FitchRatings

RATING ACTION COMMENTARY

Fitch Rates Great Lakes Water Auth's Series 2022 Water System Rev Bonds 'A+'/'A'; Outlook Stable

Mon 22 Aug, 2022 - 5:43 PM ET

Fitch Ratings - Austin - 22 Aug 2022: Fitch Ratings has assigned the following ratings to the obligations issued by the Great Lakes Water Authority, MI (GLWA or the authority):

--Approximately $121.8 million water supply system revenue senior lien bonds, series 2022A, 'A+';

--Approximately $83.6 million water supply system revenue second lien bonds, series 2022B, 'A'.

All bonds are scheduled to sell via negotiation the week of Aug. 29, 2022. Proceeds will be used to fund certain water system (the system) capital improvements and pay costs of issuance.

In addition, Fitch has affirmed the following GLWA bonds, including bonds previously issued by the city of Detroit (the city) and the Michigan Finance Authority, MI on behalf of the Detroit Water and Sewerage Department (DWSD) and assumed by GLWA (all pre-refunding):

--$1.48billion senior lien water supply system revenue bonds at 'A+';

--$625.0 million second lien water supply system revenue bonds at 'A'.

Fitch has assessed the system's Standalone Credit Profile (SCP) at 'a'.

The Rating Outlook is Stable.

ANALYTICAL CONCLUSION

The 'A+'/'A' bond ratings and the 'a' SCP consider the system's financial profile assessment within the context of very strong revenue defensibility and operating risk profiles. Leverage, measured by Fitch as net adjusted debt to adjusted funds available for debt service (FADS), finished at approximately 10.0x in fiscal 2021, which was similar to the result last year. Moving forward, projected increases in capital spending could drive leverage incrementally higher, but overall it should remain in line with the current rating.

Fitch's latest calculation of GLWA's historical and projected leverage ratios are lower than its earlier reviews and reflect the recharacterization of certain payments and cash balances, as provided for in its criteria. Historically Fitch has treated lease payments, which are used in part to contribute to DWSD's improvement and extension [I&E] fund, pension obligation payments, and water residential assistance program payments from to DWSD as transfers and operating expenses of GLWA. Further clarification on the dynamics of these payment flows has resulted in the recharacterization of these payments as debt service related to the capitalized lease obligations, which improves FADS.

Additionally, given that a significant portion of DWSD's unrestricted cash originated from these I&E funds, which are held within the trust under the master bond ordinance (MBO), and because these funds can be used to meet debt service if necessary, this balance is now being included as unrestricted cash, lowering net adjusted debt. While both of these recharacterizations improve leverage, these changes alone have no impact on the rating.

The revenue defensibility assessment considers the authority's ability to reallocate any hypothetical shortfalls from a non-performing retail customer to its performing customers via a rate increase, and the overall strength of such customers. While DWSD's credit profile is considered to be just midrange by Fitch, many of the other large customers have much stronger credit profiles, resulting in a strong overall purchaser credit quality (PCQ). The operating risk profile considers the authority's very low cost burden, coupled with its very favorable life cycle ratio.

The notching distinction between the senior and the second-lien bonds reflects the meaningful protection afforded to senior debt given the sizable balance of subordinated obligations, the latter of which include the second-lien bonds, state revolving fund loans, and the long-term leases payable under the lease agreement between DWSD, and the absence of an automatic cross-default or acceleration between the liens. Senior lien debt comprises just over 50% of GLWA's total obligations.

CREDIT PROFILE

GLWA provides wholesale water services to a population of approximately 3.8 million, or 38% of the state population. In Jan. 2016, the authority assumed operational control of Detroit's system assets (excluding its local distribution infrastructure) via a 40-year lease agreement and authorized GLWA the right to set and collect rates from the regional systems' customers historically served by the city. Separately, security interest in the city's system-related revenues was granted under the MBO, while the water and sewer services agreement (WSSA), assigned the city the right to set and collect rates from its retail customers. The agreements required GLWA to assume all liabilities of the regional water and sewer systems, including outstanding indebtedness related to the respective systems.

System assets include five treatment plants that collectively can treat around 1.7 billion gallons per day, an extensive conveyance system and many water-storage reservoirs. Water is supplied to the treatment plants via the Detroit River, Lake Huron and Lake St. Clair. Supply is robust and more than sufficient for the perpetual needs of the service area.

KEY RATING DRIVERS

Revenue Defensibility 'aa'

Strong Purchaser Credit Quality, Ability to Recover Costs

The authority has the ability to offset any payment shortfalls from any single customer by shifting the shortfall to the remaining customers via a rate increase. Rate setting is not subject to external approval, providing sound rate flexibility. Lastly, the authority's largest suburban members contribute to a strong overall PCQ.

Operating Risks 'aa'

Very Low Operating Cost Burden and Life Cycle Ratios

Cost per million gallons (mg) delivered is very low, as the system's operating cost burden finished at just $2,327 per mg in 2021. The system's lifecycle ratio is equally favorable at 28%. Capex to depreciation has been below average the last few years but is beginning to ramp up.

Financial Profile 'a'

Mostly Stable Leverage Ratio, Sound Liquidity Profile

The system's leverage ratio has remained stable over the past five years, averaging about 10.2x over this time. Moving forward, capital spending is projected to increase in part due to inflationary pressures, but overall leverage is expected to remain consistent with the current rating. The authority's coverage of full obligations (COFO) and liquidity profile are also sound and therefore neutral to the financial profile assessment.

Asymmetric Additive Risk Considerations

No asymmetric additive considerations affected this rating determination.

RATING SENSITIVITIES

Factors that could, individually or collectively, lead to a positive rating action/upgrade on the authority's revenue bonds:

--Sustained improvements in the leverage ratio to less than 10.0x, assuming stability in the current revenue defensibility and operating risks assessments.

Factors that could, individually or collectively, lead to a negative rating action/downgrade on the authority's revenue bonds:

--Sustained worsening in the leverage ratio in excess of 13.0x;

--Downward revisions to the system's overall PCQ;

--Material declines in liquidity that expose bondholders to the timing risk of the true-up;

--Less than sum-sufficient COFO without offsetting liquidity, per Fitch's criteria;

--The senior-lien rating could converge at the SCP assessment if there is a significant erosion of the financial cushion afforded to senior bondholders that results in a lack of meaningful difference in the probability of payment default between the liens.

Best/Worst Case Rating Scenario

International scale credit ratings of Sovereigns, Public Finance and Infrastructure issuers have a best-case rating upgrade scenario (defined as the 99th percentile of rating transitions, measured in a positive direction) of three notches over a three-year rating horizon; and a worst-case rating downgrade scenario (defined as the 99th percentile of rating transitions, measured in a negative direction) of three notches over three years. The complete span of best- and worst-case scenario credit ratings for all rating categories ranges from 'AAA' to 'D'. Best- and worst-case scenario credit ratings are based on historical performance. For more information about the methodology used to determine sector-specific best- and worst-case scenario credit ratings, visit https://www.fitchratings.com/site/re/10111579.

SECURITY

Senior-lien bonds are secured by a first lien on net revenues of the system. Second-lien bonds are secured by net revenues after payment of the senior-lien bonds.

Revenue Defensibility

The system's revenue defensibility is very strong, and is assessed at 'aa'. Revenue defensibility is supported by the strength of the various legal agreements between the city and the authority's regional municipal customers, the ability to reallocate costs and the strong weighted-average PCQ of the authority's customers. Favorably, rates are set by the authority's board and are not subject to external approval.

