Arkansas State Police Retirement System

Annual Actuarial Valuation and the Gain/Loss Analysis of Experience

June 30, 2024

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October 31, 2024

Board of Trustees
Arkansas State Police Retirement System
Little Rock, Arkansas

Ladies and Gentlemen:

The results of the ***Annual Actuarial Valuation of the Arkansas State Police Retirement System as of June 30, 2024, and the Gain/Loss Analysis of Experience among Active Members from July 1, 2023 to June 30, 2024*** are presented in this report. The valuation was based upon Retirement System provisions in effect on the valuation date. 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 rates for the fiscal year beginning July 1, 2024. The results of the valuation may not be applicable for other purposes. A separate report will be issued to provide actuarial information for GASB Statements No. 67 and No. 68.

This report should not be relied on for any purposes 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. Gabriel, Roeder, Smith & Company is not responsible for unauthorized use of this report.

The signing actuaries are independent of the plan sponsor.

The findings in this report are based on data and other information through June 30, 2024. Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: plan experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the plan's funded status); and changes in plan provisions or applicable law. Due to the limited scope of the actuary's assignment, the actuary did not perform an analysis of the potential range of such future measurements.

The actuarial methods and assumptions used in this valuation are summarized in Section D of this report. The assumptions are established by the Retirement Board after consulting with the actuary. The actuarial assumptions used for this 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 metrics beginning on page A-7, 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.

We have assessed that the contribution rate calculated under the current funding policy is a reasonable Actuarially Determined Employer Contribution (ADEC) and it is consistent with the plan accumulating adequate assets to make benefit payments when due.

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 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, this report is complete and accurate and was made in accordance with standards of practice promulgated by the Actuarial Standards Board and in conformance with Title 24 of the Arkansas Code.

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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Objectives and Status

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

> "6.01. (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 (i) to fully cover the costs of benefit commitments being made to members for their service being rendered in such year and (ii) to 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...."

Benefit Changes. The most recent benefit changes were reflected in the June 30, 2021 valuation. No benefit changes have been adopted for consideration in the June 30, 2024 valuation.

Assumption Changes. The most recent assumption changes were reflected in the June 30, 2023 valuation. No assumption changes have been adopted for consideration in the June 30, 2024 valuation.

Method Changes. The actuarial cost method and amortization method were last updated for the June 30, 2013 valuation in conjunction with the completed experience study.

ASPRS Status. Based upon the results of the June 30, 2024 actuarial valuation, ***ASPRS continues to satisfy the general financial objective*** of level contribution financing.

ASPRS Reserve Strength. As a by-product of achieving level contribution financing, actuarial accrued liabilities usually become more and more funded over a period of years. On a funding value of assets basis, the System has a 79% funded ratio. On a market value of assets basis, the System has a 77% funded ratio.

Employer Contribution Rates. Based upon experience through June 30, 2024, the State Police contribution rate will be 52.00% of covered payroll for the fiscal year beginning July 1, 2024.

Other Observations

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

Given the System's contribution allocation procedure, if all actuarial assumptions are met (including the assumption of the plan earning 7.00% on the actuarial value of assets), it is expected that:

1) The total employer contribution rate as a percentage of pay will trend to the level of the Tier Two normal cost as time passes and Tier One members terminate employment and are replaced;
2) The unfunded actuarial accrued liabilities will be fully amortized after 15 years; and
3) The funded status of the plan will increase gradually towards a 100% funded ratio.

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 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.

SECTION A

VALUATION RESULTS

Computed Actuarial Accrued Liabilities
as of June 30, 2024

Actuarial Present Value of	(1) Total Present Value	(2) Portion Covered by Future Normal Cost Contributions	(3) Actuarial Accrued Liabilities (1) - (2)
Future benefits to be paid to current retirees, beneficiaries, and future beneficiaries of current retirees	$ 348,703,425	$ -	$ 348,703,425
Age and service benefits based on service likely to be rendered by present active members and DROP participants	299,492,228	92,124,877	207,367,351
Separation benefits likely to be paid present active and inactive members	25,570,167	15,956,677	9,613,490
Disability benefits likely to be paid present active members	10,694,954	7,658,905	3,036,049
Death-in-service benefits likely to be paid on behalf of present active members	2,255,992	1,019,141	1,236,851
Total	$ 686,716,766	$ 116,759,600	$ 569,957,166
Valuation assets			$ 449,033,022
Unfunded actuarial accrued liabilities			$ 120,924,144

