

# 2015 Water and Sewer Medians

## Special Report

### Sector Strength Continues

The 2015 medians continue Fitch Ratings' effort to provide transparency to market participants by giving a clear understanding of certain statistical ratios used in its review of sector revenue bond credits and quantitative results, particularly as they pertain to retail systems. The medians continue to point to ongoing capital and debt pressures but also spotlight the sector's overall financial strength. With the latest round of medians, financial results continued to post incremental gains despite added costs from additional borrowings.

### Key Findings

#### Related Research

2015 Outlook: Water and Sewer Sector  
(December 2014)

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### National Medians

**Solid Revenue Performance:** Despite flat water usage and wastewater flows during the median period, revenues continued to increase around 5% on rising user charges.

**Controlled Expenditures:** Annual operating expense growth continued to creep up but remained controlled at under 3% with the 2015 medians, compared with 2% for 2014 and just 1% the prior year. Debt service carrying costs relative to gross revenues inched up 1% for the year but matched peak-year costs from the 2012 medians.

**Improved Coverage:** Debt service coverage (DSC) remained strong on both a senior lien and all-in basis (2.6x and 2.1x, respectively) but was a tick lower on both fronts from the prior year.

**Cash Flows Finally Cover Depreciation:** One of the most noteworthy statistics from the median results is that surplus cash flows finally improved enough to cover annual depreciation expense (i.e. renewal and replacement), meaning utilities overall finally generated enough annual income to pay their bills and maintain depreciating assets on a pay-as-you-go basis (i.e. a "steady state"). This is the first time in five years that utilities effectively were able to completely "break even."

**Liquidity Continues to be a Highlight:** Despite anemic cash flows, liquidity levels remained significant and even increased overall as borrowing rose for capital expenses and most revenues were diverted to the bottom line after paying operating and debt service costs.

**Capital Spending Remains Depressed:** Actual capital spending for the year was the second lowest Fitch has observed and barely surpassed the 2014 medians (the trough spending year). The lack of spending contributed to an increase in the age of facilities, which rose to 14 years and was the oldest of any median result. Modest increases in capital spending are expected for the 2016 medians and beyond, but planned outlays remain well below those during and immediately before the recession, adding concern to the ongoing age of utility infrastructure.

**Manageable Debt Profile:** Certain debt ratios jumped somewhat unexpectedly from the prior year medians, although this largely corresponds to a spike in new utility issuances during the 2012–2013 timeframe, which were added to utility balance sheets during these medians. Over the next five years, additional debt is expected to comprise a manageable one-third of capital spending sources, which will limit the growth in system debt levels. Indeed, the rate of escalation in the utility debt burden over the next five years is the lowest Fitch has observed since it began tracking sector medians.

## Regional Medians

**Far West:** The Far West's financial performance continued to be among the strongest of all the regions, posting DSC, liquidity and cash flows that were on par or in excess of the national level. The regional debt burden, both current and projected, remained more in line with the national medians after prior years of having above-average debt levels.

**Midwest:** Midwest financial performance improved somewhat with the latest round of medians on accelerating revenue growth and cuts to operating expenses. Borrowing costs rose for the year and are expected to continue marching upward as these utilities address regulatory issues and aging infrastructure. But capital spending in the region — which leads the nation — contributed to a drop in age of facilities from last year.

**Northeast:** Financial results in the Northeast were largely flat for the year. Debt levels were up for the year, but the region's debt burden is forecast to fall slightly by year five, similar to last year's medians.

**Southeast:** Southeast financial results were the strongest overall among the regions, meeting or exceeding most national medians. Debt levels in the Southeast are also among the lowest of all regions. The only significant negative for the region relates to cost of service, which is the highest of all the regions and at or near Fitch's affordability benchmark overall.

**Southwest:** Financial results for the region were good for the year but were lower than prior years on slowing revenue growth, which was undoubtedly associated with ongoing drought conditions in much of the region and related calls for conservation. Unlike all other regions, debt levels in the Southwest actually declined slightly from last year, but this was more a function of the rapid principal amortization rate in the region, which still posts by far the quickest pace of debt repayment nationally, with nearly 60% of principal repaid in 10 years.

## Medians Relative to System Size

**Large Systems:** Large systems (defined as utilities serving 500,000 or more persons) in general continued to have the greatest amount of debt and produce the lowest financial margins. Having the oldest facilities and facing the greatest capital needs, large utilities are forecast to see the greatest increase in debt levels over the five-year capital cycle (up nearly 55%) and will require the largest rate hikes (in the 5% range) to maintain existing financial results.

**Midsized Systems:** Midsized systems (defined as utilities serving between 100,000 and 499,999 persons) continue to generate stronger financial performance on balance than other utilities while having the lowest debt burden and some of the lowest rates. For the 2015 medians, midsized utilities adopted rate adjustments to offset additional fixed costs from new debt issuances to the extent that free cash flow improved 10% from the prior year. These surplus revenues allowed utilities to contribute a meaningful amount of pay-go spending, while a portion of the monies was also held back to increase cash reserves.

**Small Systems:** Small systems (defined as utilities serving less than 100,000 persons) continued to produce financial and debt metrics in the midrange relative to other utilities. Small utilities adopted rate hikes to support borrowings, but much of the carrying costs from the additional debt will not affect the expense structure until next year. Consequently, cash flows improved the most relative to all systems, which led to DSC improving for the year as well as to a sizable increase in surplus cash flows relative to depreciation (up 16% from 2014).

### Related Criteria

[Revenue-Supported Rating Criteria \(June 2014\)](#)

[U.S. Water and Sewer Revenue Bond Rating Criteria \(July 2013\)](#)

## Limitations of Medians Analysis in the Rating Process

While the medians serve as a useful tool for market participants by allowing for broad assessments and comparisons of credit quality, Fitch maintains that the data complement the rating process rather than act as a substitute. Thus, when evaluating the medians in relation to the rating process, certain distinctions between them should be noted, as follows:

**Point in Time:** Medians largely provide a point-in-time snapshot of the rating category, region, class size or sector as a whole, whereas the rating process focuses more on trends at the issuer and specific rating level.

**Exclusion of Rating Factors:** Only a portion of the factors covered in Fitch's rating process are reflected in the medians — in particular, qualitative aspects such as management, policies and legal provisions are excluded, although other quantitative ratios are also omitted.

**Individual Credit Characteristics Excluded:** The medians present a composite of the range of credits and do not delineate offsetting strengths or weaknesses at the individual credit level that may affect a rating.

## Methodology and Data

Fitch first published its water and sewer medians in 2004 to provide issuers, consultants, analysts, investors and others with a quantitative framework of ratios used in Fitch's water and sewer rating process. To this end, Fitch historically has grouped the medians according to their respective area within the criteria review process, and the 2015 medians continue this practice.

This report also continues Fitch's presentation of key ratios used in the rating process to give the market a better understanding of the priority in weighting certain ratios. To allow a comparison with prior statistics, Fitch also has included historical information from the 2007–2014 medians (*see Appendix E, page 13*); the 2004 medians were excluded, given that the methodology for the selection of credits was revised following its release. Fitch expects to add subsequent information annually to Appendix E as ensuing medians are published to allow readers to follow long-term trends.

As with Fitch's prior medians, those for 2015 cover only wholly or predominantly retail systems for which Fitch has taken rating actions on senior lien debt or debt that effectively acts as senior lien obligations. The data include water and sewer revenue bond credits rated between September 2013 and August 2014. Certain credits have been excluded for various reasons, as outlined below (*for a complete list of issuers included in the 2015 medians, see Appendix B, pages 7–10*). In cases where the same issuer was rated multiple times over the median selection period, only data from the most recent rating were incorporated into the medians.

In the 2015 medians, combined water and sewer utilities accounted for 74 credits (50% of the total), individual water systems numbered 42 (28%) and individual sewer systems were 33 (22%). Certain credits with ratings of 'BBB+' or below were excluded for median-reporting purposes from the 2015 data set, because Fitch traditionally has viewed these issuers as outliers with extenuating circumstances. Also excluded were issuers for which the majority of system revenues were derived from other utility (e.g. electric power) revenues. In both cases, the data have a tendency to skew median results.

## Appendix A: Water and Sewer Median Definitions

| Median   | Definition   | Significance  |
|--|--|---|
| Population   | Estimated population of the service area.  | Provides an overview of the scope of operations in the service area.  |
| MHI (\$)   | Median household income for the primary municipal entity served by the utility based on the most recent year as reported by the U.S. Census Bureau.  | Indicates the overall wealth of average residential customers and their ability to pay for services.  |
| Total Water Customers  | Most recent water customer accounts total, if applicable.  | Provides an overview of the scope of operations in the service area.  |
| Water Customer Annual Growth (%)                                     | Percentage of historical average annual customer accounts growth rates over the prior five-year period.  | Indicates the pressures a utility may be facing to meet customer demands.   |
| Total Sewer Customers  | Most recent sewer customer accounts total, if applicable.  | Provides an overview of the scope of operations in the service area.  |
| Sewer Customer Annual Growth (%)                                     | Percentage of historical average annual customer accounts growth rates over the prior five-year period.  | Indicates the pressures a utility may be facing to meet customer demands.   |
| Top 10 Customers as % of Revenues                                    | Total annual receipts from the 10 largest customers divided by total operating system revenues for the year.   | Indicates revenue concentration levels.   |
| Age of Plant (Years)   | Total accumulated depreciation divided by annual depreciation.   | Indicates age of facilities and potential deferred plant maintenance  |
| Water Treatment Capacity Remaining (%)                               | Percentage of average permitted treatment capacity remaining above most recent production level.   | Indicates the pressures a utility may be facing to meet customer demands.   |
| Sewer Treatment Capacity Remaining (%)                               | Percentage of average permitted treatment capacity remaining above most recent production level.   | Indicates the pressures a utility may be facing to meet customer demands.   |
| Average Annual CIP Costs per Customer (\$)                           | Total projected capital needs in the CIP divided by the number of years of the CIP, divided by total number of customers (for a combined utility, the aggregate number of water and sewer accounts are used).  | Indicates effect of the CIP on ratepayers (principal only).   |
| CIP Debt Financed (%)  | Percentage of issuer's total CIP expected to be debt financed.   | Indicates future debt leverage of capital assets.   |
| Total Outstanding Debt to Net Plant Assets (%)                       | Total amount of utility long-term debt divided by the net asset value of the plant.  | Indicates existing debt leverage of capital assets.   |
| Debt to FADS (x)   | Total amount of utility long-term debt divided by the total funds available for debt service.  | Indicates existing debt leverage relative to existing funds available for debt service.   |
| Debt to Equity (x)   | Total amount of utility long-term debt divided by unrestricted net assets.   | Indicates existing debt leverage relative to system equity.   |
| Total Outstanding Long-Term Debt Per Customer (\$) <sup>a</sup>      | Total amount of utility long-term debt divided by the total number of utility customers (for a combined utility, the aggregate number of water and sewer accounts are used).   | Indicates the existing debt burden attributable to ratepayers (principal only).   |
| Total Outstanding Long-Term Debt Per Capita (\$) <sup>a</sup>        | Total amount of utility long-term debt divided by total population served by the utility.  | Indicates the existing debt burden of an utility attributable to each person served by the utility (principal only).                        |
| Ten-Year Principal Payout (%)  | Percentage of principal amortizing within 10 years..   | Indicates longevity of system debt  |
| Twenty-Year Principal Payout (%)                                     | Percentage of principal amortizing within 20 years.  | Indicates longevity of system debt.   |
| Projected Debt Per Customer – Year Five (\$) <sup>a</sup>            | Total projected outstanding system debt (existing debt less scheduled amortization plus planned issuances) divided by total outstanding projected customers five years from the date of the rating (for a combined utility, the aggregate number of water and sewer accounts are used and are inflated by anticipated growth). | Indicates the total debt burden to ratepayers five years from the date of the rating (principal only).                                      |
| Projected Debt Per Capita – Year Five (\$) <sup>a</sup>              | Total projected outstanding system debt (existing debt less scheduled amortization plus planned issuances) divided by total projected population served by the utility (population is inflated based on anticipated growth).   | Indicates the total debt burden of an utility to each person served by the utility five years from the date of the rating (principal only). |
| Individual Water/Sewer Utility Average Monthly Residential Bill (\$) | Average monthly residential bill for individual utilities; when billing was not calculated on a monthly basis, it was converted to a monthly amount for standardization.   | Indicates the monthly cost of service to residential customers.   |
| Individual Water/Sewer Utility Average Annual Bill as % of MHI       | Average monthly residential bill for individual utilities times 12, divided by the most recent yearly MHI as reported by the U.S. Census Bureau.   | Indicates the annual burden for cost of service to ratepayers.  |
| Combined Water/Sewer Utility Average Monthly Residential Bill (\$)   | Average monthly residential bill for combined utilities; when billing was not calculated on a monthly basis, it was converted to a monthly amount for standardization.   | Indicates the monthly cost of service to residential customers.   |
| Combined Water/Sewer Utility Average Annual Bill as % of MHI         | Average monthly residential bill for combined utilities times 12, divided by the most recent yearly MHI as reported by the U.S. Census Bureau.   | Indicates the annual burden for cost of service to ratepayers.  |

<sup>a</sup>Indicates key ratio. MHI – Median household income. CIP – Capital improvement program. FADS – Funds available for debt service.



## Appendix A: Water and Sewer Median Definitions (continued)

| Median  | Definition  | Significance  |
|---|---|---|
| Average Annual Projected Water Rate Increases (%)                       | Sum of planned annual rate increases divided by the number of years over which increases are forecast.  | Indicates the future expected burden for cost of service to ratepayers.   |
| Average Annual Projected Sewer Rate Increases (%)                       | Sum of planned annual rate increases divided by the number of years over which increases are forecast.  | Indicates the future expected burden for cost of service to ratepayers.   |
| Three-Year Historical Average Senior Lien ADS Coverage (x) <sup>a</sup> | Most recent three-year historical average of annual revenues available for debt service divided by respective senior lien debt service for the year.  | Indicates the historical trend in senior lien ADS coverage.   |
| Senior Lien ADS Coverage (x) <sup>a</sup>                               | Current-year revenues available for debt service divided by current-year senior lien debt service.  | Indicates the financial margin to meet current senior lien ADS with current revenues available for debt service.  |
| Senior Lien ADS Coverage Excluding Connection Fees (x)                  | Current-year revenues available for debt service, excluding one-time revenues such as connection fees, divided by current-year senior lien debt service.  | Indicates the financial margin to meet current senior lien ADS with current revenues available for debt service, excluding one-time revenues such as connection fees. |
| Senior Lien ADS Coverage Net of Transfers Out (x)                       | Current-year revenues available for debt service, excluding operating transfers out, divided by current-year senior lien debt service.  | Indicates the financial margin to meet current senior lien ADS with current revenues available for debt service, excluding transfers out.                             |
| Minimum Projected Senior Lien ADS Coverage (x) <sup>a</sup>             | Minimum debt service coverage projected typically over the ensuing five-year period, based on revenues available for debt service in any given fiscal year, divided by the respective senior lien debt service amount for that fiscal year. | Indicates the financial margin during the year in which future senior lien ADS coverage is projected to be the lowest.  |
| Senior Lien MADS Coverage (x)   | Current-year revenues available for debt service divided by projected senior lien MADS.   | Indicates the financial margin to meet projected senior lien MADS with current revenues available for debt service.   |
| Senior Lien Debt Service as % of Gross Revenues                         | Current-year senior lien debt service divided by current-year gross revenues.   | Indicates the level of annual senior lien debt service burden on system operations.   |
| Three-Year Historical Average All-In ADS Coverage (x) <sup>a</sup>      | Most recent three-year historical average of annual revenues available for debt service divided by respective total debt service for the year.  | Indicates the historical trend in total ADS coverage.   |
| All-In ADS Coverage (x) <sup>a</sup>                                    | Current-year revenues available for debt service divided by current-year total debt service.  | Indicates the financial margin to meet current total ADS with current revenues available for debt service.  |
| All-In ADS Coverage Excluding Connection Fees (x)                       | Current-year revenues available for debt service, excluding one-time revenues such as connection fees, divided by current-year total debt service.  | Indicates the financial margin to meet current total ADS with current revenues available for debt service, excluding one-time revenues such as connection fees.       |
| All-In ADS Coverage Net of Transfers Out (x)                            | Current-year revenues available for debt service, excluding operating transfers out, divided by current-year total debt service.  | Indicates the financial margin to meet current total ADS with current revenues available for debt service, excluding transfers out.                                   |
| Minimum Projected All-In ADS Coverage (x) <sup>a</sup>                  | Minimum debt service coverage projected typically over the ensuing five-year period, based on revenues available for debt service in any given fiscal year, divided by the respective total debt service amount for that fiscal year.       | Indicates the financial margin during the year in which future total ADS coverage is projected to be the lowest.  |
| All-In MADS Coverage (x)  | Current-year revenues available for debt service divided by projected total MADS.   | Indicates the financial margin to meet projected total MADS with current revenues available for debt service.   |
| All-In Debt Service as % of Gross Revenues                              | Current-year total debt service divided by current-year gross revenues.   | Indicates the level of annual total debt service burden on system operations.   |
| Operating Margin (%)  | Operating revenues minus operating expenditures plus depreciation, divided by operating revenues.   | Indicates financial margin to pay operating expenses.   |
| Operating Cash Flow Ratio (x)   | Cash flows from current operations divided by current liabilities.  | Indicates the strength of existing cash flows to meet near-term obligations.  |
| Operating Revenue Growth – Current Year (%)                             | Most recent audited operating revenues divided by the immediately prior year operating revenues minus one.  | Indicates revenue gains.  |
| Operating Revenue Growth – Three Year Average (%)                       | Average of operating revenues divided by the immediately prior year operating revenues minus one for the three most recent audited fiscal years.  | Indicates revenue gains.  |
| Operating Expenditure Growth – Current Year (%)                         | Most recent audited operating expenses divided by the immediately prior year operating expenses minus one.  | Indicates expenditure pressures.  |

<sup>a</sup>Indicates key ratio. ADS – Annual debt service. MADS – Maximum annual debt service.

