

# Illinois Municipal Retirement Fund

Annual Actuarial Valuation Report

December 31, 2022



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March 10, 2023

Board of Trustees  
Illinois Municipal Retirement Fund  
Oak Brook, Illinois

**Re: Illinois Municipal Retirement Fund Actuarial Valuation as of December 31, 2022  
Actuarial Disclosures**

Ladies and Gentlemen:

The results of the **December 31, 2022 Annual Actuarial Valuations** of members covered by the Illinois Municipal Retirement Fund (IMRF) are presented in this report.

The purpose of the valuations, as provided by Article 7 of the Illinois Pension Code, is to measure IMRF's funding progress and to establish contribution rates for the 2024 calendar year. This report should not be relied upon for any other purpose. This report may be distributed to parties other than the Fund only in its entirety and only with the permission of the Board. GRS is not responsible for unauthorized use of this report. Determinations of financial results, associated with the benefits described in this report, for purposes other than those identified above may be significantly different.

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. The scope of an actuarial valuation does not include an analysis of the potential range of such future measurements.

This valuation assumes the continuing ability of the participating employers to make the contributions necessary to fund this plan. A determination regarding whether or not the participating employers are actually able to do so is outside our scope of expertise. Consequently, we did not perform such an analysis.

The valuation was based upon information, furnished by IMRF staff, concerning Retirement Fund benefits, financial transactions, plan provisions and active members, terminated members, retirees and beneficiaries. We checked for internal reasonability and year-to-year consistency, but did not audit the data. We are not responsible for the accuracy or completeness of the information provided by IMRF Staff.

The valuations are based upon current plan provisions related to Regular Members, Sheriff's Law Enforcement Personnel (SLEP), and Elected County Officials (ECO) employment.

In addition, this report was prepared using certain assumptions approved by the Board as described in the section of this report entitled Actuarial Methods and Assumptions. This report includes certain risk measures but does not include a more robust assessment of the risks of future experience not meeting the actuarial assumptions. Additional assessment of risks was outside the scope of this assignment. A discussion of various risk measures is included on pages A-13 through A-15 of this report.

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 and has no material limitations or known weaknesses. We performed tests to ensure that the model reasonably represents that which is intended to be modeled.

This report has been prepared by actuaries who have substantial experience valuing public employee retirement systems. To the best of our knowledge, the information contained in this report is accurate and fairly presents the actuarial position of IMRF as of the valuation date. All calculations have been made in conformity with generally accepted actuarial principles and practices and with the Actuarial Standards of Practice issued by the Actuarial Standards Board.

Mark Buis, Francois Pieterse, and Laura Frankowiak are Members of the American Academy of Actuaries (MAAA). These actuaries meet the Academy's Qualification Standards to render the actuarial opinions contained herein.

The signing actuaries are independent of the plan sponsor.

Gabriel, Roeder, Smith & Company will be pleased to review this valuation and report with the Board of Trustees and to answer any questions pertaining to the valuation.

Respectfully submitted,

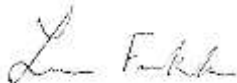
GABRIEL, ROEDER, SMITH & COMPANY



Mark Buis, FSA, EA, FCA, MAAA



Francois Pieterse, ASA, FCA, MAAA



Laura Frankowiak, ASA, FCA, MAAA

MB/FP/LF:dj



## Introduction

IMRF is established under statutes adopted by the Illinois General Assembly. It is an agent multiple employer defined benefit pension plan that, as of December 31, 2022, encompasses 3,385 active plans and serves 499,620 active and inactive members and retired persons. Since IMRF reports information to us by plan, there are cases in which a person with coverage in more than one plan is counted multiple times for census counts. This produces an overstatement in the census when compared with true counts of people. This issue may affect inactive members to a greater extent than it affects others. Liabilities are, however, correctly calculated and apportioned among employers. IMRF is funded by both member and employer contributions. Members contribute at fixed rates determined by statute. Regular members contribute 4.5% of pay; SLEP members contribute 7.5%; ECO members contribute 7.5%. Participating employers make all additional contributions needed to provide benefits. Each employer contributes to a separate account within IMRF which, when combined with member contributions and investment income, will be sufficient to provide future benefits for its own employees. Employer contributions for each plan are computed each year in the actuarial valuation and consist of:

- **Normal Cost Contributions** for normal and early retirement benefits, separation benefits, permanent disability benefits, and annuity type death benefits. These contributions are the same as a percentage of payroll for most employers (larger employers have the option of being individually rated).
- **Contributions for lump sum death-in-service benefits**, which are separately determined for each employer.
- **Contributions for temporary disability benefits**, which are 0.08% of payroll for each employer.
- **Contributions for 13<sup>th</sup> Payments**, which are 0.62% of covered payroll for each employer.
- **Contributions for Early Retirement Incentive (ERI) unfunded liabilities** which are separately determined for each employer.
- **Contributions for other unfunded liabilities**, which are separately determined for each employer. For employers with taxing authority, unfunded liabilities are being funded over a 19-year closed period. For non-taxing employers the unfunded liabilities are being funded over a 10-year rolling period. Unfunded liabilities associated with benefit changes for SLEP members (Public Act 94-712) are amortized over 14 years for most employers. The amortization policy is described on page D-15.

Employer contributions computed in this valuation compared with those computed in the prior valuation are shown below:

	<b>Average Employer Contribution Rates Expressed as %'s of Active Member Pays</b>			
	<b>Regular</b>	<b>SLEP</b>	<b>ECO</b>	<b>Average/Total</b>
This Valuation	6.65%	17.99%	39.73%	7.15%
Prior Valuation	6.55%	16.38%	38.13%	7.00%

This year’s valuation results were affected by:

- Unfavorable investment performance.
- Liability losses, mostly due to higher pay increases than expected.
- Continued recognition of Tier 2 benefits for new hires.
- ERI liabilities.
- Three employers are individually rated (DuPage County; Union School District 46 and Peoria County). Although these employers will receive separate valuation reports, member counts, assets, and liabilities for these employers are also included in the totals in this valuation report.

A full reconciliation of changes in contribution rates can be found in the Gain/Loss Analysis report. Based upon this year’s valuation results, IMRF is 98.2% funded and the average/total employer rate is 7.15% of payroll.

This report reflects the impact of COVID-19 experience through December 31, 2022. It does not reflect the ongoing impact of COVID-19, which is likely to influence demographic and economic experience, at least in the short term. We will continue to monitor these developments and their impact on the Retirement Fund. Actual future experience will be reflected in each subsequent annual valuation, as experience emerges.

Section A of this report describes this year’s valuation results in depth.

**Looking Ahead:** Due to the asset smoothing method, only a portion of the current year’s asset loss was recognized. If the Market Value of Assets were used (instead of smoothed value), the funded status would have been about 91% (instead of 98.2%). Absent offsetting gains, this will put upward pressure on contribution rates. To the extent that actual returns fall below/(above) the assumed return of 7.25%, contribution requirements will increase/(decrease).

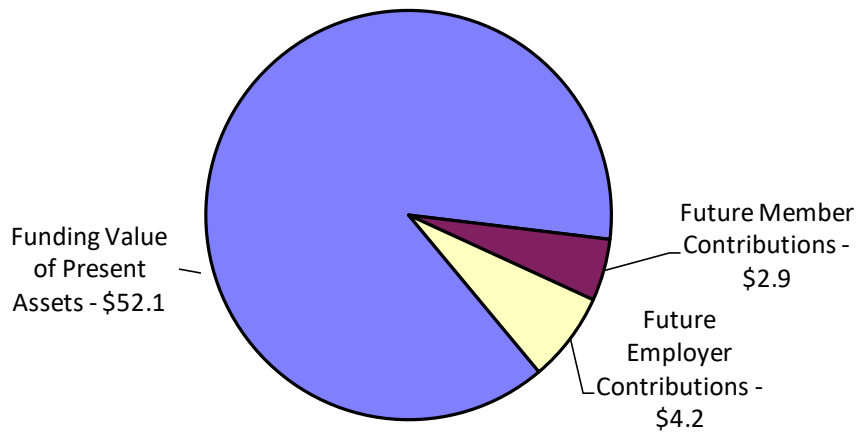
## **SECTION A**

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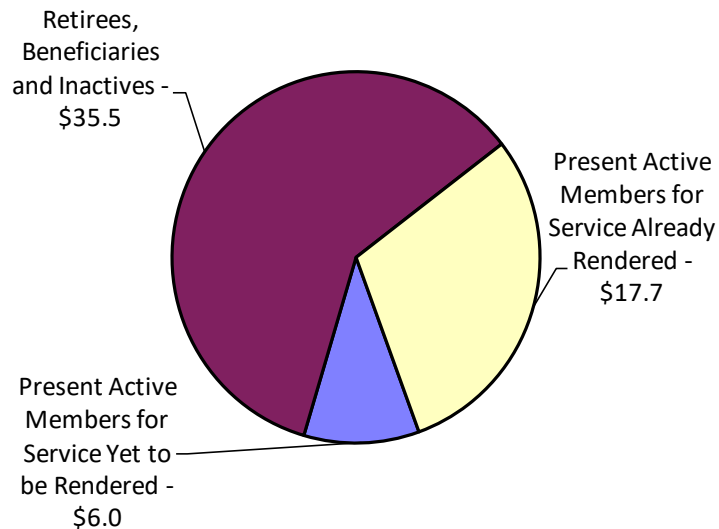
### **VALUATION RESULTS**

# Financing \$59.2 Billion Worth of Benefit Promises to Present Members, Retirees and Beneficiaries December 31, 2022 (Amounts in \$Billions)

**Sources of Funds**



**IMRF Obligations**





# Actuarial Balance Sheet

## December 31, 2022

	Funding Sources			
	Regular	SLEP	ECO	Total
<b>Present Valuation Assets</b>				
Member Contributions	\$ 6,985,544,136	\$ 443,266,455	\$ 18,724,293	\$ 7,447,534,884
VA Member Contributions	441,800,971	30,795,100	438,508	473,034,579
Employer Assets	9,240,347,793	425,159,169	(10,892,106)	9,654,614,856
Retired Life Assets	28,188,190,079	2,371,717,350	312,743,760	30,872,651,189
Market Value Adjustment	3,406,354,764	248,714,620	24,594,630	3,679,664,014
Death and Disability Reserves				15,170,506
<b>Total Present Assets</b>	<b>\$48,262,237,743</b>	<b>\$3,519,652,694</b>	<b>\$345,609,085</b>	<b>\$52,142,670,028</b>
<b>Future Assets</b>				
Member Contributions	\$ 2,713,410,819	\$ 200,155,238	\$ 1,551,457	\$ 2,915,117,514
Employer Contributions				
Normal Costs	2,883,990,129	239,606,776	2,649,886	3,126,246,791
Unfunded Liability	642,308,526	306,263,882	21,666,350	970,238,758
<b>Total Employer</b>	<b>\$ 3,526,298,655</b>	<b>\$ 545,870,658</b>	<b>\$ 24,316,236</b>	<b>\$ 4,096,485,549</b>
<b>Total Future Assets</b>	<b>\$ 6,239,709,474</b>	<b>\$ 746,025,896</b>	<b>\$ 25,867,693</b>	<b>\$7,011,603,063</b>
<b>Total Funding Sources</b>	<b>\$54,501,947,217</b>	<b>\$4,265,678,590</b>	<b>\$371,476,778</b>	<b>\$59,154,273,091</b>

	Funding Uses			
	Regular	SLEP	ECO	Total
<b>Funds Needed for</b>				
Active Members	\$21,376,673,034	\$1,731,935,824	\$ 32,658,703	\$23,141,267,561
Inactive Members	4,495,283,133	131,230,316	25,635,807	4,652,149,256
VA Members	441,800,971	30,795,100	438,508	473,034,579
Retirees and Beneficiaries	28,188,190,079	2,371,717,350	312,743,760	30,872,651,189
Death and Disability Benefits				15,170,506
<b>Total Actuarial Present Value</b>	<b>\$54,501,947,217</b>	<b>\$4,265,678,590</b>	<b>\$371,476,778</b>	<b>\$59,154,273,091</b>



## Development of Average Contribution Rates Applicable to Calendar Year 2024 (Results as of December 31, 2022)

	% of Active Member Pays		
	Regular	SLEP	ECO
Tier 1 Employer Normal Cost	6.23 %	11.60 %	12.81 %
Tier 2 Employer Normal Cost	3.63 %	7.28 %	12.81 %
Average Employer Contributions for Normal Cost*			
Retirement	4.92 %	9.54 %	12.50 %
\$3,000 Lump Sum Death Benefit	0.02 %	0.01 %	0.03 %
Total & Permanent Disability Benefit	0.02 %	0.06 %	0.28 %
Total Normal Cost	4.96 %	9.61 %	12.81 %
Lump Sum Death-in-Service Benefits	0.17 %	0.18 %	0.22 %
Temporary Disability	0.08 %	0.08 %	0.08 %
13 <sup>th</sup> Payments	0.62 %	0.62 %	0.62 %
Unfunded (Overfunded) Liabilities (19/10 years)	0.72 %	5.47 %	26.00 %
Early Retirement Incentive Liabilities	0.10 %	0.05 %	0.00 %
SLEP Supplemental Liabilities	0.00 %	1.98 %	0.00 %
<b>Total Average Employer Rate</b>	<b>6.65 %</b>	<b>17.99 %</b>	<b>39.73 %</b>
Prior Year Averages	6.55 %	16.38 %	38.13 %

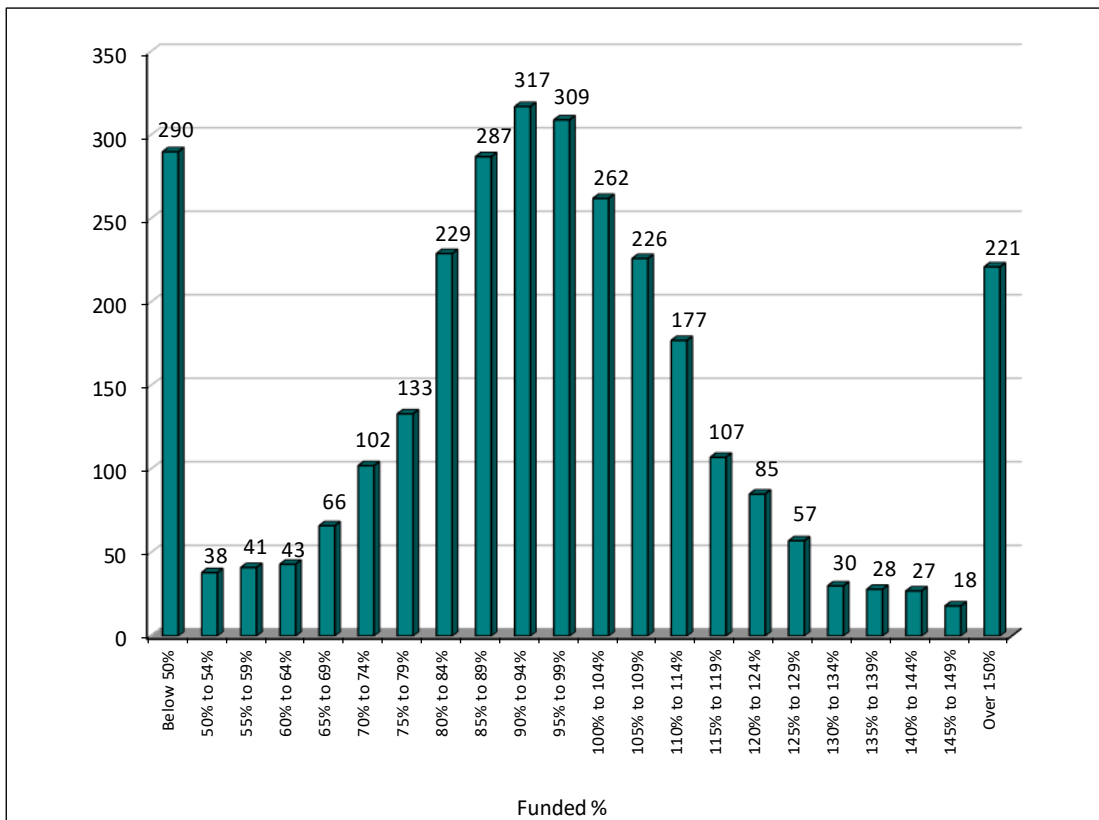
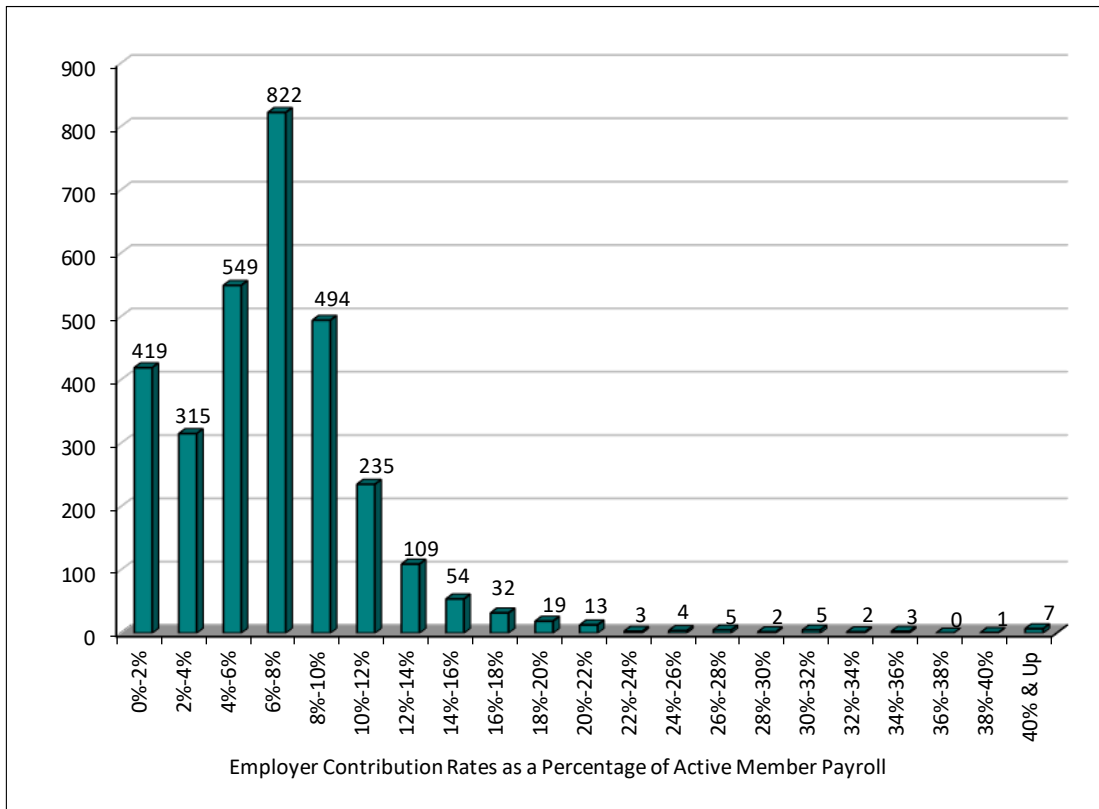
\* Average of Tier 1 and Tier 2 Normal Cost weighted on expected payroll.

