



June 8, 2022

City # 01330

City of Waco
P O Box 2570
Waco, TX 76702-2570

Attention: Finance Director

Subject: 2023 City Contribution Rate

Your city's 2023 monthly contribution rates are shown below. These rates were determined by the December 31, 2021 actuarial valuation.

Normal Cost	7.73 %
Prior Service	<u>5.94</u>
Full Retirement	13.67 %
Supplemental Death Benefit	<u>0.00</u>
Combined Contribution	13.67 %

Detailed information on your city's TMRS plan is contained in the attached report. The Full Retirement Rate shown above represents the Actuarially Determined Employer Contribution (ADEC) for 2023.

If your city provides Supplemental Death Benefit (SDB) coverage, changes have been made in the calculation of your SDB Rate for 2023. Please see the *Supplemental Death Benefit Rate Increase* section for more information.

If you have questions about your city's contribution rate or would like to evaluate potential changes to your TMRS plan, please contact me at 512-225-3760 or lhardy@tmrs.com.

Sincerely,

A handwritten signature in blue ink that reads "Leslee S. Hardy". The signature is written in a cursive style.

Leslee S. Hardy, ASA, EA, FCA, MAAA
Director of Actuarial Services

Table of Contents

Supplemental Death Benefit Rate Increase	A summary of the changes in calculating the 2023 Supplemental Death Benefit Rate, if applicable, for your city.
Rate Stabilization Techniques	A summary of the techniques currently available to assist cities in stabilizing their contribution rates.
Executive Summary	A comparison of the highlights of the December 31, 2021 and December 31, 2020 actuarial valuations for your city. Included are membership counts, asset information, actuarial information, and contribution rate requirements.
Summary of Benefit Provisions	A summary of plan provisions in effect as of April 1, 2022.
Calculation of Contribution Requirements	Details the calculation of the Full Retirement Rate (ADEC) and the Supplemental Death Benefit Rate, if applicable, for your city.
UAAL/OAAL Amortization Bases and Payments	Information on the Unfunded Actuarial Accrued Liability (UAAL)/Overfunded Actuarial Accrued Liability (OAAL) amortization bases and payments for your city.
Reconciliation of Full Retirement Rate from Prior Actuarial Valuation Report	A detailed reconciliation of changes in your city’s Full Retirement Rate (ADEC) since the prior valuation.
Historical and Projected Accumulation of the BAF Balance	This schedule provides your city with historical cash flows, interest credits and the year-end balance of its Benefit Accumulation Fund (BAF), as well as projected values for calendar years 2022 and 2023.
Risks Associated with Measuring the Actuarial Accrued Liability and Actuarially Determined Employer Contribution	An explanation of risk measurements associated with your city’s TMRS plan.

Supplemental Death Benefit Rate Increase

The Supplemental Death Benefit (SDB) program is voluntary and operates like a group-term life insurance plan for cities that provide SDB coverage. Supplemental death benefits are not advance-funded but are financed on a pay-as-you-go basis. The SDB Rate for each city is equal to the expected benefit payments during the upcoming year (one-year term cost) expressed as a percentage of payroll and is calculated separately for active Members and retirees.

Due to the higher mortality rates associated with the global pandemic, SDB claims rose significantly in 2021. Consequently, the TMRS Board adopted changes to the methodology used for calculating 2023 SDB Rates. Specifically, 2023 SDB Rates were calculated by (i) removing the assumption that grants a small credit to active rates and (ii) adding a margin for adverse experience of 100% for active coverage and 10% for retiree coverage.

It is important to note that the increase in your SDB Rate only applies to 2023. Future SDB Rates will be determined based on the most recent mortality experience available at the time.

Rate Stabilization Techniques

Contribution rate stabilization for cities is a strategic goal of the TMRS Board of Trustees. Since 2007, the Board has approved many actuarial changes to minimize short-term volatility in contribution rates while maximizing long-term System sustainability. Under the current funding policy in which rates are actuarially determined each year, contribution rate stabilization is fully optimized at the System level; therefore, any further rate stabilization must be achieved at the city level.

