

CREDIT OPINION

15 November 2024



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City of Dallas, TX

Update following outlook change to negative

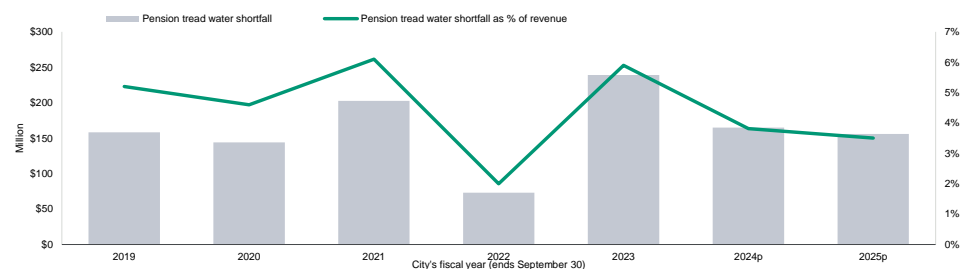
Summary

The [City of Dallas, TX's](#) (A1 negative) credit profile benefits from a strong and diverse economy that continues to grow at a pace that exceeds that of the nation. Assessed value (AV) has increased rapidly over the past decade driven by new construction and strong appreciation of existing property; growth should continue but at a more moderate pace. This has led to a high and above median full value per capita of over \$150,000. Resident income (adjusted for cost of living) is 82%, in line with the national A median. The available fund balance and liquidity ratios of 36% and 52%, respectively, have been improving modestly but remain slightly below the A median.

Going forward, the city will face budget challenges given required increases to its pension plans, growing public safety expenses, and reduced financial flexibility following voter approval of Proposition U, approved by voters on Nov. 5. Its objective is to have the city to maintain a police force of about 4,000 and use at least 50% of new revenue for public safety (including pension contributions). The city will annually increase its pension contributions starting this fiscal year to the Dallas Police and Fire Pension System (DPFP) and the Employee Retirement Fund (ERF) in order to amortize the unfunded liabilities within 30 years, as mandated by state law. The additional contributions are a positive step given the plans are not currently projected to be funded for several decades. However, the increased contributions are not expected to meet the tread water level (exhibit 1) and the plans' cash flow remains very weak. If investment returns lag plan targets or if other plan assumptions are not met, the city will need to contribute even more (absent benefit changes), which will further restrict financial flexibility. Given the economic strength, revenue growth will help the city balance budgets but expenditure cuts may be necessary. Total leverage (debt, pension and other post-employment benefits (OPEB)) of about 400% of revenue is above median and it will remain elevated because voters recently authorized over \$1 billion of GOLT debt.

Exhibit 1

Pension tread water gaps have been large in recent years and are projected to continue



Source: Moody's Ratings

Credit strengths

- » Large and growing economy that anchors the Dallas/[Fort Worth](#) (Aa3 stable) metroplex
- » Healthy and growing full value per capita

Credit challenges

- » Budgetary pressures deriving from rising pension costs coupled with maintenance of city services and continued infrastructure investment
- » Pension non-investment cash flow expected to remain negative for several years
- » DFPF's high concentration in real assets, which is among the highest of plans in our portfolio, has contributed to historically very weak investment returns

Rating outlook

The negative outlook reflects the expected credit impact of Proposition U, which will reduce the city's fiscal flexibility and increase the pension liability, combined with the pension plans' very weak cash flow and the already substantial unfunded liability that is not expected to materially decline for several years despite additional contributions. The implementation of Proposition U is expected to result in the eventual hiring of many additional officers (a force of 4,000 is mandated by the proposition) and an increase in officer starting salaries, both of which will increase the DFPF liability. In addition, at a time when operating expenses are growing especially for public safety, the proposition constrains the city's financial flexibility. The proposition allows the city to keep only 50% of new revenue and the remaining 50% has to go to DFPF (and remaining funds can be used to help fund the aforementioned other mandates). Although the additional revenue going to DFPF is positive, the reduced financial flexibility and the expected negative impact to the pension liability is likely to weigh on the credit profile. The city's plan to incorporate the mandates from Proposition U will be a key focus in future reviews.

Factors that could lead to an upgrade

- » Significant revenue growth and/or expenditure adjustments that allows for pension funding that materially improves the plans' cash flow (issuer)
- » Demonstrated balanced operations inclusive of pension funding at the tread water level (issuer)
- » Upgrade of the issuer rating (GOLT, hotel)
- » Upgrade of the issuer rating combined with improved debt service coverage to over 2x and a decline in leverage to under 2x revenue (water and sewer)
- » Material decline in top taxpayer concentration (tax increment)

Factors that could lead to a downgrade

- » Any event that increases the unfunded pension liability, including investment losses, persistently large tread water gap, continuation of weak non-investment cash flow, and/or materially higher number of members or promised benefits (issuer)
- » Structural imbalance caused by a failure to increase revenue to support the required growth in public safety expenses and pension contributions (issuer)
- » Weakening economy or material increase in the long-term liabilities and/or fixed costs ratios (issuer)
- » Downgrade of the issuer rating (GOLT, water and sewer, hotel)

This publication does not announce a credit rating action. For any credit ratings referenced in this publication, please see the issuer/deal page on <https://ratings.moody's.com> for the most updated credit rating action information and rating history.

