

OPPORTUNITIES & CHALLENGES IN CLEAN WATER UTILITY FINANCING AND MANAGEMENT

FINANCIAL SURVEY EXECUTIVE HIGHLIGHTS
JULY 2018



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Opportunities & Challenges in Clean Water Utility Financing and Management*

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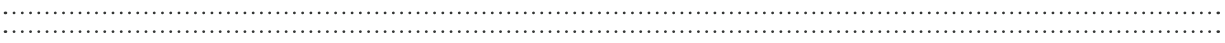




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PREFACE

What is the Financial Survey?

Since 1981, the National Association of Clean Water Agencies (NACWA) has performed a triennial *financial survey* of its membership to provide utilities, government officials, and the public a comprehensive knowledge base for financing, rates, staffing, and key utility management initiatives of U.S. clean water utilities. The 2017 NACWA *Financial Survey*, the twelfth triennial report to be published since the original development of the survey, gathered information from over 120 clean water utilities that collectively serve one-third of the sewer population in the US.

Why is it important?

The NACWA *Financial Survey* is a unique source of information that can be used by utilities and others to guide national, state, and local policy development through comparative analysis and the tracking of national trends.

How are survey results provided?

NACWA publishes three different products summarizing the results of each triennial *Financial Survey*. A published Executive Highlights report—this document—provides overarching summary information for utility Board members, other high-ranking officials, and/or the public. An electronic version of the full report (see www.nacwa.org) provides more extensive analyses for each survey question and can be used as a reference tool by utility analysts and decision-makers. An electronic spreadsheet is included with the full report for those utilities and researchers who wish to perform their own custom analyses for internal performance tracking.





INTRODUCTION

Not since the Construction Grants Program in the 1970s has there been so much discussion of the need to invest in the nation’s drinking water and wastewater infrastructure. The overall condition of the country’s infrastructure and the need for additional investment have been regular themes for political discourse for years, but water infrastructure—starting during the runup to the 2016 election—has been spotlighted more than ever before in recent infrastructure conversations. In February 2018, President Trump released the principles for his administration’s infrastructure investment package, and water was front and center. But the need for water infrastructure investment is not a new concept for the thousands of water and wastewater utilities across the country. In fact, more than 95 percent of the current investment in drinking water and wastewater systems comes from the local level. Even if a new infrastructure package is passed by Congress, the local share of the amount invested will likely remain the same.

Clean water utilities—guided by the requirements of the Clean Water Act—have enjoyed major success over the past 40-plus years in reducing pollutant loadings and sewer overflows, resulting in improved water quality nationwide. Despite this progress, we all know there is more work to be done. Aging infrastructure and increasing regulatory requirements must be addressed. Also, with the low-hanging fruit of pollutant reduction now largely behind us, the remaining water quality challenges are more difficult to solve and present communities with higher cost burdens.

As we look to address these future challenges, today’s clean water utility managers must act as both environmental and fiscal stewards, looking for a balance between making necessary investments, maintaining rates that are affordable for their most financially-challenged populations, and not placing an undue burden on ratepayers more broadly. It is with this balance in mind that NACWA has worked to conduct its *Financial Survey* every three years since 1981 to document rising cost pressures, the resulting impacts on rates and financing, and actions that utilities are taking to optimize operations and agency-wide management.

A total of 126 clean water agencies¹ representing over 81 million people served by centralized wastewater treatment, including some who provide stormwater management services as well, responded to the 2017 *Financial Survey*. The data detailed in this document and the larger Survey report are largely drawn from the 2016-to-mid-2017 timeframe and follow trends in revenues, expenditures, rates, staffing, and energy use, as in previous surveys.

1. A total of 126 clean water agencies responded to the survey questionnaire; however, summary statistics are based on the number of agencies responding to a question, which in all cases is fewer than the total number of respondents in the survey.



KEY HIGHLIGHTS

Several key highlights emerge from the 2017 NACWA *Financial Survey*. The results show that while the overall fiscal health of US clean water utilities remains strong, mounting regulatory mandates and increasing capital needs are putting pressure on utilities to raise rates, leading to concerns over the affordability of wastewater services.

1. **Spending to address regulatory cost drivers, such as wet weather consent decrees/ administrative orders and nutrient controls, represents a large proportion of planned capital expenditures.**

For 48 utility respondents, investment in controls to address nutrients and meet consent decrees/ administrative orders that address wet weather and other issues represents a total compliance cost of \$39 billion, which is equivalent to an annualized compliance cost of \$2.8 billion. This represents more than half of the annual capital expenditures (\$5.4 billion per year) for all survey respondents.

2. **Capital and O&M expenditure increases were moderate from 2013 to 2016, but future capital expenditures are expected to increase significantly based on rising capital budgets.**

Though current investment for addressing regulatory drivers is significant, total expenditures from 2013 to 2016 increased at less than one percent per year, with moderate increases in capital and operation and maintenance (O&M) expenditures. Over the same period, five-year capital improvement budgets increased by 22 percent, setting the stage for large increases in capital expenditure over the next five years. A total of 97 agency respondents reported having \$35.6 billion budgeted in 2017-2021 for capital improvements.

3. **High credit ratings and moderate use of debt financing reflect the financial strength of utilities.**

Long-term debt increased at nearly two percent per year from 2014 to 2017, while debt service expenditures decreased slightly in the same period, possibly due to differences in payment terms between retired, refinanced, and newly-issued debt. Twenty-nine (29) out of 75 respondents received the highest “AAA” rating from S&P, Moody’s, or Fitch rating services. Revenue bonds continue to be the dominant source of debt-financing used by responding utilities. The proportion of long-term utility debt from State Revolving Fund (SRF) loans was 15 percent in 2017, unchanged from the previous survey and down from a high of 20 percent in 2011.



4. Average residential service charge (\$501) exceeds two percent of federal poverty income level for the first time.

The 2017 Survey data indicate that the average residential charge for wastewater services reached \$501 in 2017 and continued to increase faster than the rate of inflation as measured by the U.S. Consumer Price Index. The average household cost for wastewater services rose 3.6 percent in 2017, as compared to a 2.1 percent annual inflation rate. The average annual charge of \$501 represents 2.03 percent of the 2017 federal poverty income threshold (\$24,600) for a family of four, an increase from 1.3 percent in 2000 and 1.87 percent in 2014. Projections from the 2017 *NACWA Index* indicate that the average single-family residential service charge will continue to increase at nearly five percent per year through 2022 and will reach nearly \$600 per year in 2021.



SURVEY PARTICIPANTS AT A GLANCE

A total of 126 clean water agencies representing over 81 million people served by centralized wastewater treatment responded to the 2017 *Survey*. Clean water agencies from all ten EPA regions are represented in the responses.

