Arkansas Judicial Retirement System

Annual Actuarial Valuation and
Experience Gain/(Loss) Analysis
Year Ending June 30, 2023

Outline of Contents

October 31, 2023

Board of Trustees
Arkansas Judicial Retirement System
Little Rock, Arkansas

Ladies and Gentlemen:

The results of the ***41st Annual Actuarial Valuation of the Arkansas Judicial Retirement System as of June 30, 2023, and the Gain/(Loss) Analysis of Financial Experience from July 1, 2022 to June 30, 2023*** are presented in this report. The purpose of the valuation and gain/loss analysis is to measure funding progress in relation to the actuarial cost method and to determine the employer contribution rate. The results of the valuation may not be applicable for other purposes. A separate report will be issued to provide actuarial information for GASB Statement No. 67 and Statement No. 68.

This report should not be relied on for any purpose other than those described above. It was prepared at the request of the Board and is intended for use by the Retirement System and those designated or approved by the Board. This report may be provided to parties other than the System only in its entirety and only with the permission of the Board. GRS is not responsible for unauthorized use of this report.

The individuals signing this report are independent of the plan sponsor.

The valuation was based upon Retirement System provisions in effect on the valuation date (summarized in Section B) along with census data and financial information. Data was tested for year-to-year consistency, but was not audited by the actuary. We are not responsible for the accuracy and completeness of the information provided by the administrative staff.

The findings in this report are based on data and other information through June 30, 2023. Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as: plan experience differing from that anticipated by the economic and demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the plan's funded status); and changes in plan provisions or applicable law. Due to the limited scope of the actuary's assignment, the actuary did not perform an analysis of the potential range of such future measurements.

The actuarial assumptions used in the actuarial valuation are summarized in Section D. The assumptions are established by the Retirement Board after consulting with the actuary. The actuarial assumptions used for the valuation produce results which, individually and in the aggregate, are reasonable.
The combined effect of the assumptions, excluding prescribed assumptions or methods set by law, is expected to have no significant bias (i.e., not significantly optimistic or pessimistic).

The cooperation of the administrative staff in furnishing the materials required for this valuation is hereby acknowledged with appreciation.

The contribution rate in this report is determined using the actuarial assumptions and methods disclosed in Section D of this report. This report includes risk commentary beginning on page A-12 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.

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 valuation assumed the continuing ability of the plan sponsor to make the contributions necessary to fund this plan. A determination regarding whether or not the plan sponsor is actually able to do so is outside our scope of expertise and was not performed.

This report has been prepared by individuals who have substantial experience valuing public employee retirement systems. To the best of our knowledge, this report is complete and accurate and was made in accordance with standards of practice promulgated by the Actuarial Standards Board.

Mita D. Drazilov and Heidi G. Barry are Members of the American Academy of Actuaries (MAAA) and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions contained herein.

Respectfully submitted,
Gabriel, Roeder, Smith & Company

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SECTION A

VALUATION RESULTS

Computed Actuarial Accrued Liabilities
as of June 30, 2023

Actuarial Present Value of	(1) Total Present Value	(2) Portion Covered by Future Normal Cost Contributions	(3) Actuarial Accrued Liabilities (1) - (2)
Benefits to be paid to current retirees, beneficiaries, and future beneficiaries of current retirees	$225,387,715	$ 0	$225,387,715
Age and service allowances based on total service likely to be rendered by present active members	181,804,691	65,864,076	115,940,615
Separation benefits (refunds of contributions and deferred allowances) likely to be paid to present active and inactive members	10,382,613	5,088,639	5,293,974
Disability benefits likely to be paid to present active members	1,749,644	2,327,102	(577,458)
Death-in-service benefits likely to be paid on behalf of present active members	7,677,388	3,714,789	3,962,599
Total	$427,002,051	$76,994,606	$350,007,445
Applicable assets (Funding Value)	322,395,535	0	322,395,535
Liabilities to be covered by future contributions	$104,606,516	$76,994,606	$ 27,611,910

Employer Contribution Rates Computed June 30, 2023
for Fiscal Year Ending June 30, 2025
Expressed as Percents of Active Member Payroll

Contributions for	Contributions Expressed as Percents of Active Payroll
Normal Cost	
Age and service annuities	26.30 %
Separation benefits	1.89 %
Disability annuities	0.90 %
Death-in-service annuities	1.52 %
Administrative expenses	0.70 %
Total	31.31 %
Member Contributions (average)	4.92 %
Employer Normal Cost	26.39 %
Unfunded Actuarial Accrued Liabilities*	11.15 %
TOTAL COMPUTED EMPLOYER CONTRIBUTION RATE	**37.54 %**

*   *Unfunded actuarial accrued liabilities were amortized as described on page A-3.*

Financing of Unfunded Actuarial Accrued Liabilities

| Source of Unfunded Actuarial Accrued Liability | Unfunded Actuarial Accrued Liability | | Current Amount | Remaining Period 6/30/2023 | Amortization Factor | Contribution as a % of Payroll |
| | Initial | | | | | |
	Amount	Financing Period				
Initial Unfunded Actuarial Accrued Liability.						
	N/A	N/A	$ 22,973,969	9 yrs.	8.051765	10.36%
Changes from experience deviations.						
6/30/2018	$ (382,766)	20	(355,823)	15	12.614273	(0.10)%
6/30/2019	(5,577,710)	20	(5,296,878)	16	13.318949	(1.44)%
6/30/2020	(3,153,650)	20	(3,047,292)	17	14.008597	(0.79)%
6/30/2021	(12,557,813)	20	(12,306,626)	18	14.683536	(3.04)%
6/30/2022	380,562	20	377,061	19	15.344081	0.09%
6/30/2023	6,530,086	20	6,530,086	20	15.990539	1.48%
Changes from actuarial assumptions and actuarial cost method revisions.						
6/30/2017	2,369,244	20	2,146,521	14	11.894241	0.66%
6/30/2022	16,744,946	20	16,590,892	19	15.344081	3.93%
Totals			**$ 27,611,910**			**11.15%**

Computed Employer Contribution Rates
Historical Comparative Statement

Valuation Date June 30	Active Members in Valuation				UAAL Financing Period	Computed Employer Contribution Rate
	Number	Average Pay	Averages in Years			
			Age	Service[@]		
1999 (a)	129	$ 107,679	54.1 yrs.	10.4	* yrs.	21.92%
2000	130	110,545	54.4	10.7	*	21.87%
2001 (a)	131	113,502	55.0	11.1	*	26.00%
2002 #	133	116,441	55.9	11.9	30	25.77%
2003	134	118,915	54.9	10.0	30	29.34%
2004	134	121,505	55.6	10.5	30	29.46%
2005	134	124,161	55.9	10.9	30	30.44%
2006	134	126,933	56.7	11.6	30	29.36%
2007 #	134	129,358	56.9	11.8	*	24.20%
2008	137	131,929	57.8	12.6	*	24.59%
2009 (a)	138	136,775	56.2	15.0	30	27.43%
2010	136	136,984	57.1	15.4	30	29.08%
2011	141	137,149	57.6	15.3	30	29.93%
2012 #	140	137,155	58.5	15.8	30	31.46%
2013	140	139,898	58.7	15.9	30	29.12%
2014 #	140	141,297	59.7	16.8	29	25.09%
2015 #	139	160,489	58.6	16.4	28	37.99%
2016	139	160,489	59.5	17.0	27	37.37%
2017#	140	163,699	59.0	16.1	15/20	35.87%
2018	139	168,595	60.0	16.9	&	35.90%
2019	140	168,591	60.5	17.8	&	34.85%
2020	142	173,141	60.9	17.9	&	34.34%
2021	145	175,720	57.3	12.9	&	31.86%
2022#	145	181,097	58.3	13.7	&	36.15%
2023	**142**	**193,869**	**58.1**	**15.1**	**&**	**37.54%**

(a) *After changes in benefit provisions.*
\# *Revised actuarial assumptions and/or methods.*
* *Retirement System was fully funded.*
@ *Includes reciprocal service for Tier One members on and after June 30, 2006 and Tier Two members on and after June 30, 2009.*
& *Unfunded actuarial accrued liabilities are amortized as described on page A-3.*

Employer contributions are the total of all types of revenue to the System except member contributions by payroll deduction and investment return. Employer contributions include court fees and Act 922 transfers.

Active Members and Retired Lives
Historical Comparative Schedule

| Valuation Date June 30 | Active Members | | | | Retired Lives | | | |
| | | Valuation Payroll | | | | Active per Retired | Annual Benefits | |
	No.	$ Millions	Average	% Incr.	No.		$ in Millions	as a % of Pay
1999	129	$ 13.9	$ 107,679	2.9%	79	1.6	$ 3.6	25.6%
2000	130	14.4	110,545	2.7%	80	1.6	3.7	26.1%
2001	131	14.9	113,502	2.7%	82	1.6	5.0	33.8%
2002	133	15.5	116,441	2.6%	81	1.6	5.0	32.3%
2003	134	15.9	118,915	2.1%	98	1.4	6.4	40.5%
2004	134	16.3	121,505	2.2%	100	1.3	6.6	40.6%
2005	134	16.6	124,161	2.2%	105	1.3	7.1	42.9%
2006	134	17.0	126,933	2.2%	101	1.3	7.1	41.5%
2007	134	17.3	129,358	1.9%	103	1.3	7.3	42.4%
2008	137	18.1	131,929	2.0%	105	1.3	7.5	41.5%
2009	138	18.9	136,775	3.7%	123	1.1	9.2	48.8%
2010	136	18.6	136,984	0.2%	121	1.1	9.2	49.1%
2011	141	19.3	137,149	0.1%	120	1.2	9.1	46.9%
2012	140	19.2	137,155	0.0%	123	1.1	9.3	48.6%
2013	140	19.6	139,898	2.0%	125	1.1	10.0	50.8%
2014	140	19.8	141,297	1.0%	124	1.1	10.1	51.2%
2015	139	22.3	160,489	13.6%	137	1.0	11.8	53.0%
2016	139	22.3	160,489	0.0%	138	1.0	12.0	53.7%
2017	140	22.9	163,699	2.0%	147	1.0	12.9	56.2%
2018	139	23.4	168,595	3.0%	147	0.9	13.0	55.5%
2019	140	23.6	168,591	0.0%	149	0.9	13.3	56.4%
2020	142	24.6	173,141	2.7%	148	1.0	13.7	55.7%
2021	145	25.5	175,720	1.5%	178	0.8	17.2	67.4%
2022	145	26.3	181,097	3.1%	176	0.8	17.1	65.3%
2023	**142**	**27.5**	**193,869**	**7.1%**	**178**	**0.8**	**18.1**	**65.8%**