- » Decline in debt service coverage to below 1.5x or liquidity to below 200 days, and/or an increase in leverage to over 5x revenue (water and sewer)
- » Trend of declining AV resulting in weakened MADS coverage or increase in taxpayer concentration (tax increment)

Key indicators

Exhibit 2

Dallas (City of) TX

	2020	2021	2022	2023	A Medians
Economy					
Resident income ratio (%)	80.5%	81.1%	82.2%	N/A	85.3%
Full Value (\$000)	\$140,237,632	\$147,443,517	\$155,938,192	\$179,433,592	\$765,032
Population	1,338,846	1,300,239	1,300,642	N/A	10,363
Full value per capita (\$)	\$104,745	\$113,397	\$119,893	N/A	N/A
Annual Growth in Real GDP	-1.2%	7.9%	5.7%	N/A	4.7%
Financial Performance					
Revenue (\$000)	\$3,139,857	\$3,348,129	\$3,599,459	\$4,051,623	\$22,589
Available fund balance (\$000)	\$1,017,855	\$1,157,234	\$1,372,880	\$1,454,281	\$9,301
Net unrestricted cash (\$000)	\$1,366,550	\$1,565,952	\$1,957,028	\$2,114,146	\$13,502
Available fund balance ratio (%)	32.4%	34.6%	38.1%	35.9%	40.7%
Liquidity ratio (%)	43.5%	46.8%	54.4%	52.2%	55.3%
Leverage					
Debt (\$000)	\$6,723,298	\$6,958,832	\$6,903,959	\$7,489,851	\$18,954
Adjusted net pension liabilities (\$000)	\$9,401,491	\$11,377,782	\$9,980,877	\$7,759,156	\$28,106
Adjusted net OPEB liabilities (\$000)	\$510,315	\$252,736	\$208,607	\$173,752	\$1,627
Other long-term liabilities (\$000)	\$435,731	\$464,898	\$449,301	\$440,444	\$749
Long-term liabilities ratio (%)	543.7%	569.1%	487.4%	391.5%	272.9%
Fixed costs					
Implied debt service (\$000)	\$454,379	\$481,473	\$488,091	\$482,171	\$1,360
Pension tread water contribution (\$000)	\$366,273	\$433,865	\$313,141	N/A	\$864
OPEB contributions (\$000)	\$18,572	\$18,373	\$11,006	\$9,253	\$56
Implied cost of other long-term liabilities (\$000)	\$29,987	\$31,204	\$32,608	\$31,379	\$47
Fixed-costs ratio (%)	27.7%	28.8%	23.5%	20.6%	12.6%

For definitions of the metrics in the table above please refer to the [US Cities and Counties Methodology](#) or see the Glossary in the Appendix below. Metrics represented as N/A indicate the data were not available at the time of publication. The medians come from our most recently published [US Cities and Counties Median Report](#).

The real GDP annual growth metric cited above is for the Dallas-Fort Worth-Arlington, TX Metropolitan Statistical Area Metropolitan Statistical Area.

Sources: US Census Bureau, Dallas (City of) TX's financial statements and Moody's Ratings, US Bureau of Economic Analysis

Profile

Dallas is the ninth largest city in the US and the third largest in [Texas](#) (Aaa stable) behind [Houston](#) (Aa3 stable) and [San Antonio](#) (Aaa stable). The city serves as the anchor to the Dallas-Fort Worth metroplex. The current population is over 1.3 million. The city provides services such as public safety, water and sewer treatment and distribution, sanitation, airport, convention center, streets, culture and recreation, libraries and public health services.

