June 4, 2019

City # 00301

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

Subject: 2020 Municipal Contribution Rate

Dear City Official:

Presented below are your city's contribution requirements to the Texas Municipal Retirement System (TMRS) for Plan Year 2020 (Calendar Year 2020, PY2020) as determined by the December 31, 2018 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, 2019 and the actuarial assumptions and methods adopted by the TMRS Board. Effective January 1, 2020, your city's monthly contribution rates will be:

Normal Cost	11.33%
Prior Service	4.01%
Total Retirement Rate	15.34%
Supplemental Death Benefit	0.13%
Total Combined Contribution	15.47%

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 PY2020 based on current TMRS funding policy.

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,

Eric W. Davis

Eric W. Davis
Deputy Executive Director

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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 equal to a 25-year open amortization of the surplus assets. The result is a required contribution less than the normal cost. This produces contribution rate volatility and pushes the city's funded status back towards 100% by using the surplus assets to pay for the current year accruals. 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	12/31/2018	12/31/2017
Membership as of the Valuation Date		
• Number of		
- Active members	144	143
- Retirees and beneficiaries	84	74
- Inactive members	128	110
- Total	356	327
• Prior year's payroll provided by TMRS	$ 9,627,913	$ 9,181,285
• Valuation Payroll	$ 9,898,654	$ 9,580,026
Benefit Accumulation Fund (BAF) Assets		
• Market BAF Balance	$ 32,941,227	$ 32,968,027
• BAF crediting rate for PY	(3.08%)	13.05%
• Interest credited on beginning BAF balance	$ (1,014,400)	$ 3,692,384
• Municipal contributions	1,521,211	1,412,999
• Member contributions during year	673,954	642,690
• Benefit and refund payments	1,207,565	1,081,999
Actuarial Value of Assets (AVA)		
• Market BAF Balance	$ 32,941,227	$ 32,968,027
• Actuarial Value of Assets (AVA)	34,990,192	31,994,960
• AVA as a Percentage of BAF	106.2%	97.0%
• Return on AVA	6.27%	7.00%
Actuarial Information		
• Actuarial accrued liability (AAL)	$ 41,421,778	$ 38,718,150
• Actuarial value of assets (AVA)	34,990,192	31,994,960
• Unfunded actuarial accrued liability (UAAL)	6,431,586	6,723,190
• UAAL as % of pay	66.8%	73.2%
• Funded ratio (AVA/AAL)	84.5%	82.6%
• Employer normal cost	11.33%	11.08%
• Prior Service Rate	4.01%	4.22%
Contribution Rates for TMRS Plan Year (PY)	2020	2019
• Member	7.00%	7.00%
• Full retirement rate (ADEC)	15.34%	15.30%
• Supplemental Death rate	0.13%	0.14%
Total Employer Contribution Estimates for PY	2020	2019
• Projected payroll	$ 10,195,614	$ 9,867,427
• Combined contribution rate	15.47%	15.44%
• Estimated employer contribution	$ 1,577,261	$ 1,523,531

Note: TMRS Plan Year coincides with Calendar Year
Results from prior year reflect the plan provisions used in the 12/31/2018 valuation report.

Calculation of Contribution Requirements

		From Valuation Report as of		
		December 31, 2018		December 31, 2017
1. Prior year's payroll reported to TMRS	$	9,627,913	$	9,181,285
2. Valuation payroll		9,898,654		9,580,026
3. Employer normal cost rate		11.33%		11.08%
4. Actuarial liabilities				
a. Active members	$	22,388,083	$	22,822,722
b. Inactive members		6,642,531		5,249,122
c. Annuitants		12,391,164		10,646,306
d. Total actuarial accrued liability	$	41,421,778	$	38,718,150
5. Actuarial value of assets		34,990,192		31,994,960
6. Unfunded actuarial accrued liability (UAAL) (4d - 5)	$	6,431,586	$	6,723,190
7. Funded ratio (5 / 4d)		84.5%		82.6%
8. Equivalent Single Amortization Period*		24.8 Years		25.8 Years
9. Assumed payroll growth rate		3.0%		3.0%
Contribution Rate for TMRS Plan Year:		2020		2019
10. Full retirement rate				
a. Normal cost		11.33%		11.08%
b. Prior service		4.01%		4.22%
c. Full retirement rate		15.34%		15.30%
11. Supplemental Death rate		0.13%		0.14%
12. Combined contribution rates (10c+11)		15.47%		15.44%

* 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, 2019 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)	25	$ 7,621,417	$ 467,978
2014	2014 Experience	25	(315,636)	(19,381)
2015	2015 Experience	25	(270,345)	(16,600)
2015	2015 Actuarial Changes	25	(170,920)	(10,495)
2016	2016 Experience	23	503,831	32,610
2017	2017 Experience	25	(609,416)	(37,420)
2018	2018 Experience	25	(327,345)	(20,100)
	Total		6,431,586	396,592

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)
		(4) / (2)				(4) + (5) + (6)		
2016	$ 8,967,939	15.30%	$ 1,372,064	$ 650,021	$ (897,171)	$ 1,124,914	$ 1,714,540	$ 28,301,953
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	9,898,654	15.30%	1,514,494	692,906	(1,323,703)	883,697	2,223,533	36,048,457
2020	10,195,614	15.34%	1,564,007	713,693	(1,288,178)	989,522	2,433,271	39,471,250

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 2019 to 2020, 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 12/31/2017 Valuation (PY 2019 Rate)		15.30 %
Benefit changes	0.00 %	
Return on Actuarial Value of Assets	0.10	
Contribution lag/fully amortized prior bases	(0.03)	
Payroll growth	(0.01)	
Normal cost	0.25	
Liability growth	(0.27)	
Total change	0.04 %	
Full Rate from 12/31/2018 Valuation (PY 2020 Rate)		15.34 %

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, 2018, the return on an AVA basis was 6.27%. 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, 2018 sets the rate effective for Calendar Year 2020). **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.

<u>Payroll Growth</u> - 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 3.0% per year. Overall payroll growth in excess of 3.0% will typically cause a decrease in the prior service rate.

<u>Normal Cost</u> - 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.

<u>Liability Growth</u> - 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	3.4
Ratio of actuarial accrued liability to payroll	4.3
Ratio of actives to retirees and beneficiaries	1.7
Net cash flow as a percentage of market value of assets	3.0%
Duration of liabilities	20.8
Change in Contribution Rate with 10% decline in assets (smoothed)	0.22%
Change in Contribution Rate with 10% decline in assets (unsmoothed)	2.17%

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.