

THE UNITED STATES CONFERENCE OF MAYORS



Struggling Local Government Finances and Decelerating Public Water Investment



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Summary

The U.S. Conference of Mayors Water Council (USCM) supports cities in their efforts to provide safe, adequate and affordable water and sewer services and infrastructure. The public water sector serves upwards of 80% of Americans, and local government spends over \$111 billion a year to deliver services via a geographically dispersed infrastructure of plants linked to pipes, sources and end-of-pipe discharges. The Census estimates population will increase to 400 million by 2051, and this will trigger an 8% increase in service requirements. The growing service base will put strong pressure on rate increases to pay for system expansion, but more importantly, to sustain and renew the physical plant that serves 100% of the current population that will likely serve population expansion as well. A \$111 billion a year investment will not satisfy future demand, just like it failed to meet all 2012 public water needs. The robust 7.6% year-over-year growth in local public water spending from 1972 to 2010, began to stutter when the 2001 to 2010 average fell to 6%, and further declined to 5% in the time frame 2000 to 2012. This report looks in the rearview mirror at economic performance factors (local government revenues, expenditures and borrowing) and local government investment in public water infrastructure and services (water supply and sewer) to describe trends and identify critical local economic factors that impact public water investment, and influence the affordability of service for local households (ratepayer/taxpayer - the base).

Local government investment in public water services and infrastructure is one component of the local economy and is one item in local budgeting. National economic trends such as the recent Great Recession has directly impacted the base in terms of unemployment, declining property values, slow economic expansion and stagnant wages. These factors impact local budgeting revenues, and also tend to make capital investments less certain.

This report describes local government economic trends (e.g., revenues, expenditures, and long term debt) and whether they impact public water sector investment. The data reveal a resilient, if not robust, level of investment in the near future to sustain services and infrastructure on a local government national scale. The data also suggest potential impediments to future investment either through overleveraging long term debt or inaccurate planning assumptions concerning the ability of the base to afford rising rates.

Key Findings (See Table)

Local Government Economic Performance: 2000 - 2012

Local government economic performance data indicates sluggish growth in revenues, continued weak growth in borrowing and a recent slowdown in expenditures since the recession (2007-2009); unlike the robust growth in all three indicators in the pre-recession period.

Local economies grew between 2000 and 2012, even though the recession curbed growth:

- Expenditures grew 67% compared to 59% for revenues
- Long term debt grew from \$886 billion in 2000 to \$1.78 trillion in 2012 (the highest level in recent history), a 101% increase.
 - \$195 billion long term debt was retired in 2012; debt retirement was \$77.5 billion in 2000
 - \$75.1 billion interest on general debt was paid in 2012; interest payments were \$50.4 billion in 2000

The growth in spending and debt exceeded growth in revenues and indicates that communities were struggling to balance budgets. The growing reliance on long term debt suggests that taxpayer burdens are increasing due to rapidly growing annual debt and interest repayment: it was a combined \$128 billion in year 2000, and \$270 billion in 2012. By comparison, debt retirement in 2012 was about 2.5 times what was spent to provide public water services to 80% of Americans.

Local revenues increased 59% over the study period, but the bright light in revenue streams is clearly a 70% increase “own source revenues” (property, income and sales taxes, and municipal fees).

Own source revenue is a component of total revenue, but it is that portion of local government revenue that is most reliable, and where local government has significant authority setting levies on the base. Growth in this revenue category is a signal that the base is absorbing a mixture of tax/fee increases, but may also indicate some

improvement in household income and/or property values.

Own source revenues are closely tied to local taxes and fees for municipal services. They are used to fund services and retire short and long term debt. The ratio of debt to total revenue and the ratio of debt to own source revenues provides a yardstick to measure the magnitude of debt burden on the ratepayer/taxpayer.

The ratio of long term debt to total revenues in year 2000 was 0.87; in 2012 it was 1.11: but total revenue includes revenue streams only peripherally associated with public water investment, and is therefore a weak indicator. The ratio of long term debt to own source revenues in year 2000 was 1.64; and in 2012 it was 1.95. This ratio is a better indicator of the ability of the base to sustain current and future public water investments; and a debt to revenue ratio of 1.95 suggests there are some local governments experiencing greater debt management burdens for the ratepayer/taxpayer, perhaps with ratios exceeding 2.0.

Local Government Public Water Investment: 2000 - 2012

Public water investments by local government were \$1.16 trillion between 2000 and 2012; this is an investment increase of 78%, exceeding growth in total and own source revenue.

Local investment in public water and sewer systems grew at a greater rate than local revenues, but has begun to noticeably decelerate compared to historical nominal spending. The long term year-over-year growth in public water spending (1972 – 2010) is 7.66%. That fell to 6% between 2001 and 2010; and between 2000 and 2012 the year-over-year growth rate declined to 5%.