The wholesale agreements for the majority of the authority's regional water municipal customers are based on a 60% fixed-service charge component and a 40% commodity charge, which is reviewed and adjusted annually. Any bad-debt expense from a wholesale customer is charged to other customers via a true-up. Payments are an operating expense of each respective system, senior to any debt service. Most contracts last 30 years with an automatic 10-year renewal and a five-year notice requirement for termination.

After Detroit, which accounted for around 25% of the system's operating revenues (inclusive of the local system operating revenues) in fiscal 2021, the largest municipal customers include the Southeast Oakland County Water Authority (6%), North Oakland County Water Authority (5%), and Sterling Heights (4%).

In the recent past, the city's population experienced annual declines for many years. However, recent estimates indicate that the population has stabilized. Income levels in the city are low (about 50% the US average), while poverty and unemployment rates are elevated. However, economic measures for the regional members overall are generally in line with or better than state and national averages.

Operating Risks

The system's operating risks assessment of 'aa' is supported by a very low operating cost burden, and a very favorable life cycle ratio. The operating cost burden finished fiscal 2022 at $2,327/mg, which is well below Fitch's 'aa' threshold of $6,500/mg. Given the 2015 conveyance of the system assets from the city to GLWA, at which time the authority began newly depreciating infrastructure, the authority's life cycle ratio is very favorable at 28% compared to Fitch's 'aa' threshold of 45%.

Capex-to-depreciation has averaged about 46% over the past five years, a level at which Fitch views as adequate given the favorable life cycle ratio. In accordance with the authority's 2023-2027 CIP, capex is expected to be robust over the next five years, which should sustain the favorable life cycle ratio.

The CIP for the consolidated GLWA and DWSD water systems totals around $1.2 billion. Given recent inflationary pressures, projected spending is increased over prior years, but costs associated with the CIPs appear manageable overall. Funding is estimated to be provided by debt (approximately 67% of the total) and from other funds on hand.

The goal of GLWA's CIP is implementation of its water master plan. The water plan's primary focus has been the decommissioning of one of the water treatment plants (accounting for over 15% of system capacity) in order to "right size" the system, along with other system optimization. Although this will create upfront costs, longer-term operational efficiencies are expected.

Financial Profile

The system's overall financial profile is strong, and is assessed at 'a'. The system's leverage ratio finished 2021 at about 10.0x, which is consistent with recent history. Senior and all-in debt service coverage finished at 2.0x and 1.4x, respectively, in fiscal 2021. Liquidity has remained very robust over the past five years, most recently finishing at 723 days cash (calculated under Fitch's methodology). The system's sound COFO of around 1.4x and cash balances result in a liquidity profile that is considered neutral to the overall financial profile assessment.

Fitch Analytical Stress Test (FAST)

The five-year scenario produced by FAST considers the potential trend of key ratios in a base and stress case. The stress case is designed to impose a capital cost increase of 10% above expected levels and evaluate potential variability in projected key ratios. Base-case assumptions used by Fitch include the authority's latest forecasts and projected capex for the regional and local system (i.e. DWSD). Revenues are projected at around 4% annually and increases in operational expenses are at 3%, with these together leading to sounds FADS improvements starting in fiscal 2023.

Although FADS is projected to improve, the aforementioned higher-planned capex results in increasing leverage in FAST, with the base case peaking in year five at approximately 10.8x and the stress case peaking at 11.2x; both of these levels are consistent with the current ratings. Longer-term projections provided in the authority's CIP show spending should level off at around 2027, and therefore leverage is expected to remain stable to declining.

Asymmetric Additive Risk Considerations

No asymmetric additive risk considerations affected this rating assessment.

Financial Statement Adjustment Disclosure

In its analysis, Fitch adjusted GLWA's 'Statement of Revenues, Expenses and Changes in Net Position' to include information from DWSD's 'Statement of Revenues, Expenses and Changes in Net Position.' The adjustments are made to provide greater comparability of GLWA's financial position in accordance with the flow of funds under the bond ordinances and lease-related agreements.

Sources of Information

In addition to the sources of information identified in Fitch's applicable criteria specified below, this action was informed by information from Lumesis.

REFERENCES FOR SUBSTANTIALLY MATERIAL SOURCE CITED AS KEY DRIVER OF RATING

The principal sources of information used in the analysis are described in the Applicable Criteria.

ESG Considerations

Unless otherwise disclosed in this section, the highest level of ESG credit relevance is a score of '3'. This means ESG issues are credit-neutral or have only a minimal credit impact on the entity, either due to their nature or the way in which they are being managed by the entity. For more information on Fitch's ESG Relevance Scores, visit www.fitchratings.com/esg.

RATING ACTIONS

ENTITY / DEBT	RATING			PRIOR
Great Lakes Water Authority (MI) [Water]				
Great Lakes Water Authority (MI) /Water Revenues (2nd Lien)/1 LT	LT	A Rating Outlook Stable	Affirmed	A Rating Outlook Stable
Great Lakes Water Authority (MI) /Water Revenues/1 LT	LT	A+ Rating Outlook Stable	Affirmed	A+ Rating Outlook Stable

VIEW ADDITIONAL RATING DETAILS

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PARTICIPATION STATUS

The rated entity (and/or its agents) or, in the case of structured finance, one or more of the transaction parties participated in the rating process except that the following issuer(s), if any, did not participate in the rating process, or provide additional information, beyond the issuer's available public disclosure.

APPLICABLE CRITERIA

U.S. Water and Sewer Rating Criteria (pub. 18 Mar 2021) (including rating assumption sensitivity)

Public Sector, Revenue-Supported Entities Rating Criteria (pub. 01 Sep 2021) (including rating assumption sensitivity)

ADDITIONAL DISCLOSURES

Dodd-Frank Rating Information Disclosure Form

Solicitation Status

Endorsement Policy

ENDORSEMENT STATUS

Great Lakes Water Authority (MI)	EU Endorsed, UK Endorsed

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SOLICITATION STATUS

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ENDORSEMENT POLICY

Fitch's international credit ratings produced outside the EU or the UK, as the case may be, are endorsed for use by regulated entities within the EU or the UK, respectively, for regulatory purposes, pursuant to the terms of the EU CRA Regulation or the UK Credit Rating Agencies (Amendment etc.) (EU Exit) Regulations 2019, as the case may be. Fitch's approach to endorsement in the EU and the UK can be found on Fitch's Regulatory Affairs page on Fitch's website. The endorsement status of international credit ratings is provided within the entity summary page for each rated entity and in the transaction detail pages for structured finance transactions on the Fitch website. These disclosures are updated on a daily basis.

US Public Finance   Infrastructure and Project Finance   North America   United States

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FitchRatings

RATING ACTION COMMENTARY

Fitch Rates Great Lakes Water Auth's Ser. 2022 Sewage Revs at 'A+'/'A'; Outlook Revised to Positive

Mon 22 Aug, 2022 - 5:27 PM ET

Fitch Ratings - Austin - 22 Aug 2022: Fitch Ratings has assigned the following ratings to the obligations issued by the Great Lakes Water Authority, MI (GLWA or the authority):

--Approximately $101.5 million sewage disposal system revenue senior lien bonds, series 2022A, 'A+';

--Approximately $96.4 million sewage disposal system revenue second lien bonds, series 2022B, 'A';

--Approximately $96.5 million sewage disposal system revenue refunding senior lien bonds, series 2022C, 'A+'.

Proceeds will be used to fund sewer system capital improvements, to refund certain bonds, and pay costs of issuance. All bonds are scheduled to sell via negotiation the week of Aug. 29, 2022.

In addition, Fitch has affirmed the following GLWA bonds, including bonds previously issued by the city of Detroit (the city) and the Michigan Finance Authority on behalf of the Detroit Water and Sewerage Department (DWSD) and assumed by GLWA (all pre-refunding):

--$1.79 billion senior lien sewage disposal system revenue bonds at 'A+';

--$736.4 million second lien sewage disposal system revenue bonds at 'A'.

