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CREDIT OPINION
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Great Lakes Wtr Auth, MI

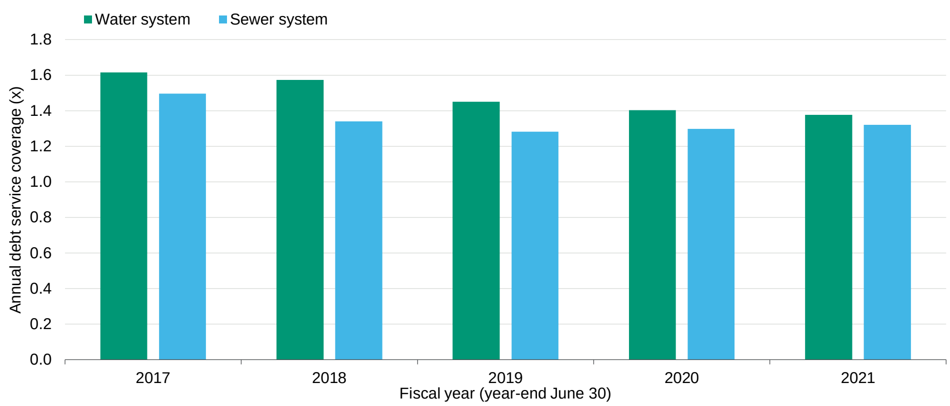
Update to credit analysis

Summary

The Great Lakes Water Authority's (GLWA) water and sewer enterprises (both senior liens rated A1 stable; both subordinate liens rated A2 stable) have solid credit profiles, bolstered by very large service areas and a sizable scale of operations. GLWA has effectively balanced its hefty capital needs with an affordable rate structure, stable operating performance, consistent debt service coverage and good liquidity for both systems since its inception in 2016. The systems have above-average leverage, however, and the City of Detroit (Ba2 positive) makes up a significant portion of their service area.

The Detroit metropolitan statistical area (MSA) had extreme rainfall and flooding in the summer of 2021, which resulted in numerous claims and lawsuits for GLWA. While the total financial exposure of these claims is unknown at this time, the authority maintains general liability coverage up to $10 million. As with other Midwestern flooding events, federal assistance has been critical in preventing material credit deterioration for impacted issuers. GLWA reports that FEMA has paid roughly $173 million to impacted residents so far. Building greater resilience to extreme wet-weather events will be an ongoing challenge, however.

Exhibit 1
Annual debt service coverage for all debt has remained relatively stable for both systems since the authority's inception



Source: Moody's Investors Service

Credit strengths

- Very large utility systems, providing essential water and wastewater services to a substantial portion of the state's population
- Commitment to annual revenue enhancements to support sound debt service coverage and healthy liquidity
- Track record of strong budget management and good transparency

Credit challenges

- Declining water usage trends
- High leverage will moderate slowly given outstanding capital needs and plans to issue additional debt
- Increasing occurrence of extreme wet weather events placing strain on stormwater and sewer treatment capacity in certain segments of the system

Rating outlook

The outlook is stable because each system will sustain sound financial metrics given GLWA's track record of strong budget management and ability to raise rates. These strengths will continue to mitigate the challenges associated with high leverage and capital needs.

Factors that could lead to an upgrade

- Sustained expansion and diversification of the service area's economic base
- Growth in revenue that continues to outpace borrowing so as to moderate leverage of pledged resources

Factors that could lead to a downgrade

- Renewed economic stress that pressures consumption and revenue trends
- Material reduction to the water or sewer system's liquidity or debt service coverage ratios
- Growth in leverage of the water or sewer system's net revenue