## Appendix A: Water and Sewer Median Definitions (continued)

| Median  | Definition   | Significance  |
|---|--|---|
| Operating Expenditure Growth – Three-Year Average (%) | Average of operating expenses divided by the immediately prior year operating expenses minus one for the three most recent audited fiscal years.   | Indicates expenditure pressures.  |
| Days of Operating Revenues in Accounts Receivable     | Current unrestricted accounts receivable divided by operating revenues, divided by 365.  | Indicates rate at which customer revenues are received.   |
| Days Cash on Hand <sup>a</sup>                        | Current unrestricted cash and investments plus any restricted cash and investments (if available for general system purposes), divided by operating expenditures minus depreciation, divided by 365.   | Indicates financial flexibility to pay near-term obligations.   |
| Days of Working Capital <sup>a</sup>                  | Current unrestricted assets plus any restricted cash and investments (if available for general system purposes), minus current liabilities payable from unrestricted assets, divided by operating expenditures minus depreciation, divided by 365. | Indicates financial flexibility to pay near-term obligations.   |
| Quick Ratio   | Current cash plus current receivables divided by current liabilities.  | Indicates financial flexibility to pay near-term obligations.   |
| Current Ratio   | Current assets divided by current liabilities.   | Indicates financial flexibility to pay near-term obligations.   |
| Free Cash as % of Depreciation <sup>a</sup>           | Current surplus revenues after payment of operating expenses, debt service and operating transfers out divided by current year depreciation.   | Indicates annual financial capacity to maintain facilities at current level of service from existing cash flows.  |
| Capital Spending as % of Depreciation                 | Current-year additions to property, plant and equipment divided by current year depreciation.  | Indicates annual improvements made to system facilities relative to level of annual depreciation to effectively determine if facilities are being maintained. |

<sup>a</sup>Indicates key ratio.

## Appendix B: Utility Obligor Included in 2015 Water and Sewer Medians

|   | Date of Senior-Most Lien Rating | Long-Term Rating | Rating Outlook |
|---|---------------------------------|------------------|----------------|
| <b>Alaska</b>   |                                 |                  |                |
| Anchorage (Sewer)   | 7/11/14                         | AA               | Stable         |
| Anchorage (Water)   | 9/30/13                         | AA               | Stable         |
| <b>Arizona</b>  |                                 |                  |                |
| Chandler (Water & Sewer)  | 5/28/14                         | AA+              | Stable         |
| Gilbert Water Resources Municipal Property Corp. (Water)                  | 8/14/14                         | AA               | Stable         |
| Oro Valley (Water)  | 4/9/14                          | AA-              | Stable         |
| Peoria (Water & Sewer)  | 4/30/14                         | AA               | Stable         |
| Pima County (Sewer)   | 12/19/13                        | AA               | Stable         |
| Scottsdale (Water & Sewer)  | 2/11/14                         | AAA              | Stable         |
| Tucson (Water)  | 5/16/14                         | AA               | Stable         |
| <b>California</b>   |                                 |                  |                |
| Anaheim (Sewer)   | 1/29/14                         | AA+              | Stable         |
| Belmont Joint Powers Authority (Sewer)                                    | 8/18/14                         | AA-              | Stable         |
| Beverly Hills (Sewer)   | 5/1/14                          | AAA              | Stable         |
| Beverly Hills (Water)   | 3/10/14                         | AAA              | Stable         |
| Contra Costa Water District (Water)                                       | 5/5/14                          | AA               | Stable         |
| Cucamonga Valley Water District (Water)                                   | 6/6/14                          | AA               | Stable         |
| East Bay Municipal Utility District (Sewer)                               | 7/22/14                         | AA+              | Stable         |
| Eastern Municipal Water District (Water & Sewer)                          | 5/28/14                         | AA+              | Stable         |
| Elsinore Valley Municipal Water District (Water & Sewer)                  | 4/29/14                         | AA               | Stable         |
| Escondido Joint Powers Authority (Sewer)                                  | 2/4/14                          | AA-              | Stable         |
| Escondido Joint Powers Authority (Water)                                  | 2/4/14                          | AA-              | Stable         |
| Fresno (Sewer)  | 11/6/13                         | AA               | Negative       |
| Fresno (Water)  | 11/6/13                         | AA               | Negative       |
| Glendale Water & Power (Water)  | 11/13/13                        | A+               | Negative       |
| Jurupa Community Services District (Sewer)                                | 2/4/14                          | AA               | Stable         |
| Jurupa Community Services District (Water)                                | 2/4/14                          | AA               | Stable         |
| Lake Arrowhead Community Service District (Water)                         | 8/1/14                          | AA+              | Stable         |
| Lodi (Sewer)  | 7/29/14                         | AA-              | Stable         |
| Lomita (Water)  | 5/2/14                          | A                | Stable         |
| Los Angeles County Sanitation District #14 (Sewer)                        | 12/6/13                         | AA-              | Stable         |
| Los Angeles County Sanitation District #20 (Sewer)                        | 12/6/13                         | AA-              | Stable         |
| Los Angeles Department of Water & Power (Water)                           | 10/29/13                        | AA               | Stable         |
| Marin Municipal Water District (Water)                                    | 4/9/14                          | AA+              | Stable         |
| Napa (Water)  | 3/25/14                         | AA+              | Stable         |
| Nevada Irrigation District Joint Powers Authority (Water & Hydroelectric) | 10/31/13                        | AA               | Stable         |
| Oakland (Sewer)   | 1/22/14                         | AA               | Stable         |
| Olivenhain Municipal Water District (Water)                               | 9/10/13                         | AA+              | Stable         |
| Orange County Sanitation District (Sewer)                                 | 7/2/14                          | AAA              | Stable         |
| Otay Water District (Water)   | 3/5/14                          | AA-              | Stable         |
| Pasadena (Water)  | 11/8/13                         | AA+              | Stable         |
| Rancho California Water District (Water & Sewer)                          | 12/17/13                        | AA+              | Stable         |
| Redwood City (Water)  | 12/13/13                        | AA-              | Stable         |
| Sacramento Area Sewer District (Sewer)                                    | 4/21/14                         | AA               | Stable         |
| San Diego (Sewer)   | 3/12/14                         | AA               | Stable         |
| San Diego (Water)   | 3/12/14                         | AA               | Stable         |
| San Luis Obispo (Water)   | 12/30/13                        | AA               | Stable         |
| Santa Cruz (Water)  | 6/24/14                         | A+               | Stable         |
| Santa Maria (Water & Sewer)   | 4/28/14                         | AA-              | Stable         |
| Stockton (Sewer)  | 8/11/14                         | A-               | Stable         |
| Yorba Linda Water District (Water)  | 8/15/14                         | AA               | Stable         |
| <b>Colorado</b>   |                                 |                  |                |
| Aurora (Sewer)  | 6/19/14                         | AA+              | Stable         |
| Aurora (Water)  | 6/19/14                         | AA+              | Stable         |
| Denver, City & County (Sewer)   | 12/13/13                        | AAA              | Stable         |
| Denver, City & County Board of Water Commissioners (Water)                | 8/29/14                         | AAA              | Stable         |
| St. Vrain Sanitation District (Sewer)                                     | 7/28/14                         | AA               | Stable         |
| Westminster (Water & Sewer)   | 4/3/14                          | AAA              | Stable         |
| <b>Connecticut</b>  |                                 |                  |                |
| Greater New Haven Water Pollution Control Authority (Water & Sewer)       | 6/10/14                         | A+               | Stable         |
| <b>District of Columbia</b>   |                                 |                  |                |
| DC Water (Water & Sewer)  | 6/26/14                         | AA               | Stable         |

## Appendix B: Utility Obligor's Included in 2015 Water and Sewer Medians (continued)

|  | Date of Senior-Most Lien Rating | Long-Term Rating | Rating Outlook |
|--|---------------------------------|------------------|----------------|
| <b>Delaware</b>  |                                 |                  |                |
| Dover (Water & Sewer)  | 4/15/14                         | AA+              | Stable         |
| <b>Florida</b>   |                                 |                  |                |
| Brevard County (Water & Sewer)   | 8/28/14                         | AA-              | Stable         |
| Broward County (Water & Sewer)   | 2/6/14                          | AA+              | Stable         |
| Clay County Utility Authority (Water & Sewer)                                | 11/26/13                        | AA               | Positive       |
| Collier County Water-Sewer District (Water & Sewer)                          | 6/4/14                          | AAA              | Stable         |
| Florida Governmental Utility Authority – Consolidated System (Water & Sewer) | 5/9/14                          | A-               | Stable         |
| Florida Governmental Utility Authority – Lehigh System (Water & Sewer)       | 5/9/14                          | A                | Stable         |
| Florida Keys Aqueduct Authority (Water)                                      | 9/16/13                         | AA-              | Stable         |
| Fort Myers (Water, Sewer & Reclaimed Water)                                  | 7/22/14                         | A+               | Stable         |
| Hillsborough County (Water & Sewer)  | 8/6/14                          | AAA              | Stable         |
| Hollywood (Water & Sewer)  | 11/11/13                        | AA-              | Stable         |
| JEA (Water & Sewer)  | 6/17/14                         | AA               | Stable         |
| Lakeland (Water & Sewer)   | 11/20/13                        | AA+              | Stable         |
| Manatee County (Water, Sewer Stormwater & Solid Waste)                       | 10/11/13                        | AA+              | Stable         |
| Martin County (Water & Sewer)  | 4/16/14                         | AA               | Stable         |
| Oakland Park (Water & Sewer)   | 6/30/14                         | AA-              | Stable         |
| Okaloosa County (Water & Sewer)  | 10/8/13                         | AA-              | Stable         |
| Panama City Beach (Water & Sewer)  | 1/27/14                         | AA               | Stable         |
| Pinellas County (Sewer)  | 5/21/14                         | AA               | Stable         |
| Polk County (Water & Sewer)  | 2/11/14                         | AA-              | Stable         |
| Port Orange (Water & Sewer)  | 5/1/14                          | AA               | Stable         |
| Port St. Lucie (Water & Sewer)   | 11/14/13                        | AA-              | Stable         |
| Riviera Beach Utility Special District (Water & Sewer)                       | 7/1/14                          | A+               | Stable         |
| Sarasota County (Water & Sewer)  | 8/7/14                          | AA+              | Stable         |
| Seacoast Utility Authority (Water & Sewer)                                   | 7/10/14                         | AA               | Stable         |
| St. Petersburg (Water & Sewer)   | 10/3/13                         | AA               | Stable         |
| Sunrise (Water, Sewer & Gas)   | 6/30/14                         | AA               | Stable         |
| Tallahassee (Water, Sewer & Stormwater)                                      | 7/21/14                         | AA+              | Stable         |
| Tampa (Water & Sewer)  | 7/9/14                          | AAA              | Stable         |
| Winter Haven (Water & Sewer)   | 9/17/13                         | AA               | Stable         |
| <b>Georgia</b>   |                                 |                  |                |
| DeKalb County (Water & Sewer)  | 11/27/13                        | AA-              | Stable         |
| <b>Hawaii</b>  |                                 |                  |                |
| Honolulu Board of Water Supply (Water)                                       | 2/28/14                         | AA+              | Stable         |
| <b>Illinois</b>  |                                 |                  |                |
| Chicago (Sewer)  | 8/29/14                         | AA               | Stable         |
| Chicago (Water)  | 8/29/14                         | AA+              | Stable         |
| <b>Indiana</b>   |                                 |                  |                |
| Citizens Authority (Sewer)   | 6/3/14                          | A                | Stable         |
| Citizens Energy Group (Water)  | 6/10/14                         | A                | Stable         |
| <b>Kentucky</b>  |                                 |                  |                |
| Louisville & Jefferson County Metropolitan Sewer District (Sewer)            | 10/30/13                        | AA-              | Stable         |
| <b>Louisiana</b>   |                                 |                  |                |
| East Baton Rouge Sewerage Commission (Sewer & Sales Tax)                     | 6/30/14                         | AA               | Stable         |
| <b>Massachusetts</b>   |                                 |                  |                |
| Boston Water & Sewer Commission (Water & Sewer)                              | 7/14/14                         | AA+              | Stable         |
| <b>Michigan</b>  |                                 |                  |                |
| Kalamazoo (Water)  | 11/19/13                        | A+               | Stable         |
| <b>Missouri</b>  |                                 |                  |                |
| Metropolitan St. Louis Sewer District (Sewer)                                | 11/18/13                        | AA+              | Stable         |
| <b>North Carolina</b>  |                                 |                  |                |
| Brunswick County (Water & Sewer)   | 12/20/13                        | AA-              | Stable         |



## Appendix B: Utility Obligors Included in 2015 Water and Sewer Medians (continued)

|   | Date of Senior-Most Lien Rating | Long-Term Rating | Rating Outlook |
|---|---------------------------------|------------------|----------------|
| <b>North Carolina (Continued)</b>                                     |                                 |                  |                |
| Buncombe County Metropolitan Sewerage District (Sewer)                | 4/10/14                         | AA+              | Stable         |
| Greensboro (Water & Sewer)  | 7/15/14                         | AAA              | Stable         |
| High Point (Water & Sewer)  | 4/14/14                         | AA+              | Stable         |
| Orange Water & Sewer Authority (Water & Sewer)                        | 7/24/14                         | AA+              | Stable         |
| <b>New Jersey</b>   |                                 |                  |                |
| North Hudson Sewerage Authority (Sewer)                               | 3/31/14                         | A                | Stable         |
| <b>New Mexico</b>   |                                 |                  |                |
| Albuquerque Bernalillo County Water Utility Authority (Water & Sewer) | 8/6/14                          | AA               | Stable         |
| Santa Fe (Water & GRT)  | 9/27/13                         | AAA              | Stable         |
| <b>Nevada</b>   |                                 |                  |                |
| Truckee Meadows Water Authority (Water & Sewer)                       | 3/28/14                         | AA-              | Stable         |
| <b>New York</b>   |                                 |                  |                |
| Erie County Water Authority (Water)                                   | 6/6/14                          | AA+              | Stable         |
| Nassau County Sewer & Storm Water Authority (Sewer & Stormwater)      | 5/23/14                         | AA-              | Stable         |
| New York City Municipal Water Finance Authority (Water & Sewer)       | 6/19/14                         | AA+              | Stable         |
| Suffolk County Water Authority (Water)                                | 8/26/14                         | AAA              | Stable         |
| Western Nassau County Water Authority (Water)                         | 2/5/14                          | AA-              | Stable         |
| <b>Ohio</b>   |                                 |                  |                |
| Columbus (Sewer)  | 3/20/14                         | AA               | Stable         |
| Toledo (Sewer)  | 7/7/14                          | A+               | Stable         |
| Toledo (Water)  | 7/7/14                          | AA-              | Stable         |
| <b>Pennsylvania</b>   |                                 |                  |                |
| Philadelphia (Water & Sewer)  | 12/31/13                        | A+               | Stable         |
| <b>South Carolina</b>   |                                 |                  |                |
| Charleston Water System   | 4/4/14                          | AA+              | Stable         |
| <b>Texas</b>  |                                 |                  |                |
| Arlington (Water & Sewer)   | 5/22/14                         | AAA              | Stable         |
| Austin (Water & Sewer)  | 5/19/14                         | AA-              | Negative       |
| Burleson (Water & Sewer)  | 8/29/14                         | AA-              | Stable         |
| Carrollton (Water & Sewer)  | 2/28/14                         | AAA              | Stable         |
| Cleburne (Water & Sewer)  | 11/18/13                        | AA-              | Stable         |
| Colleyville (Water & Sewer)   | 6/23/14                         | AAA              | Stable         |
| Corpus Christi (Water, Sewer, Stormwater & Gas)                       | 11/27/13                        | AA-              | Stable         |
| Edinburg (Water & Sewer)  | 1/27/14                         | AA-              | Stable         |
| El Paso (Water & Sewer)   | 12/27/13                        | AA+              | Stable         |
| Fort Worth (Water & Sewer)  | 1/27/14                         | AA               | Stable         |
| Garland (Water & Sewer)   | 5/9/14                          | AA+              | Negative       |
| Greenville (Water & Sewer)  | 11/1/13                         | AA-              | Stable         |
| Houston (Water & Sewer)   | 2/28/14                         | AA+              | Stable         |
| Laredo (Water & Sewer)  | 10/1/13                         | AA-              | Stable         |
| Mansfield (Water & Sewer)   | 11/21/13                        | AA               | Stable         |
| McAllen (Water & Sewer)   | 12/12/13                        | AA+              | Stable         |
| Mineral Wells (Water & Sewer)   | 9/25/13                         | AA-              | Stable         |
| Pasadena (Water & Sewer)  | 8/28/14                         | AA-              | Stable         |
| San Antonio (Water & Sewer)   | 3/31/14                         | AA+              | Stable         |
| Sugar Land (Water & Sewer)  | 10/28/13                        | AA+              | Stable         |
| Victoria (Water & Sewer)  | 5/1/14                          | AA-              | Stable         |
| <b>Utah</b>   |                                 |                  |                |
| Clearfield City (Water)   | 11/20/13                        | AA               | Stable         |
| Eagle Mountain (Water & Sewer)  | 11/25/13                        | AA-              | Stable         |
| Midvale (Water & Sewer)   | 2/26/14                         | AA-              | Stable         |
| North Salt Lake (Water)   | 10/30/13                        | A-               | Stable         |
| Orem (Water & Stormwater)   | 7/25/14                         | AA+              | Stable         |

