The Initial Valuation for

The City of Maplewood

Legacy Plan as of December 31, 2021

Table of Contents

800.521.0498 | P: 248.799.9000 | www.grsconsulting.com

July 2, 2021

The City of Maplewood
Maplewood, Missouri

Ladies and Gentlemen:

Submitted in this report are the results of the actuarial valuation prepared to determine the employer contribution rates required to support, for your employees, the legacy plan benefits that may be administered by the Missouri Local Government Employees Retirement System (LAGERS). This report contains the information needed to comply with Missouri state disclosure requirements regarding the adoption of LAGERS benefits by a political subdivision (Sections 105.660 - 106.685 RSMo).

If there are active members still participating in the legacy plan, the contribution requirement to pay for benefits likely to accrue as a result of future service of your employees is described as the current cost plus the disability cost. This contribution rate, expressed as a percent of active member payroll, will depend on the benefit provisions of the legacy plan.

The contribution requirement to pay for benefits likely to result from service rendered by your employees before you join LAGERS is described as the prior service cost. The value established for prior service is called the actuarial accrued liability. The value of the actuarial accrued liability in excess of the actuarial value of assets is called the unfunded actuarial accrued liability.

Section 70.730 of the Revised Statutes of Missouri requires participating employers to contribute the current cost, disability cost and prior service cost. The employer contribution rate for a legacy plan valuation group will be expressed as a dollar amount. These contributions are mandatory after official action has been taken to join the System.

The total annual dollar costs shown on the results pages represent the dollar cost for a one-year period based on the data reported for this actuarial valuation. In budgeting amounts for LAGERS contributions you should consider any changes in data which have been made since data was submitted for the valuation and any changes anticipated to be made before the end of the period for which you are preparing the budget.

The actuarial assumptions and methods used to determine the stated costs are described in Appendix II of this report. In our opinion, they do produce results which, in the aggregate, are reasonable. Additional miscellaneous and technical assumptions as well as disclosures required by the Actuarial Standards of Practice may be found in the LAGERS Compiled Annual Actuarial Valuation report as of February 29, 2020.

This report was prepared using our proprietary valuation model and related software which in our professional judgment has the capability to provide results that are consistent with the purposes of the valuation. We performed tests to ensure that the model reasonably represents that which is intended to be modeled.

The computed contributions required for LAGERS participation will permit the System to continue to operate in accordance with the actuarial principles of level cost financing and the state law which governs LAGERS. Summary of benefit provisions can be found in Appendix III.

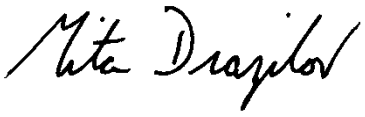
Please note that this entire report must be available as public information for at least 45 calendar days prior to the date final official action is taken by your governing body to join the System. You may wish to make notice of this report in the official minutes of the next meeting of your governing body. This action would not be binding on your subdivision, yet would establish the beginning date of the 45-day waiting period.

In accordance with the LAGERS Board policy, the employer contributions established by this valuation report are valid for purposes of joining the System for a one-year period from the date of this valuation which was December 31, 2021. The valuation was based on data furnished from your records concerning individual employees.

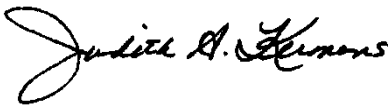
If you have any questions concerning this report or LAGERS in general, please contact the LAGERS office in Jefferson City, Missouri.

Mita D. Drazilov and Judith A. Kermans are Members of the American Academy of Actuaries and meet the Qualification Standards of the Academy of Actuaries to render the actuarial opinions contained herein.

