

## SECTOR PROFILE

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 Rate this Research

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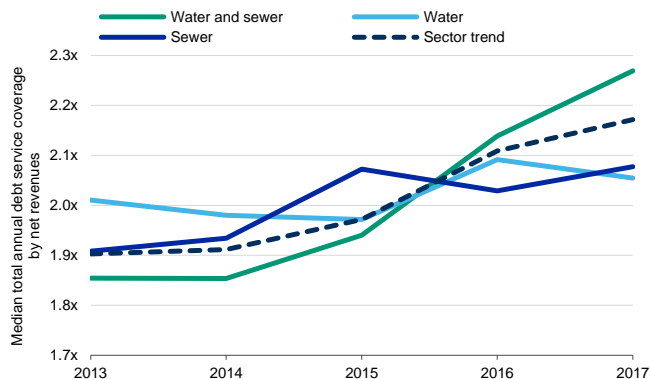
Water and sewer utilities – US

## Medians - Financial performance signals continued stability

Municipal water and sewer utilities continue to demonstrate a stable to modestly improving financial performance, according to our fiscal 2017 medians data. Operating results are primarily driven by utility systems' (water, sewer and combined enterprises) willingness and ability to raise rates to support debt service coverage and liquidity. Declining asset conditions across the sector, however, indicate an underinvestment in capital infrastructure. These trends are reflected in [our stable outlook for the water and sewer utilities sector](#).

- » **Debt service coverage remains healthy at a median just above 2.0x.** The median sectorwide coverage improved modestly to 2.2x in 2017, indicating a healthy cushion to absorb unforeseen fluctuations in revenues or expenses. Stable coverage trends have roots in systems' autonomous rate-setting authority and an ability and willingness to adjust rates to meet operating and debt service needs.
- » **Liquidity continues to improve.** Days cash on hand rose to a median of 447 in 2017 from 420. The trend of improved liquidity provides utilities with additional flexibility to manage an unexpected event or service disruption. While sewer utilities exhibit much stronger liquidity levels than water utilities or combined water and sewer utilities, the median days cash on hand for all three system types continued to top one year's worth of operating expenditures.
- » **Sectorwide leverage is declining, indicating capacity to finance capital projects.** The downward trend in the median debt burden — measured by net funded debt to operating revenues — is driven by rate increases to support new debt issuances as well as an underinvestment in infrastructure. The sectorwide median was 2.0x operating revenues in fiscal 2017. Utilities with lower debt loads have greater capacity to support large capital investments with additional debt or on a pay-as-you-go basis.
- » **Operating and maintenance (O&M) expenses are growing modestly.** Generally, combined water and sewer systems have greater operating expenses than single-utility systems. O&M expenses continue to grow modestly across the entire sector.
- » **Deteriorating asset condition signals underinvestment in infrastructure.** Due to systems' deferral of capital investment and underinvestment in plants and equipment, the remaining useful life of capital assets continues to decline. However, the sectorwide median for remaining useful life of an asset was 29 years, offering time to invest to improve conditions.

Exhibit 1

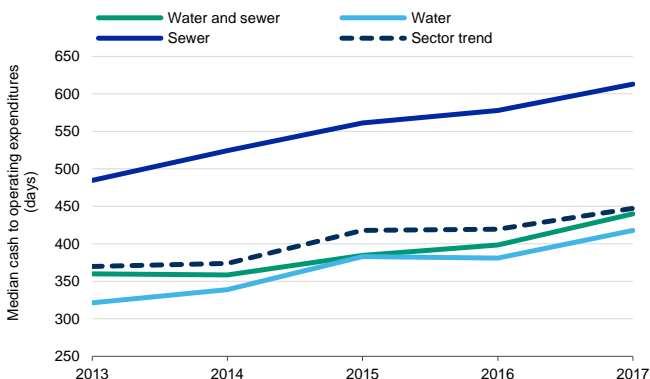
**Debt service coverage remains healthy at above 2.0x for all sectors**

