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OUTLOOK
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Contacts

Daniel Simpson +1.312.706.9965
Analyst
dan.simpson@moodys.com

Rachel Cortez +1.312.706.9956
Senior Vice President/Manager
rachel.cortez@moodys.com

Naomi Richman +1.212.553.0014
Senior Vice President
naomi.richman@moodys.com

Leonard Jones +1.212.553.3806
MD-Public Finance
leonard.jones@moodys.com

Alexandra S. Parker +1.212.553.4889
MD-Public Finance
alexandra.parker@moodys.com

» Contacts continued on last page

Municipal water and sewer utilities – US

2020 outlook stable with strong debt service coverage despite large capital needs

The continuing stable outlook reflects our expectations for the credit conditions driving the municipal water and sewer utility sector over the next 12 to 18 months. Debt service coverage and liquidity will strengthen with revenue growth underpinned by autonomous rate-setting authority. Capital needs will remain a challenge despite the strong liquidity because cash on hand is insufficient to fund large-scale capital projects and address deterioration in asset conditions. Water shortages and contaminated drinking water will remain environmental and social risks for water utilities, necessitating strong governance.

» **Debt service coverage will improve, driven by autonomous rate-setting authority.** With increases in net revenue, annual debt service coverage will reach a median 2.4x. Debt service coverage remains the strongest in the West and South, helped by population growth. Many systems have rate increases in place, while others will use their autonomous rate-raising authority to support revenue growth and provide a buffer against a slowing economy in 2020.

» **Strong liquidity will continue to provide financial flexibility.** Median days cash on hand will top 500, an extremely strong level. Cash on hand provides flexibility to address unexpected capital needs, though not large ones, or phase in rate increases slowly as the economy decelerates.

» **Capital needs will continue to mount.** Underinvestment in plant and equipment will result in a continuing decline of remaining useful life to a median 27 years. Failure to maintain capital assets threatens to increase costs for upgrades and compliance.

» **Governance will remain critical in mitigating environmental and social risks.** Governance will continue to play a crucial role in protecting water supplies in the drought-prone West. A recent proposal by the Environmental Protection Agency (EPA) seeking to guard against lead in drinking water underscores the social risks water utilities face when contaminated water affects vulnerable populations. Contamination also often leads to significant additional expenses for utilities.

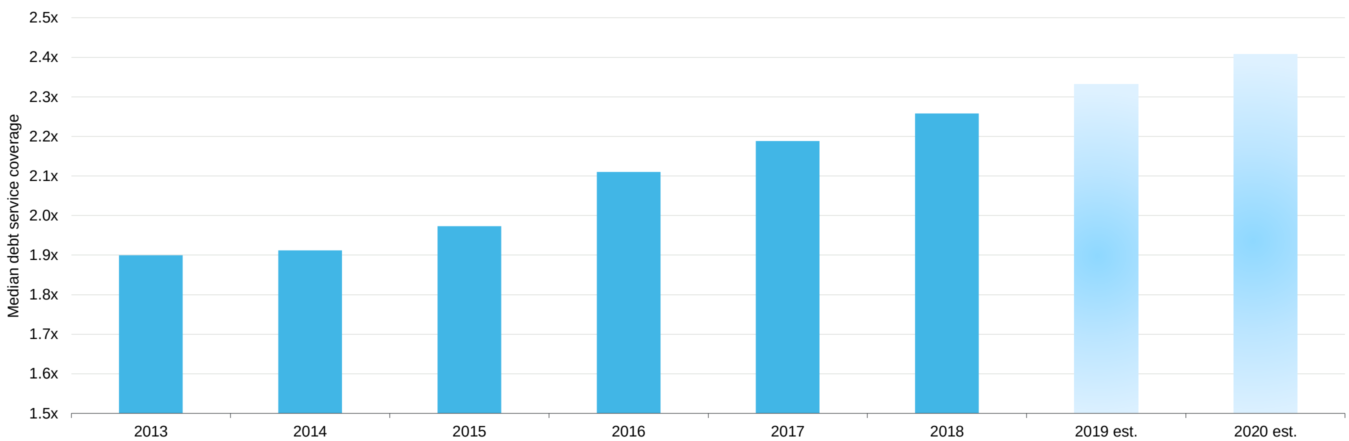
» **What could change the outlook.** A positive outlook could result from an increase in capital investment that leads to improvements in system asset conditions, along with continued strong debt service coverage and liquidity. A negative outlook could result from a significant decline in debt service coverage and liquidity coupled with further weakening of asset conditions. Also, a change in the stable outlook for the local government sector could result in a change in the water and sewer sector given the two sectors' close ties.