## Appendix B: Utility Obligors Included in 2015 Water and Sewer Medians (continued)

|                                | Date of Senior-Most Lien Rating | Long-Term Rating | Rating Outlook |
|--------------------------------|---------------------------------|------------------|----------------|
| <b>Virginia</b>                |                                 |                  |                |
| Chesapeake (Water & Sewer)     | 3/7/14                          | AA               | Stable         |
| Fairfax County (Sewer)         | 3/17/14                         | AAA              | Stable         |
| Henrico County (Water & Sewer) | 3/13/14                         | AAA              | Negative       |
| Hopewell (Sewer)               | 10/17/13                        | AA-              | Stable         |
| <b>Washington</b>              |                                 |                  |                |
| Renton (Water & Sewer)         | 7/14/14                         | AA+              | Stable         |
| <b>Wisconsin</b>               |                                 |                  |                |
| De Pere (Water)                | 10/22/13                        | AA-              | Stable         |

## Appendix C: 2015 Regional Medians

|   | Far West | Midwest | Northeast | Southeast | Southwest | All Credits |
|---|----------|---------|-----------|-----------|-----------|-------------|
| <b>Community Characteristics/Customer Growth and Concentration</b>              |          |         |           |           |           |             |
| Population  | 149,018  | 928,281 | 550,000   | 189,123   | 229,972   | 190,713     |
| MHI (\$)  | 61,985   | 43,348  | 51,739    | 47,972    | 50,468    | 50,610      |
| Total Water Customers   | 26,630   | 125,342 | 146,215   | 54,241    | 57,352    | 47,982      |
| Annual Growth (%)   | 0.6      | 0.2     | 0.1       | 0.5       | 0.9       | 0.6         |
| Total Sewer Customers   | 29,461   | 252,975 | 87,571    | 51,821    | 61,232    | 52,802      |
| Annual Growth (%)   | 0.3      | 0.3     | 0.1       | 0.8       | 1.0       | 0.6         |
| Top 10 Customers as % of Revenues   | 9        | 7       | 8         | 7         | 6         | 7           |
| <b>Capacity</b>   |          |         |           |           |           |             |
| Age of Plant (Years)  | 13       | 15      | 15        | 14        | 14        | 14          |
| Water Treatment Capacity Remaining (%)  | 42       | 54      | 63        | 56        | 62        | 58          |
| Sewer Treatment Capacity Remaining (%)  | 37       | 16      | 43        | 45        | 40        | 42          |
| <b>Capital Demands and Debt Policies</b>  |          |         |           |           |           |             |
| Average Annual CIP Costs Per Customer (\$)                                      | 268      | 463     | 259       | 252       | 278       | 278         |
| CIP Debt Financed (%)   | 0        | 67      | 64        | 28        | 55        | 34          |
| Total Outstanding Debt to Net Plant Assets (%)                                  | 44       | 79      | 76        | 49        | 46        | 48          |
| Debt to FADS (x)  | 6.3      | 9.6     | 8.4       | 5.7       | 5.8       | 6.2         |
| Debt to Equity (x)  | 2.4      | 9.9     | 8.0       | 3.4       | 4.8       | 3.4         |
| Total Outstanding Long-Term Debt Per Customer (\$) <sup>a</sup>                 | 1,888    | 3,130   | 2,591     | 1,791     | 1,634     | 1,836       |
| Total Outstanding Long-Term Debt Per Capita (\$) <sup>a</sup>                   | 517      | 668     | 442       | 406       | 519       | 491         |
| Ten-Year Principal Payout (%)   | 36       | 29      | 40        | 40        | 58        | 40          |
| Twenty-Year Principal Payout (%)  | 80       | 69      | 77        | 82        | 99        | 82          |
| Projected Debt Per Customer – Year Five (\$) <sup>a</sup>                       | 2,064    | 4,098   | 2,503     | 1,811     | 1,850     | 1,997       |
| Projected Debt Per Capita – Year Five (\$) <sup>a</sup>                         | 520      | 1,202   | 503       | 498       | 617       | 522         |
| <b>Charges and Rate Affordability</b>   |          |         |           |           |           |             |
| Individual Water/Sewer Utility Average Monthly Residential Bill (\$)            | 44       | 38      | 30        | 41        | 31        | 39          |
| Individual Water/Sewer Utility Average Annual Bill as % of MHI                  | 0.8      | 1.1     | 0.5       | 1.0       | 0.7       | 0.8         |
| Combined Water/Sewer Utility Average Monthly Residential Bill (\$)              | 72       | N.A.    | 69        | 72        | 52        | 69          |
| Combined Water/Sewer Utility Average Annual Bill as % of MHI                    | 1.4      | N.A.    | 1.8       | 1.9       | 1.2       | 1.6         |
| Average Annual Projected Water Rate Increases (%)                               | 4.9      | 9.5     | 3.1       | 3.7       | 3.8       | 3.8         |
| Average Annual Projected Sewer Rate Increases (%)                               | 5.2      | 10.3    | 5.3       | 4.2       | 4.5       | 4.7         |
| <b>Coverage and Financial Performance/Cash and Balance Sheet Considerations</b> |          |         |           |           |           |             |
| Three-Year Historical Average Senior Lien ADS Coverage (x) <sup>a</sup>         | 2.5      | 3.9     | 2.4       | 2.5       | 3.2       | 2.6         |
| Senior Lien ADS Coverage (x) <sup>a</sup>                                       | 2.6      | 2.3     | 2.3       | 2.5       | 3.0       | 2.6         |
| Senior Lien ADS Coverage Excluding Connection Fees (x)                          | 2.4      | 2.3     | 2.3       | 2.4       | 2.6       | 2.4         |
| Senior Lien ADS Coverage Net of Transfers Out (x)                               | 2.5      | 2.1     | 2.3       | 2.4       | 2.9       | 2.4         |
| Minimum Projected Senior Lien ADS Coverage (x) <sup>a</sup>                     | 2.1      | 2.0     | 1.7       | 1.8       | 2.2       | 2.0         |
| Senior Lien MADS Coverage (x)   | 2.3      | 1.3     | 4.6       | 1.9       | 2.0       | 2.0         |
| Senior Lien Debt Service as % of Gross Revenues                                 | 13       | 17      | 16        | 17        | 16        | 16          |
| Three-Year Historical Average All-In ADS Coverage (x) <sup>a</sup>              | 2.3      | 1.5     | 1.8       | 2.3       | 1.9       | 2.1         |
| All-In ADS Coverage (x) <sup>a</sup>  | 2.2      | 1.7     | 1.8       | 2.2       | 1.8       | 2.1         |
| All-In ADS Coverage Excluding Connection Fees (x)                               | 2.1      | 1.7     | 1.8       | 2.0       | 1.7       | 1.9         |
| All-In ADS Coverage Net of Transfers Out (x)                                    | 2.1      | 1.7     | 1.8       | 2.1       | 1.7       | 2.0         |
| Minimum Projected All-In ADS Coverage (x) <sup>a</sup>                          | 1.8      | 1.4     | 1.6       | 1.7       | 1.6       | 1.6         |
| All-In MADS Coverage (x)  | 1.8      | 1.5     | 2.9       | 1.9       | 1.7       | 1.8         |
| All-In Debt Service as % of Gross Revenues                                      | 16       | 29      | 25        | 21        | 26        | 22          |
| Operating Margin (%)  | 34       | 49      | 40        | 45        | 45        | 41          |
| Operating Cash Flow Ratio (x)   | 1.3      | 1.2     | 1.2       | 1.9       | 1.4       | 1.4         |
| Operating Revenue Growth – Current Year (%)                                     | 7.2      | 5.4     | 4.2       | 2.1       | 3.3       | 4.5         |
| Operating Revenue Growth – Three-Year Average (%)                               | 6.6      | 7.0     | 6.5       | 4.9       | 4.7       | 5.7         |
| Operating Expenditure Growth – Current Year (%)                                 | 5.8      | 0.6     | 0.0       | 1.3       | 4.4       | 2.5         |
| Operating Expenditure Growth – Three-Year Average (%)                           | 4.5      | 2.5     | 1.4       | 1.4       | 3.2       | 2.8         |
| Days of Operating Revenues in Accounts Receivable                               | 47       | 73      | 48        | 40        | 45        | 45          |
| Days Cash on Hand <sup>a</sup>  | 406      | 269     | 296       | 493       | 407       | 432         |
| Days of Working Capital <sup>a</sup>  | 400      | 322     | 246       | 522       | 395       | 422         |
| Quick Ratio   | 3.1      | 2.7     | 1.8       | 4.2       | 2.6       | 3.2         |
| Current Ratio   | 3.9      | 3.0     | 2.2       | 4.9       | 3.0       | 3.7         |
| Free Cash as % of Depreciation <sup>a</sup>                                     | 109      | 89      | 113       | 105       | 75        | 102         |
| Capital Spending as % of Depreciation   | 135      | 242     | 238       | 102       | 160       | 139         |

<sup>a</sup>Indicates key ratio. ADS – Annual debt service. CIP – Capital improvement program. FADS – Funds available for debt service. MADS – Maximum annual debt service. MHI – Median household income. N.A. – Not available.

## Appendix D: 2015 Medians Relative to System Size

|  | System Size Classification |         |        | All     |
|--|----------------------------|---------|--------|---------|
|  | Large                      | Medium  | Small  | Credits |
| Community Characteristics/Customer Growth and Concentration              |                            |         |        |         |
| Population   | 928,281                    | 203,890 | 43,470 | 190,713 |
| MHI (\$)   | 50,065                     | 51,144  | 53,296 | 50,610  |
| Total Water Customers  | 218,450                    | 55,878  | 18,812 | 47,982  |
| Annual Growth (%)  | 0.5                        | 0.6     | 0.8    | 0.6     |
| Total Sewer Customers  | 237,446                    | 56,432  | 12,986 | 52,802  |
| Annual Growth (%)  | 0.3                        | 0.6     | 1.1    | 0.6     |
| Top 10 Customers as % of Revenues  | 6                          | 7       | 11     | 7       |
| Capacity   |                            |         |        |         |
| Age of Plant (Years)   | 15                         | 14      | 13     | 14      |
| Water Treatment Capacity Remaining (%)                                   | 54                         | 55      | 62     | 58      |
| Sewer Treatment Capacity Remaining (%)                                   | 40                         | 42      | 44     | 42      |
| Capital Demands and Debt Policies  |                            |         |        |         |
| Average Annual CIP Costs Per Customer (\$)                               | 318                        | 281     | 241    | 278     |
| CIP Debt Financed (%)  | 58                         | 22      | 12     | 34      |
| Total Outstanding Debt to Net Plant Assets (%)                           | 53                         | 44      | 48     | 48      |
| Debt to FADS (x)   | 8.4                        | 5.9     | 5.4    | 6.2     |
| Debt to Equity (x)   | 5.9                        | 2.9     | 2.5    | 3.4     |
| Total Outstanding Long-Term Debt Per Customer (\$) <sup>a</sup>          | 2,382                      | 1,728   | 1,734  | 1,836   |
| Total Outstanding Long-Term Debt Per Capita (\$) <sup>a</sup>            | 542                        | 430     | 537    | 491     |
| Ten-Year Principal Payout (%)  | 34                         | 43      | 49     | 40      |
| Twenty-Year Principal Payout (%)   | 74                         | 82      | 89     | 82      |
| Projected Debt Per Customer Capita – Year Five (\$) <sup>a</sup>         | 2,893                      | 1,971   | 1,619  | 1,997   |
| Projected Debt Per Capita – Year Five (\$) <sup>a</sup>                  | 748                        | 493     | 506    | 522     |
| Charges and Rate Affordability   |                            |         |        |         |
| Individual Water/Sewer Utility Average Monthly Residential Bill (\$)     | 37                         | 39      | 43     | 39      |
| Individual Water/Sewer Utility Average Annual Bill as % of MHI           | 0.7                        | 0.8     | 0.8    | 0.8     |
| Combined Water/Sewer Utility Average Monthly Residential Bill (\$)       | 71                         | 69      | 67     | 69      |
| Combined Water/Sewer Utility Average Annual Bill as % of MHI             | 1.8                        | 1.7     | 1.6    | 1.6     |
| Average Annual Projected Water Rate Increases (%)                        | 5.0                        | 3.8     | 3.0    | 3.8     |
| Average Annual Projected Sewer Rate Increases (%)                        | 5.0                        | 4.5     | 3.6    | 4.7     |
| Coverage and Financial Performance/Cash and Balance Sheet Considerations |                            |         |        |         |
| Three-Year Historical Average Senior Lien ADS Coverage (x) <sup>a</sup>  | 2.4                        | 2.8     | 2.6    | 2.6     |
| Senior Lien ADS Coverage (x) <sup>a</sup>                                | 2.3                        | 3.0     | 2.5    | 2.6     |
| Senior Lien ADS Coverage Excluding Connection Fees (x)                   | 2.1                        | 2.8     | 2.3    | 2.4     |
| Senior Lien ADS Coverage Net of Transfers Out (x)                        | 2.2                        | 2.7     | 2.5    | 2.4     |
| Minimum Projected Senior Lien ADS Coverage (x) <sup>a</sup>              | 1.9                        | 2.0     | 2.0    | 2.0     |
| Senior Lien MADS Coverage (x)  | 1.9                        | 2.5     | 2.0    | 2.0     |
| Senior Lien Debt Service as % of Gross Revenues                          | 19                         | 15      | 15     | 16      |
| Three-Year Historical Average All-In ADS Coverage (x) <sup>a</sup>       | 1.8                        | 2.2     | 2.2    | 2.1     |
| All-In ADS Coverage (x) <sup>a</sup>                                     | 1.7                        | 2.2     | 2.3    | 2.1     |
| All-In ADS Coverage Excluding Connection Fees (x)                        | 1.7                        | 2.0     | 2.2    | 1.9     |
| All-In ADS Coverage Net of Transfers Out (x)                             | 1.7                        | 2.1     | 2.1    | 2.0     |
| Minimum Projected All-In ADS Coverage (x) <sup>a</sup>                   | 1.6                        | 1.7     | 1.8    | 1.6     |
| All-In MADS Coverage (x)   | 1.3                        | 1.8     | 1.9    | 1.8     |
| All-In Debt Service as % of Gross Revenues                               | 26                         | 21      | 17     | 22      |
| Operating Margin (%)   | 45                         | 41      | 35     | 41      |
| Operating Cash Flow Ratio (x)  | 1.2                        | 1.6     | 1.5    | 1.4     |
| Operating Revenue Growth – Current Year (%)                              | 4.2                        | 4.6     | 4.5    | 4.5     |
| Operating Revenue Growth – Three-Year Average (%)                        | 5.9                        | 5.0     | 6.2    | 5.7     |
| Operating Expenditure Growth – Current Year (%)                          | 2.4                        | 2.9     | 2.4    | 2.5     |
| Operating Expenditure Growth –Three-Year Average (%)                     | 3.2                        | 2.5     | 2.8    | 2.8     |
| Days of Operating Revenues in Accounts Receivable                        | 46                         | 45      | 46     | 45      |
| Days Cash on Hand <sup>a</sup>   | 296                        | 498     | 392    | 432     |
| Days of Working Capital <sup>a</sup>                                     | 299                        | 531     | 382    | 422     |
| Quick Ratio  | 2.6                        | 3.9     | 3.5    | 3.2     |
| Current Ratio  | 2.9                        | 4.3     | 4.2    | 3.7     |
| Free Cash as % of Depreciation <sup>a</sup>                              | 81                         | 111     | 110    | 102     |
| Capital Spending as % of Depreciation                                    | 168                        | 145     | 103    | 139     |

<sup>a</sup>Indicates key ratio. ADS – Annual debt service. CIP – Capital improvement program. FADS – Funds available for debt service. MADS – Maximum annual debt service. MHI – Median household income.



