



June 4, 2020

City # 00301

City Official
City of Corinth
3300 Corinth Parkway
Corinth, TX 76208

Subject: 2021 Municipal Contribution Rate

Dear City Official:

Presented below are your city’s contribution requirements to the Texas Municipal Retirement System (TMRS) for Plan Year 2021 (Calendar Year 2021, PY2021) as determined by the December 31, 2019 actuarial valuation. The actuarially determined contribution rates for retirement benefits and Supplemental Death Benefits (SDB), if any, are based on your city’s plan provisions in effect as of April 1, 2020 and the actuarial assumptions and methods adopted by the TMRS Board. Effective January 1, 2021, your city’s monthly contribution rates will be:

Normal Cost	11.52%
Prior Service	<u>3.93%</u>
Total Retirement Rate	15.45%
Supplemental Death Benefit	<u>0.15%</u>
Total Combined Contribution	15.60%

Full information on your contribution rate, including an explanation of changes and available rate stabilization techniques, is contained in the attached report. The Total Retirement Rate shown above represents the Actuarially Determined Employer Contribution (ADEC) for PY2021 based on current TMRS funding policy.

The actuarial liabilities and contribution rates determined as part of the December 31, 2019 actuarial valuation reflect a change in actuarial assumptions based on the results of the 2019 experience study for the period ending December 31, 2018. Please see the “Actuarial Changes” section for more detailed information. Full information on your contribution rate, including an explanation of changes, is contained in the attached report.

IMPORTANT NOTE: The pension disclosure and financial statement information necessary to assist your city with the financial reporting requirements of the Governmental Accounting Standards Board (GASB) will be provided in a separate document available later this summer.

If you have questions about your rate or if you wish to evaluate potential changes in your TMRS plan, contact TMRS at 800-924-8677.

Sincerely,

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

Table of Contents

Actuarial Changes	A summary of the changes in actuarial assumptions and methods adopted by the Board and effective with the December 31, 2019 actuarial valuation based on the results of the 2019 experience study.
Rate Stabilization Techniques	A summary of the techniques currently available to assist cities in stabilizing their contribution rate including managing a funding surplus.
Executive Summary	A comparison of the highlights of the December 31, 2019 and December 31, 2018 actuarial valuations for your city. Included are membership counts, asset information, actuarial information, and contribution rate requirements.
Calculation of Contribution Requirements	Details the calculation of the Full Retirement Rate (TMRS Plan Year - ADEC) and the Supplemental Death Rate, if applicable, for your city. Comparisons before and after the actuarial changes and to the 2018 actuarial valuation results are included.
Summary of Benefit Provisions	A summary of plan provisions in effect as of April 1, 2020.
Amortization Bases and Payments	Information on the amortization bases and payments for your city.
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/plan years 2020 and 2021.
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.
Risks Associated with Measuring the Accrued Liability and Actuarially Determined Contribution	An explanation of risk measurements and how a 10% decline in assets will impact your city's Full Retirement Rate (ADEC).

Actuarial Changes

As part of their continued effort to ensure that TMRS is well funded and that members' benefits remain secure and sustainable over generations, the TMRS Board of Trustees adopted the actuarial changes summarized below at its October 2019 Board meeting, based on the results of the 2019 experience study and the recommendations of the System's consulting actuary, Gabriel Roeder Smith & Company (GRS). The combined impact of the following actuarial changes is shown in the "Reconciliation of Full Retirement Rate from Prior Actuarial Valuation Report" section of this letter.