Source: Moody's Investors Service

**Debt service coverage improves except for water utilities**

- » Median debt service coverage improved for combined water and sewer utilities and sewer utilities but declined modestly for water utilities.
- » While median debt service coverage for water utilities declined to 2.05x in fiscal 2017 from 2.09x in 2016, the multiyear trend has been positive, with debt service coverage higher in 2017 versus 2013.
- » The sectorwide increase in coverage in 2017 reflects rate adjustments to meet growing operating expenses.
- » For example, Florida's [Fort Lauderdale Water and Sewer Enterprise](#) (Aa1 stable) implemented annual rate increases to cover increasing costs associated with capital improvements and saw annual debt service coverage increase to 1.63x in fiscal 2017 from 1.2x in 2013.

Exhibit 2

**Liquidity continues to improve, signaling sound financial management**

Source: Moody's Investors Service

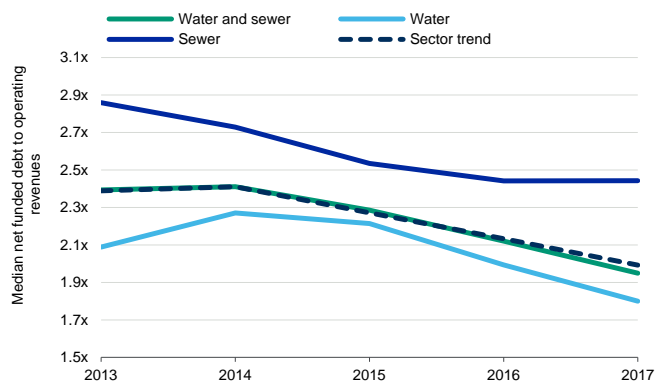
**Strong liquidity provides flexibility**

- » Liquidity improved across all utility types in fiscal 2017, giving systems flexibility to address capital needs and maintain low leverage. Reserves help moderate customer rate increases, absorb system shocks and address capital needs.
- » Average growth in days cash on hand has been in the low-to-mid-single-digit range as growing cash levels outpace inflation.
- » Strong liquidity levels allow utilities more flexibility to meet unexpected expenses or fund capital improvements on a pay-as-you-go basis.
- » Pennsylvania's [Allegheny County Sanitary Authority](#) (A1 stable), for example, has steadily improved its liquidity, closing fiscal 2018 with an unrestricted 684 days cash on hand, up from 411 days cash on hand at the close of fiscal 2014.

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Exhibit 3

### Leverage continues to decline across the sector, creating capacity to finance capital improvements



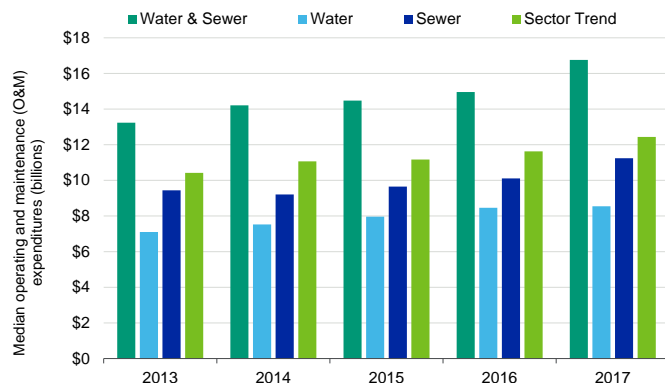
Source: Moody's Investors Service

#### Leverage is trending downward

- » Leverage declined for combined water and sewer utilities and water utilities, continuing a multiyear trend. Leverage for sewer utilities remained stable in fiscal 2017 following several years of declines.
- » Median leverage across all utility systems was moderate at 2.0x operating revenues in fiscal 2017. Relatively low leverage provides the ability to issue additional debt to fund capital needs in the face of aging infrastructure.