## Appendix E: Year-Over-Year Sectorwide Medians Comparison

|   | 2007    | 2008    | 2009    | 2010    | 2011    | 2012    | 2013    | 2014    | 2015    |
|---|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| <b>Community Characteristics/Customer Growth and Concentration</b>              |         |         |         |         |         |         |         |         |         |
| Population  | 119,037 | 234,103 | 162,338 | 144,162 | 150,142 | 153,272 | 172,778 | 149,025 | 190,713 |
| MHI (\$)  | 40,656  | 45,733  | 45,820  | 47,179  | 50,146  | 50,294  | 51,518  | 49,655  | 50,610  |
| Total Water Customers   | 37,299  | 61,076  | 50,410  | 37,264  | 40,755  | 39,441  | 48,169  | 40,431  | 47,982  |
| Annual Growth (%)   | 2.5     | 2.4     | 1.6     | 1.7     | 1.4     | 0.5     | 0.4     | 0.6     | 0.6     |
| Total Sewer Customers   | 32,903  | 64,039  | 48,000  | 40,306  | 48,949  | 34,984  | 50,296  | 35,210  | 52,802  |
| Annual Growth (%)   | 2.8     | 2.5     | 1.9     | 1.5     | 1.7     | 0.6     | 0.8     | 0.6     | 0.6     |
| Top 10 Customers as % of Revenues   | 9       | 8       | 8       | 7       | 7       | 8       | 8       | 8       | 7       |
| <b>Capacity</b>   |         |         |         |         |         |         |         |         |         |
| Age of Plant (Years)  | 13      | 13      | 12      | 13      | 12      | 13      | 13      | 13      | 14      |
| Water Treatment Capacity Remaining (%)  | 53      | 50      | 50      | 54      | 53      | 58      | 58      | 58      | 58      |
| Sewer Treatment Capacity Remaining (%)  | 32      | 35      | 35      | 38      | 42      | 41      | 47      | 47      | 42      |
| <b>Capital Demands and Debt Policies</b>  |         |         |         |         |         |         |         |         |         |
| Average Annual CIP Costs Per Customer (\$)                                      | 266     | 348     | 356     | 273     | 297     | 248     | 251     | 226     | 278     |
| CIP Debt Financed (%)   | 62      | 63      | 66      | 60      | 49      | 45      | 39      | 32      | 34      |
| Total Outstanding Debt to Net Plant Assets (%)                                  | 40      | 39      | 39      | 43      | 44      | 45      | 47      | 43      | 48      |
| Debt to FADS (x)  | —       | —       | 4.9     | 5.5     | 6.4     | 6.7     | 6.8     | 6.1     | 6.2     |
| Debt to Equity (x)  | —       | —       | —       | —       | 3.2     | 3.5     | 3.8     | 3.3     | 3.4     |
| Total Outstanding Long-Term Debt Per Customer (\$) <sup>a</sup>                 | 1,012   | 1,185   | 1,454   | 1,297   | 1,527   | 1,611   | 1,650   | 1,581   | 1,836   |
| Total Outstanding Long-Term Debt Per Capita (\$) <sup>a</sup>                   | —       | —       | 379     | 375     | 425     | 458     | 460     | 459     | 491     |
| Ten-Year Principal Payout (%)   | 40      | 30      | 40      | 39      | 38      | 39      | 38      | 39      | 40      |
| Twenty-Year Principal Payout (%)  | 87      | 70      | 82      | 80      | 79      | 80      | 78      | 80      | 82      |
| Projected Debt Per Customer – Year Five (\$) <sup>a</sup>                       | 1,599   | 1,808   | 2,036   | 1,774   | 1,877   | 1,803   | 2,024   | 1,868   | 1,997   |
| Projected Debt Per Capita – Year Five (\$) <sup>a</sup>                         | —       | —       | 607     | 446     | 531     | 532     | 566     | 519     | 522     |
| <b>Charges and Rate Affordability</b>   |         |         |         |         |         |         |         |         |         |
| Individual Water/Sewer Utility Average Monthly Residential Bill (\$)            | 23      | 29      | 28      | 28      | 35      | 33      | 37      | 36      | 39      |
| Individual Water/Sewer Utility Average Annual Bill as % of MHI                  | 0.6     | 0.7     | 0.8     | 0.7     | 0.8     | 0.7     | 0.8     | 0.9     | 0.8     |
| Combined Water/Sewer Utility Average Monthly Residential Bill (\$)              | 47      | 56      | 56      | 59      | 61      | 61      | 65      | 68      | 69      |
| Combined Water/Sewer Utility Average Annual Bill as % of MHI                    | 1.4     | 1.4     | 1.3     | 1.5     | 1.4     | 1.5     | 1.5     | 1.6     | 1.6     |
| Average Annual Projected Water Rate Increases (%)                               | 4.1     | 4.4     | 4.9     | 5.3     | 5.0     | 4.8     | 4.4     | 4.0     | 3.8     |
| Average Annual Projected Sewer Rate Increases (%)                               | 5.0     | 5.1     | 5.9     | 5.9     | 5.8     | 5.1     | 5.0     | 3.7     | 4.7     |
| <b>Coverage and Financial Performance/Cash and Balance Sheet Considerations</b> |         |         |         |         |         |         |         |         |         |
| Three-Year Historical Average Senior Lien ADS Coverage (x) <sup>a</sup>         | —       | 2.7     | 3.0     | 2.9     | 2.7     | 2.5     | 2.4     | 2.5     | 2.6     |
| Senior Lien ADS Coverage (x) <sup>a</sup>                                       | 2.3     | 2.8     | 2.9     | 2.6     | 2.3     | 2.2     | 2.4     | 2.7     | 2.6     |
| Senior Lien ADS Coverage Excluding Connection Fees (x)                          | 2.0     | 2.3     | 2.3     | 2.4     | 2.1     | 2.1     | 2.3     | 2.5     | 2.4     |
| Senior Lien ADS Coverage Net of Transfers Out (x)                               | —       | —       | —       | —       | 2.1     | 2.1     | 2.3     | 2.4     | 2.4     |
| Minimum Projected Senior Lien ADS Coverage (x) <sup>a</sup>                     | 1.8     | 1.9     | 1.9     | 1.9     | 1.8     | 1.9     | 1.8     | 2.1     | 2.0     |
| Senior Lien MADS Coverage (x)   | 1.9     | 2.0     | 2.1     | 2.4     | 1.9     | 2.1     | 2.0     | 2.1     | 2.0     |
| Senior Lien Debt Service as % of Gross Revenues                                 | 18      | 16      | 15      | 16      | 17      | 17      | 17      | 16      | 16      |
| Three-Year Historical Average All-In ADS Coverage (x) <sup>a</sup>              | —       | —       | 2.1     | 2.4     | 2.3     | 2.1     | 2.0     | 2.0     | 2.1     |
| All-In ADS Coverage (x) <sup>a</sup>  | —       | 2.2     | 2.3     | 2.2     | 1.9     | 1.8     | 2.0     | 2.1     | 2.1     |
| All-In ADS Coverage Excluding Connection Fees (x)                               | —       | —       | 1.8     | 1.9     | 1.7     | 1.7     | 1.8     | 1.9     | 1.9     |
| All-In ADS Coverage Net of Transfers Out (x)                                    | —       | —       | —       | —       | 1.8     | 1.7     | 1.8     | 1.9     | 2.0     |
| Minimum Projected All-In ADS Coverage (x) <sup>a</sup>                          | —       | —       | 1.7     | 1.6     | 1.5     | 1.6     | 1.5     | 1.7     | 1.6     |
| All-In MADS Coverage (x)  | —       | —       | 1.8     | 2.0     | 1.7     | 1.6     | 1.6     | 1.7     | 1.8     |
| All-In Debt Service as % of Gross Revenues                                      | —       | 20      | 21      | 18      | 20      | 22      | 21      | 21      | 22      |
| Operating Margin (%)  | 34      | 36      | 33      | 32      | 33      | 36      | 39      | 39      | 41      |
| Operating Cash Flow Ratio (x)   | —       | —       | 1.1     | 1.0     | 1.0     | 1.1     | 1.3     | 1.3     | 1.4     |
| Operating Revenue Growth – Current Year (%)                                     | 5.4     | 8.0     | 7.1     | 4.5     | 3.6     | 3.3     | 5.8     | 5.5     | 4.5     |
| Operating Revenue Growth – Three-Year Average (%)                               | —       | —       | 6.5     | 6.0     | 5.3     | 4.3     | 4.7     | 5.5     | 5.7     |
| Operating Expenditure Growth – Current Year (%)                                 | 5.0     | 8.4     | 7.3     | 6.2     | 4.3     | 1.1     | 1.0     | 2.0     | 2.5     |
| Operating Expenditure Growth – Three-Year Average (%)                           | —       | —       | 7.5     | 7.7     | 8.1     | 4.1     | 2.7     | 1.9     | 2.8     |
| Days of Operating Revenues in Accounts Receivable                               | 45      | 45      | 47      | 48      | 46      | 47      | 46      | 46      | 45      |
| Days Cash on Hand <sup>a</sup>  | 266     | 313     | 331     | 344     | 328     | 310     | 417     | 404     | 432     |
| Days of Working Capital <sup>a</sup>  | 279     | 316     | 345     | 361     | 331     | 343     | 373     | 414     | 422     |
| Quick Ratio   | —       | —       | 2.9     | 3.3     | 2.9     | 2.9     | 3.1     | 3.4     | 3.2     |
| Current Ratio   | —       | —       | 3.3     | 3.8     | 3.3     | 3.9     | 3.8     | 4.1     | 3.7     |
| Free Cash as % of Depreciation <sup>a</sup>                                     | —       | —       | 122     | 107     | 83      | 74      | 82      | 91      | 102     |
| Capital Spending as % of Depreciation   | 223     | 264     | 240     | 214     | 219     | 187     | 167     | 134     | 139     |

<sup>a</sup>Indicates key ratio. ADS – Annual debt service. CIP – Capital improvement program. FADS – Funds available for debt service. MADS – Maximum annual debt service.  
MHI – Median household income.

## Appendix F: 2015 Medians Relative to Rating Category

|  | Rating Category |         |         | All Credits |
|--|-----------------|---------|---------|-------------|
|  | AAA             | AA      | A       |             |
| Community Characteristics/Customer Growth and Concentration              |                 |         |         |             |
| Population   | 339,172         | 188,163 | 139,915 | 190,713     |
| MHI (\$)   | 62,688          | 50,597  | 43,197  | 50,610      |
| Total Water Customers  | 90,576          | 49,040  | 20,930  | 47,982      |
| Annual Growth (%)  | 0.6             | 0.5     | 1.3     | 0.6         |
| Total Sewer Customers  | 94,179          | 51,821  | 34,933  | 52,802      |
| Annual Growth (%)  | 0.6             | 0.6     | 0.5     | 0.6         |
| Top 10 Customers as % of Revenues  | 5               | 8       | 8       | 7           |
| Capacity   |                 |         |         |             |
| Age of Plant (Years)   | 15              | 14      | 11      | 14          |
| Water Treatment Capacity Remaining (%)                                   | 58              | 58      | 55      | 58          |
| Sewer Treatment Capacity Remaining (%)                                   | 52              | 40      | 35      | 42          |
| Capital Demands and Debt Policies  |                 |         |         |             |
| Average Annual CIP Costs Per Customer (\$)                               | 286             | 260     | 352     | 278         |
| CIP Debt Financed (%)  | 0               | 35      | 64      | 34          |
| Total Outstanding Debt to Net Plant Assets (%)                           | 26              | 50      | 80      | 48          |
| Debt to FADS (x)   | 3.6             | 6.5     | 8.0     | 6.2         |
| Debt to Equity (x)   | 1.7             | 3.6     | 9.5     | 3.4         |
| Total Outstanding Long-Term Debt Per Customer (\$) <sup>a</sup>          | 1,259           | 1,934   | 2,218   | 1,836       |
| Total Outstanding Long-Term Debt Per Capita (\$) <sup>a</sup>            | 349             | 521     | 473     | 491         |
| Ten-Year Principal Payout (%)  | 52              | 39      | 37      | 40          |
| Twenty-Year Principal Payout (%)   | 89              | 81      | 81      | 82          |
| Projected Debt Per Customer Year Five (\$) <sup>a</sup>                  | 1,341           | 2,049   | 2,423   | 1,997       |
| Projected Debt Per Capita Year Five (\$) <sup>a</sup>                    | 323             | 520     | 741     | 522         |
| Charges and Rate Affordability   |                 |         |         |             |
| Individual Water/Sewer Utility Average Monthly Residential Bill (\$)     | 35              | 38      | 43      | 39          |
| Individual Water/Sewer Utility Average Annual Bill as % MHI              | 0.6             | 0.8     | 1.0     | 0.8         |
| Combined Water/Sewer Utility Average Monthly Residential Bill (\$)       | 59              | 69      | 90      | 69          |
| Combined Water/Sewer Utility Average Annual Bill as % of MHI             | 1.3             | 1.6     | 2.6     | 1.6         |
| Average Annual Projected Water Rate Increases (%)                        | 3.8             | 3.9     | 3.7     | 3.8         |
| Average Annual Projected Sewer Rate Increases (%)                        | 4.2             | 4.7     | 6.9     | 4.7         |
| Coverage and Financial Performance/Cash and Balance Sheet Considerations |                 |         |         |             |
| Three-Year Historical Average Senior Lien ADS Coverage (x) <sup>a</sup>  | 4.3             | 2.5     | 2.0     | 2.6         |
| Senior Lien ADS Coverage (x) <sup>a</sup>                                | 4.4             | 2.5     | 2.4     | 2.6         |
| Senior Lien ADS Coverage Excluding Connection Fees (x)                   | 4.0             | 2.3     | 2.1     | 2.4         |
| Senior Lien ADS Coverage Net of Transfers Out (x)                        | 3.7             | 2.2     | 2.3     | 2.4         |
| Minimum Projected Senior Lien ADS Coverage (x) <sup>a</sup>              | 3.6             | 1.9     | 1.5     | 2.0         |
| Senior Lien MADS Coverage (x)  | 3.6             | 1.9     | 1.8     | 2.0         |
| Senior Lien Debt Service as % of Gross Revenues                          | 11              | 16      | 18      | 16          |
| Three-Year Historical Average All-In ADS Coverage (x) <sup>a</sup>       | 2.8             | 2.0     | 1.5     | 2.1         |
| All-In ADS Coverage (x) <sup>a</sup>                                     | 2.8             | 2.0     | 2.0     | 2.1         |
| All-In ADS Coverage Excluding Connection Fees (x)                        | 2.6             | 1.8     | 1.9     | 1.9         |
| All-In ADS Coverage Net of Transfers Out (x)                             | 2.5             | 1.8     | 2.0     | 2.0         |
| Minimum Projected All-In ADS Coverage (x) <sup>a</sup>                   | 2.3             | 1.6     | 1.3     | 1.6         |
| All-In MADS Coverage (x)   | 2.5             | 1.7     | 1.6     | 1.8         |
| All-In Debt Service as % of Gross Revenues                               | 16              | 23      | 26      | 22          |
| Operating Margin (%)   | 35              | 42      | 44      | 41          |
| Operating Cash Flow Ratio (x)  | 1.5             | 1.4     | 1.4     | 1.4         |
| Operating Revenue Growth Current Year (%)                                | 3.3             | 4.5     | 5.5     | 4.5         |
| Operating Revenue Growth Three-Year Average (%)                          | 7.3             | 5.5     | 6.7     | 5.7         |
| Operating Expenditure Growth Current Year (%)                            | 2.7             | 2.6     | 0.5     | 2.5         |
| Operating Expenditure Growth Three-Year Average (%)                      | 4.0             | 2.6     | 3.7     | 2.8         |
| Days of Operating Revenues in Accounts Receivable                        | 44              | 45      | 57      | 45          |
| Days Cash on Hand <sup>a</sup>   | 481             | 442     | 366     | 432         |
| Days of Working Capital <sup>a</sup>                                     | 537             | 439     | 285     | 422         |
| Quick Ratio  | 5.0             | 3.2     | 2.1     | 3.2         |
| Current Ratio  | 5.2             | 3.7     | 2.5     | 3.7         |
| Free Cash as % of Depreciation <sup>a</sup>                              | 117             | 94      | 126     | 102         |
| Capital Spending as % of Depreciation                                    | 119             | 152     | 105     | 139         |

<sup>a</sup>Indicates key ratio. ADS – Annual debt service. CIP – Capital improvement program. FADS – Funds available for debt service. MADS – Maximum annual debt service. MHI – Median household income.

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## U.S. Municipal Water And Sewer Utilities 2015 Sector Outlook: And The Winner Is...

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# U.S. Municipal Water And Sewer Utilities 2015 Sector Outlook: And The Winner Is...

The first quarter of each year marks the height of awards season in American popular culture. Attention turns to the memorable and forgettable on the silver screen and the red carpet. Mass marketing campaigns are made for our consideration – just in case it is not really an honor just to be nominated, or to make us remember (or forget) how something opened. Alas, in the end, hilarity does not always ensue.

In the U.S. municipal water and sewer sector, there are also the usual suspects, the next big stars, key supporting actors, and even paparazzi lurking in the shadows. Fortunately, the sector's story is more documentary than dramatic in nature. The reviews are in, and we find that little has changed. More than nine out of 10 of our ratings have stayed the same, and almost all of those are high-investment-grade. It is a risk-averse sector that sticks to a core business model of drinking and clean-water service provision, rather than engaging in any unregulated or competitive ventures. Standard & Poor's Ratings Services believes the sector continues to be one of the most capital-intensive services that a local or regional government provides, save for owning and operating power plants. Further, utility managers operate in an environment where funding capital investments is probably the most difficult budgetary decision they will make each year. In general, we have observed that there remains a strong correlation between management and credit quality. So for your consideration, we present our thoughts for the sector for 2015.

## Overview

- Credit quality remains stable and solid, with most ratings in the high investment-grade category.
- Debt issuance is likely to increase as issuers take advantage of still-favorable market conditions to fund capital spending.
- Economic recovery will be uneven across U.S. regions and in its impact on utilities.

