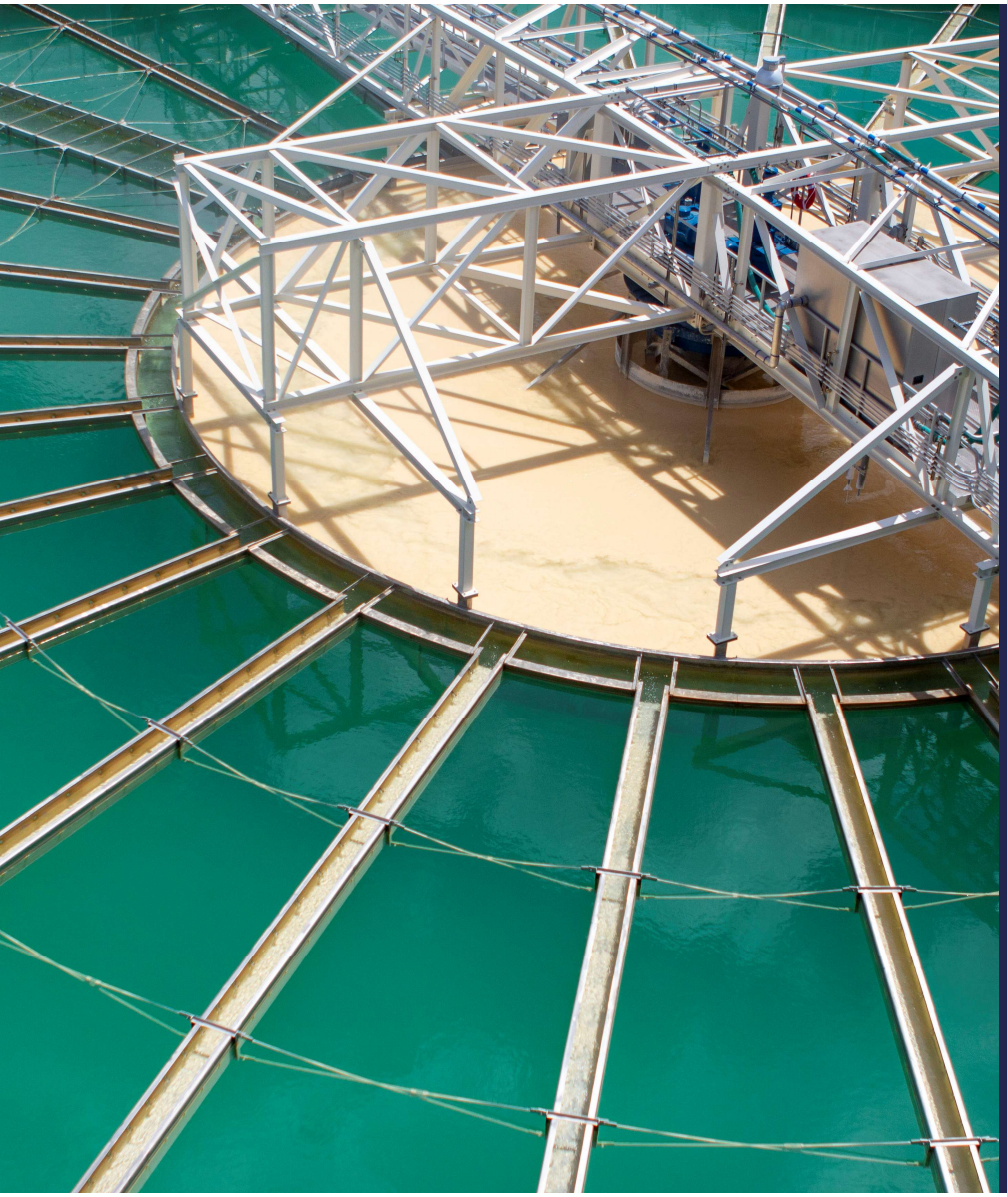
Water Loss and Mitigation Briefing

Austin Water | Water and Wastewater Commission | Dec. 10, 2025

Matt Cullen, P.E.



