



# Stepping Up Water Loss Control

## Lessons from the State of Georgia

### SUMMARY

In June of 2010, the Georgia Water Stewardship Act (the Act) was signed into law in an effort to create a “culture of water conservation” throughout the state of Georgia. One of the main components of this legislation was a mandate requiring that all utilities serving populations of 3,300 and above submit annual water loss audits utilizing the American Water Works Association (AWWA) and International Water Association (IWA) water audit methodology (M36).<sup>1</sup> The Center for Neighborhood Technology (CNT), in its effort to support utilities in their water loss control efforts, spoke with Georgia’s Environmental Protection Division (Lebone Moeti) and the Georgia Environmental Financial Authority (Jason Bodwell) to better understand the mechanisms behind the continued success of Georgia’s auditing mandate.

For any state or agency looking to increase adoption of M36, there are several key takeaways from Georgia’s new auditing requirements:

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***State agencies and their partners should place emphasis on the value and usefulness of M36 for utilities.*** Beyond instituting any auditing requirement, states should highlight the benefits of this practice in helping utilities improve business operations.

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***Data validation is paramount.*** Water loss audits and future planning must be based on accurate and reliable audit results in order to effectively improve water systems.

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***Encourage strong relationships between state and local governments.*** It is critical for states to have a strong commitment to providing training resources and support to utilities as they adopt the M36 auditing method.

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***Encourage public reporting.*** Sharing audit results improves transparency, accountability and understanding between a utility and its customers.

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***Enthusiastic training sessions.*** The auditing process can be dull. It is important to provide engaging trainings that emphasize the benefits of adopting the M36 method.

THE AMERICAN WATER WORKS ASSOCIATION (AWWA) AND INTERNATIONAL WATER ASSOCIATION (IWA) WATER AUDITING METHODOLOGY PRODUCT (M36) IS NATIONALLY RECOGNIZED AS THE BEST METHOD FOR ACHIEVING A ROBUST AND STANDARDIZED WATER LOSS AUDIT. IT ALLOWS UTILITIES TO RATE THEIR DATA VALIDITY AND IDENTIFY INTERNAL ISSUES, WHILE HELPING STATES AND REGIONS TO LOOK AT WIDER-SCALE WATER LOSS TRENDS. THIS ENABLES THEM TO MORE EFFECTIVELY REDUCE WATER WASTE, AND MAKE A STRONGER ECONOMIC CASE FOR INFRASTRUCTURE REINVESTMENT AND OTHER WATER LOSS INITIATIVES.<sup>2</sup>

## INTRODUCTION

In June of 2010, the Georgia Water Stewardship Act was signed into law in an effort to create a “culture of water conservation” throughout the state of Georgia. The bill directed Georgia’s Department of Natural Resources to coordinate with eight state agencies, including its Environmental Protection Division (EPD) and the Georgia Environmental Financial Authority (GEFA), to formulate programs to improve water conservation and water supply preparedness.<sup>3</sup>

In response to severe droughts and water shortages, the Act outlines a number of actions to help protect the state’s future water supply. It requires efficient water fixtures in all residential and commercial construction statewide and the installation of efficient cooling towers in new industrial construction. Additionally, it creates incentive programs to encourage residents and businesses to retrofit water fixtures, install drought resistant landscapes, and adopt grey water management techniques.<sup>4</sup>

One major piece of this legislation was a mandate requiring that all utilities serving populations of 3,300 and above submit annual water loss audits utilizing the M36 methodology, developed by AWWA and IWA.

In order to better understand the specifics behind the success of Georgia’s pioneering auditing requirements, CNT’s water supply team spoke with Lebone Moeti, Acting Program Manager of the Surface Water Withdrawal Program in Georgia’s EPD, and Jason Bodwell, Senior Program Manager of GEFA. Both Mr. Moeti and Mr. Bodwell were instrumental in leading a team approach to successfully launching the statewide auditing requirement and securing programmatic and funding support.

The Act’s auditing requirements were phased in incrementally based upon the size of the public water system. Utilities serving 10,000 customers or more were required to begin submitting M36 audits by March 2012, and by March 2013 the requirement was extended to utilities serving at least 3,300. The Act only included utilities that serve populations of 3,300 and above because these utilities service 80% of Georgia’s population.

## TECHNICAL SUPPORT AND FUNDING APPROACH

There were a variety of support and funding mechanisms used to provide assistance to the utilities required to adopt M36.

Before the first round of audits, EPD created and distributed a free Georgia Water Loss Manual based on the AWWA M36 water audit manual to all utilities required to comply with the mandate.<sup>5</sup> EPD, in partnership with the Georgia Association of Water Professionals (GAWP), also hosted a series of workshops providing M36 auditing knowledge and support to the large utility systems serving over 10,000 customers.