PUBLIC AGENCIES



POPULATION SERVED



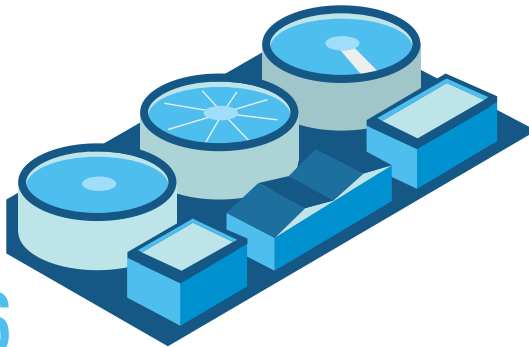
DAILY FLOW CAPACITY



342
TREATMENT PLANTS

1,969
PUMPING STATIONS

142,026
MILES OF COMBINED & SEPARATE
SANITARY SEWER PIPE

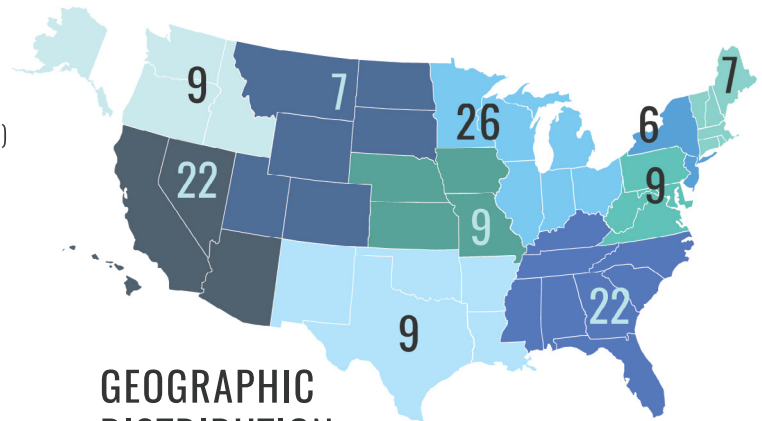
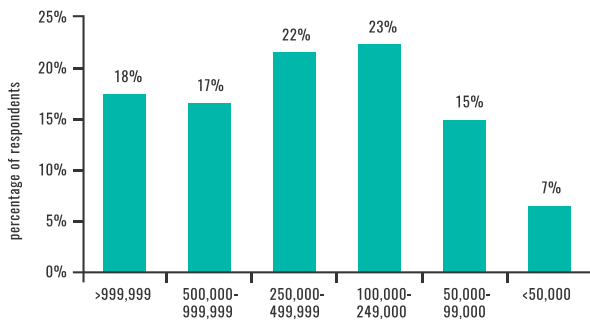


\$19.5 BILLION
IN 2016 REVENUE

\$210 BILLION
IN TOTAL ASSETS (NON-DEPRECIATED)

SIZE BREAKDOWN

breakdown of population served, 2016 (120 survey respondents)
(total does not equal 100% due to rounding)



GEOGRAPHIC DISTRIBUTION

number of survey respondents by EPA region (2017)



FINANCIAL TRENDS AND PRESSURES

Continued inflationary cost pressure, aging infrastructure, demand for improved services, regulatory mandates, affordability concerns, workforce challenges, and changing community demographics exemplify the multitude of variables that must be balanced by utility managers when making decisions about short- and long-term water quality investments, services, and rates. Despite the many cost pressures, the financial health of the nation's clean water utilities, as a sector, remains strong, and utilities continue to improve services and reduce pollutant loads.

Based on the 2017 *Survey*, total expenditures increased at a moderate pace from 2013 to 2016, with rising capital and O&M expenditures offset slightly by decreasing debt service (principal and interest) costs. Moderate increases in long-term debt reflect an uptick in capital spending, which showed a decreasing trend in the previous *Survey* period (2010 to 2013), when construction across all infrastructure sectors was stagnated by slow economic recovery after the 2007-2009 recession. Personnel costs, which are a major component of a utility's fixed costs, remain at nearly one-half of all operation and maintenance costs, with salaries rising at close to cost-of-living-adjustment levels and staff benefit costs increasing to nearly one-half of total wages and salary costs.

One of the more significant findings of the 2017 *Survey* is a reported 22 percent increase in five-year capital improvement program (CIP) budgets (i.e., 2014-2018 vs. 2017-2021). These CIP budgets are focused primarily on commitments to repair and replace aging infrastructure, the construction of advanced treatment facilities to meet increasing regulatory requirements, and capital plans for sewer overflow and infiltration and inflow (I/I) correction. This large budgetary increase reflects the significant costs of asset rehabilitation, regulatory mandates to address wet weather capacity, and water quality issues, and will likely drive an increase in capital expenditure over the coming years at the local level.

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Total Expenditures Increase at a Slower Pace than Historical Trends

Overall, 115 *Survey* respondents reported a total of \$19.1 billion in expenditures for clean water services in 2016, with an average per capita² annual expense of \$240. Major components of total expenditures include expenditures for capital infrastructure (acquisition, repair, replacement, and expansion), operations and maintenance, and debt service (principal and interest expenses).

“Forty-one percent (41%) of total expenditures are dedicated to operation and maintenance.”

Figure 1 shows the breakdown of 2016 utility expenditures for 115 utility respondents. Since 2007, there has been relatively little change in expenditure breakdowns. As a proportion of total costs, operation and maintenance costs have remained steady at 41 percent of total expenditures since 2007, while debt service costs have fluctuated between 26 to 28 percent of total expenditures and capital expenses between 28 to 31 percent of expenditures.

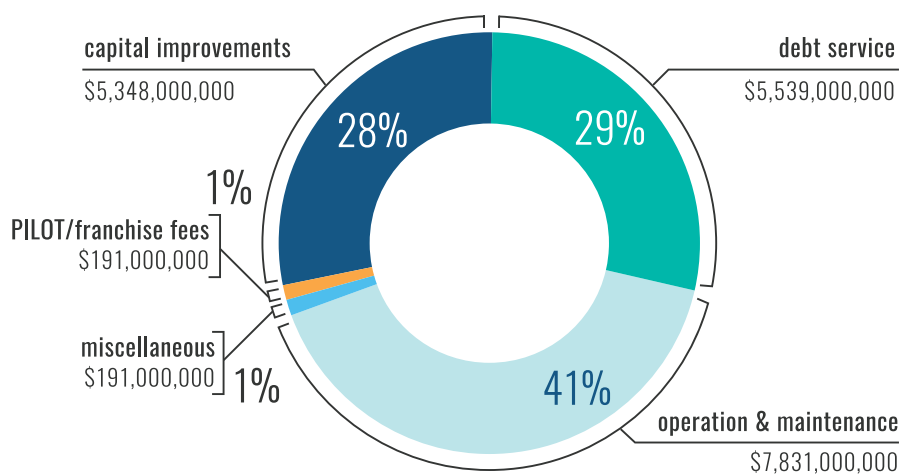


FIGURE 1:
Expenditures breakdown -
\$19.1 billion, 2016
(115 utility respondents)

Total expenditures increased by 1.7 percent from 2013 to 2016 for 92 utilities,³ which is a slow pace of growth compared to historical trends. By comparison, a four-percent increase in total expenditures from 2010 to 2013⁴ was reported in 2014, and double-digit percentage increases were reported in previous survey cycles.⁵ Small percentage increases in capital expenditures (3.5 percent) and O&M expenditures (1.8 percent) were offset by a small percentage decrease in debt service costs (a decrease of 2.5 percent) from 2013 to 2016.

