

GREAT LAKES WATER INFRASTRUCTURE PROJECT ISSUE BRIEF: WATER LOSS



SUMMARY

Leaking drinking water infrastructure results in the loss of 2.1 trillion gallons of treated water every year. Water loss contributes to lower revenue for utilities; less affordable water for residents; and a variety of public health and safety concerns. More than 20 states have policies governing or incentivizing water loss reporting or performance targets. An effective water loss control program enables utilities to strategically reduce leaks and accounting errors.

ISSUE

Nationally, 2.1 trillion gallons of treated water is lost every year due to leaks and system failure.¹ Leaking infrastructure also contributes to road collapses, flooding, delayed disaster response, and water borne illnesses.² A 2012 survey of 55 Great Lakes water utilities found they lost 66.5 billion gallons of water annually. 71% of those surveyed had no policy to control water loss; two-thirds did not publicly report on the condition of their infrastructure; and less than 4% of utilities said they received assistance from state or regulatory agencies in managing their water loss.³ In the face of such challenges, leaks may be allowed to continue until the point of system failure.



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POLICY CONTEXT

While there is no national policy regulating water loss, US EPA recommends that utilities establish water loss control programs.⁴ More than 20 states have policies governing or incentivizing water loss auditing, reporting, and/or performance targets.⁵ Because there are no nationally mandated standards, there are inconsistencies in how utilities collect and report water loss data.⁶

Financing for leak repairs may be available through the Water Infrastructure Finance and Innovation Act (WIFIA).⁷ However, WIFIA funds are available only if the utility is safety compliant and has an investment-grade bond rating, which may be challenging for those located in shrinking cities.



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BEST PRACTICES

An annual water loss audit identifies the extent of water lost in the system, by comparing the amount of potable water produced versus the amount billed to customers. The industry standard for water auditing and loss control programs is the “M36 Manual,” developed by the American Water Works Association.⁸ A water loss control program, as part of an asset management strategy, enables utilities to proactively assess and invest in their infrastructure in order to reduce leaks and accounting errors. Asset management programs include an inventory of the infrastructure system; an infrastructure assessment process; and a condition rating for each infrastructure asset (e.g., pipe, pump).

Water loss control programs may include protocols for targeted repairs or upgrades, pressure management (optimization), and better metering technologies and practices.⁹ Non-invasive, lower cost technologies for water loss detection, monitoring, and metering include acoustic sensors, satellite imagery analysis, and improved software.^{10, 11}

Policy strategies include mandating that utilities develop water loss control programs and performance goals. Some states require that utilities conduct annual audits using M36 terminology and software, report on audit results, validate data using third party experts or trained evaluations, and set volume-based performance benchmarks.¹²

The Philadelphia Water Main Replacement program proactively and strategically replaces high risk water mains to reduce costly breaks and emergency repairs. The Water Department uses GIS and CCTV monitoring to guide decision making, allowing for efficient use of funding and an improved overall system performance. The Water Main Replacement program has been in place for over 30 years and has resulted in fewer than 2.25 breaks per day and 221 breaks per 1,000 miles—lower than the national average.¹³ For an annual cost of \$800,000, Philadelphia’s leak detection program has recovered an estimated \$2.5 million in annual revenue.¹⁴



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