The system's standalone credit profile (SCP) is assessed at 'a'.

The Rating Outlook is revised from Stable to Positive.

ANALYTICAL CONCLUSION

The 'A+'/'A' bond ratings and the SCP consider the system's financial profile assessment within the context of very strong revenue defensibility and operating risk profiles. Leverage, measured by Fitch as net adjusted debt to adjusted funds available for debt service (FADS), finished at approximately 9.5x in fiscal 2021. The Outlook revision to Positive is based on the system's recent decline in leverage, which was above 10.0x prior to fiscal 2019. Although capital spending is expected to rise given recent inflationary pressure, projected increases in FADS could drive leverage consistently below 10.0x over the next five years, supporting a higher rating.

Fitch's latest calculation of GLWA's historical and projected leverage ratios are lower than its earlier reviews and reflect the recharacterization of certain payments and cash balances, as provided for in Fitch's criteria. Historically Fitch has treated lease payments, which are used in part to contribute to DWSD's improvement and extension [I&E] fund, pension obligation payments, and water residential assistance program payments to DWSD as transfers and operating expenses of GLWA. Further clarification on the dynamics of these payment flows has resulted in the recharacterization of these payments as debt service related to the capitalized lease obligations, which improves FADS.

Additionally, given that a significant portion of DWSD's unrestricted cash originated from these I&E funds, which are held within the trust under the master bond ordinance (MBO), and because these funds can be used to meet debt service if necessary, this balance has now been included as unrestricted cash, lowering net adjusted debt. While both of these recharacterizations improve leverage, these changes alone have no impact on the rating.

GLWA's revenue defensibility assessment considers the authority's ability to reallocate any hypothetical shortfalls from a non-performing customer to its performing customers via a rate increase, and the overall strength of such customers. While Fitch considers DWSD's credit profile midrange, many of the other large customers have much stronger credit profiles, resulting in a strong overall purchaser credit quality (PCQ). The operating risks profile considers the authority's very low cost burden, coupled with its very favorable life cycle ratio.

The notching distinction between the senior and the second-lien bonds reflects the meaningful protection afforded to senior debt given the sizable balance of subordinated obligations, the latter of which include the second-lien bonds, state revolving fund loans, and the long-term leases payable under the lease agreement between GLWA and DWSD, and the absence of an automatic cross-default or acceleration between the liens. Senior lien debt comprises just over 50% of GLWA's total obligations.

CREDIT PROFILE

GLWA provides wholesale sewer services to a population of approximately 2.8 million, or 28% of the state population. In Jan. 2016, the authority assumed operational control of Detroit's system assets (excluding its local distribution infrastructure) via a 40-year lease agreement and authorized GLWA the right to set and collect rates from the regional systems' customers' historically served by the city. Separately, security interest in the city's system-related revenues was granted under the MBO, while the water and sewer services agreement (WSSA), assigned the city the right to set and collect rates from its retail customers. The agreements required GLWA to assume all liabilities of the regional water and sewer systems, including outstanding indebtedness related to the respective systems.

System assets include one wastewater treatment plant that is reportedly one of the largest single-site facilities in the U.S., having a capacity of 1,700 million gallons per day. The treatment plant can accommodate dry-weather flows without further mediation, but also operates eight combined sewer overflow retention treatment basins to accommodate wet-weather flows. Wholesale customers retain ownership in collection system infrastructure which conveys flows and ultimately discharges such flows into GLWA's interceptors.

KEY RATING DRIVERS

Revenue Defensibility 'aa'

Strong Purchaser Credit Quality, Ability to Recover Costs

The authority has the ability to offset any payment shortfalls from any single customer by shifting the shortfall to the remaining customers via rate increases. Rate setting is not subject to external approval, providing sound rate flexibility. Lastly, the authority's largest suburban members contribute to a strong overall PCQ.

Operating Risks 'aa'

Very Low Operating Cost Burden and Life Cycle Ratios

Cost per million gallons (mg) delivered is very low, as the system's operating cost burden finished at just $3,170 per mg in 2021. The system's life cycle ratio is equally favorable at 28%. Capex to depreciation has been below average the last few years but is beginning to ramp up.

Financial Profile 'aa'

Improving Leverage Ratio, Sound Liquidity Profile

The system's leverage ratio has improved over the past five years. Moving forward, somewhat higher capital spending is offset by increases in FADS and debt amortization, leading to stable-to-incrementally improved leverage. The authority's coverage of full obligations (COFO) and liquidity profile are also sound and therefore neutral to the financial profile assessment.

Asymmetric Additive Risk Considerations

No asymmetric additive considerations affected this rating determination.

RATING SENSITIVITIES

Factors that could, individually or collectively, lead to a positive rating action/upgrade on the authority's revenue bonds:

--Sustained improvements in leverage to below 10.0x, assuming stability in the current revenue defensibility and operating risks assessments.

Factors that could, individually or collectively, lead to a negative rating action/downgrade on the authority's revenue bonds:

--Sustained weakening in the leverage ratio above 13.0x;

--Downward revisions to the system's overall PCQ and/or revenue defensibility assessment;

--Material declines in liquidity that expose bondholders to timing risk of the true-up;

--Less than sum-sufficient COFO without offsetting liquidity, per Fitch's criteria;

--The senior-lien rating could converge at the SCP assessment if there is a significant erosion of the financial cushion afforded to senior bondholders that results in a lack of meaningful difference in the probability of payment default between the liens.

Best/Worst Case Rating Scenario

International scale credit ratings of Sovereigns, Public Finance and Infrastructure issuers have a best-case rating upgrade scenario (defined as the 99th percentile of rating transitions, measured in a positive direction) of three notches over a three-year rating horizon; and a worst-case rating downgrade scenario (defined as the 99th percentile of rating transitions, measured in a negative direction) of three notches over three years. The complete span of best- and worst-case scenario credit ratings for all rating categories ranges from 'AAA' to 'D'. Best- and worst-case scenario credit ratings are based on historical performance. For more information about the methodology used to determine sector-specific best- and worst-case scenario credit ratings, visit https://www.fitchratings.com/site/re/10111579.

SECURITY

Senior-lien bonds are secured by a first lien on net revenues of the system. Second-lien bonds are secured by net revenues after payment of the senior-lien bonds.

Revenue Defensibility

The system's revenue defensibility is very strong, and is assessed at 'aa'. Revenue defensibility is supported by the strength of the various legal agreements between the city and the authority's regional municipal customers, and the strong weighted-average PCQ of these customers. Favorably, rates are set by the authority's board and are not subject to external approval.

The wholesale agreements for the majority of the authority's regional sewer municipal customers are based on a 100% fixed-service charge component, which is reviewed and adjusted annually. Any bad-debt expense from a wholesale customer is charged to other customers via a true-up. Payments from customers are an operating expense of each respective system, senior to any debt service. Most contracts last 30 years with an automatic 10-year renewal and a five-year notice requirement for termination.

After the city, which accounted for around 50% of the system's operating revenues (inclusive of the local system operating revenues) in fiscal 2021, the largest municipal customers include the Oakland-Macomb

Interceptor Drainage District (12%), Wayne County's Rouge Valley (10%), and Oakland County's George Kuhn Drainage District (8%).

In the recent past, the city's population experienced annual declines for many years. However, recent estimates indicate that the population has stabilized. Income levels in the city are low (about 50% the US average), while poverty and unemployment rates are elevated. However, economic measures for the regional members overall are generally in line with or better than state and national averages.