Combined water and sewer spending in 2000 was \$62.5 billion; it grew to \$111.7 billion in 2012, a 78% growth in spending.

The single largest water investment increase in the review period was capital spending for sewer at 109%. Capital spending on water supply increased 84% between 2000 and 2012.

Operations & Maintenance (O&M) spending continues to command the larger share of annual public water sector spending, but has been growing at a slower pace than capital spending: water supply O&M increased 69%, and sewer O&M increased 76%.

The Ratio of O&M to Capital Expenditures clearly identifies the importance of recurring annual sector spending to sustain services:

- Every \$1 of capital invested in water supply requires a \$2.31 O&M supporting cost,
- Every \$1 of sewer capital invested requires a \$1.55 O&M supporting cost.

Public water and sewer investment in 2011-2012 reached an all-time nominal dollar high level for local government, and has since stalled at around \$111 billion. Yet the public water sector investments grew more rapidly than local revenues on a percentage basis, just not at the robust long term rate of 7.6%. The growth rate, not the nominal value, of public water investment is decelerating while capital and O&M spending requirements to sustain the existing physical inventory are increasing.

Key economic factors that provide signals for local government Public Water Investments

Two economic factors have important influence on community public water affordability:

- The rate of growth in local own source revenues (i.e., property, sales and income taxes; and service fees); and,
- The ratio of local long term debt to own source revenues.

Table 1: Local Government and Public Water Finances - 2000 to 2012

Economic Factors	2000	2012	Change %
Local Government Economic Factors			
Total Revenues	\$1.01 Trill	\$1.6 Trill	59%
Own Source Revenues	\$0.539 Trill	\$0.917 Trill	70%
Expenditures	\$0.996 Trill	\$1.663 Trill	67%
Long Term Debt	\$0.886 Trill	\$1.786 Trill	101%
Debt to Revenue Ratio			
Total Revenue	0.87	1.11	27%
Own Source Revenue	1.64	1.95	18%
Public Water Investment \$1.16 trillion - 2000 to 2012			
Combined Water and Sewer	\$62.5 Bill	\$111.7 Bill	78%
Water Supply			
Total	\$35.4 Bill	\$60.8 Bill	71%
Capital	\$10.3 Bill	\$19.0 Bill	84%
O&M	\$25.0 Bill	\$42.0 Bill	69%
Sewer			
Total	\$27.1 Bill	\$50.1 Bill	88%
Capital	\$ 9.7 Bill	\$20.2 Bill	109%
O&M	\$17.4 Bill	\$30.7 Bill	76%
O&M to Capital Ratio 2000-2012			
Water Supply	\$1 Capital Invested \$2.31 in O&M Needed		
Sewer	\$1 Capital Invested \$1.55 in O&M Needed		

STRUGGLING LOCAL GOVERNMENT FINANCES AND DECELERATING PUBLIC WATER INVESTMENT

By Richard F. Anderson

Water supply and sewer are core city services delivered to most of urban America on a daily basis; and cities as we know them are currently not viable without these services. Providing them is costly, and requires a large and geographically dispersed physical infrastructure. It also requires a local commitment to operate, maintain and renew the pipes and plants as needed. This report examines local government economic factors and trends that influence the ability of a community to financially sustain the current physical inventory of public water systems and annual increases in investment.

Local government investment to deliver uninterrupted water and sewer services is usually made possible through a combination of user fees and/or taxes, and capital financing via long term debt (the capital financing tool of local government). Both fees/taxes and borrowing requires citizens as taxpayers and ratepayers - the base – to generate sufficient revenues to sustain services, increase water investments, and repay debt. Communities may choose to finance capital investment via revenue bonds which places repayment obligation on the system user/ratepayer rather than solely on city government; those ratepayers, however, are still the same taxpayers that local jurisdictions rely on for general revenues. Thus, local government revenue is an indicator of the ability of the base to afford public services, and the public water investment portion of local budgets. This report examines local government revenues and long term debt performance nationally, to provide time series (2000–2012) information describing levels and trends in local economic conditions. Changes in local government economic conditions that impact the base provide important signals for impacts on public water investment.

Local government investment in public water over the period 2000-2012 is described and how it quantitatively fits into the local economy. The public water sector, for the purposes of this report, includes annual water supply and sewer capital and Operations & Maintenance (O&M) investments. Levels of investment and the direction and magnitude of change over time are described for water supply and for sewer. Several component cost categories of water supply and sewer are examined to describe trends and inform estimates of future investment.

Local government long term borrowing and local fees/taxes place financial obligations on local households that are significant and recurring. These households share in the many benefits of the services, but a growing percentage of households in the base experience disparate financial impact from rising public water rates. Water and sewer affordability is emerging as a critical limiting factor for future public water investment.