2. Per person served by the clean water agency.

3. A total of 92 agencies reported expenditure data in both the 2014 and 2017 Surveys.

4. 2014 NACWA Financial Survey

5. 2011 NACWA Financial Survey, expenditures changes from 2004 to 2007 and 2007 to 2010.

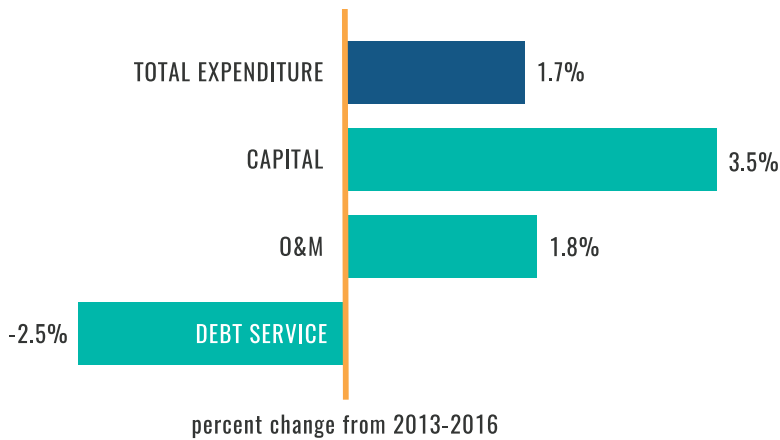


FIGURE 2: Clean water utility expenditures trends, 2013-2016 (92 common utility respondents)

CAPITAL EXPENDITURES

Total capital expenditures of \$5.4 billion were reported by 108 *Survey* respondents for fiscal year 2016. The capital expenditures of 92 common utility respondents to the 2014 and 2017 *Surveys* increased by over three percent (i.e., 1.1 percent per year), from \$4.6 to \$4.7 billion, from 2013 to 2016. This increase in capital spending represents a shift from the decreasing trend shown in the previous *Survey* report for the 2010 to 2013 timeframe, in which capital spending fell by 11 percent. The US Census Bureau data on construction spending confirms this uptick in capital spending, reporting a one-percent increase in construction spending for clean water utilities nationwide from 2013 to 2016.⁶

“Capital expenditures increased by over three percent for common agency respondents from 2013 to 2016.”

OPERATION AND MAINTENANCE COSTS

Operation and maintenance (O&M) costs include recurring costs necessary for management and the daily operation of collection systems and treatment facilities, as well as costs such as: staff salaries (and benefits), supplies, electricity, chemicals, and inter-departmental or contracted services. A total of 98 respondents reported \$5.6 billion in O&M costs for wastewater collection and treatment services in 2016. The O&M expenditures of 92 common utility respondents to the 2014 and 2017 *Surveys* increased by nearly two percent (0.6 percent per year), from \$6.5 to \$6.6 billion, from 2013 to 2016.

“Personnel costs comprise 45 percent of operation and maintenance expenditures.”

6. <https://www.census.gov/econ/currentdata>. Seasonally-adjusted construction spending from December 2013 to December 2016 for sewage and waste disposal.

EXPENDITURES	2016
PERSONNEL COSTS (WAGES/SALARY/BENEFITS)	45%
PRIVATE SECTOR SERVICES	13%
ELECTRIC POWER ⁸	8%
SUPPLIES AND MATERIALS	7%
SERVICES PROVIDED BY OTHER DEPARTMENTS ⁹	7%
CHEMICALS	4%
OTHER UTILITIES	3%
UTILITY MANAGEMENT ¹⁰	2%
OTHER	11%
TOTAL	100%

TABLE 1: Operation and maintenance costs category breakdown, 2016 (98 utilities, \$5.6 billion)

Personnel costs, including staff wages, salaries, and benefits, comprised 45 percent of O&M costs in 2016, followed by costs for private sector services⁷ at 13 percent. Table 1 provides a comprehensive summary breakdown of O&M costs.

One performance metric used by one-half of respondent utilities for assessing O&M is cost-per-million gallons of wastewater treated. This metric is used over time to track internal cost performance or is compared with utilities of similar size/service levels to determine the organization’s overall cost efficiency. In 2016, the average O&M cost-per-million gallons treated for 95 utility respondents¹¹ was \$2,561. Trend data indicate that O&M expenditures per million gallons have increased at an average 5.5 percent per year since 1998 and an average 2.5 percent per year between 2013 and 2016 (Figure 3).¹²

“Operation and maintenance expenditures per volume treated rose over six percent per year from 1998 to 2016.”

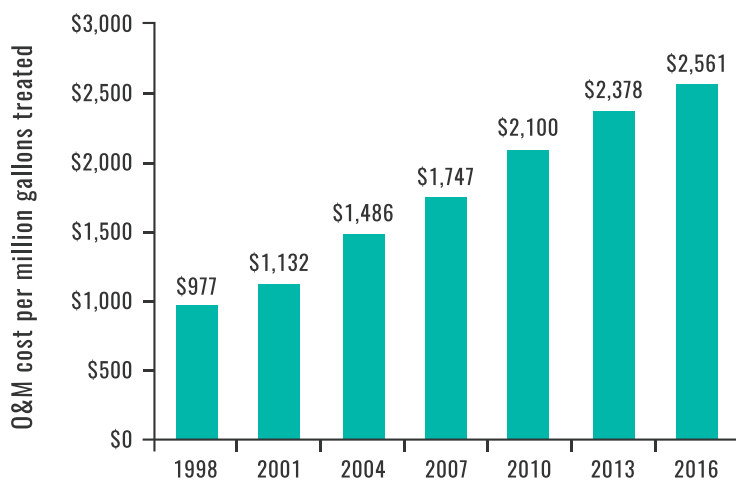


FIGURE 3: Operation and maintenance costs per million gallons treated (1998-2016)

7. Cost of services for fleet management, biosolids processing, plant operations, collection system operations, repair services, laboratory services, etc.
8. Additional costs that may not be reflected in this category include natural gas purchased for co-generation engine power production.
9. Services performed by another department, including: finance, human resources, payroll, legal services, billing, fleet management, etc.
10. Permit fees, public relations, travel expenses, bad debt expense, utility membership fees, PILOT or franchise fees, staff training, etc.
11. These 95 respondents provided both O&M cost data and average flow rate data for 2016. The types and service levels of these utilities varied from wholesalers to retailers and include secondary to tertiary treatment levels.
12. Average of all respondents, which ranged from a low of 86 (2007) to a high of 123 (2004), depending on the year. The median values for 1998 to 2016 show a similarly increasing trend, with median values increasing at an average of 5.1 percent per year.

CHEMICAL AND ELECTRICITY COSTS REMAIN A MAJOR COMPONENT OF O&M SPENDING

Disinfection equipment and other wastewater treatment chemicals, as well as the electricity to operate pump stations, in-plant pumps, aeration, solids handling equipment, and other devices, comprise a significant proportion of clean water utility operating costs. In 2016, over \$630 million was spent on chemicals and electricity at 98 respondent utilities (12 percent of total O&M cost).