Each employer pays its normal cost in accordance with its mix of Tier 1 and Tier 2 employees and the percentages above (some larger employers have the option of paying an individual normal cost rate) and the same rate for temporary disability benefits and 13<sup>th</sup> Payments. Rates for lump sum death-in-service benefits, unfunded (overfunded) liabilities, and early retirement incentive liabilities are separately determined for each employer, and can vary widely. Because of this, the average contribution rates tell only part of the story. Pages A-4 through A-7 show the distribution of computed employer contribution rates, funding percents, and rate changes based on the annual required contribution from the prior year among the 3,093 Regular plans, 225 SLEP plans and 67 ECO plans. IMRF staff reviews all of the computed rates and, in some cases, may make adjustments to those rates that are not reflected in this report.

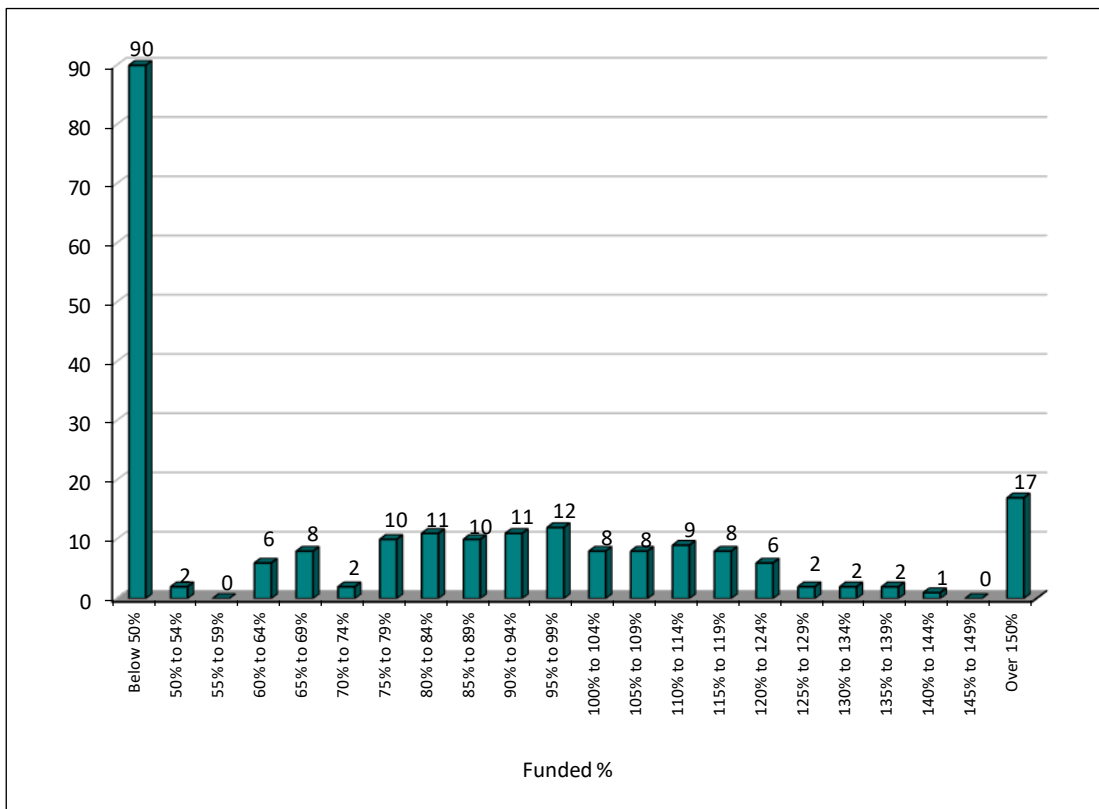
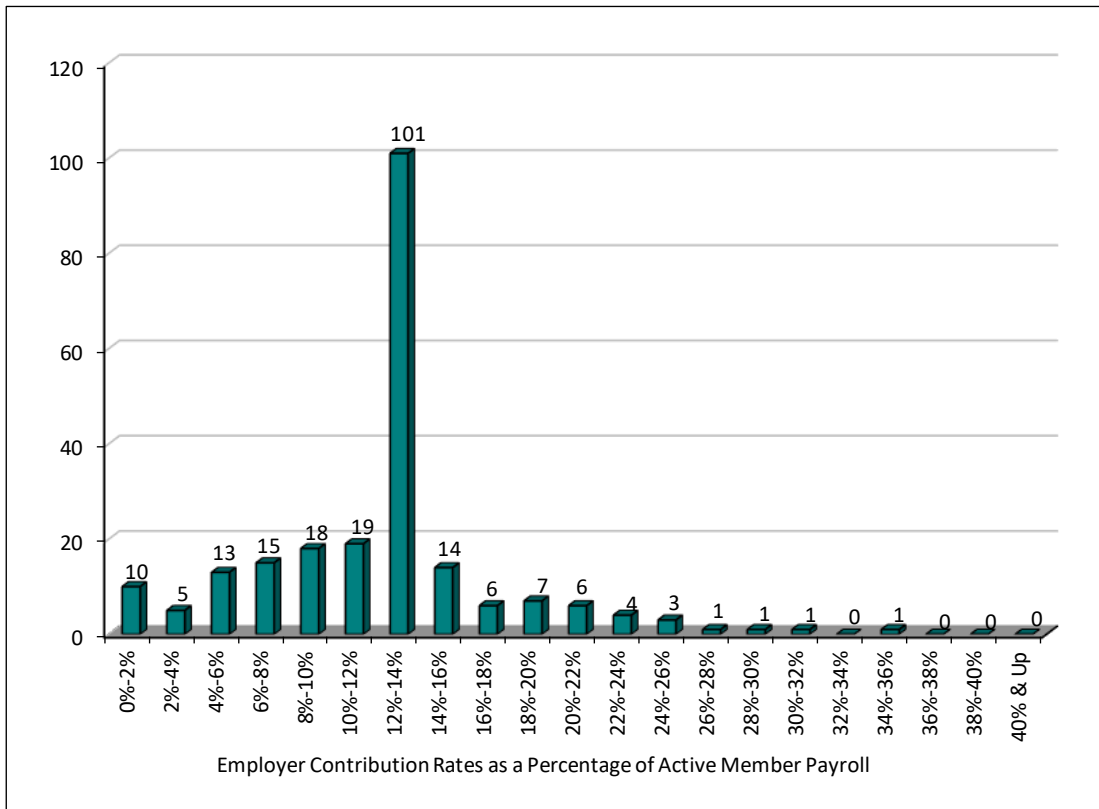
Employer contributions made during calendar year 2022 amounted to \$807 million. This compares with \$968 million in the previous year.



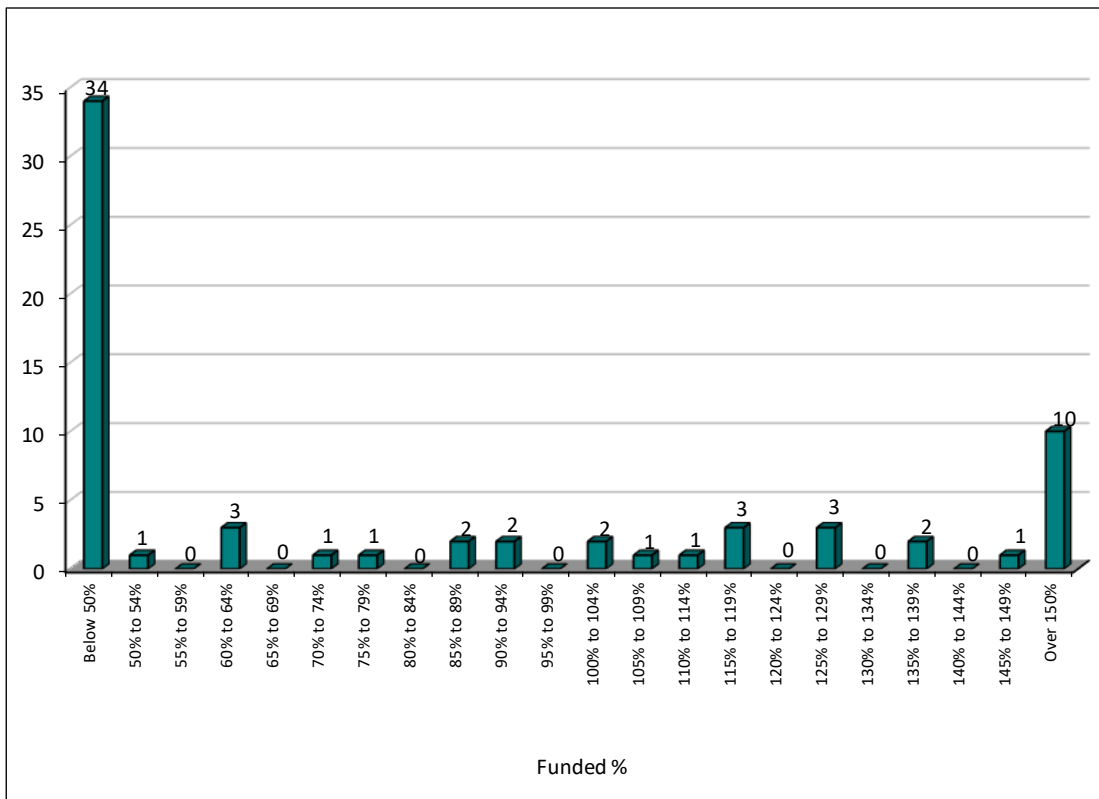
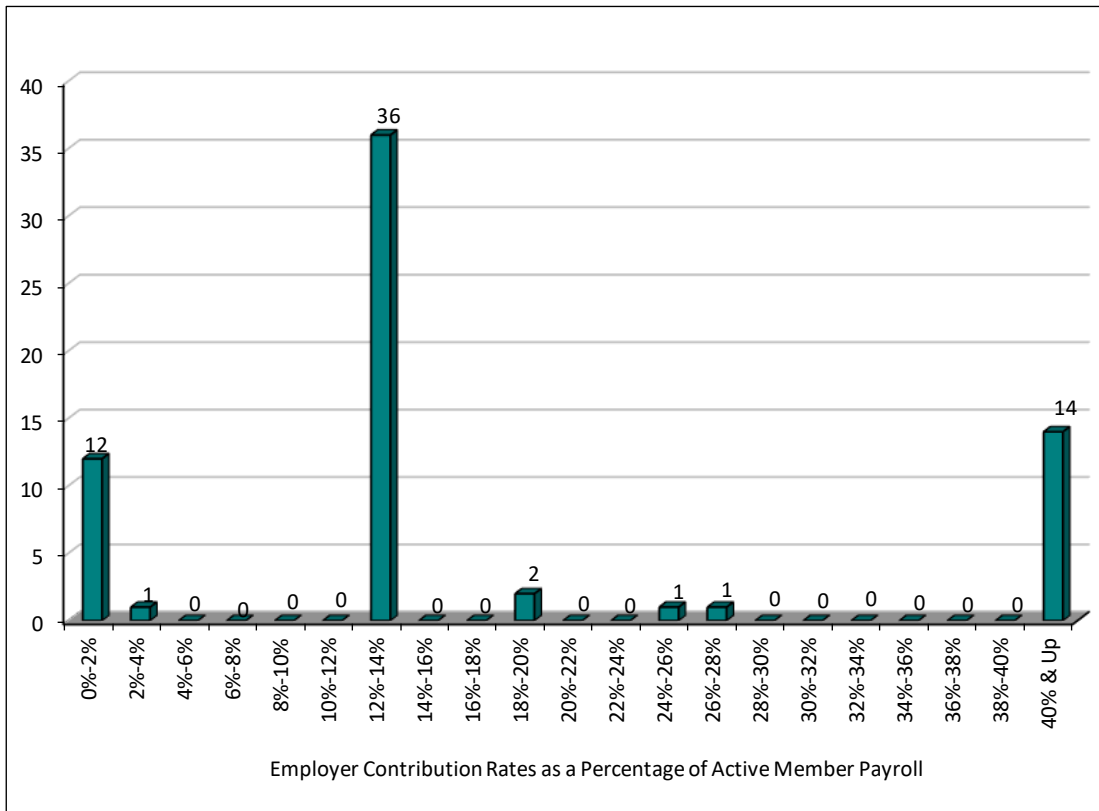
# Employer Contribution Rates and Funded Percents 3,093 Regular Employers at December 31, 2022



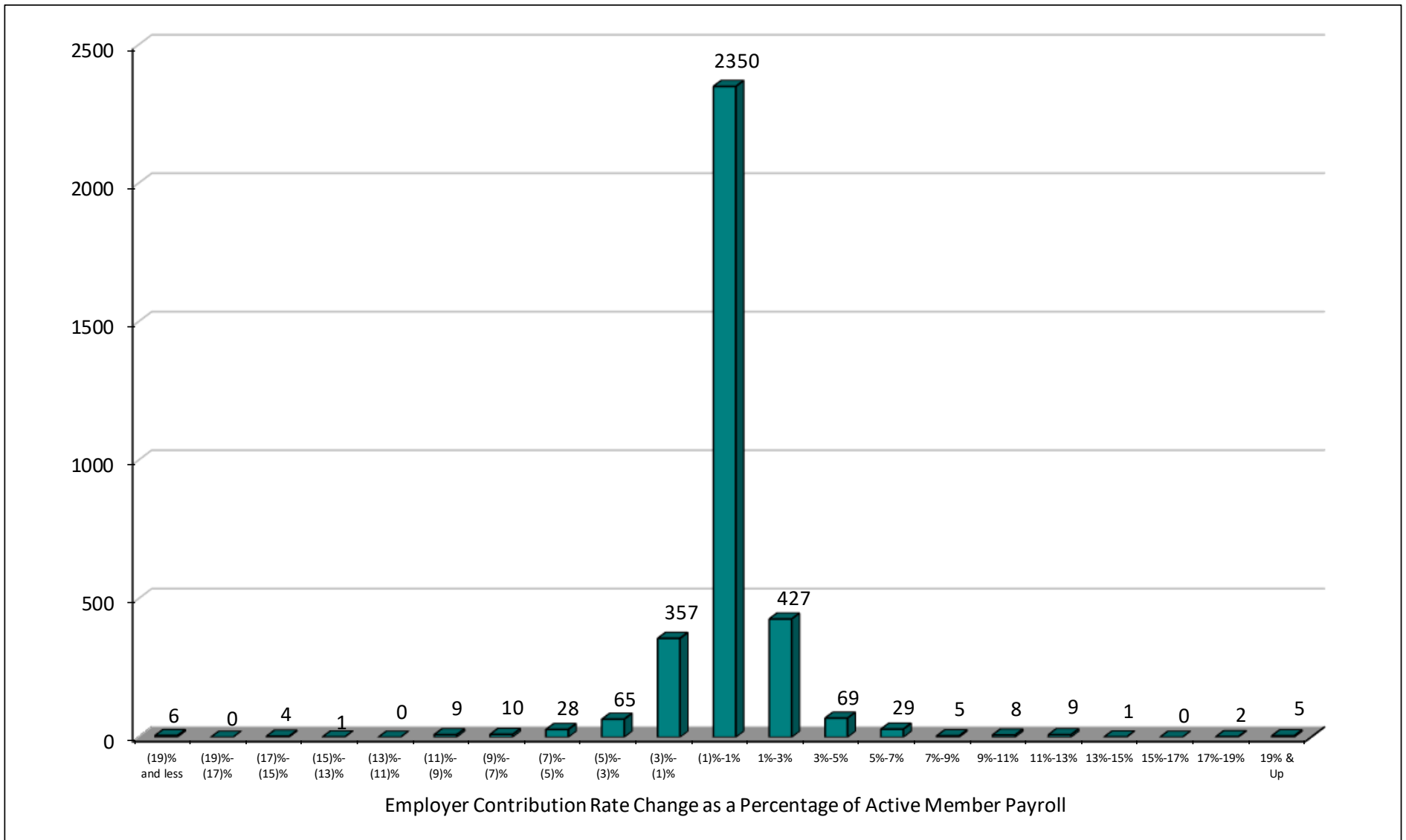
# Employer Contribution Rates and Funded Percents 225 SLEP Employers at December 31, 2022



## Employer Contribution Rates and Funded Percents 67 ECO Employers at December 31, 2022



## Employer Contribution Rate Changes - 2022 Actuarial Valuations 3,385 Employers



# Historical Summary of Employer Rates

Rate Applies to Calendar Year	Rate Computed as of December 31	Employer Contribution Rate Expressed as % of Active Member Payroll					
		Regular Members		SLEP Members		ECO Members	
		Normal Cost	Average Total Rate	Normal Cost	Average Total Rate	Normal Cost	Average Total Rate
2000	1998	7.17%	8.16%	10.42%	14.28%	23.39%	41.38%
2001	1999 <sup>1</sup>	7.41%	6.64%	12.02%	14.86%	23.85%	42.58%
2002	2000	7.62%	5.87%	11.94%	14.13%	18.05%	38.46%
2003	2001	7.66%	6.22%	11.96%	14.04%	17.95%	40.37%
2004	2002 <sup>1</sup>	7.60%	7.82%	12.47%	16.29%	18.18%	44.90%
2005	2003	7.61%	9.25%	12.48%	17.15%	18.07%	42.66%
2006	2004	7.64%	10.04%	12.56%	18.25%	18.01%	44.90%
2007	2005 <sup>1,2</sup>	7.43%	9.72%	11.66%	18.42%	17.52%	41.30%
2008	2006	7.42%	9.47%	11.63%	19.33%	16.96%	41.80%
2009	2007	7.42%	9.27%	11.63%	18.65%	17.08%	42.77%
2010	2008 <sup>1</sup>	7.58%	11.89%	11.97%	21.63%	17.24%	43.57%
2011	2009	7.58%	12.14%	11.97%	21.76%	17.20%	42.72%
2012	2010	7.58%	12.42%	12.01%	22.48%	17.22%	47.15%
2013	2011 <sup>1,2</sup>	7.77%	12.85%	12.74%	23.40%	17.63%	46.85%
2014	2012	7.64%	12.58%	12.61%	23.20%	17.59%	74.52%
2015	2013	7.51%	11.69%	12.42%	22.33%	17.73%	70.37%
2016	2014 <sup>1</sup>	6.84%	11.73%	11.95%	22.71%	16.49%	86.07%
2017	2015	6.71%	11.34%	11.77%	22.39%	16.83%	73.50%
2018	2016	6.61%	11.24%	11.63%	21.49%	16.85%	82.72%
2019	2017 <sup>1</sup>	5.61%	9.06%	10.98%	20.50%	13.21%	66.43%
2020	2018 <sup>1</sup>	5.98%	10.91%	11.94%	24.48%	13.79%	72.66%
2021	2019	5.86%	10.62%	11.72%	23.70%	14.21%	71.68%
2022	2020 <sup>1</sup>	5.22%	8.59%	10.05%	19.81%	13.26%	61.37%
2023	2021	5.09%	6.55%	9.87%	16.38%	13.14%	38.13%
<b>2024</b>	<b>2022</b>	<b>4.96%</b>	<b>6.65%</b>	<b>9.61%</b>	<b>17.99%</b>	<b>12.81%</b>	<b>39.73%</b>

<sup>1</sup> Assumption change.