Operating Risks

The system's operating risk assessment of 'aa' is supported by a very low operating cost burden, and a very favorable life cycle ratio. The operating cost burden finished fiscal 2022 at $3,170/mg, which is well below Fitch's 'aa' threshold of $6,500/mg. Given the recent conveyance of the system assets from the city to GLWA, at which time the authority began depreciating infrastructure, the authority's lifecycle ratio is very favorable at 27%, compared to Fitch's 'aa' threshold of 45%. Capex-to-depreciation has averaged about 43% over the past five years, but in accordance with the authority's 2023-2027 CIP, capex is expected to be robust over the next five years, which should sustain the favorable lifecycle ratio.

The CIP for the consolidated GLWA and DWSD systems totals around $985 million. Given inflationary pressure, expected spending has increased over prior years, but costs associated with the CIP appear manageable overall. Funding for the CIP is expected to be provided by approximately 60% debt proceeds and 40% other funds on hand.

The goal of GLWA's CIP is implementation of its sewer master plan. The sewer master plan identifies five outcomes, including focusing on, among other things, public health and safety.

Financial Profile

The system's overall financial profile is very strong, and the assessment has been raised to 'aa' from 'a'. The system's leverage ratio finished 2021 at about 9.5x, which is improved over the 10.8x registered in fiscal 2017. Senior and all-in debt service coverage finished at 2.6x and 1.5x, respectively, in fiscal 2021. Liquidity has remained sound over the past five years, most recently finishing at 283 days cash (calculated using Fitch's methodology). The system's sound COFO of around 1.5x and cash balances result in a liquidity profile that is considered neutral to the overall financial profile assessment.

Fitch Analytical Stress Test (FAST)

The five-year scenario produced by FAST considers the potential trend of key ratios in a base and stress case. The stress case is designed to impose a capital cost increase of 10% above expected levels and evaluate potential variability in projected key ratios. Base-case assumptions used by Fitch are informed by the authority's latest forecasts and projected capex for the regional and local system (i.e. DWSD). Revenues and expenses are projected at around 3%-4% annually.

The higher-assumed capex spend rate is offset by the improving FADS and debt amortization in the scenario, leading to leverage that should remain relatively stable or exhibit modest improvement over the next five years, finally finishing at approximately 9.0x in Fitch's base case and 9.2x in the stress case.

Longer-term projections provided in the authority's CIP show even lower spending in years six through 10, further supporting the trend of lower leverage and the Positive Outlook.

Asymmetric Additive Risk Considerations

No asymmetric additive risk considerations affected this rating assessment.

Financial Statement Adjustment Disclosure

In its analysis, Fitch adjusted GLWA's "Statement of Revenues, Expenses and Changes in Net Position" to include information from DWSD's "Statement of Revenues, Expenses and Changes in Net Position." Fitch also adjusted GLWA's balance sheet to include DWSD's unrestricted cash. The adjustments are made to provide greater comparability of GLWA's financial position in accordance with the flow of funds under the bond ordinances and lease-related agreements.

Sources of Information

In addition to the sources of information identified in Fitch's applicable criteria specified below, this action was informed by information from Lumesis.

REFERENCES FOR SUBSTANTIALLY MATERIAL SOURCE CITED AS KEY DRIVER OF RATING

The principal sources of information used in the analysis are described in the Applicable Criteria.

ESG Considerations

Unless otherwise disclosed in this section, the highest level of ESG credit relevance is a score of '3'. This means ESG issues are credit-neutral or have only a minimal credit impact on the entity, either due to their nature or the way in which they are being managed by the entity. For more information on Fitch's ESG Relevance Scores, visit www.fitchratings.com/esg.

RATING ACTIONS

ENTITY / DEBT	RATING			PRIOR
Great Lakes Water Authority (MI) [Sewer]				
Great Lakes Water Authority (MI) /Sewer Revenues (2nd Lien)/1 LT	LT	A Rating Outlook Positive	Affirmed	A Rating Outlook Stable
Great Lakes Water Authority (MI) /Sewer Revenues/1 LT	LT	A+ Rating Outlook Positive	Affirmed	A+ Rating Outlook Stable

VIEW ADDITIONAL RATING DETAILS

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PARTICIPATION STATUS

The rated entity (and/or its agents) or, in the case of structured finance, one or more of the transaction parties participated in the rating process except that the following issuer(s), if any, did not participate in the rating process, or provide additional information, beyond the issuer's available public disclosure.

APPLICABLE CRITERIA

U.S. Water and Sewer Rating Criteria (pub. 18 Mar 2021) (including rating assumption sensitivity)

Public Sector, Revenue-Supported Entities Rating Criteria (pub. 01 Sep 2021) (including rating assumption sensitivity)

ADDITIONAL DISCLOSURES

Dodd-Frank Rating Information Disclosure Form

Solicitation Status

Endorsement Policy

ENDORSEMENT STATUS

Great Lakes Water Authority (MI)	EU Endorsed, UK Endorsed

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MOODY'S
INVESTORS SERVICE

Rating Action: Moody's assigns A1 senior & A2 second lien to Great Lakes Water Authority, MI's water revenue bonds; revises outlook to positive

19 Aug 2022

New York, August 19, 2022 -- Moody's Investors Service has assigned an A1 to Great Lakes Water Authority, MI's Water Enterprise's $121.8 million Water Supply System Revenue Senior Lien Bonds, Series 2022A and A2 to $83.6 million Water Supply System Revenue Second Lien Bonds, Series 2022B. Moody's also affirmed the A1 senior and A2 second lien ratings on the water system's existing bonds. Moody's also revised the authority's outlook to positive from stable. After the current sale, the water system will have about $1.6 billion of senior lien and $700 million of second lien revenue bonds outstanding.

RATINGS RATIONALE

The A1 senior lien water rating reflects the authority's strong operating performance that continues to result in solid annual debt service coverage and robust liquidity. The system is very large, serving the bulk of the Detroit metro area and almost a third of the state's population. Outstanding revenue bonds enjoy sound legal protections and the system has independent rate-setting authority. Member communities, however, recently publicly pushed back on a rate increase aimed at paying the bad debt of Highland Park. This is unlikely to instigate future rate disputes and ultimately resulted in the city of Highland Park beginning to make sewer payments again. The system's debt burden is high and a large share of system-wide revenue is generated by retail operations within the City of Detroit (Ba2 positive).

The A2 second lien rating reflects a subordinate claim on pledged net revenue.

RATING OUTLOOK

The outlook is positive because the authority has strong management and stable operations and its underlying service area continues improve, particularly in the City of Detroit, as well as across Wayne (A3 positive), Oakland (Aaa stable) and Macomb (Aa1 stable) counties.

FACTORS THAT COULD LEAD TO AN UPGRADE OF THE RATINGS

- 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 OF THE RATINGS

- Renewed economic stress that pressures revenue trends

- Material reduction to the system's liquidity or debt service coverage ratios

- Material growth in leverage

LEGAL SECURITY

Water revenue bonds are backed by the net revenue of the system. 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.

USE OF PROCEEDS

Proceeds will fund capital improvements Great Lakes Water Authority's regional water system, including improvements for water treatment and transmission.

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.

METHODOLOGY

The principal methodology used in these ratings was US Municipal Utility Revenue Debt Methodology published in April 2022 and available at https://ratings.moodys.com/api/rmc-documents/386721. Alternatively, please see the Rating Methodologies page on https://ratings.moodys.com for a copy of this methodology.