This outlook represents our forward-looking view on credit conditions in the sector over the next 12 to 18 months. This sectorwide outlook, however, does not imply the likelihood or direction of rating actions for individual issuers.

Debt service coverage will improve, driven by autonomous rate-setting authority

Annual debt service coverage for municipal water and sewer utilities will continue growing in 2020, reaching a median 2.4x in fiscal 2020 (see Exhibit 1). GDP growth is forecast to slow to 1.7% in 2020 from 2.3% in 2019, according to our projections.[1] Some utilities have rate increases in place for at least the next year that will guard against a slowing economy. Other utilities will use autonomous rate-setting authority — a credit positive for most of the sector — to raise rates. Barring an unforeseen jump in expenses, the resulting increase in net revenue from rate hikes will drive the improvement in debt service coverage.

Exhibit 1
Debt service coverage to strengthen in 2020
Median sectorwide annual debt service coverage by fiscal year



"est." stands for estimate.
Source: Moody's Investors Service

Net revenue will grow at a faster rate than debt service (see Exhibit 2), bolstering debt service coverage. Increased coverage provides flexibility for utilities to manage rate increases, build cash reserves and finance pay-as-you-go capital projects. Increased coverage also helps to strengthen liquidity. While coverage is healthy, it is likely insufficient to fund large-scale capital projects, but can provide resources for annual maintenance and small-scale capital projects.

Exhibit 2
Net revenue growth will continue to outpace debt service
Median growth, indexed to 2013

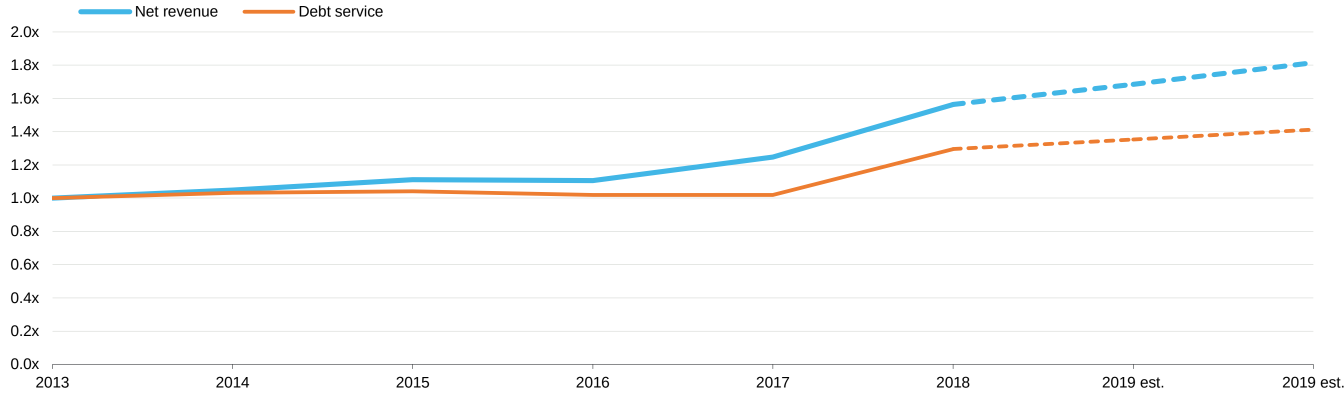


Exhibit based on fiscal years, which vary by issuer. "est." stands for estimate.
Source: Moody's Investors Service

Utilities generally have either rate increases in place or the opportunity to take advantage of autonomous rate-setting authority to weather the economic slowdown and even a moderate recession. Among the 50 largest systems we rate (by debt outstanding), the median annual rate increase was 4% in fiscal 2019. Most of these systems report similar increases in fiscal 2020 and 2021. However, in an economic downturn, utilities are exposed to local governments looking to bolster their finances by requiring utilities to transfer more funds to them than normal.