Exhibit 4

### Operating and maintenance expenditures continue to increase



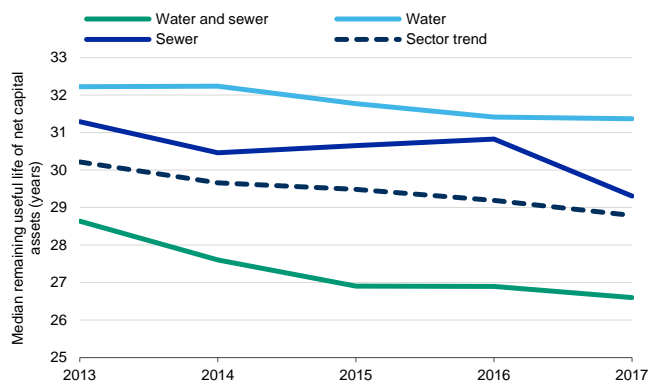
Source: Moody's Investors Service

#### Operating and maintenance (O&M) expenditures growing modestly across the sector

- » Median sectorwide O&M expenditures have modestly increased over the past several years, led by combined water and sewer utilities. This is largely due to service area growth, offset somewhat by energy efficient upgrades to facilities and flat to declining water usage driven by increased conservation.
- » Combined water and sewer systems are generally larger, as measured by operating expenditures, than single water or sewer utilities. Additionally, combined systems' O&M have grown faster, with a median compound annual rate of 6.1% over the last four years compared to the sector as a whole at 4.5%.
- » Generally, larger utilities benefit more from economies of scale and are able to weather unexpected expenses or service disruptions better than smaller utilities.

Exhibit 5

### Remaining useful life continues to decline as depreciation outpaces infrastructure investment



Source: Moody's Investors Service

### Declining asset condition indicative of underinvestment in infrastructure

- » Continued deferral of infrastructure investment increases the risk of operational issues such as sewer overflows or water leakage, which can lead to service disruptions, revenue loss and increased expenses to meet regulatory requirements.
- » Despite the downward trend, the 2017 sectorwide median asset condition (or remaining useful life) of 29 years affords systems adequate time to implement capital plans before acute system failures.
- » The median asset condition for water systems remained stable and is stronger at 31 years than sewer systems (29) and combined water and sewer systems (27).

### Basis for medians

This medians report conforms to our US Municipal Utility Revenue Debt rating methodology published in October 2017. As such, the medians presented here are based on the key metrics outlined in the methodology and the associated scorecard. The appendix of this report provides additional metrics broken out by sector and rating category.

We use data from a variety of sources to calculate the medians, some of which have differing reporting schedules. Whenever possible, we calculated these medians using available data for fiscal year 2017. The median family income data was derived from the 2017 US Census American Community Survey.

Medians for some rating levels, namely Aaa- and Baa-rated issuers, are based on relatively small sample sizes. These medians may therefore be subject to substantial year-over-year variation.

Our ratings reflect our forward-looking opinion derived partly from forecasts of financial performance and qualitative factors, as opposed to strictly historical quantitative data. Our expectation of future performance, combined with the relative importance of certain metrics on individual local government ratings, account for the range of values that can be found within each rating category.

**Key ratios**

- » Debt service coverage: annual net revenues (including connection or impact fees) divided by annual debt service.
- » Liquidity: unrestricted cash and liquid investments multiplied by 365 and divided by operating and maintenance expenses (net of depreciation), expressed in days.
- » Debt to operating revenues: net long-term debt less debt service reserve funds divided by most recent year's operating revenues.
- » Asset condition: net fixed assets divided by depreciation expense, expressed in years.