## A Winning Script For All Seasons: "Stable Is The New Good"

Because of the relative capital intensity of projects, as well as other goals such as intergenerational fairness to ensure that future generations will also benefit from the system, it is uncommon for a utility to pay for a flagship project from cash on hand, especially with market conditions still favorable for debt financing. For example, a wastewater treatment plant can typically cost anywhere from \$2 to \$5 per gallon of hydraulic capacity, depending on whether it is a new greenfield project that includes site acquisition or an expansion of an existing plant. Costs could be even higher depending on to what level of cleanliness the waste will be treated before discharge, as well as the prevailing interest rate on the debt, which could both raise costs even more. Usually, the larger the plant, the lower the marginal capital and operating costs will be due to natural economies of scale. That means that even a modest-sized plant -- for example, one with a capacity of 15 million gallons per day -- could still cost \$30 million to \$75 million. For a modest-sized utility, that is not an insignificant investment.

We expect the Environmental Protection Agency (EPA) to report to Congress the results of its 2012 clean-water (i.e. wastewater) sector needs assessment survey this year. The survey is done every four years. The 2008 results identified a \$345 billion investment need for sanitary and storm sewer systems, nonpoint-source pollution remediation (generally meaning pollution from runoff into water systems), and septic systems over the next 20 years. Including an estimated \$384 billion of capital investment needed for drinking water based on the agency's 2011 survey, some 317 million Americans will each have to spend an average of about \$9.60 per month for the next 20 years to sustain their local water and sewer systems. In those terms, it makes more sense that local decision makers might want to finance these investments in installments. Thus, it's no wonder that estimated utility-related bond issuance increased 15% from 2013, to more than \$38 billion in 2014. Investors might view a total cost of \$729 billion as a horror movie, but will find the long-term picture easier on the eye if spending is portrayed as less than \$10 per month per person. The subliminal message is that credit quality is stable and sustainable.

An increase in bond issuance to finance capital investments for maintenance and improvements and a likely pickup in business activity driven by economic recovery suggest further leveraging by utilities. Despite such a scenario, the sector's ratings have been very stable. As we predicted a year ago in "U.S. Municipal Water And Sewer Utilities 2014 Sector Outlook: Learning To Do More With Less" (published Jan. 9, 2014), the trend of fewer upgrades to downgrades has held for the fifth consecutive year, but nearly all ratings carry stable outlooks and more than 95% of ratings were unchanged in 2014 (see table 1).

**Table 1**

| Sector Trends From 2010 Through 2014*     |          |          |          |          |           |
|---|----------|----------|----------|----------|-----------|
|   | 2014     | 2013     | 2012     | 2011     | 2010      |
| Total ratings                             | 1,647    | 1,509    | 1,406    | 1,270    | 1,178     |
| % of ratings that changed during the year | 4.2%     | 3.9%     | 5.4%     | 8.9%     | 14.5%     |
| Upgrades to downgrades                    | 2.0 to 1 | 2.9 to 1 | 3.2 to 1 | 4.7 to 1 | 10.4 to 1 |
| Positive outlooks                         | 23       | 26       | 25       | 13       | 2         |
| Non-stable outlooks                       | 55       | 49       | 48       | 25       | 17        |

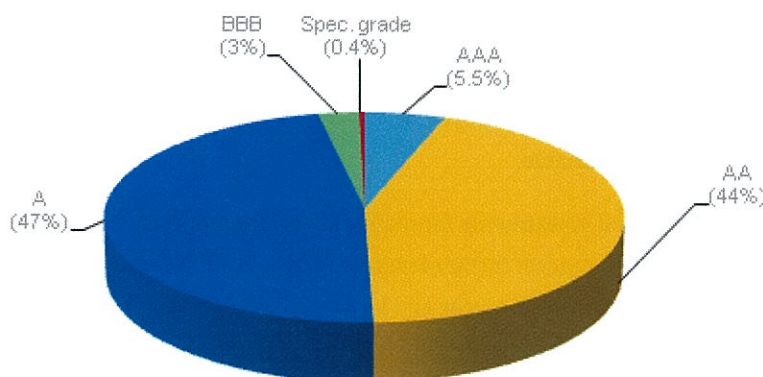
\*Year through Dec. 31

The ratings are not just stable but strong as well. The most common rating is 'A+', and roughly 97% of ratings are above 'BBB+' (see chart 1). The most common reason for negative outlooks, which represent the majority of non-stable outlooks, is financial performance. Sometimes, this reflects a revenue shortfall due to a decision to defer needed rate adjustments. We have also seen that unfavorable variances in operating expenses – such as needing to purchase more-expensive raw water due to drought conditions - have reduced net revenues available for debt service.



Chart 1

Ratings Distribution As Of Dec. 31, 2014



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## In The Acceptance Speech, Utilities Would Like To Thank...

In our opinion, the sector is highly rated for several obvious reasons:

- Water and sewer utilities provide essential services that are in the interest of public health. These core services were not cut during the recession, unlike other municipal services such as parks or libraries.
- Despite the fact that local utility rates continue to rise faster than not only the rate of inflation but other residential service rates as well (see chart 2), the typical monthly bill remains relatively affordable. Among the utilities we rate, the combined monthly residential water and sewer bill, based on Standard & Poor's assumption of 8,000 gallons (about 1,000 cubic feet) of service for each, is slightly less than 2% of median household effective buying income (disposable or aftertax household income). For example, a household income of \$51,000 (which is about the U.S. median) and an effective tax rate of 20% would amount to an aftertax income of just over \$40,000. That would translate to a typical monthly utility bill of \$67, using our 2% assumption, which is comparable to a monthly cellular phone or cable television bill.
- About 85% of U.S. community water systems are municipally or publicly owned and are the monopolistic providers of these essential services throughout their service areas. Generally, utilities are self-reliant and funded solely by user charges. Annual operating budgets for this sector, we have observed, don't depend on revenue streams such as property taxes – which remained about flat during the recent recession – and other tax revenues such as local

option sales taxes that decreased year over year and have been volatile in their rebound. Utilities generally also do not receive any intergovernmental transfers the same way a local school district or even the utility's affiliated general government might. So even state-aid cuts that sliced large swathes from tax-backed budgets had little effect on utilities.

## Coming Soon: The Rebound

As Standard & Poor's notes in "U.S. State And Local Government Credit Conditions Forecast" (published Dec. 10, 2014), cautious optimism has produced yet another sequel to last year's outlook. While some regions of the country will see better times than others, and still-declining commodity prices (see "Standard & Poor's Revises Its Crude Oil And Natural Gas Price Assumptions", published Jan. 9, 2015), have both beneficial and not-so-great impacts, economic conditions appear broadly similar to those of recent years. Our economist sees various economic measures coalescing toward faster growth of 3% in 2015. While this would outpace recent performance, it would still fall short of the post-World War II average growth rate. In 2014, the economy started out weak but gained momentum as the year progressed (as of the third quarter), similar to other postrecession years. Some deceleration from recent growth rates early in the new year would, therefore, be the norm if the pattern reasserts itself in 2015. Table 2 outlines the recent historical results and Standard & Poor's forecast of key data points.

**Table 2**

| Key Economic Indicators For The Utility Sector |  |      |      |       |       |       |
|--|--|------|------|-------|-------|-------|
| <b>Real GDP:</b>                               | Aside from normal weather-related volatility, inflation-adjusted economic growth, or the lack thereof, is one of the most important determinants of whether a utility has a favorable or unfavorable variance to its operating revenues in any given fiscal year provided its budget is predicated on realistic, even conservative assumptions.  |      |      |       |       |       |
| <b>Consumer price index (CPI):</b>             | The rate of inflation in some key items in any utility's budget is a major factor that can affect revenues available for debt service, be it operating budget items such as chemicals or personal services, or capital budget items like construction costs for pipes. We use the traditional CPI, not the core rate, as utilities expenses (such as electricity) are typically one of the largest expenses of any utility.                                    |      |      |       |       |       |
| <b>Real disposable income:</b>                 | We have observed that nearly every utility earns nearly every dollar of operating revenues from user charges from its local rate base. Local water and sewer rates tend to be growing faster than the rate of inflation, so relative affordability is becoming an increasingly hot topic in the sector.  |      |      |       |       |       |
| <b>Unemployment rate:</b>                      | A high unemployment rate is never good for any economy, nationally or locally. Utility service areas with a disproportionately high percentage of operating revenues derived from commercial and industrial customers are particularly susceptible to a weaker-than-projected financial performance when unemployment rates spike.   |      |      |       |       |       |
| <b>Housing starts:</b>                         | The old adage that growth is a double-edged sword continues to play out. Growth can increase densities of the number of metered accounts, which creates natural operating efficiencies and spreads fixed costs such as debt over a greater number of meters. It can also create a surge in nonrecurring revenues such as impact fees and mask an income statement that might otherwise be showing stress, as well as cause growth-driven capital expenditures. |      |      |       |       |       |
| S&P Economic Outlook                           |  |      |      |       |       |       |
|  | 2011   | 2012 | 2013 | 2014e | 2015f | 2016f |
| Real GDP (% change)                            | 1.8  | 2.8  | 2.2  | 2.3   | 3.1   | 2.7   |



**Table 2**

| <b>Key Economic Indicators For The Utility Sector (cont.)</b> |             |             |             |              |              |              |
|---|-------------|-------------|-------------|--------------|--------------|--------------|
| Real disposable income (% change)                             | 1.3         | 2.0         | 0.8         | 2.4          | 3.3          | 2.8          |
| CPI (%)   | 3.1         | 2.1         | 1.4         | 1.7          | 1.5          | 1.6          |
| Unemployment rate (%)   | 8.9         | 8.1         | 7.4         | 6.2          | 5.7          | 5.7          |
| Housing starts (mil.)   | 0.6         | 0.8         | 0.9         | 1.0          | 1.3          | 1.5          |
| <b>Downside (10% to 15%)</b>                                  |             |             |             |              |              |              |
|   | <b>2011</b> | <b>2012</b> | <b>2013</b> | <b>2014e</b> | <b>2015f</b> | <b>2016f</b> |
| Real GDP (% change)   | 1.8         | 2.8         | 2.2         | 2.3          | 1.2          | 1.8          |
| Real disposable income (% change)                             | 1.3         | 2.0         | 0.8         | 2.4          | 2.3          | 0.8          |
| CPI (%)   | 3.1         | 2.1         | 1.4         | 1.7          | 1.5          | 1.5          |
| Unemployment rate (%)   | 8.9         | 8.1         | 7.4         | 6.2          | 6.4          | 6.2          |
| Housing starts (mil.)   | 0.6         | 0.8         | 0.9         | 1.0          | 0.9          | 1.0          |
| <b>Upside (15% to 20%)</b>                                    |             |             |             |              |              |              |
|   | <b>2011</b> | <b>2012</b> | <b>2013</b> | <b>2014e</b> | <b>2015f</b> | <b>2016f</b> |
| Real GDP (% change)   | 1.8         | 2.8         | 2.2         | 2.3          | 3.6          | 3.3          |
| Real disposable income (% change)                             | 1.3         | 2.0         | 0.8         | 2.4          | 4.3          | 5.0          |
| CPI (%)   | 3.1         | 2.1         | 1.4         | 1.7          | 2.3          | 2.8          |
| Unemployment rate (%)   | 8.9         | 8.1         | 7.4         | 6.2          | 5.7          | 5.4          |
| Housing starts (mil.)   | 0.6         | 0.8         | 0.9         | 1.0          | 1.3          | 1.5          |

e--estimated. f--forecast.

Regionally, Standard & Poor's is forecasting the East North Central region (Illinois, Indiana, Michigan, Ohio, and Wisconsin) will remain the slowest-growing region with a projected 1.9% growth in real GDP, and that the Mountain states (Arizona, Colorado, Idaho, Montana, Nevada, New Mexico, Utah, and Wyoming) will lead the way, with real regional GDP growth of more than 3%. California's housing market continued to rebound in 2014, although at a less rapid rate than in 2013 or 2012, as is the case with overall data from the S&P/Case-Shiller home price index.

In our view, there is very little direct correlation between economic performance and consumption. Some of the strongest economies postrecession are in the South and the West, two areas that are perennially juggling sustainable development and revenue requirements. The Los Angeles Department of Water & Power, for example, actually uses less water now than it did in the 1970s even though its population of about 4 million has risen by an average of about 1% each year. Decades ago, the San Antonio Water System (SAWS) began public education campaigns – supported by very transparent pricing signals – stressing that the cheapest source of water is conservation. As such, SAWS' total water usage stayed flat between 1987 and 2007 even though the metropolitan statistical area's population grew by 50% and remains one of the most robust metropolitan areas in Texas. Utilities that have managed to stay the course and preserve credit quality are those that have acted to ensure that revenue requirements will still be met regardless of

demand.

Therefore, we track such data because economic growth and improvement in income indicators are factors that contribute to long-term credit quality. Even the potential upturn in housing starts can help a utility spread its fixed costs over more gallons of water sold, especially since most utility system customer bases are predominantly residential in makeup. Resource management is clearly important to credit quality, not just as an essential service for public health purposes. But ultimately locally-derived revenues depend on local economic conditions.

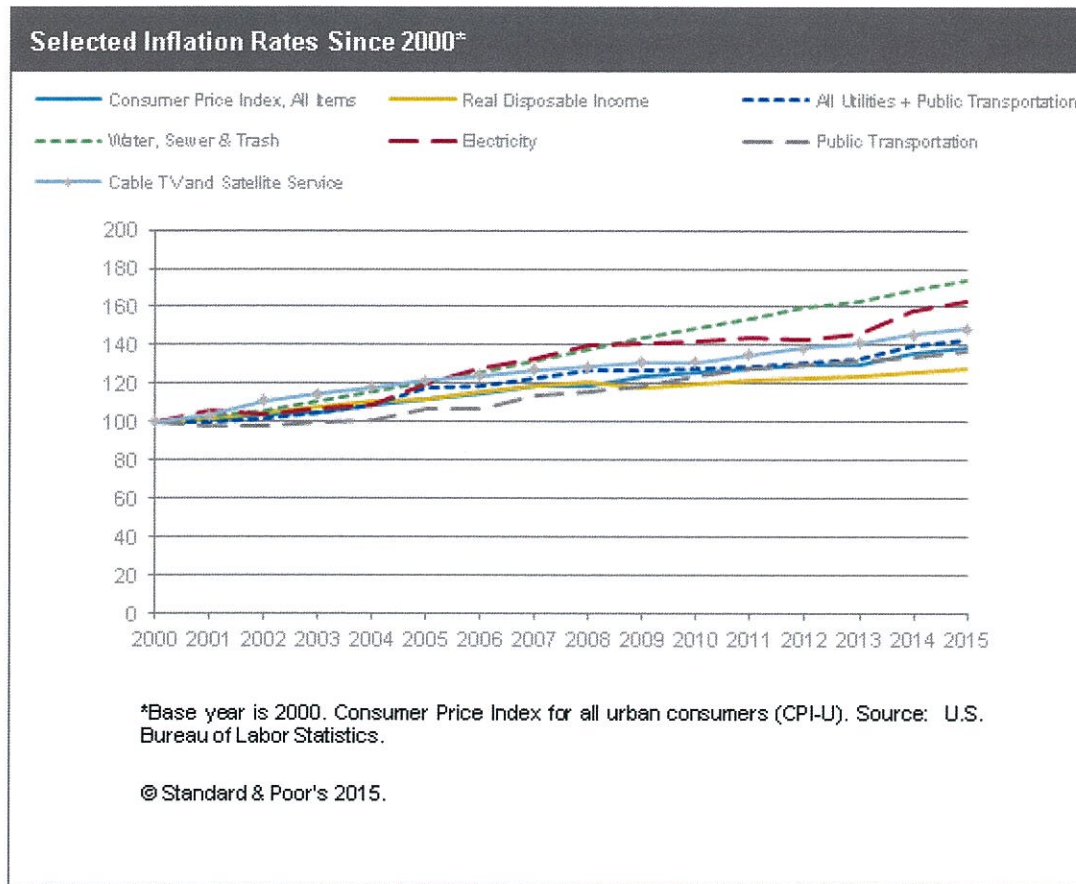
## **Best Supporting Role: The Ratepayer**

This category has seen some new entrants in the past eight months. The passage of the Water Resources Reform and Development Act in June 2014 created, among other things, a five-year pilot program with \$175 million in federal seed money to spur public-private partnerships for water utility infrastructure investments by way of the Water Infrastructure Financing and Innovation Act that is cost-neutral to taxpayers. While the local utility match would most likely come from taxable municipal bonds, President Obama is expected to propose in his fiscal 2016 budget a new tax-exempt municipal security called qualified public infrastructure bonds managed by a new Water Finance Center within EPA. The size, scope, and rulemaking associated with such a program at this point are only a proposal. With both houses of Congress now controlled by a different party than the president's, such a proposal becoming reality is at this point uncertain.

Therefore, as it has been for the last several decades, the funding of operations, capital investments, and debt service will continue to depend on the local customer. Utilities can count on ratepayers for revenue certainty and stability. Water is an essential service that gives life and therefore has low price elasticity. We continue to believe that while water isn't yet priced like a commodity, it certainly could be within our lifetimes. As chart 2 shows, local water and sewer rates are increasing at a faster rate than any other comparable service, although the increase in 2015 could finally be exceeded by personal income growth.



Chart 2



## #Trending: Sector Trends And Hot Topics

### Collection system rehabilitation and overflow remediation

Rare is the large urban system that is not dealing or has not recently dealt with a regulatory mandate to address failings in its sanitary sewer system. Normally, the environmental regulator, be it the EPA or its equivalent state body, works with the utility to establish some kind of date-certain deadline to complete the identified fixes. The catch is that such mandates leave the specifics – including the source of funding and how to best accomplish it – up to the local utility.