Exhibit 2

Great Lakes Water Authority, MI Water Ent.					
System Characteristics					
Asset Condition (Net Fixed Assets / Annual Depreciation)	17 years				
System Size - O&M (in $000s)	$164,995				
Service Area Wealth: MFI % of US median	96.8%				
Legal Provisions					
Rate Covenant (x)	1.20				
Debt Service Reserve Requirement	DSRF funded at lesser of standard 3-prong test (Aa)				
Management					
Rate Management	Aa				
Regulatory Compliance and Capital Planning	A				
Financial Strength					
	2017	2018	2019	2020	2021
Operating Revenue ($000)	$428,044	$425,245	$407,231	$419,479	$411,583
System Size - O&M ($000)	$145,499	$153,930	$163,519	$176,822	$164,995
Net Revenues ($000)	$282,545	$271,315	$243,712	$242,657	$246,588
Outstanding Revenue Debt ($000)	$2,358,137	$2,310,261	$2,250,181	$2,301,253	$2,263,770
Annual Debt Service ($000)	$175,010	$172,550	$167,966	$172,869	$179,214
Annual Debt Service Coverage (x)	1.6x	1.6x	1.5x	1.4x	1.4x
Cash on Hand	676 days	912 days	937 days	956 days	920 days
Debt to Operating Revenues (x)	5.5x	5.4x	5.5x	5.5x	5.5x

Figures shown on a GAAP-basis. Revenue and O&M include GLWA wholesale operations and DWSD local retail operations.
Source: Moody's Investors Service

Exhibit 3

Great Lakes Water Authority, MI Sewer Enterprise					
System Characteristics					
Asset Condition (Net Fixed Assets / Annual Depreciation)	19 years				
System Size - O&M (in $000s)	$255,908				
Service Area Wealth: MFI % of US median	96.8%				
Legal Provisions					
Rate Covenant (x)	1.20				
Debt Service Reserve Requirement	DSRF funded at lesser of standard 3-prong test (Aa)				
Management					
Rate Management	Aa				
Regulatory Compliance and Capital Planning	A				
Financial Strength					
	2017	2018	2019	2020	2021
Operating Revenue ($000)	$557,396	$561,784	$550,959	$562,231	$559,812
System Size - O&M ($000)	$206,540	$250,551	$244,468	$243,438	$255,908
Net Revenues ($000)	$350,856	$311,233	$306,491	$318,793	$303,904
Net Funded Debt ($000)	$3,144,592	$3,076,993	$3,093,347	$3,039,222	$2,937,898
Annual Debt Service ($000)	$234,555	$232,281	$239,172	$245,783	$230,163
Annual Debt Service Coverage (x)	1.5x	1.3x	1.3x	1.3x	1.3x
Cash on Hand	455 days	460 days	440 days	496 days	512 days
Debt to Operating Revenues (x)	5.6x	5.5x	5.6x	5.4x	5.2x

Figures shown on a GAAP-basis. Revenue and O&M include GLWA wholesale operations and DWSD local retail operations.
Source: Moody's Investors Service

Profile

The Great Lakes Water Authority (GLWA) is the regional wholesale provider of water and sewer services to southeast Michigan (Aa1 stable). The water enterprise treats water from Lake Huron, Lake St. Clair and the Detroit River and distributes treated water to a service area population of about 3.8 million. The sewer enterprise collects, treats and disposes of wastewater produced by a service area population of about 2.8 million. GLWA is an incorporated municipal authority, established in 2016, operating under the guidance of a six-member board, consisting of one appointee each of the counties of Macomb (Aa1 stable), Oakland (Aaa stable), and Wayne (A3 positive), two appointees of the Mayor of Detroit and one of the Governor of Michigan.

Detailed credit considerations

Service area and system characteristics: very large service area in southeast Michigan

The systems will continue to benefit from large service areas with broad and diverse customer bases. The regional water supply system covers 1,698 square miles in southeast Michigan, providing treated water to 112 communities and roughly 40% of the state's population. The sewer system is a little smaller; covering 944 square miles, providing wastewater services to about a third of the state's population across 79 communities.

The bulk of water and sewer revenue comes from wholesale contracts with suburban communities. Wholesale contracts generate roughly three quarters of water revenue and a little over half of sewer revenue. Detroit residents and businesses are retail customers of the Detroit Water and Sewerage Department (DWSD), which manages the system assets within the city as an agent of GLWA.

Water usage rates have fallen somewhat over the past five years. While that trend will likely stabilize, it is unlikely to materially reverse without an expansion of the system because of conservation efforts and the region's stagnant population.