The US Conference of Mayors (USCM) reported robust growth in local government spending on public water services and infrastructure from 2001 to 2010, (1). Local economic performance data for annual revenues, expenditures and long term debt was described in that report in conjunction with public water spending on water supply and sewer. One finding reported that local economies were stuttering during and mostly after the Great Recession (December 2007-June 2009), but spending on public water continued to rise, (2). Public water sector investment reached an all-time high over the time period examined, and 2010 marked a ceiling and the beginning of near zero growth. This new review expands the time base to 2000 to 2012. It describes levels and changes in local government long term debt (the capital financing tool), and local government revenues (from the base) to compare to public water investment levels.

Local Government and Public Water Economic Indicators

The economic condition of local governments and their households is an important, if not deterministic, factor impacting public water investments. The Census reports annual local government financial performance regarding revenues, expenditures and long term debt. Data representing these factors was obtained from Census.gov for the review period 2000 to 2012 to describe local economic conditions, (3). This information provides a rear view mirror yielding insight on the level and direction of change in revenues, expenditures and long term debt, used here to identify economic conditions of the base and the community. Information on annual public water and sewer investments, and its component costs- capital expenditures and Operations & Maintenance (O&M) expenditures were also obtained from the Census, and reviewed here, (4). Trends in these factors provide important signals about future water spending (e.g., expenditures for the public water sector and component spending on capital and O&M), and the capacity of local government and taxpayers/ratepayers, the base, to sustain services and investment levels.

Revenues:

Local government revenues are an indicator of the financial health of communities and households. Increases and decreases in revenues may signal household financial condition and ability to afford public services. Total local government revenues are comprised of several component revenues types:

- general revenues (combined intergovernmental transfers and own source revenue);
- own source revenues (the portion of general revenues that is generated from local property, sales, income taxes and service fees);
- intergovernmental transfers (direct and indirect federal to local, state to local, and local to local financial transfers, (e.g., 41 categories of transfers, including, but not limited to: air, road and mass transit; hospitals; public welfare; education; utilities including water supply and sewerage; housing and community development; etc.), (5).
- Other components of total revenues includes income from utility revenue, insurance (public pension) trust investments, and liquor store sales).

Total revenues grew steadily from \$1.01 trillion in 2000 to \$1.61 trillion in 2012, a 59% increase, (Figure 1). Revenues declined \$115 billion from 2007 to 2009, then recovered \$215 billion and set a new high in 2011. By 2012 revenues fell \$55.6 billion, or 3.3%, settling at \$1.61 trillion. Water supply and sewer are funded by fees/taxes and borrowing, so declining local revenues could be a sign of consumer distress and an early warning on public water investment challenges. The 2012 decline in total revenues possibly has some impact on public water investment, but the extent of the impact depends on which revenue categories are declining.

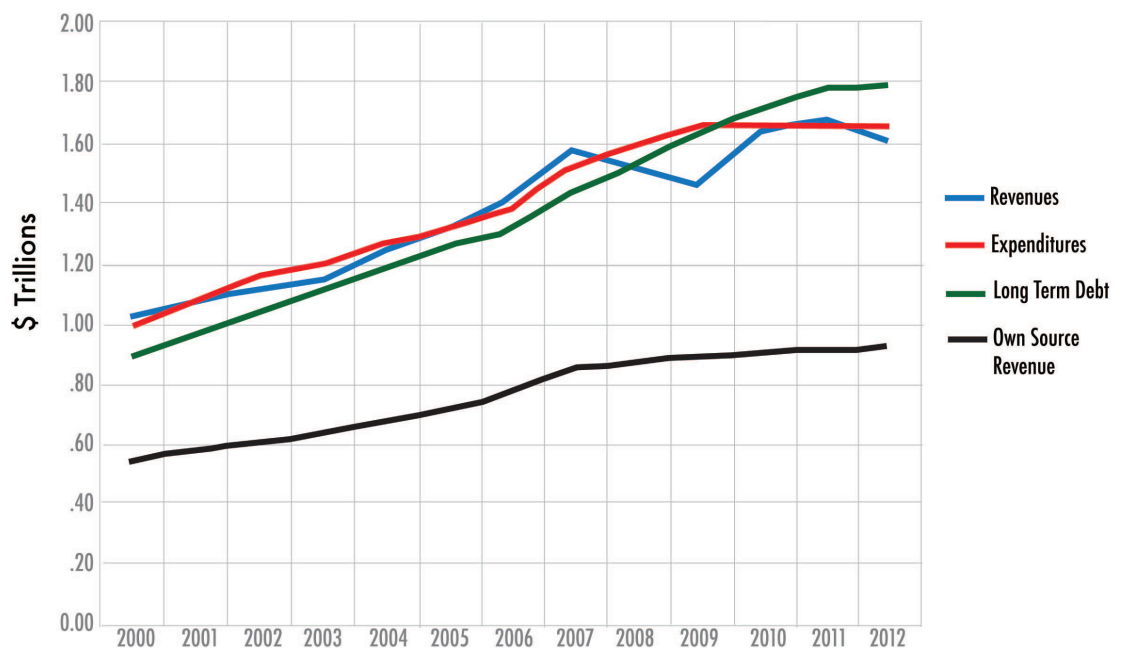
The 2011-2012 reduction in revenues is due to performance in two key total revenue components: intergovernmental transfers and pension trust investment income. The largest decline in revenues was a \$54 billion loss in investment income on employee retirement investments, or insurance pension trust investment, (6). This downturn is not the first or largest decline in pension investment income in recent time; it posted a negative \$103 billion loss in 2009. This revenue stream has experienced some volatility, and local government has limited control of investment results but much of the financial responsibility to fund the public pension systems. Declining revenues from pension trust investments could impact investor income and their ability to pay taxes or user fees. This problem may be more pronounced for investors counting on fixed income distributions while in retirement. It is not likely to affect large numbers of households with employees who are currently adding to rather than drawing on those funds.