After the first round of audits, Mr. Moeti identified data anomalies despite the thorough auditing manual and intensive workshops provided to the utilities. His team determined that further steps needed to be taken to ensure data validation. They instituted an in-depth, validation of the 107 large systems; a Phase 1 small systems technical assistance program that included a subsequent small systems validation process; and a Phase 2 technical assistance program for the small systems.

These support mechanisms were funded primarily by GEFA, which allocates the federal Clean Water and Drinking Water State Revolving Funds in the state of Georgia. As stipulated by the federal Drinking Water State Revolving Fund set-asides, a certain percentage of these funds can be used to promote activities other than infrastructure construction, such as improving water system operation and management.<sup>6</sup> GEFA used the 2% set-aside for small system audit training and small system technical assistance and the 15% set-aside for the auditing manual, large system training workshops, and large system validation designed for local assistance and other state programs.<sup>7</sup> Details on the funding for each support area are offered below.

### TECHNICAL MANUAL DEVELOPMENT

Georgia’s water loss manual was modeled off of AWWA/IWA M36 manual. In creating the manual, the EPD consulted other states, including Texas and California, which already had established similar manuals and programs. The manual was largely compiled by pro-bono assistance from Georgia’s AWWA section. GEFA provided an estimated \$20,000 to GAWP for facilitation of this effort.

## LARGE SYSTEM TECHNICAL ASSISTANCE

The first round of technical assistance workshops was put together by EPD in partnership with the GAWP.<sup>8</sup> It was recommended that all large systems (serving over 10,000 customers) participate. EPD and GAWP held these workshops to provide large water systems with an introduction to the water loss audit process. The funding for these workshops came out of the GEFA's appropriation of the Drinking Water State Revolving Loan Fund's 15% local assistance set-aside. The total cost was an estimated \$15,000 to hold five full-day workshops.

## LARGE SYSTEM VALIDATION

The need for large system validations became apparent after the first round of audits was submitted and data anomalies were found, despite the instruction offered by the manual and technical assistance workshops. AWWA's Water Loss Control Committee provided the technical support needed to roll out this extensive round of validations, and funding for this program was provided through a portion of the Drinking Water Act's 15% set-aside acquired through a contract with three private firms who are experts in the field of water loss auditing. The total cost was approximately \$110,000 for the validation of 107 large systems.

## SMALL SYSTEM TECHNICAL ASSISTANCE AND VALIDATION : PHASE ONE

After learning from the large system audit rollout, the EPD, with funding support from GEFA, organized a series of workshops aimed at educating and supporting those systems serving between 3,300 and 10,000 customers. Support and consultation was provided by Cavanaugh and other auditing experts. Cavanaugh's team led an intensive, ten-month training program, which guided utilities through the audit process, and provided skills for conducting future annual audit and validation processes. This effort resulted in 100 small systems submitting validated water audits to EPD.

Funding for these sessions was provided through the Drinking Water State Revolving Loan Fund's 2% Small Technical Assistance set-aside. The total cost for the training and validation of close to 100 small systems was approximately \$500,000.

## SMALL SYSTEM TECHNICAL ASSISTANCE: PHASE TWO

The final piece that has ensured compliance and continued efficacy of Georgia's water auditing requirement is an

ongoing small system technical assistance program.

Cavanaugh was hired to provide technical knowledge and manage the interactions between the six contractors hired to assist approximately 50 small water systems. This assistance included advanced customer water meter testing, leak detection, and finished water meter testing.

The \$650,000 in funding for this final step came out of the 2% small system set-aside, though Mr. Bodwell predicts that they will only use about \$400,000-\$500,000 of that. These funds have been used for contractors to perform the work listed above, for Cavanaugh to manage the program, and to provide reimbursement to small water systems to perform upfront system upgrades, if needed.

Ultimately, these investments in training, validation and technical support aim to encourage utilities to apply for more state revolving fund money, further validate the success of a standard water auditing process and encourage positive peer-to-peer communication.

## LOOKING FORWARD: FIVE LESSONS LEARNED

### • PLACE EMPHASIS ON THE VALUE AND USEFULNESS OF THE M36 PRACTICE FOR UTILITIES

Georgia was worried that utilities might see the regulation simply as an unfunded state mandate. The state's Environmental Protection Division (EPD) approached this concern by ensuring that regulation wasn't sold as regulation, but rather presented as a step forward in water infrastructure efficiency. EPD supported this by creating a useful manual and providing ongoing technical assistance to each utility. Additionally, conferences, public information meetings and workshops provided information to help utilities understand that this mandate was a positive and beneficial regulation.