Debt service coverage and liquidity: financial metrics likely to remain healthy

Both systems will likely continue to maintain solid annual debt service coverage and ample liquidity because of management's close monitoring of revenue targets and its ability to set rates. The authority recently approved a 3.7% water rate increase and a 2.4% sewer rate increase for fiscal 2023. A portion of the increase is to recover bad debt accrued by the City of Highland Park (unrated), which has historically had financial challenges and has not been fully paying its water and sewer bill. Consequently, some member communities have protested the increases, asking the state to intervene and to be held-harmless from the bad debt. It is unclear what role the state might play, if any, in arbitrating this dispute. In either event, the annual revenue impact for GLWA is pretty low: Highland Parks's estimated bad debt expense for fiscal 2023 is about $1.3 million for the water system and $5.4 million for the sewer.

The authority limits the annual growth in its water and sewer system revenue requirements to 4% to maintain a more affordable rate structure and it assumes 3% growth in its forecasts. Most revenue in both systems comes from fixed monthly wholesale charges (roughly 60% in the water system and 100% in the sewer), which enhances revenue reliability and dependability.

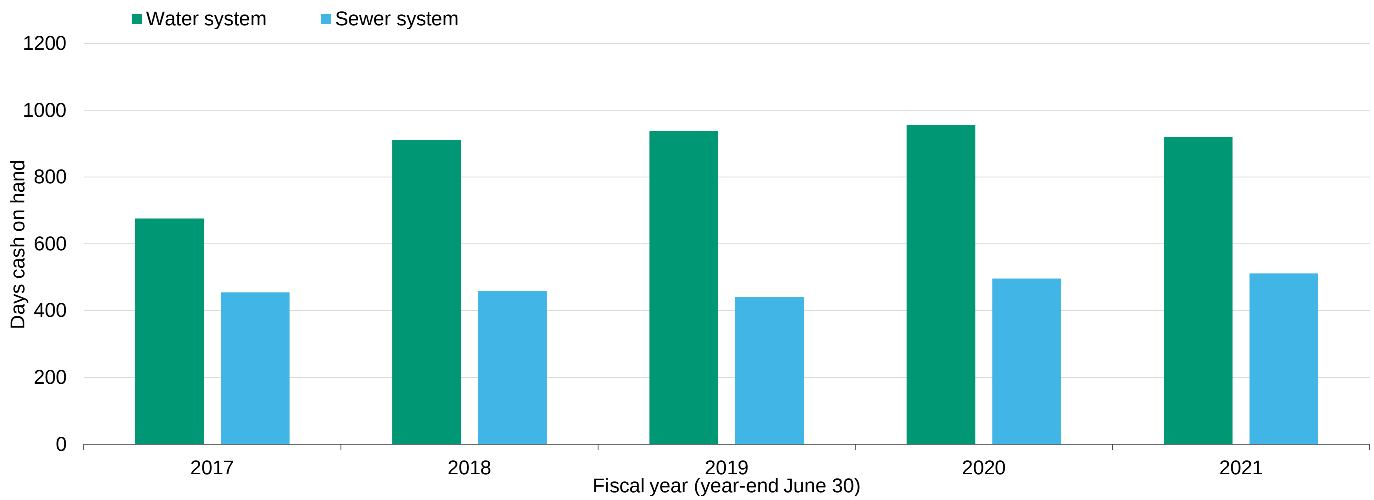
GLWA has maintained solid annual coverage of total senior lien, second lien and junior lien revenue debt service since its inception (Exhibit 1).

Liquidity

Liquidity is strong for both systems and will remain so despite planned spending for capital investments. Each system plans to finance the bulk of its annual capital improvement plan (CIP) with cash reserves over the next five years.

Unrestricted cash and investments in the water system were roughly $415 million and about $358 million in the sewer system at the close of fiscal 2021 (Exhibit 4). The two funds also have significant restricted cash assets held for budget stabilization, debt service and capital.

Exhibit 4
Days cash on hand is strong for both systems, particularly the water enterprise