Amortization of
Unfunded Actuarial Accrued Liabilities (UAAL)
June 30, 2024

Description	Remaining Years	Amount
Active Member UAAL		
Act 1071 of 1997#	15	$ 93,378,367
Remainder - Tier One (Including DROP)	15	(36,906,064)
- Tier Two (Including DROP)	15	64,451,841
Total Active		120,924,144
Total UAAL		**$120,924,144**

 # See page G-1.

Computed Employer Contribution Rates
as of June 30, 2024
Expressed as Percents of Active Member Payroll
for Fiscal Year Beginning July 1, 2024

Contributions for	Contributions Expressed as Percents of Covered Payroll*		
	Tier One	Tier Two	Weighted Average
Normal Cost			
Age and Service Annuities	20.61 %	21.73 %	21.66 %
Separation Benefits	2.85 %	3.81 %	3.75 %
Disability Benefits	1.77 %	1.78 %	1.77 %
Death-in-Service Annuities	0.34 %	0.24 %	0.25 %
Administrative Expenses	0.70 %	0.70 %	0.70 %
Total	26.27 %	28.26 %	28.13 %
Unfunded Actuarial Accrued Liabilities@	156.37 %	13.70 %	23.87 %
Total Computed Employer Contribution Rate	182.64 %	41.96 %	52.00 %

* *Covered payroll includes all active members, including DROP participants. Valuation payroll totals $42,912,787.*

@ *Unfunded actuarial accrued liabilities were amortized over a closed 15-year period.*

Computed Employer Contribution Rates
Comparative Statement

June 30	Active Members in Valuation: Number	Active Members in Valuation: Average Pay $	Change in Average Pay %	Change in CPI: Inflation	UAAL Financing Period	Computed Employer Rate[&]
2015@	558	$ 53,637	(0.4)%	0.2 %	24 yrs	48.51%
2016	554	53,156	(0.9)%	0.8 %	23	46.57%
2017@	528	55,070	3.6 %	1.7 %	22	51.21%
2018	528	56,048	1.8 %	2.9 %	21	51.43%
2019	529	57,255	2.2 %	1.8 %	20	50.69%
2020#	541	61,573	7.5 %	1.0 %	19	49.85%
2021#	545	61,624	0.1 %	5.4 %	18	48.55%
2022	519	63,116	2.4 %	8.5 %	17	48.52%
2023@	517	72,943	15.6 %	3.2 %	16	56.59%
2024	561	76,493	4.9 %	2.9 %	15	52.00%
10-Year Average			**3.6 %**	**2.8 %**		

& Beginning in 1996, rate is based on active member payroll including DROP participants.
@ After changes in actuarial assumptions and/or methods.
 # After legislated changes in benefit provisions.

"Employer contributions" are the total of all types of revenue to the System except employee contributions by payroll deduction and investment return. "Employer contributions" include such revenues as court fines and other transfers.

Short Condition Test

The Arkansas SPRS 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 valuation 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 valuation assets (except in rare circumstances). In addition, the liabilities for service already rendered by active members (liability 3) will be partially covered by the remainder of valuation assets. The larger the funded portion of liability 3, the stronger the condition of the System.

	Entry Age Accrued Liability				Portion of Present Values Covered by Valuation Assets			
Valuation Date June 30	(1) Active Members Contr.	(2) Retirees and Benef.	(3) Active Member (Employer Financed Portion)	Valuation Assets	(1)	(2)	(3)	Total
			($ in Millions)					
2015*	$0.37	$252.79	$145.80	$274.83	100%	100%	15%	69%
2016	0.57	260.49	147.68	297.91	100%	100%	19%	71%
2017@	0.57	273.86	154.62	305.85	100%	100%	20%	71%
2018	0.62	284.61	157.70	319.79	100%	100%	22%	72%
2019	0.57	296.12	157.93	335.97	100%	100%	25%	74%
2020#	0.65	301.96	170.31	352.08	100%	100%	29%	74%
2021#	0.61	305.18	185.72	387.54	100%	100%	44%	79%
2022	0.58	319.89	179.80	403.30	100%	100%	46%	81%
2023@	0.54	335.64	211.38	418.03	100%	100%	39%	76%
2024	**0.46**	**348.70**	220.80	**449.03**	**100%**	**100%**	**45%**	**79%**