The EPA in recent years has especially promoted green infrastructure solutions to the problem of sanitary sewer issues. This could mean wetlands restoration or creative use of some other open space. Compared to extraordinarily expensive underground storage tunnels, it is certainly a cheaper solution, but the affected utility seldom has enough available land, including valuable land that can be permanently taken out of service, especially given the current trend of urban renewal and gentrification.

Fortunately, trenchless technology for pipe rehabilitation continues to enjoy tremendous engineering advances and cost reductions. Simply, repairs can be done with only a very small amount of surface disruption and often over a

shorter timeline than digging up and retiring the old pipes. Usually done robotically, the existing pipe receives a new polymer lining, not unlike an automobile tire patch. Similarly, sometimes it is easier to insert a new, slightly narrower pipe throughout the existing pipe. Because the methods are a proven technology, Standard & Poor's does not view there to be construction risk for those many systems dealing with sewer collection line rehabilitation, and sometimes the cost and time savings are very material compared with digging.

## Drought

Somewhere in the U.S., a local or regional water supply is distressed. California remains in one of the worst multiyear droughts in history, so much so that it spurred the passage by a 2 to 1 margin of Proposition 1 in 2014 to authorize \$7 billion in general obligation bonds for water supply projects. Texas voters the year before approved Proposition 6, which authorized the transfer of \$2 billion from the state's rainy-day fund for the creation of the state water implementation fund for Texas, or SWIFT, a new revolving loan program. Other states and regions have also acted. Feasibility studies for projects such as brackish (high in natural salts and minerals contents) groundwater pumping, seawater desalination, and aquifer storage and recovery have been reprioritized to the top of some utilities' capital improvement programs. Standard & Poor's will continue to assess if the long-term quantity and quality of supply sources of a utility are adequate to serve existing and projected future customer bases. We have observed that utility systems that are attentive to the intersection of future financial and operational requirements are those that are most likely to be best prepared. However, there is no magic bullet for extreme weather circumstances.

## Regulatory issues

While Standard & Poor's does not expect any major new rulemaking by the EPA in 2015, regulatory mandates and enforcement actions will probably continue at the same pace. The EPA has continued to raise the awareness of what it calls nutrient pollution. Specifically, nitrogen and phosphorus entering watersheds at excess levels can cause environmental harm. Utilities have certain requirements in their national pollutant discharge elimination system permits for their wastewater treatment plants. These permit requirements establish what must be removed before the effluent is discharged into the waterway. We anticipate that the EPA will over time begin to negotiate reduced acceptable limits into future utility permits, either utility by utility, or en masse such as it did with those utilities in the states that discharge into water bodies that ultimately lead to the Chesapeake Bay. While also associated with proven and low-risk technology, treatment process upgrades can be very expensive and capital intensive, and also bear monitoring for the impact on rates and, ultimately, financial performance.

## Lastly, In Case You Missed It

**Table 3**

| Rating Changes From Jan. 1 To Dec. 31, 2014  |       |               |               |          |
|--|-------|---------------|---------------|----------|
| Utility  | State | To            | From          | Date     |
| Aliceville Governmental Utility Services Corp. (Federal Bureau of Prisons project) | AL    | CCC/Watch-Neg | BBB/Watch Neg | Feb. 26  |
| Americus   | GA    | A+/Stable     | A/Positive    | July 31  |
| Beaumont   | TX    | A+/Negative   | AA-/Stable    | July 23  |
| Berwick Area Joint Sewer Authority   | PA    | A-/Stable     | BBB+/Stable   | April 4  |
| Bexar Metropolitan Water District  | TX    | A+/Stable     | A/Positive    | March 31 |
| Bonita Springs Utilities   | FL    | AA/Stable     | AA-/Stable    | Feb. 21  |



**Table 3**

| Rating Changes From Jan. 1 To Dec. 31, 2014 (cont.) |    |               |               |          |
|---|----|---------------|---------------|----------|
| Brent Utilities Board                               | AL | A-/Negative   | A+/Stable     | March 7  |
| Canyon Regional Water Authority                     | TX | A+/Stable     | A/Positive    | March 31 |
| Cape Coral  | FL | A/Stable      | A-/Stable     | June 25  |
| Cape Fear Public Utility Authority                  | NC | AA+/Stable    | AA/Stable     | Oct. 25  |
| Carroll County Public Water Supply District No. 1   | MO | A-/Stable     | A/Stable      | Oct. 6   |
| Central Basin Municipal Water District              | CA | A-/Negative   | AA/Stable     | April 4  |
| Chicago (wastewater)                                | IL | AA/Stable     | AA-/Stable    | Aug. 29  |
| Clark County Public Utility District No. 1          | WA | AA/Stable     | AA-/Stable    | May 8    |
| Clean Water Services                                | OR | AA+/Stable    | AA/Stable     | Dec. 19  |
| Cross Anchor Utility District                       | TN | BBB+/Negative | A-/Negative   | Sept. 3  |
| DeKalb-Jackson Water Supply District Inc.           | AL | A/Stable      | A-/Positive   | Oct. 6   |
| Detroit (sewer)                                     | MI | CCC/Watch-Neg | BB-/Watch Neg | March 25 |
| Detroit (water)                                     | MI | CCC/Watch-Neg | BB-/Watch Neg | March 25 |
| Diablo Water District                               | CA | A+/Stable     | AA-/Negative  | April 1  |
| Eagle Mountain                                      | UT | A/Stable      | A+/Stable     | Dec. 10  |
| East Cullman  | AL | A-/Negative   | A/Stable      | June 5   |
| East Wenatchee Water District                       | WA | AA/Stable     | AA-/Stable    | Jan. 14  |
| Fort Oglethorpe                                     | GA | A+/Stable     | A-/Stable     | Aug. 20  |
| Goodyear  | AZ | AA-/Stable    | A+/Stable     | March 31 |
| Greater New Haven Water Pollution Control Authority | CT | A+/Stable     | A/Stable      | June 20  |
| Hampton Roads Sanitation District                   | VA | AA+/Stable    | AAA/Stable    | Nov. 3   |
| Higginsville  | MO | BBB-/Negative | A-/Stable     | Oct. 15  |
| Holly Village (sewer)                               | MI | A-/Stable     | BBB+/Stable   | March 10 |
| Irving (drainage)                                   | TX | AA+/Stable    | AA/Stable     | Sept. 26 |
| Jackson Energy Authority (sewer)                    | TN | AA/Stable     | AA-/Positive  | Sept. 5  |
| Kalamazoo (water)                                   | MI | AA/Stable     | AA-/Stable    | Sept 12  |
| Knoxville Utilities Board (water)                   | TN | AAA/stable    | AA+/Stable    | Aug. 1   |
| Lake Stevens Sewer District                         | WA | A+/Negative   | AA/Stable     | March 27 |
| Lindmore Irrigation District                        | CA | BBB+/Negative | A+/Stable     | April 28 |
| Lindsay-Strathmore Irrigation District              | CA | A+/Negative   | AA-/Stable    | March 11 |
| Loachapoka Water Authority                          | AL | A+/Stable     | A/Stable      | Dec. 23  |
| Mansfield   | TX | AA+/Stable    | AA/Stable     | Nov. 25  |
| Marin County Sanitary District No. 1                | CA | A+/Stable     | A/Stable      | June 12  |
| Memphis (sewer)                                     | TN | AA+/Stable    | AA/Positive   | June 2   |
| Montrose  | CO | AA-/Stable    | A+/Stable     | March 18 |
| New Orleans Sewerage & Water Board (sewer)          | LA | BBB+/Positive | BBB-/Positive | May 23   |
| New Orleans Sewerage & Water Board (water)          | LA | A/Stable      | A-/Positive   | May 23   |
| North Baldwin Utilities                             | AL | A+/Stable     | A/Stable      | April 17 |
| North Harris County Regional Water Authority        | TX | AA-/Stable    | A+/Positive   | Oct. 14  |
| Oakland   | CA | AA/Stable     | AA-/Stable    | Jan. 21  |
| Oneonta Utilities Board                             | AL | AA-/Stable    | A+/Stable     | May 29   |
| Pasco County  | FL | AA+/Stable    | AA/Stable     | Sept. 9  |



**Table 3**

| Rating Changes From Jan. 1 To Dec. 31, 2014 (cont.)      |    |              |              |          |
|--|----|--------------|--------------|----------|
| Payson City  | UT | A+/Stable    | A/Positive   | April 16 |
| Pigeon Creek Sanitary Authority                          | PA | A/Stable     | A-/Stable    | Nov. 18  |
| Pima County (sewer)                                      | AZ | AA/Stable    | AA-/Positive | Jan. 7   |
| Pineville  | LA | A+/Negative  | AA-/Stable   | Oct. 15  |
| Plainfield Village                                       | IL | AA+/Stable   | AA/Stable    | Dec. 14  |
| Puerto Rico Aqueduct & Sewer Authority                   | PR | BB-/Negative | BB/Negative  | July 14  |
| San Buenaventura (sewer)                                 | CA | AA/Stable    | AA-/Stable   | Oct. 13  |
| Santa Cruz (drainage)                                    | CA | AA-/Stable   | AA+/Stable   | June 27  |
| Santa Cruz (water)                                       | CA | AA-/Negative | AA/Stable    | June 18  |
| Springfield Water & Sewer Commission                     | MA | AA-/Stable   | A+/Stable    | July 14  |
| Springville  | AL | A-/Negative  | A/Stable     | April 29 |
| St. Johns County   | FL | AA/Stable    | AA-/Stable   | Nov. 4   |
| Stockton (sewer)   | CA | A-/Stable    | BBB+/Stable  | Aug. 14  |
| Terrebonne Parish Consolidated Waterworks District No. 1 | LA | AA-/Stable   | A+/Stable    | March 20 |
| Tulsa Metropolitan Utility Authority                     | OK | AA+/Stable   | AA/Positive  | May 2    |
| Unicoi Water Utility District of Unicoi County           | TN | BB/Negative  | A/Stable     | July 14  |
| Walton County Community Services Corp.                   | FL | AA/Stable    | AA-/Stable   | Aug. 27  |
| West Sacramento (water)                                  | CA | A+/Stable    | A+/Positive  | Sept. 19 |
| West Sound Utility District No. 1                        | WA | AA/Stable    | AA-/Stable   | April 2  |
| Wetumpka Waterworks & Sewer Board                        | AL | A/Stable     | A+/Stable    | Aug. 29  |
| Winter Haven   | FL | AA-/Stable   | A+/Stable    | July 11  |

**Table 4**

| Non-Stable Outlooks As Of Dec. 31, 2014           |       |        |           |
|---|-------|--------|-----------|
| Utility   | State | Rating | Outlook   |
| Aliceville Governmental Utility Services Corp.    | AL    | CCC-   | Watch Neg |
| Amador Water Agency                               | CA    | A-     | Positive  |
| Atwater Public Financing Authority                | CA    | BB+    | Positive  |
| Austin  | TX    | AA     | Positive  |
| Beaumont  | TX    | A+     | Negative  |
| Benton Washington Regional Public Water Authority | AR    | A-     | Positive  |
| Berkeley County                                   | SC    | AA-    | Positive  |
| Berks-Montgomery Municipal Authority              | PA    | AA-    | Negative  |
| Bordentown Sewerage Authority                     | NJ    | BBB+   | Negative  |
| Bossier City                                      | LA    | AA-    | Negative  |
| Brent Utilities Board                             | AL    | A      | Negative  |
| Centennial Water & Sanitation District            | CO    | AA+    | Positive  |
| Central Basin Municipal Water District            | CA    | A      | Negative  |
| Chino   | CA    | BBB    | Negative  |
| Clairton Municipal Authority                      | PA    | BBB    | Positive  |
| Clarksville                                       | IN    | A      | Positive  |
| Coalinga Public Financing Authority               | CA    | BBB    | Positive  |
| Lavaca-Navidad River Authority                    | TX    | A+     | Positive  |

**Table 4****Non-Stable Outlooks As Of Dec. 31, 2014 (cont.)**

|  |    |      |          |
|--|----|------|----------|
| Nueces River Authority                         | TX | A+   | Positive |
| Corpus Christi                                 | TX | A+   | Positive |
| Cross Anchor Utility District                  | TN | BBB+ | Negative |
| Cucamonga Valley Water District                | CA | AA   | Positive |
| Fairview Governmental Utility Services Corp.   | AL | A-   | Negative |
| Evansville                                     | IN | AA-  | Negative |
| Fillmore Public Financing Authority            | CA | A    | Positive |
| Higginsville                                   | MO | BBB- | Negative |
| Houston County Water Authority                 | AL | BBB  | Positive |
| Jefferson Cnty Cons Pub Wtr Supp Dist No. C-1  | MO | A+   | Positive |
| Lake Stevens Sewer District                    | WA | A+   | Negative |
| Lehigh Utility System                          | FL | A    | Positive |
| Lindmore Irrigation District                   | CA | BBB+ | Negative |
| Lindsay-Strathmore Irrigation District         | CA | A+   | Negative |
| Lineville Waterworks and Sewer Board           | AL | A    | Negative |
| Madera Public Financing Authority              | CA | A-   | Negative |
| Mon Valley Sewage Authority                    | PA | A    | Negative |
| New Orleans Sewerage & Water Board (water)     | LA | BBB+ | Positive |
| Oxnard Financing Authority                     | CA | BBB  | Positive |
| Pajaro Valley Water Management Agency          | CA | BBB+ | Positive |
| Pike County Water Authority                    | AL | A-   | Negative |
| Pineville                                      | LA | A+   | Negative |
| Porterville Irrigation District                | CA | A    | Negative |
| Puerto Rico Aqueduct & Sewer Authority         | PR | BB-  | Negative |
| Rowland Water District                         | CA | AA-  | Negative |
| Santa Cruz                                     | CA | AA-  | Negative |
| Santa Paula Utility Authority                  | CA | A+   | Negative |
| Saucelito Irrigation District                  | CA | A-   | Negative |
| Scranton Sewer Authority                       | PA | A-   | Positive |
| Shamokin-Coal Township Joint Sewer Authority   | PA | A-   | Positive |
| Sparta Village (water)                         | MI | BBB+ | Negative |
| Springville                                    | AL | A-   | Negative |
| Stamford                                       | CT | AA+  | Negative |
| Town of Loxley                                 | AL | A+   | Negative |
| Unicoi Water Utility District of Unicoi County | TN | BB   | Negative |
| United Water Conservation District             | CA | AA   | Negative |
| West Harris County Regional Water Authority    | TX | A+   | Positive |

**Related Criteria And Research**

## **Related Research**

U.S. Economic Forecast: The Economy Spreads Some Holiday Cheer, Dec. 22, 2014

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## Credit FAQ:

# Proposed Criteria Changes Will Bring Greater Transparency To U.S. Municipal Water And Sewer Systems

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### Frequently Asked Questions



## Credit FAQ:

# Proposed Criteria Changes Will Bring Greater Transparency To U.S. Municipal Water And Sewer Systems

Standard & Poor's Ratings Services is currently seeking comments on proposed changes in the criteria it uses to rate debt from publicly owned waterworks, sanitary sewer, and drainage utility systems. Our initial testing of the effects of these proposed changes—which will apply only to revenue-backed debt—indicate that roughly 75% of our more-than 1,500 ratings in this sector will remain the same if we adopt the criteria revisions. Of the remaining 25% of ratings, we are likely to see an even split between upgrades and downgrades, and nearly all will be no more than one notch. We don't expect any rating to shift to speculative-grade status from investment-grade status, or vice versa. We view this sector as relatively safe and stable, and most of our ratings are in the 'A+' and 'AA-' categories. Moreover, because several very large issuers dominate issuance in this sector, we expect the criteria changes to affect ratings on less than 25% of the par value of public water and sewer debt now in the market.

Standard & Poor's last revised the criteria for public water and sewer facilities in 2008, and before, that in, 2002. The changes we're considering now will increase the transparency and replicability of our criteria across the sector and more accurately reflect current and potential future risks associated with these debt issues, which are issued by cities, counties, or other public entities of widely divergent size and in all regions of the country. These new criteria will include some significant changes in how we assess water and sewer debt issues. (See "Request For Comment: U.S. Public Finance Waterworks, Sanitary Sewer, And Drainage Utility Systems: Methodology And Assumptions", published Dec. 10, 2014.) We ask interested parties to send their comments on the proposed criteria revisions to [http://www.standardandpoors.com/en\\_US/web/guest/ratings/rfc](http://www.standardandpoors.com/en_US/web/guest/ratings/rfc), or to [CriteriaComments@standardandpoors.com](mailto:CriteriaComments@standardandpoors.com) by Feb. 28, 2015, and we will take them into consideration before issuing a definitive update to our criteria.

Here are answers to some frequently asked questions about the most significant changes we're proposing to our criteria for these ratings.

## Frequently Asked Questions

### Can you explain the new "operational management" assessment in the proposed criteria?

As proposed, this assessment will account for 10% of an issuer's total enterprise risk assessment and will take into account several factors pertaining to an entity's day-to-day operations that can have an impact on credit quality. One of these factors, for instance, would be a water utility's drought management plan—a factor that has taken on more importance in some states, such as California. Some questions to consider include "Does the issuer have a clear plan to address a prolonged decline in water availability?" and "Does the utility have the management expertise to fulfill its drought planning and to communicate effectively to its stakeholders?"

Another factor that we'll now explicitly and separately consider as part of the operational management assessment is

the utility's rate-setting practices. Although municipal water and sewer systems tend to have wide latitude in their rate-setting ability, they must still comply with state and federal environmental regulations to ensure public health and safety, and doing so may sometimes require rate adjustments.