Actuarial Assumption Changes

The TMRS Act requires that at least once every 5 years, the System's consulting actuary perform an actuarial experience study and make recommendations to the Board based on the results of that study. Current Board policy is to conduct an actuarial experience study every four years. Accordingly, during 2019, TMRS' consulting actuary, GRS, conducted an experience study for the period ending December 31, 2018. A single set of assumptions is not expected to be suitable forever. As the actual experience of a plan unfolds or the future expectations change, the assumptions should be reviewed and adjusted accordingly. The actuarial assumptions used in the annual actuarial valuations and reviewed as part of the experience study are generally grouped into the following two major categories:

1. Economic assumptions – investment return, salary increases, overall payroll growth, inflation
2. Demographic assumptions – rates of termination, forfeiture, service retirement, disability retirement, pre-retirement mortality, post-retirement mortality

The Board adopted several changes in actuarial assumptions including, but not limited to:

- Slightly modified the step rate portion of the individual salary scale assumption based on recent trends and experience while keeping the ultimate salary increase at 3.5%.
- Introduced a load on the Updated Service Credit calculation equal to 0.1% per year into the future to reflect the asymmetric accrual pattern associated with this benefit formula.
- Decreased the current maximum payroll growth rate assumption from 3.00% to 2.75% to recognize some revenue pressure from a maturing population and changes in the property tax provisions while continuing to include a further reduction for some cities based on patterns of population decline.
- Updated the base mortality tables for healthy retirees to the client specific 2019 Municipal Retirees of Texas mortality tables using the actual mortality experience in TMRS data through December 31, 2018. Continued using a fully generational approach in projecting future mortality rates, but updated the projection scale to the ultimate rates of the MP Scales (Scale UMP).
- Updated the pre-retirement mortality tables to the PUB (10) mortality tables.
- Slightly increased the rates of termination and made small adjustments to the classification and individual city multipliers.
- Simplified and updated the service retirement rate tables.
- Slightly decreased the forfeiture rates (withdrawal of member deposits) for vested members not eligible for retirement.

Asset Valuation (Smoothing) Method Modification

In determining the Actuarial Value of Assets (AVA), decreased the “soft” corridor limit around the Market Value of Assets (MVA) from 15% to 12%. There were no other changes to the current 10-year asset smoothing method.

Amortization Policy Modifications

In TMRS, for underfunded plans, amortization of the Unfunded Actuarial Accrued Liability (UAAL) is a level percentage of payroll over a closed period using the process of “laddering” which separately tracks different amortization components or bases. For all new losses occurring after December 31, 2019 and benefit enhancements on or after January 1, 2021, the maximum amortization period is decreased from 25 years to 20 years for all cities. All prior amortization bases will continue to be amortized on their original schedule. This change will have no impact on the December 31, 2019 actuarial valuation, but will affect future valuations.

Decreased the level dollar amortization period for ad hoc benefit enhancements effective on or after January 1, 2021 from 15 years to 12 years.

Beginning with the December 31, 2019 valuation, once a City reaches an “overfunded” status, all prior amortization bases (ad hoc and non-ad hoc) are erased and an amount of the surplus is credited against the contribution rate to keep the funded ratio constant at the current level. Previously, the contribution rate credit was based on a 25-year open amortization policy.

Supplemental Death Benefit Fund Premiums

The premium for retirees will now be based on the full \$7,500 benefit versus the \$2,500 benefit previously used. There will now be a credit against premiums for active employees equal to 2% of the fund balance as of the valuation date expressed as a percentage of covered payroll for participating cities.

Rate Stabilization Techniques

Contribution rate stabilization 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. Even so, some cities continue to experience significant changes in their annual contribution rates. 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.

The most effective way for a city to stabilize its TMRS contribution rate is to determine, during its budget process, an affordable contribution rate that exceeds the required, calculated contribution rate and continue to pay that same rate, even when the calculated contribution rate goes down. This is particularly true for cities with an Unfunded Actuarial Accrued Liability (UAAL). These additional monthly contributions at a predetermined fixed rate accomplish the following:

- provides a stable annual contribution rate for budgeting purposes;
- directly reduces the UAAL;
- accelerates the years needed to attain full funding (i.e. pays off the UAAL quicker);
- produces cost savings over the long run; and
- provides a contribution rate cushion for future adverse plan experience.