The second performance component exhibiting decline is intergovernmental transfers, which accounted for 33% of total local revenue in 2012. Intergovernmental transfers increased steadily from 2000 to 2011. It declined from \$553.5 billion in 2011 to \$539.5 billion in 2012. Statutorily imposed domestic discretionary spending caps may be responsible for some of the recent decline. A substantial amount of transfers go either directly to households, individuals, or to state or local programs that provide a custodial role in administering financial transfers to categorically eligible recipients (individuals or households) of various federal/state aid programs. Declining intergovernmental transfers, especially those that are directed to individuals/households may hinder payment of taxes or water/sewer user fees. Both of these reasons for declining local revenues may have a minor to moderate impact on public water investment, but this estimation deserves greater scrutiny.

Own source revenues (i.e., income, sales, property and other local taxes and fees) accounts for about 55% of total local revenues generated from the community base, (arguably the most reliable source of annual revenue). Local government budget planning involves all public spending including obligatory and discretionary, but local officials may only be able to rely on 55% of total revenues to support service and infrastructure expenditures since intergovernmental transfers and pension investment income are volatile and may disappear due to Congressional or Executive branch actions. Own source revenue is reliable but how much is needed from the base to support current city service operations and maintenance and infrastructure expansion and renewal; and, at what point does the need create disparate and negative impacts on classes of taxpayers/ratepayers?

Own source revenues grew an average year-over-year 7% from 2001 to 2008, but have ranged between 0% and 2% since 2009. The slow to no growth trajectory for these revenues suggests slower growth in (deceleration) public water investment; perhaps leading to deferred investment. Revenues from utilities (e.g., water, gas, electricity), however, also increased from \$539 billion in 2000 to \$917 billion in 2012, a 70% increase. This performance statistic suggests a reliable ability to generate own source revenues sufficient to support the current local public water infrastructure. This does not imply that own source revenues are sufficient to expand and upgrade the current infrastructure.

Figure 1: Local Government Finances, 2000-2012



Expenditures:

Expenditures grew in synch with revenues from 2000 to 2007, but continued to increase until 2009, while revenues decreased indicating budget imbalance in gross national local government finances. Expenditures grew 67% from \$0.99 trillion in 2000 to \$1.66 trillion in 2012, where it has remained fairly stable from 2009 to 2012. During the review period local government expenditures had a near perfect record of positive increase with the exception of a downtick from 2011 to 2012, a \$3 billion decline in a \$1.6 trillion expenditure level. Expenditures have all but leveled out, and the gap between total revenues and expenditures is diminished compared to 2009-2010.

Long Term Debt:

Local government increased long term debt (the capital financing tool) at virtually the same rate as revenues and expenditures from 2000 until 2008 when it overtook revenues, and 2010 when it overtook expenditures. In all, long term debt grew from \$886 billion in 2000 to \$1.78 trillion in 2012, a 101% increase. The rate of growth averaged 7% between 2000 and 2011. Growth ended abruptly in 2012 with only a fraction increase in 2012 compared to 2011.

Local government debt capacity may be capped by state or local law, but also must have a population or customer base sufficient to repay debt in the eyes of creditors/investors. Municipal water and sewer bonds have a high rate of demonstrated success and a less than 1 percent default rate. Local economies, however, are uneven, and cities may face population and economic decline and stubbornly high unemployment. Cities routinely balance budgets with both revenues and borrowing (particularly short term borrowing), and the ratio of long term debt to revenues provides a metric to assess the state of that balance.