## Appendix A: Water, sewer and combined water & sewer utilities

Exhibit 6

### Medians for US water utilities

Selected Indicators	2013	2014	2015	2016	2017
Moody's Median Senior Revenue Rating					Aa3
Median Family Income (% of US Median)	99%	100%	99%	100%	100%
Asset Condition: (Remaining Useful Life)	32	32	32	31	31
Debt to Operating Revenues	2.1	2.3	2.2	2.0	1.8
Annual Debt Service Coverage	2.0	2.0	2.0	2.1	2.1
Days Cash on Hand	321	339	383	381	418
System Size: (O&M, \$000)	7,104	7,527	7,964	8,459	8,544
Debt Service (\$000)	2,918	2,909	2,968	2,961	3,002
Net Revenues (\$000)	5,952	6,017	6,335	6,927	7,109
Net Funded Debt (\$000)	27,297	26,963	29,392	28,622	30,291
Total Revenues (\$000)	13,576	14,512	15,066	15,207	16,274

Exhibit 7

### Medians for US sewer utilities

Selected Indicators	2013	2014	2015	2016	2017
Moody's Median Senior Revenue Rating					Aa3
Median Family Income (% of US Median)	98%	97%	97%	97%	97%
Asset Condition: (Remaining Useful Life)	31	30	31	31	29
Debt to Operating Revenues	2.9	2.7	2.5	2.4	2.4
Annual Debt Service Coverage	1.9	1.9	2.1	2.0	2.1
Days Cash on Hand	485	525	561	578	613
System Size: (O&M, \$000)	9,440	9,207	9,651	10,112	11,241
Debt Service (\$000)	4,239	4,339	3,963	3,813	3,938
Net Revenues (\$000)	7,733	8,765	9,424	8,985	9,884
Net Funded Debt (\$000)	41,028	38,311	39,492	41,467	40,773
Total Revenues (\$000)	17,693	18,299	19,593	19,910	20,656

Exhibit 8

### Medians for US water and sewer utilities

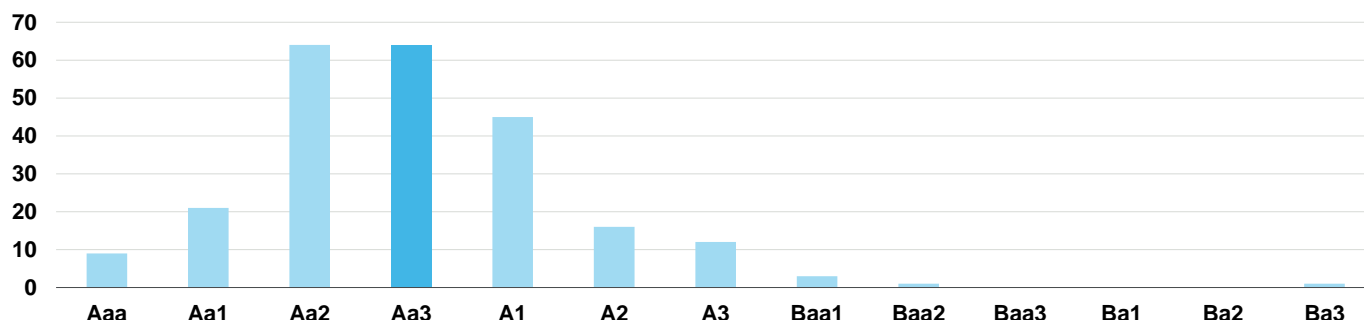
Selected Indicators	2013	2014	2015	2016	2017
Moody's Median Senior Revenue Rating					Aa3
Median Family Income (% of US Median)	92%	92%	91%	91%	91%
Asset Condition: (Remaining Useful Life)	29	28	27	27	27
Debt to Operating Revenues	2.4	2.4	2.3	2.1	1.9
Annual Debt Service Coverage	1.9	1.9	1.9	2.1	2.3
Days Cash on Hand	360	359	385	399	440
System Size: (O&M, \$000)	13,238	14,210	14,475	14,959	16,759
Debt Service (\$000)	50,898	4,879	4,829	5,015	5,182
Net Revenues (\$000)	10,213	10,593	11,270	11,590	12,262
Net Funded Debt (\$000)	50,898	52,312	47,996	48,768	47,783
Total Revenues (\$000)	23,766	25,030	26,322	27,107	29,141