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MOODY'S
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MOODY'S
INVESTORS SERVICE

Rating Action: Moody's assigns A1 senior & A2 second lien to Great Lakes Water Authority, MI's sewer revenue bonds; revises outlook to positive

19 Aug 2022

New York, August 19, 2022 -- Moody's Investors Service has assigned an A1 to Great Lakes Water Authority, MI's Sewer Enterprise's $101.5 million Sewage Disposal System Revenue Senior Lien Bonds, Series 2022A and $10.6 million Sewage Disposal System Revenue Refunding Senior Lien Bonds, Series 2022C and an A2 to its $96.4 million Sewage Disposal System Revenue Second Lien Bonds, Series 2022B. Moody's also affirmed the A1 senior and A2 second lien ratings on the sewer system's existing bonds. Moody's also revised the authority's outlook to positive from stable. After the current sale, the sewer system will have about $1.8 billion of senior lien and $800 million of second lien revenue bonds outstanding.

RATINGS RATIONALE

The A1 senior lien sewer rating reflects the authority's strong operating performance that continues to result in solid annual debt service coverage and robust liquidity. The system is very large, serving the bulk of the Detroit metro area and almost a third of the state's population. Outstanding revenue bonds enjoy sound legal protections and the system has independent rate-setting authority. Member communities, however, recently publicly pushed back on a rate increase aimed at paying the bad debt of Highland Park. This is unlikely to instigate future rate disputes and ultimately resulted in the city of Highland Park beginning to make sewer payments again. The system's debt burden is high and a large share of system-wide revenue is generated by retail operations within the City of Detroit (Ba2 positive).

The A2 second lien rating reflects a subordinate claim on pledged net revenue.

RATING OUTLOOK

The outlook is positive because the authority has strong management and stable operations and its underlying service area continues improve, particularly in the City of Detroit, as well as across Wayne (A3 positive), Oakland (Aaa stable) and Macomb (Aa1 stable) counties.

FACTORS THAT COULD LEAD TO AN UPGRADE OF THE RATINGS

- 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 OF THE RATINGS

- Renewed economic stress that pressures revenue trends

- Material reduction to the system's liquidity or debt service coverage ratios

- Material growth in leverage

LEGAL SECURITY

Sewer revenue bonds are backed by the net revenue of the system. 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.

USE OF PROCEEDS

Proceeds will fund capital improvements Great Lakes Water Authority's regional sewer system, including for wastewater treatment, interceptor system and pump station improvements and to reduce combined sewer overflows.

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.

METHODOLOGY

The principal methodology used in these ratings was US Municipal Utility Revenue Debt Methodology published in April 2022 and available at https://ratings.moodys.com/api/rmc-documents/386721 . Alternatively, please see the Rating Methodologies page on https://ratings.moodys.com for a copy of this methodology.

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CREDIT OPINION
22 August 2022

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Great Lakes Wtr Auth, MI

Update to credit analysis

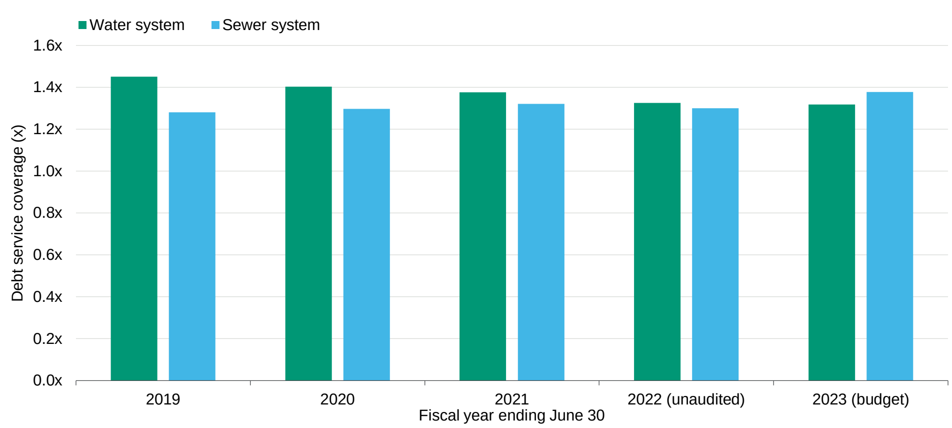
Summary

The Great Lakes Water Authority's (GLWA) water and sewer enterprises (both senior liens rated A1 positive; both subordinate liens rated A2 positive) 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 (see exhibit 1) 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.

Building greater resilience to extreme wet-weather events will likely be an ongoing challenge. In the summer of 2021, the Detroit metropolitan statistical area (MSA) had extreme rainfall and flooding, which resulted in property damage and numerous claims for the authority. As with other Midwestern flooding events, federal assistance has been critical in preventing material credit deterioration for impacted issuers. GLWA has not paid any claims to date because an independent investigation found the basement flooding was the result of heavy rain and not a defect in the system.

On August 18, we revised the authority's outlook to positive and affirmed its A1 senior and A2 subordinate lien ratings.

Exhibit 1
Annual debt service coverage has remained relatively adequate for both systems
Coverage for total senior lien, second lien and junior lien revenue debt service



Figures shown on a GAAP-basis.
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

» Debt service coverage, while adequate, trails higher-rated large utilities

» 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 positive because the authority has strong management and stable operations and its underlying service area continues improve, particularly in the City of Detroit, as well as across Wayne (A1 stable), Oakland (Aaa stable) and Macomb (Aa1 stable) counties.

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, Oakland, and Wayne, 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. The revenue generated within the City of Detroit is assigned to GLWA and is deposited directly with the bond trustee.

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

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

Both systems will likely continue to maintain adequate annual debt service coverage and ample liquidity because of management's close monitoring of revenue targets and its ability to set rates. The authority has budgeted for 1.3x total debt service coverage for both water and sewer revenue bonds in fiscal 2023. While this coverage level is adequate, it is below other large systems. The authority had initially approved a 3.7% water rate increase and a 2.4% sewer rate increase for fiscal 2023. A portion of the increase was 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. Many of the authority's member communities publicly pushed back on this portion of the rate increase and sent letters to the governor asking for the state to intervene. Highland Park has now resumed making payments after a state court required the city to continue its sewer payments. The authority and the city are now in mediation and this portion of the specific rate increases were then dropped. 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 $2.4 million for the sewer. The rate dispute was primarily about equity between member communities and, consequently, is unlikely to instigate future rate disputes.

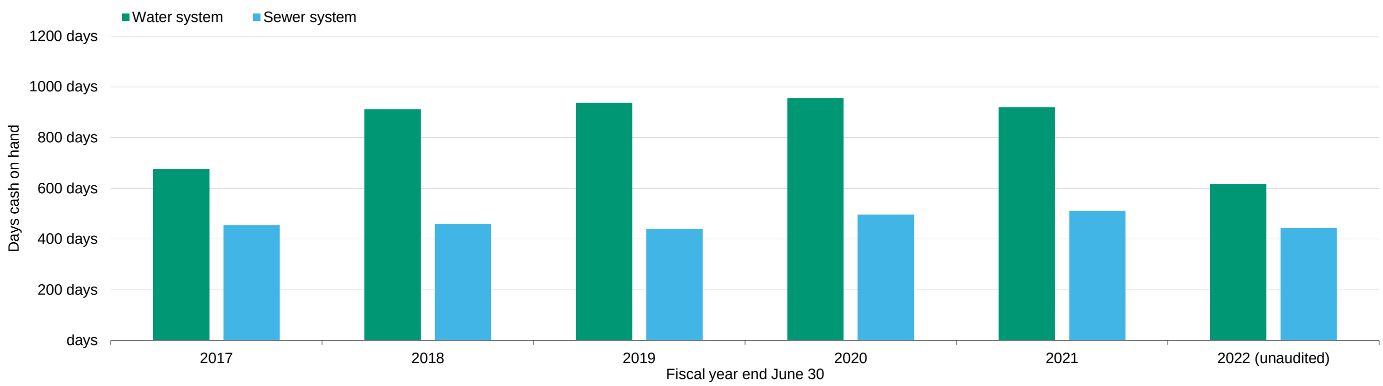
The authority reports roughly 1.3x coverage of total senior lien, second lien and junior lien debt service for fiscal 2022 (see exhibit 1).