“Chemical and electricity costs comprise 12 percent of total O&M costs.”

Average electricity and chemical costs per million gallons treated were \$197 and \$99, respectively, in 2016. Trends indicate that average electricity costs per million gallons treated rose on average 5.2 percent per year from 1998 to 2013, but decreased by an average of 0.5 percent per year from 2013 to 2016. Similarly, chemical costs per million gallons treated rose on average 5.3 percent per year from 1998 to 2013, but decreased by an average of 0.7 percent per year from 2013 to 2016 (Figure 4).

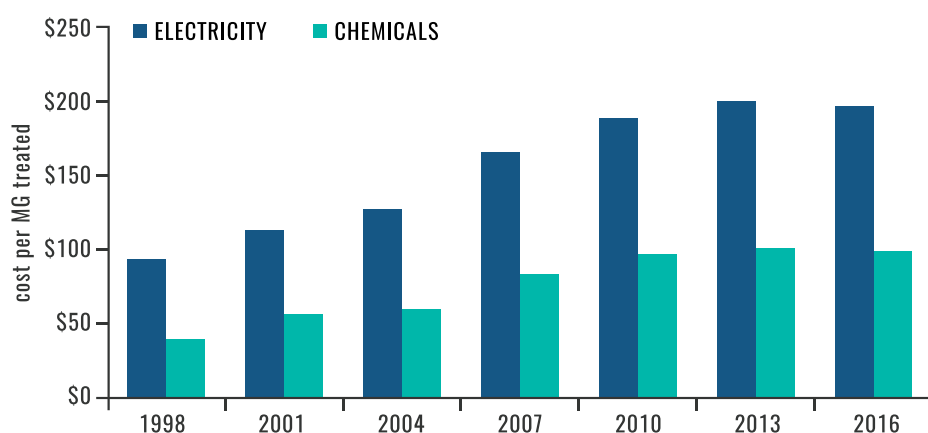


FIGURE 4:
Chemical and electricity costs per million gallons treated (1998-2016)

PERSONNEL COSTS TOP THE LIST OF O&M EXPENDITURES

Personnel costs comprised 45 percent of total operation and maintenance (O&M) expenses and 18 percent of all agency expenses in 2016.¹³ By comparison, personnel costs comprised 46 and 47 percent of O&M expenses in 2010 and 2013, respectively. While wages and salaries¹⁴ increased a little more than six percent per year on average from 2013 to 2016, reported benefit expenditures increased on average more than four percent per year.¹⁵ These increasing expenditures for wages, salaries, and benefits parallel increases in staffing levels, which rose at nearly four percent per year from 2013 to 2016.

13. The range of personnel costs as a percentage of O&M expenses was 18 to 79 percent; however, it is noted that a few of the respondents with lower personnel costs (18 to 30 percent) had a significant amount of costs classified through services provided by other departments, or included significant non-operating costs, such as payments to wholesalers.

14. Includes hourly and salaried staff costs, overtime, comp time, bonus, and payroll taxes.

15. Among 73 and 68 common respondents for salaries and benefits, respectively.

SALARIES

From 2013 to 2016, median salaries at the clean water utility respondents increased 2.2 percent per year on average. Similarly, the Bureau of Labor and Statistics estimates that the average wages and salaries of state and local government employees nationwide increased 2.9 percent per year over the same period.¹⁶ Low inflation from 2013 to 2016 likely contributed to the modest cost-of-living salary adjustments. The consumer price index rose on average 3.0 percent per year during this time. This trend is consistent with the previous survey period from 2010 to 2013, when salaries increased from 1 to 3 percent per year for most staff positions.¹⁷

“Salaries increased on average 2.2 percent per year for clean water utility staff positions, and staff benefit costs now comprise 49 percent of average wages and salary costs.”

POSITION	COMMON RESPONDENTS	MEDIAN SALARY 2013	MEDIAN SALARY 2016	3-YEAR INCREASE (%)
BUDGET ANALYST – ENTRY LEVEL	41	\$54,841	\$59,966	9.3%
BUDGET ANALYST – SENIOR LEVEL	39	\$84,926	\$87,640	3.2%
CIVIL ENGINEER – ENTRY LEVEL	67	\$60,000	\$64,022	6.7%
CIVIL ENGINEER- SENIOR LEVEL	69	\$93,272	\$95,000	1.9%
OPERATOR – ENTRY LEVEL	73	\$41,029	\$45,547	11.0%
OPERATOR – SENIOR LEVEL	75	\$63,294	\$68,536	8.3%
PLANT SUPERINTENDENT – ENTRY LEVEL	53	\$76,553	\$80,288	4.9%
PLANT SUPERINTENDENT – SENIOR LEVEL	63	\$102,716	\$109,650	6.8%
MECHANIC – ENTRY LEVEL	61	\$44,032	\$49,837	13.2%
MECHANIC – SENIOR LEVEL	66	\$62,704	\$68,297	8.9%
FIELD CREW – ENTRY LEVEL	58	\$37,852	\$39,527	4.4%
FIELD CREW – SENIOR LEVEL	55	\$55,137	\$55,058	-0.1%

TABLE 2:
Median salary increases
by job position and level
(abridged version)

BENEFITS

Detailed data indicate that staff benefit costs have increased markedly in recent years. From 2007 to 2016, average staff benefit costs have risen from 41 to 49 percent of average wages and salary costs.

16. Average hourly employee costs for state and local government workers: wages and salaries component for December 2013–December 2016 (Bureau of Labor and Statistics, <http://www.bls.gov/nes/ect/sp/ececrtn.pdf>)
17. 2014 NACWA Financial Survey.

Capital Program Budgets Increased Nearly 22% in 3 Years

Commitments to replace and repair aging infrastructure, increasing service populations, and compliance costs associated with wet weather capacity continue to push capital program budgets upwards, with five-year capital improvement program (CIP) budgets having risen by nearly 22 percent¹⁸ since the 2014 *Survey*. A total of 97 agency respondents reported \$35.6 billion in five-year capital improvement budgets for 2017-2021. The distribution of five-year capital program budgets (Figure 5) shows that:

“Replacement/rehabilitation needs topped planned capital spending, with overall five-year capital budgets rising 22 percent from 2014 to 2017.”