Cities with an Unfunded Liability - For cities with an Unfunded Actuarial Accrued Liability (UAAL), the most effective way for a city to stabilize its TMRS contribution rate is to determine an affordable rate that exceeds the required rate and continue to pay that same rate even when the calculated rate decreases in subsequent valuations. These additional contributions at a predetermined fixed rate accomplish the following:

- Provide a stable annual contribution rate for budgeting purposes;
- Directly reduce the UAAL dollar for dollar;
- Pay off the UAAL quicker;
- Produce cost savings over the long run; and
- Provide a cushion for future adverse plan experience.

Cities with a Surplus - For cities with an Overfunded Actuarial Accrued Liability (surplus), the contribution rate is determined by decreasing the Normal Cost Rate (the cost of the current year accruals for active Members) by a Prior Service Rate calculated to keep the funded ratio at approximately the same level. The result is a required contribution rate less than the Normal Cost. It is important to note that adverse plan experience could still result in the funded ratio dropping below 100%. TMRS encourages cities in a surplus position to consider paying the full Normal Cost Rate (or as much as possible toward the full Normal Cost Rate) until the funded ratio is at least 110%. Doing so will dampen contribution rate volatility and increase the likelihood of maintaining a funded ratio greater than 100%.

How to make Additional Contributions - No formal action needs to be taken by a city to contribute at a higher level than the required monthly minimum. Additional monthly contributions may be made during the normal payroll reporting process by simply providing the increased rate. Because additional contributions are entirely voluntary, a city may revert to paying the minimum required rate at any time during the year if financial circumstances change.

If your city would like to explore the impact of any of these rate stabilization techniques on your TMRS plan, please contact Actuarial Services at ActuarialServices@tmrs.com.

Executive Summary

Valuation as of	12/31/2021	12/31/2020
Membership as of the Valuation Date		
• Number of		
- Active Members	1,477	1,433
- Retirees and beneficiaries	1,154	1,132
- Inactive Members	<u>718</u>	<u>682</u>
- Total	3,349	3,247
• Prior year's payroll provided by TMRS	\$ 95,831,384	\$ 91,738,327
• Valuation Payroll	95,878,869	92,088,564
Benefit Accumulation Fund (BAF) Assets		
• Market BAF Balance	\$ 549,308,321	\$ 498,025,975
• BAF crediting rate	12.26 %	7.45 %
• Interest credited on beginning BAF balance	\$ 61,038,366	\$ 35,227,745
• Employer contributions ^	14,328,308	13,768,521
• Member contributions	6,709,917	6,432,786
• Benefit and refund payments ^	30,794,244	30,174,890
Actuarial Value of Assets (AVA)		
• Market BAF Balance	\$ 549,308,321	\$ 498,025,975
• Actuarial Value of Assets (AVA)	515,783,076	488,122,092
• AVA as a Percentage of BAF	93.9 %	98.0 %
• Return on AVA	7.67	7.06
Actuarial Information		
• Actuarial Accrued Liability (AAL)	\$ 571,550,660	\$ 550,885,510
• Actuarial Value of Assets (AVA)	515,783,076	488,122,092
• Unfunded Actuarial Accrued Liability (UAAL)	55,767,584	62,763,418
• UAAL as % of pay	58.2 %	68.4 %
• Funded Ratio (AVA/AAL)	90.2	88.6
• Employer Normal Cost Rate	7.73	7.72
• Prior Service Rate	5.94	6.62
Contribution Rates		
• Member	2023 7.00 %	2022 7.00 %
• Full Retirement (ADEC)	13.67	14.34
• Supplemental Death Benefit	0.00	0.00
Combined Employer Contribution Estimates		
• Projected payroll	2023 \$ 98,419,659	2022 \$ 94,528,911
• Combined Contribution Rate	13.67 %	14.34 %
• Estimated employer contribution	\$ 13,453,967	\$ 13,555,446

Note: Results from prior year reflect the plan provisions shown on the next page.