Coverage varies by region and system type

Debt service coverage continues to improve, but the degree varies by region and system type (see Exhibit 3). Coverage will likely remain strongest in the West and South, where systems benefit from population growth that tops the Midwest and Northeast. Sewer systems typically lag water systems and combined water and sewer systems in coverage. Sewer systems that treat wastewater are more capital intensive, operate with more stringent environmental regulations and tend to have more debt.

Exhibit 3
Debt service coverage is stronger in the West and South and among combined water and sewer systems
Median annual debt service coverage (x) by region and system type, by fiscal year

	2013	2014	2015	2016	2017	2018	Five-year trend
Region							
Northeast	1.53	1.60	1.61	1.67	1.77	1.72	
Midwest	1.88	1.87	1.89	2.02	2.04	2.12	
West	2.22	2.23	2.18	2.18	2.44	2.49	
South	1.85	1.87	2.01	2.20	2.27	2.27	
Type							
Water	2.01	1.98	1.94	2.06	2.10	2.23	
Sewer	1.91	1.92	2.07	2.09	2.08	2.18	
Combined	1.85	1.83	1.95	2.15	2.26	2.30	

Fiscal 2019 data is not available.
Source: Moody's Investors Service

Technology is helping reduce operating costs, likely supporting stronger coverage

Like other sewer utilities, Wisconsin's Green Bay Metropolitan Sewerage District (Aaa stable) is capturing methane gas during the wastewater treatment process, then converting it to electricity to save money. The district estimates the process reduces electricity costs by 42%, saving more than $1 million annually, or equivalent to 5% of operations and maintenance expense.

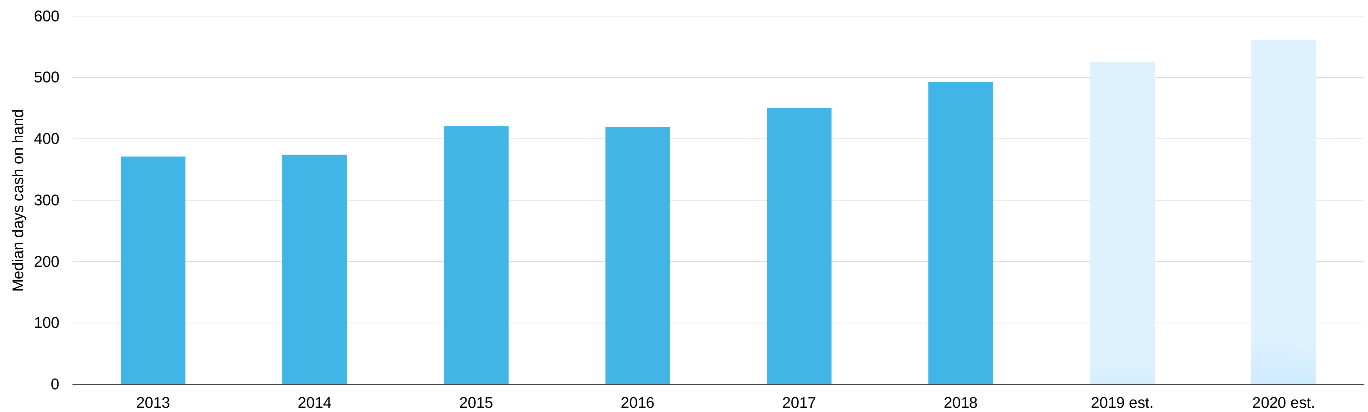
Strong liquidity will continue to provide financial flexibility

Liquidity will top a median 500 days cash on hand in fiscal 2020, the highest level since at least 2009 (see Exhibit 4). The sector's growing net revenue will continue providing healthy debt service coverage, leading to stronger liquidity. Strong liquidity provides resources to address unexpected capital needs and a cushion to maintain financial stability if the economy, including a moderate recession, makes it difficult to increase rates. While the healthy liquidity can support unexpected capital needs, it is generally insufficient to allow investment in major infrastructure projects.

Exhibit 4

Liquidity continues to improve driven by net revenue growth

Median days cash on hand (also known as median days of operations and maintenance expense or O&M)



"est." stands for estimate.

