CONSULTING GROUP

Town of Mason Retirement Plan Study

A Study of the Costs and Benefits Anticipated through Participation in the Tennessee Consolidated Retirement System

ACTUARIAL VALUATION REPORT

October 1, 2023

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Summary of Study

An actuarial valuation was performed as of October 1, 2023 to examine the cost of any benefits provided by the Tennessee Consolidated Retirement System (TCRS) as it would apply to the Town of Mason if the group joined TCRS on that date.

TCRS offers three different plan design options for political subdivisions, referred to throughout this report as Plan 1, Plan 2, and Plan 3. Each of the three plans has a unique set of benefits and corresponding costs. The description of the benefits can be found in the Plan Provisions section of this report. Further, within Plan 1 and Plan 2, each political subdivision can elect whether to include or exclude cost of living benefits in its retirement plan. Costs have been developed both “with” and “without” cost of living benefits for Plan 1 and Plan 2. Plan 3 is required to include cost of living benefits.

Each political subdivision joining TCRS also has the option of whether or not to include employees' past service (service earned prior to the date of joining TCRS) in the determination of benefits. If past service is included, the political subdivision may elect whether or not to limit the past service to a selected number of years. Further, the included years of past service may be fully purchased by the employer, or the employee can be made to be responsible for voluntarily purchasing the past service with the employer accepting its share of the liability for any years that the employee purchases.

As shown on the following page, the cost of providing benefits under each of the studied scenarios consists of two components:

1. Employer Past Service Contribution (One-time Contribution)

If past service is included, the political subdivision must contribute in a lump sum the total cost for the unfunded accrued liability at the time they join TCRS. This cost is a one-time contribution upon joining TCRS.

2. Annual Employer Contribution Rate (Ongoing Contribution)

To cover the cost of future service, the political subdvision must make ongoing annual contributions to TCRS, which are calculated as a percentage of payroll. Note, the ongoing contribution could increase or decrease (perhaps significantly) in future years based on the investment and liability gains and losses.

1. Employer Past Service Contribution (One-time Contribution)

	Plan 1		Plan 2		Plan 3
	Without COLA	With COLA	Without COLA	With COLA	With COLA
Past Service Scenarios					
1. No Past Service	$0	$0	$0	$0	$0

2. Annual Employer Contribution Rate (Ongoing Contribution)

	Plan 1		Plan 2		Plan 3
	Without COLA	With COLA	Without COLA	With COLA	With COLA
Past Service Scenarios					
1. No Past Service	5.86%	7.56%	4.25%	5.51%	3.00%

The above results assume that employees will contribute 5% of pay toward the future cost of their retirement benefit. Alternatively, the entity may elect to charge only 2.5% employee contributions or to require no employee contributions, in which case TCRS will increase the above rates by 2.5% or 5%, respectively.

Plan 1 Without COLA

	Past Service Scenarios*
	Scenario 1
(a) Present Value of Benefits	275,919
Employer Past Service Contribution (One-time Contribution)	
(b) Accrued Liability for Past Service	0
(c) Employee Past Service Contribution	0
(d) Employer Past Service Contribution (b) - (c)	0
Annual Employer Contribution Rate (Ongoing Contribution)	
(e) Normal Cost	22,138
(f) Normal Cost Contribution (e) x 1.03375	22,885
(g) Current Payroll	404,998
(h) Normal Cost Rate (f) / (g)	5.65%
(i) Active Participant Count	11
(j) Administrative Expense (i) x $77	847
(k) Administrative Expense Rate (j) / (g)	0.21%
(l) Annual Employer Contribution (f) + (j)	23,732
(m) Annual Employer Contribution Rate (h) + (k)	5.86%

*Past Service Scenarios: Scenario 1 = No Past Service

Plan 1 With COLA

	Past Service Scenarios*
	Scenario 1
(a) Present Value of Benefits	325,901
Employer Past Service Contribution (One-time Contribution)	
(b) Accrued Liability for Past Service	0
(c) Employee Past Service Contribution	0
(d) Employer Past Service Contribution (b) - (c)	0
Annual Employer Contribution Rate (Ongoing Contribution)	
(e) Normal Cost	28,787
(f) Normal Cost Contribution (e) x 1.03375	29,759
(g) Current Payroll	404,998
(h) Normal Cost Rate (f) / (g)	7.35%
(i) Active Participant Count	11
(j) Administrative Expense (i) x $77	847
(k) Administrative Expense Rate (j) / (g)	0.21%
(l) Annual Employer Contribution (f) + (j)	30,606
(m) Annual Employer Contribution Rate (h) + (k)	7.56%