@ After changes in actuarial assumptions and/or methods.
 # After legislated changes in benefit provisions.
** (1) was estimated based on reported member contribution balances on data received by the actuary from ASPRS.*

Comments

Experience

The System recognized an actuarial loss this year. On a funding value of assets basis, the funded status increased from 76% in 2023 to 79%. On a market value of assets basis, the funded status is 77% (up from 74% last year). As of June 30, 2024, unrecognized cumulative investment losses totaling $9.5 million remain to be recognized in the next three years (see page B-13). If there are no new gains to offset scheduled investment recognition during this coming period and based upon a 15-year amortization period, the employer contribution rate would be expected to increase by approximately 1.9% of payroll from the current level.

Annual Reserve Transfers

Each year reserve transfers are recommended so that there will be 100% funding 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 transfer amounts are given below:

	Employer Accum. Account Before Transfers	Transfers as of July 1, 2024 (from) to:		Employer Accum. Account After Transfers
		Deferred Annuity Account	Retirement Reserve Account	
Total	$97,569,471	$413,543	$19,000,967	$78,154,961

Conclusion

The computed employer contribution rate to satisfy the statutory funding requirements set forth in Section 24-6-209 of the Arkansas Code (see page G-1) is 52.00% of covered payroll for the year beginning July 1, 2024.

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.

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

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

1. **Investment Risk** – actual investment returns may differ from the expected returns;
2. **Asset/Liability Mismatch** – 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.

The computed contribution rate shown on page A-3 may be considered as a minimum contribution rate that complies with the Board's funding policy. 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.

Plan Maturity Measures

Risks facing a pension plan evolve over time. A young plan with virtually no investments and paying few benefits may experience little investment risk. An older plan with a large number of members in pay status and a significant trust may be much more exposed to investment risk. Generally accepted plan maturity measures include the following:

	2024	2023
Ratio of the market value of assets to total payroll	10.24	10.67
Ratio of actuarial accrued liability to payroll	13.28	14.52
Ratio of actives to retirees and beneficiaries	0.7	0.7
Ratio of net cash flow to market value of assets	(0.5)%	(2.7)%
Duration of present value of future benefits	14.59	14.27

Funded Ratio

The ratio of actuarial value of assets to actuarial accrued liabilities is expected to trend toward 100% by June 30, 2039 under the current amortization period.

Ratio of Market Value of Assets to Payroll

The relationship between assets and payroll is a useful indicator of the potential volatility of contributions. For example, if the market value of assets is 2.0 times the payroll, a return on assets 5% different than assumed would equal 10% of payroll. A higher (lower) or increasing (decreasing) level of this maturity measure generally indicates a higher (lower) or increasing (decreasing) volatility in plan sponsor contributions as a percentage of payroll.

Ratio of Actuarial Accrued Liability to Payroll

The relationship between actuarial accrued liability and payroll is a useful indicator of the potential volatility of contributions for a fully funded plan. A funding policy that targets a funded ratio of 100% is expected to result in the ratio of assets to payroll and the ratio of liability to payroll converging over time. The ratio of liability to payroll may also be used as a measure of sensitivity of the liability itself. For example, if the actuarial accrued liability is 2.5 times the payroll, a change in liability 2% other than assumed would equal 5% of payroll. A higher (lower) or increasing (decreasing) level of this maturity measure generally indicates a higher (lower) or increasing (decreasing) volatility in liability (and also plan sponsor contributions) as a percentage of payroll.

Ratio of Unfunded Actuarial Accrued Liability to Payroll

The ratio of the unfunded actuarial accrued liability to payroll is expected to trend toward 0% by June 30, 2039.

Ratio of Actives to Retirees and Beneficiaries

A young plan with many active members and few retirees will have a high ratio of actives to retirees. A mature open plan may have close to the same number of actives to retirees resulting in a ratio near 1.0. A super-mature or closed plan may have significantly more retirees than actives resulting in a ratio below 1.0.

Ratio of Net Cash Flow to Market Value of Assets

A positive net cash flow means contributions exceed benefits and expenses. A negative cash flow means existing funds are being used to make payments. A certain amount of negative net cash flow is generally expected to occur when benefits are prefunded through a qualified trust. Large negative net cash flows as a percent of assets may indicate a super-mature plan or a need for additional contributions.

