

Office of the NEW YORK STATE
COMPTROLLER

Oversight and Monitoring of Municipal Water Systems



New York State Comptroller
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OCTOBER 2017

Introduction

Most households and businesses in New York State receive water either from municipal systems operated by a county, city, town or village, or from systems operated by public authorities.¹ These public water services are responsible for functions such as budgeting; rate setting, billing and collection; infrastructure maintenance, repair and expansion; and water quality treatment and monitoring. There are many ongoing challenges related to water delivery, notably aging infrastructure, source contamination and water losses. Problems of this nature will undoubtedly require concerted long-term efforts to overcome.² However, other challenges, such as maintaining efficient utilization of current infrastructure and implementing sound financial management practices, can be addressed without significant additional resources. Unfortunately, many local governments are falling short in these areas.

The Division of Local Government and School Accountability (LGSA) in the Office of the New York State Comptroller (OSC) periodically audits local governments' and authorities' financial management and operation of water services to assess the performance of these functions. LGSA does not audit New York City or its water system.

This report summarizes common findings from audits of 161 local government and 7 public authority water systems from January 2012 through May 2017 (out of 939 local government water systems and 25 water authorities, excluding New York City).³ These audits identify deficiencies in financial management, including consistent overestimation of water revenues, incorrect billing, improper transfer of money between water and other funds, and insufficient internal controls and long-term planning. Many audits have also found other problems in water system operations, including significant losses as water travels from its sources to its users.⁴

This report is the second in a series examining various aspects of municipal water systems, including infrastructure, finances and organization. The first report, *Drinking Water Systems in New York: The Challenges of Aging Infrastructure*, was published in February 2017.

Highlights

168 water systems audited since 2012:

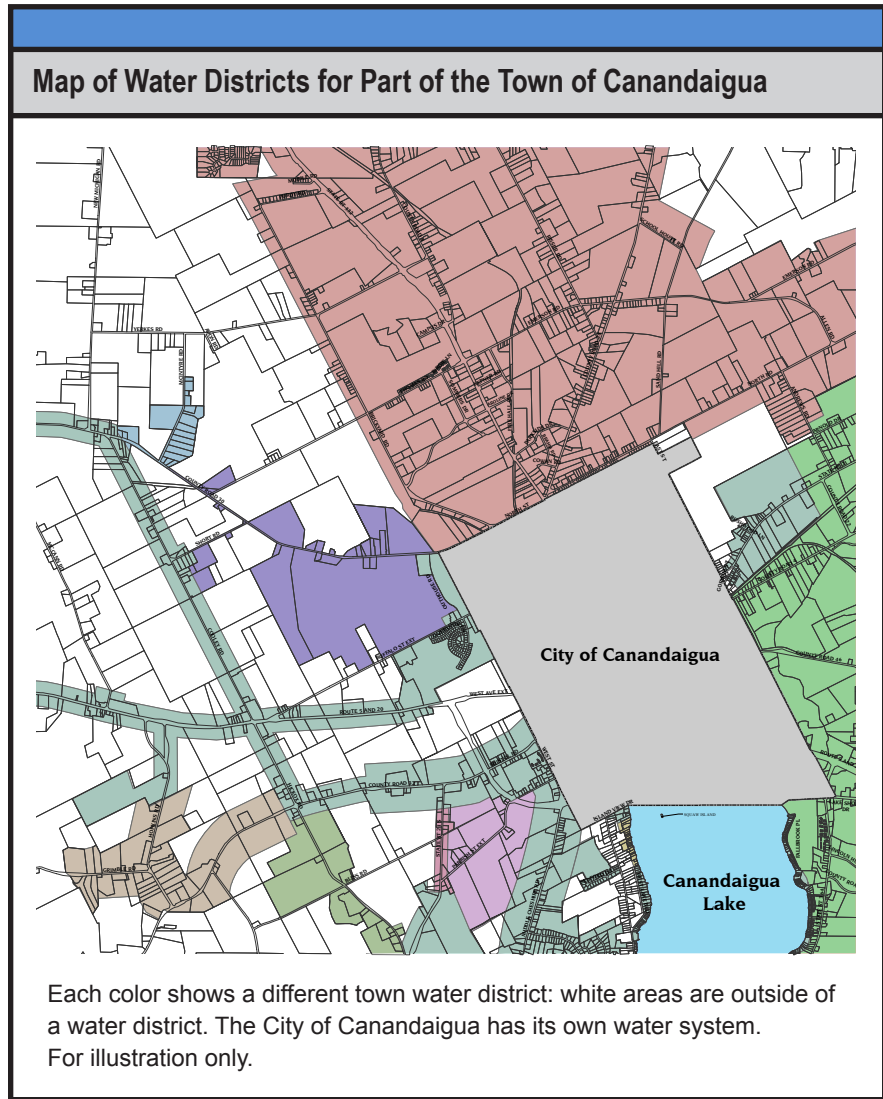
- 77 villages
- 73 town districts governed by town boards
- 6 cities
- 7 public authorities
- 4 districts governed by boards of commissioners
- 1 intermunicipal water commission