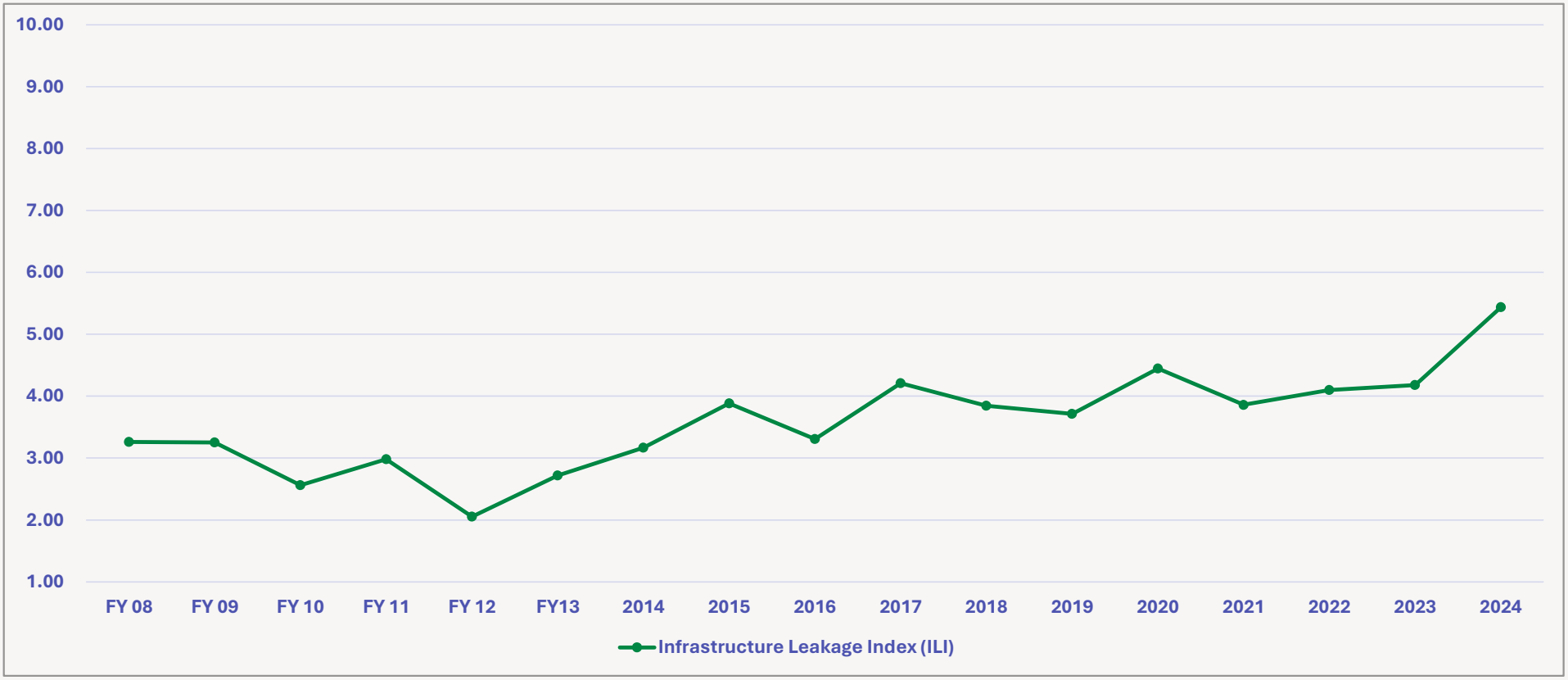
Agenda

- Overview
- Water Loss Factors – 2023-2024
- Actions to Reduce Water Loss
- Next Steps

Overview

- Austin Water's water distribution system includes:
  - 4,018 miles of pipeline
  - Pipes range in size from 2-inch to 84-inch diameter
- Our multi-pronged approach to reduce sources of water loss:
  - On-going participation in industry best practices and innovations
  - Fast response to reported leaks
  - Infrastructure renewal investments
  - Proactive leak detection

Water Loss Trends



Water Loss & ILI Terms

- **ILI** is an industry performance indicator calculated as the ratio of Current Annual Real Losses to Unavoidable Annual Real Losses
  - **Real Losses:** Water lost from system leaks and pressure-related issues.
  - **Unavoidable Annual Real Losses:** The theoretical minimum level of water loss through all feasible leakage control efforts, regardless of cost. Unavoidable Loss is based on system-specific factors:
    - miles of water mains
    - number of service connections
    - average annual system pressure
- **Apparent Losses:** Water that is distributed to a user but isn't accurately measured or billed. Results in lost revenue rather than a physical loss of water.