Source: Moody's Investors Service

Sewer utilities will maintain stronger liquidity than water systems and combined water and sewer systems (see Exhibit 5) because sewer utilities have large capital requirements related to mechanical systems to treat wastewater. Additionally, many need added funds to adhere to environmental consent decrees and more stringent environmental regulations. Consent decrees are enforceable agreements that typically require systems to manage sanitary sewer overflow (SSO) or combined sewer overflows (CSO), both of which require large-scale capital projects and substantial borrowing. Consent decrees are mostly issued by the Environmental Protection Agency (EPA).

Exhibit 5

Liquidity continues to improve but varies by system type

Median days of operations and maintenance expense (O&M)

	2013	2014	2015	2016	2017	2018	Five-year trend
Median days cash on hand - sector	371	374	421	420	450	493	
Year-over-year change - sector	3.6%	0.8%	12.3%	-0.2%	7.3%	9.4%	
Median days cash on hand - sewer	475	519	549	575	585	619	
Median days cash on hand - water	330	350	404	385	423	391	
Median days cash on hand - combined	360	356	376	393	434	482	

Source: Moody's Investors Service

Clean Water Act violations result in costly consent decrees

With aging infrastructure and outdated systems, many sewer utilities will continue to face challenges in preventing contamination and public health problems to avoid consent decrees, which carry a financial risk. Through enforcement of the Clean Water Act, the Environmental Protection Agency (EPA) has reached consent decrees with municipal sewer systems aiming to reduce harmful discharge to nearby streams, rivers, or other water bodies. The agreements often require utilities to embark on costly capital projects and infrastructure upgrades to clean up and reduce sanitary sewer overflow (SSO) or combined sewer overflows (CSO). Consent decrees are frequently costly with many requiring investments of well over $1 billion in order to comply with the EPA mandates (see Exhibit 6).

Still, large systems tend to have the resources to manage consent decrees. For example, Houston Combined Utility System (Aa2 stable) entered into a $2 billion consent decree with the EPA this year, but the system's size, solid liquidity, and the nature of capital planning provide flexibility to manage the additional debt.

Exhibit 6

Complying with consent decrees is frequently expensive

Consent decrees with compliance costs over $1 billion

Issuer	State	Rating	Outlook	Settlement date	Estimated cost of compliance with consent decree ($ millions)	Operating revenue ($ millions)	Consent decree / revenue (x)
Allegheny County Sanitary Authority, PA	PA	A1	Stable	5/31/2007	$2,000,000	$169,724	11.8
Atlanta (City of) GA Water and Wastewater Enterprise	GA	Aa2	Stable	7/29/1999	$2,000,000	$478,132	4.2
District of Columbia Water & Sewer Authority	DC	Aa1	Stable	5/20/2015	$1,265,000	$684,502	1.8
East Baton Rouge Sewerage Commission, LA	LA	Aa3	Stable	11/13/2001	$1,400,000	$89,873	15.6
Hartford County Metropolitan District, CT	CT	Aa2	Stable	5/11/2006	$2,100,000	$115,703	18.1
Honolulu (City & County of) HI Sewer Enterprise	HI	Aa2	Stable	8/10/2010	$5,000,000	$455,438	11.0
Houston (City of) TX Combined Utility System	TX	Aa1	Stable	8/27/2019	$2,000,000	$1,052,549	1.9
Kansas City (City of) MO Sewer Enterprise	MO	Aa2	Stable	5/18/2010	$2,500,000	$225,460	11.1
Louisville & Jefferson County Metropolitan Sewer District, KY	KY	Aa3	Stable	8/12/2005	$1,500,000	$279,149	5.4
Metropolitan Government of Nashville and Davidson County, TN	TN	Aa2	Stable	10/24/2007	$1,000,000	$233,841	4.3
Metropolitan Sewer District of Greater Cincinnati, OH	OH	Aa2	Stable	2/15/2002	$1,500,000	$291,400	5.1
Metropolitan St. Louis Sewer District, MO	MO	Aa1	Stable	8/4/2011	$4,700,000	$368,293	12.8
Miami-Dade (County of) FL Water and Sewer Enterprise	FL	Aa3	Stable	6/6/2013	$1,600,000	$711,849	2.2
New York (City of) NY	NY	Aa1	Stable	6/11/2018	$2,975,000	$3,655,308	0.8
Northeast Ohio Regional Sewer District	OH	Aa1	Stable	12/22/2010	$3,000,000	$326,059	9.2
Northern Kentucky Sanitation District No. 1, KY	KY	Aa2	Stable	10/7/2005	$1,000,000	$55,327	18.1
San Antonio (City of) TX Water and Sewer System	TX	Aa1	Stable	7/23/2013	$1,100,000	$691,046	1.6
San Diego (City of) CA Sewer Enterprise	CA	Aa2	Stable	10/12/2007	$1,000,000	$360,710	2.8