Payroll and Asset
Historical Comparative Statement

Valuation Date June 30	Valuation Payroll	Funding Value of Assets	Ratio of Assets/Payroll
		($ in Millions)	
1985	$ 4.7	$ 4.5	1.0
1990	7.1	21.4	3.0
1995	11.0	41.1	3.7
2000	14.4	107.1	7.4
2002	15.5	124.2	8.0
2003	15.9	126.5	7.9
2004	16.3	129.1	7.9
2005	16.6	135.1	8.1
2006	17.0	145.1	8.5
2007	17.3	159.6	9.2
2008	18.1	169.1	9.3
2009	18.9	167.4	8.9
2010	18.6	165.2	8.9
2011	19.3	165.4	8.6
2012	19.2	167.8	8.7
2013	19.6	182.6	9.3
2014	19.8	201.8	10.2
2015	22.3	215.4	9.7
2016	22.3	225.3	10.1
2017	22.9	239.0	10.4
2018	23.4	249.1	10.6
2019	23.6	260.7	11.0
2020	24.6	277.3	11.3
2021	25.5	303.2	11.9
2022	26.3	313.2	11.9
2023	**27.5**	**322.4**	**11.7**

As AJRS has matured, the asset base relative to covered payroll has increased dramatically. This is a normal and planned occurrence in a soundly financed plan. However, as the ratio grows, market gains and losses have a progressively larger effect on contribution rates, making the objective of contribution rate stability increasingly more difficult to achieve.

Comments

General Financial Objective. Section 24-2-701 of the Arkansas Code provides as follows (emphasis added):

> "(a) The general financial objective of each Arkansas public employee retirement plan shall be to ***establish and receive contributions which, expressed as percents of active member payroll, will remain approximately level from generation to generation of Arkansas citizens***. More specifically, contributions received each year shall be sufficient both to (i) fully cover the costs of benefit commitments being made to members for their service being rendered in such year and (ii) make a level payment which if paid annually over a reasonable period of future years will fully cover the unfunded costs of benefit commitments for service previously rendered....."

Judicial Retirement System Status. Financing the Retirement System under a level contribution pattern means:

- The normal costs of judicial service will be paid by the generation of taxpayers who receive the value of the judicial service, and not passed on to a future generation;

- The ultimate contributions required will be substantially less than future benefit payouts, because investment return will pay the largest portion of benefits (see Financing Diagram on page E-3); and

- The benefit promises the Retirement System makes to individual judges will be more secure, because Retirement System assets will support the benefits, rather than grants from future legislatures.

Experience of the Retirement System was unfavorable, in aggregate, for the year ended June 30, 2023 with slightly higher than assumed investment returns offset by aggregate demographic losses. AJRS is 92.1% funded based on the funding (smoothed) value of assets. AJRS is 88.0% funded based on the market value of assets. There is a $14.3 million cumulative investment loss to be recognized over the next three years. If actual experience matches assumed experience during this coming period, the employer contribution would increase by approximately 3.3% of payroll from the current level (i.e., the amount of the UAAL contribution). In accordance with the Board's funding policy, a reduction to the employer normal cost will begin if the funded ratio exceeds 120% based upon the funding value of assets.

Based upon the results of the June 30, 2023 actuarial valuation, ***the Judicial Retirement System is satisfying the general financial objective*** of level percent-of-payroll financing.

Recommendations

Reserve Transfers. Each year reserve transfers are recommended so that there will be a balance between assets and actuarial accrued liabilities in the Retirement Reserve Account and the Deferred Annuity Account.

- The Retirement Reserve Account is responsible for future annuity payments to present retired lives.

- The Deferred Annuity Account is responsible for future annuity payments to present inactive members.

This year's recommended transfer amounts are as follows:

Employer Accum. Account Before Transfers	Transfers as of July 1, 2023 (from) to:		Employer Accum. Account After Transfers
	Deferred Annuity Account	Retirement Reserve Account	
$80,490,226	$1,836,212	$17,118,421	$61,535,593

For the purposes of this valuation it was assumed that these transfers would be made.

Other Observations

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 5.50% on the actuarial value of assets), it is expected that:

1) The unfunded actuarial accrued liabilities will be fully amortized as shown on page A-3.
2) The funded status of the plan will increase gradually towards a 100% funded ratio.

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 (i.e., 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 System 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.
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).
3) 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.

Short Condition Test

The AJRS funding objective is to meet long-term benefit promises through contributions that remain approximately level from year-to-year as a percent of member payroll. If the contributions to the System are level in concept and soundly executed, the System 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 accumulated contributions;
2) The liabilities for future benefits to present retired lives; and
3) The employer financed portion of liabilities for service already rendered by non-retired members.

In a system that has been following the discipline of level percent-of-payroll financing, active member contributions (liability 1) and the liabilities for future benefits to present retired lives (liability 2) will be fully covered by present assets. In addition, the liabilities for service already rendered by active 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 – Comparative Statement

	Entry Age Accrued Liability				Portion of Present Values Covered by Present Assets				Market
	(1)	(2)	(3)						
			Active Member						
Valuation	Active	Retirees	(Employer						
Date	Members	and	Financed	Present					Value
June 30	Contr.	Benef.	Portion)	Assets	(1)	(2)	(3)	Total	Total
			($ in Thousands)						
1999(a)	$ 6,817	$ 38,040	$ 37,919	$ 91,783	100%	100%	124%	111%	
2000(a)	7,740	39,255	36,217	107,059	100%	100%	166%	129%	
2001(a)	8,522	54,712	52,839	119,191	100%	100%	106%	103%	
2002(a)	9,316	54,216	61,202	124,212	100%	100%	99%	99%	
2003	10,147	74,060	53,718	126,520	100%	100%	79%	92%	
2004	10,948	74,227	56,600	129,065	100%	100%	78%	91%	
2005	10,254	79,560	60,766	135,062	100%	100%	74%	90%	
2006	11,078	79,739	65,692	145,050	100%	100%	83%	93%	
2007(a)	11,906	82,165	63,302	159,587	100%	100%	103%	101%	
2008	11,825	81,712	72,211	169,061	100%	100%	105%	102%	
2009(a)	12,689	103,249	64,227	167,433	100%	100%	80%	93%	73%
2010	11,474	102,200	69,238	165,244	100%	100%	74%	90%	78%
2011	11,822	102,379	72,434	165,377	100%	100%	71%	89%	92%
2012(a)	12,356	107,413	75,685	167,796	100%	100%	63%	86%	87%
2013	12,397	114,770	75,967	182,596	100%	100%	73%	90%	94%
2014(a)	13,310	113,468	81,228	201,792	100%	100%	92%	97%	105%
2015(a)	12,665	143,898	98,150	215,448	100%	100%	60%	85%	88%
2016	13,337	142,743	104,441	225,254	100%	100%	66%	86%	83%
2017 (a)	13,261	161,761	95,360	238,956	100%	100%	67%	88%	89%
2018	14,196	162,018	102,961	249,096	100%	100%	71%	89%	92%
2019	14,957	160,858	108,673	260,671	100%	100%	78%	92%	94%
2020	15,745	163,177	117,732	277,318	100%	100%	84%	93%	95%
2021	12,464	209,486	87,162	303,155	100%	100%	93%	98%	112%
2022 (a)	13,628	213,524	107,176	313,217	100%	100%	80%	94%	89%
2023	**13,739**	**225,388**	**110,880**	**322,396**	**100%**	**100%**	**75%**	**92%**	**88%**

(a) *After changes in benefit provisions and/or actuarial assumptions and methods.*

Risk Commentary

The determination of the actuarial 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 actuarial measurements that result from the differences between actual experience and the actuarial assumptions.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: plan experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions due to changing conditions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period, or additional cost or contribution requirements based on the Plan's funded status); and changes in plan provisions or applicable law. The scope of an actuarial valuation does not include an analysis of the potential range of such future measurements.

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

1. **Investment Risk** – The risk that actual investment returns may differ from the expected investment returns. For AJRS, this risk is enhanced since the required level of assets to support the provided benefits is approximately 12 times payroll.
2. **Inflation Risk** – The risk that actual salaries and total payroll may differ from expected due to inflation, resulting in actual future accrued liability and contributions differing from expected. For AJRS, this risk is enhanced since the COLA of certain retired members is based upon the salary increase of certain active members.
3. **Longevity Risk** – The risk that members may live longer or shorter than expected and receive pensions for a period of time other than assumed.
4. **Other Demographic Risks** – The risk that 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.

Risks facing a pension plan evolve over time. A young plan with virtually no investments and paying few benefits may experience little investment risk. An older plan with a large number of members in pay status and a significant trust may be much more exposed to investment risk. Various plan maturity measures are included in Section A of this report (e.g., active members per retired lives on page A-5).

Presented on the following page is a summary of additional risk measures for AJRS.