- The highest five-year capital program budget areas are for replacement and repair of existing sewers, pump stations, and treatment facilities (41 percent of total program budgets)—similar to the results reported in the 2014 *Survey*;
- Capital improvement program budgets for advanced treatment decreased from 11 to 8 percent of total CIP budgets, despite new and increasingly-stringent permit requirements (compared to the 2014 *Survey*), and;
- Capital improvement program budgets for combined sewer overflow correction increased from 12 to 14 percent of total CIP budgets since the 2014 *Survey*.¹⁹

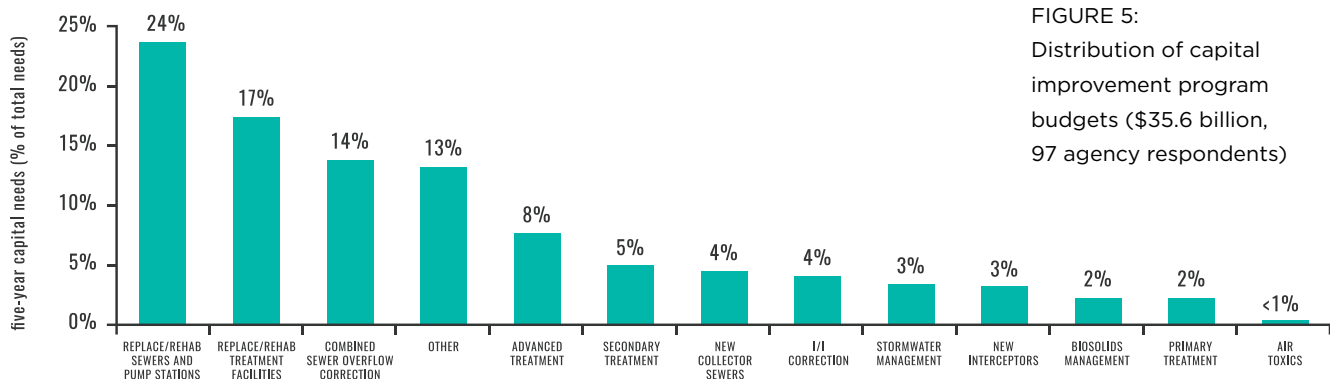


FIGURE 5:
Distribution of capital improvement program budgets (\$35.6 billion, 97 agency respondents)

18. Seventy (70) common respondents reported that total five-year needs increased from \$24.2 billion to \$29.5 billion from 2013 to 2016.

19. Twenty-six (26) out of 97 respondents to this question reported needs for CSOs. Out of 126 Survey respondents, 35 agencies indicated service areas that include combined sewers.

Long-term Debt Grows Moderately

As of January 1, 2017, the total long-term debt of 103 responding agencies was reported at \$57 billion. Revenue bonds continue to be the preferred debt financing source, representing 71 percent of total debt, while 15 percent of debt is from State Revolving Fund loans (Figure 6). From 2014 to 2017, long-term debt increased by six percent, higher than the four-percent increase from 2011 to 2014. SRF debt as a percentage of total debt did not change from 2014 to 2017 and remains lower than its high of 20% of total debt in 2011.

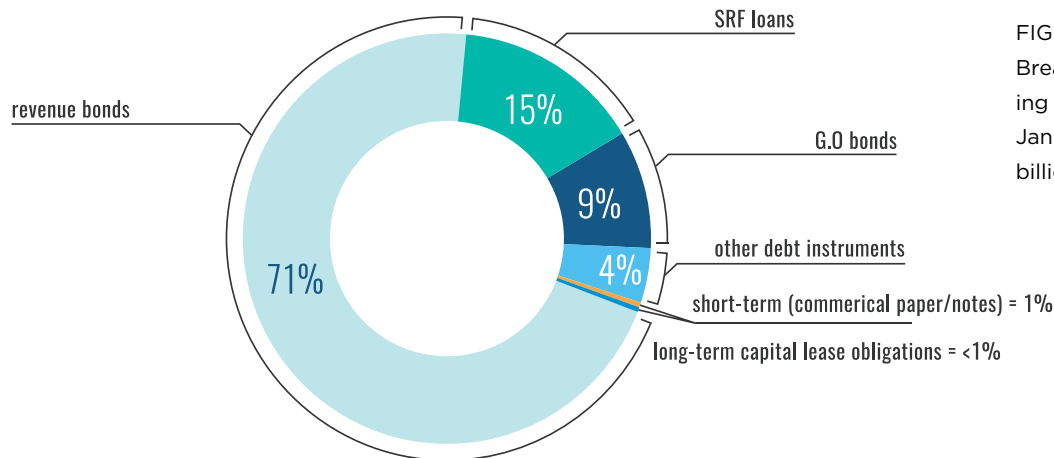


FIGURE 6:
Breakdown of outstanding long-term debt on January 1, 2017 (\$57 billion, 103 agencies)

Debt service payments, which are comprised of both loan principal and interest payments, are directly affected by overall long-term financing debt levels. While overall debt levels rose by six percent from 2014 to 2017, debt service expenses decreased by 2 percent—potentially due to differences in repayment terms between existing, refinanced, and newly-issued debt. Utilities also use other financing debt instruments, such as commercial paper and capital leases, to finance a small portion of infrastructure spending (less than two percent).

“Long-term debt increased by six percent from 2014 to 2017.”

Bond Ratings Continue to Reflect a Strong Financial Position

Municipal bond ratings used to establish credit worthiness in the investment market provide a measure of fiscal health. Fifty-seven (57) out of 75 respondents use more than one rating service, with both Standard and Poor’s and Moody’s ratings being most prevalent and used by 85 percent of respondents to this question. Respondent utilities continue to receive very strong credit ratings from all three major rating services.²⁰ Twenty-nine (29) out of 75 respondents received the highest “AAA” rating from S&P, Moody’s, or Fitch rating services (Figure 7). No major shifts in clean water utility credit ratings from 2014 were reported, with nearly 90 percent of all respondents receiving better than an “A+/A1” rating (i.e., above average creditworthiness).

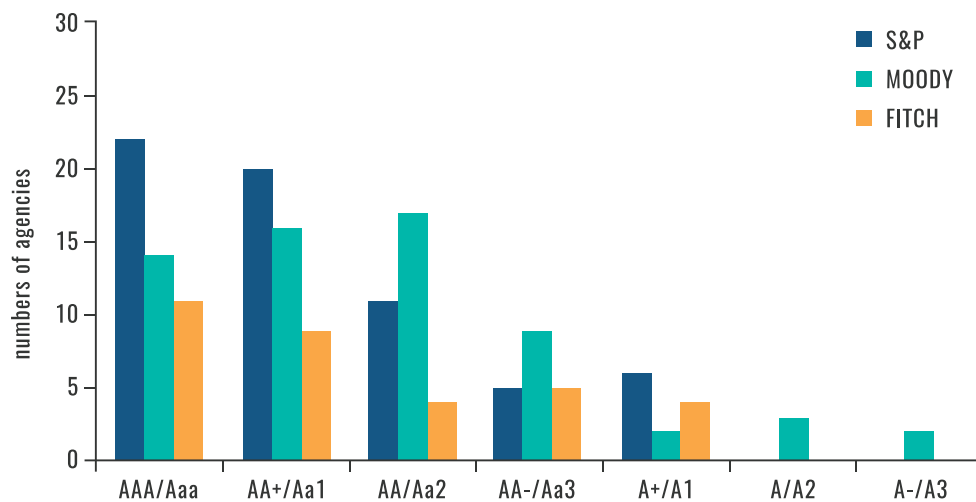


FIGURE 7:
Credit ratings
(senior debt), 2017

20. Standard and Poor’s (S&P), Fitch, and Moody’s.



SUSTAINABLE RATES AND CHARGES

Sewer service charges, which are based on a rate or cost per unit of consumption, a fixed charge or tax, or some combination thereof, are the primary revenue source for NACWA’s clean water utility members. Utilities must continually consider the careful interplay between raising revenue to pay for new regulatory requirements and infrastructure repairs with the increasing percentage of their ratepayers’ incomes that is being spent on water and wastewater services. While some argue that utilities must recover the ‘full cost’ of providing water and wastewater services, others advocate that water is a human right that must be accessible to everyone, even those who may not be able to pay the full cost. These competing demands of affordable charges and adequate revenue will continue to be a challenge in the future.