Major findings:

- Water loss
- Inadequate revenues and incorrect billing
- Improper transfers
- Weak internal controls
- Lack of planning

Municipal Water Audits

A public water system consists of a water source and infrastructure for its treatment, storage and distribution. Local governments operate many of the largest water systems. Of the 161 local government water systems examined, villages operated 77, towns 73 and cities 6. This review also considered findings from audits of 4 water districts that have separately elected boards of commissioners and 1 audit of a joint water activity (referred to as an intermunicipal water commission) established by an intermunicipal agreement.⁵



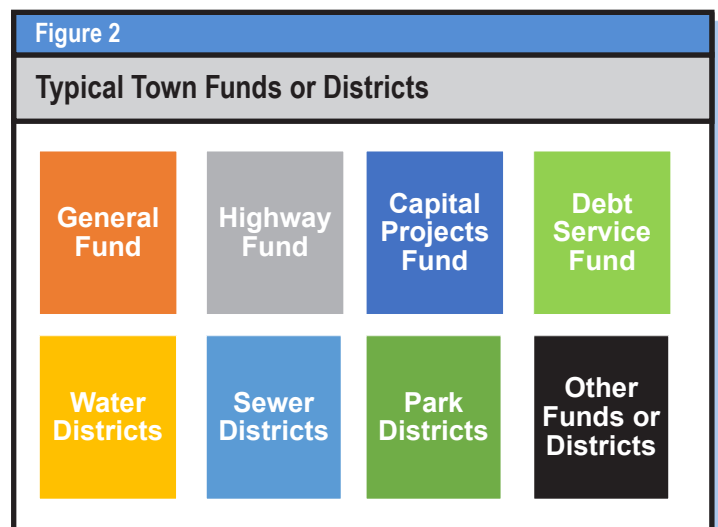
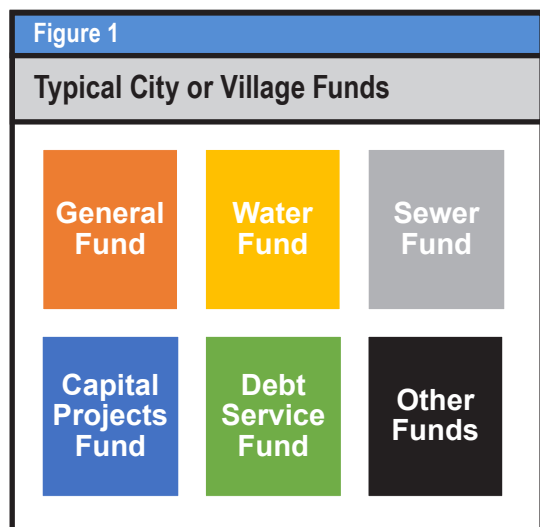
The Basics

An elected board is responsible for the general management and control of a local government's financial affairs. The board develops and adopts the annual budget, sets the property tax levy and water and sewer rates, issues debt, and establishes policies and procedures.