Respectfully submitted,



Mita D. Drazilov, ASA, FCA, MAAA



Judith A. Kermans, EA, FCA, MAAA

MDD/JAK:dj

The City of Maplewood
Police Members

	Legacy Plan as of December 31, 2021
Actuarial Accrued Liability	
Active Members	$ -
Inactive Members	-
Retirants and Beneficiaries	2,071,327
Total	$ 2,071,327
Actuarial Value of Assets	$ -
Unfunded Actuarial Accrued Liability	$ 2,071,327
Prior Service Cost	$ 223,034

** Market value of assets for the legacy plan.*

A 15-year level dollar amortization period was used for the legacy plan.

It is our understanding that the City is considering not transferring any assets into LAGERS. Therefore, the calculations above include no assets.

The City is also considering permanent increases to future retiree monthly benefits. Every 5% increase in benefits would increase the actuarial accrued liability by approximately $103,600 and increase the annual payment by approximately $11,150.

The results provided in this report are as of the valuation date of December 31, 2021. Please request an updated payment amount upon electing to join LAGERS.

The City of Maplewood
Police Members

Valuation Year	Estimated Employer Contribution Annual Dollars	Unfunded Actuarial Accrued Liability
2022	$ 223,034	$ 2,071,327
2023	223,034	1,990,474
2024	223,034	1,903,758
2025	223,034	1,810,756
2026	223,034	1,711,011
2027	223,034	1,604,035
2028	223,034	1,489,303
2029	223,034	1,366,252
2030	223,034	1,234,281
2031	223,034	1,092,742

Notes regarding the above projections:

1) The purpose of the above projections is to comply with the requirements of Section 105.660 of the Revised Statutes of Missouri (RSMo). The projection results may not be applicable for other purposes.

The City of Maplewood
Fire Members

	Legacy Plan as of December 31, 2021
Actuarial Accrued Liability	
Active Members	$ -
Inactive Members	-
Retirants and Beneficiaries	3,300,333
Total	$ 3,300,333
Actuarial Value of Assets	$ -
Unfunded Actuarial Accrued Liability	$ 3,300,333
Prior Service Cost	$ 355,370

** Market value of assets for the legacy plan.*

A 15-year level dollar amortization period was used for the legacy plan.

It is our understanding that the City is considering not transferring any assets into LAGERS. Therefore, the calculations above include no assets.

The City is also considering permanent increases to future retiree monthly benefits. Every 5% increase in benefits would increase the actuarial accrued liability by approximately $165,000 and increase the annual payment by approximately $17,770.

The results provided in this report are as of the valuation date of December 31, 2021. Please request an updated payment amount upon electing to join LAGERS.

The City of Maplewood
Fire Members

Valuation Year	Estimated Employer Contribution Annual Dollars	Unfunded Actuarial Accrued Liability
2022	$ 355,370	$ 3,300,333
2023	355,370	3,171,505
2024	355,370	3,033,337
2025	355,370	2,885,153
2026	355,370	2,726,224
2027	355,370	2,555,774
2028	355,370	2,372,965
2029	355,370	2,176,903
2030	355,370	1,966,627
2031	355,370	1,741,105

Notes regarding the above projections:

1) The purpose of the above projections is to comply with the requirements of Section 105.660 of the Revised Statutes of Missouri (RSMo). The projection results may not be applicable for other purposes.

The City of Maplewood

Summary of Data Included in the Valuation

Retirants and Beneficiaries as of December 31, 2021

Division	Number	Annual Benefits	Avg. Age
Police	8	$198,761	68.8 years
Fire	13	364,722	69.6 years

Comments

Comment A: Please see Appendix I that details the Actuarial Funding Policy for legacy plans.

Comment B: The long-term cost (C) of providing retirement benefits depends only on the benefits (B) that are paid to participants, the expenses (E) of administering the plan, and the investment return (I) generated on invested assets: $C = B + I - E$. For a given level of benefits, the cost of providing those benefits is lowered if administrative expenses are lowered or investment income is increased.