*Past Service Scenarios: Scenario 1 = No Past Service

Plan 2 Without COLA

	Past Service Scenarios*
	Scenario 1
(a) Present Value of Benefits	231,889
Employer Past Service Contribution (One-time Contribution)	
(b) Accrued Liability for Past Service	0
(c) Employee Past Service Contribution	0
(d) Employer Past Service Contribution (b) - (c)	0
Annual Employer Contribution Rate (Ongoing Contribution)	
(e) Normal Cost	15,839
(f) Normal Cost Contribution (e) x 1.03375	16,374
(g) Current Payroll	404,998
(h) Normal Cost Rate (f) / (g)	4.04%
(i) Active Participant Count	11
(j) Administrative Expense (i) x $77	847
(k) Administrative Expense Rate (j) / (g)	0.21%
(l) Annual Employer Contribution (f) + (j)	17,221
(m) Annual Employer Contribution Rate (h) + (k)	4.25%

*Past Service Scenarios: Scenario 1 = No Past Service

Plan 2 With COLA

	Past Service Scenarios*
	Scenario 1
(a) Present Value of Benefits	267,642
Employer Past Service Contribution (One-time Contribution)	
(b) Accrued Liability for Past Service	0
(c) Employee Past Service Contribution	0
(d) Employer Past Service Contribution (b) - (c)	0
Annual Employer Contribution Rate (Ongoing Contribution)	
(e) Normal Cost	20,760
(f) Normal Cost Contribution (e) x 1.03375	21,461
(g) Current Payroll	404,998
(h) Normal Cost Rate (f) / (g)	5.30%
(i) Active Participant Count	11
(j) Administrative Expense (i) x $77	847
(k) Administrative Expense Rate (j) / (g)	0.21%
(l) Annual Employer Contribution (f) + (j)	22,308
(m) Annual Employer Contribution Rate (h) + (k)	5.51%

*Past Service Scenarios: Scenario 1 = No Past Service

Plan 3 With COLA

	Past Service Scenarios*
	Scenario 1
(a) Present Value of Benefits	200,759
Employer Past Service Contribution (One-time Contribution)	
(b) Accrued Liability for Past Service	0
(c) Employee Past Service Contribution	0
(d) Employer Past Service Contribution (b) - (c)	0
Annual Employer Contribution Rate (Ongoing Contribution)	
(e) Normal Cost	10,922
(f) Normal Cost Contribution (e) x 1.03375	11,291
(g) Current Payroll	404,998
(h) Normal Cost Rate (f) / (g)	2.79%
(i) Active Participant Count	11
(j) Administrative Expense (i) x $77	847
(k) Administrative Expense Rate (j) / (g)	0.21%
(l) Annual Employer Contribution (f) + (j)	12,138
(m) Annual Employer Contribution Rate (h) + (k)	3.00%

*Past Service Scenarios: Scenario 1 = No Past Service

Distribution of Active Participants with Average Compensation

	Years of Service									
Attained Age	**Under 1**	**1 – 4**	**5 – 9**	**10 – 14**	**15 – 19**	**20 – 24**	**25 – 29**	**30 – 34**	**35 – 39**	**Over 39**	**Total**
Under 25											
25 – 29			1 $41,974								1 $41,974
30 – 34	1 $21,840										1 $21,840
35 – 39		1 $37,760									1 $37,760
40 – 44		2 $26,938									2 $26,938
45 – 49	1 $24,044										1 $24,044
50 – 54											
55 – 59	1 $22,796										1 $22,796
60 – 64		1 $50,944			1 $50,374						2 $50,659
65 – 69			1 $47,555								1 $47,555
Over 69		1 $53,836									1 $53,836
Total	3 $22,893	5 $39,283	2 $44,764		1 $50,374						11 $36,818

Outline of Plan Provisions

(Plan provisions for Plan 1, Plan 2, and Plan 3 are the same except where indicated)

1. Eligibility

All employees included on the census form were considered to be eligible.

2. Credited Service

Credited Service means the period of a member's continuous service on or after the valuation date since his last date of employment with the employer, and may also include service prior thereto. Retirement credit for part-time service is granted on a pro-rata basis in direct proportion to the schedule of a full-time employee.