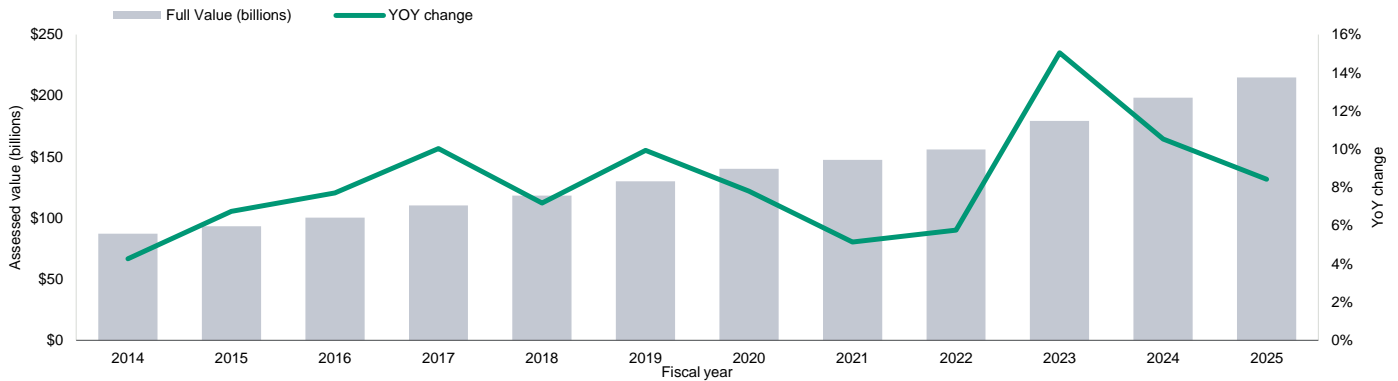
Detailed credit considerations

Economy: as the anchor of the Dallas-Fort Worth-Arlington MSA, Dallas's economy will continue to expand

Dallas' robust economy is a strength of the credit profile and it will continue to expand, albeit likely at a slower pace than in recent years. The Dallas-Fort Worth-Arlington MSA's real gross domestic product has been growing for the past several years at a rate that exceeds that of the nation; the five-year compound annual growth rate (through 2022) of 2.0% is stronger than most other MSAs. As seen in exhibit 3, fiscal 2025 assessed value (AV) increased 8.5% to about \$215 billion. AV has grown almost 9% annually, on average, over the past five years which is much faster than most cities nationwide.

Exhibit 3

City has benefitted from robust AV growth over the past decade; growth will continue but likely at a more modest pace

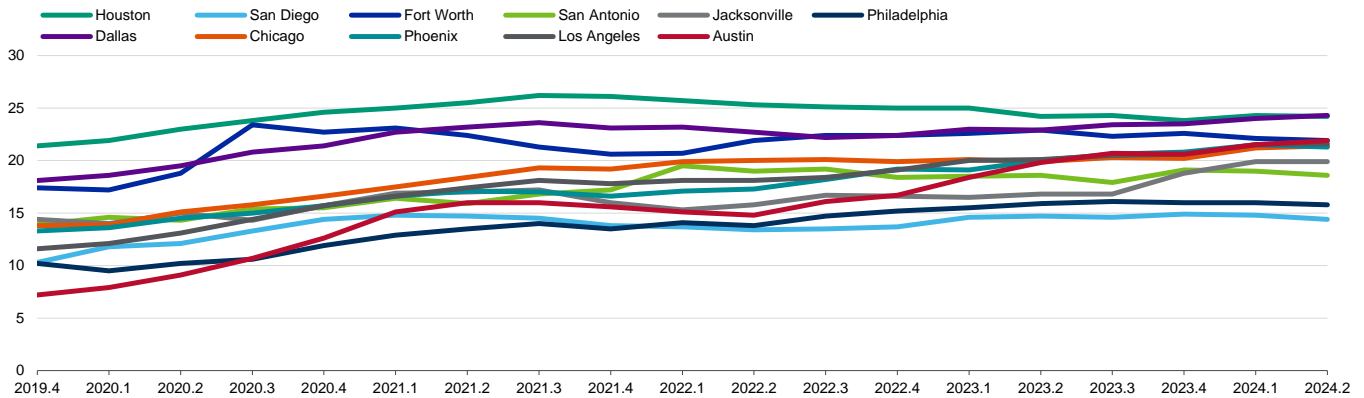


Source: Moody's Ratings

Residential property comprises about 48% of taxable assessed value and residential construction valuation/permit activity continues to increase annually since the pandemic. Residential permit value was up a significant 83% in 2023 from 2022, helping to offset a slight decline in commercial activity. Total building permit activity in 2023 increased 30% from 2022. About 43% of the city's AV is from commercial property and this sector (especially office space) continues to face headwinds, but new construction in other sectors and strong appreciation of existing properties has offset this. According to CBRE data, the city's office vacancy rate is just over 24% (as of the second quarter of 2024), and is up about 6 percentage points since the end of 2019, which, despite the increase, compares favorably to many other large cities in the US (exhibit 4).