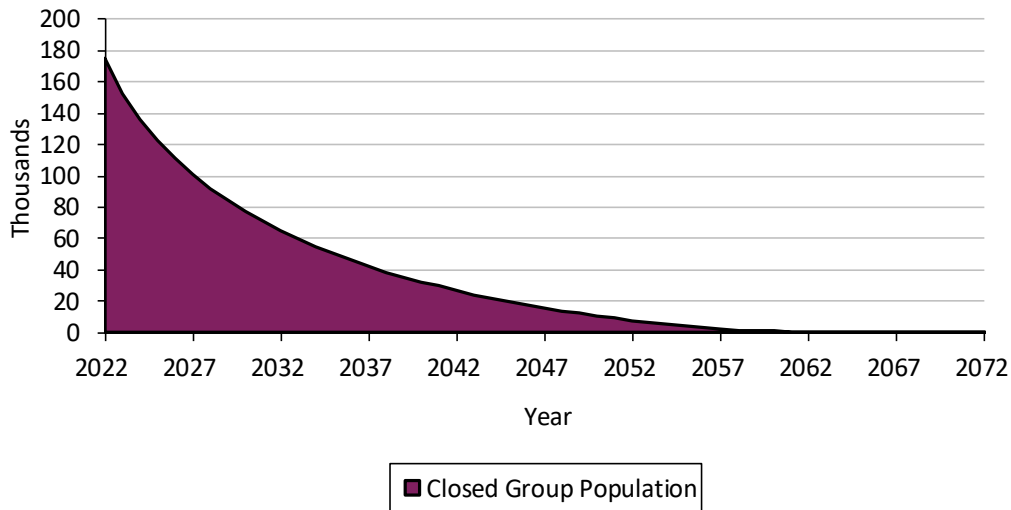
<sup>2</sup> Benefit change.

As shown above, the average employer contribution rates increased this year for regular, SLEP and ECO employers. The increase was primarily due to pay increases being higher than what was expected in 2022. Generally, small fluctuations from year-to-year should be expected for the average rate and for any large employer's rate. Small and very small employers will experience larger variations.

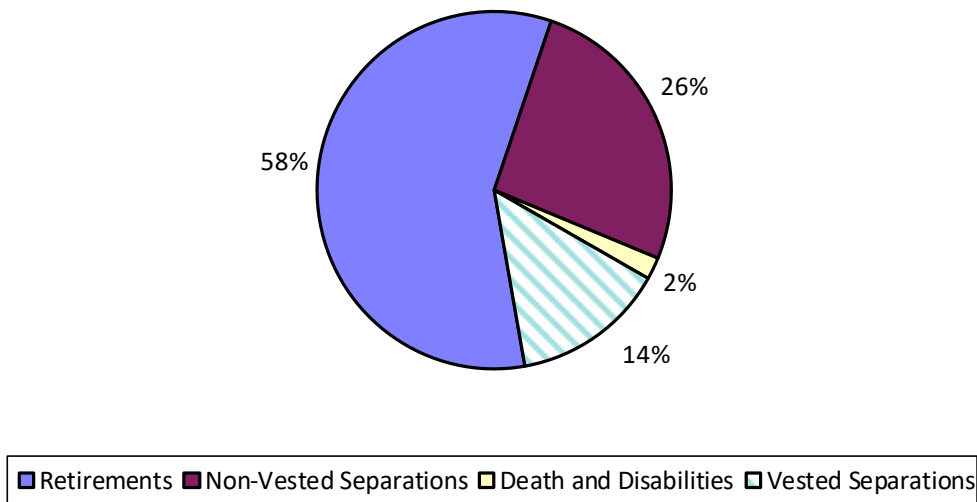
Most of the larger changes were for small employers (often employers covering just a few employees), since the removal or addition of one employee can significantly impact the contribution rate. The actuary and IMRF staff review all of the large rate changes individually in order to determine the reasonableness of the change. In some cases, rates may be adjusted following that review. Also, under certain circumstances employers have been allowed to phase in rate changes. Such adjustments are not reflected in this report.

# Expected Development of Present Population December 31, 2022

### Closed Group Population Projection



### Expected Terminations from Active Employment for Current Active Members



The charts above show the expected future development of the present population in simplified terms. The retirement system presently covers 175,446 active members. Eventually, 26% of the population is expected to terminate covered employment prior to retirement and forfeit eligibility for a monthly benefit. About 72% of the present population is expected to receive monthly retirement benefits either by retiring directly from active service, or by retiring from vested deferred status. Two percent of the present population is expected to become eligible for death-in-service or disability benefits. **Within seven years, over half of the covered membership is expected to consist of new hires.**



## Unfunded Actuarial Accrued Liabilities

In a retirement fund such as IMRF, where unfunded liabilities are being amortized as a level percent of active member payroll, unfunded liabilities are expected to rise in dollar amount for an extended period before finally beginning to decrease. This has to do with inflation and the related fact that the dollar is a yardstick whose length changes every year. The schedule below illustrates the development of the unfunded liability, based upon actuarial value of assets, during the year.

	<b>Unfunded Liability Development During</b>	
	<b>2022</b>	<b>2021</b>
Unfunded (Overfunded) Liability January 1	\$ 736,003,199	\$2,905,510,366
Assumed Net (Payments) Credits	(49,091,971)	(217,755,192)
Assumed Interest	51,601,401	202,847,945
Expected Unfunded Liability December 31	738,512,629	2,890,603,119
Increase/(Decrease) Due to Change in Assumptions	0	0
Increase/(Decrease) Due to Benefit Changes	0	0
Increase/(Decrease) Due to Data Changes	0	0
Loss/(Gain) Due to Investment Experience	23,294,564	(2,174,486,990)
Loss/(Gain) Due to Other Sources	208,431,565	19,887,070
Actual Unfunded Liability December 31	\$ 970,238,758	\$736,003,199

## Unfunded Actuarial Accrued Liabilities Comparative Statement (Amounts in \$Millions)

Valuation Date	(1) Actuarial Accrued Liabilities (AAL)	(2) Funding Value of Assets	(3) Unfunded AAL	(4) Valuation Payroll	(5) Funded Ratio (2)/(1)	(6) Liability/ Payroll (1)/(4)	(7) Assets/ Payroll (2)/(4)	(8) Unfunded/ Payroll (3)/(4)
1997	\$ 10,808.0	\$ 10,273.1	\$ 534.9	\$3,454.6	95.1%	312.9%	297.4%	15.5%
1998	11,860.9	11,636.5	224.4	3,696.0	98.1%	320.9%	314.8%	6.1%
1999*	13,005.0	13,520.2	(515.2)	3,952.1	104.0%	329.1%	342.1%	-
2000	14,153.1	15,169.4	(1,016.3)	4,184.7	107.2%	338.2%	362.5%	-
2001	15,318.5	16,305.0	(986.5)	4,503.1	106.4%	340.2%	362.1%	-
2002*	16,559.9	16,800.2	(240.3)	4,755.1	101.5%	348.3%	353.3%	-
2003	17,966.1	17,529.9	436.2	4,944.8	97.6%	363.3%	354.5%	8.8%
2004	19,424.7	18,316.0	1,108.7	5,161.1	94.3%	376.4%	354.9%	21.5%
2005 *#	20,815.1	19,698.4	1,116.7	5,374.6	94.6%	387.3%	366.5%	20.8%
2006	22,488.2	21,427.1	1,061.0	5,630.7	95.3%	399.4%	380.5%	18.8%
2007	24,221.5	23,274.4	947.2	5,931.4	96.1%	408.4%	392.4%	16.0%
2008 *	25,611.2	21,601.1	4,010.1	6,259.3	84.3%	409.2%	345.1%	64.1%
2009	27,345.1	22,754.8	4,590.3	6,461.7	83.2%	423.2%	352.1%	71.0%
2010	29,129.2	24,251.1	4,878.1	6,391.2	83.3%	455.8%	379.4%	76.3%
2011 *#	30,962.8	25,711.3	5,251.5	6,431.3	83.0%	481.4%	399.8%	81.7%
2012	32,603.2	27,491.8	5,111.4	6,496.1	84.3%	501.9%	423.2%	78.7%
2013	34,356.6	30,083.0	4,273.6	6,602.5	87.6%	520.4%	455.6%	64.7%
2014 *	37,465.1	32,700.2	4,764.9	6,732.5	87.3%	556.5%	485.7%	70.8%
2015	39,486.6	34,913.1	4,573.5	6,919.3	88.4%	570.7%	504.6%	66.1%
2016	41,358.7	36,773.4	4,585.3	7,006.7	88.9%	590.3%	524.8%	65.4%
2017 *	42,179.5	39,187.8	2,991.7	7,127.5	92.9%	591.8%	549.8%	42.0%
2018 *	45,354.1	40,830.0	4,524.1	7,321.5	90.0%	619.5%	557.7%	61.8%
2019	47,357.9	42,936.2	4,421.7	7,547.5	90.7%	627.5%	568.9%	58.6%
2020 *	48,922.9	46,017.4	2,905.5	7,568.2	94.1%	646.4%	608.0%	38.4%
2021	50,927.6	50,191.5	736.1	7,811.1	98.6%	652.0%	642.6%	9.4%
<b>2022</b>	<b>53,112.9</b>	<b>52,142.7</b>	<b>970.2</b>	<b>8,303.3</b>	<b>98.2%</b>	<b>639.7%</b>	<b>628.0%</b>	<b>11.7%</b>

\* Assumption change.

# Benefit change.

While no one or two numeric indices can fully describe the financial condition of a retirement fund, trends in both the Funded Ratio (Column 5) and the Unfunded/Payroll Ratio (Column 8) provide useful information. Unfunded accrued liabilities represent plan debt, while active member payroll represents the plan's capacity to service the debt. In a retirement fund that is following the discipline of level percent of payroll financing, the Funded Ratio should gradually move toward 100% and the Unfunded/Payroll ratio should gradually move toward 0%.



# Unfunded Actuarial Accrued Liabilities

## General Implications of Contribution Allocation Procedure or Funding Policy on Future Expected Plan Contributions and Funded Status

Given the plan's contribution allocation procedure, if all actuarial assumptions are met (including the assumption of the plan earning 7.25% on the actuarial value of assets), it is expected that:

1. The employer normal cost as a percentage of pay will decrease to the level of the Tier 2 normal cost as time passes as the majority of the active population will consist of Tier 2 members;
2. The unfunded actuarial accrued liability will increase in dollar amount for several years before it begins to decrease; and
3. The funded status of the plan will increase gradually towards a 100% funded ratio without ever actually reaching it.

When selecting a contribution allocation procedure, the following three items should be considered, including the balance amongst the three items: (1) benefit security, (2) intergenerational equity, and (3) contribution stability and predictability. Generally, given the nature of public employee retirement systems (e.g., level contribution financing objective and perceived ongoing nature of the plan or plan sponsor), intergenerational equity and contribution stability and predictability have received more consideration than benefit security when contribution allocation procedures are selected. However, given the importance of benefit security to any retirement system, we suggest that contributions to the Fund in excess of those presented in this report be considered.

## Limitations of Funded Status Measurements

Unless otherwise indicated, a funded status measurement presented in this report is based upon the actuarial accrued liability and the actuarial value of assets. Unless otherwise indicated, with regard to any funded status measurements presented in this report:

1. The measurement is inappropriate for assessing the sufficiency of plan assets to cover the estimated cost of settling the plan's benefit obligations; in other words, for transferring the obligations to an unrelated third party (e.g., insurance company) in a market value type transaction. In addition, the measurement is inappropriate for assessing benefit security for the membership.
2. The measurement is dependent upon the actuarial cost method which, in combination with the plan's amortization policy, affects the timing and amounts of future contributions. The amounts of future contributions will most certainly differ from those assumed in this report due to future actual experience differing from assumed experience based upon the actuarial assumptions. A funded status measurement in this report of 100% is not synonymous with no required future contributions. If the funded status were 100%, the plan would still require future normal cost contributions (i.e., contributions to cover the cost of the active membership accruing an additional year of service credit).

The measurement would produce a different result if the market value of assets were used instead of the actuarial value of assets, unless the market value of assets is used in the measurement.



# Risk Measures

## Risks Associated with Measuring the Accrued Liability and Actuarially Determined Contribution

The determination of the accrued liability and the actuarially determined contribution 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.

Examples of risks 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** – 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 and contributions 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. If the investment return assumption is on the optimistic end of the spectrum, investment experience may be less favorable than assumed, leading to increases in contribution rates.

The contribution rates developed in connection with this valuation are designed to comply with the Board's funding policy and actuarial standards of practice, but do not set a maximum amount that may be contributed. The timely receipt of the actuarially determined contributions is critical to support the financial health of the plan. Users of this report should be aware that contributions made at the actuarially determined rate do not necessarily guarantee benefit security.

## Risk Measures (Continued)

\$ Millions									
Valuation Date	(1) Accrued Liabilities (AAL)	(2) Market Value of Assets	(3) Unfunded AAL (1)-(2)	(4) Valuation Payroll	(5) Change in Valuation Payroll	(6) Funded Ratio (2)/(1)	(7) Annuitant Liabilities (AnnLiab)	(8) AnnLiab/ AAL (7)/(1)	(9) Liability/ Payroll (1)/(4)
2006	\$22,488.2	\$22,452.2	\$36.0	\$5,630.7	4.8%	99.8%	\$ 8,652.3	38.5%	399.4%
2007	24,221.5	24,211.5	10.0	5,931.4	5.3%	100.0%	9,400.8	38.8%	408.4%
2008 *	25,611.2	18,000.9	7,610.3	6,259.3	5.5%	70.3%	10,025.6	39.1%	409.2%
2009	27,345.1	22,282.2	5,062.9	6,461.7	3.2%	81.5%	10,903.3	39.9%	423.2%
2010	29,129.2	25,132.4	3,996.8	6,391.2	-1.1%	86.3%	12,122.0	41.6%	455.8%
2011 *#	30,962.8	24,833.7	6,129.1	6,431.3	0.6%	80.2%	13,388.0	43.2%	481.4%
2012	32,603.2	27,995.3	4,607.9	6,496.1	1.0%	85.9%	14,482.6	44.4%	501.9%
2013	34,356.6	33,203.0	1,153.6	6,602.5	1.6%	96.6%	15,753.1	45.9%	520.4%
2014 *	37,465.1	34,833.1	2,632.0	6,732.5	2.0%	93.0%	17,885.0	47.7%	556.5%
2015	39,486.6	34,461.1	5,025.5	6,919.3	2.8%	87.3%	19,471.6	49.3%	570.7%
2016	41,358.7	36,446.8	4,911.9	7,006.7	1.3%	88.1%	21,085.5	51.0%	590.3%
2017*	42,179.5	41,312.7	866.8	7,127.5	1.7%	97.9%	22,007.9	52.2%	591.8%
2018	45,354.1	38,755.6	6,598.5	7,321.5	2.7%	85.5%	24,106.3	53.2%	619.5%
2019	47,357.9	44,923.5	2,434.4	7,547.5	3.1%	94.9%	25,719.5	54.3%	627.5%
2020 *	48,922.9	50,229.7	(1,306.8)	7,568.2	0.3%	102.7%	27,251.8	55.7%	646.4%
2021	50,927.6	57,215.4	(6,287.8)	7,811.1	3.2%	112.3%	29,173.1	57.3%	652.0%
<b>2022</b>	<b>53,112.9</b>	<b>48,200.9</b>	<b>4,912.0</b>	<b>8,303.3</b>	<b>6.3%</b>	<b>90.8%</b>	<b>30,872.7</b>	<b>58.1%</b>	<b>639.7%</b>

Beginning in 2018, these Risk Measures were based on 7.25% future investment return.

Notes:

(\*). IMRF had experience studies in these years leading to a change or "true up" in actuarial assumptions. A pattern of periodic studies is a sign of a well run system and suggests the extent to which the liability measures the actuary provides are likely to be realistic.

(#). IMRF had benefit changes in these years. Benefit increases cause liabilities to rise; benefit decreases cause liabilities to fall. In either case, benefit changes affect the year-by-year comparability of the measures on this page.

(5). When payroll grows at or faster than the assumed rate, funding of unfunded accrued liabilities is likely to proceed at least at the scheduled rate. Payroll growing slower than the assumed rate can lead to underfunding of the plan because expected contributions for unfunded liability may not be received.

(6). The Funded ratio is the most widely known measure of a plan's financial strength, but the trend in the funded ratio is much more important than the absolute ratio. There can be more than one funded ratio measurement. The funded ratio shown on this page is computed on a Market Value basis. The funded ratio should trend to 100%. As it approaches 100%, it is important to re-evaluate the level of investment risk in the portfolio and potentially to re-evaluate the assumed rate of return.

(7) and (8). The ratio of Annuitant liabilities to total accrued liabilities gives an indication of the maturity of the system. As the ratio increases, cash flow needs increase, and the investment policy may need to change. A ratio on the order of 50% indicates a maturing system. A ratio significantly higher than 200% may indicate a closed system or another special situation.

(9). The ratio of liabilities to payroll gives an indication of both maturity and volatility. Many systems have ratios between 500% and 700%. Ratios significantly above that range may indicate difficulty in supporting the benefit level as a level % of payroll.

## Risk Measures (Concluded)

\$ Millions								
Valuation Date	(10) Assets/ Payroll (2)/(4)	(11) Portfolio StdDev	(12) Std Dev % of Pay (10)x(11)	(13) Unfunded/ Payroll (3)/(4)	(14) Net External Cash Flow (NECF)	(15) NECF/ Assets (14)/(2)	(16) Portfolio Rate of Return	(17) 10-Year Trailing Average
2006	398.7%			0.6%	(10.5)	0.0%	13.5%	
2007	408.2%			0.2%	(63.2)	-0.3%	8.1%	
2008 *	287.6%			121.6%	(84.2)	-0.5%	-25.3%	
2009	344.8%			78.4%	(118.7)	-0.5%	24.5%	
2010	393.2%			62.5%	(115.5)	-0.5%	13.3%	5.0%
2011 **	386.1%			95.3%	(187.3)	-0.8%	-0.4%	5.7%
2012	431.0%			70.9%	(210.9)	-0.8%	13.6%	8.1%
2013	502.9%			17.5%	(271.9)	-0.8%	19.7%	7.8%
2014 *	517.4%	13.1%	67.8%	39.1%	(391.9)	-1.1%	6.1%	7.2%
2015	498.0%	13.9%	69.2%	72.6%	(532.8)	-1.5%	0.5%	6.4%
2016	520.2%	12.0%	62.3%	70.1%	(624.9)	-1.7%	7.6%	5.9%
2017*	579.6%	13.4%	77.8%	12.2%	(789.5)	-1.9%	15.7%	6.6%
2018	529.3%	13.1%	69.4%	90.1%	(878.2)	-2.3%	-4.1%	9.3%
2019	595.2%	13.0%	77.4%	32.3%	(1,178.4)	-2.6%	19.2%	8.8%
2020 *	663.7%	12.5%	83.0%	-	(1,166.6)	-2.3%	14.6%	8.9%
2021	732.5%	12.5%	91.6%	-	(1,289.9)	-2.3%	16.7%	10.6%
<b>2022</b>	<b>580.5%</b>	<b>12.8%</b>	<b>74.3%</b>	<b>59.2%</b>	<b>(1,606.2)</b>	<b>-3.3%</b>	<b>-13.1%</b>	<b>7.8%</b>

Beginning in 2018, these Risk Measures were based on 7.25% future investment return.