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 operating expense 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.

Liquidity

Liquidity is strong for both systems and will remain so despite planned spending for capital investments in fiscal 2022, particularly in the water system (Exhibit 4). Unrestricted cash and investments in the water system were roughly $416 million and about $359 million in the sewer system at the close of fiscal 2021. 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

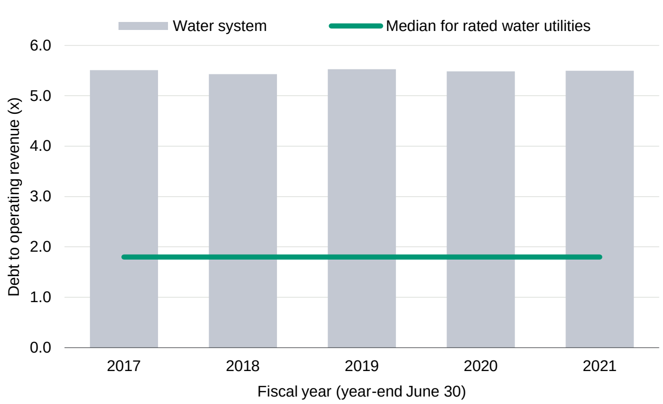
Debt and legal covenants: high debt burden will remain level with sustained revenue growth

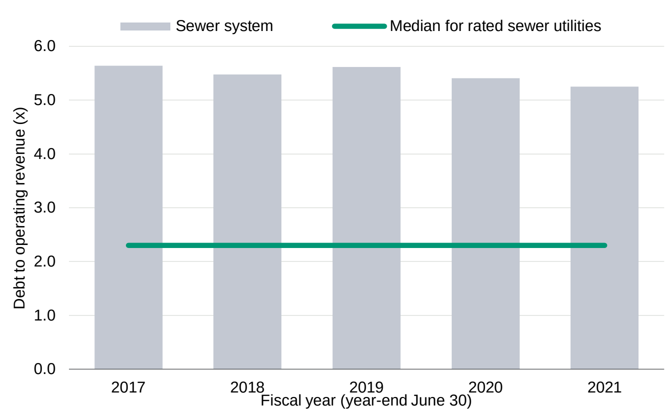
Each system has a very high debt burden that will remain elevated because of high capital needs. Leverage metrics will likely remain stable because GLWA has control over its rates and it plans to finance a portion its CIP with cash. The CIP for fiscal 2023 through 2027 includes about $966 million of water projects and $762 million of sewer projects. The water system is currently issuing about $121.8 million of senior lien bonds and $83.6 million of second lien bonds. The sewer system is issuing $101.5 million of new money senior lien bonds as well as $10.6 million of senior lien refunding bonds and $96.4 million of second lien bonds.

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. Favorably, the systems are not operating under any federal or state consent decrees. 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 bonds do not have any demand risk. Interest rates are reset quarterly based upon a formula using a three-month LIBOR rate.

The water system held about 44% of total GLWA debt at the end of fiscal 2021, 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 debt service schedule is front-loaded and the bulk of both system's debt matures over the next 15 years.

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. There are some former DWSD employees who were hired by GLWA that qualify for 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 GLWA's agreed share, which was based on the liability determined to be associated with the regional system before GLWA began operations. 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 GLWA's agreed upon share that is still remaining. GLWA makes no payments toward accrued retiree healthcare liabilities because the City of Detroit's bankruptcy settlement eliminated those benefits. 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 underlying 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

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.

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. 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.

REPORT NUMBER 1339556

CLIENT SERVICES

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

MOODY'S INVESTORS SERVICE

S&P Global
Ratings

RatingsDirect®

Summary:

Great Lakes Water Authority, Michigan; Water/Sewer

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Table Of Contents

Summary:

Great Lakes Water Authority, Michigan; Water/Sewer

Credit Profile		
US$98.615 mil swg disp sys rev sr ln bnds ser 2022A dtd 09/13/2022 due 07/01/2052		
Long Term Rating	AA-/Stable	New
US$96.48 mil swg disp sys rev 2nd ln bnds ser 2022B dtd 09/13/2022 due 07/01/2052		
Long Term Rating	A+/Stable	New
US$17.615 mil swg disp sys rev rfdg sr ln bnds ser 2022 C dtd 09/13/2022 due 07/01/2023		
Long Term Rating	AA-/Stable	New
Great Lakes Wtr Auth swg (2nd lien)		
Long Term Rating	A+/Stable	Affirmed

Credit Highlights

- S&P Global Ratings assigned its 'AA-' rating to the Great Lakes Water Authority (GLWA), Mich.'s sewage disposal system revenue senior-lien bonds series 2022A, its 'AA-' rating to GLWA's sewage disposal system revenue refunding senior-lien bonds series 2022C, and its 'A+' rating to GLWA's sewage disposal system revenue second-lien bonds series 2022B.
- At the same time, S&P Global Ratings affirmed its 'AA-' and 'A+' ratings on GLWA's existing senior- and second lien bonds outstanding, respectively.
- The outlook is stable.

Security

The bonds are secured by a statutory lien on pledged assets of the system, pursuant to both the bond ordinance and Michigan Act 94 of 1933 (as amended), and prioritized by the lien status. Pledged assets include net revenues of GLWA's sewage disposal system, along with investments credited to the sewage disposal system and earnings on those investments. The net revenue pledge is constituted from gross revenues of the DWSD retail and the GLWA regional systems, which cover both systems' operating and maintenance (O&M) expenses. A rate covenant stipulates that the GLWA board set rates to produce at least 1.2x coverage of senior-lien debt, 1.1x for second-lien bonds, and 1x for junior-lien bonds. The ability to issue additional bonds exists if net revenues for the previous fiscal year, or net revenues adjusted by approved rate increases and system expansion for the current or next fiscal year, produce coverage of maximum annual debt service (MADS; including the proposed bonds) of at least those levels indicated in the rate covenant for the particular liens.

There is also a debt service reserve (DSR) for both senior- and second-lien bonds, equal to MADS for senior-lien and average annual debt service for second-lien, in all cases no more than what is permitted by the Internal Revenue Code of 1986. On achieving senior-lien ratings from two credit rating agencies no lower than 'AA-' or the equivalent, GLWA, through amendments to the master bond ordinance (MBO), has the option to eliminate this reserve requirement on its outstanding and future bonds on any lien. If the DSRs are eliminated, we currently view the effects as credit neutral given the significant amounts of unrestricted liquidity GLWA currently carries. If management decides to liquidate the DSRs, we would seek to understand how it would use other pledged funds to continue minimizing the potential for debt payment disruptions. At the fiscal year ended June 30, 2021, the senior-lien DSR totaled $114.1 million and the second- plus junior-lien DSRs totaled $48.1 million; DSR investments consist of cash, securities, and sureties.

Credit overview

For a utility of its size, serving about 2.8 million people, we consider the existing financial benchmarks of debt service coverage (DSC) and unrestricted liquidity consistent for the rating category. We would note, however, that in our analysis of DSC, our fixed-charge coverage analysis generally follows the presentation in GLWA's master bond ordinance (MBO) calculation for junior-lien DSC, with additional revenue offsets due to pension payments made to Detroit for its frozen general retirement system expenses and additional fixed costs due to pension note payments made to Detroit for its B and C note payments. Our calculation focuses on how net revenues are covering all of GLWA's fixed costs instead of reporting coverage based on MBO definitions of operating and nonoperating expenses. The effects of this treatment lowers fixed-charge coverage by about five-to-ten basis points compared to MBO junior-lien DSC.