Exhibit 4

Office vacancy has increased but not as much as most other large cities



Source: Moody's Ratings

Financial operations: growing expenses and reduced financial flexibility are a credit challenge

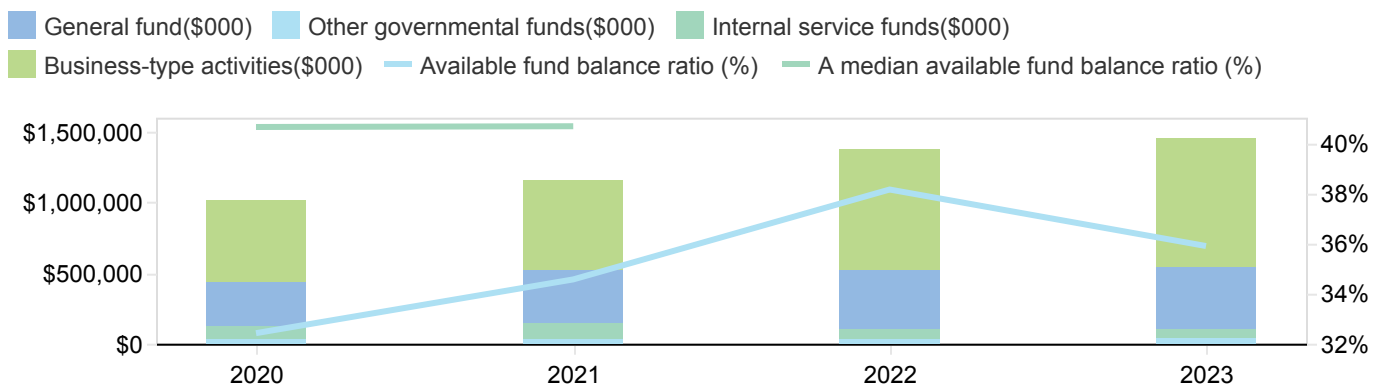
The financial position will be challenged by balancing large increases to pension contributions and growing public safety expenses and general costs of services, coupled with more limited financial flexibility. Proposition U was approved by voters Nov. 5 and its objective is to have the city maintain a police force of at least 4,000, though it is unclear when the city will be able to successfully recruit the additional 900 officers required to meet this. The fiscal 2025 budget, adopted before the proposition was passed, includes an additional 250 officers. In addition, Proposition U limits the city's financial flexibility because only 50% of new revenue can be used by the city to help finance general services; the remaining 50% will go to DPFP and increased salaries. The hiring of additional officers as well as any salary increases will increase the DPFP liability, which already has a very large unfunded liability and is a drag on the credit profile.

The city budgets and manages its finances conservatively and reserves have increased over the past several years (exhibit 5). During these years, statutory and local ordinance caps limited how much the city could contribute to the pension plans. As of fiscal 2025, those caps are no longer in place and contributions will start to increase annually and the city will eventually make the Actuarially Determined Contribution (ADC).

The city's five-year forecast published with the 2025 budget shows the general fund is structurally balanced in 2025 and 2026, but has budget gaps in 2027-2029 (the budget gaps range from 0.3% to 0.8% of revenue). The forecast includes annual increases to DPFP and ERF to reach full amortization of the unfunded liability within 30 years, as required by state law. The forecast includes a five year ramp up for both plans to eventually fund at the ADC level. However, the contributions to DPFP may be higher than what is in the current forecast and depends on the outcome of the litigation with the DPFP Board.¹ If the city is required to contribute based on the DPFP Board's plan, the budget gaps will begin this fiscal year and range from approximately 0.7% of revenue to 2.3%. The city has closed budget gaps in the past and we expect this to continue, but large expenditure cuts or significant additional revenue may be necessary. The city could revise its five-year forecast in light of general fund revenue limitations under Proposition U.

Exhibit 5

Available fund balance has increased, largely driven by growth in business-type activities reserves



Source: Moody's Ratings

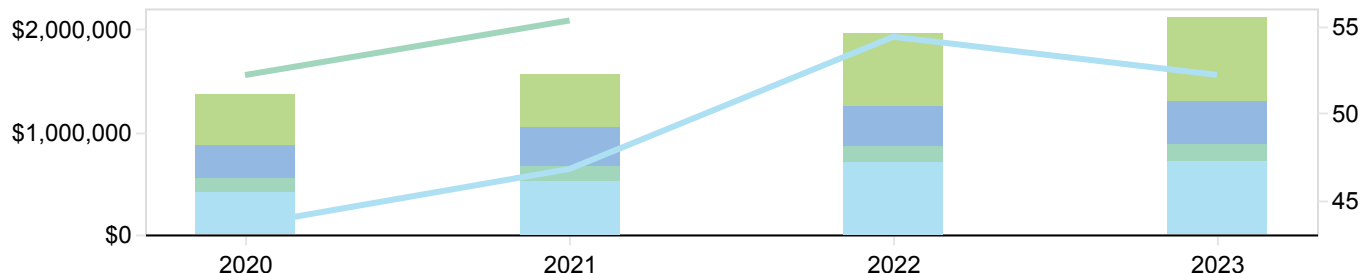
Liquidity

The city closed fiscal 2023 with roughly \$1.3 billion in governmental fund cash and investments and \$810.7 million in unrestricted business-type activity cash and investments, for a combined \$2.1 billion or 52.2% of revenue (exhibit 6). The cash position is higher than the available fund balance given that some fund balance is classified as restricted for things like debt service and capital projects.