The operational management assessment is designed to not only assess the adequacy of the water supply or treatment capacity, but will also take a hard look at the physical integrity and capacity of a system's assets, its ability to meet peak demand in its service area, along with its compliance with all environmental regulations.

#### **How will the proposed "financial management" assessment section of the criteria work?**

The financial management assessment will account for 10% of an issuer's total financial risk assessment. This assessment will consider the robustness of a utility's financial policies and internal controls and evaluate whether its long-term planning is well-constructed and realistic, and will also look at the assumptions that go behind that planning. We will also, as part of this assessment, consider the quality, transparency, and timeliness of the utility's financial reports. The financial management assessment would be in line with a similar assessment that Standard & Poor's currently performs for local government general obligation (GO) ratings.

The financial management assessment analyzes how a utility makes financial decisions, including how it identifies and addresses both ordinary and extraordinary costs, its ability to fund them, and whether it transparently reviews and publicly reports those risks. We assume that financial results manifest themselves in other visible ways and address them elsewhere in the criteria, specifically in coverage and liquidity assessments.

#### **What is the "market position" assessment in the proposed criteria?**

The market position assessment will essentially look at the rate affordability within a utility's service area. It will account for 25% of the total enterprise risk assessment. Affordability has been an increasingly important factor in some localities, despite the long-held contention that because people can't live without water, they'll always find a way to pay for it. We've recently seen instances where a significant percentage of water bills are going unpaid and management is struggling with collections in light of public health concerns. Affordability has also been an issue for other systems facing consent decrees and rising capital costs. The affordability of water has also come under discussion by the U.S. Conference of Mayors and the Environmental Protection Agency.

This assessment will look at typical water usage in a utility's service area and its cost to consumers, both on an absolute basis and as a share of median household income in that area. And recognizing that there will be households living well below an area's median income, the proposed criteria change will also take into consideration the poverty rate in the utility's service area. These measures will allow us to assess affordability across an area's income spectrum to give a more complete picture of overall affordability.

#### **Will evaluating affordability be separate from looking at an area's local economy?**

Although household income is clearly related to an area's economy, we will continue to use a separate assessment of economic fundamentals as the largest part of an issuer's total enterprise risk assessment score, at 45%. The economic fundamentals will continue to include assessments of a utility's customer base, the demographics of its service area, the major employers located there, and trends in the local economy.

**Can you explain the changes to coverage metrics in the proposed criteria?**

We will now evaluate the total financial capacity of water and sewer bonds using a single metric of "all-in" coverage, regardless of the specific nature of the debt or its lien position. That means we will include any debt or debt-like instruments that are ultimately supported by ongoing utility revenues, whether on- or off-balance-sheet, in our calculation of all-in debt service coverage. We propose to include any debt that receives regular support from surplus net operating revenues, whether specifically pledged or not. We would also include any net revenue transfers from the utility to other jurisdictions (which we now treat as an operating expense) as part of this calculation.

We thus define all-in coverage as:  $(\text{Revenues} - \text{Expenses} - \text{Net Transfers} + \text{Fixed Costs}) / (\text{All Revenue Bond Debt Service} + \text{Fixed Costs} + \text{Self-Supporting Debt})$ .

The effect of this change could, in many cases, reduce the debt service coverage we calculate for a utility. For instance, the coverage of its senior debt might be 2x, but when all-in coverage is the measurement, the ratio might fall to 1.5x. The use of a single metric for all-in debt coverage is, under the proposed criteria, similar to Standard & Poor's treatment of coverage for U.S. public power utilities.

**Will other major rating factors in your criteria remain the same?**

Yes. We will continue to heavily weight economic fundamentals when rating these issues, and a utility's liquidity and reserves—both the number of days of cash on hand and actual cash in dollar terms—will remain significant rating factors. A utility's total debt will also continue to be a major rating factor, including not just the dollar figure, but also the allocation of debt by lien and how quickly or slowly that debt matures. And we will still evaluate how aggressive management has been in the type of debt it has selected, and whether its choices have introduced any contingent risks for the utility.

**Will ratings that come out of the proposed criteria be subject to the same caps as before?**

We are introducing several specific ratings caps into the rating process. These generally relate to very weak management or exceptionally poor financial performance that threatens timely bond repayment. We will base these caps on the presence or absence of particular characteristics or events that pose extreme risks, which likely have already indicated extraordinary credit weakness.

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## 2014 Review Of U.S. Municipal Water And Sewer Ratings: How They Correlate With Key Economic And Financial Ratios

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# 2014 Review Of U.S. Municipal Water And Sewer Ratings: How They Correlate With Key Economic And Financial Ratios

In our annual update of the key statistics underlying our assessments of debt issues in the U.S. municipal water and sewer sector, we're focusing on the medians and means of several widely used variables. As in previous reports, we present data for economic and financial measures to offer insight into correlations that exist between these measures and the ratings we've assigned to issuers in this sector.

When assigning a bond rating, Standard & Poor's Ratings Services takes into account a variety of factors, both qualitative and quantitative. We believe a thorough examination of the quantitative information sheds light on the strengths and weaknesses of individual issuers relative to others. By providing this information, we hope to increase transparency and continue our open and accurate discussions about credit quality among all participants in the municipal water and sewer bond sector.

## Overview

- U.S. municipal water and sewer retail system bond ratings remain mostly in the 'AA' and 'A' category.
- While our ratings strongly correlate with key measures of an issuer's debt, liability, and service area population, they also factor in important qualitative factors.
- Given this sector's stability, we have not seen, and do not foresee, significant deviations in the ratings and ratios.

It is important to remember that the ratios and other measures we provide here are not the sole determinants of our rating assignments, nor can they serve as rating benchmarks because they do not account for the issuer's complete financial, operating environment, or sector risk. Moreover, these means and medians reflect recent historical information, while we intend our credit ratings to be forward-looking. Also, because our long-term ratings are designed to hold up through business cycles, a particular issuer's ratios may appear to be inconsistent with its assigned debt rating at a particular point within a cycle. We also exercise some degree of caution when making national comparisons of revenue bond issuers because the operating environments may differ from state to state. Issuers often face differences in regulations that determine their ability to raise rates and issue debt, what their required service provisions may be, and the regulatory environment in which they operate. However, these differences tend to be minor.

## Rating Distributions Continue To Cluster In The 'AA' And 'A' Categories

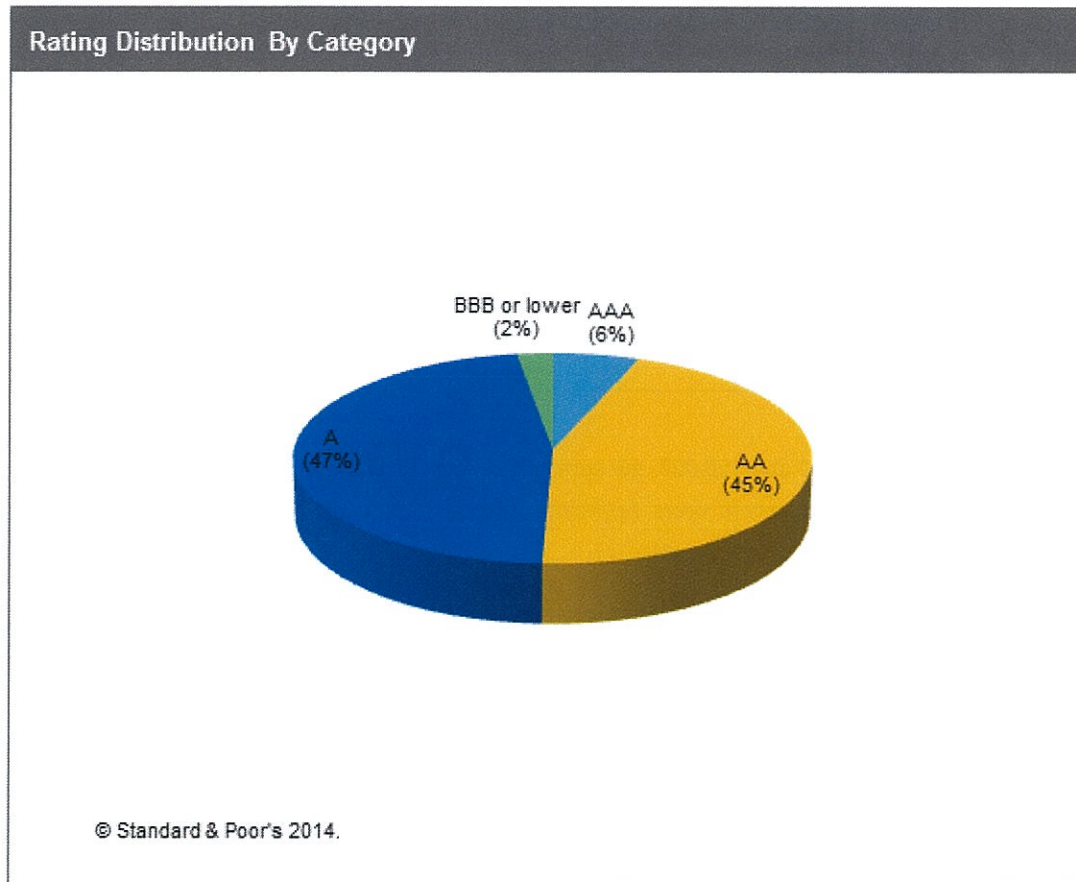
Given the stability of the municipal water and sewer sector, a quick look at the overall rating distributions for municipal water and sewer bonds reveals two immediate conclusions: (1) the ratings are almost exclusively investment-grade, with only 0.3% of all bonds rated below 'BBB-', and (2) nearly half of the ratings are now in the 'AA' category. In this



year's report, we focus on exclusively, or predominantly, retail systems and exclude ratings on larger wholesale systems. However, we do include data for the systems that determine a wholesaler rating. For example, we have excluded the ratings on certain debt issued by Trinity River Authority, Texas, but have added the data related to its principal wholesale customers. This explains some of the differences in ratings counts from last year's report.

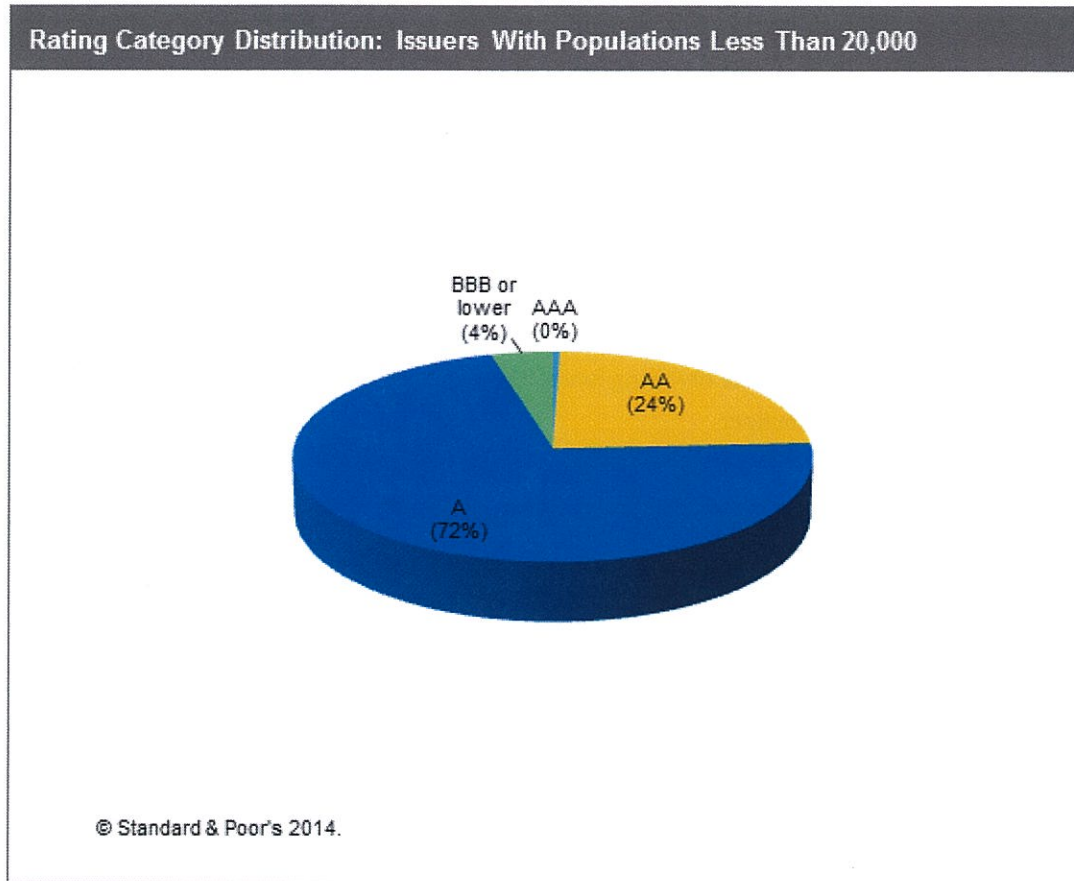
Of our total rated universe of more than 1,500 issuers, just over 90% fall in either the 'AA' or 'A' category. Approximately 47% of the ratings are in the 'AA' category, with 45% in the 'A' category. Currently, about 6% of the ratings in this report are 'AAA', with only 2% rated 'BBB+' or lower (see chart 1). While ratings cluster around the 'AA' and 'A' categories, with a median rating of 'A+', a self-selection bias admittedly affects the distributions. Many water and sewer systems of potentially poorer self-assessed credit quality may choose not to apply for a public Standard & Poor's rating, or they may access capital through state revolving funds. The absence of those potentially lower-rated issuers may artificially elevate the rating distribution.

**Chart 1**



When we dive deeper into the rating distributions according to the systems' service area population, some differences begin to emerge. As in previous years, for systems with populations of less than 20,000, the ratings are predominantly in the 'A' category (72%). The 'BBB' category is now home to less than 5% of systems with service areas with populations under 20,000, while 24% are rated 'AA' and less than 1% are 'AAA' (see chart 2).

Chart 2



For systems with populations between 20,000 and 150,000, the spread between those in the 'AA' category (57%) and those in the 'A' category (39%) has widened in recent years. Approximately 5% of those in this population range are rated 'AAA', while less than 1% are 'BBB+' or lower (see chart 3).

As population levels increase, so does the percentage of higher-rated issuers. For systems with a service area population ranging between 150,000 and 500,000, the majority of the ratings are in the 'AA' category (64%), while only about one-third are 'A+' or lower. In this range, about 25% are rated 'AAA' (see chart 4). Similarly, for very large systems with populations above 500,000, about 20% are 'AAA', 60% are 'AA', and about 20% are rated 'A+' or lower (see chart 5).