Comment C: It is expected that current and future retirees and beneficiaries from legacy plans joining LAGERS will be maintained separately from the Benefit Reserve Fund (BRF). Investment and mortality risk for legacy plan retirees would only affect the computed employer contribution rate of the legacy plan political subdivision. However, once the legacy plan meets certain conditions, the remaining retiree liabilities could be considered pooled with the BRF. These conditions are that the legacy plan has no active members and the actuarial accrued liability for the legacy plan is no greater than a Board established threshold.

Any actuarial experience (positive or negative) subsequent to the legacy plan becoming pooled will be borne by the BRF. While this provides contribution rate stability to the legacy plan, there will be no assets (if any remain) returned to the employer once the last retiree or beneficiary becomes deceased. The employer will also not be asked for additional contributions to the legacy plan if experience is worse than expected. Even if the pooled legacy plan runs out of money, benefits will continue to be paid as long as the scheduled contribution payments have been made.

APPENDIX I

ACTUARIAL FUNDING POLICY – LEGACY PLANS

Missouri LAGERS Actuarial Funding Policy – Legacy Plans

Introduction

The purpose of this Actuarial Funding Policy is to record the funding objectives and policy set by the Board of Trustees (Board) for legacy plans (i.e., old plans) that elect to participate in the Missouri Local Government Employees Retirement System (LAGERS). The Board establishes this Funding Policy to help ensure the systematic accumulation of assets needed to pay future benefits for these legacy plan members of LAGERS and to help ensure that the other participating employers in LAGERS are not materially affected by these legacy plans' participation in LAGERS.

In 2012, the Governmental Accounting Standards Board (GASB) approved two new financial reporting standards. GASB Statement No. 67, "Financial Reporting for Pension Plans" replaces the requirements of Statement No. 25. GASB Statement No. 68, "Accounting and Financial Reporting for Pensions" replaces the requirements of Statements No. 27 and No. 50. The new GASB statements separate accounting cost (expense) from funding cost (contributions), necessitating the creation of this funding policy.

The LAGERS Board of Trustees adopted this Funding Policy in October, 2017. This funding policy shall be reviewed by the Board annually through the completion of the first experience study after adoption of this Funding Policy. Subsequently, it shall be reviewed every five years in conjunction with the experience study.

Funding Objectives

1. Maintain adequate assets so that current plan assets plus future contributions and investment earnings should be sufficient to fund all benefits expected to be paid to members and their beneficiaries.
2. Maintain stability of employer contribution rates, consistent with other funding objectives.
3. Maintain public policy goals of accountability and transparency. Each policy element is clear on intent and effect, and each should allow an assessment of whether, how and when the funding requirements of the plan will be met.
4. Monitor material risks to assist in any risk management strategies the Board deems appropriate.
5. Promote intergenerational equity. Each generation of members and employers should incur the cost of benefits for the employees who provide services to them, rather than deferring those costs to future members and employers.
6. Provide a reasonable margin for adverse experience to help offset risks.
7. Review investment return assumption in conjunction with the periodic asset liability study and in consideration of the Board's risk profile.
8. Continue progress of systematic reduction of the Unfunded Actuarial Accrued Liabilities (UAAL).
9. Ensure that the participation in LAGERS by legacy plans does not significantly affect the risks associated with LAGERS participation for other LAGERS participating employers.

1. Actuarial Cost Method

The Individual Entry Age Normal actuarial cost method of valuation shall be used in determining the Actuarial Accrued Liability (AAL) and Normal Cost. Differences in the past between assumed experience and actual experience ("actuarial gains and losses") shall become part of the AAL. The Normal Cost shall be determined on an individual basis for each active member.

2. Actuarial (Funding) Value of Assets Method

The investment gains or losses of each valuation period, resulting from the difference between actual investment return and assumed investment return, shall be recognized annually in level amounts over five years in calculating the Funding Value of Assets. Regardless of the results obtained from the smoothing method described above, the Funding Value of Assets shall not diverge from the Market Value of Assets by more than 20%.

