

AUSTIN WATER Water Loss and Mitigation Briefing

Matt Cullen, P.E.



September 7, 2021



Water Loss and Mitigation Briefing

September 7, 2021

Overview: Austin Water's water distribution system includes 3,965 miles of pipeline ranging in size from 2-inch diameter to 84-inch diameter pipes.

While all water systems experience water loss, Austin Water has a multi-pronged approach to increase accuracy of our measurements and reduce sources of water loss in our system.

- 💧 On-going participation in industry best practices and innovations
- 💧 Fast response to reported leaks
- 💧 Infrastructure renewal investments
- 💧 Proactive detection and prevention



Agenda

- 💧 Measuring Water Loss
- 💧 Performance Indicators for Water Loss
- 💧 Austin Water Performance
- 💧 Production Meter Validation Project
- 💧 Strategies to Address Water Loss
- 💧 Summary and Questions



Measuring Water Loss

💧 American Water Works Association methodology:

Plant Production Meter Volumes

— Known and Estimated Water Use
(metered-billed, fire fighting, flushing, etc.)

Water Loss



American Water Works
Association

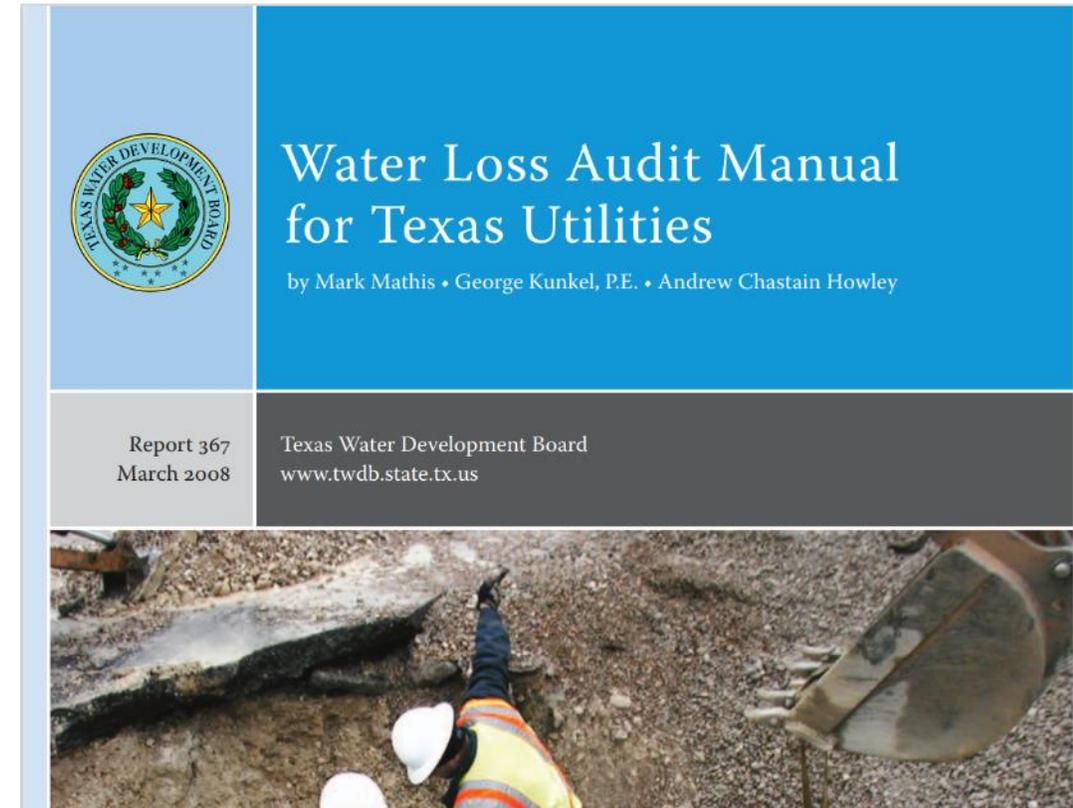
Dedicated to the World's Most Important Resource®