3. Normal Retirement

(a) Condition

The normal retirement date is the first day of the month coincident with or next following the earlier of:

Plan 1

The 60th birthday of the employee, or the date the employee completes 30 years of credited service, but in no case before the employee has completed 5 years of credited service.

Plan 2 and Plan 3

The 65th birthday of the employee, or the date the employee's age and years of credited service sum to 90, but in no case before the employee has completed 5 years of credited service.

(b) Benefit

The normal retirement benefit, 1/12th of which is paid monthly for life, is determined as follows:

Plan 1

1-1/2% of average earnings plus 1/4% of average earnings in excess of the social security integration level, all multiplied by the number of years of creditable service.

In no event shall the benefit exceed 90% of average earnings, or be less than $8.00 per month per year of credited service.

"Average earnings" is the average annual earnings of a member for the five consecutive years of credited service which produce the highest average.

"Social security integration level" is an amount which in 2017 is $75,000 but which will be adjusted upward in the future to reflect changes in the average salary covered by social security.

The benefit actually payable will be 105% of the benefit calculated according to the formula described above.

Plan 2

1-4/10% of average earnings multiplied by the number of years of creditable service.

In no event shall the benefit exceed the lessor of 90% of average earnings or $80,000 (indexed annually), or be less than $8.00 per month per year of credited service.

"Average earnings" is the average annual earnings of a member for the five consecutive years of credited service which produce the highest average.

Plan 3

1% of average earnings multiplied by the number of years of creditable service.

In no event shall the benefit exceed the lessor of 90% of average earnings or $80,000 (indexed annually), or be less than $8.00 per month per year of credited service.

"Average earnings" is the average annual earnings of a member for the five consecutive years of credited service which produce the highest average.

4. Early Retirement

A vested member may terminate employment and receive a reduced retirement benefit upon:

Plan 1

Attaining age 55, or completing 25 years of credited service.

Plan 2 and Plan 3

Attaining age 60, or the date the employee's age and years of credited service sum to 80.

5. Delayed Retirement

(a) Condition

A member may postpone his retirement beyond his normal retirement date and continue to accrue retirement credit.

(b) Benefit

The benefit, commencing on the first day of the month following the member's actual date of retirement, is the benefit computed in the same manner as in 3(b) above for normal retirement, with the computation being made as of the member's actual retirement date.

6. Disability Retirement

(a) Condition

In the event a member becomes totally and permanently disabled after completion of 5 years of credited service, he may retire and receive a disability retirement benefit.

(b) Benefit

The disability retirement benefit, commencing on the first day of the month immediately following determination of disability and payable during the continuance of disability, is computed in the same manner as in 3(b) above for normal retirement, with the computation being made as of the member's date of termination of employment, except that the minimum period of credited service used shall be the lesser of 20 years or the total number of years the member would have completed at his normal retirement date, but not less than ten years of creditable service; however, the disability retirement benefit will be 90% of the benefit otherwise applicable. The disability retirement benefit changes to normal service benefit (including projected years of service) when the conditions for normal service retirement are met.

7. Death Before Retirement

(a) Condition

If the death of a member occurs before he is eligible for retirement, a death benefit will be paid to his designated beneficiary.

(b) Benefit

If the death of the member occurs after he has completed 5 years of credited service, the benefit is payable if a surviving spouse has been designated as beneficiary, and is equal to the amount that would have been payable at the member's normal retirement date if he had terminated employment on the date of his death and had elected a 100% joint and survivor optional retirement benefit, discounted for each month by which the member fell short of satisfying the requirements for normal retirement (using the respective plan’s early retirement reduction factors).

8. Termination of Employment With Vested Benefit

If a member terminates his employment after completion of 5 years of credited service he may elect to leave his contribution (if any) in the plan until he meets the age eligibility requirements for benefits and makes application.

If such a former member becomes disabled before his benefits commence, he can elect to begin to receive the actuarial equivalent of his deferred vested benefit immediately. If such a former member with at least 10 years of credited service dies before his benefits commence, the death benefit described in item 7(b) above is payable, based on the amount of the former member's deferred vested benefit, discounted for election of the 50% joint and survivor option and for early receipt.

9. Other Termination of Employment

If employment is otherwise terminated before retirement, no benefits are provided under the plan, and the member will receive a refund of his contributions (if any) to the plan with interest.

10. Optional Methods of Benefit Payment

Subject to the applicable plan conditions, a member may select an optional method of benefit payment, in lieu of the prescribed straight life income, which is actuarially equivalent thereto. The purpose of the optional method is to provide a continued life income to a surviving beneficiary after the death of a member.