Most cities and villages account for water system financial activity in a water fund. This fund is separate from the general fund, which covers most general government activities. Sometimes capital spending for water infrastructure is accounted for in a capital projects fund and project debt is paid from a debt service fund. (See Figure 1.)

Towns that provide water typically use water districts serving certain designated areas, although some town water districts cover the entire town and are component units of the town. (See Figure 2.) While town boards directly oversee most of these water districts, a number have separately elected boards of commissioners.

The audits reviewed in this report typically examined not only the performance of the water fund and the management of water systems, but also the broader financial operations of the municipalities and the interactions of the water fund, the general fund and other funds.



Highlights

Water Loss

Water systems may lose a substantial volume of water between the source and their customers. In some cases, this loss exceeded 50 percent of the water produced. For systems with water loss, the cost of treating, distributing and, often, procuring the water was therefore greater than necessary, and the revenue generated from water charges was usually insufficient to offset water production costs. OSC has conducted focused audits on water loss and conservation, based in part on discussions with the Natural Resources Defense Council, to bring attention to this persistent and critical problem for local government water systems.

Effective accounting should include the reconciliation of water produced with water billed to customers and otherwise used for municipal purposes. There should be procedures to monitor and identify water loss. Water loss makes it more expensive for those paying for the service and can lead to deficits in water system finances. This can strain operating budgets and cause problems for a municipality's overall finances. A review of 22 audits that identified water loss as an issue estimated that as much as \$2.2 million in savings could be achieved if the losses could be eliminated.

In some cases, auditors found that what may first appear to be water loss might actually be a matter of inaccurate meters or improper billing. This can mean that some customers are paying too much and others too little. Efficient operations would require that officials upgrade meters or improve the accuracy of the billing process.

However, much of the missing water is likely lost to leaks from broken or aging underground pipes. This problem not only represents a drain on the system's current finances and increases costs for system users, but also signals potential significant infrastructure problems that need to be addressed.⁶ Water is a valuable asset and municipalities should work to minimize its loss and exercise prudent water supply and infrastructure management.⁷

Example of Water Loss

Village of Silver Springs

The Village could not account for 22 million of the 54 million gallons (41 percent) of water produced over a two-year period. Officials had not taken adequate steps to identify the causes and reduce the volume of lost water. This loss was particularly concerning because, before this period, the Village had received a grant and issued debt for water system improvements, during which 75 percent of the system was examined and one significant leak was found and corrected. A portion of the water loss may be attributed to unmetered and unbilled bulk sales (customers filling tanker trucks at the pump station).⁸

Inadequate Water Revenues and Incorrect Billing

Municipal water system financial management should be conducted separately from other municipal functions.⁹ Typically, a local government would establish a water fund to separately budget and account for the system. In order for the water system to be self-sufficient and not require subsidies from other funds, the charges paid by those benefiting from it should support not only its routine operations, but also repairs, renovations and expansions. Officials need to develop realistic budget estimates for the water fund and implement sufficient rates and billing schedules to fully fund water services.

OSC audits found that many municipal water systems fell short of self-sufficiency. Due to deficient budgeting practices, water revenues were less than the amount needed to adequately fund related operations. Improper billing often contributed to these revenue shortfalls. In some cases, officials consistently overestimated the amount of revenue they expected to receive from water charges, so that a seemingly balanced budget would result in deficits at the end of the year. As with water loss, this practice negatively affected water system operating budgets and overall municipal finances. A review of 16 municipalities with revenue or billing deficiencies found that corrective action could enhance revenues by over \$400,000.

Municipalities often used fund balance in their water fund to cover operating deficits, eventually depleting these funds. Once a municipality exhausted its water fund balance, it would cover deficits by transfers from other funds, usually the general fund. While municipalities are permitted to use *temporary* advances between funds, they may do so only to cover short-term cash flow needs. They must then repay these advances before the end of the fiscal year.¹⁰ In several audits, municipalities were not repaying the advances as required and were routinely transferring money into the water fund from other funds, which continued to mask revenue shortfalls.