3. Amortization Method

a. For each employer, a level percent of payroll amortization method shall be used to systematically pay off the UAAL over a closed period of years.

b. The amortization period associated with each amortization base for an employer will be a closed period of years.

c. Changes in the UAAL due to actuarial gains or losses for each annual actuarial valuation or from changes to actuarial assumptions will be amortized over a closed 15-year period. For legacy plans that only have non-active members, changes in the UAAL due to actuarial gains or losses for each annual actuarial valuation or from changes to actuarial assumptions will be amortized over a closed 10-year period.

d. For legacy plans that have active members, the initial UAAL for a new employer joining LAGERS will be amortized over a closed 20-year period. For legacy plans that only have non-active members, the initial UAAL for a new employer joining LAGERS will be amortized over a closed 15-year period.

4. Funding Target, Computed Employer Contribution Rates, Interest Credits and Participation in the Casualty Reserve Fund and Benefit Reserve Fund

a. The targeted funded ratio shall be 100%.

b. With the exception of provision 4.h, a valuation group of a legacy plan will be separately experience rated. That is, the legacy plan will not participate in the Casualty Reserve Fund (CRF) nor the Benefit Reserve Fund (BRF) and the actuarial experience of all the legacy plan's members will only affect the actuarial valuation results of the legacy plan's valuation group.

c. For a valuation group (e.g., police), if there are both LAGERS members and legacy plan members, separate employer contribution rates will be computed. The employer contribution rate for a legacy plan valuation group will be expressed as a dollar amount.

d. When a legacy plan joins LAGERS, if there are both LAGERS members and legacy plan members, the LAGERS valuation group's employer contribution rate will become the uncapped employer contribution rate.

e. For the 1% of payroll contribution rate increase limitation provided in Section 70.730 of the Revised Statutes of Missouri (RSMo), a combined employer contribution rate expressed as a percentage of total (i.e., LAGERS plus legacy plan) payroll will be determined (including when the legacy plan has active members and when the legacy plan does not have active members). Both the LAGERS valuation group's employer contribution rate and the combined employer contribution rate shall be subject to the 1% of payroll contribution increase limitation.

f. Benefit payments for retirees of the legacy plan will be paid out of the Employer Accumulation Fund (EAF) until the conditions in 4.h. are met.

g. For the year end June 30th interest crediting process, interest credits shall first be allocated between legacy plans and LAGERS plans to ensure that legacy plans and LAGERS plans receive the same market value interest credits. After this initial step, for LAGERS plans, the standard interest crediting process will occur. For legacy plans, an interest crediting process will be established to follow the legacy plans' benefit provisions.

h. When a legacy plan meets the following conditions, the legacy plan may participate in the pooled BRF (this is determined at the valuation group level)
   i. The legacy plan has no active members.
   ii. The actuarial accrued liability for the legacy plan is no greater than a Board established threshold.

   If applicable, at the time a legacy plan first participates in LAGERS, the legacy plan's initial valuation actuarial accrued liability will be rolled-forward to the legacy plan's LAGERS membership date for purposes of applying this test.

i. If the legacy plan meets the requirements of provision 4.h, then
   i. If the legacy plan has a positive UAAL, a fixed payment schedule may be established over a reasonable number of years to be determined by LAGERS Staff (e.g., 10 to 15 years).
   ii. If the legacy plan has a negative UAAL, the overfunding amount may be used in the computation of the LAGERS plan employer contribution rate.
   iii. Any actuarial experience (positive or negative) subsequent to the transfer of the legacy plan to the BRF will be borne by the BRF.