Debt to Revenue Ratio:

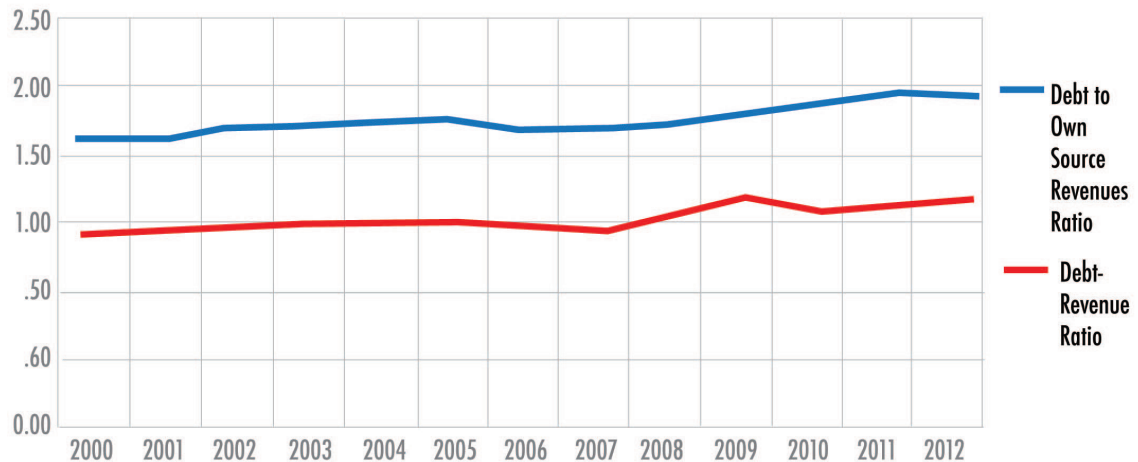
A ratio of long term debt to revenues at 1.0 indicates that in a given year the two amounts are equal. Ratios less than 1.0 are generally considered to be financially sound and manageable. Ratios above 1.0 do not necessarily indicate financial distress, but may warrant scrutiny. The ratios between long term debt and total revenues, and long term debt and own source revenues are presented in Figure 2.

Growth in long term debt has peaked at an all-time high, but the continued fluctuation in revenues, notably the recent 2011-2012 year-over-year decline, indicates a trending increased local reliance on borrowing and a growing gap between revenues and long term debt. Since 2008 the debt to total revenue ratio has exceeded 1.0. The ratio in 2012 (1.11) was close to the recent recession high of 1.12 in 2009.

The ratio of debt to own source revenues is a different and more compelling story. At 1.95, the ratio is nearly twice that of the 1.11 ratio between debt and total revenues. Public water and sewer capital debt is usually supported by interest tax exempt revenue bonds (and general obligation bonds) whose amortization relies on the ratepayer base for repayment. The base, however, is comprised of households and individuals that receive most of their income from employment, investment or through government support. Looking solely at own source revenue, whether considering public water debt or other municipal capital debt, the 2012 ratio of 1.95 indicates that debt is nearly twice annual own source revenues, (the reliable revenue stream).

Intergovernmental transfers are also used to help finance capital construction; and in the case of public water infrastructure federal grants still are in play but they are a minor fraction of annual local government spending in this sector, (7). The state revolving loan funds (SRF) for water and sewer are dedicated sources of financing via federal transfer to states who then lend the funds to local government. Annual SRF lending for public water infrastructure may be from \$2 to \$6 billion a year, and is an important finance tool for smaller communities (population under 10,000). SRF plays a minor overall role in public water financing, and when it is used it adds to debt burden along with the public benefits.