A city can also make one or more lump sum contributions during the year which has a similar impact on the plan's funding status, but is less effective from a rate stabilization perspective.

For cities with an Overfunded Actuarial Accrued Liability (OAAL or surplus), the calculated contribution rate is determined by decreasing the normal cost rate (the cost of the current year accruals for active employees) by a rate calculated to keep the funded ratio constant at the current level. In most cases, the result is a required contribution less than the normal cost. It is important to note that there is still a chance that adverse experience could result in the funded ratio dropping below 100%. In order to dampen contribution rate volatility and to increase the likelihood of maintaining a funded ratio greater than 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%.

As noted above, additional contributions are entirely voluntary. A city can always revert to paying only the required calculated rate each month if financial circumstances change during the year. There is no formal action that 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 filling out line 2. A. of Form TMRS 3 with the increased employer contribution rate. Lump sum contributions should be reported separately from the regular payroll reporting process and submitted with Form TMRS 3ADD.

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

Executive Summary

Valuation as of TMRS Plan Year (PY) Ending	12/31/2019	12/31/2018
Membership as of the Valuation Date		
• Number of		
- Active members	163	144
- Retirees and beneficiaries	86	84
- Inactive members	<u>139</u>	<u>128</u>
- Total	388	356
• Prior year's payroll provided by TMRS	\$ 10,771,734	\$ 9,627,913
• Valuation Payroll	\$ 11,022,201	\$ 9,898,654
Benefit Accumulation Fund (BAF) Assets		
• Market BAF Balance	\$ 39,534,344	\$ 32,941,227
• BAF crediting rate for PY	15.42%	(3.08%)
• Interest credited on beginning BAF balance	\$ 5,079,828	\$ (1,014,400)
• Municipal contributions	1,708,397	1,521,211
• Member contributions during year	754,021	673,954
• Benefit and refund payments	949,129	1,207,565
Actuarial Value of Assets (AVA)		
• Market BAF Balance	\$ 39,534,344	\$ 32,941,227
• Actuarial Value of Assets (AVA)	38,905,736	34,990,192
• AVA as a Percentage of BAF	98.4%	106.2%
• Return on AVA	6.87%	6.27%
Actuarial Information		
• Actuarial accrued liability (AAL)	\$ 45,534,339	\$ 41,421,778
• Actuarial value of assets (AVA)	38,905,736	34,990,192
• Unfunded actuarial accrued liability (UAAL)	6,628,603	6,431,586
• UAAL as % of pay	61.5%	66.8%
• Funded ratio (AVA/AAL)	85.4%	84.5%
• Employer normal cost	11.52%	11.33%
• Prior Service Rate	3.93%	4.01%
Contribution Rates for TMRS Plan Year (PY)		
	2021	2020
• Member	7.00%	7.00%
• Full retirement rate (ADEC)	15.45%	15.34%
• Supplemental Death rate	0.15%	0.13%
Total Employer Contribution Estimates for PY		
	2021	2020
• Projected payroll	\$ 11,314,289	\$ 10,195,614
• Combined contribution rate	15.60%	15.47%
• Estimated employer contribution	\$ 1,765,029	\$ 1,577,261

Note: TMRS Plan Year coincides with Calendar Year

Results from prior year reflect the plan provisions used in the 12/31/2019 valuation report.