However, Detroit's recovering employment base still has weak underlying fundamentals, in our view, with median household effective buying income only about 50% of the national average. Still, the rating is supported by a revenue base that is well diversified geographically beyond the city limits (75% from suburban wholesale customers).

An overall worsening in U.S. economic conditions (see "U.S. Recession—Are We There Yet?": published Aug. 2, 2022, on RatingsDirect), higher inflation, and higher interest rates could weaken GLWA's capital and operating budget, potentially pressuring water rates. Because account delinquencies within the DWSD retail customer class are already high, worsening economic conditions could reduce revenue collections; GLWA management reports that about 45% of DWSD's 334,000 active retail accounts are 60 days or more delinquent, but that figure has been generally slowly declining since at least 2020.

A number of key provisions in the lease agreement, service agreement, and memorandum of understanding (MOU) between GLWA and Detroit support the ability of the GLWA regional system to help make the net revenues originating from Detroit's local system more predictable despite these economic and collection risks:

- GLWA sets revenue requirements for DWSD that are related to the costs for providing services, and, in turn, Detroit sets retail rates in a fashion that meets GLWA's revenue requirement.
- Explicit language that requires all revenues collected by Detroit be held in segregated accounts in trust and remitted within five days of receipt to a trustee-held pledged revenue account under the MBO.
- A services agreement between GLWA and Detroit that holds the city to performance and administrative standards to maintain its agency relationship with GLWA for rate-setting and revenue collection.
- Requirements that both GLWA and Detroit retail maintain a biennial budget and a five-year capital improvement plan (CIP).
- DWSD is required to submit periodic budget and operational reporting requirements to GLWA and discuss these

results at a Reconciliation Committee, which is also the initial mechanism to develop a plan for DWSD to cure any budget shortfalls. If they occur, then the MOU between GLWA and DWSD describes a workout mechanism to recover the budget shortfalls over a period no longer than the next three fiscal years.

Additional overall credit strengths that we believe will continue to support the rating include:

- A revenue stream that arises from 100% fixed-cost recovery not dependent on volume.
- Active management of governance risks through formal working relationships with both suburban wholesale customers and DWSD. Coordination of all aspects of the utility's operations are managed, including environmental compliance, asset management, procurement, rate-setting, two separate bill assistance programs, and future capital needs.

Environmental, social, and governance

We evaluate the environmental, social, and governance (ESG) risks that could influence our credit rating analysis by considering the economic aspects of the service area in which GLWA operates, as this can generate customer demand and affect revenue collections. We consider governance risk a key credit factor, while social and environmental risk are neutral in our analysis.

Minimizing governance risk lies primarily in maintaining collaboration with both suburban wholesale customers and DWSD management while minimizing litigation risks due to disputes with Highland Park. All these efforts require considerable staff resources, but these efforts also are credit supportive as long as GLWA is able to continue providing its services without significant customer discord that disrupts revenue collections.

Many procedures involving DWSD regarding capital and budget planning, management of budget variances, sharing of services to gain efficiencies, and reporting requirements are built into key documents to which GLWA and the city of Detroit are party. The "One Water Partnership" between GLWA and its suburban wholesale customers generally facilitates information sharing, capital project coordination, and technical assistance.

Litigation with Highland Park has been ongoing for decades, but the bad debt expense has been recovered in service charges to other customers. However, it is our understanding that the bad debt expense recovered from other customers is used as a short-term stop-gap, GLWA works to recover the revenues, and then reimburses the customers to whom the bad debt expense was allocated. If the Highland Park litigation (or additional, future litigation) is not resolved, we believe that the willingness to support these reallocated bad debt expenses could wane, especially since utilities that support these costs do not receive any direct benefit; it's solely a contractual requirement. In this case, our view of governance risk could become a credit weakness.

GLWA has significant social risks to manage given the wide diversity in economic and demographic bases served by the utility. We consider social risks credit neutral, but both GLWA and DWSD management will need to continue balancing implementation of assistance programs while also achieving higher collection rates within Detroit. GLWA's Water Residential Assistance Program (WRAP) is designed to both provide bill assistance and arrange for household water audits to all qualified residents within municipalities that have adopted it (currently including Detroit). DWSD management has a dedicated shut-off program implemented by an outside contractor but it is currently on hold until the end of 2022; it also just launched an additional lifeline program for residents in Detroit that supplements WRAP.

Both programs are supported from revenues generated from water and sewer rates.

We view environmental risks to be credit neutral, with the most acute potential risk being exposure to Polyfluoroalkyl Substances (PFAS) regulation that could affect discharge requirements. One positive recent outcome related to environmental risks is that GLWA was released from an administrative consent order with the Michigan Department of Environment, Great Lakes, and Energy for monitoring of sewer treatment facility operations and biosolids handling; the order had been in place prior to Detroit's bankruptcy. Also of note is that GLWA maintains a strong record of discharge permit and combined sewer overflow compliance.

Outlook

The stable outlook reflects our expectation that GLWA will continue its steady financial performance while funding all its needed capital projects without being impaired by economic headwinds or inflationary pressures. Because GLWA's CIP is not currently regulatory driven, we believe that flexibility to shift capital spend targets and/or revenue requirements due to economic or inflationary pressures will help minimize downside risks to meeting or outperforming currently projected financial projections. However, if compliance costs associated with PFAS remediation or other discharge requirements accelerate, it could influence our view of the GLWA's credit quality.

We would also expect management to continue its collaborative efforts with both suburban customers and DWSD to minimize ESG risks that could have a negative influence on credit quality.

Downside scenario

Continuing to implement the provisions of the lease agreement, service agreement, and MOU that help make the budget for both DWSD and GLWA more predictable while minimizing revenue fluctuations are key factors in maintaining the current rating; if these become less robust, then we would likely lower the rating.

But even if these practices continue, the rating or outlook could be weakened if actual financial performance falls below current projections. Significant deferral of capital projects, considering the current inflationary environment, that artificially increases liquidity but causes deferred maintenance could also lead to downside pressure on the rating or outlook.

Upside scenario

If economic recovery in Detroit continues and starts to have meaningful positive effects on its economic fundamentals and utility collection rates, then the rating could be improved. We also would consider upward rating potential if GLWA meaningfully outperforms its current forecast while still funding its CIP generally as planned. We would also need to consider these improvements as sustainable over a long-term horizon for us to consider doing so.

Related Research

- Through The ESG Lens 3.0: The Intersection Of ESG Credit Factors And U.S. Public Finance Credit Factors, March 2, 2022

Ratings Detail (As Of August 22, 2022)