TOOLBOX



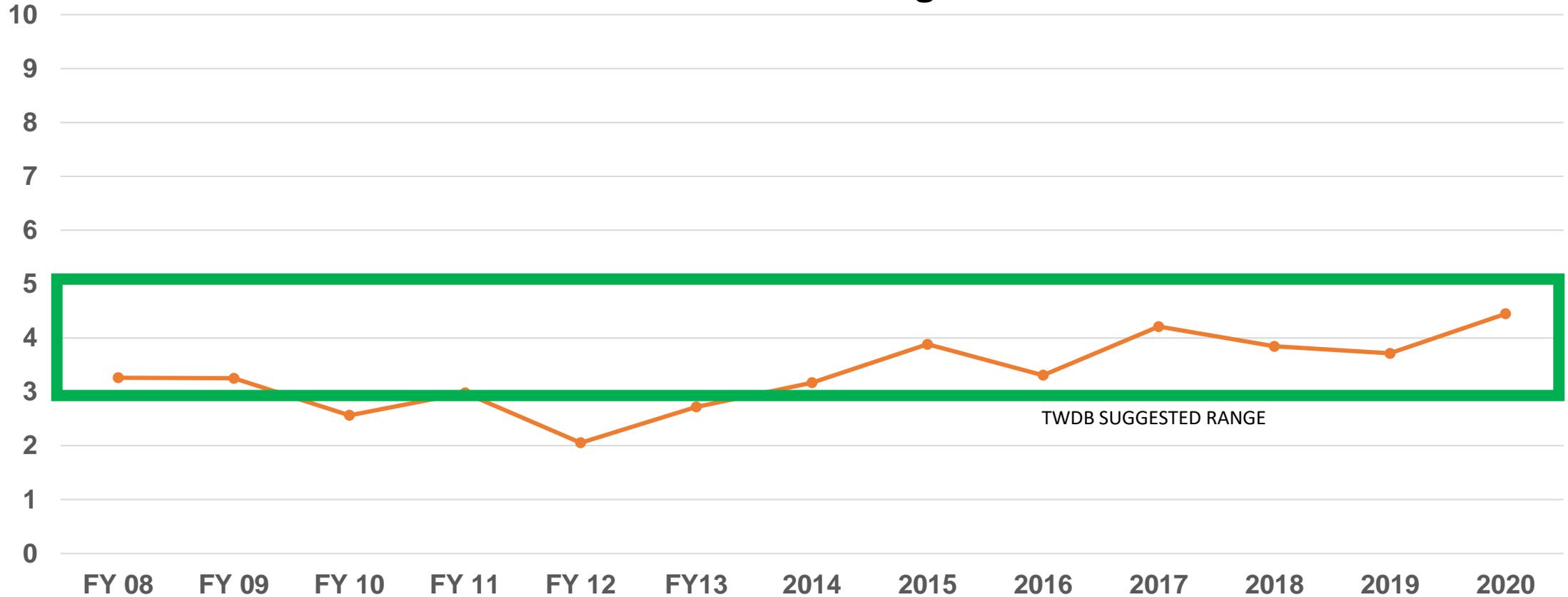
Performance Indicators

- 💧 Infrastructure Leak Index (ILI)
- 💧 Real Water Losses/Unavoidable Real Loss
- 💧 Based on miles of main, system pressure, and number of connections
- 💧 Benchmarks:
 - 1.0 – Theoretical perfection
 - 2.0 – Excellent performance
 - 3.0-5.0 – Texas Water Development Board suggested range