5. Risk Management

a. Assumption Changes

   i. The actuarial assumptions used for investment return, wage inflation and mortality shall be those last adopted by the Board based on the most recent experience study and upon the advice of the actuary. All other necessary actuarial assumptions shall be established based upon the professional judgement of the actuary and may be subject to Board approval. The actuary may review legacy plan assumptions in conjunction with the normal five-year experience study process.

   ii. The actuarial assumptions can be updated during the five-year period if significant plan design changes or other significant events occur, as advised by the actuary.

b. Risk Measures

   The following risk measures will be annually determined to provide quantifiable measurements of risk and their movement over time. For employers that have both a legacy plan and a LAGERS plan, combined results may be shown. The risk measures will be measured at the System level and employer level with the exception of (ii) which will be measured at the System level only.

i. Classic measures currently determined

A. Funded ratio (actuarial value of assets / actuarial accrued liability)

B. UAAL amortization period (years required to pay down the UAAL based on current funding rates)

ii. Dollar standard deviation of investment return / Total Payroll

– Measures the risk associated with negative asset returns relative impact on the funded status of the plan. A decrease in this measure indicates a decrease in investment risk.

iii. Total UAAL / Total Payroll

– Measures the risk associated with contribution decreases relative impact on the ability to fund the UAAL. A decrease in this measure indicates a decrease in contribution risk.

iv. Total Actuarial Value of Assets / Total Payroll

– Measures the risk associated with the ability to respond to asset experience through adjustments in contributions. A decrease in this measure indicates a decrease in asset risk.

v. Total AAL / Total Payroll

– Measures the risk associated with the ability to respond to liability experience through adjustments in contributions. A decrease in this measure indicates a decrease in experience risk. This also provides a long-term measure of the asset risk in situations where the System has a funded ratio below 100%.

c. Risk Control

The Board shall carefully monitor the risk measures above and shall consider steps to mitigate risk, particularly as the funded ratio increases. Risk mitigation may involve a reduction in the assumed rate of investment return. Examples of risk mitigating techniques include, but are not limited to:

i. Review asset allocation with a goal of reducing the standard deviation of the portfolio return

ii. Reduce asset-liability mismatching

Glossary

1. **Actuarial Accrued Liability (AAL):** The difference between (i) the actuarial present value of future plan benefits, and (ii) the actuarial present value of future normal cost. Sometimes referred to as "accrued liability" or "past service liability."
2. **Actuarial Assumptions:** Estimates of future plan experience with respect to rates of mortality, disability, turnover, retirement, rate or rates of investment income and salary increases. Decrement assumptions (rates of mortality, disability, turnover and retirement) are generally based on past experience, often modified for projected changes in conditions. Economic assumptions (salary increases and investment income) consist of an underlying rate in an inflation-free environment plus a provision for a long-term average rate of inflation.

3. **Actuarial Cost Method:** A mathematical budgeting procedure for allocating the dollar amount of the "actuarial present value of future plan benefits" between the actuarial present value of future normal cost and the actuarial accrued liability. Sometimes referred to as the "actuarial funding method."
4. **Actuarial Gain (Loss):** A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions during the period between two actuarial valuation dates, in accordance with the actuarial cost method being used. For example, if during a given year the assets earn more than the investment return assumption, the amount of earnings above the assumption will cause an unexpected reduction in UAAL, or "actuarial gain" as of the next valuation. These include contribution gains and losses that result from actual contributions made being greater or less than the level determined under the policy.
5. **Actuary:** A person who is trained in the applications of probability and compound interest to problems in business and finance that involve payment of money in the future, contingent upon the occurrence of future events. Most actuaries in the United States are Members of the American Academy of Actuaries (MAAA). The Society of Actuaries is an international research, education and membership organization for actuaries in the life and health insurance, employee benefits, and pension fields. It administers a series of examinations leading initially to Associateship and the designation ASA and ultimately to Fellowship with the designation FSA.
6. **Amortization:** Paying off an interest-bearing liability by means of periodic payments of interest and principal, as opposed to paying it off with a lump sum payment.
7. **Asset Liability Study:** A comprehensive strategic asset allocation review designed to assess the continuing appropriateness of the Investment Objectives and Asset Allocation Policy. It includes a study of future benefit payments, liabilities, required funding, the appropriateness of the actuarial interest rate assumption and the prospective funded status of liabilities. It may also include a study of portfolio design for optimal diversification and comparisons with peer practices.
8. **Entry Age Normal Actuarial Cost Method:** A funding method that calculates the Normal Cost as a level percentage of pay over the working lifetime of the plan's members.
9. **Experience Study:** An actuarial investigation of demographic and economic experiences of the system during the period studied. The investigation is made for the purpose of updating the actuarial assumptions used in valuing the actuarial liabilities.
10. **Funding Value of Assets**: The value of current plan assets recognized for valuation purposes. Generally based on a phased-in recognition of all or a portion of market related investment return. Sometimes referred to as Actuarial Value of Assets.
11. **Market Value of Assets:** The fair value of plan assets as reported in the plan's financial statements.
12. **Normal Cost (NC):** The annual cost assigned, under the actuarial funding method, to current and subsequent plan years. Sometimes referred to as "current service cost." Any payment toward the unfunded actuarial accrued liability is not part of the normal cost.
13. **Unfunded Actuarial Accrued Liability (UAAL):** The difference, if any, between the actuarial accrued liability and valuation assets. Sometimes referred to as "unfunded accrued liability."