Exhibit 6

Cash remains higher than available fund balance because of restricted money for debt service and capital projects

■ General fund
 ■ Other governmental funds
 ■ Internal service funds
 ■ Business-type activities
 — Liquidity ratio (%)
 — A median liquidity ratio (%)



Source: Moody's Ratings

Water and Sewer Enterprise

The system's customer base, which extends well beyond the city's limits, will continue to grow given population growth and new development in the service area. The system has approximately 308,000 water accounts and provides water on a wholesale basis to 26 local governments in the metro area. Water sources are in north central and east Texas, and future surface water impoundments are anticipated. A connection to Lake Palestine is about two-thirds complete and is expected to be available in 2030. The city's water supply is projected to be adequate to 2055 upon completion of the connection to Lake Palestine. Long-term affordable water supply options continue to be identified – the city updated its long-range water supply plan in 2014 and again in 2022 in order to secure water through 2080. The system also provides wastewater collection and treatment to the city on a retail basis and provides treatment services to 11 local governments in the area.

Debt service coverage will remain adequate because the city council, who approves water and sewer rates, has demonstrated willingness to increase rates as needed. Rate increases in fiscal 2023 contributed a slight uptick in debt service coverage to 1.8x, the second consecutive year that coverage increased. City officials have a goal to maintain fiscal year-end maximum debt service coverage of 1.5 times. Prudently, the target is used for budgeting purposes in order to account for any reductions in water revenue and still sufficiently meet the rate covenant and additional bonds test. The system has large debt plans, and the five-year forecast (through fiscal 2029) includes planned rate increases that average 4.1% annually.

Unrestricted liquidity improved in fiscal 2023 to \$348.2 million (from \$266.9 million last year), which represents a sound 320 days, though it remains below the Aa2 national median. The city has adopted a financial policy to maintain an unreserved cash balance that provides a minimum quick ratio of 1.50 times and 30 days of budgeted expenditures.

The debt to revenue ratio will remain elevated because of additional borrowing plans, and further increases in leverage metrics could lead to negative credit pressure. Despite annual new debt issuances, the debt to operating revenue ratio has remained around 4x due to revenue growth. Over the past five years, the highest ratio was 4.5x in 2021 and the lowest point was 3.9x in 2022. It totaled 4.1x in 2023. A ratio of 4x is over twice the national Aa2 median, though it is in line with similarly sized systems with substantial capital needs to serve a regional population.

Dallas Convention Center Hotel Development Corporation

The Dallas Convention Center Hotel Development Corporation is a discretely presented component unit of the city responsible for promoting and developing the area of the city around the Dallas Convention Center. The Series 2009A and 2009B bonds are primarily payable from the hotels' operating revenue along with city and state hotel occupancy and sales taxes collected solely upon the operations of the property; but the bonds also carry a moral obligation pledge from the city to cover any debt service shortfall. Our rating on the bonds is based on the moral obligation pledge, which we view as the stronger of the two pledges.

Downtown Dallas Development Authority

The Downtown Dallas Development Authority is a discretely presented component unit of the city responsible for promoting economic development of the downtown area. Assessed value in the Dallas central business district continues to grow annually and provides growing revenue to support strong debt service coverage on the Series 2006 and 2007 bonds. The downtown area does have a high concentration of top taxpayers, but this is typical of a largely commercial area.