Summary of Risk Measures

Valuation Date June 30,	Funded Ratio		UAAL Amortization Period	Total UAAL / Total Payroll	Total Actuarial Value of Assets / Total Payroll	Total AAL/ Total Payroll	Standard Deviation of Investment Return / Total Payroll
	Based on AVA	Based on MVA					
2016	86%	83%	27	1.6	10.1	11.7	**
2017	88%	89%	15/20	1.4	10.4	11.8	115.6%
2018	89%	92%	*	1.3	10.6	11.9	120.4%
2019	92%	94%	*	1.0	11.0	12.1	124.6%
2020	93%	95%	*	0.8	11.3	12.1	125.6%
2021	98%	112%	*	0.2	11.9	12.1	136.1%
2022	94%	89%	*	0.8	11.9	12.7	113.0%
2023	92%	88%	*	1.0	11.7	12.7	117.5%

*   Unfunded actuarial accrued liabilities are amortized as described on page A-3.
** Unavailable.

Funded Ratio: This is the most widely known measure of a plan's financial strength. In most circumstances, the trend in the funded ratio is much more important than the absolute ratio. A trend approaching 100% is desirable. This measure is presented for more years on page F-1.

UAAL Amortization Period: Based upon the current economic assumptions, amortization periods at or above about 24 years indicate that the UAAL payment is less than the interest on the UAAL. This situation is referred to as "negative amortization." Negative amortization is increasingly viewed as undesirable.

UAAL / Total Payroll: The ratio of UAAL to payroll gives an indication of the plan sponsor's ability to pay off the UAAL. A declining ratio is desirable. A ratio above approximately 3.0 or 4.0 may indicate difficulty in discharging the unfunded liability in some circumstances.

Funding Value of Assets / Total Payroll: The ratio of assets to payroll gives an indication of both maturity and volatility. A high ratio can indicate volatility of contribution rates or amortization period. This measure is presented for more years on page A-6.

Total AAL / Total Payroll: This is similar to above. It illustrates the expected ratio of assets to payroll when the plan has a funded ratio of 100%.

Standard Deviation of Investment Return / Total Payroll: The portfolio standard deviation measures the volatility of investment return. When divided by payroll it gives the effect of a one standard deviation asset gain or loss as a percent of payroll. A market value asset loss of this magnitude or larger has roughly a 16% chance of occurring in any particular year.

Low-Default-Risk Obligation Measure

INTRODUCTION

In December 2021, the Actuarial Standards Board (ASB) adopted a revision to Actuarial Standard of Practice (ASOP) No. 4, *Measuring Pension Obligations and Determining Pension Plan Costs or Contributions*. The revised ASOP No. 4 requires the calculation and disclosure of a liability referred to by the ASOP as the "Low-Default-Risk Obligation Measure" (LDROM). The rationale that the ASB cited for the calculation and disclosure of the LDROM was included in the Transmittal Memorandum of ASOP No. 4 and is presented below (emphasis added):

"The ASB believes that the calculation and disclosure of this measure provides **appropriate, useful information for the intended user regarding the funded status of a pension plan**. The calculation and disclosure of this additional measure is **not intended to suggest that this is the "right" liability measure** for a pension plan. However, the ASB does believe that **this additional disclosure provides a more complete assessment of a plan's funded status and provides additional information regarding the security of benefits that members have earned as of the measurement date.**"

COMPARING THE ACCRUED LIABILITIES AND THE LDROM

One of the fundamental financial objectives of AJRS is to finance each member's retirement benefits over the period from the member's date of hire until the member's projected date of retirement (entry age actuarial cost method) as a level percentage of payroll. To fulfill this objective, the discount rate that is used to value the accrued liabilities of AJRS is set equal to the **expected return** on the System's diversified portfolio of assets (referred to sometimes as the investment return assumption). For AJRS, the investment return assumption is 5.50%.

The LDROM is meant to approximately represent the lump sum cost to a plan to purchase low-default-risk fixed income securities whose resulting cash flows essentially replicate in timing and amount the benefits earned (or the costs accrued) as of the measurement date. The LDROM is very dependent upon market interest rates at the time of the LDROM measurement. The lower the market interest rates, the higher the LDROM, and vice versa. The LDROM results presented in this report are based on the projected unit credit actuarial cost method and discount rates based upon the June 2023 Treasury Yield Curve Spot Rates (monthly average). The 1-, 5-, 10- and 30-year rates follow: 5.29%, 3.99%, 3.61% and 3.84%.

Presented below are the actuarial accrued liability and the LDROM as of June 30, 2023 for AJRS.

Type of Member	Valuation Accrued Liabilities	LDROM
Retirees	$225,387,715	$262,249,998
Deferreds	7,431,463	10,268,030
Actives	117,188,267	133,809,077
Totals	**$350,007,445**	**$406,327,105**

Low-Default-Risk Obligation Measure

COMMENTARY REGARDING THE LDROM

Some ways in which the LDROM can assist the AJRS Board of Trustees in a decision-making process include:

(1) It provides information to potentially allow for better risk management for AJRS.
(2) It places the appropriateness of potential employer contribution rate reductions or benefit enhancements in a better context.
(3) It provides more complete information regarding the benefit security of the membership's benefits earned as of the measurement date.
(4) It brings into consideration a potential value for a "withdrawal liability" for employers that may want to leave AJRS.

Potentially Allows for Better Risk Management: A very useful risk metric to exhibit potential contribution rate volatility (or amortization period volatility for fixed rate plans) is the ratio of assets to payroll or AAL to payroll. How could we reduce that potential contribution rate volatility (or amortization period volatility for fixed rate plans)? The LDROM and liability driven investing (LDI) are closely related concepts.

Other than reducing benefits, all other things being equal, the only way to reduce that volatility is to immunize (i.e., LDI) a portion of the System's liability. This does not mean that the System needs to immunize all of the liability. For example, if they could immunize half of it, they could reduce the contribution rate volatility in half. This would require the actuary to use a cash flow matching method to value that portion of the liabilities. This means that the actuary would not use the System's investment return assumption for this portion of the liability, but the yield curve resulting from the fixed income portfolio that is being used to immunize the liability. The value of the assets (i.e., fixed income portfolio) and the value of the immunized liability would move in tandem with any changes (up or down) in future interest rates. The result being that the immunized portion of the System's liability would reduce the potential of producing new unfunded actuarial accrued liabilities. However, the fixed income portfolio would still have the minor potential for credit default risk.

Places the Appropriateness of Potential Employer Contribution Rate Reductions or Benefit Enhancements in a Better Context: Many PERS have adopted a funding policy. Many funding policies already take into account the System's funded ratio (based upon the AAL) when considering whether to allow for benefit enhancements or contribution rate reductions. For example, a System may not allow for a benefit enhancement if the funded ratio does not exceed a certain threshold. Similarly, a System may not allow for an employer contribution rate reduction in some circumstances. For example, a reduction to the employer normal cost contribution may not be allowed until the System reaches a funded ratio of 120%. Given the fact that most criteria are based upon the <u>expectation</u> of earning the investment return assumption, a System may want to consider extending these criteria to a funded ratio based upon the LDROM in addition to the AAL.

Provides more Complete Information Regarding the Benefit Security of the Membership's Benefits Earned as of the Measurement Date: Too often a high funded ratio (e.g., 100% funded) on an AAL basis is interpreted as benefit security for the participants. The fact that this funded ratio is based upon an expected measure is many times overlooked. If the AAL and LDROM measures are relatively close, then the System at least has the opportunity to make benefits payable in the future more secure.

SECTION B

VALUATION DATA

Summary of Provisions Considered
(July 1, 2023)

Tier One	Tier Two

Description

Elected or appointed prior to the effective date of Act 399 of 1999 and who do not elect to participate in Tier Two.

Elected or appointed after the effective date of Act 399 of 1999 or elected to participate in Tier Two.

Regular Retirement

An active member may retire at age 65 with 10 or more years of credited service, or after 20 years of credited service regardless of age. Persons who become members after June 30, 1983 must also have at least 8 years of actual service as a justice of the Supreme Court, or as a judge of the Circuit or Chancery Courts or the Court of Appeals.

An active member or former member may retire at age 65 with 8 or more years of credited service, or after 20 years of credited service regardless of age.

Compulsory Retirement

Any judge or justice who attains 70 years of age during a term of office to which he has been elected may complete the term without forfeiting rights to retirement benefits. Any judge or justice who is not eligible to retire at age 70 may continue to serve as judge until completion of the term in which there has accrued sufficient credited service to retire. Otherwise, judges or justices must retire by their 70th birthday or lose their retirement benefits.

Any judge or justice who attains 70 years of age during a term of office to which he has been elected may complete the term without forfeiting rights to retirement benefits. Any judge or justice who is not eligible to retire at age 70 may continue to serve as judge until completion of the term in which there has accrued sufficient credited service to retire. Otherwise, judges or justices must retire by their 70th birthday or lose their retirement benefits.

Final Salary

The annual salary for the last judicial office held.

The annual salary for the last judicial office held.

Age & Service Annuity

60% of the judge's final salary, for life.

Each year of additional service after twenty (20) years of judicial service, the benefit shall be increased by two and one-half percent (2.5%) with a maximum benefit payable of seventy-five percent (75%) of the judge's final salary.

3.2% of the salary of the last judicial office held multiplied by the number of years of service not to exceed 80% of the salary of the last judicial office held.

Summary of Provisions Considered
(Continued)

Tier One	Tier Two

Deferred Retirement

An inactive member who has 14 or more years of credited service and left judicial service before attaining age 65 will be entitled to an age and service annuity beginning at age 65. Persons who become members after June 30, 1983 must also have at least 8 years of actual service as a justice of the Supreme Court, or as a judge of the Circuit or Chancery Courts or the Court of Appeals.

An inactive member who has 8 or more years of credited service and left judicial service before attaining age 65 will be entitled to an age and service annuity beginning at age 65.

Disability Retirement

An active member with 3 or more consecutive years of credited service who becomes totally and permanently disabled may be retired and receive a disability annuity computed in the same manner as an age and service annuity. The 3 years of service is not required for persons who were members before July 1, 1983.