^ Excludes contributions to/benefit payments from the IRC §415(m) Full Benefit Arrangement fund.

Summary of Benefit Provisions

Plan provisions are adopted by your city's governing body from the options available in the TMRS Act. Your city's plan provisions in effect as of April 1, 2022 were as follows:

Member Contribution Rate	7%
Matching Ratio (City to Member)	2 : 1
Years Required for Vesting	5
Retirement Eligibility (Age/Service)	60/5, 0/20
Updated Service Credit	100% Repeating Transfers
Retiree Cost of Living Adjustment	0% of CPI
Supplemental Death Benefit to Active Members	No
Supplemental Death Benefit to Retirees	No

If you have any questions about your city's benefit provisions or would like to discuss plan changes, please contact the City Services Department at cityservices@tmrs.com or call Anthony Mills at 512-225-3764.

Calculation of Contribution Requirements

	From Valuation Report as of	
	<u>December 31, 2021</u>	<u>December 31, 2020</u>
1. Prior year's payroll reported to TMRS	\$ 95,831,384	\$ 91,738,327
2. Valuation Payroll	95,878,869	92,088,564
3. Employer Normal Cost Rate	7.73 %	7.72 %
4. Actuarial Accrued Liability		
a. Active Members	\$ 266,217,464	\$ 257,957,581
b. Inactive Members	31,940,276	28,282,395
c. Annuitants	<u>273,392,920</u>	<u>264,645,534</u>
d. Total Actuarial Accrued Liability	\$ 571,550,660	\$ 550,885,510
5. Actuarial Value of Assets	<u>515,783,076</u>	<u>488,122,092</u>
6. Unfunded Actuarial Accrued Liability (4d - 5)	\$ 55,767,584	\$ 62,763,418
7. Funded Ratio (5 / 4d)	90.2 %	88.6 %
8. Equivalent single amortization period*	12.6 Years	13.4 Years
9. Assumed payroll growth rate	2.65 %	2.65 %
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Contribution Rates:	2023	2022
<hr/>		
10. Full Retirement		
a. Normal Cost	7.73 %	7.72 %
b. Prior Service	<u>5.94</u>	<u>6.62</u>
c. Full Retirement	13.67 %	14.34 %
11. Supplemental Death Benefit	0.00	0.00
12. Combined Contribution (10c+11)	13.67 %	14.34 %

* New losses are laddered over a 20-year period.

UAAL/OAAL Amortization Bases and Payments

Year Established	Description	Years Remaining	Remaining Base	Payment
2010	2010 Ad Hoc Benefit Change	4	\$ 517,680	\$ 147,064
2011	2011 Ad Hoc Benefit Change	5	157,196	36,852
2012	2012 Ad Hoc Benefit Change	6	249,173	50,197
2013	2013 Valuation (Fresh Start)	11	49,662,179	5,629,356
2014	2014 Experience	11	(1,238,229)	(140,357)
2015	2015 Experience	11	(1,385,892)	(157,095)
2015	2015 Actuarial Changes	24	7,531,882	490,408
2016	2016 Experience	20	2,288,580	167,190
2017	2017 Experience	11	(1,902,076)	(215,606)
2018	2018 Experience	22	4,699,393	322,847
2019	2019 Experience	23	491,424	32,838
2019	2019 Actuarial Changes	23	1,429,616	95,530
2020	2020 Experience	11	(1,803,826)	(204,469)
2021	2021 Experience	11	<u>(4,929,516)</u>	<u>(558,776)</u>
Total			55,767,584	5,695,979

TMRS amortizes the UAAL/OAAL through the process of laddering each base created during the valuation process. The city's UAAL/OAAL equals the total of the remaining amortization bases. The city's Prior Service Rate equals the total amortization payments divided by the Valuation Payroll (Item 2 of the prior page).