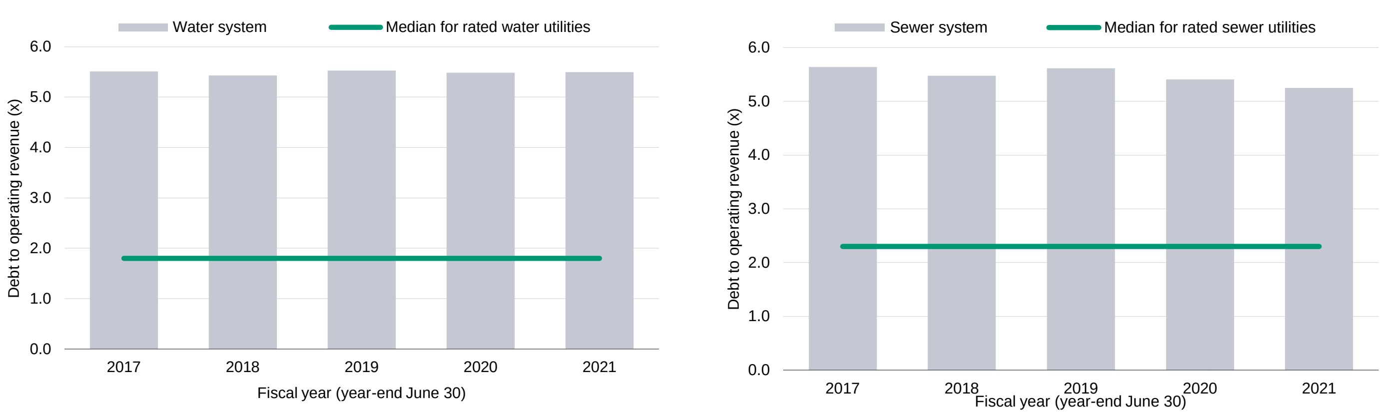
Source: Moody's Investors Service

Debt and legal covenants: high debt burden could moderate with sustained revenue growth

Each system has a very high debt burden that will remain elevated because of high capital needs. Leverage metrics will likely remain stable because GLWA has control over its rates and it plans to cash fund most of its CIP. The CIP for fiscal 2023 through 2027 includes about $966 million of water projects and $762 million of sewer projects. The systems have a variety of capital needs, including reducing combined sewer overflow (CSO) and enhancing transmission and storage. The system will also likely need to build greater resilience to extreme wet-weather events over the long-term. The authority has historically had high nonrevenue water volume because of pipe leaks and breaks. Over the past five years, the authority has materially improved its percentage of water loss and other nonrevenue water down to 10.6% in fiscal 2021 from 19.3% in 2017.

The water and sewer systems' long-term debt leverage across all liens is materially higher than sector medians (Exhibit 5). GLWA had about $5.2 billion of combined total revenue debt outstanding at the end of fiscal 2021, about $2.3 billion for the water system and $2.9 billion for the sewer.

Exhibit 5
Leverage metrics are much higher than US medians for both the water and sewer systems



Latest medians are for fiscal 2019
Source: Moody's Investors Service

Legal security

Water and sewer revenue bonds are backed by the net revenue of the respective systems. Legal provisions are solid and are the same for both systems. The rate covenant requires projected net revenue coverage of debt service equal to 120% for senior lien bonds, 110% for second lien bonds and 100% for any subordinate lien debt. Per the master bond ordinance, projected net revenue includes the revenue of the respective systems plus any estimated revenue increase from approved rate increases.

The money collected from regional wholesale and local retail customer payments are deposited to a lockbox, which is administered by a third-party trustee. Operations and maintenance (O&M) expenses are defined as cash transfers made to GLWA's and DWSD's respective O&M funds. The revenue and O&M expenses related to GLWA is reported in its segregated business funds while the revenue and expenses of DWSD are accounted for in Detroit's water and sewer funds, respectively. The bifurcated accounting requires adjustments from reported figures to assess rate covenant coverage under the master bond ordinance.

Senior and second lien bonds benefit from debt service reserve funds (DSRF) sized at the lesser of the standard three-prong test.

Debt structure

All of GLWA's water revenue debt and most of its sewer bonds are fixed rate. The sewer system has one series of variable rate debt: its Series 2006D bonds. The bonds are floating rate notes, are fully callable and make up a little less than 10% of sewer debt.

The water system holds about 44% of total GLWA debt, with roughly $1.5 billion of senior lien bonds, $653 million of second lien water revenue bonds and $71 million of junior lien state revolving fund (SRF) loans. The remainder is held by the sewer system, inclusive of $1.8 billion of senior lien bonds, $736 million of second lien sewer revenue bonds and $411 million junior lien state revolving fund (SRF) loans. The water debt will be fully retired by 2051 and sewer debt matures by 2049.