Austin Water's Performance

Infrastructure Leakage Index



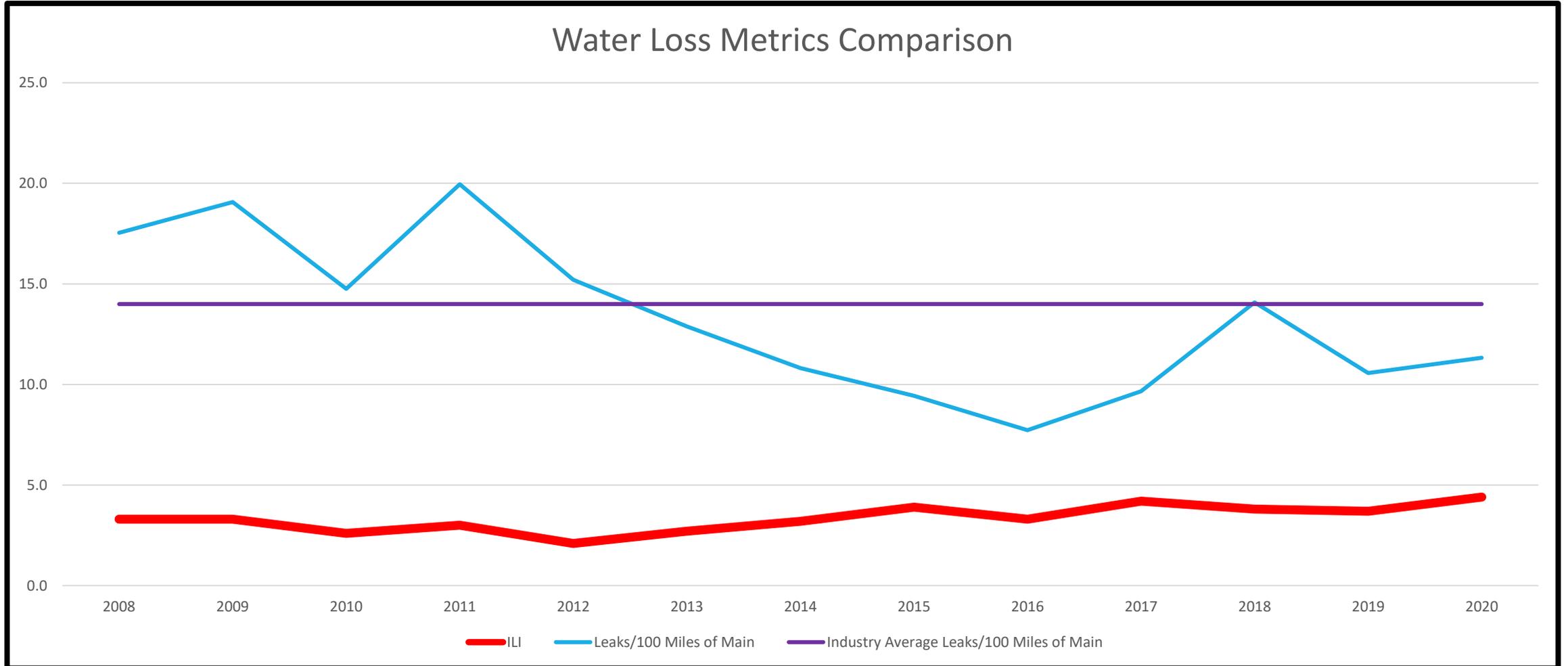
TWDB SUGGESTED RANGE

💧 *ILI is within Texas Water Development Board's suggested range*

💧 *Total water loss is increasing*



Austin Water's Performance



💧 **ILI is not tracking the same as our other metrics**



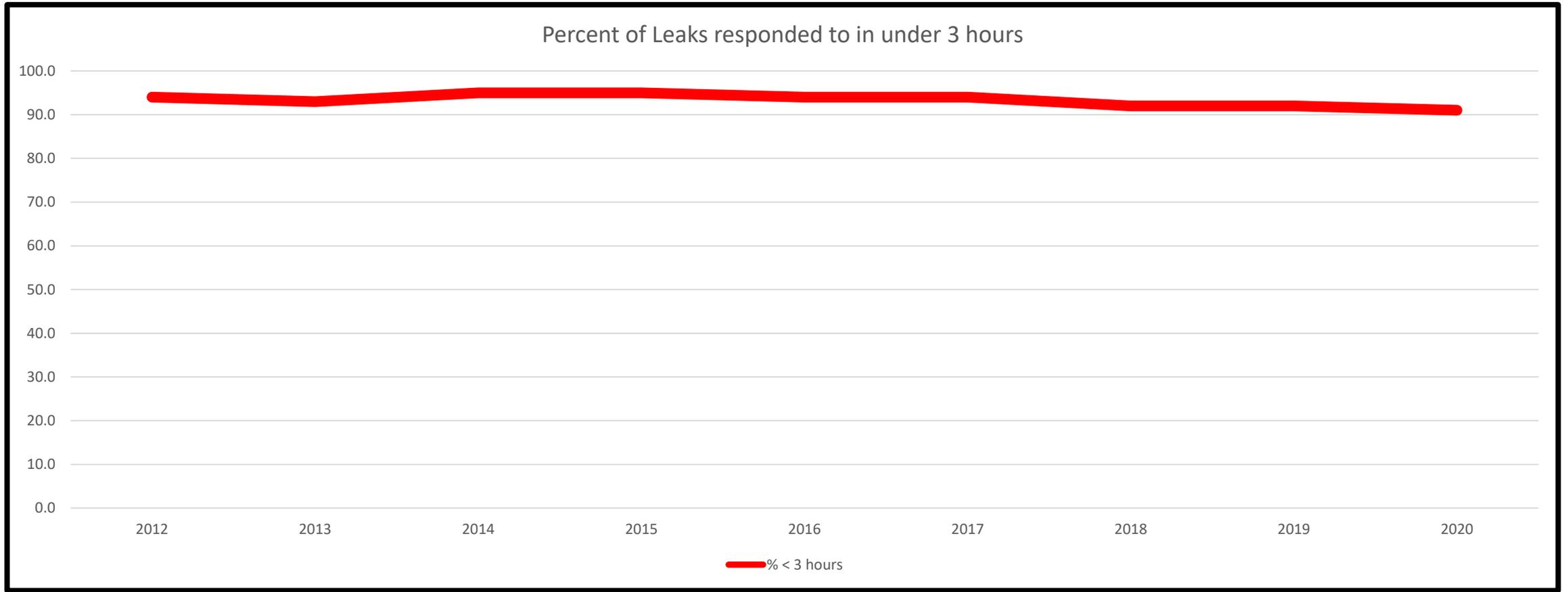
Production Meter Validation Project

- 💧 **Consultant performed meter validation at all three plants (37 meters)**
- 💧 **Preliminary take-aways:**
 - Not all meters were calibrated correctly
 - Some plant meters have errors in excess of $\pm 5\%$
 - Errors are variable
 - Impact on previous calculations are not clear
- 💧 **Action items:**
 - Refine calibration procedures
 - Make recommended corrections and improvements
 - Repeat validation process after improvements are completed



Strategies to Address Water Loss

Response to reported leaks



💧 Crews respond to Priority 1 leaks within 3 hours about 90% of the time



Strategies to Address Water Loss Infrastructure Renewal

- 💧 Replacing, renewing, rehabilitating water pipelines
- 💧 Program focused on pipes most vulnerable to additional leaks
- 💧 Includes program to reduce the number of polybutylene services
- 💧 Incorporating seamless HDPE pipe into our system



Strategies to Address Water Loss

Advanced Meter Infrastructure

- 💧 My ATX Water – 240,000 meters to be replaced by 2025
- 💧 Enhanced leak detection on the customer side
- 💧 Potential for reducing losses through pressure sensors, leak sensors, and district metered areas



Strategies to Address Water Loss

Proactive Detection and Prevention

💧 Condition Assessments Conducted Annually:

- 500-700 miles of the system
- 10 miles of transmission main leak detection
- 5-10 miles of transmission main condition assessment

💧 Innovation and Partnerships:

- Emerging technologies research
- UT collaboration



Proactive Detection and Prevention

💧 Potential catastrophic failures averted:

48" at Westgate/William Cannon



48" along MoPac at 2222



Next steps:

- Complete action items from production meter validation project
- Continue current best practice water loss reduction strategies
- Engage a water loss expert consultant to review our programs



Questions?