Reconciliation of Full Retirement Rate from Prior Actuarial Valuation Report

Actuarial valuations are based on long-term assumptions, and results in a specific year can, and almost certainly will, differ as actual plan experience deviates from the assumptions. The following table provides a detailed breakdown of changes in your city’s Full Retirement Rate (ADEC) from 2022 to 2023. A brief description of such changes follows the table.

Change in Full Retirement Rate	
Full Retirement Rate from 12/31/2020 Valuation (2022 Rate)	14.34 %
Benefit Changes	0.00 %
Return on Actuarial Value of Assets	(0.53)
Contributions/Fully Amortized Prior Bases	(0.14)
Payroll Growth	(0.09)
Normal Cost	0.01
Liability Growth	0.08
Total Change	(0.67) %
Full Retirement Rate from 12/31/2021 Valuation (2023 Rate)	13.67 %

Benefit Changes - Shows the increase or decrease in the contribution rate associated with any plan changes.

Return on Actuarial Value of Assets (AVA) - Shows the change in the contribution rate associated with the return on the AVA being different than the assumed 6.75%. For the year ending December 31, 2021, the return on an AVA basis was 7.67%. The impact may show as 0.00% due to rounding.

Contributions/Fully Amortized Prior Bases - Shows the total increase or decrease in the contribution rate associated with contributions different than the Full Retirement Rate, the contribution lag (see below), and the impact of the amortization bases which become fully amortized as of this valuation since payments for those bases are no longer part of the Prior Service Rate calculation. Contributions different from the Full Retirement Rate may include phase-in contributions, contributions in excess of the Full Retirement Rate, and/or lump sum contributions. The effect of the contribution lag refers to the time delay between the actuarial valuation date and the date the contribution rate becomes effective (i.e., the Actuarial Valuation as of December 31, 2021 sets the rate effective for 2023). This impact is expected to become immaterial once a city is contributing the Full Retirement Rate and the Full Retirement Rate stabilizes.

Payroll Growth - Shows the increase or decrease in the contribution rate associated with higher or lower than expected growth in the city’s overall payroll. The amortization payments were calculated assuming payroll grows at 2.65% per year. Overall payroll growth greater (less) than 2.65% will typically cause a decrease (increase) in the Prior Service Rate.

Normal Cost - Shows the increase or decrease in the contribution rate associated with changes in the average Normal Cost Rate for the city's active Members. The Normal Cost Rate for a Member is the contribution rate which, if applied to a Member's compensation throughout their period of anticipated covered service with the city, would be sufficient to meet all benefits payable on their behalf. The salary-weighted average of the individual rates is the city's total Normal Cost Rate. The employer Normal Cost Rate is the pay-weighted average of the individual Normal Cost Rates less the Member Contribution Rate and will generally increase (decrease) as the average entry age of the group increases (decreases).

Liability Growth - Shows the increase or decrease in the contribution rate associated with larger or lower than expected growth in the city's overall plan liabilities. The most significant sources for variance will be turnover and individual salary increases differing from the assumptions.

Historical and Projected Accumulation of the BAF Balance

Year Ending December 31 (1)	Payroll for the Year (2)	Effective Retirement Contribution Rate ^a (3)	Employer Contributions for the Year ^c (4)	Member Contributions for the Year (5)	Benefit Payments ^c (6)	External Cash Flow for the Year (7)	Interest Credit (8)	BAF Balance ^b (9)
		(4) / (2)				(4) + (5) + (6)		
2019	\$ 87,115,165	15.01%	\$ 13,077,446	\$ 6,105,921	\$ (27,278,270)	\$ (8,094,903)	\$ 64,246,517	\$ 472,771,814
2020	91,738,327	15.01%	13,768,521	6,432,786	(30,174,890)	(9,973,583)	35,227,745	498,025,975
2021	95,831,384	14.95%	14,328,308	6,709,917	(30,794,244)	(9,756,019)	61,038,366	549,308,321
2022	95,878,869	14.34%	13,749,030	6,711,521	(34,326,826)	(13,866,275)	37,078,312	572,520,358
2023	98,419,659	13.67%	13,453,967	6,889,376	(34,297,023)	(13,953,680)	38,645,124	597,211,802

a. Effective retirement contribution rate is the employer contribution received divided by the payroll paid.

b. BAF Balance may not sum due to rounding.

c. Excludes contributions to/benefit payments from the IRC §415(m) Full Benefit Arrangement fund.