Notes:

(\*). IMRF had experience studies in these years leading to a change or "true up" in actuarial assumptions. A pattern of periodic studies is a sign of a well run system and suggests the extent to which the liability measures the actuary provides are likely to be realistic.

(#). IMRF had benefit changes in these years. Benefit increases cause liabilities to rise; benefit decreases cause liabilities to fall. In either case, benefit changes affect the year-by-year comparability of the measures on this page.

(10). The ratio of assets to payroll gives an indication of both maturity and volatility. Many systems have ratios between 500% and 700%. Ratios significantly above that range may indicate difficulty in supporting the benefit level as a level % of payroll.

(11) and (12). The portfolio standard deviation measures the volatility of investment return. When multiplied by the ratio of assets to payroll it gives the effect of a one standard deviation asset move as a percent of payroll. This figure helps users understand the difficulty of dealing with investment volatility and the challenges volatility brings to sustainability.

(13). The ratio of unfunded liability to payroll gives an indication of the plan sponsor's ability to actually pay off the unfunded liability. A ratio above approximately 300% or 400% may indicate difficulty in discharging the unfunded liability within a reasonable time frame.

(14) and (15). The ratio of Net External Cash Flow to assets is an important measure of sustainability. Negative ratios are common and expected for a maturing system. In the longer term, this ratio should be on the order of approximately -4%. A ratio that is significantly more negative than that for an extended period could be a leading indicator of potential exhaustion of assets.

(16) and (17). Investment return is probably the largest single risk that most systems face. The year by year return and the 10-year geometric average give an indicator of the historical performance of the portfolio versus the system's assumed return. The averages through 2017 are affected by the events of 2008.



## Short Condition Test

If the contributions to IMRF are level in concept and soundly executed, the Fund will **pay all promised benefits when due -- the ultimate test of financial soundness**. Testing for level contribution rates is the **long-term test**.

**A short condition test** is one means of checking a system's progress under its funding program. In a short condition test, the plan's present assets (cash and investments) are compared with:

- 1) Member contributions on deposit;
- 2) The liabilities for future benefits to present retired lives; and
- 3) The liabilities for service already rendered by active and inactive members.

In a system that has been following the discipline of level percent of payroll financing, the liabilities for member contributions on deposit (liability 1) and the liabilities for future benefits to present retired lives (liability 2) will be fully covered by present assets (except in rare circumstances). In addition, the liabilities for service already rendered by active and inactive members (liability 3) will be partially covered by the remainder of present assets. The larger the funded portion of liability 3, the stronger the condition of the system.

### Short Condition Test (Regular, SLEP, ECO Combined)

Calendar Year	Aggregate Actuarial Liabilities For			Funding Value of Assets	Portion of Actuarial Liabilities Covered by Assets		
	(1)	(2)	(3)		(1)	(2)	(3)
	Non-Retired Contributions	Annuitants	Non-Retired Members (Employer Financed Portion)				
2005*#	\$3,688,148,208	\$ 7,966,135,229	\$ 9,160,777,405	\$ 19,698,401,285	100%	100%	87.8%
2006	3,960,880,175	8,652,328,762	9,874,976,094	21,427,139,356	100%	100%	89.3%
2007	4,248,399,825	9,400,832,984	10,572,310,907	23,274,361,198	100%	100%	91.0%
2008*	4,573,736,116	10,025,599,295	11,011,863,938	21,601,053,512	100%	100%	63.6%
2009	4,893,022,745	10,903,323,478	11,548,766,993	22,754,803,784	100%	100%	60.3%
2010	5,153,902,881	12,121,959,266	11,853,366,092	24,251,136,889	100%	100%	58.8%
2011 *#	5,417,822,062	13,388,018,799	12,156,974,567	25,711,287,584	100%	100%	56.8%
2012	5,705,336,025	14,482,560,758	12,415,347,316	27,491,809,785	100%	100%	58.8%
2013	5,957,217,332	15,753,071,341	12,646,286,800	30,083,042,548	100%	100%	66.2%
2014 *	6,262,110,058	17,885,026,667	13,318,010,887	32,700,208,537	100%	100%	64.2%
2015	6,488,892,894	19,506,345,352	13,491,335,644	34,913,127,469	100%	100%	66.1%
2016	6,714,120,028	21,085,519,077	13,559,071,297	36,773,397,527	100%	100%	66.2%
2017 *	6,924,946,616	22,007,921,865	13,246,614,175	39,187,802,312	100%	100%	77.4%
2018 *	7,141,414,323	24,106,296,051	14,106,400,279	40,829,952,193	100%	100%	67.9%
2019	7,372,126,920	25,719,545,459	14,266,228,889	42,936,185,938	100%	100%	69.0%
2020 *	7,590,754,155	27,251,813,875	14,080,380,709	46,017,438,373	100%	100%	79.4%
2021	7,725,384,410	29,173,126,705	14,029,039,885	50,191,547,801	100%	100%	94.8%
<b>2022</b>	<b>7,936,001,055</b>	<b>30,872,651,189</b>	<b>14,304,256,542</b>	<b>52,142,670,028</b>	<b>100%</b>	<b>100%</b>	<b>93.2%</b>

\* Assumption change.

# Benefit change.



# Short Condition Test

## Regular Members

Calendar Year	Aggregate Actuarial Liabilities For			Funding Value of Assets	Portion of Actuarial Liabilities Covered by Assets		
	(1)	(2)	(3)		(1)	(2)	(3)
	Non-Retired Contributions	Annuitants	Non-Retired Members (Employer Financed Portion)				
2013	\$5,578,881,769	\$14,369,082,490	\$11,726,152,647	\$27,972,103,567	100%	100%	68.4%
2014 *	5,864,657,124	16,328,679,943	12,393,664,527	30,402,948,477	100%	100%	66.2%
2015	6,078,358,544	17,811,924,086	12,534,397,434	32,424,981,363	100%	100%	68.1%
2016	6,291,877,038	19,261,898,572	12,633,562,550	34,123,098,220	100%	100%	67.8%
2017 *	6,490,226,071	20,092,314,923	12,298,162,175	36,331,479,430	100%	100%	79.3%
2018 *	6,695,020,590	22,000,474,720	13,086,811,427	37,838,485,682	100%	100%	69.9%
2019	6,910,342,167	23,484,426,624	13,241,084,921	39,768,414,640	100%	100%	70.8%
2020 *	7,110,240,098	24,899,184,870	13,049,712,181	42,589,356,157	100%	100%	81.1%
2021	7,243,130,575	26,642,794,300	13,022,435,974	46,425,629,908	100%	100%	96.3%
<b>2022</b>	<b>7,441,815,753</b>	<b>28,188,190,079</b>	<b>13,288,391,826</b>	<b>48,276,089,132</b>	<b>100%</b>	<b>100%</b>	<b>95.2%</b>

\* Assumption change.

## SLEP Members

Calendar Year	Aggregate Actuarial Liabilities For			Funding Value of Assets	Portion of Actuarial Liabilities Covered by Assets		
	(1)	(2)	(3)		(1)	(2)	(3)
	Non-Retired Contributions	Annuitants	Non-Retired Members (Employer Financed Portion)				
2013	\$350,386,522	\$ 1,151,948,743	\$836,915,042	\$1,870,636,530	100%	100%	44.0%
2014 *	370,537,841	1,294,788,995	850,193,605	2,035,365,794	100%	100%	43.5%
2015	383,662,153	1,420,665,538	888,665,484	2,203,555,749	100%	100%	44.9%
2016	397,369,461	1,541,181,527	864,975,181	2,366,215,732	100%	100%	49.4%
2017 *	410,693,526	1,634,411,371	890,594,187	2,563,303,924	100%	100%	58.2%
2018 *	424,847,491	1,803,835,984	968,157,159	2,689,937,170	100%	100%	47.6%
2019	441,427,545	1,928,035,088	980,287,898	2,857,806,863	100%	100%	49.8%
2020 *	460,316,418	2,043,671,198	987,330,559	3,100,544,206	100%	100%	60.4%
2021	463,460,299	2,217,014,703	968,914,963	3,415,357,025	100%	100%	75.8%
<b>2022</b>	<b>474,985,166</b>	<b>2,371,717,350</b>	<b>980,379,498</b>	<b>3,520,818,132</b>	<b>100%</b>	<b>100%</b>	<b>68.8%</b>

\* Assumption change.





# Short Condition Test

## ECO Members

Calendar Year	Aggregate Actuarial Liabilities For			Funding Value of Assets	Portion of Actuarial Liabilities Covered by Assets		
	(1)	(2)	(3)		(1)	(2)	(3)
	Non-Retired Contributions	Annuitants	Non-Retired Members (Employer Financed Portion)				
2013	\$27,949,041	\$ 232,040,108	\$83,219,111	\$240,302,451	100%	92%	0.0%
2014 *	26,915,093	261,557,729	74,152,755	261,894,266	100%	90%	0.0%
2015	26,872,197	273,755,728	68,272,726	284,590,357	100%	94%	0.0%
2016	24,873,529	282,438,978	60,533,566	284,083,575	100%	92%	0.0%
2017 *	24,027,019	281,195,571	57,857,813	293,018,958	100%	96%	0.0%
2018 *	21,546,242	301,985,347	51,431,693	301,529,341	100%	93%	0.0%
2019	20,357,208	307,083,747	44,856,070	309,964,435	100%	94%	0.0%
2020 *	20,197,639	308,957,807	43,337,969	327,538,010	100%	99%	0.0%
2021	18,793,536	313,317,702	37,688,948	350,560,868	100%	100%	49.0%
<b>2022</b>	<b>19,200,136</b>	<b>312,743,760</b>	<b>35,485,218</b>	<b>345,762,764</b>	<b>100%</b>	<b>100%</b>	<b>38.9%</b>

\* Assumption change.

## **SECTION B**

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### **SUMMARY OF BENEFIT PROVISIONS AND VALUATION DATA**

# Summary of Benefits and Conditions Evaluated

## December 31, 2022

This is a brief plan description of IMRF benefits. Additional conditions and restrictions may apply. A complete description is found in Article 7 of the Illinois Pension Code. Only the description found in Article 7 can be relied upon.

### Participating Employers

All counties and school districts, plus cities and villages and incorporated towns with a population of 5,000 or more (except certain governmental entities specifically excluded by the Pension Code) are required to participate. Other local government units may elect to participate.

### Membership

All appointed employees of a participating employer who are employed in a position normally requiring 600 hours (1,000 hours for certain employees hired after 1981) or more of work in a year are required to participate. Elected officials and hospital employees who satisfy requirements may also participate.

### Service Credit

Service credit is the total time under IMRF, stated in years and fractions. Service is credited monthly while the member is working, receiving IMRF disability benefits or on IMRF's Benefit Protection Leave. For revised ECO members, the ECO benefit formula is limited to service in an elected office.

Members may qualify for a maximum of one year of additional service credit for unused, unpaid sick leave accumulated with the last employer. Members who retire from a school district may utilize unused sick leave from all school district employers. This additional service credit applies only for members leaving employment for retirement. The service credit is earned at the rate of one month for every 20 days of unused, unpaid sick leave or fraction thereof. It applies to the determination of the amount of an annuity, but not to the minimum service period required for eligibility.

IMRF is a participating plan under the Reciprocal Act, as are all other Illinois public pension systems, except local police and fire pension plans. Under the Reciprocal Act, service credit of at least one year may be considered together at the date of retirement or death for the purpose of determining eligibility for and amount of benefits. However, for teacher aides who meet certain criteria, service credit of less than one year may be considered in determining benefits under the Reciprocal Act.

### Final Rate of Earnings (FRE)

#### *Retirement and Survivor Annuities*

**Tier 1 Members:** The final rate of earnings for Regular and SLEP members is the highest total earnings during any 48 consecutive months within the last 10 years of IMRF service divided by 48 or the total lifetime earnings divided by the total lifetime number of months of service. The final rate of earnings for ECO members is the annual salary of the ECO member on the day he or she retires. For revised ECO members who join the plan after January 25, 2000, the final rate of earnings is the highest total earnings during any 48 consecutive months within the last 10 years of IMRF service divided by 48 for each office held.

**Tier 2 Members:** The final rate of earnings for Regular and SLEP members is the highest total earnings during any 96 consecutive months within the last 10 years of IMRF service divided by 96 for each office held. Pensionable earnings were initially capped at \$106,800, increase annually beginning in 2012 by three percent or one-half of the increase of the Consumer Price Index, whichever is less. For SLEP members, overtime compensation is excluded from pensionable earnings.

**Death Benefits:** *The greater of the above amount or the average of earnings over the last 12 months of service.*

**Disability Benefits:** The average of earnings over the last 12 months of service (for ECO members, annualized salary on last day of ECO participation).



# Summary of Benefits and Conditions Evaluated December 31, 2022

## Normal Retirement Pension Eligibility

### **Tier 1 Members:**

Normal retirement for an unreduced pension is:

- Age 60 with eight or more years of service or 35 or more years of service at age 55,
- Age 50 with 20 or more years of SLEP service for members with SLEP service,
- Age 55 with eight or more years of service for members with ECO service, or
- Age 55 with eight or more years of service in the same elected county office for members with Revised ECO service.

### **Tier 2 Members:**

Normal retirement for an unreduced pension is:

- Age 67 with ten or more years of service or 35 or more years of service at age 62,
- Age 55 with ten or more years of SLEP service for members with SLEP service, or
- Age 67 with eight or more years of service in the same elected county office for members with Revised ECO service.

## Normal Retirement Pension Amount

### **A Regular IMRF pension is:**

- 1-2/3 percent of the final rate of earnings for each of the first 15 years of service credit, plus
- 2 percent for each year of service credit in excess of 15 years.

The maximum pension at retirement cannot exceed 75 percent of the final rate of earnings.

### **A SLEP pension is:**

- 2-1/2 percent of the final rate of earnings for each year of service.

The maximum pension at retirement cannot exceed 80 percent (75 percent for Tier 2) of the final rate of earnings.

### **An ECO pension is:**

- 3 percent of the final rate of earnings for each of the first eight years of service, plus
- 4 percent for each year of service between eight and 12 years of service, plus
- 5 percent for years of service credit over 12.

The maximum pension at retirement cannot exceed 80 percent of the final rate of earnings.

**A money purchase minimum pension** is provided if it exceeds the normal formula amount. The money purchase minimum is the amount that may be purchased by 2.4 times the member's applicable accumulated contributions, including interest at the actuarial assumed rate.

**A reversionary pension option** is provided to members at retirement. This option permits the member to revert a portion of their pension to one other person upon their death. This election is irrevocable. This payment option is often selected by members whose spouses are not eligible for a surviving spouse pension or who have children or other family members with special needs.

Factors for determining reversionary pension options are based on 120% of the current mortality rates (50% unisex) and interest at the actuarial assumed rate.

**An IMRF pension** is paid for life.

## Early Retirement (not applicable to SLEP Tier 1 optional benefits or to ECO service)

**Tier 1 Members:** Regular members may retire as early as age 55 with a reduced pension. The reduction is the lesser of:

- One-fourth percent for each month the member is under age 60, or
- One-fourth percent for each month of service less than 35 years.



# Summary of Benefits and Conditions Evaluated

## December 31, 2022

**Tier 2 Members:** Regular members may retire as early as age 62 with a reduced pension. The reduction is the lesser of:

- One-half percent for each month the member is under age 67, or
- One-half percent for each month of service less than 35 years.

SLEP members may retire as early as age 50 with a reduced pension. The reduction is one-half percent for each month the member is under age 55.

### Early Retirement Incentive Program (ERI)

**Eligibility and Amount:** IMRF employers may offer an early retirement incentive (ERI) program to their employees who are over 50 (57 for Tier 2 regular and ECO members) years of age and who have at least 20 years of service credit. Eligible members may purchase up to five years of service credit and age. Employers must pay off the additional ERI liability within 10 years. Subsequent ERI programs may be offered once every five years by an employer after the liability for the previous ERI program is paid.

**Member Cost:** For each year of service credit purchased, members pay the current member contribution rate multiplied by the highest 12 consecutive months of salary (within ERI period).

### Vesting

**Tier 1 Members:** Members are vested for pension benefits when they have at least eight years of qualifying service credit. SLEP members are vested for a SLEP pension when they have at least 20 years of SLEP service credit. SLEP members with more than eight years of service but less than 20 years of SLEP service will receive a Regular pension. Revised ECO members (those who joined the ECO plan after January 25, 2000) are vested with eight or more years of ECO service credit in the same elected county position. Revised ECO members with eight years of service but less than eight years in the same elected county office will receive a Regular pension. Members can start drawing a benefit when either Normal or Early Retirement Pension Eligibility conditions are met.

**Tier 2 Members:** Members are vested for pension benefits when they have at least 10 years of qualifying service credit. SLEP members are vested for a SLEP pension when they have at least 10 years of SLEP service credit. Revised ECO members (those who join the ECO plan after January 25, 2000) are vested with ten or more years of ECO service credit in the same elected county position. Revised ECO members with at least 10 years of total service but less than 10 years of service in the same elected county office will receive a Regular pension. Members can start drawing a benefit when either Normal or Early Retirement Pension Eligibility conditions are met.

### Surviving Spouse Pension

**For Regular and SLEP members:** A surviving spouse's monthly pension is one-half (66-2/3 percent for Tier 2) of the member's pension.

**For ECO members:** A surviving spouse's monthly pension is 66-2/3 percent of the member's pension. This pension is payable once the surviving spouse becomes 50 years old. If the spouse is caring for the member's minor, unmarried children, the spouse will receive (age 50 requirement does not apply):

- A monthly pension equal to 30 percent of the ECO member's salary at time of death, plus
- 10 percent of the ECO member's salary at time of death for each minor, unmarried child. The maximum total monthly benefit payable to spouse and children cannot exceed 50 percent of the ECO member's salary at time of death, or
- A monthly pension equal to 66-2/3 percent of the pension the member had earned.

Surviving spouse pensions under all plans are increased each January 1. The increase is based on the original amount of the pension. The increase for the first year is prorated for the number of months the surviving spouse or the member received a pension. For Tier 1, the annual increase is three percent. For Tier 2, the annual increase is three percent or one-half the increase in the Consumer Price Index, whichever is less.



# Summary of Benefits and Conditions Evaluated December 31, 2022

## Lump Sum Death-In-Service Benefit

**Less than 1 year of service:** Member contribution.

**More than 1 year of service** (or death in the line of duty): The sum of one times FRE (limited to pensionable earnings cap for Tier 2 members) and member contributions with interest.

These benefits are payable only if no surviving spouse pension is payable.

## Lump Sum Death after Retirement Benefit

\$3,000. If there is no surviving spouse, any remainder of the deceased member's contributions and interest not paid out as a pension is also payable.

## Children's Benefits

### **Regular and SLEP**

**Eligibility:** Death of a member eligible to retire who has no surviving spouse, or death of a surviving spouse's beneficiary.

**Amount:** Equal to spouse's pension, divided equally among surviving children and payable to age 18.

### **ECO**

**Eligibility:** Death of a member with minor children and no eligible spouse.

**Amount:** 20% of salary to each child, to a maximum of 50% of salary, payable to age 18.

If death occurs after termination of service, the total payment to the surviving spouse and children is limited to 75% of the member's pension.