An active member with 3 or more consecutive years of credited service who becomes totally and permanently disabled may be retired and receive a disability annuity computed in the same manner as an age and service annuity, except that the benefit shall not be less than 25.6% of final salary.

Early Retirement

A member who became a member before July 1, 1983 and who has 18 but less than 20 years credited service may retire, regardless of age, and receive an immediate annuity. The amount is the full age and service amount reduced proportionately for service less than 20 years.

A member with 14 years of credited service may retire between ages 62 and 65 and receive an immediate annuity. The amount is the full age and service amount reduced 1/2 of 1% for each month that retirement age is younger than age 65. Persons who become members after June 30, 1983 must also have at least 8 years of actual service as a justice of the Supreme Court, or as a judge of the Circuit Court or Chancery Courts or the Court of Appeals.

A member with 8 years of credited service may retire between ages 62 and 65 and receive an immediate annuity. The amount is the full age and service amount reduced 1/2 of 1% for each month retirement age is younger than age 65.

Summary of Provisions Considered
(Concluded)

Tier One	Tier Two

Survivor Benefits

Upon the death of a member with 3 or more years of service, before or after retirement, an annuity of 67% of the judge's benefit is payable to the following survivors (shared if there is more than one eligible survivor):

- A surviving spouse married to the judge more than 1 year at the time of death.
- A minor child of the judge.

The 3-year service requirement is not required of those who became members prior to July 1, 1983.

Upon the death of a member with 3 or more years of service, before or after retirement, an annuity of 67% of the judge's benefit, but not less than 17.152% of final salary, is payable to the following survivors (shared if there is more than one eligible survivor):

- A surviving spouse married to the judge more than 1 year at the time of death.
- A minor child of the judge.

The 3-year service requirement is not required of those who became members prior to July 1, 1983.

Increases After Retirement

For any person who was a member on or before June 30, 1983, the retirement benefits are increased or decreased from time to time as the salary for the particular judicial office is increased or decreased. For all judges or justices first elected after June 30, 1983, and who have received retirement benefits from the System for at least 12 full calendar months, the retirement benefits are increased each July 1st by 3%.

For all judges or justices who have received retirement benefits from the System for at least 12 full calendar months, the retirement benefits are increased each July 1st by 3%.

Member Contributions

Active members contribute 6% of their salaries. Members with 20 or more years of service and members age 65 or older with 10 or more years of service do not contribute to the Retirement System. At any time a member is accruing the additional 2.5% of final salary benefit, member contributions would be required. If a member leaves service before becoming eligible to retire, accumulated contributions may be refunded.

Active members contribute 5% of their salaries. Members with 25 or more years of service do not contribute to the Retirement System. If a member leaves service before becoming eligible to retire, accumulated contributions may be refunded.

Summary of Reported Assets
June 30, 2023

Reserve Account Balances

Members Deposit Account	$ 13,739,336
Members Deposit Account Interest Reserve	698
Employer Accumulation Account	80,490,226
Retirement Reserve Account	208,269,294
Partial Purchase Service Reserve	0
Deferred Annuity Account	5,595,251
Total Applicable Assets (Market Value)	$ 308,094,805

Revenues & Expenditures

Total Assets Beginning of Year (Market Value)			$296,855,183
Revenues:	Member Contributions		1,267,952
	Employer Contributions	- Statutory	3,139,441
		- Act 763	4,903,105
		- Court fees	188,083
		- Other	0
	Service Purchase		112
	Investment Income		20,437,793
	Total Revenues		29,936,486
Expenditures:	Retirement Benefits Paid		17,411,833
	Refunds of Member Contributions		0
	Administrative Expenses		170,984
	Investment Expenses		1,114,047
	Other		0
	Total Expenditures		18,696,864
Total Assets End of Year (Market Value)			$308,094,805

Development of Funding Value of Assets

Valuation Date June 30:	2021	2022	2023	2024	2025	2026
A. Funding Value Beginning of Year	$277,318,078	$303,155,398	$313,216,641			
B. Market Value End of Year	346,888,932	296,855,183	308,094,805			
C. Market Value Beginning of Year	280,837,139	346,888,932	296,855,183			
D. Non-Investment Net Cash Flow	(6,177,657)	(6,959,942)	(8,084,124)			
E. Investment Return						
E1. Market Total: B-C-D	72,229,450	(43,073,807)	19,323,746			
E2. Assumed Rate	5.75%	5.75%	5.50%			
E3. Amount for Immediate Recognition	15,769,837	17,233,201	17,006,586			
E4. Amount for Phased-In Recognition	56,459,613	(60,307,008)	2,317,160			
F. Phased-In Recognition of Investment Return						
F1. Current Year: 0.25xE4	14,114,903	(15,076,752)	579,290			
F2. First Prior Year	638,990	14,114,903	(15,076,752)	$ 579,290		
F3. Second Prior Year	110,844	638,990	14,114,903	(15,076,752)	$ 579,290	
F4. Third Prior Year	1,380,403	110,843	638,991	14,114,904	(15,076,752)	$ 579,290
F5. Total Recognized Investment Gain	16,245,140	(212,016)	256,432	(382,558)	(14,497,462)	579,290
G. Funding Value End of Year						
G1. Preliminary Funding Value End of Year: A+D+E3+F5	303,155,398	313,216,641	322,395,535			
G2. Upper Corridor Limit: 125% x B	433,611,165	371,068,979	385,118,506			
G3. Lower Corridor Limit: 75% x B	260,166,699	222,641,387	231,071,104			
G4. Funding Value End of Year	303,155,398	313,216,641	322,395,535			
H. Difference Between Market & Funding Values	43,733,534	(16,361,458)	(14,300,730)			
I. Recognized Rate of Return	**11.7%**	**5.7%**	**5.6%**			
J. Market Value Rate of Return	26.0%	(12.5)%	6.6%			
K. Ratio of Funding Value to Market Value	87.4%	105.5%	104.6%			

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 4-year period. During periods when investment performance exceeds the assumed rate, Funding Value of Assets will tend to be less than Market Value. During periods when investment performance is less than the assumed rate, Funding Value of Assets will tend to be greater than Market Value. If assumed rates are exactly realized for 3 consecutive years, Funding Value will become equal to market value.

Retirees and Beneficiaries as of June 30, 2023
Tabulated by Attained Age

Attained Age	Retirees No.	Retirees Annual Allowances	Survivor Beneficiaries No.	Survivor Beneficiaries Annual Allowances	Total No.	Total Annual Allowances
Under 50		$ -		$ -		$ -
54			1	54,732	1	54,732
59			1	89,568	1	89,568
60	2	59,688			2	59,688
62	1	158,076			1	158,076
63	2	185,028	1	54,572	3	239,600
64			1	42,660	1	42,660
65			4	344,520	4	344,520
67	3	288,492	2	139,188	5	427,680
68	4	526,668	1	65,232	5	591,900
69	3	343,608			3	343,608
70	7	589,536	1	8,592	8	598,128
71	5	466,164			5	466,164
72	7	888,204	4	327,180	11	1,215,384
73	8	908,820	1	79,104	9	987,924
74	10	1,089,708	2	196,200	12	1,285,908
75	11	1,285,176	2	199,032	13	1,484,208
76	5	605,664	3	277,884	8	883,548
77	8	965,460			8	965,460
78	6	650,988	6	511,572	12	1,162,560
79	6	567,072	2	137,772	8	704,844
80	9	850,440	1	83,268	10	933,708
81	4	530,040	2	169,344	6	699,384
82	4	524,424	2	157,140	6	681,564
83	2	143,676	2	189,504	4	333,180
84	4	434,856	2	173,736	6	608,592
85	2	298,116	1	80,640	3	378,756
86	4	441,228	1	79,776	5	521,004
87	3	346,416	2	170,784	5	517,200
88	2	237,912	1	88,056	3	325,968
89			1	77,544	1	77,544
91	1	122,856			1	122,856
93	1	114,588			1	114,588
94			1	77,544	1	77,544
95	1	115,740	1	77,544	2	193,284
96			1	81,852	1	81,852
97	1	180,564	1	77,544	2	258,108
98			1	79,428	1	79,428
100 and Over						
TOTALS	**126**	**$ 13,919,208**	**52**	**$ 4,191,512**	**178**	**$ 18,110,720**

Retirees and Beneficiaries as of June 30, 2023
Tabulated by Attained Age (Concluded)

Type of Annuity	Number	Annual Annuities	Annuity Liabilities
Age & Service Retirees			
Life	18	$ 1,597,560	$ 18,788,799
Life Continuing to Survivor	106	12,163,644	160,491,902
Totals	124	13,761,204	179,280,701
Beneficiaries of Age & Service Retirees	46	3,807,540	38,786,031
Total Age & Service Retirees & Beneficiaries	170	17,568,744	218,066,732
Disability Retirees			
Life	1	106,788	827,175
Life Continuing to Survivor	1	51,216	669,897
Totals	2	158,004	1,497,072
Beneficiaries of Disability Retirees	0	0	0
Total Disability Retirees & Beneficiaries	2	158,004	1,497,072
Death-in-Service Beneficiaries	6	383,972	5,823,911
Total Retirees & Beneficiaries	**178**	**$ 18,110,720**	**$ 225,387,715**

AJRS Retirees
July 1, 2022 through June 30, 2023

	Age & Service	Disability	All Retirees
Number	8.0	NA	178
Average Age	70.6	NA	77.2
Average Service	25.3	NA	NA
Average Annual Benefit	$149,373	NA	$101,746

Included in the valuation were 13 inactive vested members.