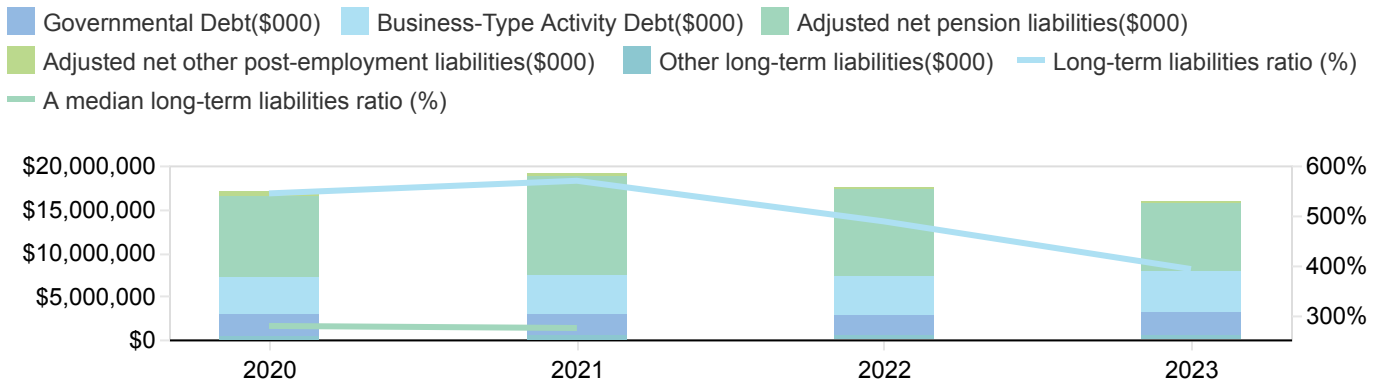
Leverage

The city's long-term liabilities and fixed costs ratios will remain elevated relative to peers given the large unfunded pension liability and future debt plans. The long-term liabilities ratio came down in fiscal 2023 largely due to an increase in the discount rate used to calculate the Moody's adjusted retiree benefit liabilities. Debt combined with the Moody's adjusted net pension and OPEB liabilities totaled 391.5% of revenue in fiscal 2023 (exhibit 7), which is well above the A median. Adjusted fixed costs were also above median at 20.6%.

Leverage will increase because voters in May approved a \$1.3 billion bond package for a variety of city-wide upgrades. Further, the city will continue to issue debt for upgrades and expansions to its enterprise systems. The city has historically layered in new debt incrementally which has prevented the debt burdens from spiking, and we expect it will maintain the same conservative approach.

Exhibit 7

Total long term liabilities remain high relative to peers



Source: Moody's Ratings

Legal security

The general obligation limited tax bonds constitute direct and general obligations of the city, payable from the levy and collection of a direct and continuing annual ad valorem tax, within the limits prescribed by law, on all taxable property located within the city.

The water and sewer revenue bonds are payable from a first lien on the net revenues of the system.

The tax increment contract revenue bonds are payable from a pledge of tax increment revenues generated from the Downtown Connection Tax Increment Financing District. Additionally, the city may consider appropriated funds to support debt service as needed.

The hotel revenue bonds are payable from revenue in the trust estate, which includes net operating revenue of the hotel, federal subsidies related to the 2009B Build America Bonds, and city and state hotel occupancy and sales taxes collected solely upon the operations of the property. The city has also given its moral obligation pledge to cover any debt service shortfall.

Debt structure

All general obligation bonds are fixed rate and the 10 year payout rate is fast at 80%.

Debt-related derivatives

The city is not a party to any derivative agreements.

Pensions and OPEB

The city's large unfunded pension liability will continue to challenge the credit profile, and material improvement in the funded ratio is not expected for several years despite the increasing contributions. The city's contributions, even when at the ADC level, are expected to be below the tread water level.² For the past several years, the city has had one of the largest tread water gaps compared to the US cities we rate. Further, our projections show both plans will continue to have negative non-investment cash flow³ and the plans' solvency risk remains heightened. The plans' ability to achieve (or exceed) their return targets remains of significant importance and will be a key focus in future reviews. DPFP in particular has historically had weak investment returns, due in part to the plan's concentration in illiquid assets. If investment returns lag plan targets or if other plan assumptions are not met, the city will need to contribute even more (absent benefit changes) to keep the plans solvent. In addition, growth in DPFP members as required by Proposition U, as well as possible increases to starting salaries, will increase the liability and require the city to contribute more to meet the 30 year amortization.

Voters on Nov. 5 approved Proposition A, which removed the cap on city contributions to the ERF plan, increased contributions from one tier of employees, and allows the city to make lump-sum payments to the fund. As mentioned, the city will begin to increase its ERF contributions this year and will ramp-up to ADC funding over the next four years. The city's funding soundness restoration plan is due to the Texas Pension Review Board (PRB) by Sept. 1, 2025.