Figure 2: Local Government Debt to Revenue, 2000-2012

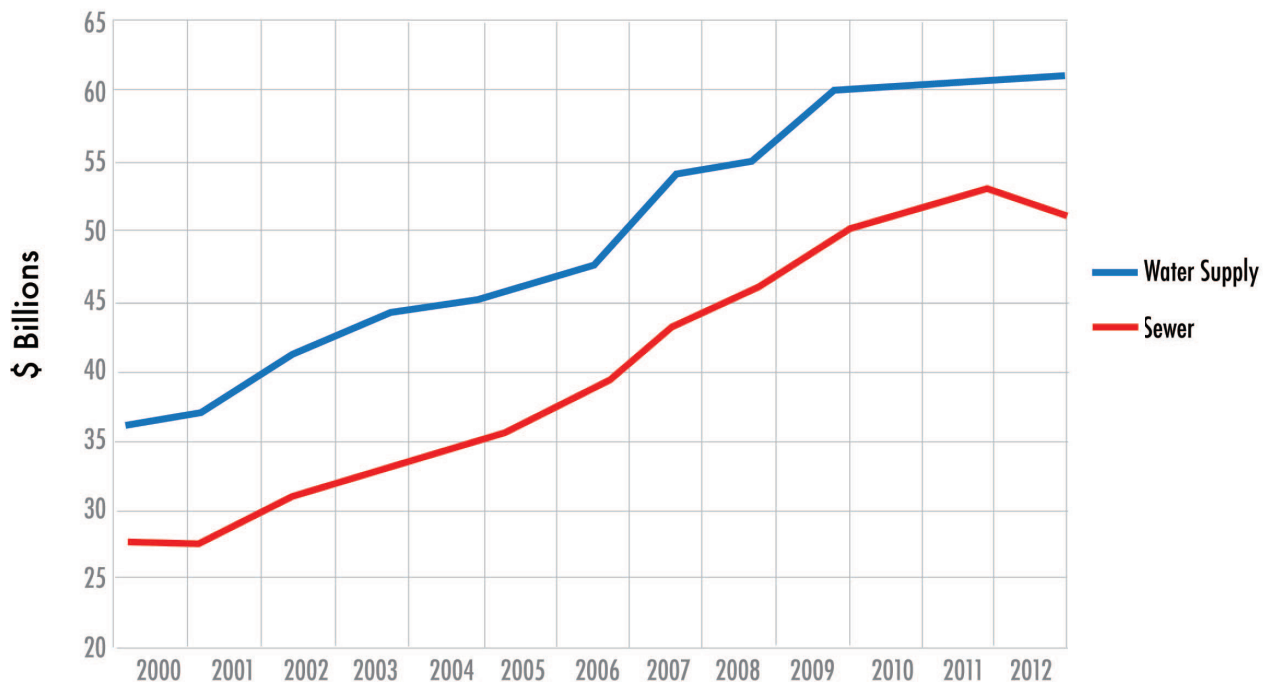


Public Water Expenditures 2000-2012

Combined water and sewer spending in 2000 comprised 6.3% of local government total annual expenditures. It grew to 6.7% in 2012. Public water spending was \$1.16 trillion over the review period. It grew 78% from \$62.5 billion in 2000 to \$111.7 billion in 2012. The 1972 to 2010 long term average year-over-year growth in combined water and sewer spending is 7 percent, (7). The average for 2001 to 2010 is 6 percent, (1). The addition of data for years 2000, 2011 and 2012 yields an average growth rate of 5 percent. The deceleration of public water investment growth is associated with 2009 to 2012, (Figure 3).

Public water spending is trending flat, and water supply and sewer follow different trend lines. Sewer spending averaged 5.5% growth over the 2000-2012, while water spending grew an average of 4.5%. The component costs of both water supply and sewer include capital costs and O&M spending, both of which have changed over the review period.

Figure 3: Local Government Investment in Water Supply and Sewer, 2000-2012



Water Supply Expenditures

Total Expenditure: Water supply spending increased steadily from 2000 to 2007, and was flat in 2008. Spending increased sharply from 2008 to 2009 with a \$5 billion one year increase. Spending was flat from 2009 to 2012, but remains at an all-time high.

Capital Expenditure: Water supply capital investment increased 78 % from 2000 to 2012, (6). Capital spending in the last several decades on water supply was greater than sewer, but that changed in 2008 when water capital spending declined, rose slightly in 2009 settling into a flat pattern from 2009 to 2012, (Figure 4).

O&M Expenditure: Water supply O&M spending was \$25 billion in 2000 and \$42 billion in 2012, a 69% increase. While capital spending increased 78% compared to O&M spending increase of 69%, it is important to recognize that O&M spending is more than twice capital spending.

