



NORTH CAROLINA  
DEPARTMENT OF STATE TREASURER  
STATE AND LOCAL GOVERNMENT FINANCE DIVISION  
AND THE LOCAL GOVERNMENT COMMISSION

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**Memorandum # 2016-19**

TO: Officials of Municipalities with Water and Sewer Systems and their Independent Auditors

FROM: Sharon Edmundson, Director, Fiscal Management Section

SUBJECT: Statistical Information on Water and Sewer Operations

DATE: June 10, 2016

The following two reports have been prepared by us to assist you in evaluating the overall financial condition and results of operations of your municipal water and sewer system:

- 1) Financial Results and Key Ratios of Municipal Water and Sewer Systems
- 2) Analysis of Capital Outlay Expenditures of Municipal Water and Sewer Systems.

These reports include key financial ratios for your water and sewer system along with the corresponding statewide and population group averages. In calculating the statewide and population group averages, we segregated municipal water and sewer systems into one of two groups: municipalities with electric systems and municipalities without electric systems. In addition, we further segregated units in both groups into different population groupings. Finally, to give an indication of how your ratios compare to other similar units, we have included a statistical analysis with the first report, which includes the minimum, maximum, median, mean, and standard deviation for the items presented.

For statistical information in this report to be meaningful, financial reporting between local governments must be consistent. We are concerned that some local governments may not be using appropriate financial reporting practices in two areas: 1) accounting for reimbursements and quasi-external transactions and 2) accrual of unbilled water and sewer services.

Financially troubled water and sewer systems are a significant contributing factor for a majority of our troubled municipalities. Governing bodies must strive to make and keep water and sewer systems self-sustaining. Included in this process must be the regular, systematic evaluation of rate structures and the implementation and strict enforcement of appropriate account deposit and collection policies. Units also should develop a maintenance and capital improvement plan to ensure existing assets are appropriately managed. We are fortunate in North Carolina to have excellent resources at our disposal to assist units in these processes. The Environmental Finance Center at UNC (919-843-4958), the Rural Water Association of North Carolina (336-731-6963) and the North Carolina chapter of the American Water Works Association (919-784-9030) are all available to help units with the proper management of their water and sewer systems.

### Accounting for Reimbursements and Quasi-External Transactions

If the General Fund provides administrative services for the Water and Sewer Fund, payments for these shared services should be allocated correctly between the two funds. These payments should **not** be accounted for as transfers. The appropriate accounting treatment involves recording expenditures or expenses in the reimbursing fund (e.g., Water and Sewer Fund) and reductions of expenditures or expenses in the fund that is reimbursed (i.e., General Fund). The failure to properly record reimbursements understates the cost of operations in the Water and Sewer Fund. In addition, it overstates expenditures in the General Fund, which causes fund balance available for appropriation as a percentage of expenditures to be understated. Finally, it is important that the basis for allocation of expenditures or expenses be reasonable and current. Please make sure any cost allocation plans being used are reasonably current. Since the implementation of GASB 34, payments in lieu of taxes that are based on the normal tax rate of the unit are treated as transfers between the paying and receiving funds. (Please segregate these from other transfers in the supplemental schedules; see the City of Dogwood for an example.) Only if the PILOT is reasonably equivalent to the value of the service received is it treated as an expense/expenditure of the water and sewer fund and as a revenue of the receiving fund.

### Accrual of Unbilled Water and Sewer Services

Since the Water and Sewer Fund operates in a manner similar to a commercial business, it should generally follow financial reporting standards similar to those for commercial organizations. These standards require that the full accrual basis of accounting be used and that revenues be recorded when they are measurable and earned. In the Water and Sewer Fund, revenues and receivables should be accrued at the end of each month for services provided to customers even if the customers have not yet been billed. If a municipality has provided services to its customers, it has “earned” the revenues for these services and should record a revenue and receivable. The failure to record such unbilled receivables results in a misstatement of the Water and Sewer Fund financial statements because expenses that have been incurred are recognized while the related revenues and receivables are not recognized.

### How to Interpret Figures in this Report

In analyzing the statistics in this memorandum, the amounts for your unit for the 2014-15 fiscal year should be compared to your population group averages and to statewide averages. In addition, you should compare these results to amounts for the two prior years and the financial performance to date for the 2014-15 fiscal year. The mean and standard deviation statistics should be analyzed to determine if the amounts for your unit are significantly above or below the amounts reported by other units. The amounts reported for a unit may be significantly out of line if they are more than one standard deviation above or below the mean. If an amount is determined to be significantly out of the line, the reasons for the variance should be investigated. However, a significant deviation from the mean is not necessarily an indication of a financial weakness, but instead may be an indication of a significant event having taken place, such as a major capital improvement to the water and sewer system. It should be noted that even though there may be variations from one unit to another in the accounting policies used to arrive at the

figures presented in this report, the effects of such variations should not materially affect the overall comparability of these statistics. In analyzing this report, the following items should be considered:

## **Report 1 - Financial Results and Key Ratios of Municipal Water and Sewer Systems**

(Note: See “Key to Water and Sewer Financial Statistics” for definitions.)