11. Minimum Benefit of Refund of Member Contribution for Retired Members

The total of the benefits paid from the plan to a member and his spouse or beneficiary will in no event be less than the member's contributions plus interest to his date of termination of employment.

12. Benefit Increase After Retirement

Each year the retirement benefits being paid are subject to an increase determined by applying a formula based on the increase in the Consumer Price Index. The maximum increase is 3% of the current benefit amount, provided the political subdivision elects to participate in the cost-of-living adjustments.

13. Member Contribution

Each general employee member contributes an amount equal to 5% of his compensation each year, unless the political subdivision authorizes a noncontributory retirement plan or requires employee contributions of 2.5% of compensation.

14. Employer Contribution

The Employer contributes actuarially determined amounts to finance the plan benefits not supported by member contributions.

15. Investment of Funds

The plan assets are invested in a trust fund with the trustees of the state retirement system. The investment earnings provide a source of funding toward the cost of the pension plan.

Summary of Actuarial Assumptions

Unless noted below, all assumptions are a combination of estimated future experience and estimates inherent in market data or plan experience.

Valuation Date

October 1, 2023

Interest Rate

6.75% per annum

Salary Increases

Age	Rate
20	8.72%
30	6.48%
40	5.10%
50	4.02%
60	3.54%
65	3.46%

Increase in Social Security Wage Base

2.75% per annum increase

Cost of Living Adjustment

2.125% per annum increase (where applicable)

Post-Retirement Mortality (Base Rates)

Male – 106% of Pub-2010 General Below Median Mortality Table for Healthy Retirees
Female – 114% of Pub-2010 General Below Median Mortality Table for Healthy Retirees

Post-Disability Mortality (Base Rates)

110% of the mortality rates published in IRS Revenue Ruling 96-7 for disabilities occurring before January 1, 1995

Pre-Retirement Mortality (Base Rates)

Pub-2010 General Mortality Table for Employees

Mortality Improvement

The mortality tables for service retirement include projected mortality improvement from 2010 to 2018 (the mid-year of the last TCRS experience study) using Scale MP-2020 and generational improvement after 2018 using MP-2021.

The mortality tables for disability retirement include generational improvement after 2018 (the mid-year of the last TCRS experience study) using MP-2021.

The pre-retirement mortality tables include generational improvement after 2010 using MP-2021.

Withdrawal and Disability Rates

	Age	Withdrawal Rates			Disability
		First Year	Second Year	Later	Rates
Male					
	20	25.19%	19.60%	13.73%	0.03%
	30	20.96%	16.07%	7.36%	0.03%
	40	18.43%	14.27%	3.47%	0.08%
	50	16.31%	11.74%	2.78%	0.38%
	60	19.59%	13.40%	4.62%	0.00%
	65	24.23%	16.23%	0.00%	0.00%
Female					
	20	25.19%	19.60%	19.61%	0.03%
	30	20.96%	16.07%	11.07%	0.03%
	40	18.43%	14.27%	5.41%	0.08%
	50	16.31%	11.74%	3.79%	0.38%
	60	19.59%	13.40%	5.32%	0.00%
	65	24.23%	16.23%	0.00%	0.00%

Rate of Normal Retirement

The following rates were developed from TCRS experience and are applied at each age at which a member is eligible for an unreduced service retirement benefit (which will result in different retirement patterns for each plan based on the applicable eligibility requirements):

Age	Male	Female
50	9.00%	8.00%
51	9.00%	8.00%
52	9.00%	8.00%
53	9.00%	8.00%
54	9.00%	8.00%
55	9.00%	8.00%
56	9.00%	9.00%
57	9.50%	9.50%
58	9.50%	10.00%
59	10.00%	11.00%
60	10.50%	11.00%
61	15.00%	13.00%
62	20.00%	18.00%
63	17.50%	16.00%
64	17.50%	16.00%
65	24.00%	22.00%
66	18.50%	19.00%
67	16.00%	19.00%
68	16.00%	19.00%
69	16.50%	19.00%
70	18.00%	19.00%
71	18.00%	19.00%
72	18.00%	19.00%
73	18.00%	19.00%
74	18.00%	19.00%
75	100.00%	100.00%

Additional increments for retirees who have fifteen or more years of service at retirement on or after age 60:

	Male	Female
	3.00%	3.00%

Additional increments for retirees in the year in which they are first eligible for unreduced retirement prior to age 60:

	Male	Female
	6.50%	6.50%

Commencement Dates and Forms of Payment

Retiring participants are assumed to elect the normal form of payment commencing immediately.