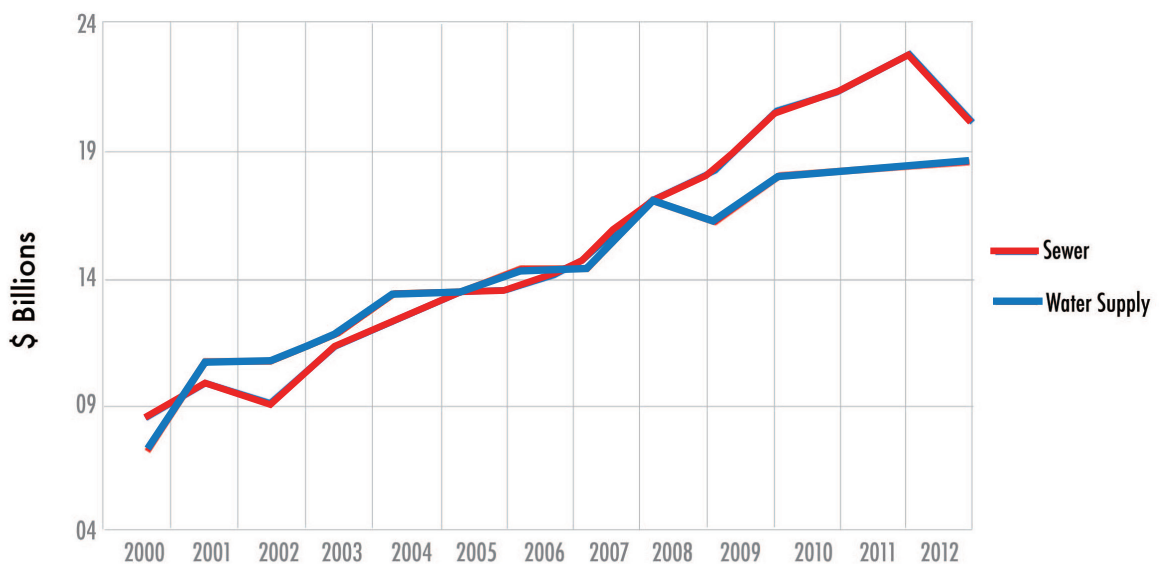
Sewer Expenditures

Total Expenditures: Sewer spending increased almost in tandem with water supply, but at a \$10 billion lower level. Spending began to flatten in 2009, but hit a peak at \$52 billion in 2011, only to decline by \$2 billion in 2012 to \$50.1 billion.

Capital Expenditure: Sewer capital spending exhibits the greatest growth over the study period than all other economic factors. It began to outpace water supply capital spending in 2006 and continued to increase at a faster rate than water supply through 2012. Sewer capital spending peaked at \$22.9 billion in 2011, and fell by \$2.7 billion to around \$20 billion in 2012.

O&M Expenditure: Sewer O&M spending was \$17.4 billion in 2000, and was \$30.7 billion in 2012, a 76% increase. Interestingly, the ratio of capital to O&M spending for sewer is lower than the same for water supply.

Figure 4: Water Supply and Sewer Capital Expenditures, 2000-2012

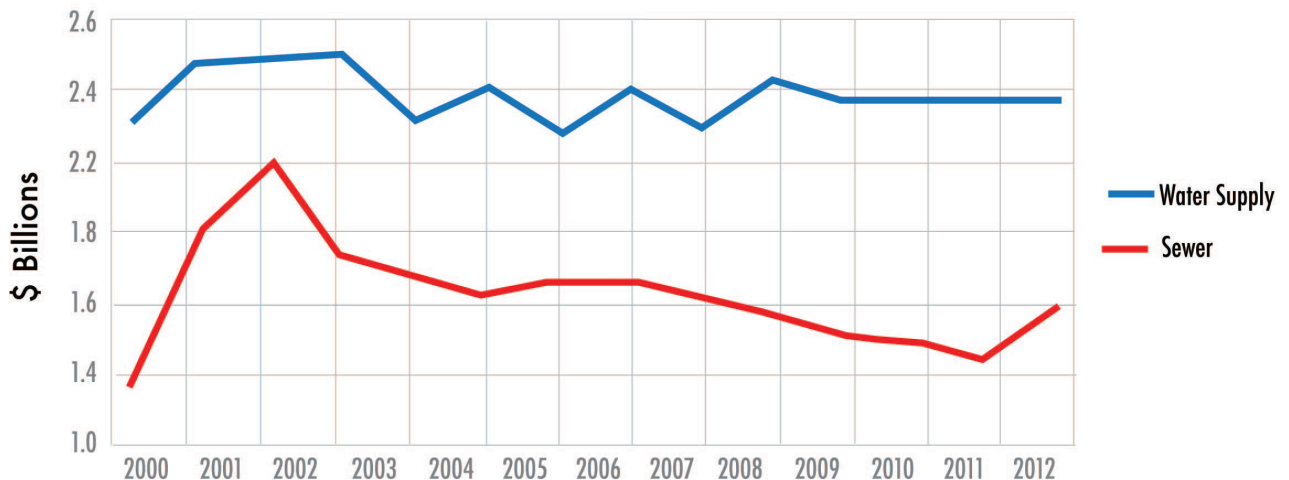


Ratio of O&M to Capital

Water and sewer capital spending has grown fairly consistently since 1956, with vigorous investment growth tied to federal grants availability in the 1970s-80s. By the mid-1980s the physical inventory grew considerably and expenditures for Operations and Maintenance (O&M) began, and continue, to exceed capital spending. The ratio of O&M to capital spending provides a good indication of the growing importance of O&M spending on public water since the mid-1980s. The ratio of O&M to capital should not be ignored when federal mandates are established because they tend to consider (nearly exclusively) capital costs and generally disregard O&M costs. Also, capital costs are one-time expenditures while O&M costs are recurring annually and can add up to huge amounts of spending over time.