Standard Deviation of Investment Return to Payroll

This measure illustrates the impact of a one standard deviation change in investment return as a percent of payroll. Investment return experience other than expected ultimately affects the employer contribution rates. The higher the ratio of this risk metric, the greater the expected volatility in employer contribution rates. Absent changes in investment policy, this metric is expected to increase as the assets grow to 100% of the AAL.

Duration of Present Value of Future Benefits

The duration of the present value of future benefits may be used to approximate the sensitivity to a 1% change in the assumed rate of return. For example, a duration of 10 indicates that the present value of future benefits would increase approximately 10% if the assumed rate of return were lowered 1%.

Additional Risk Assessment

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

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 ASPRS 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 ASPRS is set equal to the **expected return** on the System's diversified portfolio of assets (referred to sometimes as the investment return assumption). For ASPRS, the investment return assumption is 7.0%.

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 2024 Treasury Yield Curve Spot Rates (monthly average). The 1-, 5-, 10- and 30-year rates follow: 5.12%, 4.34%, 4.22% and 4.45%.

Presented below are the actuarial accrued liability and the LDROM as of June 30, 2024 for ASPRS.

Type of Member	Valuation Accrued Liabilities	LDROM
Retirees	$348,703,425	$447,490,932
Deferreds	7,427,950	12,957,021
Actives	213,825,791	312,958,183
Totals	**$569,957,166**	**$773,406,136**

Low-Default-Risk Obligation Measure

Commentary Regarding the LDROM

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

(1) It provides information to potentially allow for better risk management for ASPRS.
(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 ASPRS.

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 expectation 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 Non-Contributory Benefit Provisions (Last Changed as of 7-1-2021)

The Non-Contributory Plan was created by Act 793 of 1977 and was effective January 1, 1978. All non-retired members are now covered by non-contributory benefits. Act 1071 of 1997 created a Tier Two benefit plan for all officers hired on or after April 3, 1997. Existing members of the plan in effect prior to this date (Tier One) had one year to elect coverage under Tier Two.

Voluntary Retirement

With a full benefit, after 28 years of actual service (credited service for Tier Two), regardless of age, or at age 65 with 5 actual years of service (credited service for Tier Two). The age requirement is reduced by 1 month for every 2 months of Public Safety service credit, but not below age 52 for Tier One or age 55 for Tier Two members.

Public Safety service credit is granted at the rate of 1.5 months of credit for each month of actual Public Safety employment for Tier One. Service is credited at a rate of one for one in Tier Two.

With a reduced benefit, once a member's age is within 10 years of becoming eligible for full benefits. The reduction for Tier One is equal to 1/2 of 1% for each month retirement precedes Normal Retirement Age. The reduction for Tier Two is equal to 3/4 of 1% for each month retirement precedes Normal Retirement Age.

Final Average Pay (FAP)

Average of the highest 60 calendar months' pays for Tier One or 48 calendar months for Tier Two.

Full Age & Service Retirement Benefit

Tier One: 1.66% of FAP times years and months of credited service. Tier Two: 2.65% of FAP times credited service. If retirement is prior to age 62, an additional .322% of FAP times credited service will be paid until the retiree attains age 62 for Tier One or .513% of FAP times credited service for Tier Two.

Public Safety service credit is granted at the rate of 1.5 months of credit for each month of actual Public Safety employment for Tier One. Service is credited at a rate of one for one in Tier Two.

For Tier One, the portion of the SPRS benefit based on service before 1978 cannot be less than the amount provided by contributory provisions in effect at time of retirement; and if there is credited service for time prior to July 1, 1991, the benefit cannot be less than under the provisions in effect July 1, 1990, (using Social Security offset), plus increases granted since that date.

For Tier One, the minimum monthly benefit is $150 minus any age and beneficiary option reductions.

Vested and Reduced Early Retirement Benefits

5 years of actual service, and leaving System-covered employment before full retirement age.

Deferred full retirement benefit, based on service and pay at termination, begins when full retirement age would have been reached by continuing covered employment.

In place of a deferred full benefit, a qualifying member may elect an immediate reduced benefit, provided the member is within 10 years of full retirement age. The reduced amount is the full amount reduced by 1/2 of 1% for Tier One and/or 3/4 of 1% for Tier Two for each month of difference in benefit commencement ages.

Death While in System-Covered Employment

Member's accumulated contributions before 1978 are refundable.