APPENDIX II

SUMMARY OF FINANCIAL ASSUMPTIONS

Summary of Assumptions Used in Actuarial Valuations

Assumptions Adopted by the Board of Trustees After Consulting With Actuary

1. The investment return rate used in making the valuations was 7.25% per year, net of investment expenses, compounded annually. This rate of return is not the assumed real rate of return. The real rate of return is the rate of investment return in excess of the inflation rate. The price inflation rate used in making the valuations was 2.50% and the wage inflation rate used in making the valuations was 3.25%. The investment return rate translates to an assumed real rate of return over price inflation of 4.75% and over wage inflation of 4.00%. Adopted 2011 and 2016.

2. The healthy retiree mortality tables, for post-retirement mortality, used in evaluating allowances to be paid were the RP-2014 Healthy Annuitant mortality table for males and females, adjusted for mortality improvement back to the observation period base year of 2006. The disabled retiree mortality tables, for post-retirement mortality, used in evaluating allowances to be paid were the RP-2014 disabled mortality table for males and females, adjusted for mortality improvement back to the observation period base year of 2006. The pre-retirement mortality tables used were the RP-2014 employees mortality table for males and females, adjusted for mortality improvement back to the observation period base year of 2006. For both the post-retirement and pre-retirement tables, the base year for males was then established to be 2017. Mortality rates for a particular calendar year are determined by applying the MP-2015 mortality improvement scale to the above described tables. Adopted 2016.

3. The probabilities of withdrawal and disability from service, together with individual pay increase assumptions, are shown in Schedule 1. Adopted 2016.

4. The probabilities of retirement with an age and service allowance are shown in Schedule 2. Adopted 2016.

5. Post-retirement cost-of-living allowances are assumed to be 2.50% per year. Adopted 2016.

6. Total active member payroll is assumed to increase a year, which is the portion of the individual pay increase assumptions attributable to wage inflation. In effect, this assumes no change in the number of active members per employer. Adopted 2016.

7. An individual entry-age actuarial cost method of valuation was used in determining age and service allowance actuarial liabilities and normal cost. Adopted 1986.

8. The data about persons now covered was furnished by the political subdivision. Although examined for general reasonableness, the data was not audited by us.

9. This report was prepared using our proprietary valuation model and related software which in our professional judgment has the capability to provide results that are consistent with the purposes of this valuation. We performed tests to ensure that the model reasonably represents that which is intended to be modeled.

Schedule 1.