Example of Insufficient Water Revenues

Village of Speculator

The Board did not develop sound revenue estimates or increase water fees. It overestimated water revenues by an average of 25 percent, causing fund balance to decrease significantly. Eventually the water fund had a deficit fund balance.¹¹

Example of Incorrect Billing

Town of Chazy

The Town lacked effective water billing, collection and enforcement procedures. There was no review to ensure that all water customers were properly billed. Some customers were not billed in accordance with rates, and delinquent customer accounts did not always include late payment penalties.¹²

Transfers to the General Fund and Other Funds

While audits frequently found that transfers from the general fund were subsidizing water operations, in some instances the opposite was true. In these cases, the water fund was experiencing surpluses resulting in excess fund balances. The municipality would then transfer these excess funds to the general fund, or to other funds, to help subsidize general operational costs. Transferring money from the water fund may leave it depleted and without sufficient funds for emergency repairs and other necessary capital improvements. In the case of water districts that cover only a portion of a town, it would always be improper to transfer money to a town-wide fund, since this would create a disproportionate burden for the property owners in the part-town district, who would be paying an unfair share of the town's expenses.

Example of Subsidizing Other Funds

City of Troy

The City's water fund subsidized the general fund through interfund transfers of \$6.4 million over three years. The City also made unbudgeted transfers totaling \$6 million from the water fund to the capital projects fund in 2013 and 2014. In addition, water fund budgets were not realistic. As a result, the total balance in the water fund declined by 67 percent over three years.¹³

Weak Internal Controls and Oversight

Proper internal controls are an important part of financial management. Several audits identified a weak internal control environment for water systems. For example, several towns and villages had not properly segregated the duties of collecting, recording and depositing user fees. Segregating these duties prevents any one person from performing all phases of a transaction and promotes error prevention and detection of irregularities or fraudulent activity. The audits also cited many instances where written policies and procedures were lacking for activities such as setting and collecting user fees, monitoring fund balances and tracking water usage.

A general lack of oversight by governing boards often contributed to an insufficient internal control environment. Audits found that they did not adequately monitor system finances and were often unaware of ongoing deficits and repeated use of fund balance.

Example of Weak Internal Controls and Oversight

Town of Waverly

The Town lacked written policies and procedures to provide internal controls over cash receipts from water, as well as other collections. The informal process that was in place did not segregate duties. A lack of oversight by the Board combined with these internal control weaknesses failed to ensure that all billing was in accordance with established rates and that there was a proper application of late payments.¹⁴

Lack of Planning

Frequently, a lack of long-term planning caused municipalities to have problems with protecting the financial condition of their water funds. In some cases, auditors found that local officials took actions to balance the water fund in the short term but had no strategy to eliminate a long-term deficit. Often, there was a lack of planning for infrastructure and equipment acquisition and replacement. At the other extreme, some municipalities ran substantial surpluses, without any plan for their use.

Because many municipal water systems in the State have aging and deteriorating infrastructure, planning is particularly important to address any necessary — and potentially costly — replacements and renovations.¹⁵

Example of Lack of Planning

Village of Round Lake

The Village had significant unplanned costs to repair its water tower, which caused a decline in the water fund. The Board also appropriated more fund balance than was available to finance operations, necessitating loans from the general fund over several years. They have not adopted long-term financial or capital plans that would prevent this kind of financial decline.¹⁶

Water Authority Audits

A number of local authorities carry out functions related to public water provision, serving areas ranging from a town to a region. OSC conducted audits of seven water authorities (including water and sewer authorities) in 2016 and 2017.¹⁷ Two of these audits found effective policies and procedures in the areas examined. The remaining audits identified problems similar to those identified in the audits of municipal water services, including weak internal controls and water loss.