If the deceased member has 5 or more years of service and has qualifying dependents, monthly benefits are payable instead. A surviving spouse receives a benefit as if the member had retired and elected the joint & 75% survivor option. Payment begins immediately if the member was eligible for a full age and service benefit or had 20 years of service; or payment begins at the spouse's age 50 if the member had 15 or more years of service; or payment begins at the spouse's age 62 if the member had less than 15 years of service.

If a member is killed while in the official line of duty and the surviving spouse is eligible for a deferred benefit, then the surviving spouse may elect to receive a reduced benefit immediately. The reduction of the benefit shall be 1/2 of 1% per month for each of the first 60 months that the benefit commences before when it would have otherwise commenced, plus; 1/4 of 1% per month for each month more than 60 months that the benefit commences before when it would have otherwise commenced. However, the total reduction shall not be more than 50%.

Each dependent child receives a benefit of 10% of annual pay (maximum of 25% of annual pay for all children).

Dependent parents' benefits are payable if neither spouse nor children's benefits are payable.

Total and Permanent Disability

Tier One eligibility: Disabled after 5 years of service.

Tier Two eligibility: Disabled after 5 years of service.

Amount is computed as an age and service benefit, based on service and pay to the time of disability.

Death after Retirement

Retiring member can provide protection for a beneficiary by electing an option which provides beneficiary protection by reducing the retired employee's benefit amount.

Under Tier One, if a straight life annuity is paid, upon the retiree's death, 50% of the retiree's benefit is continued to a surviving spouse. If the deceased retiree leaves children under age 18, 75% of the retiree's benefit is continued to the surviving spouse. If there is no surviving spouse, the 75% will be divided among the children under age 18.

Under Tier Two, if a straight life annuity is elected, no survivor benefit is payable.

Benefit Increases after Retirement

Annually, there is a cost-of-living adjustment equal to 3% of the current benefit amount.

Member Contributions

None.

Arkansas State Police Officers Deferred Retirement Option Plan – Tier One (Act 967 of 1995)

Tier One members with 28 years of credited service and who are eligible to receive a service retirement pension may participate.

Participating members may continue in employment for up to 7 years and have their accrued monthly benefit (at date of participation) credited to an individual account in the Deferred Retirement Option Plan in lieu of any further benefit accruals.

The Deferred Retirement Option Plan accounts accumulate with interest and are paid to the member at termination of active membership in either a lump sum or as an annuity of equivalent value. Interest is credited annually at a rate established by the Board of Trustees.

Arkansas State Police Officers Deferred Retirement Option Plan – Tier Two (Act 1242 of 2009)

Tier Two members with at least 28 years of credited service and who are eligible to receive a service retirement pension may participate.

Participating members may continue in employment for up to 7 years and have seventy-two percent (72%) of their accrued monthly benefit (at date of participation) credited to an individual account in the Deferred Retirement Option Plan in lieu of any further benefit accruals.

The Deferred Retirement Option Plan accounts accumulate with interest and are paid to the member at termination of active membership in either a lump sum or as an annuity of equivalent value. Interest is credited annually to participant accounts at a rate established by the Arkansas State Police Retirement System Board of Trustees that shall not be greater than five percent (5%) nor less than one percent (1%) per annum.

Retirees, Beneficiaries and DROP Participants
June 30, 2024
by Type of Benefit Being Paid

Type of Benefit Being Paid	Number	Annual Pensions	Actuarial Accrued Liability
Age & Service Retirees			
Life	64	$ 2,068,032	$ 29,544,208
B-50	423	21,262,536	249,092,360
Totals	487	23,330,568	278,636,568
Beneficiaries of Age & Service Retirees			
B-50	149	4,128,852	37,751,721
Total Age & Service Retirees	636	27,459,420	316,388,289
Disability Retirees			
Life	21	433,968	5,761,761
B-50	32	1,016,388	12,338,326
Totals	53	1,450,356	18,100,087
Beneficiaries of Disability Retirees	0	0	0
Total Disability Retirees and Beneficiaries	53	1,450,356	18,100,087
Death-in-Service Beneficiaries	22	533,544	5,290,068
QDRO Alternate Payees	44	740,136	8,924,981
Total Retirees and Beneficiaries	**755**	**30,183,456**	**348,703,425**
DROP Members	34	2,146,236	38,842,474
Total Retirees, Beneficiaries and DROP Participants	**789**	**$ 32,329,692**	**$ 387,545,899**

Also included in the valuation were 121 inactive members eligible to receive vested deferred benefits, commencing at normal retirement age, totaling $1,372,368 annually.