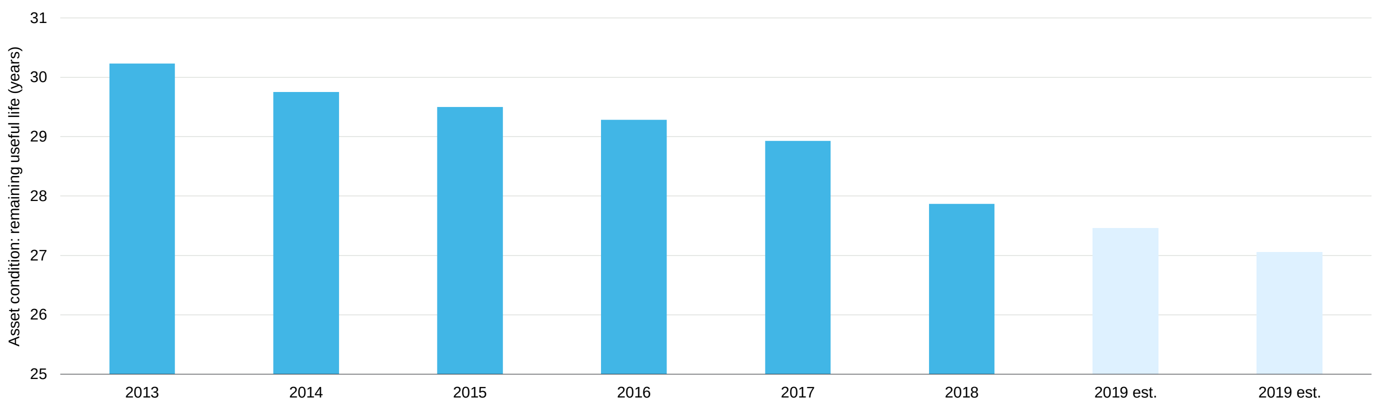
Source: US Environmental Protection Agency

Capital needs will continue to mount

Asset condition will decline to a median 27 years of remaining useful life in fiscal 2020 (see Exhibit 7), the lowest level since at least 2009. Asset condition is the remaining useful life of capital assets, which we calculate by dividing net fixed assets by annual depreciation expense. Declining asset conditions represent an underinvestment in capital infrastructure, leading to increased risk of system inefficiencies or failures. Failure to properly maintain capital assets threatens to increase expenses for repairs, maintenance, upgrades and regulatory compliance. Heightened public health concerns related to clean drinking water are a reputational, social and financial risk.

Exhibit 7

Depreciation outpacing investment as capital asset conditions weaken
Median remaining useful life (fiscal years)



"est." stands for estimate.
Source: Moody's Investors Service

The decline in median remaining useful life is most significant for combined water and sewer systems and the trend will continue. Combined water and sewer systems declined to 26 years in 2018 from 29 years in 2013 while sewer systems declined to 30 years in fiscal 2018 from 31 years in fiscal 2013 (see Exhibit 8). Water systems also realized a decrease to 31 years in 2018 from 32 years in fiscal 2013.

Exhibit 8

Asset condition varies across system type
Median remaining useful life (years)

	2013	2014	2015	2016	2017	2018
System type						
Asset condition - combined	29	28	27	27	27	26
Asset condition - water	32	32	32	32	31	31
Asset condition - sewer	31	30	30	30	29	30

Source: Moody's Investors Service

Cybersecurity risks are mounting

Cyberattacks are becoming a growing threat to critical infrastructure systems, including water and sewer utilities. As information technology and system controls become increasingly interconnected and digitized, cybersecurity will become more important and necessitate increased investment.

America's Water Infrastructure Act of 2018 will likely lead to increased costs on the cybersecurity front because it requires community water systems serving a population of more than 3,300 persons to conduct a cybersecurity risk assessment and develop a cybersecurity emergency response plan. The process includes assessing the security of any electronic, computer or other automated systems that the community water system uses. Both the risk assessment and emergency response plan must be certified and submitted to the EPA once every five years.