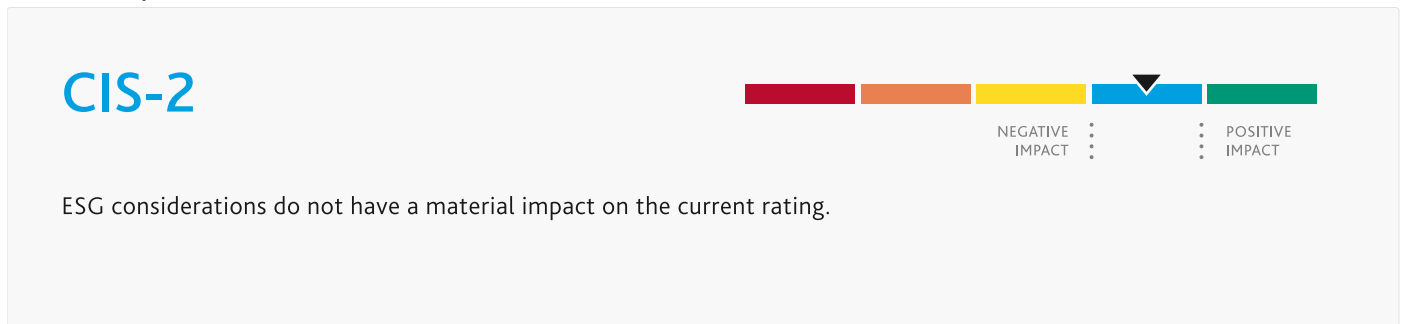
Since fiscal 2018, the city has been funding the DPFP per requirements set forth in House Bill 3158. The final year of the set funding requirement will end Dec. 1, 2024. The funding soundness restoration plan was due to the PRB by Nov. 1, but this has been delayed given the litigation with the DPFP Board. In addition to the annual increases to contributions, the city has said it is considering four options as lump-sum payments for DPFP: sell city assets, issue pension obligation bonds, shift 0.25% of sales tax rate from DART, and increase the property tax rate above what is allowed under Senate Bill 2 (2019). It is unclear at this time which, if any, the city would implement; and some of the options may require voter, state, and/or DART Board approval. The issuance of pension obligation bonds would increase the city's exposure to potential investment losses (as indicated by the pension asset shock indicator⁴), which would likely weigh on the credit profile.

ESG considerations

Dallas (City of) TX's ESG credit impact score is CIS-2

Exhibit 8

ESG credit impact score

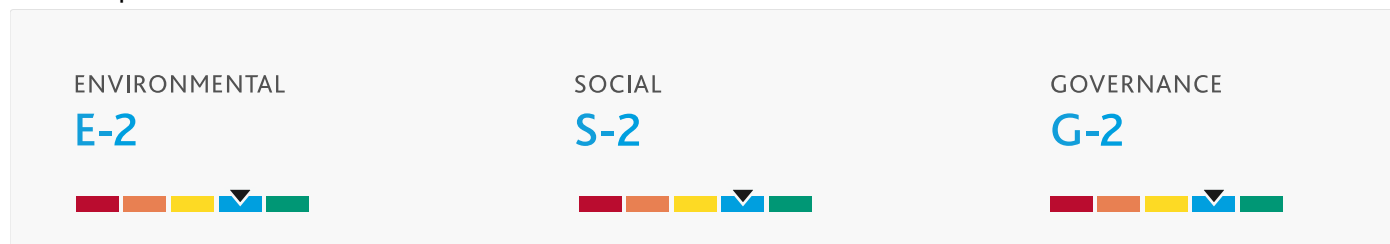


Source: Moody's Ratings

Dallas' **CIS-2** indicates that ESG considerations do not have a material impact on the credit rating. The city has low exposure to environmental and social risks and good governance.

Exhibit 9

ESG issuer profile scores



Source: Moody's Ratings

Environmental

Dallas' environmental issuer profile score is **E-2**, reflecting relatively low exposure to environmental risks across all categories, including physical climate risk, carbon transition, natural resources management, and waste and pollution. Of the physical climate risks Moody's ESG Solutions evaluates, Dallas has medium exposure to heat stress, water stress and extreme rainfall. The city maintains robust water, wastewater and stormwater capital improvement, water sourcing and conservation plans to manage these risks, which are expected to materialize over the long term.

Social

Dallas' social issuer profile score is **S-2**. Demographic trends have been strong, though income levels are below the US median, similar to other large urban centers. Health and safety and access to basic services are positive in the area, and exposure to labor and income, education and housing risks are low.

Governance

Dallas' governance issuer profile score is **G-2**. The city has solid institutional structure and the city's strong commitment to transparency and disclosure reflected in monthly financial reporting and timely filing of audited financial statements and other disclosures. Budget management is sound as evidenced in outcomes that are favorable compared to expectations. The city also maintains long-term financial forecasting and capital planning, and has demonstrated policy credibility and effectiveness. Although management of the city's two defined benefit pension plans has led to very high unfunded liabilities, the city has the legal ability to enact additional reform to prevent further leveraging and rising fixed costs.

ESG Issuer Profile Scores and Credit Impact Scores for the rated entity/transaction are available on Moody's.com. In order to view the latest scores, please click [here](#) to go to the landing page for the entity/transaction on MDC and view the ESG Scores section.

Rating methodology and scorecard factors

The US Cities and Counties Methodology includes a scorecard, which summarizes the rating factors generally most important to city and county credit profiles. Because the scorecard is a summary, and may not include every consideration in the credit analysis for a specific issuer, a scorecard-indicated outcome may or may not map closely to the actual rating assigned.