Average residential charges for sewer service exceeded \$500 in 2017 and are projected to rise an additional five percent per year over the next several years. Other residential fees (e.g., connection and impact fees), as well as volume charges for industrial users, have also been rising.

For the first time since NACWA began tracking it, the average sewer service charge is more than two percent of the federal income poverty threshold, underscoring the growing impact that water-related expenses are having on many low-income ratepayers. Recognizing the impact that increased rates can have on lower- or fixed-income rate payers, a majority of survey respondents provide some form of customer assistance (e.g., extending bill payment time, reduced rates, etc.) to those customers that have difficulty paying their bills. Respondent utilities indicated that approximately five percent of customers²¹ utilize some form of assistance in paying their bill, though many of these programs cannot reach renters and occupants of multi-unit buildings where a single bill is paid by a landlord or owner, but where the landlord may pass on the cost to renters.

In addition to maintaining sustainable rates, utilities are working to reduce costs through improved asset management, waste minimization, and energy and materials recovery. For example, *Survey* data indicate that the percent of electrical energy needs produced onsite by clean water utilities has risen from 31 to 38 percent of energy use from 2004 to 2016, while the percentage of survey respondents providing reclaimed water services increased from 33 to 40 percent in this same time period.

21. Five percent is the average value reported by 19 respondent utilities. One utility that provided a military rate discount to one-half of its customers was excluded from this statistic.

Funding Sources

Over 95 percent of operating and capital investment costs are funded by system users. A majority of the funding to cover operational expenditures includes user charges, fees, taxes, and assessments, while capital expenditures are financed primarily by user charges, taxes, and debt financing through bonds or federal and state loans, which must be repaid by system users over time.

Nearly 77 percent of funds used to cover expenditures in 2016 were generated directly from user charges, taxes, fees, and/or assessments. In 2016, debt financing through bonds, State Revolving Fund loans, and other debt instruments comprised 18 percent of funds generated to cover expenditures. Other funding sources, including federal and state grants, earned interest, and product sales, each contribute less than one percent of total utility funding²² (Figure 8).

“Funds derived through user charges, taxes, fees, and assessments comprised 77 percent of overall funding in 2016.”

The percentage of funding sourced from federal- and state-sponsored grants and loans increased from 3.6 percent to 4.0 percent of revenue from 2013 to 2016, which is still significantly lower than the 7.7 percent in 2010 and 10.6 percent in 1992.

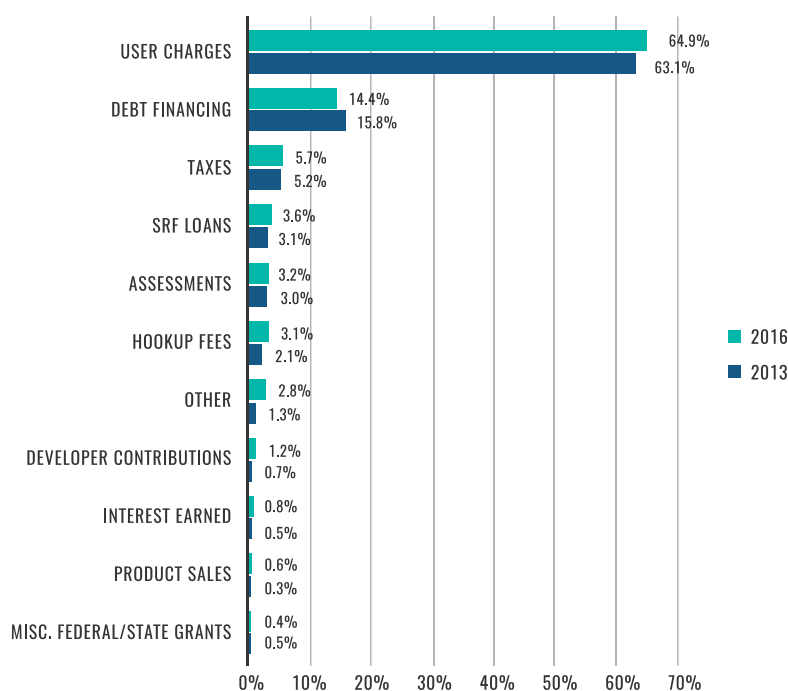


FIGURE 8:
Relative contributions from
funding sources, 2016 (\$19.5
billion, 111 agency respondents)

22. Utilities that provide both water and wastewater services were requested to report funds for wastewater only.

Distribution of Rate Structure Types

As in past surveys, the 2017 NACWA *Survey* shows that nearly all NACWA agencies depend heavily on user service charges, and that rate structures for these charges are diverse. Agencies can use any one or a combination of fixed/flat charges, volume-based charges, and tax-based charges. Figure 9 shows a breakdown of rate structures used by 2017 *Survey* respondents and highlights that nearly half of responding clean water utilities (46 percent) use a combination of flat and volume-based charges. Past surveys have shown similar results, with 50 to 59 percent of respondents using a combination of flat and volume-based charges since 2005.

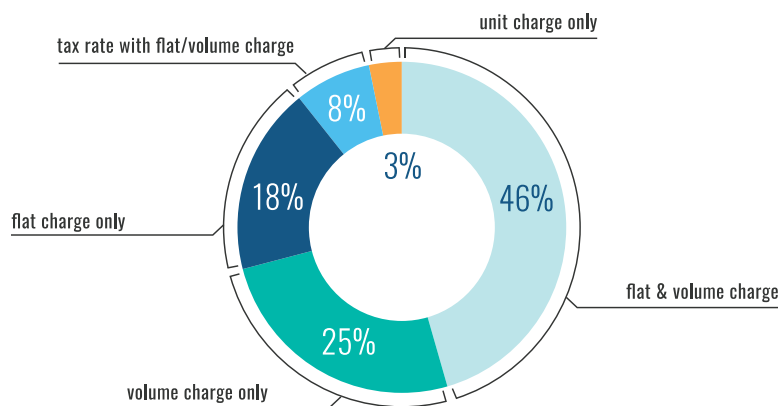


FIGURE 9:
Type of rate structures
implemented at clean
water agencies, 2016
(92 agencies)

Average Sewer Service Charges Increase at Nearly Double the Inflation Rate

Because of differences in the types of rate structures utilities have implemented, the average annual single-family residential sewer service charge, inclusive of collection and treatment charges, provides a uniform metric and a consistent benchmark to measure the price of service and changes in the price of service among clean water agencies nationwide.

“In 2017, the national average annual residential sewer service charge was \$501.”