Despite the increased costs, the risk assessments will help identify vulnerabilities and therefore help to prevent cyberattacks. Likewise, a well-developed emergency response plan stands to help contain the impact of a cyberattack because it will provide a strategy to respond to, and lessen the effects of, an attack.

Governance will remain critical in mitigating environmental and social risks

For water utilities, governance will remain critical in reducing the environmental, social and financial risks from potential water shortages in the drought-prone West, along with difficulties from unsafe drinking water in areas with vulnerable populations. The recent adoption of the Drought Contingency Plan by Arizona, Nevada and California to collectively and proactively manage water from the Colorado River highlights the severity of drought conditions facing utilities in the West. Meanwhile, in Utah, the state is requiring more aggressive monitoring of water usage to address drought conditions there. Separately, the EPA's recent proposal seeking to increase utilities' efforts to guard against lead in drinking water underscores the social and financial risks posed by unsafe drinking water affecting vulnerable populations, the case recently in Michigan and New Jersey.

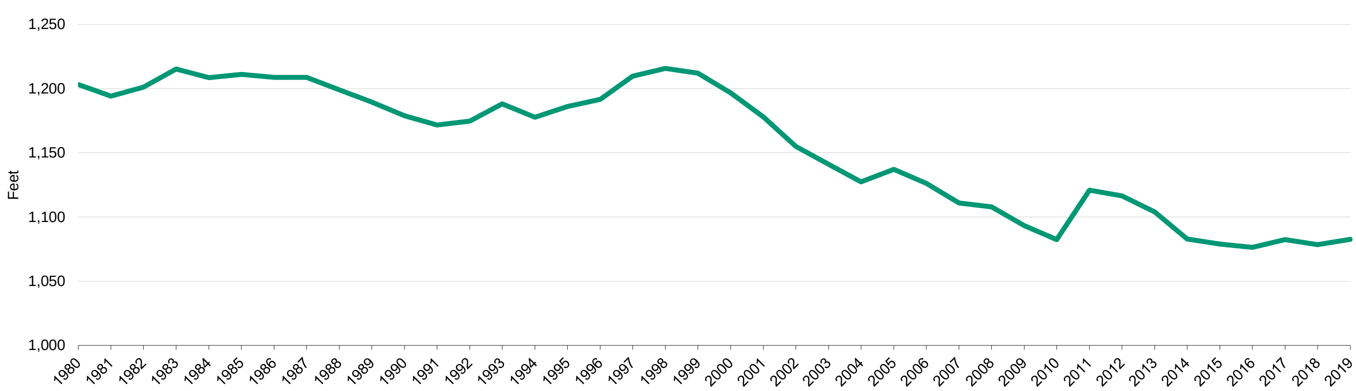
Utilities in the West face water management challenges

With growing populations and service areas that include Las Vegas (Aa2 stable), Phoenix (Aa1 negative) and Los Angeles (Aa2 positive), water utilities in the Lower Colorado River Basin will continue to grapple with drought conditions, the case for nearly two decades. Though many of the utilities individually have made long-standing efforts at water conservation, the adoption of the Drought Contingency Plan in 2019 highlights the recognized need for collective and strategic water management. By encouraging water storage in Lake Mead rather than in their own aquifers or with partners, as well as making smaller contributions to Lake Mead sooner rather than later, water utilities are more likely to avoid drastic cuts in water allocations and afford themselves more time to increase conservation efforts if drought conditions continue unabated. Lake Mead water levels have fallen for decades (see Exhibit 9).

Exhibit 9

Contributions to Lake Mead will preserve a key water supply source for utilities in the West

Lake Mead's elevation levels in feet



Source: US Bureau of Reclamation

In Utah, local water utilities must adjust to new state legislation that requires metering usage of all pressurized secondary, or nonpotable, water; secondary water is primarily used for landscaping or gardening and accounts for about a third of Utah's residential water use. While there is no deadline for implementation, water utilities must submit a plan to the Utah Division of Water Resources by December 31, 2019 detailing costs, financing and a timeline to implement metering of secondary water. Metering of secondary water, which will reduce overall water use, will help mitigate the impact of drought conditions. Likewise, reducing overall water use will help protect water supplies that utilities will need to serve the fast-growing state.