Calculation of Contribution Requirements

From Valuation Report as of

	<u>December 31, 2019</u>		<u>December 31, 2018</u>	
	New Assumptions	Old Assumptions		
1. Prior year's payroll reported to TMRS	\$ 10,771,734	\$ 10,771,734	\$ 9,627,913	
2. Valuation payroll	11,022,201	11,022,201	9,898,654	
3. Employer normal cost rate	11.52%	11.57%	11.33%	
4. Actuarial liabilities				
a. Active members	\$ 24,644,095	\$ 24,404,284	\$ 22,388,083	
b. Inactive members	7,828,687	7,946,212	6,642,531	
c. Annuitants	<u>13,061,557</u>	<u>12,981,702</u>	<u>12,391,164</u>	
d. Total actuarial accrued liability	\$ 45,534,339	\$ 45,332,198	\$ 41,421,778	
5. Actuarial value of assets	<u>38,905,736</u>	<u>38,905,736</u>	<u>34,990,192</u>	
6. Unfunded actuarial accrued liability (UAAL) (4d - 5)	\$ 6,628,603	\$ 6,426,462	\$ 6,431,586	
7. Funded ratio (5 / 4d)	85.4%	85.8%	84.5%	
8. Equivalent Single Amortization Period*	23.9 Years	23.8 Years	24.8 Years	
9. Assumed payroll growth rate	2.65%	3.00%	3.00%	
<hr/>				
Contribution Rate for TMRS Plan Year:	2021		2020	
<hr/>				
10. Full retirement rate				
a. Normal cost	11.52%	11.57%	11.33%	
b. Prior service	<u>3.93%</u>	<u>3.69%</u>	<u>4.01%</u>	
c. Full retirement rate	15.45%	15.26%	15.34%	
11. Supplemental Death rate	0.15%	0.15%	0.13%	
12. Combined contribution rates (10c+11)	15.60%	15.41%	15.47%	

* New Losses are laddered on 25-year period.

Summary of Benefit Provisions

The plan provisions are adopted by the governing body of the City, within the options available in the state statutes governing TMRS. Plan provisions for the City in effect as of April 1, 2020 were as follows:

Employee deposit rate	7%
Matching ratio (city to employee)	2 to 1
Years required for vesting	5
Retirement Eligibility (Age/Service)	60/5, 0/20
Updated Service Credit	100% Repeating Transfers
Annuity Increase (to retirees)	70% of CPI Repeating
Supplemental Death Benefit to Active Employees	Yes
Supplemental Death Benefit to Retirees	Yes

Amortization Bases and Payments

Year Established	Description	Years Remaining	Base	Payment
2013	2013 Valuation (Fresh Start)	24	\$ 7,652,273	\$ 498,247
2014	2014 Experience	24	(316,907)	(20,634)
2015	2015 Experience	24	(271,439)	(17,674)
2015	2015 Actuarial Changes	24	(171,614)	(11,174)
2016	2016 Experience	22	504,136	34,634
2017	2017 Experience	24	(611,873)	(39,840)
2018	2018 Experience	24	(328,670)	(21,400)
2019	2019 Experience	24	(29,444)	(1,917)
2019	2019 Actuarial Changes	25	<u>202,141</u>	<u>12,845</u>
	Total		6,628,603	433,087

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 (4)	Member Contributions for the Year (5)	Benefit Payments (6)	External Cash Flow for the Year (7)	Interest Credit (8)	BAF Balance ^b (9)
2017	\$ 9,181,285	15.39%	\$ 1,412,999	\$ 642,690	\$ (1,081,999)	\$ 973,690	\$ 3,692,384	\$ 32,968,027
2018	9,627,913	15.80%	1,521,211	673,954	(1,207,565)	987,600	(1,014,400)	32,941,227
2019	10,771,734	15.86%	1,708,397	754,021	(949,129)	1,513,289	5,079,828	39,534,344
2020	11,022,201	15.34%	1,690,806	771,554	(1,397,425)	1,064,935	2,668,568	43,267,848
2021	11,314,289	15.45%	1,748,058	792,000	(1,402,997)	1,137,061	2,920,580	47,325,488

a. Effective retirement contribution rate is the actual rate determined by dividing the employer contribution received by the payroll paid.

b. BAF Balance may not sum due to rounding.