The authority helps to finance capital projects undertaken in the local systems by issuing bonds on behalf of the DWSD. The DWSD-owed debt is accounted for as a contractual obligation receivable owed to the GLWA. Proportional allocation of debt was agreed upon and settled by the memorandum of understanding (MOU) dated June 27, 2018.

Debt-related derivatives

The GLWA is not party to any derivative agreements.

Pensions and OPEB

GLWA employees are participants in a defined contribution benefit plan, though many are scheduled to receive accrued pension benefits from the City of Detroit's frozen defined benefit General Retirement System (GRS). Pursuant to the City of Detroit's bankruptcy plan of adjustment, GLWA will contribute annually to GRS through fiscal 2023 to accelerate amortization of the GRS unfunded liability associated with the GLWA employees. A little less than half of the annual GRS payment is considered O&M, making it effectively senior to debt service. GLWA's allocated contribution was roughly $31.9 million in fiscal 2021.

Beyond 2023, the GLWA's payments to GRS will be based on the actuarial needs of the plan and sized to amortize any unfunded liability associated with the GLWA employees. GLWA makes no payments toward accrued retiree healthcare liabilities because the City of Detroit's bankruptcy settlement eliminated those benefits. The GLWA established a new defined contribution retiree healthcare savings plan, resulting in no potential unfunded liability.

ESG considerations

Environmental

Environmental considerations are a material credit consideration for the systems. Climate change and extreme weather may have operational impacts, particularly on the sewer system. Major wet weather events, like those that occurred during the summer of 2021, can overwhelm the system's ability to store and process infiltration, causing detrimental impacts such as sewer backups and discharges because of CSOs.

The water system benefits from access to a vast amount of relatively easily treatable fresh water. The sewer system includes one of the largest single-site wastewater treatment plants in the world and treated water discharged from the plant is often cleaner than the surrounding water in the receiving body. Both systems are subject to extensive regulation pursuant to the federal Clean Water Act, the Clean Air Act, the Michigan Natural Resources and Environmental Protection Act and various administrative rules and regulations. The authority is in material compliance with all existing permits relating to the operation of the regional water and sewer systems.

Social

Social considerations such as population, labor force, income and education are material and can impact each system's underling economy, customer base, financial and leverage metrics. Population in the Detroit MSA grew a little over 2% between 2010 and 2020. The system's sizable service area and customer base provides a high level of diversity, balancing social challenges in portions of the customer base, such as high poverty areas in the City of Detroit. GLWA provides payment and conservation assistance to low-income retail customers through its Water Residential Assistance Program, which helps to avoid delinquencies and support revenue stability.

Governance

Governance considerations are an important factor in GLWA's credit profile. GLWA was created in the aftermath of the Detroit bankruptcy. It obtained possession and control of the city's water supply and sewage disposal systems via regional system leases (effective January 1, 2016) for an initial 40-year term and replaced the city as the obligor on all outstanding debt obligations related to the systems, pursuant to bondholder consent. Pursuant to the lease, the City of Detroit has irrevocably assigned its right, title and interest in all revenue of the sewer and water enterprises to GLWA. The lease will automatically extend to correspond with scheduled repayment of newly issued revenue debt. All revenues of both systems were assigned to GLWA. Payments from retail customers within the City of Detroit are deposited directly with the bond trustee.

GLWA is governed by a six-member board. The board has full authority to set service charges on municipal customers. Rates charged to retail customers in the City of Detroit are established by the city's Board of Water Commissioners pursuant to an agency agreement with GLWA. The lease agreement grants the GLWA board the ability to override the city's authority of retail rates and collections should the city not make adjustments sufficient to meet annual revenue requirements. All wholesale customers retain responsibility for levying local charges sufficient to cover costs charged by GLWA. Pursuant to the memorandum of understanding between GLWA and DWSD, GLWA assumes an annual increase of not more than 4% in the revenue requirements through fiscal 2025.

GLWA has demonstrated strong budget management since its inception, enhancing operational efficiencies and regional cooperation. GLWA dramatically reduced its workforce since its separation from DWSD. Each year GLWA conducts an extensive study of both its wholesale service charges and allocated annual revenue requirement to retail customers, with the purpose of adjusting revenue to reflect the cost of operations, depreciation expense and return on the rate base. Additionally, since system capacity exceeds demand, management is de-rating parts of its water treatment plants. This allows the water system to reduce capital costs while preserving flexibility to put the facilities back to use.

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