## Temporary Disability

**Eligibility:** Temporary disability for at least 30 days after one year of service and prior to age 70. Pre-existing conditions are excluded if service is under 5 years.

**Amount:** 50% of FRE less amounts payable from Social Security or Worker's Compensation.

**Duration:** Period equal to 1/2 credited service, not to exceed 30 months.

## Total and Permanent Disability

### **Regular and SLEP**

**Eligibility:** Payable after temporary disability period to members who are totally and permanently disabled and unable to engage in any gainful occupation.

**Amount:** 50% of FRE less amounts payable by Social Security.

**Duration:** To the later of (i) Social Security age, or (ii) age at disability plus 5 years.

### **ECO**

**Eligibility:** Payable to members who are totally and permanently disabled from performing the duties of their office while in service as an elected county officer.

**Amount:** The greater of 50% of FRE or the alternate formula pension amount earned to date.

**Duration:** To the later of (i) Social Security age, or (ii) age at disability plus 5 years.

IMRF service is credited during the disability period, except that under the revised ECO plan, the service that will be credited will be Regular or SLEP as appropriate, but not ECO.



# Summary of Benefits and Conditions Evaluated December 31, 2022

## Post-Retirement Increases

**Tier 1 Members:** Members in all plans receive an annual 3% increase based upon the original amount of the annuity. The increase for the first year is pro-rated for the number of months the member was retired.

**Tier 2 Members:** Members in all plans receive an annual increase based upon the original amount of the annuity of 3% or one-half of the increase in the Consumer Price Index whichever is less. For regular and ECO members the annual increases do not begin until the retiree reaches the age of 67 or after 12 months of retirement, whichever is later. For SLEP members the increases begin at age 60 or after 12 months of retirement, whichever is later.

## 13<sup>th</sup> Payment

A lump sum payment is made to eligible retirees and surviving spouses on July 1<sup>st</sup>. The amount depends on funds available from a designated employer contribution of 0.62% of payroll. No specific 13<sup>th</sup> payment amount is promised to any individual.

## Member Contributions

**Regular Members:** 4 1/2% of earnings (3-3/4% base plus 3/4% for survivor benefits).

**SLEP Members:** 7 1/2% of earnings (6-3/4% base plus 3/4% for survivor benefits).

**ECO Members:** 7 1/2% of earnings (6-3/4% base plus 3/4% for survivor benefits).

**Converting past service credit:** ECO members can convert past regular service by contributing 3% of earnings plus interest for each month of Regular service credit converted. ECO members can convert past SLEP service by contributing 0% to 3% (depending on the original SLEP contribution) of earnings plus interest for each month of SLEP service credit converted. SLEP members can convert past regular service by contributing 3% of earnings plus interest for each month of Regular service credit converted.

**Voluntary Additional:** Up to 10% of earnings.

**Refunds:** Non-vested members who stop working for an IMRF employer can receive a lump sum refund of their IMRF member contributions without interest. Vested members can receive a lump sum refund of their IMRF member contributions if they stop working for an IMRF employer prior to age 55 (62 for Tier 2 regular members, 50 for Tier 2 SLEP members). Vested members age 55 or older (62 for Tier 2 regular members, 50 for Tier 2 SLEP members) may receive separation refunds if the member rolls over the refund into another defined benefit retirement plan for the purpose of purchasing service credit.

Members who retire without an eligible spouse (married to or in a civil union with the member at least one year before the member terminates IMRF participation) may receive a refund of their surviving spouse contributions with interest or an annuity.

If, upon death of all persons eligible for benefits upon the member's record, all of the member contributions with interest (at the actuarial assumed rate) were not paid as a refund or pension to either the member or his or her spouse or other beneficiary, any residual balance will be paid out.

## Caps on Reportable Wages

Under Tier 2, a member's wages are capped. No contributions are payable on wages above the cap. The wage cap is also applied when IMRF calculates benefits. The cap increases each year by the lesser of 3% or one-half of the increase in the Consumer Price Index (urban) for the preceding September. If the CPI is zero or negative, the wage cap is not increased. A wage cap of \$123,489 was used in the December 31, 2022 valuation.



## Summary of Covered Population Data December 31, 2022

Data on persons covered by IMRF were reported to the actuary as follows:

Member Status	No.	Valuation Payroll/Benefits	Average		
			Pay/ Benefits	Age	Years of Service
Active Members					
Regular Tier 1	72,472	\$4,061,150,842	\$56,038	54.4	17.2
Regular Tier 2	98,844	3,902,885,756	39,485	42.1	4.0
SLEP Tier 1	1,812	183,549,648	101,297	47.4	19.5
SLEP Tier 2	2,256	151,036,770	66,949	35.3	5.0
ECO / ECO SLEP Tier 1	62	4,653,208	75,052	58.3	20.3
<b>Total Active</b>	<b>175,446</b>	<b>\$8,303,276,224</b>	<b>\$47,327</b>	<b>47.2</b>	<b>9.7</b>
Inactive Members					
Regular Tier 1	126,550			51.3	6.4
Regular Tier 2	88,111			38.0	2.4
SLEP Tier 1	803			48.8	12.0
SLEP Tier 2	832			35.3	3.7
ECO / ECO SLEP Tier 1	103			58.8	13.6
ECO / ECO SLEP Tier 2	2			66.3	5.6
(Inactive and Active)	(42,096)				
<b>Total Inactive</b>	<b>174,305</b>			<b>45.8</b>	<b>4.8</b>
Retirees & Beneficiaries (Retired in multiple employers)	221,869 (72,000)				
<b>Total Retired</b>	<b>149,869</b>	<b>\$2,815,494,696</b>	<b>\$18,786</b>	<b>72.4</b>	
<b>Total Population</b>	<b>499,620</b>				
Prior Year Total	480,950				

There are a number of situations where members may be counted more than once. In particular, there are some members who are inactive with at least one employer and active with another employer. In order to avoid counting such individuals more than once, the inactive count is reduced by the number of such people as shown above. Other situations involving people who are inactive or retired with more than one employer can also lead to people being counted more than once in the totals above.

Additional population statistics are presented on the following pages.





# Active Members by Employer Type

## December 31, 2022

### Regular, SLEP, ECO Combined

Type of Employer	Rate Groups	Members			Payroll
		Number	% of Total	Cumulative Percent	
School Districts	850	88,508	50.6%	50.6%	\$3,106,236,414
Counties (Regular, SLEP,ECO)	269	28,039	16.0%	66.6%	1,653,297,140
Cities	316	17,906	10.2%	76.8%	1,173,601,644
Villages	491	14,045	8.0%	84.8%	995,322,388
Park Districts	204	7,017	4.0%	88.8%	360,865,854
Special Ed Districts	52	4,542	2.6%	91.4%	158,592,892
Townships	500	3,177	1.8%	93.2%	154,900,443
Library Districts	237	3,375	1.9%	95.1%	146,568,480
Sanitary Districts	39	929	0.5%	95.6%	74,160,710
Intergovernmental Coop	57	812	0.5%	96.1%	65,268,010
Forest Preserve Districts	13	859	0.5%	96.6%	53,925,545
County Hospital Districts	3	701	0.4%	97.0%	43,209,616
Mass Transit District (Taxing Authority)	4	650	0.4%	97.4%	42,819,441
Towns	5	676	0.4%	97.8%	39,005,175
Mass Transit Instrumentality	6	540	0.3%	98.1%	25,818,356
Misc. Taxing Authority	8	284	0.2%	98.3%	23,819,384
Consolidated Education Service Region	23	598	0.3%	98.6%	23,308,572
Airport Authorities	12	284	0.2%	98.8%	18,792,449
Joint Spec Rec Assns	18	300	0.2%	99.0%	15,702,817
Fire Protection Districts	64	190	0.1%	99.1%	13,998,235
Miscellaneous Instrumentality	20	162	0.1%	99.2%	13,272,628
Health Districts	4	214	0.1%	99.3%	11,564,163
Regional Planning Commission	3	148	0.1%	99.4%	11,424,140
Multi Co/Cons Health Dept.	3	258	0.1%	99.5%	10,738,119
Educ Serv Centers	4	179	0.1%	99.6%	10,290,973
Public Library System	2	142	0.1%	99.7%	7,710,131
County Conservation Districts	5	126	0.1%	99.8%	7,659,441
Vocational System	41	170	0.1%	99.9%	7,322,026
Public Housing Authority	12	145	0.1%	100.0%	6,735,414
Water District	15	81	0.0%	100.0%	4,979,733
Special Ed Coop/Districts	12	50	0.0%	100.0%	4,665,783
Conservancy Districts	4	70	0.0%	100.0%	4,350,028
Mosquito Abatement District	7	31	0.0%	100.0%	2,423,810
Water Supply/Sewr Comission	6	37	0.0%	100.0%	2,184,419
Public Housing Commission	5	38	0.0%	100.0%	2,173,818
County Road District	31	46	0.0%	100.0%	1,814,237
ROE Office	2	43	0.0%	100.0%	1,812,614
Joint Education Projects	5	40	0.0%	100.0%	1,698,929
Multi Twp Assessment Districts	18	16	0.0%	100.0%	481,453
Drainage District	2	6	0.0%	100.0%	387,121
Township Cemetary	12	12	0.0%	100.0%	373,679
Tuberculosis Sanitarium Districts	1	0	0.0%	100.0%	-
Employers with no Active Members or no Asset Information*	970	0	0.0%	100.0%	-
<b>Totals</b>	<b>4,355</b>	<b>175,446</b>	<b>100.0%</b>	<b>100.0%</b>	<b>\$8,303,276,224</b>

\* This number represents employers with no active members and no asset information. This number also represents employers listed earlier with employees participating in the Voluntary Additional contribution program.



## Active Regular Members by Attained Age and Years of Service December 31, 2022

Attained Ages	Years of Service to Valuation Date							Totals	
	0-7	8-9	10-14	15-19	20-24	25-29	30 & Up	No.	Valuation Payroll
15 - 19	481							481	\$ 10,571,749
20 - 24	6,687							6,687	201,709,778
25 - 29	12,204	211	20					12,435	480,964,753
30 - 34	12,377	1,387	895	51	1			14,711	645,316,905
35 - 39	11,277	1,531	2,678	1,141	46	1		16,674	786,869,205
40 - 44	11,304	1,507	2,539	2,720	1,163	38	3	19,274	945,805,941
45 - 49	9,950	1,485	2,576	2,411	2,396	706	54	19,578	981,164,524
50	1,815	355	535	518	436	276	53	3,988	201,577,436
51	1,954	320	636	530	490	365	95	4,390	220,626,604
52	2,033	361	727	630	557	417	181	4,906	251,450,814
53	1,898	387	718	669	552	368	218	4,810	246,992,860
54	1,841	359	686	617	527	384	286	4,700	239,755,342
55	1,800	361	661	692	547	370	352	4,783	243,393,669
56	1,673	326	698	717	604	325	330	4,673	239,856,607
57	1,685	330	673	727	613	291	318	4,637	225,589,651
58	1,690	318	699	817	694	357	376	4,951	245,557,540
59	1,585	325	707	845	691	349	359	4,861	240,528,255
60	1,553	353	623	853	728	433	397	4,940	243,232,752
61	1,521	290	680	734	762	344	366	4,697	224,051,054
62	1,333	262	609	707	685	365	361	4,322	205,872,890
63	1,197	258	500	583	587	350	323	3,798	181,682,842
64	1,103	234	456	572	490	284	266	3,405	152,586,920
65	888	185	384	453	500	238	224	2,872	130,257,479
66	735	200	326	350	345	190	178	2,324	101,638,633
67	613	152	220	203	187	126	99	1,600	68,429,653
68	520	140	190	155	117	77	83	1,282	49,595,307
69	447	96	143	134	115	75	52	1,062	40,811,490
70	368	79	140	107	99	72	53	918	35,575,504
Over 70	1,520	308	545	439	278	181	286	3,557	122,570,441
<b>Totals</b>	<b>94,052</b>	<b>12,120</b>	<b>20,264</b>	<b>18,375</b>	<b>14,210</b>	<b>6,982</b>	<b>5,313</b>	<b>171,316</b>	<b>\$7,964,036,598</b>



## Active SLEP Members by Attained Age and Years of Service December 31, 2022

Attained Ages	Years of Service to Valuation Date							Totals	
	0-7	8-9	10-14	15-19	20-24	25-29	30 & Up	No.	Valuation Payroll
15 - 19	2							2	\$ 74,314
20 - 24	139							139	7,189,050
25 - 29	499	1						500	29,899,244
30 - 34	505	79	42	1				627	42,603,580
35 - 39	256	77	198	99				630	51,232,390
40 - 44	144	35	134	301	87		1	702	61,959,506
45 - 49	72	23	72	140	229	78	2	616	60,012,247
50	9	1	10	37	39	31	2	129	13,407,507
51	17		10	19	30	29	2	107	10,223,254
52	16	4	13	31	23	21	3	111	10,505,044
53	13		12	18	23	19	2	87	8,697,044
54	14	4	7	21	11	14	3	74	6,968,551
55	13	5	7	12	13	9	2	61	5,881,531
56	9	1	8	9	8	8	5	48	4,578,646
57	10	1	3	9	6	4	4	37	3,286,239
58	5	2	3	8	6	4	5	33	3,091,633
59	9	1	1	8	1	4	2	26	2,103,517
60	4	3	2	7	3	3	3	25	2,119,483
61	4	2	1	7	6	2	1	23	2,089,479
62	2	2	3	4	2	2		15	1,548,789
63	2	1		9		2	2	16	1,428,905
64	1	1	2	6	1	1	2	14	1,220,874
65	4		4	4	1			13	1,173,859
66	2		1	1		1	2	7	816,011
67	1	1	1	3	2		1	9	952,349
68						1		1	80,365
69	2	1	4				1	8	738,060
70	1	1		1				3	396,418
Over 70	1	1	2				1	5	308,529
<b>Totals</b>	<b>1,756</b>	<b>247</b>	<b>540</b>	<b>755</b>	<b>491</b>	<b>233</b>	<b>46</b>	<b>4,068</b>	<b>\$334,586,418</b>



## Active ECO Regular Members by Attained Age and Years of Service December 31, 2022

Attained Ages	Years of Service to Valuation Date							Totals	
	0-7	8-9	10-14	15-19	20-24	25-29	30 & Up	No.	Valuation Payroll
35-39	1							1	\$ 71,407
40-44			1					1	144,042
45-49			1	2	2			5	286,110
50				1				1	185,910
51		1		1		1		3	163,712
52			2					2	207,527
53			2		2			4	331,987
54									
55					1			1	52,702
56				1	2	1	1	5	193,923
57			2		1	1		4	451,879
58			1	2	1			4	246,453
59	1			1				2	207,398
60			3		3		1	7	580,274
61			1				1	2	136,532
62	1		1					2	55,273
63		2			1			3	318,344
64	1		1					2	142,921
65					2		2	4	149,664
66						1	1	2	160,824
67									
68									
69				1	1	1		3	117,072
70									
Over 70				1			2	3	332,638
<b>Totals</b>	<b>4</b>	<b>3</b>	<b>15</b>	<b>10</b>	<b>16</b>	<b>5</b>	<b>8</b>	<b>61</b>	<b>\$4,536,592</b>



**Active ECO SLEP Members  
by Attained Age and Years of Service  
December 31, 2022**

Attained Ages	Years of Service to Valuation Date							Totals	
	0-7	8-9	10-14	15-19	20-24	25-29	30 & Up	No.	Valuation Payroll
Over 70							1	1	\$ 116,616
<b>Totals</b>							<b>1</b>	<b>1</b>	<b>\$ 116,616</b>

## All Active Members by Years of Service and Gender December 31, 2022

Years of Service	Active Member Count			Active Member Pays	
	Males	Females	Total	Total	Average
0	8,273	15,877	24,150	\$ 760,560,630	\$ 31,493
1	6,260	11,596	17,856	628,268,674	35,185
2	3,290	5,889	9,179	354,088,495	38,576
3	4,008	7,341	11,349	439,617,816	38,736
4	3,536	6,523	10,059	408,814,798	40,642
5	2,998	5,427	8,425	360,174,606	42,751
6	2,777	4,802	7,579	337,394,827	44,517
7	2,753	4,463	7,216	333,724,507	46,248
Sub-Total	33,895	61,918	95,813	3,622,644,353	37,810
8	2,498	4,087	6,585	316,046,996	47,995
9	2,261	3,528	5,789	286,981,848	49,574
10	1,947	3,093	5,040	256,988,430	50,990
11	1,630	2,520	4,150	214,547,103	51,698
12	1,363	2,174	3,537	187,371,946	52,975
13	1,353	2,153	3,506	184,783,902	52,705
14	1,791	2,792	4,583	253,820,912	55,383
15 & Up	18,628	27,815	46,443	2,980,090,734	64,167
<b>Totals</b>	<b>65,366</b>	<b>110,080</b>	<b>175,446</b>	<b>\$8,303,276,224</b>	<b>\$47,327</b>

## Inactive Regular Members by Attained Age and Years of Service December 31, 2022

Attained Ages	Years of Service to Valuation Date							Totals No.
	0-4	5-9	10-14	15-19	20-24	25-29	30 & Up	
15-19	179							179
20-24	4,645	4					1	4,650
25-29	13,578	262	2					13,842
30-34	18,942	1,055	89	1				20,087
35-39	20,447	1,920	493	65	1			22,926
40-44	20,083	2,266	941	277	44	1	3	23,615
45-49	17,560	2,246	1,085	480	166	22	21	21,580
50	3,441	481	254	103	57	13	4	4,353
51	3,766	555	291	105	65	12	5	4,799
52	3,663	629	288	159	62	26	8	4,835
53	3,788	613	337	166	59	25	14	5,002
54	3,544	576	401	151	84	29	10	4,795
55	3,142	607	298	134	64	24	12	4,281
56	2,922	493	219	72	20	10	7	3,743
57	2,833	454	198	77	25	13	7	3,607
58	2,706	416	160	56	27	11	7	3,383
59	2,861	406	153	56	26	7	10	3,519
60	2,485	371	144	65	25	8	12	3,110
61	2,082	340	113	29	21	7	16	2,608
62	2,064	287	103	39	25	9	12	2,539
63	1,789	255	89	30	15	9	7	2,194
64	1,617	224	41	23	11	2	13	1,931
65	1,465	197	50	14	13	9	12	1,760
66	1,380	186	37	17	4	2	5	1,631
67	1,074	127	24	7	3	3	7	1,245
68	1,114	134	29	7	4	1	9	1,298
69	934	105	14	3	4	1	3	1,064
70	744	81	18	6	2	3	2	856
Over 70	3,177	290	60	26	12	6	19	3,590
<b>Totals</b>	<b>148,025</b>	<b>15,580</b>	<b>5,931</b>	<b>2,168</b>	<b>839</b>	<b>253</b>	<b>226</b>	<b>173,022</b>