### **Financial Results**

- a. Operating margin.** This ratio is an indicator of the profitability of a unit’s water and sewer operating activities. If a unit’s operating margin is significantly below the amounts for other similar units, it may be an indication that user fees are too low and/or that operating expenses are too high.
- b. Transfers in (out).** This ratio shows the net transfers made from (to) all other funds of the municipality. A positive ratio gives an indication of the extent to which the water and sewer fund is being subsidized by other funds. A negative ratio gives an indication of the extent to which the water and sewer fund is being used to subsidize other funds.
- c. Net income before capital contributions.** This ratio is an indicator of the overall profitability of the water and sewer system after payments are made for operating expenses, interest on long-term debt, miscellaneous expenses, and transfers from (to) other funds.

### *Key Ratios and Cashflow*

- d. Quick ratio.** This ratio gives an indication of the water and sewer system’s ability to pay its current bills, thereby providing a measure of short-term liquidity. Because the quick ratio is a snapshot of the system’s liquidity at a point in time, it may vary considerably throughout the year. A widely accepted minimum benchmark for the ratio of quick assets to current liabilities is 2 to 1; in other words, a water and sewer system should have at least \$2 in quick assets for each \$1 of current liabilities.
- e. Days sales in receivables.** This ratio gives an indication about how quickly payments are being collected. Each unit should have procedures in place to ensure that customers will make payments within the prescribed due date. If this ratio is much greater than the maximum number of days allowed before payment is due, the unit may be inefficient in collecting payments from customers. The inability to convert receivables into cash on a timely basis negatively affects cash flows, and therefore, investment earnings. Instances where this ratio is significantly lower than the maximum numbers of days allowed may be an indication that unbilled receivables have not been recorded in the financial statements at the end of the fiscal year.
- f. Days cash on hand.** This ratio provides an indication of the adequacy of a water and sewer system’s unrestricted cash and investment balances. A water and sewer system needs to maintain adequate cash and investment balances for working capital purposes and to enable it to survive a prolonged economic downturn or to take advantage of strategic opportunities.

**g. Cashflow from operations.** This statistic measures the liquidity of a water and sewer system's operations before any effects of cash used for or provided by capital acquisitions/sales or debt financing. Non-cash charges (i.e. depreciation expense) are also added back to net operating income to arrive at cashflow from operations. A relatively small or negative cashflow can be an indicator that fees for services are insufficient to adequately cover the costs of day-to-day operations. It can also be an indicator of excessive operating costs. Comparisons should be made to similar-sized units to determine areas for cost-savings and improved efficiencies.

**h. Debt to equity.** This ratio provides an indication of how strong a unit's water and sewer finances are by comparing what it owes to the amount of its fund equity. Fund equity may result from operations or from capital contributions for the construction or acquisition of fixed assets. It is typically used by lenders in evaluating risk. A high ratio may be an indication of above average debt levels and increased risk.

**i. Debt per capita.** This ratio provides an indication of the extent to which debt financings have been used to pay for water and sewer capital improvements.

## **Report 2 - Analysis of Capital Outlay Expenditures of Municipal Water and Sewer Systems**

**j. Capital outlays.** This report provides capital outlays made in each of the last five fiscal years as reported with the audited financial statements. Previous years (fiscal year ended June 30, 2011 and prior) statistical reports were compiled using the last five fiscal years as reported on the Annual Financial Information Report (AFIR). Units should continue to make capital improvements to their facilities and are encouraged to utilize sound management practices by adopting long-range capital improvement plans to address their projected needs. Situations where capital outlays are not being made on a somewhat consistent or periodic basis might indicate the lack of a capital improvement plan.

## **2015 Financial Results**

Again this year we are displaying net earnings before capital contributions. Starting with fiscal year ended June 30, 2001, GASB 33 required capital contributions from external sources to be recorded as income. Large swings in reported income can be the result of changes in capital contributions. We continue to exclude capital contributions in our reports, because donations of property usually are not included as cash income in revenue bond covenants nor do they necessarily correlate to system performance in any given year. On a statewide basis, municipal water and sewer systems posted earnings for the fiscal year ended June 30, 2015, showing an average increase of 2.8% in revenue. The average operating margin is 19.8%, compared to 19% last year. Net income before capital contributions increased to 13.6% compared to 12.6% last year.