Active Members as of June 30, 2023
by Attained Age and Years of Service
Tier One

| Attained Age | Years of Benefit Service to Valuation Date | | | | | | | Totals | |
	0-4	5-9	10-14	15-19	20-24	25-29	30 Plus	No.	Valuation Payroll
60					1			1	$ 192,918
61							1	1	192,918
62									
63									
64									
65									
66									
67									
68									
69									
70						1		1	192,918
71							1	1	192,918
72							1	1	219,902
73							1	1	197,596
74									
Totals					1	1	4	6	$ 1,189,170

| Group | No. | Averages | | | |
		Age	Benefit Service	Eligibility Service	Annual Pay
Tier One	6	67.8	31.3	32.9	$198,195

Active Members as of June 30, 2023
by Attained Age and Years of Service
Tier Two

Attained Age	Years of Benefit Service to Valuation Date							Totals	
	0-4	5-9	10-14	15-19	20-24	25-29	30 Plus	No.	Valuation Payroll
35-39	3							3	$ 578,754
40-44	5	3		1				9	1,736,262
45-49	6	1	1	2	1			11	2,129,790
50-54	9	3	5	4	5			26	5,062,023
55-59	9		8		3	6	1	27	5,213,464
60	3	1	1		1	1	1	8	1,554,051
61			4			1		5	964,590
62	1	1		1				3	578,754
63		1	1	1		1	2	6	1,166,864
64		1						1	197,596
65		1			1		1	3	578,754
66	3				2			5	975,297
67	1	1	2		2		2	8	1,552,700
68				1		1		2	385,836
69					3	2	1	6	1,157,508
70	2	1						3	578,754
71		1	3					4	771,672
72					2			2	385,836
73	1		1					2	385,836
74				1				1	192,918
75									
76						1		1	192,918
77									
Totals	43	15	26	11	20	13	8	136	$ 26,340,177

		Averages			
Group	No.	Age	Benefit Service	Eligibility Service	Annual Pay
	136	57.7	8.8	14.3	$193,678

SECTION C

GAIN/(LOSS) RESULTS

Comments

Purpose of Gain/(Loss) Analysis. Regular actuarial valuations provide information about the composite change in unfunded actuarial accrued liabilities -- whether or not they are increasing or decreasing and by how much.

But valuations do not show the portion of the change attributable to each risk area within the Retirement System financial mechanism: the rate of investment return which plan assets 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 ages at actual retirement. In an actuarial valuation, assumptions must be made as to what these rates will be, for the next year and for decades in the future.

The objective of a gain and (loss) analysis is to determine the portion of the change in actuarial condition (unfunded actuarial accrued liabilities) attributable to each risk area.

The fact that actual experience differs from assumed experience is to be expected -- ***the future cannot be predicted with precision***. The economic risk areas (particularly investment return) are volatile.

Changes in the assumed experience for a risk area should be made when the differences between assumed and actual experience have been observed to be sizable and persistent. A gain and (loss) analysis covering a relatively short period may or may not be indicative of ***long-term trends, which are the basis of actuarial assumptions***.

The Arkansas Judicial Retirement System had an experience loss during the 2022-2023 observation year. Details are reported on the following pages.

Changes in Unfunded Actuarial Accrued Liabilities
Derivation of Experience Gain (Loss)
Year Ended June 30, 2023

Actual experience will not (except by coincidence) coincide exactly with assumed experience. Gains and losses often cancel each other over a period of years, but sizable year-to-year fluctuations are common. Detail on the derivation of the experience gain (loss) is shown below:

	2023	2022
1) UAAL* at start of year	$ 21,111,609	$ 5,957,057
2) Employer normal cost from last valuation	7,071,579	6,714,626
3) Employer contributions	8,230,629	8,963,459
4) Interest accrual: (1) * .055 + [(2)-(3)]*.0275	1,129,265	277,877
5) Expected UAAL before changes: (1)+(2)-(3)+(4)	21,081,824	3,986,101
6) Change in benefits/assumptions/methods	0	16,744,946
7) Expected UAAL after changes: (5) + (6)	21,081,824	20,731,047
8) Actual UAAL at end of year	27,611,910	21,111,609
9) Gain(loss): (7) - (8)	$(6,530,086)	$(380,562)
10) Actuarial accrued liability at start of year	$334,328,250	$309,112,455
11) Gain(loss) as percent of actuarial accrued liabilities at start of year: (9) / (10)	(2.0)%	(0.1)%

  * *Unfunded actuarial accrued liability.*

Gain/(Loss) by Risk Area
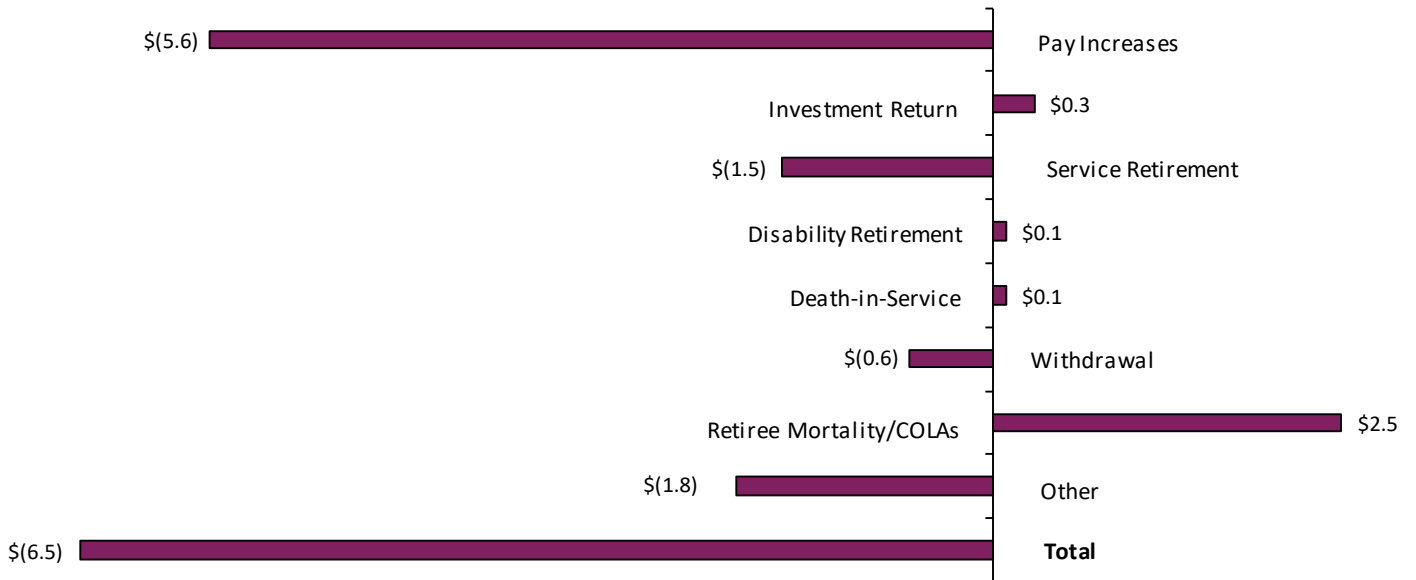## During the Period July 1, 2022 to June 30, 2023

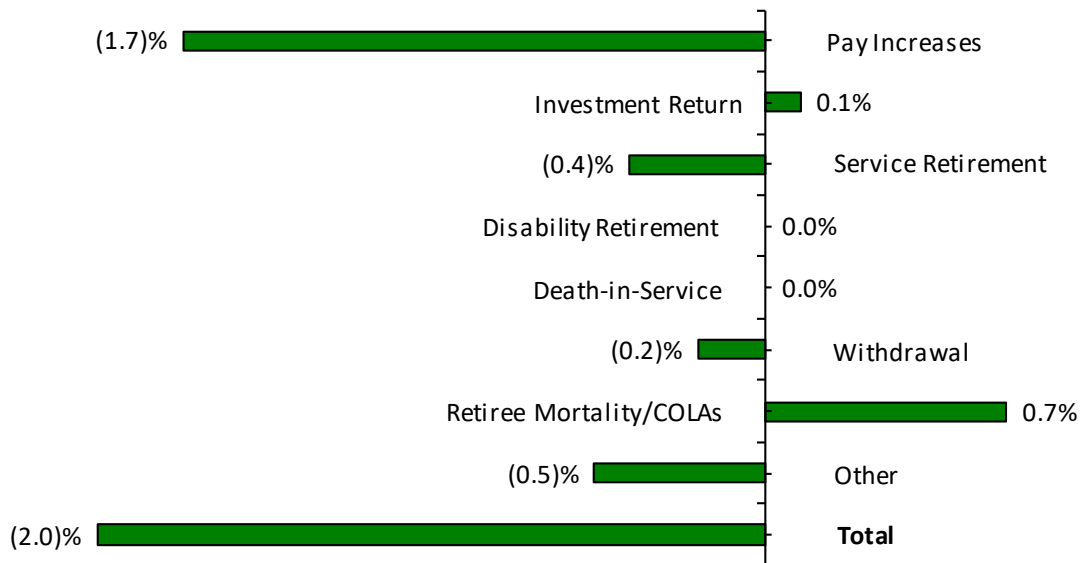| Type of Risk Area	Gain (Loss) During Year*	
	$ in Millions	Percent of Liabilities
ECONOMIC RISK AREAS		
Pay Increases. If there are smaller pay increases than assumed, there is a gain. If greater increases, a (loss).	$(5.6)	(1.7)%
Investment Return. If there is greater investment return than assumed, there is a gain. If less return, a (loss).	0.3	0.1 %
NON-ECONOMIC RISK AREAS		
Age & Service Retirements. If members retire at older ages or with lower final average pays than assumed, there is a gain. If younger ages or higher average pays, a (loss).	(1.5)	(0.4)%
Disability Retirements. If there are fewer disabilities than assumed, there is a gain. If more, a (loss).	0.1	0.0 %
Death-in-Service Benefits. If more liabilities are released by deaths-in-service than assumed, there is a gain. If less, a (loss).	0.1	0.0 %
Withdrawal. If more liabilities are released by other separations than assumed, there is a gain. If smaller releases, a (loss).	(0.6)	(0.2)%
Retiree Mortality/COLAs. If there are fewer deaths than assumed, there is a (loss). If more, a gain. This includes gains and losses related to Tier I pre-July 1, 1983 retired member increases.	2.5	0.7 %
Other. Gains and losses resulting from group size change, data adjustments, timing of financial transactions, additional contributions and miscellaneous unidentified sources.	(1.8)	(0.5)%
Experience Gain/(Loss)	$(6.5)	(2.0)%

* Totals may not add due to rounding.

