





MEMORANDUM

TO: Mayor and Council Members

THROUGH: Robert Goode, P.E., Assistant City Manager 

FROM: Shay Ralls Roalson, P.E., Director, Austin Water 

DATE: October 2, 2024

SUBJECT: **Austin Water's Water Loss Program Review**

As a part of Austin Water's focus on managing our community's water resources in a resilient and sustainable manner, we work to proactively reduce our system water losses. Austin Water employs industry best practices related to water loss control and performs well compared to peer utilities. Water loss can result from a variety of reasons, primarily water main leaks and breaks. We have multiple programs focused on detecting and repairing leaks and responding to main breaks as quickly as possible.

As a part of our strategic business plan that uses Effective Utility Management strategies to meet the challenges ahead, Austin Water sought an external expert in water loss control to review our program and make recommendations for improvement. The results of this study are documented in the [Water Loss Program Review, Analysis, and Optimization report](#).

The report finds that Austin Water has comprehensive programs to track and reduce water losses, with successful performance on key water loss strategies, including rapid response times to repair leaks, a robust capital program to replace poor performing water mains, and proactive leak detection programs in both large and small diameter pipelines.

The report recommends improvements and additional investment in the following areas:

- Implement programmatic improvements to proactive leak detection activities.
- Expand program currently underway to replace poor performing water service lines.
- Improve production meter accuracy at the water treatment plants.
- Strengthen data validation practices for large meters.
- Expand data management and analysis tools across the water loss program.
- Improve estimates of unbilled authorized consumption (e.g., water for flushing and firefighting).
- Implement training for utility staff on reducing water loss during normal operations.
- Evaluate creating district metering areas to pilot reducing water loss through pressure management.

A summary of the recommendations is included in the attached study. Austin Water has launched a cross-departmental team to execute these recommendations. Austin Water will develop a regular report to stakeholders on the status of these recommendations.

We will discuss these findings in more detail at the Integrated Water Resource Planning Community Task Force (aka Water Forward Task Force) on October 8 and the Water and Wastewater Commission on October 9. We also plan to brief the City Council on the Water Forward 2024 Plan Update at an upcoming work session and the Austin Water Oversight Committee on November 12.

If you have any questions, please contact Shay Ralls Roalson at 512-972-0108 or shay.roalson@austintexas.gov.

cc: T.C. Broadnax, City Manager
CMO Executive Team

Attachment: Summary of Recommendations, *Water Loss Program Review, Analysis, and Optimization*

Austin Water

Water Loss Program Review, Analysis & Optimization

Summary of Recommendations

As a part of our strategic business plan that uses Effective Utility Management (EUM) strategies to meet the challenges ahead, Austin Water (AW) contracted with an external expert to conduct an analysis of our water loss program and make recommendations for improvement. The results of this study are documented in the Water Loss Program Review, Analysis, and Optimization report.

The report finds that Austin Water has comprehensive programs to track and reduce water losses, with successful performance on key water loss strategies, including rapid response times to repair leaks, a robust capital program to replace poor performing water mains, and proactive leak detection programs in both large and small diameter pipelines.

The report recommends improvements and additional investment in a number of areas. Austin Water has launched a cross-departmental EUM team to execute these recommendations and will develop a regular report to stakeholders on the status.

The recommendations can be broadly categorized as shown below. Where there is a specific recommendation from the report, linked here, the number is noted.

Implement programmatic improvements to proactive leak detection activities

- Continue distribution and transmission leak detection contracts (6.5.1.1 and 6.5.3.2)
- Develop Austin Water Standard Operating Procedure (SOP) for leak detection practices and data management (6.5.1.3)
- Continue piloting emerging leak detection technologies (6.5.1.4)
- Conduct baseline leak detection validation (6.5.1.5)
- Inspect vaults and valves on transmission mains (6.5.3.1)

All leak detection related recommendations will be incorporated into the Leak Detection SOP. The SOP is expected to be finalized by May 2025.

Expand program currently underway to replace poor performing water service lines

- Increase capital program investment in replacing service lines (6.5.1.2)

AW has taken steps to improve management of service line failures, both in day-to-day operations and in capital program planning and budgeting. This work will be formalized in operations response procedures and AW's asset management program.

Improve production meter accuracy at the water treatment plants

- Refine calibration and verification processes (6.3.1)
- Conduct secondary meter testing (6.3.2)
- Standardize production meter data handling (6.3.3)
- Identify and execute needed production meter capital improvements (6.3.4)

Summary of Recommendations

AW is updating production meter operation and maintenance practices and preparing a scope of work for a third party to conduct secondary meter testing, with the potential for training to bring the operation in-house. Production meter measurement improvement recommendations will be incorporated in a Production Meter SOP that is expected to be finalized by May 2025.

Strengthen data validation practices for large meters

- Enhance large customer meter testing (6.4.1.1)
- Conduct meter testing program validation (6.4.1.2)
- Develop and refine existing SOPs for meter testing, sizing and replacement (6.4.1.3)
- Conduct meter sizing analysis (6.4.1.4)

AW has SOPs for bench testing meters, large meter accuracy testing, and Badger compound meter testing. These SOPs will be reviewed and updated and expected to be finalized by May 2025.

Expand data management and analysis tools across the water loss program

- Create dashboards to integrate SCADA, AMI, pressure monitoring and leak detection data (6.4.3.3, 6.5.5.1, and 6.5.5.2)
- Develop SOP on unauthorized consumption mitigation (6.4.2.1)
- Develop SOP on data handling errors mitigation (6.4.3.2)
- Evaluate billing system process (6.4.3.1)
- Improve data validity scores (6.9)

AW's Water Loss EUM team will define the data integration requirements and implement the dashboards. AW has procedures for handling unauthorized consumption, including back billing and estimating usage. These procedures will be formalized in an SOP and reviewed annually. The noted SOPs are in development and expected to be finalized by May 2025.

Improve estimates of unbilled authorized consumption (e.g., water for flushing and fire fighting)

- Refine flushing and firefighting volume estimates (6.6.1.1 and 6.6.2.1)

AW continuously works to refine our water loss tracking practices. Improving these estimates will be part of this ongoing process.

Implement training for utility staff on reducing water loss during normal operations

- Train leak detection staff on an annual basis (6.5.2.1)
- Complete annual water audit and validation training (6.7)
- Participate in national water loss conferences (6.8)

AW leak detection staff have been trained in leak detection equipment and practices. Continuous training requirements will be formalized in the Leak Detection SOP. The Water Loss EUM team will make

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recommendations for increasing the number of staff involved in and trained for water loss tracking and validation.

AW is very active in the AWWA water loss control community, regularly participates in water loss tracks at ACE, and has participated in every North American Water Loss Conference, including hosting it in Austin in 2021. AW has presented on water loss at AWWA conferences in 2011, 2013, 2014, 2015, 2016, 2017, 2023, and 2024.

Evaluate creating district metering areas (DMAs) to pilot reducing water loss through pressure management

- Institute monitoring pressure at pressure reducing valves and for transients throughout the system (6.5.4.1 and 6.5.4.2)
- Pilot DMAs (6.5.6.1 and 6.5.6.2)
- Expand DMAs and potentially convert to Pressure Management Areas (PMAs) after piloting (6.5.6.3)

AW has piloted two DMAs and is in the process of implementing them within the My ATX Water digital metering system. They are expected to go live before the end of 2024. The Water Loss EUM team will evaluate and make recommendations on deploying pressure sensors and PRV monitoring as part of the next phase of the MY ATX Water program.