Moving Forward

Comptroller DiNapoli is committed to helping local officials effectively manage their limited resources and to improving transparency and accountability for local residents. To this end, OSC has expanded its audit focus into new and emerging areas of interest. Recently, with growing concern about instances of water contamination, OSC conducted an audit of a county's oversight of water testing, identifying opportunities for improvement.¹⁸

In addition, there will be upcoming audits of the cybersecurity of computer-based systems used to monitor, modify, regulate or manage municipal water facilities. In the wake of recent cyberattacks that have disrupted a number of local governments, including a municipal-owned dam in Rye, these systems have come to the forefront as a critical risk area.¹⁹

As the water systems operated by local governments and authorities continue to age, the cost of their repair and replacement will present increasing challenges. OSC's report on *Drinking Water Systems in New York: The Challenges of Aging Infrastructure* discussed the role of local governments in public water services. The audit findings summarized and presented here can help guide local government officials in their day-to-day work, while future OSC reports on this topic will help frame the complex issues facing system operators and the communities they serve.

Notes

- ¹ Private water companies, homeowners associations and other private entities operate some water systems.
- ² For more on local government water systems, see Office of the New York State Comptroller (OSC), *Drinking Water Systems in New York: The Challenges of Aging Infrastructure*, February 2017, www.osc.state.ny.us/localgov/pubs/research/drinkingwatersystems.pdf.
- ³ This report covers audits released by OSC from January 1, 2012 to May 12, 2017. One town's and one village's water functions were audited twice in this period.
- ⁴ This report provides an overview of audits related to the financial operations of water systems in New York State. It is not intended as legal guidance for local government financial operations.
- ⁵ Many of the audits looked at broader performance issues in addition to the water function.
- ⁶ United States Environmental Protection Agency, *Water Audits and Water Loss Control For Public Water Systems*, EPA 816-F-13-002, July 2013, www.epa.gov/sites/production/files/2015-04/documents/epa816f13002.pdf.
- ⁷ For more on water loss and the need for asset management, see OSC, *Drinking Water Systems in New York and Local Government Management Guide: Capital Assets*, May 2016, www.osc.state.ny.us/localgov/pubs/lgmg/capital_assets.pdf.
- ⁸ OSC, *Village of Silver Springs: Water Accountability and Billing*, 2015M-139, www.osc.state.ny.us/localgov/audits/villages/2015/silversprings.pdf.
- ⁹ For more on accounting for government water functions see Governmental Accounting Standards Board, *Statement No. 34 of the Governmental Accounting Standards Board: Basic Financial Statements—and Management's Discussion and Analysis—for State and Local Governments*, June 1999.
- ¹⁰ If moneys are advanced from a fund with a different tax base, repayment must include an amount reasonably estimated to be the interest that would have been earned on the investment of moneys in the fund making the advance, had the advance not been made (General Municipal Law section 9-a(3)).
- ¹¹ OSC, *Village of Speculator: Financial Condition*, 2013M-381, www.osc.state.ny.us/localgov/audits/villages/2014/speculator.pdf.
- ¹² OSC, *Town of Chazy: Water and Sewer District Financial Operations*, 2017M-42, www.osc.state.ny.us/localgov/audits/towns/2017/chazy.pdf.
- ¹³ OSC, *City of Troy: Financial Condition*, 2015M-185, www.osc.state.ny.us/localgov/audits/cities/2016/troy.pdf.
- ¹⁴ OSC, *Town of Waverly: Internal Controls Over Selected Cash Receipts*, 2012M-20, www.osc.state.ny.us/localgov/audits/towns/2012/waverly.pdf.
- ¹⁵ *Drinking Water Systems in New York*, pp. 17-19.
- ¹⁶ OSC, *Village of Round Lake: Budgeting Practices and Financial Condition*, 2015M-26, www.osc.state.ny.us/localgov/audits/villages/2015/roundlake.pdf.
- ¹⁷ One of the audits covered two authorities, the Niagara Falls Water Board and the Niagara Falls Public Water Authority.
- ¹⁸ OSC, *Cortland County: Public Water Supplies*, 2016M-318, www.osc.state.ny.us/localgov/audits/counties/2017/cortland.pdf.
- ¹⁹ OSC, *Protecting Sensitive Data and Other Local Government Assets: A Non-Technical Cybersecurity Guide for Local Leaders*, June 2016, www.osc.state.ny.us/localgov/lgli/pdf/cybersecurityguide.pdf.

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