Chart 3

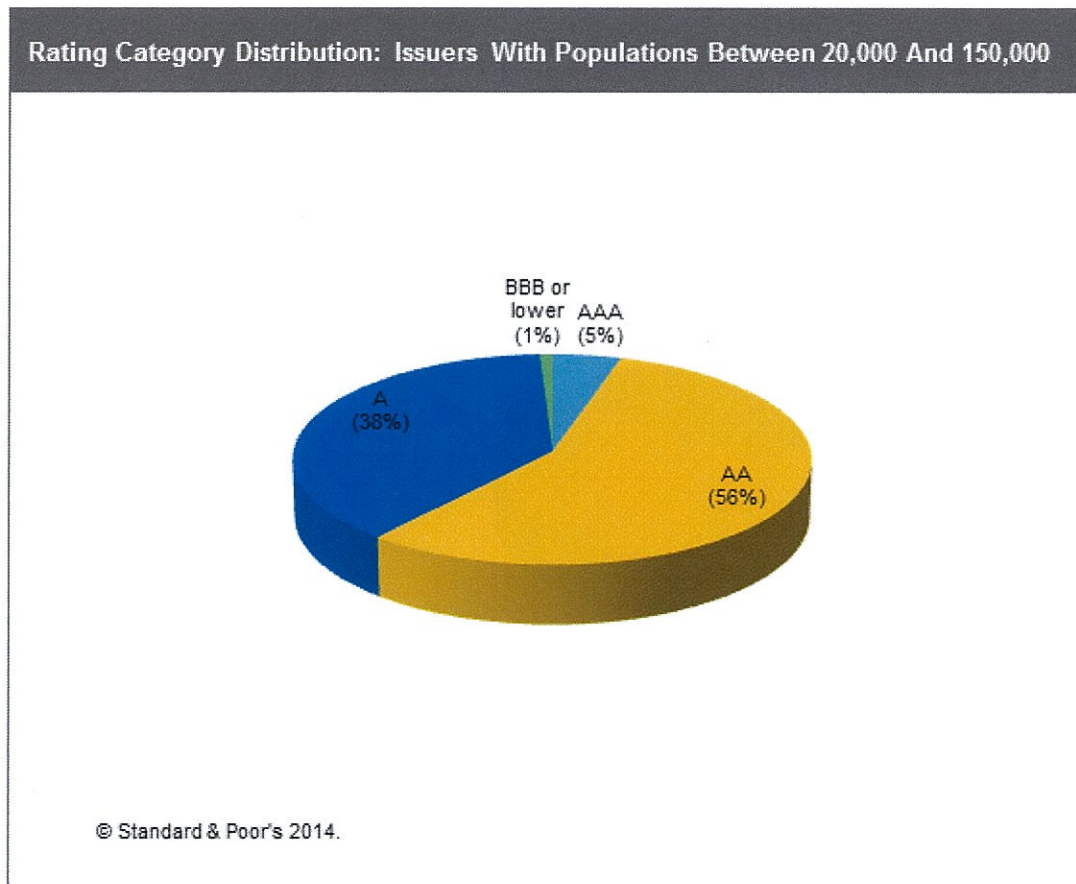


Chart 4

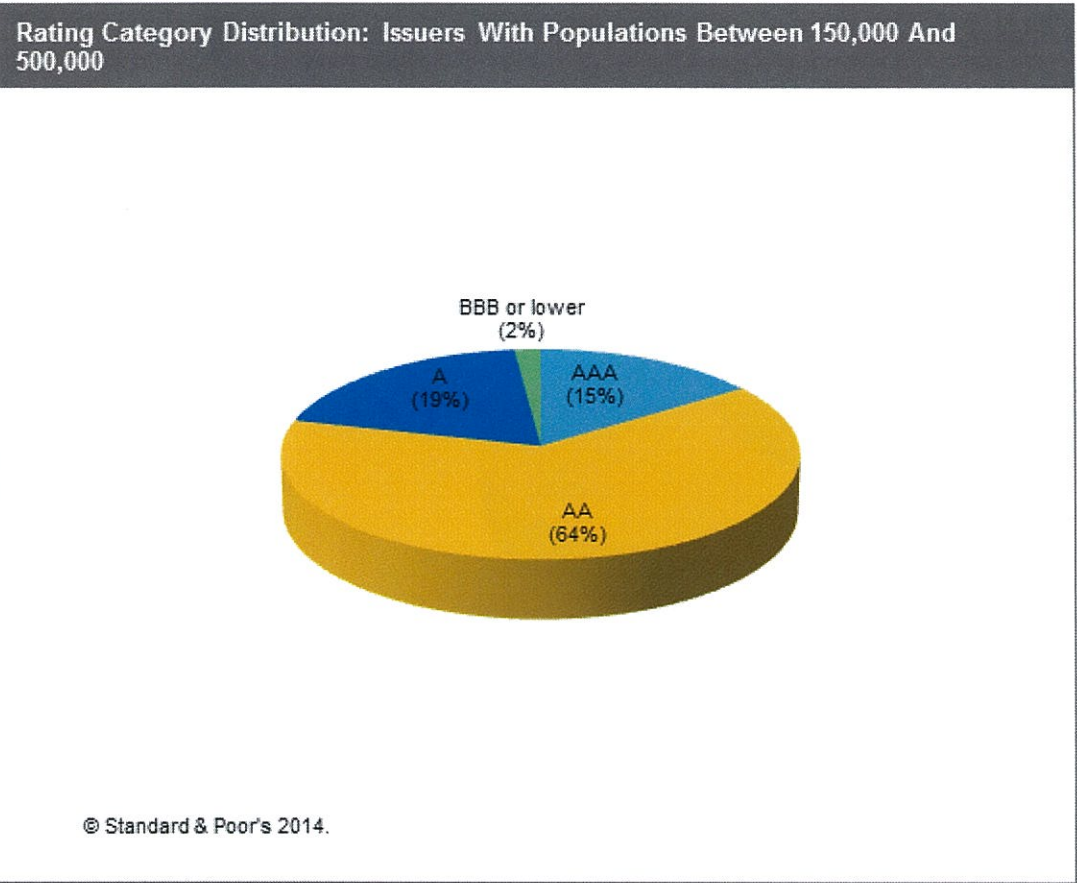
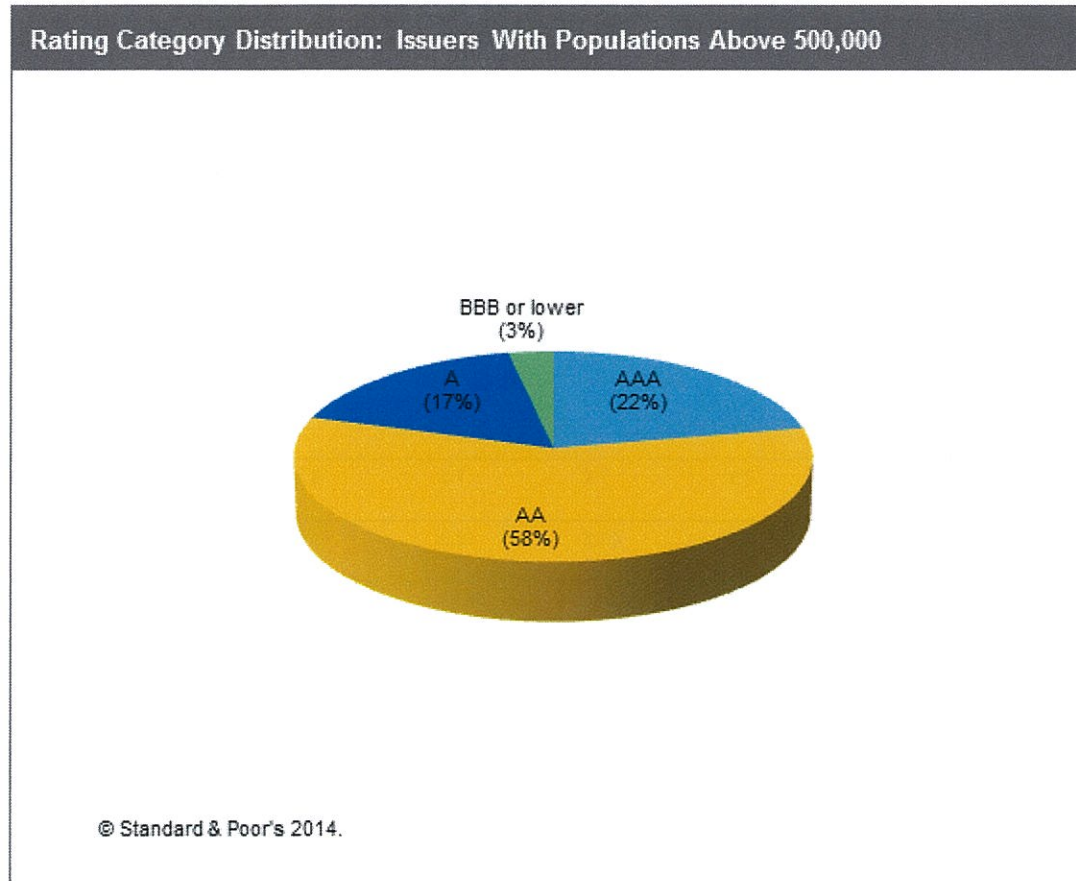


Chart 5



## Summary Of Key Economic, Financial, And Debt Ratios

The ratios we provide below reflect three of the four main areas Standard & Poor's evaluates when rating issuers: economic, financial, and debt factors. Measures for the fourth factor, administration and management, are generally more qualitative. The ratios include:

- Median household effective buying income: Commonly known as "disposable income," or a household's wages, salaries, dividends, and transfer payments, less all applicable taxes and withholdings.
- Customer concentration (top 10%): The percent of total operating revenues from the top 10 customers.
- Liquidity ratio (days' cash on hand): Enterprise fund cash and cash equivalents, divided by annual enterprise fund expenses and multiplied by 365, expressed in the number of days of cash on hand. Standard & Poor's excludes depreciation.
- Senior-lien debt service coverage (DSC): The total amount of senior-lien debt divided by the net revenues available to service the debt.
- All-in DSC: Total senior, junior, and self-supported debt, coupled with other obligations routinely covered by the enterprise fund, divided by the net revenues available for debt service. DSC ratios, however, are internally adjusted for utilities that are distribution-only and/or collection-only systems versus those that are vertically integrated. For

utilities that are not vertically integrated, we impute a pro rata share of the wholesale provider's fixed costs onto the utility. While it is probable that the wholesale provider may have once issued debt on the utility's behalf, it also makes DSC comparisons more meaningful and allows better insight into the true financial capacity of all obligations.

**Table 1**

**U.S. Water And Sewer Credit Ratios: Medians And Means By Rating Category**

|   | AAA     |         | AA     |         | A      |        | BBB or lower |         |
|---|---------|---------|--------|---------|--------|--------|--------------|---------|
|   | Median  | Mean    | Median | Mean    | Median | Mean   | Median       | Mean    |
| Population  | 237,492 | 575,254 | 74,051 | 227,882 | 18,919 | 64,802 | 12,500       | 476,784 |
| Median household effective buying income as % of U.S. | 120     | 128     | 103    | 108     | 85     | 90     | 83           | 92      |
| Unemployment rate (%)                                 | 6.1     | 6.3     | 7.1    | 7.4     | 7.5    | 8.1    | 7.8          | 8.8     |
| Concentration (%)                                     | 6.4     | 10.2    | 8.7    | 12.6    | 10.3   | 15.6   | 8.9          | 13.5    |
| Water rate (\$)                                       | 30.88   | 31.55   | 32.84  | 35.63   | 40.84  | 42.68  | 34.95        | 39.70   |
| Sewer rate (\$)                                       | 36.26   | 39.91   | 38.81  | 41.38   | 40.45  | 44.02  | 43.21        | 44.40   |
| Total operating revenues* (\$)                        | 65,116  | 125,725 | 15,835 | 41,096  | 4,245  | 12,311 | 3,472        | 52,513  |
| Days' cash*   | 472     | 629     | 417    | 556     | 283    | 402    | 144          | 261     |
| Senior-lien debt service coverage* (x)                | 3.30    | 3.97    | 2.40   | 3.65    | 1.73   | 2.45   | 1.35         | 1.50    |
| All-in debt service coverage* (x)                     | 2.35    | 2.96    | 1.87   | 2.29    | 1.43   | 1.66   | 0.97         | 1.19    |

\*Average of last three years.

**Table 2**

**U.S. Water And Sewer Credit Ratios: Medians And Means By Population**

|   | Pop Above 500,000 |           | Pop 150,000 to 500,000 |         | Pop 20,000 to 150,000 |        | Pop Below 20,000 |       |
|---|-------------------|-----------|------------------------|---------|-----------------------|--------|------------------|-------|
|   | Median            | Mean      | Median                 | Mean    | Median                | Mean   | Median           | Mean  |
| Population  | 998,454           | 1,459,872 | 241,934                | 268,001 | 50,095                | 61,715 | 9,164            | 9,529 |
| Median household effective buying income as % of U.S. | 98                | 104       | 99                     | 103     | 97                    | 103    | 85               | 94    |
| Unemployment rate (%)                                 | 7.6               | 7.9       | 7.3                    | 7.6     | 7.2                   | 7.8    | 7.2              | 7.5   |
| Concentration (%)                                     | 8.0               | 15.4      | 7.5                    | 11.5    | 9.0                   | 12.2   | 12.1             | 16.7  |
| Water rate (\$)                                       | 30.12             | 33.66     | 31.2                   | 33.1    | 33.6                  | 36.0   | 40.36            | 42.27 |
| Sewer rate (\$)                                       | 42.54             | 44.48     | 41.15                  | 42.58   | 37.64                 | 40.03  | 40.56            | 44.93 |



**Table 2**

**U.S. Water And Sewer Credit Ratios: Medians And Means By Population (cont.)**

|  |         |         |        |        |        |        |       |       |
|--|---------|---------|--------|--------|--------|--------|-------|-------|
| Total operating revenues* (\$)         | 174,087 | 243,840 | 49,140 | 58,055 | 13,017 | 16,453 | 2,692 | 3,890 |
| Days' cash*                            | 281     | 353     | 404    | 537    | 375    | 508    | 349   | 422   |
| Senior-lien debt service coverage* (x) | 2.02    | 3.04    | 2.15   | 3.32   | 2.27   | 2.98   | 1.91  | 2.63  |
| All-in debt service coverage* (x)      | 1.53    | 1.81    | 1.80   | 2.33   | 1.75   | 2.15   | 1.43  | 1.65  |

\*Average of last three years.

**Table 3**

**U.S. Water And Sewer Credit Ratios: Medians And Means Within The 'AA' Category**

|   | AA+     |         | AA     |         | AA-    |         |
|---|---------|---------|--------|---------|--------|---------|
|   | Median  | Mean    | Median | Mean    | Median | Mean    |
| Population  | 172,038 | 419,393 | 86,642 | 252,853 | 43,871 | 128,640 |
| Median household effective buying income as % of U.S. | 107     | 115     | 107    | 113     | 97     | 100     |
| Unemployment rate (%)                                 | 6.5     | 6.9     | 7.3    | 7.4     | 7.2    | 7.6     |
| Concentration (%)                                     | 7.8     | 13.9    | 8.0    | 10.9    | 9.6    | 13.4    |
| Water rate (\$)                                       | 31.85   | 34.98   | 31.95  | 33.94   | 34.30  | 37.30   |
| Sewer rate (\$)                                       | 38.50   | 42.70   | 37.20  | 38.62   | 40.81  | 43.16   |
| Total operating revenues* (\$)                        | 32,382  | 75,292  | 18,140 | 45,206  | 11,391 | 23,623  |
| Days' cash*   | 443     | 501     | 431    | 583     | 397    | 555     |
| Senior-lien debt service coverage* (x)                | 2.32    | 3.44    | 2.46   | 3.74    | 2.39   | 3.66    |
| All-in debt service coverage* (x)                     | 1.96    | 2.42    | 1.93   | 2.44    | 1.80   | 2.13    |

\*Average of last three years.

## The Relationships Between Our Ratings And Select Ratios

As in previous years, the data show correlations between several ratios—including the issuer's population, income levels, and liquidity—and our ratings on these debt issues. This is not surprising because the economic base (i.e., the population and income levels) tends to provide the foundation for credit quality in general. What's more, larger systems tend to enjoy the benefits of economies of scale because they can tap into a larger base to generate revenue, address system emergencies, and adapt to fluctuations in demand often more expeditiously and efficiently than smaller systems. Similar to population, a system's total operating revenues correlate to rating level: Systems with larger budgets generally get rated higher.

Given the overwhelming majority of ratings are 'A-' or higher, ratings below this level usually have a unique set of credit factors associated with them. This year, ratings at the 'BBB' level or lower include those on Detroit; Jefferson County, Ala.; Stockton, Calif.; New Orleans; and Atwater, Calif. Each of these issuers has experienced significant stress related to either their enterprise fund, general government operations, or both.

A direct correlation exists between our issue ratings and ratios such as median and mean population, days' cash on hand, and coverage ratios. For several of the data points, we used the average of the previous three years for analysis. Although the sector is extremely stable and only minor deviations typically occur from year to year, using a three-year average tends to smooth any atypical year-over-year changes.

Across all rating categories, the range from the minimum value to the maximum value is, for almost every data point, extremely large. For example, days' cash levels for 'AAA' issuers range from less than 100 days to more than 2,000 days. Given the size differences between the smallest issuers and the exceptionally large issuers, the means may be skewed but can nevertheless provide some insight.

### **Income levels, unemployment rates, and population**

In general, better economic indicators correlate with higher ratings. From the 'BBB' category to the 'AAA' category, median household effective buying income increases to 120% of the national average from 83%, while the median unemployment rate declines to 6.1% from 7.8%. Additionally, the median population for 'AAA' rated issuers is significantly higher than those in any other rating category.

### **Liquidity ratios**

The issuers' days' cash on hand, a measure of liquidity, are also stronger at the higher rating levels, although median liquidity levels remain healthy, in our view, for each category. However, for smaller systems, a high days' cash number does not always equal a nominally high amount of cash. For example, a very small system with 180 days' cash may have a nominally low amount of cash available to address any emergencies or wet weather conditions that cause a decline in demand.

The median days' cash level is about 144 days for 'BBB' category issuers and rises to 283 for those in the 'A' category, 417 for those in the 'AA' category, and 472 for 'AAA' issuers. When aggregating by population, the correlations are not quite as strong, with median liquidity levels of the midsize issuers greater than those of the larger issuers. Again, liquidity measures are typically strong across all rating categories despite population levels.

### **Coverage ratios**

As with days' cash on hand, the coverage ratios also have strong correlations with credit quality because the higher-rated issuers tended to have better debt service coverage. Mean and median coverage levels improved noticeably between each rating category. The median senior-lien coverage ratio is 1.3x for 'BBB' credits and rises to 3.3x for 'AAA' credits. However, these correlations do not exist when taking population ranges into account because issuers in the 20,000 to 150,000 range had higher coverage means and medians than larger systems. These trends are consistent with previous years.

### **A closer look at the 'AA' category**

While 'A+' remains the median rating level, a slightly greater percentage of ratings are in the 'AA' category versus the

'A' category. Within the 'AA' category, a slightly higher percentage of ratings are at 'AA-' (20%) than 'AA' (17%), with about 8% at 'AA+'. Some of the correlations that were evident from category to category are still evident within the 'AA' category itself. Specifically, median population levels and unemployment rates improve with rating quality. Financial indicators, such as days' cash and debt service coverage, do not differ significantly from 'AA-' to 'AA+', though the liquidity ratio rises slightly (see table 3).

## As Always, Numbers Don't Tell the Whole Story

While the ratios presented here may show particular trends from category to category, or even within certain categories, they are not the sole determinants for the assignment of a rating. Management policies and practices, coupled with the environment in which the utility operates, will often lead to higher coverage or liquidity ratios. Those governance factors may be the primary reason for a higher rating, with the operating performance a result of higher-quality management. While strong financial metrics can certainly lead to higher ratings, it is also the underlying management of the system, the resources available to staff and the ability to maintain those strong financial metrics that ultimately underpins the rating assignment.

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