Gain/(Loss) Experience
2022-2023 Year

Amounts in $ Millions

Category	Value
Pay Increases	$(5.6)
Investment Return	$0.3
Service Retirement	$(1.5)
Disability Retirement	$0.1
Death-in-Service	$0.1
Withdrawal	$(0.6)
Retiree Mortality/COLAs	$2.5
Other	$(1.8)
Total	$(6.5)

% of Accrued Liabilities

Category	Value
Pay Increases	(1.7)%
Investment Return	0.1%
Service Retirement	(0.4)%
Disability Retirement	0.0%
Death-in-Service	0.0%
Withdrawal	(0.2)%
Retiree Mortality/COLAs	0.7%
Other	(0.5)%
Total	(2.0)%

Development of Gain/(Loss)
from Recognized Investment Return*
During the Period July 1, 2022 to June 30, 2023

		$ Millions
1.	Total Funding Value of Assets Beginning of Year	$313.2
2.	Total Funding Value of Assets End of Year	
	a. Actual	322.4
	b. If net investment return had been 5.50%	322.1
3.	Gain (Loss): 2a minus 2b	$0.3

* Recognized "investment return" as used in this Gain/(Loss) Analysis means assumed investment income plus a four-year phase-in of differences between actual market rate of return and the assumed rate of return.

Members Who Separated from Active Employment
During the Period July 1, 2013 to June 30, 2023

Year	Number Added During Year	Terminations During the Year										Active Members End of Year
		Normal Retirement		Disability Retirement		Died-in Service		Withdrawals				
								Vested	Other	Total		
		A	E	A	E	A	E	A	A	A	E	
2014	1	0	16.0	0	0.2	0	0.3	1	0	1	1.4	140
2015	19	14	17.9	0	0.2	1	0.4	5	0	5	1.0	139
2016	3	0	14.8	0	0.2	3	0.4	0	0	0	1.2	139
2017	13	7	16.5	0	0.2	0	0.4	1	4	5	0.9	140
2018	2	2	3.0	0	0.1	0	0.6	1	0	1	1.9	139
2019	11	0	10.2	0	0.1	2	0.7	1	7	8	1.7	140
2020	6	2	3.4	0	0.2	1	0.8	0	1	1	1.6	142
2021	40	32	15.2	0	0.1	0	0.7	2	3	5	1.8	145
2022	1	1	2.3	0	0.2	0	0.5	0	0	0	3.3	145
2023	8	8	9.4	0	0.1	1	0.5	1	1	2	7.0	142
5 Year Totals	66	43	40.5	0	0.7	4	3.2	4	12	16	15.4	
10 Year Totals	104	66	108.7	0	1.7	8	5.3	12	16	28	21.8	

A = Actual
E = Expected

Members Active Both Beginning and End of Year
Salary Increases by Age Group
During the Period of July 1, 2022 to June 30, 2023

Age Groups	Percent Increase
35-39	7.1%
40-44	7.1%
45-49	7.1%
50-54	7.1%
55-59	7.1%
60-64	7.1%
65-69	7.1%
70-74	7.1%

SECTION D

ACTUARIAL METHODS AND ASSUMPTIONS

Summary of Assumptions Used
for Arkansas Judicial Actuarial Valuations
Assumptions Adopted by Board of Trustees After
Consulting with the Actuary

The actuarial assumptions used in the valuation are shown in this Section. Assumptions were established based upon an Experience Study covering the period July 1, 2016 through June 30, 2021 (please see report dated June 30, 2022). The actuarial assumptions represent estimates of future experience. The assumptions are established by the Retirement Board after consulting with the actuary.

Economic Assumptions

The investment return rate used in making the valuation was 5.50% per year, compounded annually (net after investment expenses). Adopted 2022.

Pay increase assumptions for individual active members are shown on page D-3. Part of the assumption for each age is for a merit and/or seniority increase, and the other 3.25% recognizes wage inflation. This wage inflation assumption consists of 2.50% for price inflation and 0.75% for real wage growth. Adopted 2015 and readopted 2022.

Total active member payroll is assumed to increase 3.25% a year, which is the portion of the individual pay increase assumptions recognizing inflation.

The number of active members is assumed to continue at the present number.

Non-Economic Assumptions

The **healthy retiree mortality tables**, for post-retirement mortality, used in evaluating allowances to be paid were the PubG-2010 Above-Median Income Retiree Mortality tables for healthy retirees. The **disabled retiree mortality tables**, for post-retirement disabled mortality, used in evaluating allowances to be paid were the PubNS-2010 **Disabled Retiree Mortality tables** for disabled retirees. The **pre-retirement mortality tables** used was 175% of the PubG-2010 Employee Mortality tables for active mortality experience. Mortality rates for a particular calendar year are determined by applying the MP-2021 mortality improvement scale to the above described tables. Related values are shown on pages D-3 (pre-retirement) and D-5 (post-retirement). Adopted 2022.

(Concluded on the following page.)

Summary of Assumptions Used
for Arkansas Judicial Actuarial Valuations
Assumptions Adopted by Board of Trustees After
Consulting with the Actuary
(Concluded)

The probabilities of retirement for members eligible to retire are shown on page D-4. Adopted 2017.

The probabilities of withdrawal from service are shown for sample ages on page D-3. Adopted 2022.

The probabilities of disability are shown for sample ages on page D-3. Adopted 2017.

Normal Cost. Normal Cost and the allocation of benefit values between service rendered before and after the valuation date was determined using an individual entry-age actuarial cost method having the following characteristics.

- The annual normal cost for each individual active member, payable from the date of employment to the date of retirement, is sufficient to accumulate the value of the member's benefit at the time of retirement; and

- Each annual normal cost is a constant percentage of the member's year-by-year projected covered pay.

The normal cost, the present value of future normal cost and the present value of benefits are based on the benefit levels available to each member. The accrued liability is the difference between the present value of benefits and the present value of future normal cost.

Funding value of assets (cash & investments) was determined by phasing-in differences between actual market return and the assumed rate of return over a four-year period.

The data about persons now covered and about present assets was furnished by the System's administrative staff. Although examined for general reasonableness, the data was not audited by the actuary.

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

Decrement and Pay Increase Assumptions
for Active Members
June 30, 2023

| 2023 Sample Ages | Years of Service | Percent of Active Members Separating Within the Next Year | | | | | Pay Increase Assumptions for Individual Member | | |
| | | Male | | Female | | | Merit & Seniority | Base (Economic) | Increase Next Year |
		Death	Disability	Death	Disability	Withdrawal			
	0					15.00%			
	1					15.00%			
	2					15.00%			
	3					10.00%			
	4					10.00%			
30	5+	0.09%	0.04%	0.04%	0.05%	1.00%	0.00%	3.25%	3.25%
35		0.13%	0.04%	0.06%	0.05%	1.00%	0.00%	3.25%	3.25%
40		0.16%	0.10%	0.08%	0.18%	1.00%	0.00%	3.25%	3.25%
45		0.19%	0.13%	0.10%	0.20%	1.00%	0.00%	3.25%	3.25%
50		0.25%	0.25%	0.13%	0.28%	1.00%	0.00%	3.25%	3.25%
55		0.36%	0.45%	0.21%	0.38%	1.00%	0.00%	3.25%	3.25%
60		0.57%	0.71%	0.34%	0.51%	1.00%	0.00%	3.25%	3.25%
65		0.82%	0.83%	0.49%	0.62%	1.00%	0.00%	3.25%	3.25%

The pay increase assumptions are age based only, and not service based.

Probabilities of death are for calendar year 2023.

Probabilities of Retirement for Members Eligible to Retire
June 30, 2023

Early Retirement

Retirement Ages	Percent of Eligible Active Members Electing Early Retirement Within Next Year
62	2%
63	2%
64	2%

Normal Retirement

1) For ages under 70, a 4% probability of retirement is used.
2) For ages 70 and over
   a. If the future year of consideration is an odd year, then a 4% probability of retirement is used.
   b. If the future year of consideration is an even year,
      i. For members under the age of 76, a 33% probability of retirement is used.
      ii. For members ages 76 or older, a 100% probability of retirement is used.

For Tier One, a member was assumed eligible to retire at age 50 with 20 years of service, or at age 65 with 10 years of service. A member was assumed eligible to retire early at age 62 with 14 years of service.

For Tier Two, a member was assumed eligible to retire at age 50 with 20 years of service, or at age 65 with 8 years of service. A member was assumed eligible to retire early at age 62 with 8 years of service.

Single Life Retirement Values
June 30, 2023

Attained Age in 2023	Percent Dying Next Year		Present Value of $1 Monthly for Life Increasing 3% Annually		Future Life Expectancy (Years)	
	Men	Women	Men	Women	Men	Women
50	0.2516%	0.1928%	$251.81	$261.34	36.27	38.69
55	0.3683%	0.2706%	232.44	243.27	31.35	33.71
60	0.5648%	0.3837%	210.32	222.19	26.59	28.82
65	0.8244%	0.5660%	185.61	198.03	22.03	24.08
70	1.2745%	0.9003%	158.42	170.96	17.70	19.54
75	2.1527%	1.5953%	129.62	141.67	13.69	15.27
80	3.9079%	2.9605%	100.83	111.78	10.13	11.42

Probabilities of death are for calendar year 2023.