Separations From Active Employment (Not Including Death-in-Service) Before Age & Service Retirement and Individual Pay Increase Assumptions

		Percent of Active Members Separating Within Next Year							
		General Members							
Sample	Years of	Men		Women		Police/Public Safety		Fire	
Ages	Service	Disability	Withdrawal	Disability	Withdrawal	Disability	Withdrawal	Disability	Withdrawal
All	0		19.00%		22.00%		18.00%		10.00%
	1		17.00		20.00		17.00		8.00
	2		15.00		17.00		16.00		7.00
	3		13.00		14.00		13.00		6.00
	4		11.00		13.00		12.00		6.00
25	5 & Over	0.09%	7.30	0.02%	10.80	0.10%	9.80	0.06%	5.00
30		0.12	6.50	0.03	8.90	0.11	7.80	0.10	4.00
35		0.15	5.00	0.06	7.40	0.16	6.10	0.23	2.80
40		0.21	3.70	0.10	5.70	0.22	4.40	0.35	2.20
45		0.30	3.00	0.16	4.20	0.34	3.20	0.56	1.80
50		0.44	2.40	0.24	3.30	0.53	1.80	0.85	1.00
55		0.68	1.80	0.34	2.50	0.88	1.00	1.31	0.50
60		1.02	1.00	0.48	1.20		0.00		0.00
65			0.00		0.00		0.00		0.00

Sample	Percent Increase in Individual's Pay During Next Year		
Ages	General	Police/Public Safety	Fire
25	6.55%	6.55%	7.15%
30	5.75	5.75	6.05
35	5.25	5.25	5.15
40	4.75	4.75	4.45
45	4.25	4.25	4.15
50	3.85	3.85	3.85
55	3.65	3.65	3.65
60	3.55	3.55	3.25
65	3.25	3.25	3.25

Schedule 2.

Percent of Eligible Active Members Retiring Within Next Year Without Rule of 80 Eligibility

Early Retirement

Retirement Ages	General Members		Retirement Ages	Police/ Public Safety	Fire
	Men	Women			
55	3.00%	3.00%	50	2.50%	2.50%
56	3.00%	3.00%	51	2.50%	2.50%
57	3.00%	3.00%	52	2.50%	2.50%
58	3.00%	3.00%	53	2.50%	2.50%
59	3.00%	3.00%	54	2.50%	2.50%

Normal Retirement

Retirement Ages	General Members		Retirement Ages	Police/ Public Safety	Fire
	Men	Women			
60	10%	10%	55	10%	13%
61	10	10	56	10	13
62	25	15	57	10	13
63	20	15	58	10	13
64	20	15	59	10	13
65	25	25	60	10	15
66	25	25	61	10	15
67	20	25	62	25	20
68	20	25	63	20	20
69	20	20	64	20	20
70	100	100	65	100	100

Schedule 2. (Concluded)

Percent of Eligible Active Members Retiring Within Next Year With Rule of 80 Eligibility

Retirement Ages	General Members		Police/ Public Safety	Fire
	Men	Women		
50	15%	15%	25%	25%
51	15	15	25	20
52	15	15	15	20
53	15	15	15	20
54	15	15	15	20
55	15	15	15	20
56	15	15	15	20
57	15	15	15	25
58	15	15	15	25
59	15	15	15	25
60	15	15	15	35
61	15	15	25	35
62	30	15	30	45
63	30	15	30	45
64	30	20	30	45
65	30	25	100	100
66	30	25		
67	30	25		
68	30	25		
69	30	25		
70	100	100		

APPENDIX III

SUMMARY OF BENEFIT PROVISIONS

The City of Maplewood – Legacy Plan
Brief Summary of Benefit Provisions
as of December 31, 2021

Benefit Provision Summary

Effective Date

Established in 1948.

Eligibility

10 years of service.

Benefit Formula

2% of base pay times years of benefit service up to a maximum of 60%.

Normal Retirement Date

Any age with 20 years of service or age 55 with 10 years of service.

Normal Form

Life Annuity with death benefits of 50% to the participant's surviving spouse.

Retirement Benefit

Accrued Benefit at actual retirement.

Vesting

Participants are eligible to begin receiving benefits at age 55.

Disability Benefit

For Duty Disability Retirement, the benefit is 60% of base pay.
For Non-Duty Disability Retirement, the benefit is 40% of base pay.