EPA proposal highlights social and financial risks posed by lead

By requiring utilities to take additional steps to detect lead in drinking water, the EPA's proposed reform of the Lead and Copper Rule highlights the social and financial risks associated with unsafe drinking water that affects vulnerable populations. Under the proposal, utilities will be required to test for lead in schools and child care facilities, create an inventory of lead service lines and replace lead service lines under certain conditions. Adherence to the new rule, if adopted, will necessitate effective governance to not only prevent contamination but manage increased compliance costs.

Newark, New Jersey (Baa2 positive) serves as an example of the high cost of lead remediation efforts. Faced with unsafe drinking water associated with lead pipes, the city is replacing 15,000 lead service lines and recently financed the third and final initiative by issuing $120 million in debt. For context, the EPA estimates there are between 6 and 10 million lead service lines in the US.

With roots in the Flint water crisis, which affected a low-income population, Michigan water utilities will need to comply with a stricter Lead and Copper Rule requiring the removal of all lead pipes by 2041. The state's current budget provides local water utilities with one-time financial assistance to remove the pipes. While the state may appropriate future funds, utilities will need to manage their resources to comply with the mandate. With Flint as a backdrop, the state is also providing loan forgiveness for clean water projects and funds to assist with removing the dangerous, man-made chemical known as PFAS.

What could change the outlook

A positive outlook could result from an increase in capital investment that leads to improvements in system asset conditions, along with continued strong debt service coverage and liquidity.

A negative outlook could result from a significant decline in debt service coverage and liquidity coupled with further weakening of asset conditions.

Additionally, a change in the stable outlook for the local government sector could result in a change in the water and sewer sector given the two sectors' close ties.

Moody's 2020 global credit themes affecting the US municipal water and sewer utility sector

RECESSION RISKS

Recession risks will rise amid a pronounced global economic slowdown.

» Strong liquidity provides resources to address unexpected capital needs and a cushion to maintain financial stability if the economy, including a moderate recession, makes it difficult to raise rates.

DISRUPTIVE TECHNOLOGIES

Scaling up of digital technologies will accelerate the transformation of traditional businesses.

» Cybersecurity will become more important and necessitate increased technology investment.

» Some sewer utilities are capturing methane gas during the wastewater treatment process, then converting it to electricity to save money.

ESG IMPACT

Climate risks will constrain the availability of capital for the most-exposed sectors; demographic and social trends will create risks and opportunities.

» Water utilities in the drought-prone West will benefit from governance that leads to reduced demand for water and extends supply.

» Lead in drinking water that affects vulnerable populations is a social risk. Costs of remediation are a financial hurdle.

Moody's related publications

Outlooks

» Global Macro Outlook 2020-21: Global growth will remain sluggish as large engines of economic activity slow, November 14, 2019

» Local government - US: 2020 outlook stable with revenue set to grow despite slowing economic growth, December 4, 2019

Sector Profile

» Water and sewer utilities - US: Medians - Financial performance signals continued stability, May 29, 2019

Methodology

» US Municipal Utility Revenue Debt, October 19, 2017

» General Principals for Assessing Environmental, Social and Governance Risks, January 9, 2019


Six themes will shape global credit in 2020
RECESSION RISKS
Recession risks will rise amid a pronounced global economic slowdown.
LOWER-FOR-LONGER INTEREST RATES
An increasing share of assets globally will yield very low or negative interest rates.
POLITICAL RISKS
Domestic policy shifts and geopolitical uncertainty will threaten to undermine credit conditions in many regions.
TRADE TENSIONS
An enduring US-China trade deal will remain elusive and trade disputes will weigh on credit conditions.
DISRUPTIVE TECHNOLOGIES
Scaling up of digital technologies will accelerate the transformation of traditional businesses.
ESG IMPACT
Climate risks will constrain the availability of capital for the most-exposed sectors; demographic and social trends will create risks and opportunities.
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Endnotes

1 Global Macro Outlook 2020-21

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Contributors

Evan W Hess +1.212.553.3910
Analyst
evan.hess@moodys.com

CLIENT SERVICES

Americas	1-212-553-1653
Asia Pacific	852-3551-3077
Japan	81-3-5408-4100
EMEA	44-20-7772-5454

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