Water Loss Factors 2023 – 2024

30% increase in calculated water loss attributed to:

- Improvement in production flow measurement (0.5-1.0 billion gallons, or a 7-14% increase)
- Updated reporting of municipal water use (0.816 billion gallons, or an 11% increase)
- Increased “Real” Real Loss (0.376-0.876 billion gallons, or a 5-12% increase)

Actions to Reduce Water Loss

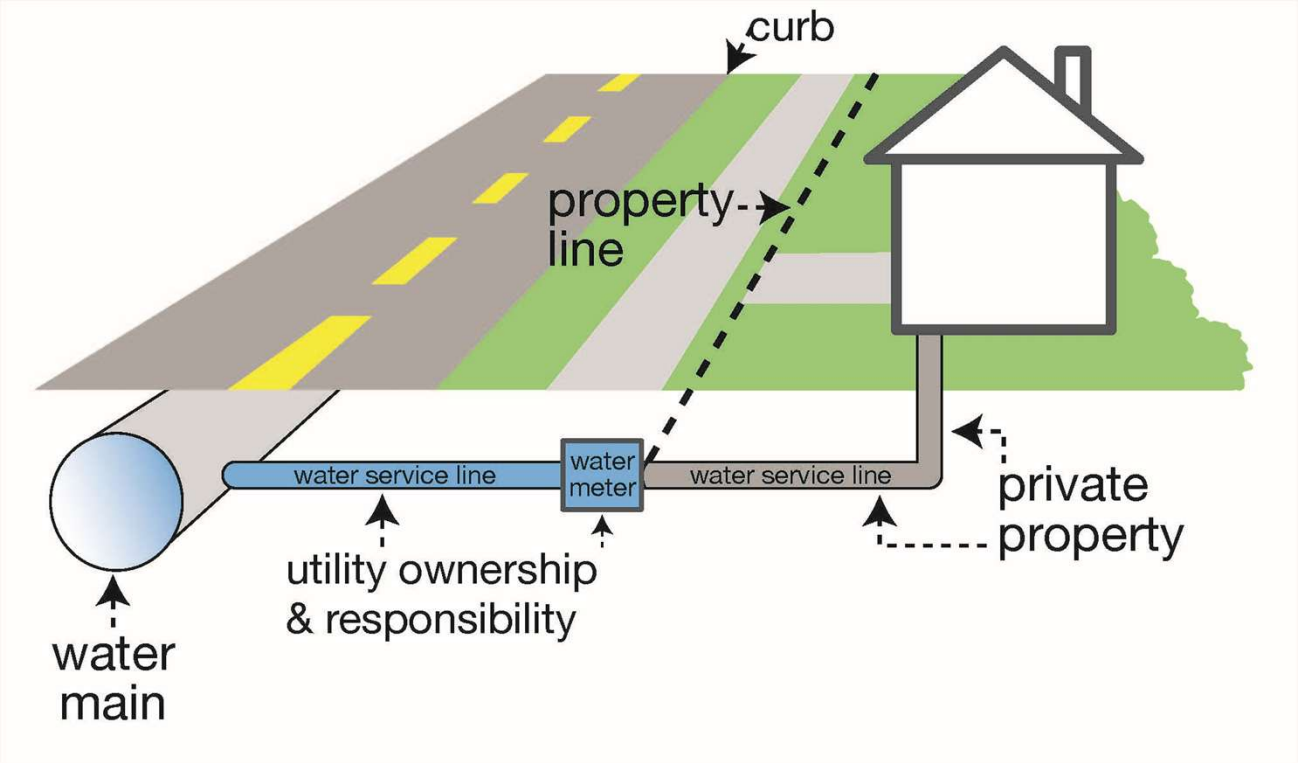
- In 2023, Black & Veatch was contracted to analyze our Water Loss Program
- The final 2024 Black & Veatch Report offered 32 recommendations:
  - 11 are **Complete or Operationalized**
  - 17 are **In Progress**
  - 4 have prerequisite items that are **In Progress**