Retirees and Beneficiaries*
by Attained Ages
as of June 30, 2024

Attained Ages	Age & Service		Disabilities		Death-in-Service	
	No.	Annual Pensions	No.	Annual Pensions	No.	Annual Pensions
Under 40			3	$ 35,568		
40-44			4	76,128		
45-49	4	$ 87,840	1	11,508		
50-54	37	1,181,004	12	281,736	1	$ 19,128
55-59	75	2,683,932	8	177,732	1	2,592
60-64	105	4,366,248	5	162,672	2	32,916
65-69	124	4,878,960	6	213,300	3	68,856
70-74	109	4,255,536	8	286,308	6	164,376
75-79	120	5,768,184	5	176,424	3	55,992
80-84	66	3,123,360	1	28,980	4	140,904
85-89	33	1,517,496			1	33,120
Over 90	7	336,996			1	15,660
Totals	**680**	**$28,199,556**	**53**	**$1,450,356**	**22**	**$ 533,544**

* *Excludes DROP participants.*

Retirees, Beneficiaries and DROP Participants in Actuarial Valuations Comparative Statement

	Number			Annual Pensions		
June 30	Retirees & Beneficiaries	DROP Participants	Total	Retirees & Beneficiaries	DROP Participants	Total
2015	622	56	678	$ 21,868,359	$ 3,126,156	$ 24,994,515
2016	634	58	692	22,852,121	3,434,940	26,287,061
2017	650	59	709	23,546,129	3,281,616	26,827,745
2018	668	61	729	24,290,049	3,630,132	27,920,181
2019	679	56	735	25,426,293	3,334,908	28,761,201
2020	687	59	746	26,204,465	3,477,012	29,681,477
2021	688	57	745	26,761,928	3,387,900	30,149,828
2022	716	48	764	27,529,560	2,188,500	29,718,060
2023	740	35	775	28,899,204	1,888,296	30,787,500
2024	755	34	789	30,183,456	2,146,236	32,329,692

Schedule of New Retirees and DROP Participants During the Period of July 1, 2023 to June 30, 2024*

Retirees and DROP Participants

	Age & Service	Disability
Number	41	none
Average Age (in years)	55.67	n/a
Average Credited Service (in years)	21.62	n/a
Average Monthly Benefit	$ 2,548.21	n/a

Retirees Only

	Age & Service	Disability
Number	29	none
Average Age (in years)	57.03	n/a
Average Credited Service (in years)	19.52	n/a
Average Monthly Benefit	$ 3,571.79	n/a

** From either active or inactive status, the prior year.*

Active Members
as of June 30, 2024
by Attained Age and Years of Service

Attained Age	Years of Service to Valuation Date							Totals	
	0-4	5-9	10-14	15-19	20-24	25-29	30 Plus	No.	Valuation Payroll
20-24	16							16	$ 917,221
25-29	56	19	1					76	4,653,088
30-34	54	34	15					103	6,858,863
35-39	26	32	39	11	2			110	8,149,202
40-44	7	10	12	29	16			74	6,052,897
45-49	5	3	9	17	16	15		65	5,404,302
50-54	1		9	8	12	21	6	57	5,180,132
55-59			1	4	3	12	3	23	2,095,678
60									
63									
64									
65									
66									
Base Totals	**165**	**98**	**87**	**70**	**50**	**48**	**9**	**527**	**$39,543,736**
DROP Participants						22	12	34	3,369,051
Grand Totals	**165**	**98**	**87**	**70**	**50**	**70**	**21**	**561**	**$42,912,787**

While not used in the financial computations, the following group averages are computed and shown because of their general interest.