## Inactive SLEP Members by Attained Age and Years of Service December 31, 2022

Attained Ages	Years of Service to Valuation Date							Totals No.
	0-4	5-9	10-14	15-19	20-24	25-29	30 & Up	
15-19								
20-24	33							33
25-29	136	5						141
30-34	139	41	1					181
35-39	121	41	37	4				203
40-44	88	33	31	13	3			168
45-49	66	44	24	12	39	1	1	187
50	19	7	4	3	4	3		40
51	16	7	3	3	1			30
52	21	6	2	5				34
53	12	5	10	4				31
54	8	3	8	2	1	1		23
55	13	6	2	1			1	23
56	8	1	4	2				15
57	6	1	1	1				9
58	5	2	3			1	1	12
59	6	3	2					11
60	5	1	1					7
61	3		1				1	5
62	4	1				2		7
63	3	3	2	1			1	10
64	6							6
65	4		1					5
66	2	1						3
67	3							3
68	2							2
69	3							3
70	3							3
Over 70	6							6
<b>Totals</b>	<b>741</b>	<b>211</b>	<b>137</b>	<b>51</b>	<b>48</b>	<b>8</b>	<b>5</b>	<b>1,201</b>



## Inactive ECO Members by Attained Age and Years of Service December 31, 2022

Attained Ages	Years of Service to Valuation Date						Totals No.
	0-4	5-9	10-14	15-19	20-24	25-29	
15-19							
20-24							
25-29							
30-34							
35-39		1					1
40-44		2	1				3
45-49	1	3	5	1			10
50	1	1					2
51			1				1
52		3	1				4
53	1	4	1	1			7
54		1	2	1		1	5
55	1	3	2	1	1		8
56							
57							
58		1					1
59		1					1
60	1	3	1				5
61			1				1
62	1	3				1	5
63		2	2				4
64		1		1			2
65	1			1			2
66	1	1		1	3		6
67	1	3	1				5
68	1		1	1			3
69					1		1
70	1						1
Over 70	1	2	1				4
<b>Totals</b>	<b>12</b>	<b>35</b>	<b>20</b>	<b>8</b>	<b>5</b>	<b>2</b>	<b>82</b>



## Retirees and Beneficiaries December 31, 2022

Type of Retirement	Annual Amounts by Form of Payment					
	Regular		Level Payment Option		Total	
	No.*	Amount	No.*	Amount	No.*	Amount
Normal or Early						
Joint and 50% Survivor	119,314	\$ 1,610,353,776	21,143	\$ 345,658,584	140,457	\$ 1,956,012,360
Joint and 66% Survivor	997	21,097,296	157	5,037,852	1,154	26,135,148
Straight Life	40,256	535,916,268	7,109	121,797,732	47,365	657,714,000
<b>Total</b>	<b>160,567</b>	<b>2,167,367,340</b>	<b>28,409</b>	<b>472,494,168</b>	<b>188,976</b>	<b>2,639,861,508</b>
Disability	199	2,380,536	-	0	199	2,380,536
Surviving Beneficiaries	19,119	146,902,416	972	10,361,364	20,091	157,263,780
Annuitization of Surviving Spouse and SLEP benefits	9,610	8,387,568	-	0	9,610	8,387,568
Voluntary Contributions	2,993	7,601,304	-	0	2,993	7,601,304
<b>Grand Total</b>	<b>192,488</b>	<b>\$2,332,639,164</b>	<b>29,381</b>	<b>\$482,855,532</b>	<b>221,869</b>	<b>\$2,815,494,696</b>

\* Number of records. There are 149,869 unique retirees.

Of the 9,610 records listed as receiving “Annuitization of Surviving Spouse and SLEP benefits,” 9,592 records are also in receipt of a separate retirement benefit.

Of the 2,993 records listed as receiving “Voluntary Contributions,” 2,989 records are also in receipt of a separate retirement benefit.

13th Check Payment amounts are not included in the above figures.

In the above chart, “Regular” refers to all forms of payment other than the level payment option. It does not connote “Regular” as opposed to SLEP and ECO.



## Retirees and Beneficiaries by Attained Age December 31, 2022

Attained Ages	Number*			Annual Benefits
	Males	Females	Total	
Under 20	0	0	0	\$ 0
20 - 24	5	5	10	22,296
25 - 29	5	18	23	90,492
30 - 34	18	31	49	177,948
35 - 39	21	43	64	289,212
40 - 44	33	33	66	416,088
45 - 49	28	83	111	905,748
50 - 54	634	263	897	29,466,612
55 - 59	4,276	7,012	11,288	182,030,868
60 - 64	10,115	20,350	30,465	439,268,016
65 - 69	15,689	33,806	49,495	677,501,688
70 - 74	15,064	32,882	47,946	630,771,948
75 - 79	10,299	24,607	34,906	415,612,308
80 - 84	6,869	17,137	24,006	242,519,220
85 - 89	3,784	10,044	13,828	128,782,908
90 - 94	1,628	4,803	6,431	52,133,292
95 & Up	495	1,789	2,284	15,506,052
<b>Totals</b>	<b>68,963</b>	<b>152,906</b>	<b>221,869</b>	<b>\$2,815,494,696</b>

\* Number of records. There are 149,869 unique retirees.

## Retirees and Beneficiaries by Year of Retirement December 31, 2022

Year of Retirement	Number*			Annual Benefits
	Males	Females	Total	
2022	4,447	8,130	12,577	\$ 180,566,148
2021	5,055	9,659	14,714	204,864,828
2020	4,354	9,184	13,538	181,106,508
2019	4,123	8,423	12,546	170,114,340
2018	4,160	8,800	12,960	172,137,948
2017	4,080	8,774	12,854	168,422,664
2016	3,723	8,636	12,359	158,511,672
2015	3,870	8,434	12,304	157,733,532
2010 - 2014	15,383	33,360	48,743	645,403,908
2005 - 2009	9,622	20,364	29,986	380,708,208
2000 - 2004	6,015	14,282	20,297	226,778,100
1995 - 1999	3,130	9,810	12,940	126,915,108
1990 - 1994	763	3,592	4,355	33,373,536
1985 - 1989	185	1,148	1,333	7,714,692
1980 - 1984	47	260	307	1,062,240
1975 - 1979	6	44	50	78,480
Before 1974	0	6	6	2,784
<b>Total</b>	<b>68,963</b>	<b>152,906</b>	<b>221,869</b>	<b>\$ 2,815,494,696</b>

\* Number of records. There are 149,869 unique retirees.

## Data Reported for Actuarial Valuations Comparative Summary

Date December 31	Total Count	Active Members					Number		Ratio: Act/Ret.
		Number	Average			Inactive	Retired <sup>#</sup>		
			Age	Serv.	Annual Pay			Pay Increase	
1998	303,869	148,610	44.3	8.2	\$24,871	3.7 %	88,173	67,086	2.22
1999	317,616	153,910	44.4	8.6	25,678	3.2 %	94,576	69,130	2.23
2000	330,313	157,836	44.6	8.2	26,514	3.4 %	102,082	70,395 <sup>+</sup>	2.24
2001	343,842	163,886	44.9	8.3	27,477	3.9 %	108,338	71,618	2.29
2002	353,897	166,365	45.3	8.5	28,582	4.0 %	113,524	74,008	2.25
2003	361,010	166,439	45.7	8.8	29,709	3.9 %	118,093	76,478	2.18
2004	367,590	167,030	46.0	9.0	30,899	4.0 %	121,543	79,017	2.11
2005	377,251	169,867	46.3	9.1	31,640	2.4 %	125,761	81,623	2.08
2006	387,665	173,068	46.5	9.4	32,535	2.8 %	130,239	84,358	2.05
2007	398,659	176,495	46.7	9.5	33,607	3.3 %	134,687	87,477	2.02
2008	420,632	180,615	46.8	9.6	34,655	3.1 %	149,885	90,132	2.00
2009	412,435	180,643	47.1	9.8	35,771	3.2 %	138,530	93,262	1.94
2010	405,195	176,179	47.5	10.3	36,277	1.4 %	131,462	97,554	1.81
2011	409,415	175,233	47.7	10.4	36,701	1.2 %	132,282	101,900	1.72
2012	415,079	174,381	47.8	10.6	37,252	1.5 %	134,293	106,405	1.64
2013	417,227	173,481	47.9	10.7	38,059	2.2 %	136,749	106,997	1.62
2014	423,509	173,579	47.9	10.6	38,786	1.9 %	137,941	111,989	1.55
2015	432,096	173,832	47.9	10.6	39,805	2.6 %	141,236	117,028	1.49
2016	429,134	174,835	47.8	10.5	40,076	0.7 %	132,213	122,086	1.43
2017	439,021	175,566	47.8	10.4	40,597	1.3 %	136,385	127,070	1.38
2018	450,303	176,523	47.8	10.3	41,476	2.2 %	141,817	131,963	1.34
2019	461,368	177,795	47.7	10.1	42,451	2.4 %	146,866	136,707	1.30
2020	464,712	170,637	47.8	10.4	44,353	4.5 %	153,267	140,808	1.21
2021	480,950	172,371	47.5	10.0	45,315	2.2 %	163,043	145,536	1.18
2022	499,620	175,446	47.2	9.7	47,327	4.4 %	174,305	149,869	1.17

+ Restated subsequent to release of 2000 valuation.

# Number of unique retirees. There are 221,869 retiree records in 2022.



## SECTION C

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### FINANCIAL DATA

## Development of Funding Value of Retirement Fund Assets

Year Ended December 31	2021	2022	2023	2024	2025	2026
A. Funding Value Beginning of Year	\$46,017,438,373	\$50,191,547,801				
B. Market Value End of Year	57,215,398,205	48,200,907,225				
C. Market Value Beginning of Year	50,229,709,593	57,215,398,205				
D. Non-Investment/Administrative Net Cash Flow	(1,289,883,565)	(1,606,244,077)				
E. Investment Return						
E1. Market Total: B-C-D	8,275,572,177	(7,408,246,903)				
E2. Assumed Rate of Return	7.25%	7.25%				
<b>E3. Assumed Amount of Return</b>	<b>3,289,506,003</b>	<b>3,580,660,868</b>	-----Scheduled-----			
E4. Return Subject to Phase-In: E1-E3	4,986,066,174	(10,988,907,771)				
F. Phased-In Recognition of Investment Return						
F1. Current Year: 0.20 x E4	997,213,235	(2,197,781,554)	Unknown	Unknown	Unknown	Unknown
F2. First Prior Year	680,449,955	997,213,235	\$ (985,440,701)	Unknown	Unknown	Unknown
F3. Second Prior Year	496,823,800	680,449,955	-	\$ (985,440,701)	Unknown	Unknown
F4. Third Prior Year	-	496,823,800	-	-	\$ (985,440,701)	Unknown
F5. Fourth Prior Year	-	-	-	-	-	\$ (985,440,700)
F6. Funding Corridor Adjustment						
<b>F7. Total Scheduled Phase-in of gain/(loss)</b>	<b>2,174,486,990</b>	<b>(23,294,564)</b>	(985,440,701)	(985,440,701)	(985,440,701)	(985,440,700)
G. Acceptable Phase-in of Investment Return						
G1. Projected Funding Value without Phase-in: A+D+E3	<b>48,017,060,811</b>	<b>52,165,964,592</b>				
G2. Limit on Phase-in: B-G1	9,198,337,394	(3,965,057,367)				
G3. Acceptable Phase-in Amount	2,174,486,990	(23,294,564)				
<b>H. Funding Value End of Year: A+D+E3+G3</b>	<b>\$50,191,547,801</b>	<b>\$52,142,670,028</b>				
I. Difference Between Market and Funding Value	7,023,850,404	(3,941,762,803)	(2,956,322,102)	(1,970,881,401)	(985,440,700)	-
J. Recognized Rate of Return (Funding Value)	12.0%	7.2%				
K. Market Rate of Return	16.7%	(13.1%)				
L. Ratio of Funding Value to Market Value	87.7%	108.2%				

The Funding Value of Assets recognizes assumed investment return (line E3) fully each year. Differences between actual and assumed investment return (line E4) are phased-in over a closed 5-year period subject to a 20% corridor. The acceptable phase-in amount (Item G3) is the minimum of Items F7 and G2, if G2 is positive. If G2 is negative, the acceptable phase-in amount is the greater of Items F7 and G2.



## Development of Market Value Adjustment

In a single employer plan, the Market Value Adjustment would normally be the difference between the funding value of assets and the market value of assets. In IMRF, because of the need to allocate the Market Value Adjustment in an equitable manner among participating employers, certain extra steps are taken as shown below:

	Year Ended December 31	
	2022	2021
1. Funding Value of End of Year	\$ 52,142,670,028	\$ 50,191,547,801
2. Amounts not used in rate calculations		
a. Suspended Annuity Reserve	56,630,536	53,293,070
b. Disability Benefit Reserve	8,402,179	8,413,782
c. Death Benefit Reserve	6,768,327	9,462,839
d. Supplemental Benefit Reserve	3,275,139	1,567,384
e. Cases removed from rate calculations*	566,444,549	471,014,699
f. Estimated pending reserve transfers	-	-
g. Total	641,520,730	543,751,774
3. Remaining amount to allocate: (1)-(2g)	51,501,149,298	49,647,796,027
4. Total reported negative reserves	(188,203)	(141,470)
5. Amount available to positive reserves: (3)-(4)	51,501,337,501	49,647,937,497
6. Total Market Value of reported positive reserves	47,821,673,487	56,817,109,017
<b>7. Market Value Adjustment: (5)-(6)</b>	<b>\$ 3,679,664,014</b>	<b>\$ (7,169,171,520)</b>

\* Employers that are not included on the asset file submitted to the actuary. In general, these employers have no active members and no employer assets, but may have retired lives and/or inactive members. This amount also includes Voluntary Additional contribution balances.

The Market Value Adjustment is allocated among all employers that have a positive reserve balance (member plus employer plus retired life reserves), in proportion to each employer's reserve balance.

Even in years when the Funding Value of Assets equals the Market Value of Assets, a market value adjustment can be made due to the following reasons:

- Differences between the earnings and experience reserve and the investment loss reserve from the financial statements.
- Differences between employee contribution amounts in the financial statements versus data tapes.
- Differences between employer contribution amounts in the financial statements versus data tapes.



## Reported Market Values

	Market Value		Percentage of Total	
	2022	2021	2022	2021
<b>Investment Portfolio</b>				
Fixed income	\$11,867,357,384	\$12,797,715,379	24.8%	22.5%
Short term	531,093,261	150,470,114	1.1%	0.3%
Foreign exchange contracts	37,280,887	(4,842,699)	0.1%	0.0%
Stocks	20,253,762,982	27,015,771,051	42.2%	47.4%
Bond funds	-	-	0.0%	0.0%
Stock funds and index funds	5,212,378,078	7,167,792,038	10.9%	12.6%
Options	-	-	0.0%	0.0%
Real estate	4,401,120,997	3,936,830,017	9.2%	6.9%
Alternative investments	5,481,265,208	5,020,822,935	11.4%	8.8%
Master trust reserve fund	31,675,420	730,082,495	0.1%	1.3%
Cash	-	-	0.0%	0.0%
Due from brokers	-	-	0.0%	0.0%
Due (to) brokers	(46,471,594)	(10,391,234)	(0.1)%	0.0%
Accrued investment income	129,379,799	119,316,923	0.3%	0.2%
<b>Total Invested Assets</b>	<b>\$47,898,842,422</b>	<b>\$56,923,567,019</b>	<b>100.0%</b>	<b>100.0%</b>
<b>Receivables</b>	<b>94,669,033</b>	<b>297,905,368</b>		
<b>Cash</b>	<b>204,821,747</b>	<b>(6,971,377)</b>		
<b>Fixed Assets</b>	<b>64,471,347</b>	<b>57,482,662</b>		
<b>Total Market Value</b>	<b>\$48,262,804,549</b>	<b>\$57,271,983,672</b>		
<b>Deferred Outflows of Resources</b>	3,109,563	4,722,490		
<b>Deferred Inflows of Resources</b>	13,743,328	9,159,057		
<b>Liabilities</b>				
Benefits & vouchers payable	51,263,559	52,148,900		
Securities lending payable	-	-		
<b>Total Liabilities</b>	<b>51,263,559</b>	<b>52,148,900</b>		
<b>Nets Assets Available for Benefits</b>				
	<b>\$48,200,907,225</b>	<b>\$57,215,398,205</b>		

Amounts on this page are preliminary year-end numbers and may not agree with final audited numbers reported by IMRF, but are shown for completeness.



## Change in Plan Assets

	Activity During Year	
	2022	2021
Additions:		
Contributions:		
Employer Contributions	\$ 807,064,772	\$ 968,127,276
Employee Contributions	501,784,146	471,403,051
Total Contributions	1,308,848,918	1,439,530,327
Investment Income:		
Net Appreciation (Depreciation) in Fair Value of Investments	(8,208,093,898)	7,626,294,924
Interest	362,681,906	285,548,932
Dividends	466,812,618	390,505,906
Securities Lending Income	6,179,417	6,164,285
Other	(128,879)	(37,005)
Net Investment Income	(7,372,548,836)	8,308,477,042
Other Revenues	97,958	383,221
Total Additions	(6,063,601,960)	9,748,390,590
Deductions:		
Benefits and Refunds:		
Retirement, Disability, and Beneficiary	2,770,304,236	2,597,356,248
Separation Benefits	90,722,993	81,572,051
Transfers to other Systems	4,028,472	1,648,761
Supplemental Benefits	50,037,295	48,836,832
Total Benefits and Refunds	2,915,092,996	2,729,413,892
Administrative Expenses	35,766,202	33,244,862
Other Expenses	29,822	43,224
Total Deductions	2,950,889,020	2,762,701,978
Net Increase (Decrease)	(9,014,490,980)	6,985,688,612
Net Assets Held in Trust:		
Beginning of Year	\$57,215,398,205	\$50,229,709,593
End of Year	<b>\$48,200,907,225</b>	<b>\$57,215,398,205</b>

## **SECTION D**

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### **ACTUARIAL METHODS AND ASSUMPTIONS**

# Summary of Actuarial Methods and Assumptions Used for IMRF Actuarial Valuations Assumptions Adopted by Retirement Board After Consulting with Actuary

Rationale: The rationale for all assumptions is provided in the study of experience during the 2017-2019 period, and dated December 14, 2020.

## Economic Assumptions

**The investment return rate** assumed in the valuations was 7.25% per year, compounded annually (net after administrative expenses).

**Price Inflation** is assumed to be 2.25%.

**Payroll Growth:** Each employer's payroll was assumed to grow in total at a rate of 2.5% year.

The assumed **real rate of return** was 5.00% -- the difference between the assumed rate of investment return, and the assumed price inflation rate.

The **Active Member Population** is assumed to remain constant.

**Pay increase assumptions** for individual active members are shown for sample ages on pages D-8 and D-9. Part of the assumption for each age is for merit and/or seniority increase, and the other 2.75% recognizes price inflation, productivity increases, and other macroeconomic forces.

## Non-Economic Assumptions

Non-economic (decrement) assumptions include rates of mortality before and after retirement, rates of disability, rates of retirement, rates of other separation from employment and probabilities of an active member being married. The non-economic assumptions are based upon experience during the 2017-2019 period (please see report dated December 14, 2020), and were first used in the December 31, 2020 valuation. Decrement assumptions are shown for sample ages beginning on page D-3.