Terminating participants and inactive participants who are entitled to future benefits are assumed to elect the normal form of payment commencing at the age at which a member is eligible for an unreduced service retirement benefit.

Actuarial Cost Method

Entry Age Normal

Assumptions, Methods and Procedures

The actuarial calculations contained in the report are built on deterministic actuarial modeling, making a single determination of liabilities and costs. Further, these actuarial calculations are based on a combination of demographic and asset data, as well as assumptions concerning future changes in these data. As such, the actuarial calculations contained herein are an estimate of projected future occurrences.

The actuarial liabilities shown in this report are determined using software purchased from an outside vendor which was developed for this purpose. Certain information is entered into this model in order to generate the liabilities. These inputs include economic and non-economic assumptions, plan provisions, and census information. We rely on the coding within the software to value the liabilities using the actuarial methods and assumptions selected. Both the input to and the output from the model is checked for accuracy and reviewed for reasonableness.

Risk Discussion – Actuarial Standards of Practice No. 51

Actuarial funding valuation reports are required to include a discussion of the risk associated with measuring pension obligations and determining pension plan contributions. The risks that may reasonably be anticipated to significantly affect the plan's future financial condition are discussed below. It is recommended that the plan sponsor continues to monitor these risks. Further analysis can be provided as requested separate from this report.

Investment Risk

The investment risk is expected to be the single most important factor in determining the future cost of the plan. Due to the plan's significant equity exposure and low correlation between fixed income assets and liabilities, there is risk that the funded status (and required cash contributions) of the plan could be very volatile.

Interest Rate Risk

Related to the investment risk section above, the assumed future returns implied in the interest rate used to value the liabilities is a significant factor in determining the plan's funded status. A decrease in the assumed interest rate would increase the liability (and required contributions).

Inflation Risk

Since benefit amounts are pay-related, pay increases in excess of the valuation assumption will result in an increase in the liabilities (and required cash contributions) of the plan. An increase in inflation is one factor that could lead to higher pay increases. Further, an increase in inflation will also result in a higher COLA to retirees (if applicable), which will increase the liabilities of the plan. However, the inflation risk is dampened due to inflation being a component of the interest rate used to value the liabilities. An increase in inflation would likely result in an increase in the interest rate, which could mitigate the pay and COLA increases.

Mortality Risk

Since the primary benefits of the plan are paid as annuities, the plan is sensitive to changes in the longevity of the population. As a result, the liabilities (and required cash contributions) of the plan will increase if the participants live longer than expected and decrease if they live shorter than expected. The current mortality assumption projects future longevity improvements, which generally dampens the mortality risk.

Purpose and Use

This report has been prepared exclusively for the subject entity to determine the initial funding contribution and annual contribution rate for joining TCRS as of the valuation date, and may not be appropriate for other purposes. USI Consulting Group is not responsible for consequences resulting from the use of any part of this report without prior authorization or approval. This report provides actuarial advice and does not constitute legal, accounting, tax or investment advice. Determinations for other purposes, such as bond ratings, financial reporting, or judging benefit security, may be significantly different from the results shown in this report.

Actuarial findings in this report are based on actuarial assumptions which reflect expected plan experience. Although the deviation of the actual future plan experience and the expected experience inherently creates some uncertainty with the results, in our opinion the actuarial assumptions reasonably reflect the expected future experience of the plan. Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: plan experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the plan's funded status); and changes in plan provisions or applicable law. Due to the limited scope of the assignment, we did not perform an analysis of the potential range of such future measurements.

Professional Qualifications

This report has been prepared under the supervision of Justin C. Thacker, a member of the American Academy of Actuaries, a Fellow of the Society of Actuaries, and a consulting actuary with USI Consulting Group, who has met the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions herein. To the best of our knowledge this report has been prepared in accordance with generally accepted actuarial standards, including the overall appropriateness of the analysis, assumptions, and results and conforms to appropriate Standards of Practice as promulgated from time to time by the Actuarial Standards Board, which standards form the basis for the actuarial report. We are not aware of any direct or material indirect financial interest or relationship, including investment management or other services that could create, or appear to create, a conflict of interest that would impair the objectivity of our work.

Justin C. Thacker, FSA	January 10, 2024 Date
Timothy C. Lavender, FSA	January 10, 2024 Date