Leak Detection Practices

- Evaluate entire system every 6 years
- Explore more targeted approaches
- Continue large diameter leak detection & condition assessment
- Complete leak detection SOPs that include:
  - Contract standards
  - Data management
  - Ongoing staff training
  - Piloting new technologies
  - Inspecting ARV's, valves & vaults on transmission mains
- Research and pilot pressure transient monitors
- Implement pressure reducing valve monitoring
- Hire Engineer to lead Water Loss Program

System Renewal

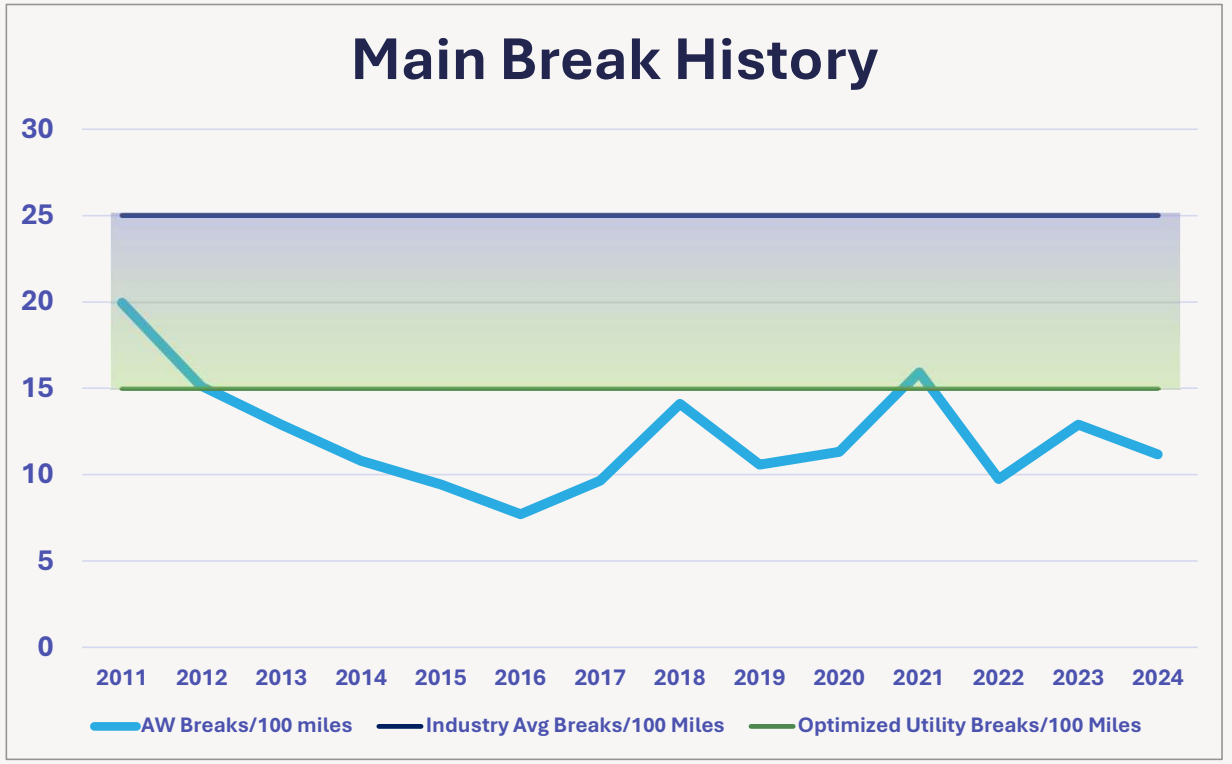
Understanding Your Water Service Line



System Renewal: Water Mains

Continue investment in renewing poor performing water mains:

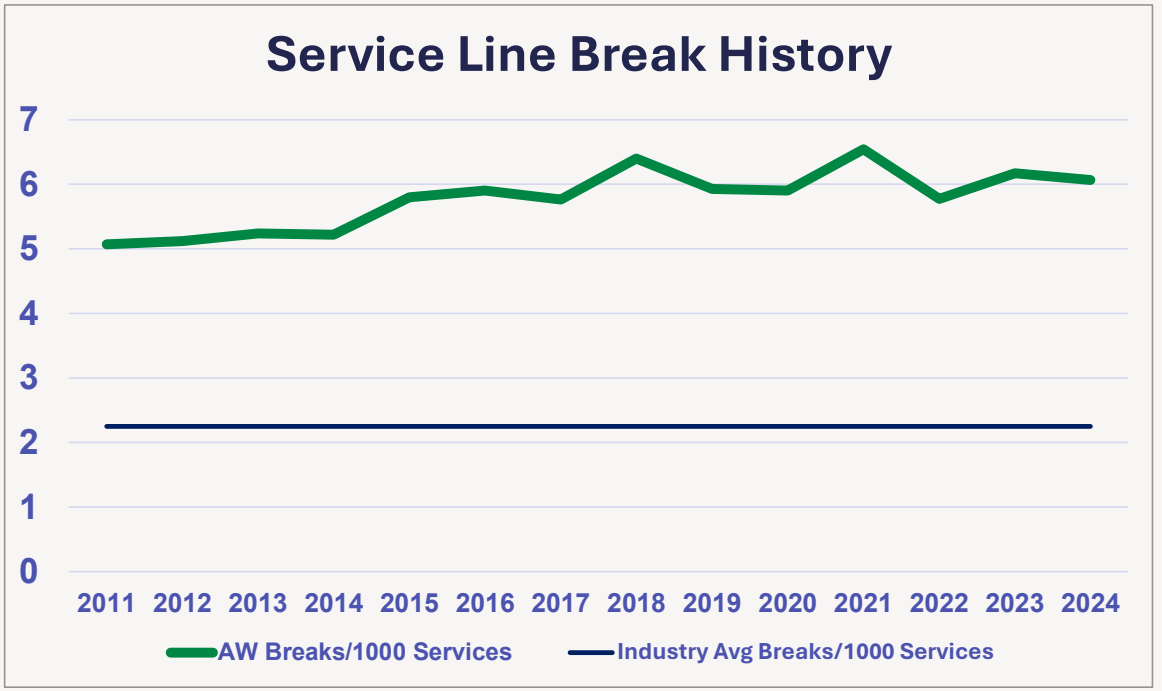
- FY26-30 budget includes $49M for main replacements



System Renewal: Service Lines

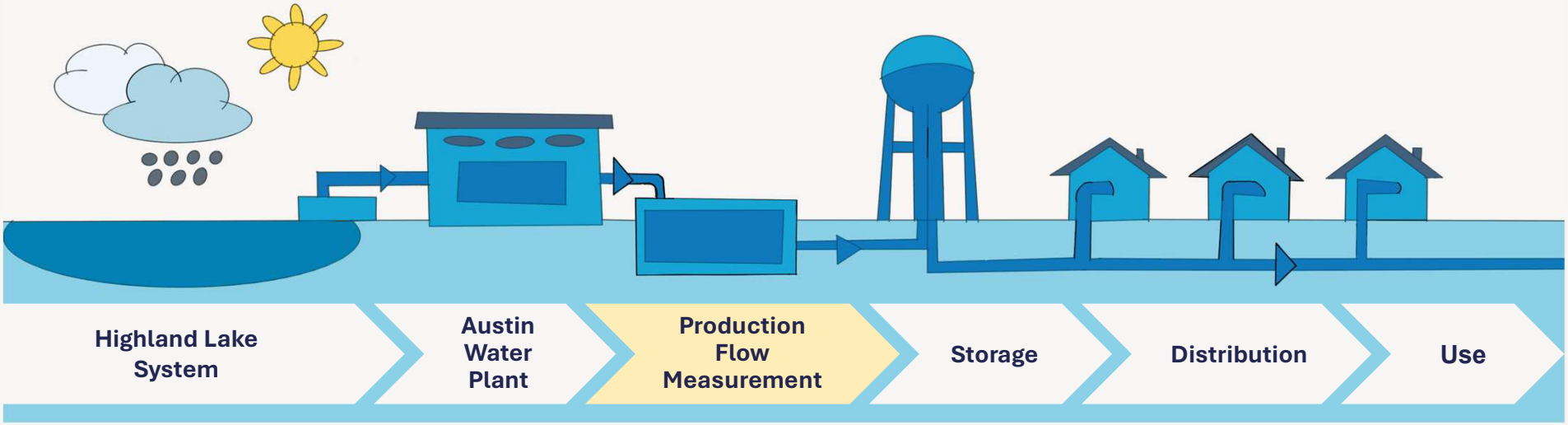
Increase focus on Service Lines:

- FY21-25 Service Line replacement budget: $8M
- FY26-30 Service Line replacement budget: $18M
- Leverage Texas Water Development Board $45M low interest loans



Improve Production Flow Measurements

- Assembling and operationalizing SOGs to strengthen calibration and data handling processes to maintain and monitor accuracy.
- Instituting regular secondary production flow measurement for validation - consultant hiring underway
- Studying configurations and performance to identify necessary capital improvements



Apparent Loss Tracking

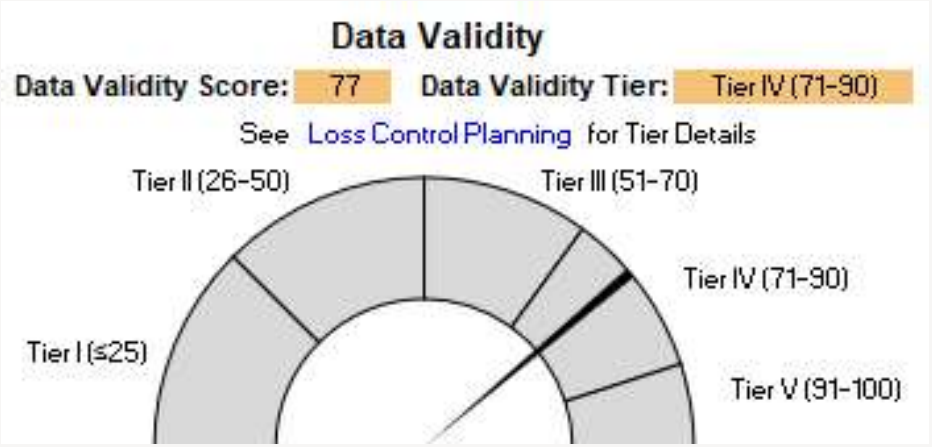
Document apparent loss control processes in an SOP that includes:

- Meter testing program validation (operationalized)
- Enhancement of large meter testing
- Proper meter sizing
- Meter replacement

Refining Tracking and Reporting

- Assemble SOPs for unauthorized consumption and data handling errors mitigation
- Evaluate transferring data from billing system to track water loss
- Refine system flushing and firefighting volume estimates
- Expand training for annual water audit and validation

- Continue to be active in water loss industry by attending national conferences and participating on committees
- Maintain high data validity scores



Utilize District Metered Areas

- **District Metered Area:** Section of a distribution system where all flows entering the area, and all demands in the area, are metered and monitored.
- We are conducting pilots to potentially create permanent District Meter Areas:
  - Completed setting up two District Metered Areas
  - Currently integrating District Metered Area and AMI data for automatic monitoring
  - Once these fully implemented, we will create additional District Metered Areas

Centralized Data Management

- Finalize module for managing AMI generated data
- Create PowerBI dashboard for leak detection data
- Integrate SCADA, AMI, GIS, Logger detection software

Next Steps

- Utilizing Effective Utility Management framework to implement recommendations from Black & Veatch report.
- Broadening involvement in water loss tracking and reduction across the utility.
- Working to comply with requirements of HB29.
- Continuing to seek innovative approaches to reducing water loss.

These activities will take time to have a noticeable impact on metrics but will result in reduced water loss.

Thank you!

Austin
Water