NACWA performs an annual survey on changes in residential sewer service rates, called the *NACWA Cost of Clean Water Index (Index)*, to supplement the data in the *Financial Survey*. The *NACWA Index* measures the year-to-year percent change in residential sewer charges and has tracked the national trends in residential service charges from 1985 onward. The 2017 data indicate that the average residential service charge continues to increase faster than the national rate of inflation as measured by the Consumer Price

Index. From 2003 to 2017, the average annual service charge doubled from \$250 to \$501. The Consumer Price Index (CPI) increased only 34 percent in the same period. Projections from the 2017 *NACWA Index* indicate that the average annual single-family residential service charge for wastewater only will exceed \$600 per year in 2022 (Figure 10).

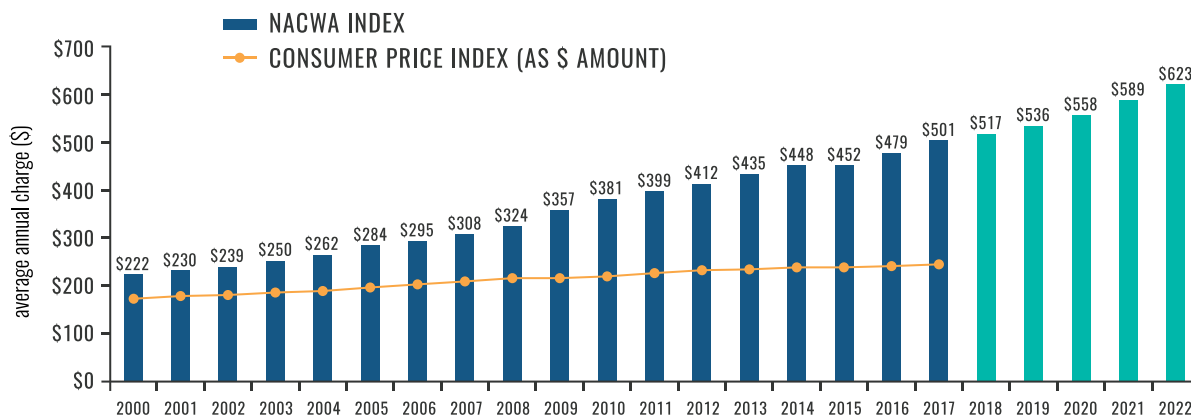


FIGURE 10: Historical and Projected Average Single-Family Residential Service Charge (2000 - 2022)²³

Note: Series data for the CPI represent the CPI as a dollar value on the chart. The annual average CPI value for 2000 was 172.2, which has been converted to \$172.20. Likewise, the average annual CPI in 2017 was 245.12, which has been converted to \$245.12. In 1985, the average residential sewer service charge of \$102.75 and the CPI value of 107.6 were close to equivalent.

Trends for Fixed Charges and Volume-based Rate Components

Most utilities (90%) adjust their rates annually or biennially to ensure that operational costs are adequately recovered. The increased costs of advanced treatment, reductions in water use, large legacy replacement cost, and increasing pension and employee healthcare costs have continually pushed average residential rates upwards. Both flat and volume-based components of residential rate structures have increased by up to 18 percent on average since 2013.²⁴ Figure 11 shows the changes in fixed-charge and volume-based rate components from 2013 to 2016.

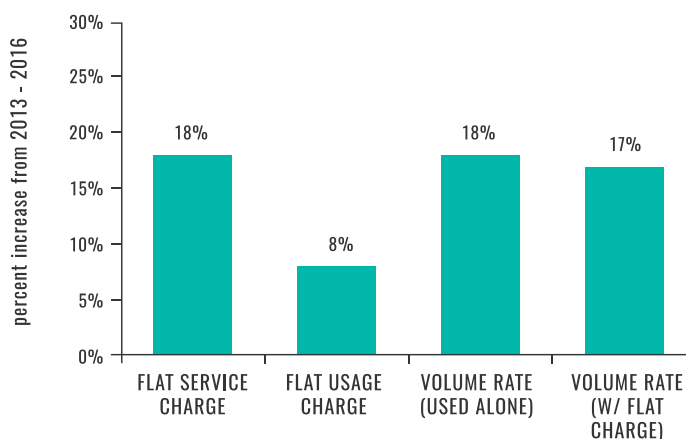


FIGURE 11: Percent increases in flat and volume-based rate components (2013 to 2016)

23. Source: 2017 NACWA Service Charge Index.

24. Average increase of common respondents.

The average fixed rate for service and billing (i.e., flat service charge) in 2016 was \$168. The rate has increased an average of 5.9 percent per year over the last three years. The average volume rate for residential customers (when combined with a flat charge) has steadily risen from \$2.36 to \$5.30 per 1,000 gallons from 2001 to 2016—an average increase of 5.5 percent per year (Figure 12).

“Residential volume rates have increased an average of 5.5 percent per year from 2001 to 2016.”

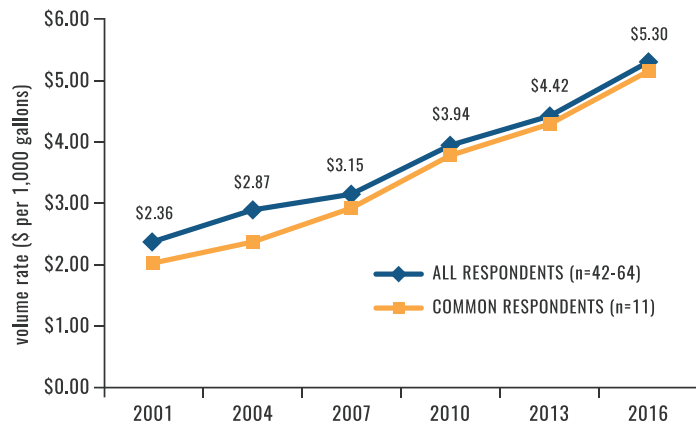


FIGURE 12: Increase in residential volume rates (\$ per 1,000 gallons) when used with a flat charge

Industrial User Charges Also Impacted by Rising Costs

Industries discharging to the sewer system are also impacted by the rising costs of wastewater collection and treatment. While utility rates structures for commercial and industrial discharges are more diverse than residential rate structures, most agencies require that industrial dischargers pay a volume-based charge and applicable extra strength charges for high-strength waste. High-strength charges are generally expressed as cost per quantity discharged (\$ per pound) in excess of a threshold concentration level. The most common parameters for high-strength charges are biochemical oxygen demand (BOD) and suspended solids (SS). Figure 13 shows the changes in the industrial volume-based charge and extra strength charges from 2004 to 2016.

“While industrial volume-based rates increased over 21 percent²⁵ from 2013 to 2016, extra strength charges for BOD and suspended solids increased more slowly (i.e., 7 and 13 percent, respectively).”

25. Changes in volume-based rates from 2013 to 2016 were reported at over 21 percent for 59 common respondent utilities in these two surveys. The chart shows the responses of 28 utilities that reported volume rates in all surveys between 2005 and 2017. The volume rate change shown in the chart from 2013 to 2016 is 24 percent. A similar method was applied to changes in BOD and TSS rates.