Source: Moody's Investors Service

## Appendix B: Water utilities

Exhibit 9

### Rating distribution - US water utilities



Source: Moody's Investors Service

Exhibit 10

### Medians for US water utilities

Selected Indicators	2017
Moody's Median Senior Revenue Rating	Aa3
Median Family Income (% of US Median)	100%
Asset Condition: (Remaining Useful Life)	31
Debt to Operating Revenues	1.8
Annual Debt Service Coverage	2.1
Days Cash on Hand	418
System Size: (O&M, \$000)	8,544
Debt Service (\$000)	3,002
Net Revenues (\$000)	7,109
Net Funded Debt (\$000)	30,291
Total Revenues (\$000)	16,274

Source: Moody's Investors Service

Exhibit 11

### Medians by rating - US water utilities

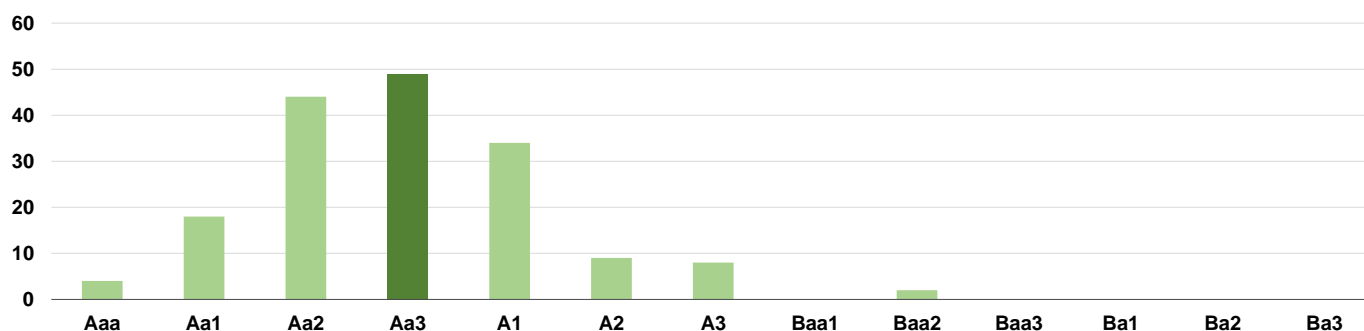
Selected Indicators	Aaa	Aa	A	Baa	Ba
Median Family Income (% of US Median)	106%	104%	93%	81%	47%
Asset Condition: (Remaining Useful Life)	38	31	30	29	18
Debt to Operating Revenues	2.3	1.8	2.2	1.7	0.5
Annual Debt Service Coverage	2.9	2.4	1.8	1.6	2.3
Days Cash on Hand	484	424	401	162	350
System Size: (O&M, \$000)	80,747	12,540	2,866	26,865	10,146
Debt Service (\$000)	34,724	4,639	1,459	2,300	2,221
Net Revenues (\$000)	100,436	11,041	2,034	2,334	5,017
Net Funded Debt (\$000)	447,961	44,265	12,666	23,849	8,246
Total Revenues (\$000)	181,183	25,792	5,380	29,198	15,163

Source: Moody's Investors Service

## Appendix C: Sewer utilities

Exhibit 12

### Rating distribution - US sewer utilities



Source: Moody's Investors Service

Exhibit 13

### Medians for US sewer utilities

Selected Indicators	2017
Moody's Median Senior Revenue Rating	Aa3
Median Family Income (% of US Median)	97%
Asset Condition: (Remaining Useful Life)	29
Debt to Operating Revenues	2.4
Annual Debt Service Coverage	2.1
Days Cash on Hand	613
System Size: (O&M, \$000)	11,241
Debt Service (\$000)	3,938
Net Revenues (\$000)	9,884
Net Funded Debt (\$000)	40,773
Total Revenues (\$000)	20,656