Sample Attained Ages	$100 Benefit Increasing 3% Annually	Portion of Age 65 Lives in 2023 Still Alive	
		Men	Women
65	$100.00	100%	100%
70	115.93	95%	97%
75	134.39	88%	92%
80	155.80	78%	83%
85	180.61	62%	71%

Marriage Assumption: 80% of males and 80% of females are assumed to be married for purposes of death-in-service benefits. 80% of members are assumed to be married at retirement. Male spouses are assumed to be six years older than female spouses for active member valuation purposes. Actual data is used for retired valuation purposes.

Pay Increase Timing: Beginning of (Fiscal) year. This is equivalent to assuming that reported pays represent amounts paid to members during the year ended on the valuation date.

Decrement Timing: Decrements of all types are assumed to occur mid-year.

Eligibility Testing: 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.

Benefit Service: Exact fractional service is used to determine the amount of benefit payable.

Decrement Relativity: Decrement rates are used directly from the experience study, without adjustment for multiple decrement table effects.

Decrement Operation: Disability and withdrawal do not operate during retirement eligibility.

Normal Form of Benefit: The assumed normal form of benefit is the 67% joint and survivor benefit.

Incidence of Contributions: 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.

Tier 1 2.5% Benefit Multiplier Election: For present value of future benefit purposes, it was assumed that all Tier 1 members will elect to accrue the additional 2.5% benefit multiplier (if they have not already done so). Member contribution rates are based upon those members that have elected to accrue the additional 2.5% benefit multiplier as of the valuation date.

Administrative Expenses: The computed contribution rate was increased by 0.7% of payroll to fund for administrative expenses.

Additional Adjustments: None.

SECTION E

FINANCIAL PRINCIPLES

Financial Principles and Operational Techniques of AJRS

Promises Made and to be Paid for. As each year is completed, AJRS in effect hands an "IOU" to each member then acquiring a year of service credit -- the "IOU" says: "The Arkansas Judicial Retirement System owes you one year's worth of retirement benefits, payments in cash commencing when you qualify for retirement."

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 Arkansas at the time the IOU becomes a cash demand, years and often decades later?

The law governing AJRS financing intends that this year's taxpayers contribute the money to cover the IOUs being handed out this year. With this financial objective, ***funds are accumulated during the members' working years which, when combined with investment income, will be sufficient to pay benefits throughout the years of retirement.***

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 inherent feature of a pre-funded program is the accumulation of reserve assets, for decades, and the income produced when the assets are invested. ***Investment income*** becomes ***the third and largest contributor*** for benefits to employees, and is interlocked with the contribution amounts required from employees 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 on Unfunded Actuarial Accrued Liabilities (unfunded accrued liabilities are the difference between liabilities for service already rendered and accrued assets).
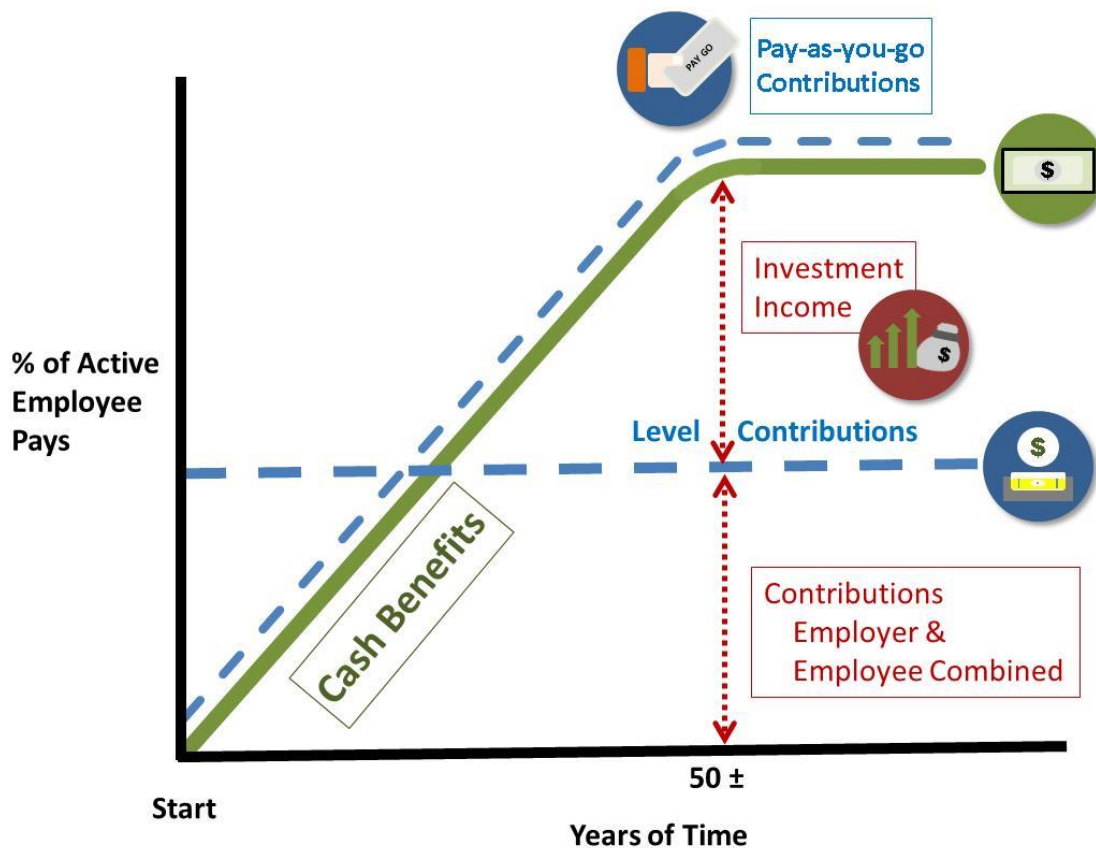
Computing Contributions to Support Fund Benefits. From a given schedule of benefits and from employee and asset data, the actuary calculates the contribution rates to support the benefits by means of ***an actuarial valuation and a funding method***.

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.

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 with precision.

AJRS 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***.

% of Active
Employee
Pays

Pay-as-you-go
Contributions

Investment
Income

Level Contributions

Cash Benefits

Contributions
Employer &
Employee Combined

Start

50 ±

Years of Time

CASH BENEFITS LINE. This relentlessly increasing line is the fundamental reality of retirement plan financing. It happens each time a new benefit is added for future retirements (and happens regardless of the design for contributing for benefits).

LEVEL CONTRIBUTION LINE. Determining the level contribution line requires detailed assumptions concerning a variety of experiences in future decades, including:

- **Economic Risk Areas**
  - Rates of investment return
  - Rates of pay increase
  - Changes in active member group size
- **Non-Economic Risk Areas**
  - Ages at actual retirement
  - Rates of mortality
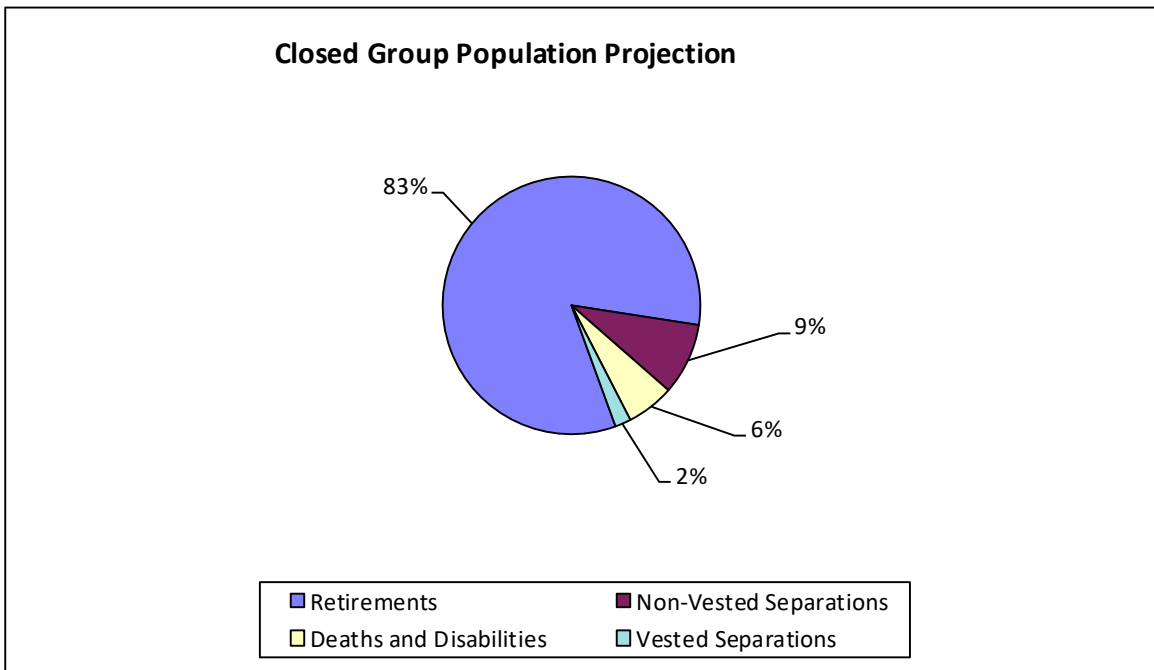 - Rates of withdrawal of active members (turnover)
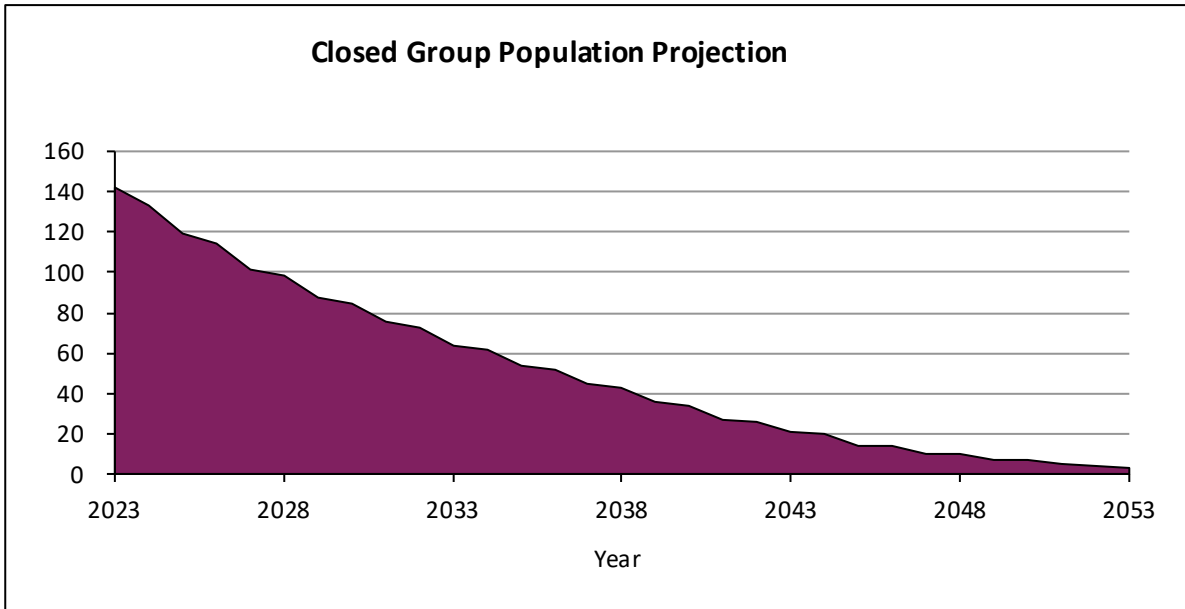 - Rates of disability