Ratings Detail (As Of August 22, 2022) (cont.)		
Great Lakes Wtr Auth swg disp sys rev bnds ser 2000-SRF1 due 10/01/2022		
Long Term Rating	A+/Stable	Affirmed
Great Lakes Wtr Auth swg disp sys rev bnds ser 2000-SRF2 due 10/01/2022		
Long Term Rating	A+/Stable	Affirmed
Great Lakes Wtr Auth swg disp sys rev bnds ser 2001-SRF1 due 10/01/2024		
Long Term Rating	A+/Stable	Affirmed
Great Lakes Wtr Auth swg disp sys rev bnds ser 2001-SRF2 due 10/01/2024		
Long Term Rating	A+/Stable	Affirmed
Great Lakes Wtr Auth swg disp sys rev bnds ser 2002-SRF1 due 04/01/2023		
Long Term Rating	A+/Stable	Affirmed
Great Lakes Wtr Auth swg disp sys rev bnds ser 2002-SRF2 due 04/01/2023		
Long Term Rating	A+/Stable	Affirmed
Great Lakes Wtr Auth swg disp sys rev bnds ser 2002-SRF3 due 10/01/2024		
Long Term Rating	A+/Stable	Affirmed
Great Lakes Wtr Auth swg disp sys rev bnds ser 2003-SRF1 due 10/01/2025		
Long Term Rating	A+/Stable	Affirmed
Great Lakes Wtr Auth swg disp sys rev bnds ser 2003-SRF2 due 04/01/2025		
Long Term Rating	A+/Stable	Affirmed
Great Lakes Wtr Auth swg disp sys rev bnds ser 2004-SRF1 due 10/01/2024		
Long Term Rating	A+/Stable	Affirmed
Great Lakes Wtr Auth swg disp sys rev bnds ser 2004-SRF2 due 04/01/2024		
Long Term Rating	A+/Stable	Affirmed
Great Lakes Wtr Auth swg disp sys rev bnds ser 2004-SRF3 due 04/01/2025		
Long Term Rating	A+/Stable	Affirmed
Great Lakes Wtr Auth swg disp sys rev bnds ser 2007-SRF1 due 10/01/2029		
Long Term Rating	A+/Stable	Affirmed
Great Lakes Wtr Auth swg disp sys rev bnds ser 2009-SRF1 due 04/01/2030		
Long Term Rating	A+/Stable	Affirmed
Great Lakes Wtr Auth swg disp sys rev bnds ser 2010-SRF1 due 04/01/2031		
Long Term Rating	A+/Stable	Affirmed
Great Lakes Wtr Auth swg disp sys rev bnds ser 2012-SRF1 due 10/01/2034		
Long Term Rating	A+/Stable	Affirmed
Great Lakes Wtr Auth swg disp sys rev bnds ser 2015A-SRF due 04/01/2036		
Long Term Rating	A+/Stable	Affirmed
Great Lakes Wtr Auth swg disp sys rev bnds ser 2015B-SRF due 10/01/2035		
Long Term Rating	A+/Stable	Affirmed
Great Lakes Wtr Auth swg disp sys rev bnds ser 2015D-SRF due 10/01/2035		
Long Term Rating	A+/Stable	Affirmed
Great Lakes Wtr Auth swg disp sys rev bnds ser 2016-SAW due 10/01/2038		
Long Term Rating	A+/Stable	Affirmed

Ratings Detail (As Of August 22, 2022) (cont.)		
Great Lakes Wtr Auth swg disp sys rev bnds ser 2016-SRF1 due 04/01/2038		
Long Term Rating	A+/Stable	Affirmed
Great Lakes Wtr Auth swg disp sys rev bnds ser 2016-SRF2 due 04/01/2039		
Long Term Rating	A+/Stable	Affirmed
Great Lakes Wtr Auth swg disp sys rev bnds ser 2017-SRF1 due 10/01/2038		
Long Term Rating	A+/Stable	Affirmed
Great Lakes Wtr Auth swg disp sys rev bnds ser 2018-SRF1 due 10/01/2042		
Long Term Rating	A+/Stable	Affirmed
Great Lakes Wtr Auth swg disp sys rev bnds ser 2018-SRF2 due 10/01/2039		
Long Term Rating	A+/Stable	Affirmed
Great Lakes Wtr Auth swg (wrap of insured) (MBIA, National & ASSURED GTY) (SEC MKT)		
Unenhanced Rating	A+(SPUR)/Stable	Affirmed
Great Lakes Wtr Auth swg (AGM)		
Unenhanced Rating	A+(SPUR)/Stable	Affirmed
Great Lakes Wtr Auth swg (Sr lien)		
Long Term Rating	AA-/Stable	Affirmed
Great Lakes Wtr Auth swg (Sr lien)		
Long Term Rating	AA-/Stable	Affirmed
Great Lakes Wtr Auth swg (Sr lien) (AGM)		
Unenhanced Rating	AA-(SPUR)/Stable	Affirmed
Great Lakes Wtr Auth swg (Sr lien) (AGM) (SECMKT)		
Unenhanced Rating	AA-(SPUR)/Stable	Affirmed
Great Lakes Wtr Auth swg (2nd lien) (wrap of insured) (FGIC & AGM) (SEC MKT)		
Unenhanced Rating	A+(SPUR)/Stable	Affirmed
Great Lakes Wtr Auth swg (2nd lien) (wrap of insured) (FGIC) (MBIA) (SEC MKT) (National)		
Unenhanced Rating	A+(SPUR)/Stable	Affirmed
Great Lakes Wtr Auth swg (2nd lien) (wrap of insured) (FGIC, AGM & BHAC) (SEC MKT)		
Unenhanced Rating	A+(SPUR)/Stable	Affirmed
Great Lakes Wtr Auth swg (2nd lien) (AGM)		
Unenhanced Rating	A+(SPUR)/Stable	Affirmed
Great Lakes Wtr Auth swg (2nd lien) (BAM) (SECMKT)		
Unenhanced Rating	A+(SPUR)/Stable	Affirmed
Great Lakes Wtr Auth swg (2nd lien) (BAM) (SECMKT)		
Unenhanced Rating	A+(SPUR)/Stable	Affirmed
Great Lakes Wtr Auth swg (2nd lien) (MBIA) (National)		
Unenhanced Rating	A+(SPUR)/Stable	Affirmed
Great Lakes Wtr Auth swg (2nd lien) (MBIA) (National)		
Unenhanced Rating	A+(SPUR)/Stable	Affirmed
Great Lakes Wtr Auth swr (wrap of insured) (FGIC) (ASSURED GTY - SEC MKT)		
Unenhanced Rating	A+(SPUR)/Stable	Affirmed

Ratings Detail (As Of August 22, 2022) (cont.)		
Michigan Finance Authority, Michigan		
Great Lakes Wtr Auth, Michigan		
Michigan Fin Auth (Great Lakes Wtr Auth) swg disposal (AGM)		
Unenhanced Rating	A+(SPUR)/Stable	Affirmed
Michigan Fin Auth (Great Lakes Wtr Auth) swg disposal (BAM)		
Unenhanced Rating	A+(SPUR)/Stable	Affirmed
Michigan Fin Auth (Great Lakes Wtr Auth) swg (BAM) (SECMKT)		
Unenhanced Rating	A+(SPUR)/Stable	Affirmed
Michigan Fin Auth (Great Lakes Wtr Auth) swg (National)		
Unenhanced Rating	A+(SPUR)/Stable	Affirmed
Michigan Fin Auth (Great Lakes Wtr Auth) WTRSWR		
Long Term Rating	AA-/Stable	Affirmed
Michigan Fin Auth (Great Lakes Wtr Auth) WTRSWR		
Long Term Rating	AA-/Stable	Affirmed
Michigan Fin Auth (Great Lakes Wtr Auth) WTRSWR		
Long Term Rating	AA-/Stable	Affirmed
Michigan Fin Auth (Great Lakes Wtr Auth) WTRSWR		
Unenhanced Rating	AA-(SPUR)/Stable	Affirmed
Michigan Fin Auth (Great Lakes Wtr Auth) WTRSWR		
Long Term Rating	A+/Stable	Affirmed

Many issues are enhanced by bond insurance.

Certain terms used in this report, particularly certain adjectives used to express our view on rating relevant factors, have specific meanings ascribed to them in our criteria, and should therefore be read in conjunction with such criteria. Please see Ratings Criteria at www.standardandpoors.com for further information. Complete ratings information is available to subscribers of RatingsDirect at www.capitaliq.com. All ratings affected by this rating action can be found on S&P Global Ratings' public website at www.standardandpoors.com. Use the Ratings search box located in the left column.