Source: Moody's Investors Service

Exhibit 14

### Medians by rating - US sewer utilities

Selected Indicators	Aaa	Aa	A	Baa	Ba
Median Family Income (% of US Median)	109%	102%	85%	82%	N/A
Asset Condition: (Remaining Useful Life)	34	31	28	47	N/A
Debt to Operating Revenues	3.3	2.0	2.7	6.5	N/A
Annual Debt Service Coverage	2.8	2.2	1.8	1.2	N/A
Days Cash on Hand	955	623	591	605	N/A
System Size: (O&M, \$000)	96,191	19,185	5,592	71,530	N/A
Debt Service (\$000)	52,339	5,665	1,628	68,901	N/A
Net Revenues (\$000)	148,708	14,435	3,544	113,258	N/A
Net Funded Debt (\$000)	839,185	66,402	15,957	910,713	N/A
Total Revenues (\$000)	244,898	34,217	9,093	184,788	N/A

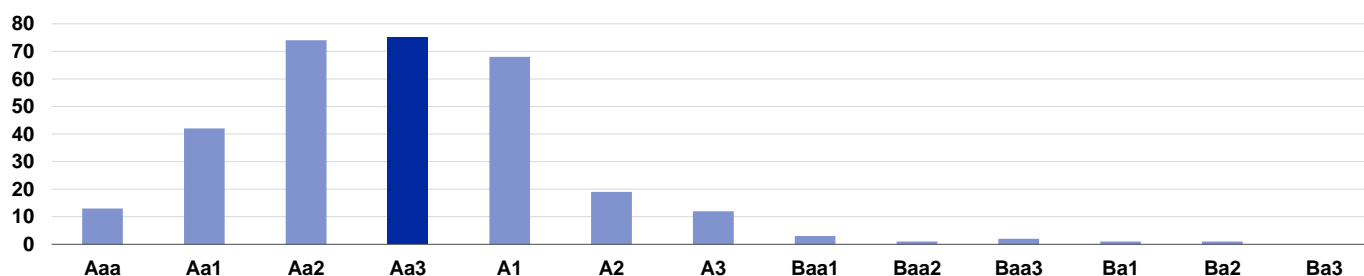
Source: Moody's Investors Service



## Appendix D: Combined water and sewer utilities

Exhibit 15

### Rating distribution - US combined water and sewer utilities



Source: Moody's Investors Service

Exhibit 16

### Medians for US combined water and sewer utilities

Selected Indicators	2017
Moody's Median Senior Revenue Rating	Aa3
Median Family Income (% of US Median)	91%
Asset Condition: (Remaining Useful Life)	27
Debt to Operating Revenues	1.9
Annual Debt Service Coverage	2.3
Days Cash on Hand	440
System Size: (O&M, \$000)	16,759
Debt Service (\$000)	5,182
Net Revenues (\$000)	12,262
Net Funded Debt (\$000)	47,783
Total Revenues (\$000)	29,141

Source: Moody's Investors Service

Exhibit 17

### Medians by rating - US combined water and sewer utilities

Selected Indicators	Aaa	Aa	A	Baa	Ba
Median Family Income (% of US Median)	121%	96%	83%	91%	59%
Asset Condition: (Remaining Useful Life)	27	27	25	18	29
Debt to Operating Revenues	2.1	1.9	2.5	2.4	5.7
Annual Debt Service Coverage	3.0	2.4	2.1	1.7	1.4
Days Cash on Hand	747	492	364	147	54
System Size: (O&M, \$000)	85,373	23,848	7,402	3,071	17,435
Debt Service (\$000)	23,116	7,080	2,141	697	11,801
Net Revenues (\$000)	77,568	18,975	4,588	1,215	14,121
Net Funded Debt (\$000)	287,044	75,083	26,974	10,419	132,571
Total Revenues (\$000)	154,645	41,764	12,307	4,348	31,556

Source: Moody's Investors Service

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