Risks Associated with Measuring the Actuarial Accrued Liability and Actuarially Determined Employer Contribution

Risk measures help with illustrating the potential volatility in the Actuarial Accrued Liability and the Actuarially Determined Employer Contribution that results from the differences between actual plan experience and the actuarial assumptions. Risks facing a pension plan evolve over time. A young plan with virtually no investments and paying few benefits may experience little investment risk. An older plan with a large number of Members in payment status and a significant trust may be much more exposed to investment risk. Generally accepted plan maturity measures include the following:

Ratio of Market Value of Assets to Payroll	5.7
Ratio of Actuarial Accrued Liability to Payroll	6.0
Ratio of Active Members to Retirees and Beneficiaries	1.3
Net Cash Flow as a Percentage of Market Value of Assets	(1.8) %
Duration of Liabilities	15.4
Change in Contribution Rate with 10% Decline in Assets (Smoothed)	0.39 %
Change in Contribution Rate with 10% Decline in Assets (Unsmoothed)	3.93 %

Ratio of Market Value of Assets to Payroll - The relationship between assets and payroll is a useful indicator of the potential volatility of contributions. For example, if the Market Value of Assets is 4 times the payroll, a return on assets 5% different than assumed would equal 20% of payroll. A higher (lower) or increasing (decreasing) level of this maturity measure generally indicates a higher (lower) or increasing (decreasing) volatility in city contributions as a percentage of payroll.

Ratio of Actuarial Accrued Liability to Payroll - The ratio of liability to payroll may also be used as a measure of sensitivity of the liability itself. For example, if the Actuarial Accrued Liability is 5 times the payroll, a change in liability 2% different than assumed would equal 10% of payroll. A higher (lower) or increasing (decreasing) level of this maturity measure generally indicates a higher (lower) or increasing (decreasing) volatility in liability (and also city contributions) as a percentage of payroll.

The relationship between the Actuarial Accrued Liability and payroll is a useful indicator of the potential longer term asset-related volatility once the current UAAL is fully amortized. A funding policy that targets a funded ratio of 100% is expected to result in the ratio of assets to payroll and the ratio of liability to payroll converging over time.

Ratio of Active Members to Retirees and Beneficiaries - A young plan with many active Members and few retirees will have a high ratio of active Members to retirees. A mature open plan may have close to the same number of active Members to retirees resulting in a ratio near 1. A very mature or closed plan may have significantly more retirees than active Members resulting in a ratio below 1.

Net Cash Flow as a Percentage of Market Value of Assets - A positive net cash flow means contributions exceed benefits and expenses. A negative cash flow means existing funds are being used to make payments. A certain amount of negative net cash flow is generally expected to occur when benefits are prefunded through a qualified trust. Large negative net cash flows as a percent of assets may indicate a very mature plan or a need for additional contributions.

Duration of Liabilities - The duration of the Present Value of Future Benefits (PVFB) may be used to approximate the sensitivity to a 1% change in the assumed rate of return. For example, duration of 10 indicates that the PVFB would increase approximately 10% if the assumed rate of return were lowered 1%.

Change in Contribution Rate with 10% Decline in Assets (Smoothed) - This shows the rate impact in one year if the Actuarial Value of Assets (AVA) was 10% lower than in the current actuarial valuation with the asset loss smoothed over a 10-year period as is done in the system-wide calculation of the AVA.

Change in Contribution Rate with 10% Decline in Assets (Unsmoothed): This shows the rate impact if the AVA was 10% lower than in the current actuarial valuation with the full asset loss recognized in the current valuation.