The process was consistently framed as a step forward for the industry, especially since utilities were included in the conversation. Partnering with GAWP enabled utilities to convene with one another, see and hear the tangible benefits, and share learning lessons and information. The Act requires 100% compliance and has punitive measures for non-compliance, but the emphasis has been on helping utilities help themselves instead of punishing them for not having the resources to meet the mandate. Utilities now see this auditing method as an advancement in water management.

**• DATA VALIDATION IS PARAMOUNT**

One of the most important benefits water audits can provide a utility is data validation. EPD saw that without emphasizing validation as part of an audit, water loss planning would be less robust and less reliable for future planning.

**• ENCOURAGE STRONG RELATIONSHIPS BETWEEN STATE AND LOCAL GOVERNMENTS**

The GEFA committed to providing funds from the Drinking Water State Revolving Loan Fund for audit training and education and has maintained a positive relationship with the local governments it serves. Utility regulators interested in capitalizing on SRF set-asides, particularly the 2% and 15% funds, will benefit by maintaining positive relationships with state and local governments.

**• ENCOURAGE PUBLIC REPORTING**

The Act requires utilities to post their water loss audit reports publicly. This allows customers to obtain a complete picture of where their water comes from, how it is distributed, the condition of the infrastructure and how it all affects them financially. It also encourages conversation between resource users and suppliers, leading to a more inclusive planning process.

**• ENTHUSIASTIC TRAINING SESSIONS**

GEFA’s Mr. Bodwell put it bluntly: “Make water auditing sexy.” With the right trainers, the auditing process can be engaging for utilities. The most important factor is highlighting the benefits of these practices for utilities. M36 provides a process for setting utility priorities, seeing internal trends and enabling cost-effective infrastructure investment. Though the primary benefits are internal, utilities also get the added perk of access to peer networking opportunities. Finally, all information sessions, networking conversations and conferences should emphasize how adopting the AWWA/IWA auditing method can uncover money for salaries and capital improvement projects.

**CONCLUSION**

Currently, Georgia has had 100% compliance from utilities for every year that they have been required to submit the AWWA water audits. It is interesting to note that some utilities serving populations less than 3,300, while not included in this mandate, are now using the auditing method voluntarily after hearing positive anecdotes from their larger system peers. The success of Georgia’s program provides an effective blueprint for other states and agencies in how to begin providing support to their utilities in moving forward with best practices in water loss management.

**APPENDIX A: GEORGIA WATER AUDITING PROGRAM ACTIVITIES AND FUNDING MATRIX**

ACTIVITY	WHO ACTIVITY SERVED	WHEN ACTIVITY WAS PROVIDED	FUNDS SPENT
<b>Step 1</b> Creation of the GA-specific water loss manual (version 1.0)	All water systems serving more than 3,300	June 2011 - September 2011	Pro-bono and around \$20,000 for facilitation of this effort
<b>Step 2</b> One-day water loss audit workshops	Large water systems greater than 10,000	January 2012 - February 2012	About \$15,000 for five full-day workshops
<b>Step 3</b> Large water audit validation	Large water systems greater than 10,000	Fall 2012	\$110,000 from the DWSRF 15% set-aside via a private contract
<b>Step 4</b> 10-month comprehensive water audit training	Small systems serving 3,300 - 10,000	June 2012 - March 2013	\$500,000 from the DWSRF 2% set-aside via a private contract
<b>Step 5</b> Technical assistance in the form of leak detection, large customer meter and finished water meter testing	Small systems serving 3,300 - 10,000	September 2013 - February 2014	\$650,000 from the DWSRF 2% set-aside via a private contract
<b>Step 6</b> Updated the GA-specific water loss manual (version 1.1)	All water systems in GA	July 2013 - January 2014	Pro bono time provided by member of the GA-AWWA/GAWP water loss committee

## REFERENCES

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## SPECIAL THANKS

To Lebone Moeti, Environmental Engineer, GA EPD, and Jason Bodwell, Senior Program Manager, GEFA for their time and insight.

To Anna Wolf, Water Supply Program Intern, CNT for her research and hard work.

### ABOUT THE CENTER FOR NEIGHBORHOOD TECHNOLOGY

The Center for Neighborhood Technology (CNT) is an award-winning innovations laboratory for urban sustainability. Since 1978, CNT has shown urban communities in Chicago and across the country how to develop more sustainably. CNT promotes the better and more efficient use of the undervalued resources and inherent advantages of the built and natural systems that comprise the urban environment.

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