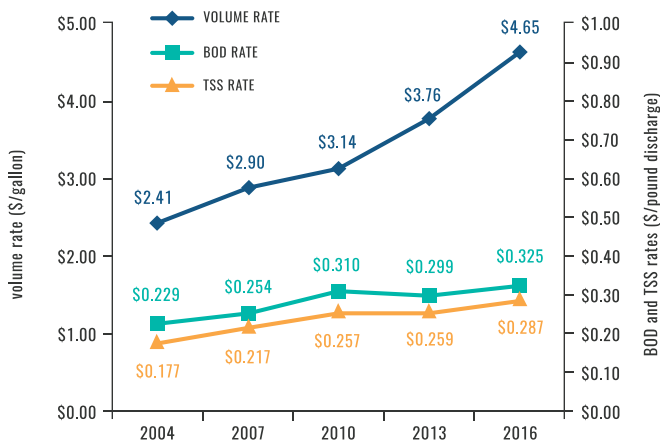


FIGURE 13:
Changes in industrial user charges 2004-2016 (28, 24, and 32 common agency respondents for the rates for volume, BOD, and TSS, respectively)

Customer Assistance Programs Help Low-income Residents Pay Utility Bills

Recognizing that rising service charges impact customers in different ways, over one-half of respondent utilities (70 out of 126) reported having programs available for those customers who have difficulty paying their bills. The most common form of assistance is payment plans in which customers receive extended payment periods. Alternatively, lifeline rates and bill discounts (reported to be used by 23 percent of utilities) provide low-income qualifying customers with reduced rates and lower payment requirements (Figure 14).

“Extended payment plans are the most common form of utility bill payment assistance.”

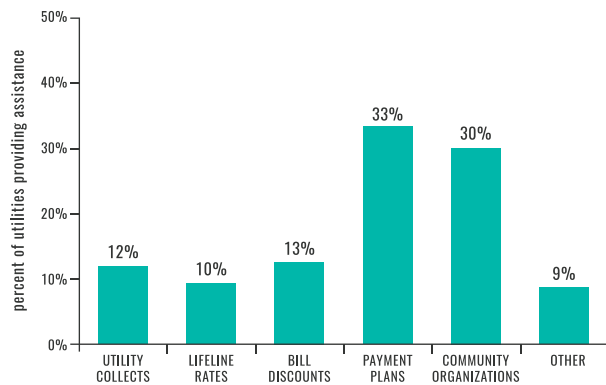


FIGURE 14:
Use of community assistance programs (percent of 126 survey respondents)

Twenty agencies estimated the number of customers using some form of payment assistance. These 20 agencies reported that 338,000 customers use some form of payment assistance out of 4.3 million customers served. The range of customer assistance provided was 0.01 to 50²⁶ percent of all customers, with a median of 1.5 percent of customers using some form of payment assistance.

26. One agency provided an active military rate discount for 50 percent of its customers.



CONCLUSION

Current policy discussions in Washington, DC are exploring ways to enable utilities to better maintain high levels of service and make necessary infrastructure investments while keeping rates affordable. Specifically, stakeholders are evaluating the governance structure of the US water sector—in which thousands of small utilities are operating at a disadvantage in terms of economies of scale, buying power, and cost efficiencies—to identify new models that may help limited investment dollars go further and do more. The overall financial health of the public wastewater sector provides a strong foundation for these conversations, but growing capital budget needs, coupled with increasing affordability concerns that hit large and small utilities alike, will continue to challenge the sector.

The National Academy of Public Administration’s (NAPA) recently-released report, *Developing a New Framework for Community Affordability of Clean Water Services*,²⁷ recognizes that demographic information and the financial position of the community are important factors, among others, in assessing how much burden a community can handle. With the average annual service charge for wastewater now over \$500 and expected to pass \$600 in 2022, certain vulnerable populations are already feeling the impact. How these impacts are considered when new requirements are being set or permit limits are imposed has not kept pace with economic reality. The US Environmental Protection Agency (EPA) has recently initiated an effort to revise how it assesses affordability in all its water programs based on the recommendations from NAPA and the water sector, and the outcome of that effort will have ramifications for clean water utilities for decades to come.

Beyond affordability, there are also conversations about how best to provide utilities with maximum flexibility to prioritize and sequence spending, including using tools such as EPA’s Integrated Planning Framework. This is especially relevant because many agencies increasingly need to prioritize scarce customer dollars for

27. “Developing a New Framework for Community Affordability of Clean Water Services,” National Academy of Public Administration, October 2017.

multiple new and expanding regulatory requirements above and beyond providing basic wastewater collection and treatment services and maintaining their current infrastructure. With new expenses related to drinking water services likely looming as EPA revises its Lead and Copper Rule, communities and utilities will increasingly be forced to take a more holistic approach in how they prioritize and fund investments in water issues across the board.

As capital needs grow and spending and borrowing increase, utilities continue to look for new and cost-effective sources of capital financing in addition to cash (PAYGO) financing. New programs like the Water Infrastructure Finance and Innovation Act (WIFIA) program, increases in annual appropriations to the State Revolving Funds (SRFs), and potentially new sources of federal financing will all be welcome. These federal sources of financing are an important part of the utility community's overall portfolio of capital financing. However, revenues generated at the local level and non-federal sources of long-term debt financing will continue to fund most of the infrastructure work across the country. As a result, the strong bond ratings and overall financial position of the municipal clean water community will be most critical in ensuring that utilities can continue to meet the challenges of tomorrow.


NACWA's *Financial Survey* will continue to track these and other sector trends to provide clean water managers and other stakeholders with the information they need to make informed decisions on investment and management issues.

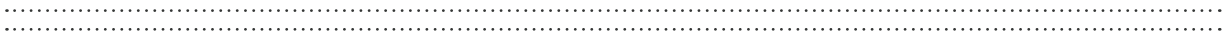
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ACKNOWLEDGMENTS

This summary of the *2017 Financial Survey* was produced and published by the National Association of Clean Water Agencies (NACWA) under the general direction of the NACWA Board of Directors. The *2017 Financial Survey* is the latest edition of NACWA's triennial survey. The *2017 Survey* provides analysis of the most recent clean water financial data and updates and expands upon the content of past surveys, specifically the *2014 Financial Survey*, released in 2015.

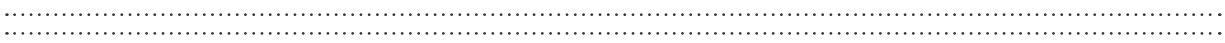
We are particularly grateful to the members of the Financial Survey Workgroup who provided guidance and comments to ensure the quality of this publication. The complete *2017 Financial Survey* report will be available in summer 2018 on NACWA's website.





WE CLEAN IT. FOR EVERYONE'S SAKE.

For nearly five decades, the National Association of Clean Water Agencies (NACWA) has been the nation's recognized leader in legislative, regulatory and legal advocacy on the full spectrum of clean water issues. NACWA represents public wastewater and stormwater agencies of all sizes nationwide, and is a top technical resource in water quality, water management and sustainable ecosystem protection. NACWA's unique and growing network strengthens the advocacy voice for all member utilities, and ensures they have the tools necessary to provide affordable and sustainable clean water for all communities. Our vision is to represent every utility as a NACWA member, helping to build a strong and sustainable clean water future.





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