# Summary of Actuarial Methods and Assumptions Used for IMRF Actuarial Valuations Assumptions Adopted by Retirement Board After Consulting with Actuary

## Actuarial Valuation Method

**An aggregate entry age actuarial cost method of valuation** was used in determining most liabilities and normal cost. This means that an individual entry-age employer normal cost was determined for each benefit group (Regular Tier 1, Regular Tier 2, SLEP Tier 1, SLEP Tier 2, ECO Tier 1, ECO Tier 2) as a percent of payroll. The normal cost for each employer was calculated based on the aggregate Tier 1 and Tier 2 normal cost, weighted on the expected payroll of Tier 1 and Tier 2 members for the given employer. Larger employers have the option of an individual normal cost rate. For each Tier the aggregate normal cost rate is multiplied by the present value of future salary of that Tier and then aggregated to determine the present value of future normal cost for each employer. The actuarial accrued liability is then calculated by subtracting the present value of future normal cost and present value of future employee contributions from the present value of future benefits.

Differences in the past between assumed experience and actual experience (“actuarial gains and losses”) become part of actuarial accrued liabilities. Unfunded actuarial accrued liabilities are amortized to produce payments (principal & interest) which are level percent of payroll contributions.

Liabilities for lump sum death benefits and temporary disability benefits were determined using a term cost approach. The actual cost of benefits as a percentage of payroll for the year ending on the valuation date is assumed to continue. Under this approach, the funding objective is to receive contributions each year that approximately equal the benefits being paid.

**Employer contributions** were assumed to be **paid in equal installments** throughout the year.

**Present assets (cash and investments) at funding value** are shown on page C-1.

## Asset Valuation Method

The Funding Value of Assets (developed on page C-1) recognizes assumed investment return on the previous year’s funding value and the net cash flow fully each year. Differences between actual return on the market value of assets and the expected return on the funding value of assets are phased-in over a closed 5-year period subject to a 20% corridor. The method also limits the adjustment of the expected actuarial return to the maximum amount of unrecognized gains or losses not yet reflected in the actuarial value of assets. As of any valuation date in which the actuarial value minus the market value of assets switches from a positive value to a negative value, or vice-versa, from the prior valuation date, the smoothing mechanism restarts. Restarting the smoothing mechanism involves establishing a new “First Prior Year” phase in amount as of the *next* valuation date equal to the market value of assets minus the funding value of assets as of the current valuation date, divided by 4.

The actuarial valuation computations were made by or under the supervision of a Member of the American Academy of Actuaries (MAAA).



# Actuarial Assumptions December 31, 2022 Probabilities of Age and Service Retirement

## Tier 1

Age at Retirement	Regular		Regular		SLEP		ECO-Regular		ECO-SLEP
	Reduced Early		Normal		Normal		Normal		Normal
	Males	Females	Males	Females	Service less than 32 years	Service 32 years or more	Males	Females	Males & Females
50					30.00%	32.60%			27%
51					30.00%	32.60%			27%
52					27.00%	32.60%			23%
53					22.00%	32.60%			14%
54					26.50%	32.60%			26%
55	7.00%	6.05%	33.00%	29.50%	25.00%	32.60%	25%	35%	24%
56	7.00%	6.05%	26.50%	20.25%	24.50%	32.60%	25%	35%	20%
57	7.00%	6.05%	18.50%	15.50%	27.00%	32.60%	15%	20%	23%
58	7.00%	6.05%	22.50%	16.50%	27.50%	32.60%	15%	20%	30%
59	7.00%	6.05%	22.00%	17.50%	28.50%	32.60%	15%	20%	24%
60			13.00%	11.50%	21.00%	32.60%	15%	20%	20%
61			12.50%	10.50%	24.00%	32.60%	15%	20%	17%
62			21.50%	17.50%	28.00%	32.60%	15%	20%	23%
63			20.00%	17.50%	22.50%	32.60%	15%	20%	20%
64			18.00%	16.00%	24.50%	32.60%	15%	20%	20%
65			26.00%	27.00%	21.00%	32.60%	15%	20%	30%
66			32.00%	32.00%	23.00%	32.60%	15%	20%	24%
67			26.00%	28.50%	28.00%	32.60%	15%	20%	24%
68			23.00%	23.00%	36.50%	32.60%	15%	20%	24%
69			22.50%	25.00%	29.50%	32.60%	15%	20%	24%
70			26.00%	25.50%	100.00%	100.00%	15%	20%	100%
71			24.00%	23.00%	100.00%	100.00%	15%	20%	100%
72			17.50%	22.50%	100.00%	100.00%	15%	20%	100%
73			22.00%	21.00%	100.00%	100.00%	15%	20%	100%
74			20.00%	22.50%	100.00%	100.00%	15%	20%	100%
75			23.00%	24.00%	100.00%	100.00%	17%	20%	100%
76			23.00%	24.00%	100.00%	100.00%	17%	20%	100%
77			23.00%	24.00%	100.00%	100.00%	17%	20%	100%
78			23.00%	24.00%	100.00%	100.00%	17%	20%	100%
79			23.00%	24.00%	100.00%	100.00%	17%	20%	100%
80 & Over			100.00%	100.00%	100.00%	100.00%	100%	100%	100%

For terminated vested members, members were assumed to retire as follows:

- Regular Tier 1 members were assumed to retire at age 60 or attained age if later;
- Regular Tier 2 members were assumed to retire at age 67 or attained age if later;
- SLEP Tier 1 members with less than 20 years of service were assumed to retire at age 60;
- SLEP Tier 1 members with 20 or more years of service were assumed to retire at age 50;
- SLEP Tier 2 members with less than 10 years of service were assumed to retire at age 67;
- SLEP Tier 2 members with 10 or more years of service were assumed to retire at age 55;
- ECO Tier 1 members were assumed to retire at age 55 or attained age if later; and
- ECO Tier 2 members were assumed to retire at age 62 or attained age if later.



# Actuarial Assumptions December 31, 2022 Probabilities of Age and Service Retirement

## Tier 2

Age	Regular								SLEP					
	Male				Female				Male			Female		
	Normal			Early	Normal			Early	Normal		Early	Normal		Early
	Service Less than 30 Years	Service Between 30 and 35 Years	Service 35 Years or More		Service Less than 30 Years	Service Between 30 and 35 Years	Service 35 Years or More		Service Less than 30 Years	Service 30 Years or More		Service Less than 30 Years	Service 30 Years or More	
50											12%			12%
51											9%			9%
52											7%			7%
53											4%			4%
54											12%			12%
55								60%	80%			60%	80%	
56								18%	55%			18%	55%	
57								23%	55%			23%	55%	
58								33%	55%			33%	55%	
59								13%	55%			13%	55%	
60								8%	55%			8%	55%	
61								8%	55%			8%	55%	
62			75%	15%				23%	55%			23%	55%	
63			75%	15%				18%	55%			18%	55%	
64			75%	15%				18%	55%			18%	55%	
65			75%	15%				23%	55%			23%	55%	
66			75%	15%				23%	55%			23%	55%	
67	30%	50%	75%		25%	50%	75%	23%	55%			23%	55%	
68	30%	50%	75%		25%	50%	75%	23%	55%			23%	55%	
69	25%	50%	75%		20%	50%	75%	23%	55%			23%	55%	
70	20%	50%	75%		18%	50%	75%	100%	100%			100%	100%	
71	20%	50%	75%		18%	50%	75%	100%	100%			100%	100%	
72	20%	50%	75%		18%	50%	75%	100%	100%			100%	100%	
73	18%	50%	75%		18%	50%	75%	100%	100%			100%	100%	
74	18%	50%	75%		18%	50%	75%	100%	100%			100%	100%	
75	18%	50%	75%		18%	50%	75%	100%	100%			100%	100%	
76	18%	50%	75%		18%	50%	75%	100%	100%			100%	100%	
77	18%	50%	75%		18%	50%	75%	100%	100%			100%	100%	
78	18%	50%	75%		18%	50%	75%	100%	100%			100%	100%	
79	18%	50%	75%		18%	50%	75%	100%	100%			100%	100%	
80+	100%	100%	100%		100%	100%	100%	100%	100%			100%	100%	

**Actuarial Assumptions**  
**December 31, 2022**  
**Probabilities of Separation from Active Member Status**

**Tier 1 and Tier 2**

Service	% Separating Next Year					
	Regular		ECO		SLEP	ECO-SLEP
	Males	Females	Males	Females		
0	24.8%	27.7%	40.0%	40.0%	18.3%	17.0%
1	19.8%	22.0%	20.0%	20.0%	11.0%	10.0%
2	15.3%	17.8%	15.0%	15.0%	8.0%	6.5%
3	13.3%	14.5%	14.0%	14.0%	8.0%	6.2%
4	10.7%	12.0%	13.0%	13.0%	6.5%	5.5%
5	8.8%	10.5%	12.0%	12.0%	5.7%	4.6%
6	7.7%	9.2%	11.0%	11.0%	4.1%	3.6%
7	7.7%	8.8%	10.0%	10.0%	N/A	N/A
Age	8 or More Years of Service		8 or More Years of Service		7 or More Years of Service	7 or More Years of Service
30	4.8%	7.7%	9.5%	6.8%	3.7%	2.4%
35	3.8%	5.9%	9.5%	6.8%	2.5%	1.8%
40	3.0%	4.6%	9.5%	6.8%	1.6%	1.3%
45	2.5%	3.8%	9.5%	6.8%	1.5%	1.2%
50	2.1%	3.2%	9.5%	6.8%	1.5%	1.2%



# Actuarial Assumptions

## December 31, 2022

### Retiree, Beneficiary, Terminated Vested and Disabled Life Mortality

**The mortality tables:** The mortality tables used in this valuation of the System are described below:

- **Healthy Post-Retirement:** The Pub-2010, Amount-Weighted, below-median income, General, Retiree, Male (adjusted 106%) and Female (adjusted 105%) tables, and future mortality improvements projected using scale MP-2020.
- **Disability Retirement:** The Pub-2010, Amount-Weighted, below-median income, General, Disabled Retiree, Male (adjusted 100%) and Female tables, and future mortality improvements projected using scale MP-2020.

### Tier 1 and Tier 2

Sample Attained Ages	% Dying Next Year			
	Non-Disabled Lives		Disabled Lives	
	Males	Females	Males	Females
40	0.1353%	0.0589%	0.8573%	0.7509%
45	0.1971%	0.0930%	1.0696%	0.9691%
50	0.7191%	0.4128%	1.5101%	1.3882%
55	0.9209%	0.5033%	2.0385%	1.7763%
60	1.1888%	0.5902%	2.5920%	2.0630%
65	1.4042%	0.7011%	3.0829%	2.1675%
70	2.0629%	1.1094%	3.6394%	2.5434%
75	3.3152%	1.9505%	4.6688%	3.5784%
80	5.6721%	3.5617%	6.6564%	5.5704%

Sample Attained Ages	Future Life Expectancy (years)*			
	Non-Disabled Retired Lives		Disabled Lives	
	Males	Females	Males	Females
40	41.8	46.9	34.1	37.0
45	36.6	41.6	30.0	32.8
50	31.6	36.6	26.1	28.9
55	27.3	31.9	22.6	25.4
60	23.2	27.3	19.5	22.1
65	19.1	22.8	16.5	18.9
70	15.2	18.3	13.7	15.5
75	11.7	14.2	11.0	12.2
80	8.6	10.5	8.4	9.3

\* Life expectancy in future years is determined by the fully generational MP-2020 projection scale. The sample values shown are for individuals with the indicated attained ages in 2022.

# Actuarial Assumptions

## December 31, 2022

### Active Member Probabilities of Death and Disability

**The mortality tables:** The mortality tables used in this valuation of the System are described below:

- **Healthy Pre-Retirement:** The Pub-2010, Amount-Weighted, below-median income, General, Employee, Male and Female tables, and future mortality improvements projected using scale MP-2020.

### Tier 1 and Tier 2

Sample Attained Ages	% Dying in 2022			
	Regular & ECO		SLEP & ECO-SLEP	
	Male	Female	Male	Female
20	0.04%	0.01%	0.04%	0.01%
25	0.05%	0.02%	0.05%	0.02%
30	0.07%	0.03%	0.07%	0.03%
35	0.10%	0.04%	0.10%	0.04%
40	0.13%	0.06%	0.13%	0.06%
45	0.15%	0.07%	0.15%	0.07%
50	0.21%	0.10%	0.21%	0.10%
55	0.31%	0.16%	0.31%	0.16%
60	0.48%	0.25%	0.48%	0.25%
65	0.69%	0.37%	0.69%	0.37%
70	0.96%	0.56%	0.96%	0.56%
75	1.44%	0.93%	1.44%	0.93%
80	2.29%	1.58%	2.29%	1.58%

Life expectancy in future years is determined by the fully generational MP-2020 projection scale. The sample values shown are for individuals with the indicated attained ages in 2022.

Sample Ages	% Disabled							
	Regular		ECO		SLEP		ECO-SLEP	
	Male	Female	Male	Female	Male	Female	Male	Female
20	0.00%	0.00%	0.01%	0.01%	0.00%	0.01%	0.01%	0.01%
25	0.00%	0.00%	0.01%	0.01%	0.01%	0.01%	0.01%	0.01%
30	0.00%	0.00%	0.01%	0.01%	0.01%	0.02%	0.01%	0.01%
35	0.01%	0.00%	0.03%	0.02%	0.01%	0.03%	0.03%	0.02%
40	0.01%	0.01%	0.04%	0.03%	0.02%	0.05%	0.04%	0.03%
45	0.02%	0.01%	0.06%	0.04%	0.03%	0.07%	0.06%	0.04%
50	0.03%	0.01%	0.09%	0.06%	0.04%	0.10%	0.09%	0.06%
55	0.05%	0.02%	0.15%	0.10%	0.06%	0.14%	0.15%	0.10%
60	0.06%	0.03%	0.19%	0.17%	0.05%	0.13%	0.19%	0.17%
65	0.06%	0.04%	0.20%	0.20%	0.04%	0.08%	0.20%	0.20%
70	0.05%	0.03%	0.17%	0.17%	0.02%	0.05%	0.17%	0.17%
75	0.04%	0.02%	0.12%	0.12%	0.01%	0.01%	0.12%	0.12%
80	0.03%	0.02%	0.10%	0.10%	0.00%	0.00%	0.10%	0.10%



# Actuarial Assumptions December 31, 2022 Pay Increases for Regular and ECO Active Members

## Tier 1 and Tier 2

<div style="text-align: center;">% Increase in Pay Next Year</div>							
5 or More Years of Service				Increase for Those With Less Than 5 Years of Service			
Age	Merit & Longevity	Economic	Total	Years of Service	Merit & Longevity	Economic	Total
25	2.50%	2.75%	5.25%	0	7.10%	2.75%	9.85%
30	2.02%	2.75%	4.77%	1	6.40%	2.75%	9.15%
35	1.34%	2.75%	4.09%	2	3.60%	2.75%	6.35%
40	0.98%	2.75%	3.73%	3	2.70%	2.75%	5.45%
45	0.72%	2.75%	3.47%	4	2.20%	2.75%	4.95%
50	0.48%	2.75%	3.23%				
55	0.28%	2.75%	3.03%				
60	0.14%	2.75%	2.89%				

For a person with five or more years of service, the assumed pay increase during the coming year is found in the five or more years of service total column. For a person with less than five years of service, the assumed pay increase during the coming year is found in the less than five years of service total column.

**Actuarial Assumptions**  
**December 31, 2022**  
**Pay Increases for SLEP and ECO-SLEP Active Members**

**Tier 1 and Tier 2**

% Increase in Pay Next Year			
Years of Service	Economic	Merit & Longevity	% Total Increase
1	2.75%	11.00%	13.75%
2	2.75%	8.50%	11.25%
3	2.75%	4.00%	6.75%
4	2.75%	3.50%	6.25%
5	2.75%	3.00%	5.75%
6	2.75%	2.50%	5.25%
7	2.75%	2.00%	4.75%
8	2.75%	1.50%	4.25%
9	2.75%	1.25%	4.00%
10	2.75%	1.00%	3.75%
11	2.75%	0.75%	3.50%
12	2.75%	0.75%	3.50%
13	2.75%	0.50%	3.25%
14	2.75%	0.50%	3.25%
15	2.75%	0.50%	3.25%
16	2.75%	0.50%	3.25%
17	2.75%	0.50%	3.25%
18	2.75%	0.50%	3.25%
19	2.75%	0.50%	3.25%
20	2.75%	0.50%	3.25%
21	2.75%	0.50%	3.25%
22	2.75%	0.50%	3.25%
23	2.75%	0.50%	3.25%
24	2.75%	0.50%	3.25%
25	2.75%	0.50%	3.25%
26	2.75%	0.50%	3.25%
27	2.75%	0.50%	3.25%
28	2.75%	0.50%	3.25%
29	2.75%	0.50%	3.25%
30	2.75%	0.50%	3.25%

## Miscellaneous and Technical Assumptions

<b>Expenses:</b>	Assumed investment return is net of administrative and investment expenses.
<b>Marriage Assumption:</b>	70% of male and 66% of female participants are assumed to be married for purposes of death-in-service and death after retirement benefits. Male spouses are assumed to be three years older than female spouses for active member valuation purposes.
<b>Pay Increase Timing:</b>	Beginning of (Calendar) year. This is equivalent to assuming that reported pays represent amounts paid to members during the year ended on the valuation date.
<b>Decrement Timing:</b>	Decrements of all types are assumed to occur mid-year.
<b>Eligibility Testing:</b>	Eligibility for benefits is determined based upon the age nearest birthday and service nearest whole year on the date the decrement is assumed to occur.
<b>Benefit Service:</b>	Exact fractional service on the decrement date is used to determine the amount of benefit payable.
<b>Decrement Relativity:</b>	Decrement rates are used directly from the experience study, without adjustment for multiple decrement table effects.
<b>Incidence of Contributions:</b>	Contributions are assumed to be received continuously throughout the year based upon the computed percent of payroll shown in this report, and the actual payroll payable at the time contributions are made.
<b>Normal Form of Benefit:</b>	The assumed normal form of benefit is a 50% joint and survivor benefit for Regular and SLEP Tier 1 members and 66 2/3% for Regular and SLEP Tier 2 members and ECO members. Factors for determining optional forms of payment are based on 120% of the current mortality rates (50% unisex) and interest at the valuation rate.
<b>Surviving Spouse Refunds:</b>	For those individuals who are not assumed to be married at retirement, the surviving spouse contributions are assumed to be refunded.
<b>SLEP Refunds:</b>	SLEP participants who are assumed to retire with insufficient service to qualify for SLEP benefits are assumed to receive a refund of their SLEP contributions.
<b>SLEP Conversions:</b>	It was assumed that all active participants in the SLEP program will convert all eligible service (up to 10 years). Additionally, it was assumed that these members would contribute the difference in both member and employer rates for each year converted.
<b>ECO Conversions:</b>	It is assumed that active participants in the ECO program will convert all eligible service up to the point the maximum ECO benefit would be achieved.