Pre-Retirement Death Benefit

For Duty Death before Retirement, the benefit is 40% of base pay plus 5% of base pay for each child under age 18.
For Non-Duty Death before Retirement, the benefit is 30% of base pay plus 5% of base pay for each child under age 18.

Contributions

7% of base salary.

APPENDIX IV

RISK COMMENTARY

Risk Commentary

The determination of the accrued liability and the actuarially determined contribution (i.e., total employer contribution rate) requires the use of assumptions regarding future economic and demographic experience. Risk measures, as illustrated in this report, are intended to aid in the understanding of the effects of future experience differing from the assumptions used in the course of the actuarial valuation. Risk measures may also help with illustrating the potential volatility in the accrued liability and the actuarially determined contribution that result from the differences between actual experience and the actuarial assumptions.

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 due to changing conditions; 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. The scope of an actuarial valuation does not include an analysis of the potential range of such future measurements.

Examples of risk that may reasonably be anticipated to significantly affect the plan's future financial condition include:

1. **Investment Risk** – actual investment returns may differ from the expected returns;
2. **Asset/Liability Mismatch Risk** – changes in asset values may not match changes in liabilities, thereby altering the gap between the accrued liability and assets and consequently altering the funded status and contribution requirements;
3. **Contribution Risk** – actual contributions may differ from expected future contributions. For example, actual contributions may not be made in accordance with the plan's funding policy or material changes may occur in the anticipated number of covered employees, covered payroll, or other relevant contribution base;
4. **Salary and Payroll Risk** – actual salaries and total payroll may differ from expected, resulting in actual future accrued liability, contributions and contribution rates differing from expected;
5. **Longevity Risk** – members may live longer or shorter than expected and receive pensions for a period of time other than assumed; and
6. **Other Demographic Risks** – members may terminate, retire or become disabled at times or with benefits other than assumed resulting in actual future accrued liability and contributions differing from expected.

The effects of certain trends in experience can generally be anticipated. For example if the investment return since the most recent actuarial valuation is less (or more) than the assumed rate, the cost of the plan can be expected to increase (or decrease). Likewise if longevity is improving (or worsening), increases (or decreases) in cost can be anticipated.

Risk Commentary (Concluded)

PLAN MATURITY MEASURES

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 are described below.

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 2.0 times the payroll, a return on assets 5% 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 plan sponsor contributions as a percentage of payroll.

RATIO OF ACTUARIAL ACCRUED LIABILITY TO PAYROLL

The relationship between actuarial accrued liability and payroll is a useful indicator of the potential volatility of contributions for a fully funded plan. 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.

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 2.5 times the payroll, a change in liability 2% other than assumed would equal 5% 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.

RATIO OF NET CASH FLOW TO 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 super-mature plan or a need for additional contributions.

DURATION OF ACTUARIAL ACCRUED LIABILITY

The duration of the actuarial accrued liability 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 liability would increase approximately 10% if the assumed rate of return were lowered 1%.

ADDITIONAL RISK ASSESSMENT

Additional risk assessment is outside the scope of the annual actuarial valuation. Additional assessment may include scenario tests, sensitivity tests, stochastic modeling, stress tests, and a comparison of the present value of accrued benefits at low-risk discount rates with the actuarial accrued liability.

800.521.0498 | P: 248.799.9000 | www.grsconsulting.com

July 2, 2021 E-mail

Mr. Robert Wilson, Executive Director
Missouri Local Government
Employees Retirement System
P.O. Box 1665
Jefferson City, Missouri 65102

Dear Bob:

Enclosed is the report of the December 31, 2021 Initial Actuarial Valuation of the Legacy Plan for the employees of:

The City of Maplewood

Sincerely,

Mita D. Drazilov, ASA, FCA, MAAA

MDD:dj
Enclosure

One Towne Square | Suite 800 | Southfield, Michigan 48076-3723