Exhibit 10

Dallas (City of) TX

	Measure	Weight	Score
Economy			
Resident income ratio	82.2%	10.0%	A
Full value per capita	152,442	10.0%	Aa
Economic growth metric	1.8%	10.0%	Aaa
Financial Performance			
Available fund balance ratio	35.9%	20.0%	Aaa
Liquidity ratio	52.2%	10.0%	Aaa
Institutional Framework			
Institutional Framework	Aa	10.0%	Aa
Leverage			
Long-term liabilities ratio	391.5%	20.0%	Baa
Fixed-costs ratio	25.0%	10.0%	Baa
Notching factors			
Potential for significant change in leverage	-0.5		
Scorecard-Indicated Outcome			A1
Assigned Rating			A1

The Economic Growth metric cited above compares the five-year CAGR of real GDP for Dallas-Fort Worth-Arlington, TX Metropolitan Statistical Area Metropolitan Statistical Area to the five-year CAGR of real GDP for the US.

Sources: US Census Bureau, Dallas (City of) TX's financial statements and Moody's Ratings

Appendix

Exhibit 11

Key Indicators Glossary

	Definition	Typical Source*
Economy		
Resident income ratio	Median Household Income (MHI) for the city or county, adjusted for Regional Price Parity (RPP), as a % of the US MHI	MHI: US Census Bureau - American Community Survey 5-Year Estimates RPP: US Bureau of Economic Analysis
Full value	Estimated market value of taxable property in the city or county	State repositories; audited financial statements; continuing disclosures
Population	Population of the city or county	US Census Bureau - American Community Survey 5-Year Estimates
Full value per capita	Full value / population	
Economic growth metric	Five year CAGR of real GDP for Metropolitan Statistical Area or county minus the five-year CAGR of real GDP for the US	Real GDP: US Bureau of Economic Analysis
Financial performance		
Revenue	Sum of revenue from total governmental funds, operating and non-operating revenue from total business-type activities, and non-operating revenue from internal services funds, excluding transfers and one-time revenue, e.g., bond proceeds or capital contributions	Audited financial statements
Available fund balance	Sum of all fund balances that are classified as unassigned, assigned or committed in the total governmental funds, plus unrestricted current assets minus current liabilities from the city's or county's business-type activities and internal services funds	Audited financial statements
Net unrestricted cash	Sum of unrestricted cash in governmental activities, business type activities and internal services fund, net of short-term debt	Audited financial statements
Available fund balance ratio	Available fund balance (including net current assets from business-type activities and internal services funds) / Revenue	
Liquidity ratio	Net unrestricted cash / Revenue	
Leverage		
Debt	Outstanding long-term bonds and all other forms of long-term debt across the governmental and business-type activities, including debt of another entity for which it has provided a guarantee disclosed in its financial statements	Audited financial statements; official statements
Adjusted net pension liabilities (ANPL)	Total primary government's pension liabilities adjusted by Moody's to standardize the discount rate used to compute the present value of accrued benefits	Audited financial statements; Moody's Ratings
Adjusted net OPEB liabilities (ANOL)	Total primary government's net other post-employment benefit (OPEB) liabilities adjusted by Moody's to standardize the discount rate used to compute the present value of accrued benefits	Audited financial statements; Moody's Ratings
Other long-term liabilities (OLTL)	Miscellaneous long-term liabilities reported under the governmental and business-type activities entries	Audited financial statements
Long-term liabilities ratio	Debt + ANPL + ANOL + OLTL / Revenue	
Fixed costs		
Implied debt service	Annual cost to amortize city or county's long-term debt over 20 years with level payments	Audited financial statements; official statements; Moody's Ratings
Pension tread water contribution	Pension contribution necessary to prevent reported unfunded pension liabilities from growing, year over year, in nominal dollars, if all actuarial assumptions are met	Audited financial statements; Moody's Ratings
OPEB contribution	City or county's actual contribution in a given period	Audited financial statements
Implied cost of OLTL	Annual cost to amortize city or county's other long-term liabilities over 20 years with level payments	Audited financial statements; Moody's Ratings
Fixed-costs ratio	Implied debt service + Pension tread water + OPEB contributions + Implied cost of OLTL / Revenue	

*Note: If typical data source is not available then alternative sources or proxy data may be considered. For more detailed definitions of the metrics listed above please refer to the [US Cities and Counties Methodology](#).

Source: Moody's Ratings

Endnotes

- 1 The city's plan and the DFPF Board's plan differ in terms of the timing to achieving ADC funding - the city's plan calls for a five year ramp up and the DFPF Board's plan calls for a three year ramp up – and COLA benefits.
- 2 The tread water level is the contribution necessary to prevent reported unfunded pension liabilities from growing, year over year, in nominal dollars, if all actuarial assumptions are met.
- 3 Non-investment cash flow is defined as contributions into a pension system, less benefits and expenses out.
- 4 The PASI is expressed as a probability. It represents the likelihood that a city's or county's pension system(s) will experience investment losses in a given year that amount to 25% or more of the city or county's revenue.

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