The Actuarial Valuation Process

The financing diagram on page E-3 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 Social Security) which is an **increasing contribution method**; and the **level contribution method** which equalizes contributions between the generations.

The actuarial valuation is the mathematical process by which the level contribution rate is determined, and the flow of activity constituting the valuation may be summarized as follows:

A.   **Census Data**, furnished by the plan administrator.

   Retired lives now receiving benefits

   Former members with vested benefits not yet payable

   Active members

B.   +   **Asset data** (cash & investments), furnished by the plan administrator

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** (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 Rate

Expected Development of Present Population
June 30, 2023

Closed Group Population Projection

Closed Group Population Projection

Retirements	Non-Vested Separations
Deaths and Disabilities	Vested Separations

The charts above show the expected future development of the present population in simplified terms. The Retirement System presently covers 142 active members. Eventually, 9% of the population is expected to terminate covered employment prior to retirement and forfeit eligibility for an employer provided benefit. Approximately 85% of the present population is expected to receive monthly retirement benefits either by retiring directly from active service, or retiring from vested deferred status. About 6% of the present population is expected to become eligible for death-in-service or disability benefits. Within 10 years, over half of the covered membership is expected to consist of new hires.

Glossary

Actuarial Accrued Liability - The difference between (i) the actuarial present value of future plan benefits, and (ii) the actuarial present value of future normal cost. Sometimes referred to as "accrued liability" or "past service liability."

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 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.

Actuarial Cost Method - A mathematical budgeting procedure for allocating the dollar amount of the "actuarial present value of future plan benefits" between the actuarial present value of future normal cost and the actuarial accrued liability. Sometimes referred to as the "actuarial funding method."

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.

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.

Experience 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.

Normal Cost - The annual cost assigned, under the actuarial funding method, to current and subsequent plan years. Sometimes referred to as "current service cost." Any payment toward the unfunded actuarial accrued liability is not part of the normal cost.

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.

Glossary
(Concluded)

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.

Unfunded Actuarial Accrued Liability - The difference between the actuarial accrued liability and valuation assets. Sometimes referred to as "unfunded accrued liability."

Valuation Assets - The value of current plan assets recognized for valuation purposes. Generally based on a phase-in of differences between actual and assumed market rates of return.

Meaning of "Unfunded Actuarial Accrued Liabilities"

"*Actuarial accrued liabilities*" are **the present value of the portions of promised benefits that are not covered by future normal cost contributions** --- a liability has been established ("accrued") because the service has been rendered but the resulting monthly cash benefit may not be payable until years in the future.

If "actuarial accrued liabilities" at any time exceed the plan's accrued assets (cash & investments), the difference is "*unfunded actuarial accrued liabilities*." This is the common condition. It is less common when a plan's assets equal or exceed the plan's "actuarial accrued liabilities."

Each time a plan adds a new benefit, which applies to service already rendered, an "actuarial accrued liability" is created, which is also an "unfunded actuarial accrued liability" because the plan can't print instant cash to cover the value of the new benefit promises. Payment for such unfunded actuarial accrued liabilities is spread over a period of years, commonly in the 15- 30-year range.

Unfunded actuarial accrued liabilities can occur in another way: if actual plan experience is less favorable than assumed, the difference is added to unfunded actuarial accrued liabilities. For example, in plans where benefits are directly related to an employee's pay near time of retirement, unfunded actuarial accrued liabilities increased rapidly during the 1970's because unexpected rates of pay increase created additional actuarial accrued liabilities which could not be matched by reasonable investment results. Most of the unexpected pay increases were the direct result of inflation, which is a very destructive force on financial stability.

The existence of unfunded actuarial accrued liabilities is not bad but the changes from year to year in the amount of unfunded actuarial accrued liabilities are important --- "bad" or "good" or somewhere in between.

Nor are unfunded actuarial accrued liabilities a bill payable immediately, but it is important that policy-makers prevent the amount from becoming unreasonably high and **it is vital for plans to have a sound method for making payments toward them** so that they are controlled.

SECTION F

REQUIRED SUPPLEMENTAL INFORMATION

Schedule of Funding Progress

($ Thousands)

Actuarial Valuation Date	Actuarial Value of Assets (a)	Entry Age AAL (b)	UAAL (b)-(a)	Funded Ratio (a)/(b)	Annual Covered Payroll (c)	UAAL as a Percentage of Covered Payroll [(b-a)/(c)]
6/30/99	$ 91,783	$ 82,776	$ (9,007)	110.9 %	$13,891	-
6/30/00	107,059	83,211	(23,848)	128.7 %	14,371	-
6/30/01	119,191	116,073	(3,118)	102.7 %	14,869	-
6/30/02	124,212	124,734	522	99.6 %	15,487	3 %
6/30/03	126,520	137,925	11,405	91.7 %	15,935	72 %
6/30/04	129,065	141,775	12,710	91.0 %	16,282	78 %
6/30/05	135,062	150,580	15,519	89.7 %	16,638	93 %
6/30/06	145,050	156,510	11,459	92.7 %	17,009	67 %
6/30/07	159,587	157,373	(2,215)	101.4 %	17,334	-
6/30/08	169,061	165,747	(3,314)	102.0 %	18,074	-
6/30/09	167,433	180,166	12,732	92.9 %	18,875	67 %
6/30/10	165,244	182,912	17,668	90.3 %	18,630	95 %
6/30/11	165,377	186,635	21,258	88.6 %	19,338	110 %
6/30/12	167,796	195,455	27,658	85.8 %	19,202	144 %
6/30/13	182,596	203,134	20,537	89.9 %	19,586	105 %
6/30/14	201,792	208,006	6,213	97.0 %	19,782	31 %
6/30/15	215,448	254,714	39,266	84.6 %	22,308	176 %
6/30/16	225,254	260,522	35,268	86.5 %	22,308	158 %
6/30/17	238,956	270,382	31,426	88.4 %	22,918	137 %
6/30/18	249,096	279,175	30,078	89.2 %	23,435	128 %
6/30/19	260,671	284,488	23,817	91.6 %	23,603	101 %
6/30/20	277,318	296,654	19,336	93.5 %	24,586	79 %
6/30/21	303,155	309,112	5,957	98.1 %	25,479	23 %
6/30/22	313,217	334,328	21,112	93.7 %	26,259	80 %
6/30/23	**322,396**	**350,007**	**27,612**	**92.1 %**	**27,529**	**100 %**

Schedule of Employer Contributions

Year Ended June 30	Annual Required Contribution	Percent Contributed
1999	$3,160,812	100%
2000	3,183,709	100%
2001	3,136,072	100%
2002	3,319,233	100%
2003	4,065,638	100%
2004	4,126,190	100%
2005	4,774,986	100%
2006	4,904,699	100%
2007	5,182,016	100%
2008	5,144,958	100%
2009	4,466,571	100%
2010	4,667,612	100%
2011	5,220,623	100%
2012	5,465,079	100%
2013	5,672,291	100%
2014	6,117,327	100%
2015	5,690,381	100%
2016	5,561,289	100%
2017	8,485,361	100%
2018	8,421,173	100%
2019	8,233,959	100%
2020	8,572,697	100%
2021	8,209,893	100%
2022	8,963,459	100%
2023	**8,230,629**	**100%**

Supplementary Information

The information presented in the required supplementary schedules was determined as part of the actuarial valuations at the dates indicated. Additional information as of the latest valuation date follows:

Valuation Date	June 30, 2023
Actuarial Cost Method	Entry Age
Amortization Method	Level Percent-of-Payroll
Remaining Amortization Period	Variable, please refer to page A-3
Asset Valuation Method	4-year smoothed market with 25% corridor

Actuarial Assumptions:

Investment Rate of Return	5.50%
Projected Salary Increases	3.25%
Including Price Inflation at	2.50%
Cost-of-Living Adjustments	Pre July 1, 1983 Retirees:
	Increased with increases in active Judges pay.
	Post June 30, 1983 Retirees:
	3.0%, Compound.

Retirees and beneficiaries receiving benefits	178
Terminated plan members entitled to but not yet receiving benefits	13
Active plan members	142
Total	333