**Table 1**

**Average Financial Results of Municipal Water and Sewer Systems  
 For the Fiscal Year Ended June 30, 2015**

Population Groupings	# of Units	Average Operating Revenues	As a % of Operating Revenues		
			Operating Margin	Transfers In (Out)	Net Income Before Capital Contributions
<b>Statewide—All Units</b>	381	\$5,564,490	19.8	(0.3)	13.6
<b>Units With Electric Systems:</b>					
All With Electric	65	\$7,947,575	11.9	(0.2)	7.5
10,000 and Above	25	17,971,732	14.2	0.1	9.5
2,500 to 9,999	20	2,655,079	(0.8)	(3.4)	(3.7)
2,499 and Below	20	709,877	(12.83)	4.52	(13.1)
<b>Units Without Electric Systems:</b>					
All Without Electric	316	\$5,074,299	22.4	(0.4)	15.5
50,000 and Above	9	109,769,981	29.4	(0.1)	20.8
10,000 to 49,999	28	10,310,284	17.4	(1.4)	12.0
2,500 to 9,999	75	2,729,090	9.1	(1.6)	5.6
1,000 to 2,499	83	957,945	2.5	0.6	(2.4)
500 to 999	66	429,431	(5.7)	1.2	(5.0)
499 and Below	55	260,492	(4.6)	11.8	3.3

The lower and negative operating margins reported by the smaller units are an indication that either their user fees were too low, their operating expenses were too high, or a combination of both. Municipalities within the same geographic location should consider the advantages, disadvantages and overall effects of merging their water and sewer operations and creating regional water and sewer systems. In addition, if the corresponding county provides water and sewer services, the regional system could include the county as well. By establishing regional water and sewer systems, units could realize significant economies of scale, thereby reducing their operating costs and reducing the fees necessary to provide water and sewer services.

A moratorium report, prepared by the North Carolina Department of Environmental Quality, Division of Water Resources, list those municipal water and sewer systems which, at the date mentioned, were in some way restricted in their system discharge levels. Facilities on this list are not necessarily prohibited from adding flow to their collection systems. These restrictions are the result of enforcement proceedings by the Water Resources section of the Department of Environmental Quality (DEQ). As systems are brought back into compliance, restrictions are removed. To obtain a copy of the moratorium report, contact the Division of Water Resources, North Carolina Department of Environmental Quality. For the most current status on a particular system, please contact the Regional Water Resources Office with DEQ.

For additional information or assistance concerning this memorandum, please contact Rita Baker via telephone at (919) 814-4303 or via email at [rita.baker@nctreasurer.com](mailto:rita.baker@nctreasurer.com).

A detailed report of water/sewer financial operations is available on the North Carolina State Treasurer's website:

<https://www.nctreasurer.com/slg/Pages/County-and-Municipal-Financial-Data.aspx>

Click on the "Start Here" link, select the appropriate report options and generate your report.

### Key to Water and Sewer Financial Statistics

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**Financial Results** - This data was compiled for the Water and Sewer Fund from the unit's audited financial statements.

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**Total operating revenues**

Charges for services plus other operating revenues.

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**Total operating expenses**

All operating expenses including depreciation and the provision for bad debts.

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**Operating margin**

Total operating revenues less total operating expenses.

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**Transfers in (out)**

Total transfers in less total transfers out.

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**Net income before capital contributions**

Total operating and nonoperating revenues less total operating and nonoperating expenses plus transfers in less transfers out.

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**Key Ratios and Cashflow** - These ratios and amounts were compiled for the Water and Sewer Fund by the staff of the Local Government Commission from audited financial statements.

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**Quick ratio**

$$\frac{\text{Total quick assets}}{\text{Total current liabilities}}$$

Note: Quick assets do not include inventories or prepaid items.

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**Key to Water and Sewer Financial Statistics (continued)**

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**Days sales in receivables**

$$\frac{\text{Net customer accounts receivable} \times 365}{\text{Charges for services}}$$

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**Days cash on hand**

$$\frac{\text{Unrestricted cash and cash equivalents} \times 365}{\text{Total operating expenses less depreciation and amortization expenses}}$$

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**Cash flow from operations**

Total operating revenues less total operating expenses plus depreciation expense along with changes in receivable, prepaid, inventory and payable balances that effect cash balances.

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**Debt to equity**

$$\frac{\text{Total long-term debt}}{\text{Total fund equity}}$$

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**Debt per capita**

$$\frac{\text{Total long-term debt}}{\text{Total municipal population}}$$

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**Group and statewide averages** - These amounts were compiled by the staff of the Local Government Commission from audited financial statements.

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