Both water supply and sewer expenditures are O&M intensive, and each has achieved a relatively stable pattern from 2000 to 2012. Water supply has an average ratio of 2.31, (\$2.31 of O&M for every \$1 of capital). The average ratio for sewer spending is 1.55, (\$1.55 of O&M for every \$1 of capital).

Figure 5: Ratio of O&M to Capital Expenditures, 2000-2012



Discussion

This research examines public water investments in the context of local government economic performance and examines factors that influence the ability of households to generate tax/fee revenues. It makes the broad assumption that ratepayers and taxpayers make up the base in each community that is relied on to raise revenues to pay for public services and public water services and infrastructure in particular. Looking at both local economic performance and water investment over time provides a framework to assess which factors impact investment and revenue generation sufficient to sustain existing water systems. It also attempts to identify economic factors that may impede future water investment such as the accumulation of too much long term debt to where it becomes a financial burden on the base, or a decline in local government revenues that could signal financial distress in the base.

Local government, on a national basis, has experienced a rise in public water spending from 6.3% of annual local expenditures in 2000 to 6.7% in 2012. Generally, public water spending grew 78% from 2000 to 2012, outpacing growth in total and own source revenues, and annual expenditures. Long term debt, however, grew 101% outpacing growth in water spending. The ratio of long term debt to total revenues is on average 1.11; while the ratio to own source revenues was 1.95. The latter figure suggests a more sensitive indicator to gauge the ability of the base to generate revenues sufficient for public services.

Additionally, the report examined trends in water spending to determine the level and rate of change over time (2000-2012). Local government spending on public water systems has reached new highs but year-over-year growth in sector spending has trended more slowly for sewer, and has been level for water supply. Investment is growing, but not at the long term 7% rate, nor the 6% rate for 2001 to 2010. The 5% growth rate from 2000 to 2012 indicates a deceleration compared to long term averages going back to 1956.

Sewer spending grew 5.5% on average over 2000-2012. Total sewer spending and the capital and O&M portions all grew faster than the growth in revenues, especially the capital portion which grew 109% over the review period, despite a recent decline from 2011 to 2012.

Water supply spending grew an average of 4.5% over the review period. Capital spending in this sector increased 84%, exceeding growth in total and own source revenues. Water supply O&M costs grew 69%, (about the same growth rate as own source revenues).

Local government economic performance indicators are hard pressed to account for the slower growth in water spending. Revenue declines from 2011 to 2012 were largely caused by \$54 billion pension trust investment losses, and a \$14 billion reduction in intergovernmental transfers, neither of which have a major direct impact on public water spending, but may have indirect or induced affects.

Long term debt was examined to indicate if it is currently a limiting factor for public water spending. Although local long term debt is at its highest level in recent history the debt to total revenue ratio does not signal major concern for public water investment. The ratio has exceeded 1.0 since 2008 mostly due to pension trust investment losses. Long term debt continues to warrant monitoring but does not limit public water spending except for some communities facing unmanageable deficits. Annual local debt repayment was \$194 billion in 2012, and public water spending was \$111 billion.

The ratio of debt to own source revenue was found to be nearly twice that of total revenues. Albeit own source revenue is a component of total revenue, but it is the portion of local government revenue that is most reliable, and where local government has significant authority over who gets taxed and how much and setting fee levels. Local own source revenues from income, sales and property taxes have steadily risen since 2009, and are 70%

higher in 2012 than in 2000. The year-over-year change 2011 to 2012 yields a 1.1% increase. This suggests that the taxpayer/ratepayer base may be experiencing less financial distress, but is not experiencing robust growth. The low growth scenario does not bode well for water investments maintaining an aggressive growth rate, especially if the base is not experiencing significant income or property value appreciation. As the national economy recovers and own source revenues continue to grow, stagnant or declining median household income and stagnant wages persists. The continued outfall of housing foreclosures and inability of below median income households to pay utility bills are contributing factors to growth in ratepayer arrearages and delinquencies, leading to increased system shut-offs, (8,9).

The historical 7% annual growth rate (1972 – 2010) for public water investments prior to the 2008–2009 recession has decelerated. The question is – will deceleration continue and impede investment needed to satisfy current and future public water service demand. The 2000–2012 annual growth rate is 5%, so the deceleration, nationally, has been gradual but some local governments may be experiencing a faster rate of deceleration. A critical factor in sustaining the water infrastructure and services is local own source revenues. The lack of income growth in households, population or industrial decline, and depressed housing values that are slow to recover in many parts of the nation have a negative impact on own source revenues. Local government has a responsibility to ensure that public utility rates that are legally enforceable are also reasonable. There is a growing schism between reasonable rates required to provide uninterrupted utility services that comply with current federal mandates, and what is considered reasonable to a growing portion of the base who may be priced out of water supply and sanitary sewer services in America.

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