## Miscellaneous and Technical Assumptions

<b>Final Rate of Earnings (FRE):</b>	The FRE is determined by projecting the current salary to retirement and averaging the salary over the appropriate number of years. The current FRE is used if this produces a higher value. For Tier 2 members, FRE is capped at \$123,489 and increases by the lesser of 3% and one-half of CPI.
<b>Refunds for Terminated Vested Members:</b>	Members are assumed to elect annuities.
<b>Other:</b>	Disability decrements operate during retirement eligibility.
<b>Post-Retirement Increases:</b>	For Tier 2, pensions increase by the lesser of 3% or one-half of the increase in the Consumer Price Index (urban) for the preceding September. If the CPI is zero, pension benefits are not increased. In the December 31, 2022 valuation annual pension increases were assumed to grow at an annual rate of 1.13%. Tier 1 increases are not related to CPI.
<b>Wage Cap Growth:</b>	Under Tier 2, a member's wages are capped. The wage cap increases each year by the lesser of 3% or one-half of the increase in the Consumer Price Index (urban) for the preceding September. If the CPI is zero, the wage cap is not increased. A wage cap of \$123,489 was used for Tier 2 members in the December 31, 2022 valuation. In the December 31, 2022 valuation, the wage cap was assumed to grow at an annual rate of 1.13%.
<b>Financing of Unfunded Actuarial Accrued Liabilities (Money in the Pipes):</b>	The unfunded accrued liability (UAL) as of December 31, 2022 is projected to the beginning of the calendar year for which employer contributions are being calculated. This allows the 2022 valuation to account for expected future contributions that are based on past valuations.
<b>Sick Leave Load:</b>	Normal cost and active liabilities for all decrements were increased by 1.50% to account for the inclusion of unused sick leave.

# Actuarial Funding Policy

## A. Introduction

The purpose of this Actuarial Funding Policy is to record the funding objective and policy set by the Board of Trustees (Board) of the Illinois Municipal Retirement Fund (IMRF). The Board establishes this funding policy to help ensure the systematic accumulation of assets needed to pay future benefits for members of IMRF.

This funding policy shall be reviewed by the Board of Trustees every three years in conjunction with the triennial experience study conducted by IMRF's actuaries.

The actuary shall prepare annual actuarial valuations and calculate future employer contribution rates based upon calendar-year data. As required by statute, it shall conduct a triennial experience study to review actuarial assumptions and to recommend appropriate changes.

### Summary of Key Actuarial Assumptions:

- Entry-Age Normal Actuarial Cost Method
- Utilize a 5-year Smoothing Period, subject to a 20% Market v. Actual Corridor
- Amortize over/under funding over a rolling period. Working to a rolling 15-year period as of 2029.
- Funding Target of 100%
- Economic Assumptions:

Price Inflation:	2.25%
Wage Inflation:	2.75%
Investment Return:	7.25%
- Mortality Assumption: Pub-2010 projected to current year using MP-2020 with administrative factors to be implemented by the actuary when appropriate.

# Actuarial Funding Policy

## B. Funding Objectives

1. Maintain adequate assets so that current plan assets plus future contributions and investment earnings will be sufficient to fund all benefits expected to be paid to members and beneficiaries when due.
2. Make consistent progress towards 100% funding and maintain 100% funding once it is obtained. In particular, continue progress of systematic reduction of the Unfunded Actuarial Accrued Liabilities (UAAL) through use of the Actuarial Determined Employer Contribution Rate (ADEC).
3. Maintain stability of employer contribution rates, consistent with other funding objectives, and avoid sharp increases or decreases due to specific events.
4. Maintain public policy goals of accountability and transparency, meaning that each policy element is to be clear in intent and effect, and each should allow an assessment of whether, how and when the funding requirements of the plan will be met.
5. Monitor material risks to assist in any risk management strategies the Board deems appropriate.
6. 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.
7. Provide a reasonable margin for adverse experience to help offset risks.
8. Review investment return assumption in conjunction with the periodic asset liability study and in consideration of the Board's risk profile.



# Actuarial Funding Policy

## C. Elements

### 1. Actuarial Cost Method (i.e., Contribution Budgeting)

*An aggregate entry age actuarial cost method of valuation* will be used in determining most liabilities and normal cost. An individual entry-age employer normal cost will be determined for each benefit group (Regular Tier 1, Regular Tier 2, SLEP Tier 1, SLEP Tier 2, ECO Tier 1, ECO Tier 2) as a percent of payroll. The normal cost for each employer will be calculated based on the aggregate Tier 1 and Tier 2 normal cost, weighted on the expected payroll of Tier 1 and Tier 2 members for the given employer. The aggregate normal cost rate is then multiplied by the present value of future salary to determine the present value of future normal cost for each employer. The actuarial accrued liability is then calculated by subtracting the present value of future normal cost and present value of future employee contributions from the present value of future benefits.

Differences in the past between assumed experience and actual experience (“actuarial gains and losses”) will become part of actuarial accrued liabilities. Unfunded actuarial accrued liabilities are to be amortized to produce payments (principal & interest) which are level percent of payroll contributions.

Liabilities for lump sum death benefits and temporary disability benefits will be determined using a term cost approach. Under this approach, the funding objective is to receive contributions each year that approximately equal the benefits being paid.

### 2. Asset Smoothing Method

The Funding Value of Assets will recognize assumed investment return fully each year. Differences between actual and assumed investment income are to be phased-in over a closed 5-year period subject to a 20% corridor (intended to prevent excess divergence between actuarial and market values). The method also limits the adjustment to the expected actuarial return to the maximum amount of unrecognized gains or losses not yet reflected in the actuarial value of assets. In any year in which the actuarial value minus the market value of assets switches from a positive value to a negative value, or vice-versa, any prior gain/loss bases are to be eliminated and the smoothing mechanism restarts.

# Actuarial Funding Policy

## C. Elements (Continued)

### 3. Amortization Method

#### a. General

##### Financing Liabilities and Overfunding

The following procedures will be applied to financing liabilities.

- i. Instrumentalities: 10-year rolling period.
- ii. Early Retirement Incentive (ERI) Plan liabilities: a period up to 10 years selected by the Employer upon adoption of ERI.
- iii. For taxing bodies (Regular, SLEP and ECO rate Groups): 30-year closed period until the remaining period reaches 15 years. After that point, a single rolling 15-year period shall be used for all unfunded liabilities that develop after that point and the schedule for the pre-existing liabilities shall continue until those liabilities are fully extinguished. In the event that a single rolling 15-year period results in negative amortization, the Board shall select a lesser period such that negative amortization does not occur.

The following procedures will be applied to financing overfunding.

- i. Instrumentalities: 10-year rolling period.
- ii. For taxing bodies (Regular, SLEP and ECO rate Groups): 30-year closed period until the remaining period reaches 15 years. After that point, a single rolling 15-year period shall be used for all assets exceeding liabilities.
- iii. Assets exceeding liabilities can be used to satisfy Early Retirement Incentive (ERI) costs so long as the reserve balance (on an actuarial basis) does not drop below 100%. Those assets shall be applied to the extent they are available only at the employer's request. If those assets are insufficient to satisfy the ERI costs, then the remaining balance will be amortized for a period up to 10 years as selected by the employer.

#### b. SLEP Supplemental Liabilities (Public Act 94-712)

Amortize supplemental liabilities over a closed 30-year period, with an employer option of selecting a period of either 35 or 40 years.

### 4. Assumed Investment Return

The assumed rate of return is 7.25%, net of all administrative and investment expenses.

# Actuarial Funding Policy

## C. Elements (Continued)

### 5. Funding Target

The targeted aggregate funded ration shall be 100%.

### 6. Computation of Employer Contribution Rates

The Board shall determine the employer contribution rate annually in consultation with the actuary, based upon the actuarial valuation for the most recent completed calendar year. The rate shall be calculated and communicated to the employer as soon as practical in the following year (known as Preliminary Rate Notice) and finalized by year-end (known as Final Rate Notice). Each rate shall remain in effect for one calendar year.

Annual employer contributions will be calculated utilizing the Actuarially Determined Employer Contribution rate (ADEC). It will be expressed as a percentage of payroll to be calculated so as to include a factor for normal cost for current service for each eligible plan and tier (based upon the benefit provisions in the Illinois Pension Code) and a factor to collect or refund any under or over funded amount.

In situations where the annual contributions based upon the ADEC times employer payroll are deemed insufficient to extinguish an unfunded liability over the course of an amortization period, a minimum contribution will be calculated which will pay down the unfunded liability over a 20-year period.

#### Economic Assumptions:

- Price Inflation: 2.25%
- Payroll growth: 2.75%
- Investment Return: 7.25%

Non-Economic Assumptions will be based upon the latest applicable triennial experience study and include:

- Rates of separation from active member status
- Rates of disability among actives
- Patterns of merit and longevity increases among actives
- Rates of retirement

#### Mortality Assumption:

- The Pub-2010 mortality tables and the MP-2020 projection scale with administrative factors to be implemented by the actuary when appropriate.

# Actuarial Funding Policy

## C. Elements (Continued)

### 7. Risk Management

#### a. Assumption Changes

- i. The actuarial assumptions used shall be those last adopted by the Board based on the most recent experience study and upon the advice and recommendation of the actuary. In accordance with 40 ILCS 5/7-213, the actuary shall conduct an experience study at least every three years. The results of the study shall be the basis for the actuarial assumption changes recommended to the Board.
- ii. The actuarial assumptions can be updated during the three-year period if significant plan design changes or other significant events occur, as advised by the actuary.

#### b. Amortization Method

The amortization method, Level Percent Closed, will ensure full payment of the UAAL over a finite, systematically decreasing period not to exceed 30 years. Not shorter than a rolling 15-year period.

#### c. Risk Measures

The following risk measures will be annually determined to provide quantifiable measurements of risk and their movement over time.

- i. Classic measures currently determined
  - A. Funded Ratio (assets/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 UAL/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 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%.

# Actuarial Funding Policy

## C. Elements (Concluded)

### d. Peer Review (Actuarial Audit)

Conduct a peer review of the Actuary's work every five years.

### e. Asset Liability Study

Conduct an asset liability study at least once every five years or as needed due to economic/financial conditions.

# Actuarial Funding Policy

## D. Glossary

- 1. Actuarial Accrued Liability (AAL):** The difference between (i) the actual 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 benefit” 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 the next valuation. These include contribution gains and losses that result from actual contributions made being greater or less than the level determined under 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 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. Corridor:** A range described as a percentage beyond which the market value and actuarial value of assets should not exceed without significant changes to the employer contribution rate.

# Actuarial Funding Policy

## D. Glossary (Concluded)

- 9. 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.
- 10. Experience Study:** An actuarial investigation of demographic and economic experiences of the system during the period studied. The investigation was made for the purpose of updating the actuarial assumptions used in valuing the actuarial liabilities.
- 11. 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.
- 12. Market Value of Assets:** The fair value of plan assets as reported in the plan's audited financial statements.
- 13. 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 liability is not part of the normal cost.
- 14. Rolling Period:** An amortization method in which the amortization period is reset each following year for the same period of time.
- 15. Unfunded Actuarial Accrued Liability (UAAL):** The positive difference, if any, between the actuarial accrued liability and valuation assets. Sometimes referred to as "unfunded accrued liability".

## E. Appendix

Attached are reference materials which shall be updated from time to time, but which are not part of this Policy. Changes/revisions to the reference materials need not be adopted by the Board of Trustees. Substantive changes to this Policy require Board of Trustee approval.

# **Financing Unfunded Accrued Liabilities and Full Funding Credits December 31, 2022 Valuations**

The following procedures were applied to financing liabilities in the valuation.

## **Financing Periods if employer is less than 120% funded on a market basis.**

1. Instrumentalities: 10-year rolling period.
2. Early Retirement Incentive Plan liabilities: a period up to 10 years selected by the Employer upon adoption of ERI.
3. For taxing bodies (Regular, SLEP, and ECO rate Groups): 19-year closed period until remaining period reaches 15 years. After that point, a single rolling 15-year period shall be used for all unfunded liabilities that develop after that point and the schedule for the pre-existing liabilities shall continue until those liabilities are fully extinguished. In the event that a single rolling 15-year period results in negative amortization, the Board shall select a lesser period such that negative amortization does not occur.

## **Financing Period if employer is over 120% funded on a market basis.**

4. Irrespective of the size of the employer or the funding level, grant the employer an option to amortize overfunding over 120% over a 5-year period.
5. For employers with 50 or more employees, grant the employer an option to adopt a minimum contribution rate until the overfunding is reduced to 120%.
6. Irrespective of the size of the employer, surplus in a plan can be used to satisfy early retirement incentive costs so long as the reserve balance does not drop below 120%.

SLEP supplemental liabilities attributable to Public Act 94-712 were financed over 14 years for most employers (five employers were financed over 15 years; one employer was financed over 16 years; two employers were financed over 17 years; one employer was financed over 20 years; three employers were financed over 23 years; four employers were financed over 24 years and one employer was financed over 25 years).

The mass production valuation applies rules 1 through 3. For rules 4 through 6, the period provided on the IMRF rate tape is used for valuation purposes and IMRF staff reviews each case individually to see if changes are needed to comply with Board policy.



## Selection of Assumptions Used in Actuarial Valuations

The actuary should have the primary responsibility for choosing the *demographic* assumptions used in the actuarial valuation, making use of specialized training and experience.

The actuary and other professionals can provide guidance concerning the choice of suitable economic assumptions, but the basis of the economic assumptions is expected market returns for various asset classes and the assumed rate of inflation (a quantity which defies accurate prediction). Given an assumed rate of future inflation, it is very important that this rate be applied in a consistent manner in deriving the assumed rate of investment return, the economic portion of the assumption on pay increases to individual employees, and the assumed rate of growth of active member payroll. Consistent application of assumptions is an area in which the actuary has specialized training.

A sound procedure is that the actuary suggests reasonable alternatives for economic assumptions, followed by discussion involving the actuary, the Board of Trustees, and other professionals, and the Board then makes a final choice from the various reasonable alternatives.

## **SECTION E**

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### **FINANCIAL PRINCIPLES**

# Financial Principles and Operational Techniques of IMRF

**Promises Made, and To Be Paid For:** As each year is completed, IMRF in effect hands an “IOU” to each member then acquiring a year of service credit. The “IOU” says: “The Illinois Municipal Retirement Fund owes you one year’s worth of retirement benefits, payments in cash commencing when you retire.”

The related **key financial questions** are:

**Which generation of taxpayers contributes the money to cover the IOU?**

**The present taxpayers**, who receive the benefit of the member’s present year of service? **Or the future taxpayers**, who happen to be in Illinois at the time the IOU becomes a cash demand, years and often decades later?

**The law governing IMRF financing intends that this year’s taxpayers contribute the money to cover the IOUs being handed out this year.** With this financial objective, **the employer contribution rate is expected to remain approximately level from generation to generation of taxpayers.**

There are systems which have a design for deferring contributions to future taxpayers. Lured by a lower contribution rate now, they put aside the consequence that the contribution rate must then relentlessly grow to a level much higher than would be required if a level contribution pattern were followed.

An inevitable by-product of the level-cost design is the accumulation of reserve assets, for decades, and the income produced when the assets are invested. **Investment income** ultimately becomes **the 3<sup>rd</sup> and largest contributor** for benefits to members, and is interlocked with the contribution amounts required from members and employers.

Translated to actuarial terminology, this level-cost objective means that the contribution rates must total at least the following:

Normal Cost (the cost of members’ service being rendered this year).

... plus ...

Interest at the assumed real rate of return on Unfunded Actuarial Accrued Liabilities (unfunded actuarial accrued liabilities are the difference between: accrued liabilities for service already rendered; and the accrued assets of IMRF).

However, that statement is theoretical only. Contributions made at only that level would provide very little in the way of benefit security.

***Computing Contributions to Support Fund Benefits:*** From a given schedule of benefits and from member and asset data, the actuary calculates the contribution rates to support the benefits by means of ***an actuarial valuation and a funding method.***

An actuarial valuation has a number of ingredients such as: the rate of investment return which plan assets will earn; the rates of withdrawal of active members who leave covered employment; the rates of mortality; the rates of disability; the rates of pay increases; and the assumed age or ages at actual retirement. These rates cannot be known today. Consequently, in an actuarial valuation, assumptions must be made as to what the above rates will be for the next year and for decades in the future. The assumptions are established by the Board of Trustees after receiving the advice of the actuary.

***Reconciling Differences Between Assumed Experience and Actual Experience:*** Once actual experience has occurred and has been observed, it will not coincide exactly with assumed experience, regardless of the skill of the actuary and the many calculations made. The future cannot be predicted.

IMRF copes with these continually changing differences by having annual actuarial valuations. Each actuarial valuation is a complete recalculation of assumed future experience, taking into account all past differences between assumed and actual experience. The result is ***continuing adjustments in financial position.*** Once every three years, an Experience Study is conducted to fully review differences between actual and assumed experience and recommend changes to our assumed experience, where appropriate.



## Actuarial Valuation Process

*The financing diagram* on the previous page shows the relationship between **the two fundamentally different philosophies of paying** for retirement benefits: the method where contributions match cash benefit payments (or barely exceed cash benefit payments, as in the Federal Social Security program) which is thus an **increasing contribution method**; and, the **level contribution method** which attempts to equalize contributions between the generations.

**The actuarial valuation** is the mathematical process by which the level contribution rate is determined. The activity constituting the valuation may be summarized as follows:

A. **Census Data**, including:

- Retired lives now receiving benefits
- Former members with vested benefits not yet payable
- Active members

B. + **Asset data** (cash & investments)

C. + **Benefit provisions** that establish eligibility and amounts of payments to members

D. + **Assumptions concerning future experience** in various risk areas

E. + **The funding method** for employer contributions (the long-term, planned pattern for employer contributions)

F. + **Mathematically combining the assumptions, the funding method, and the data**

G. = Determination of:

- Plan Financial position and/or
- New Employer Contribution Rates

## Glossary

**Accrued Service** - The service credited under the plan which was rendered before the date of the actuarial valuation.

**Accumulated Benefit Obligation** - The actuarial present value of vested and non-vested benefits based on service to date and past and current salary levels.

**Actuarial Equivalent** - A single amount or series of amounts of equal value to another single amount or series of amounts, computed on the basis of the rate(s) of interest and mortality tables used by the plan.

**Actuarial Present Value** - The amount of funds presently required to provide a payment or series of payments in the future. It is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

**Actuarial Present Value of Credited Projected Benefits or Pension Benefit Obligation** - The present value of future benefits based on service to date and the effect of projected salary increases.

**ERI** - Early Retirement Incentive Plan.

**Funded Percent** - A measure of the ratio of the funding value of assets to the actuarial accrued liability.

**Plan Termination Liability** - The actuarial present value of future plan benefits based on the assumption that there will be no further accruals for future service and salary. The termination liability will generally be less than the liabilities computed on a "going concern" basis and is not normally determined in a routine actuarial valuation.

**Reserve Account** - An account used to indicate that funds have been set aside for a specific purpose and are not generally available for other uses.



March 10, 2023

Mr. Mark F. Nannini  
Chief Financial Officer  
Illinois Municipal Retirement Fund  
2211 York Road - Suite 500  
Oak Brook, Illinois 60523

**Re: December 31, 2022 Actuarial Valuation**

Dear Mr. Nannini:

Enclosed are 12 copies of the December 31, 2022 Annual Actuarial Valuation Report.

We look forward to reviewing the results of this year's valuations at the Board meeting.

Sincerely,

GABRIEL, ROEDER, SMITH & COMPANY

A handwritten signature in black ink, appearing to read "F. Pieterse". The signature is written in a cursive, flowing style.

Francois Pieterse, ASA, FCA, MAAA

FP:dj  
Enclosures

cc: Sharon Brown, IMRF