Reconciliation of Full Retirement Rate from Prior Actuarial Valuation Report

Actuarial valuations are based on long-term assumptions, and actual results in a specific year can, and almost certainly will, differ as actual experience deviates from the assumptions. The following table provides a detailed breakdown of changes in the retirement portion of your city's contribution rate. This analysis reconciles the change in the retirement portion (ADEC) of your city's contribution rate from 2020 to 2021, but will not reflect any change in the cost of the Supplemental Death Benefit (SDB), if your city currently has this provision. (Any changes in the cost of the SDB are primarily due to the changes in the average age of your city's employee group and/or the number of covered retirees.) Following the table below is a brief description of the common sources for deviation from the expected.

Change in Full Retirement Rate	
Full Rate from 12/31/2018 Valuation (PY 2020 Rate)	15.34 %
Benefit changes	0.00 %
Return on Actuarial Value of Assets	(0.02)
Contribution lag/fully amortized prior bases	(0.12)
Payroll growth	(0.30)
Normal cost	0.24
Liability growth	0.12
Subtotal Experience Change	(0.08) %
Actuarial Changes	0.19
Total change	0.11 %
Full Rate from 12/31/2019 Valuation (PY 2021 Rate)	15.45 %

Benefit Changes - Shows the increase or decrease in the contribution rate associated with any modifications made to the member city's TMRS plan provisions. This will also include any changes to the amortization period adopted by ordinance.

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, 2019, the return on an AVA basis was 6.87%. The impact may show as 0.00% due to rounding.

Contribution Lag/Fully Amortized Prior Bases - Shows the total increase or decrease in the contribution rate associated with the phase in of contributions and/or any additional contributions above the full rate. The effect of the "Contribution Lag" is also included here and refers to the time delay between the actuarial valuation date and the date the contribution rate becomes effective. For

TMRS member cities, the “Contribution Lag” is one year (i.e., the Actuarial Valuation as of December 31, 2019 sets the rate effective for Calendar Year 2021). **The impact of the “Contribution Lag” is expected to become immaterial once a city is contributing the Full Rate and the Full Rate stabilizes.**

In addition, it shows the impact of the bases, if any, which became fully amortized as of this valuation since payments for those bases are no longer part of the calculation of the prior service rate.

Payroll Growth - Shows the increase or decrease in the contribution rate associated with higher or lower than expected growth in the member city’s overall payroll. The amortization payments were calculated assuming payroll grows at 3.00% per year. Overall payroll growth greater (less) than 3.00% 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 individual city’s population. The normal cost rate for an employee is the contribution rate which, if applied to a member’s compensation throughout their period of anticipated covered service with the municipality, would be sufficient to meet all benefits payable on their behalf. The salary-weighted average of the individual rates is the total normal cost rate.

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

Risks Associated with Measuring the Accrued Liability and Actuarially Determined Contribution

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 pay status and a significant trust may be much more exposed to investment risk. Generally accepted plan maturity measures include the following:

Ratio of the market value of assets to payroll	3.7
Ratio of actuarial accrued liability to payroll	4.2
Ratio of actives to retirees and beneficiaries	1.9
Net cash flow as a percentage of market value of assets	3.8%
Duration of liabilities	21.1
Change in Contribution Rate with 10% decline in assets (smoothed)	0.22%
Change in Contribution Rate with 10% decline in assets (unsmoothed)	2.24%

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 4.0 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 plan sponsor 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 5.0 times the payroll, a change in liability 2% other 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 plan sponsor 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 Actives to Retirees and Beneficiaries - A young plan with many active members and few retirees will have a high ratio of active to retirees. A mature open plan may have close to the same number of actives to retirees resulting in a ratio near 1.0. A super-mature or closed plan may have significantly more retirees than actives resulting in a ratio below 1.0.

Net Cash Flow as a Percentage of Market Value - 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 super-mature plan or a need for additional contributions.

Duration of Liabilities - The duration of the present value of future benefits 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 present value of future benefits would increase approximately 10% if the assumed rate of return were lowered 1%. This also is an approximation of the discount-weighted average time horizon of the liability.

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 actuarial value of assets was 10% lower than in the current actuarial valuation with the full asset loss recognized in the current valuation.