	Average
Age:	39.7 years
Service:	12.6 years
Salary:	$76,493

Active Members
in Actuarial Valuations
Comparative Statement

June 30	No. #	Group Averages		
		Age	Service	Pay
1995	494	42.2 yrs.	16.0 yrs.	$36,622
2000	542	41.3	14.0	37,733
2005	488	42.8	16.7	44,539
2007	536	41.4	14.5	44,773
2008	555	41.3	14.1	46,687
2009	539	42.0	15.0	49,714
2010	545	42.0	14.3	52,318
2011	530	42.0	14.4	52,950
2012	534	41.6	13.9	53,236
2013	525	41.6	13.9	53,344
2014	530	41.6	13.9	53,866
2015	558	41.0	13.0	53,637
2016	554	40.9	13.1	53,156
2017	528	41.7	13.8	55,070
2018	528	41.4	12.7	56,048
2019	529	41.0	12.5	57,255
2020	541	40.9	12.5	61,573
2021	545	41.1	12.6	61,624
2022	519	40.8	12.6	63,116
2023	517	40.4	13.8	72,943
2024	561	39.7	12.6	76,493

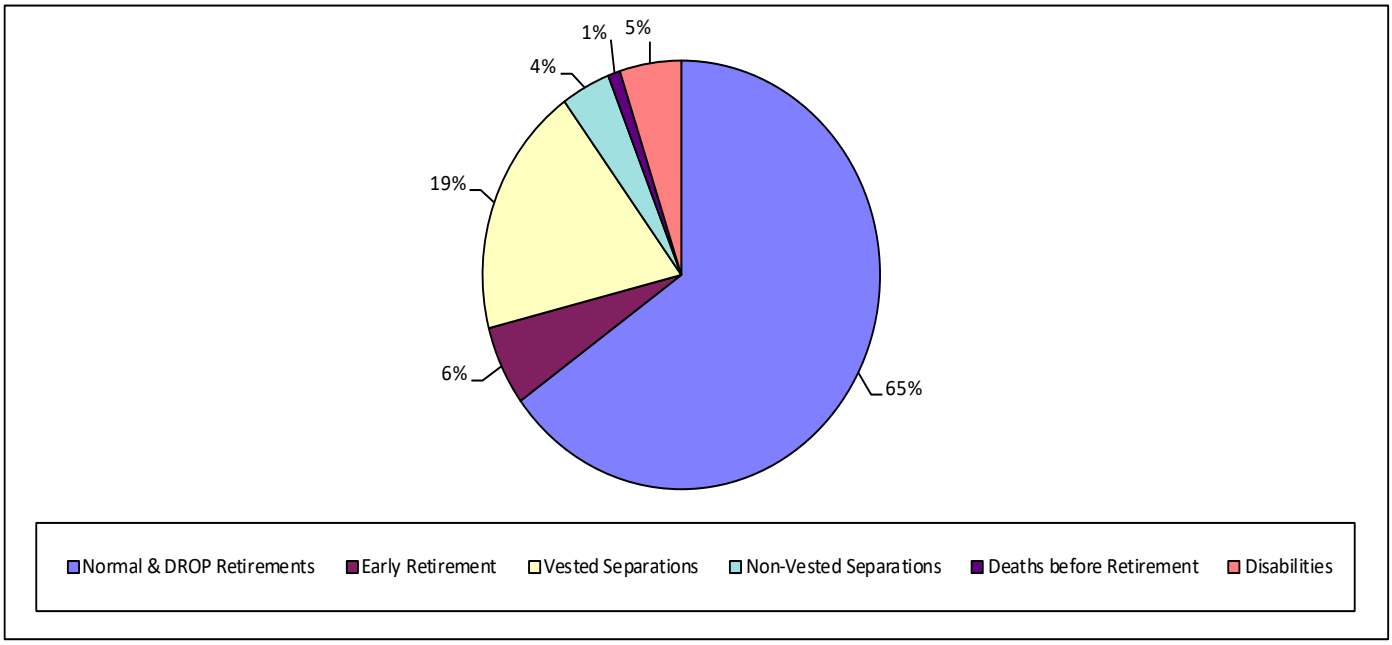
 # Includes DROP participants.

Tier One and Tier Two Participants
as of June 30, 2024

	No.	Group Averages		
		Age	Vesting Service	Pay
Tier One	7	53.4 yrs.	28.0 yrs.	$113,754
Tier Two	520	38.5	11.3	74,514
Tier One - DROP	22	56.2	29.5	102,866
Tier Two - DROP	12	53.3	31.0	92,167
Total	**561**	**39.7**	**12.6**	**$ 76,493**

Development of Present Population
June 30, 2024

Expected Terminations from Active Employment for Current Active Members



The chart shows the expected future development of the present population in simplified terms. The Retirement System presently covers 527 active members (not in the DROP). Eventually, 4% of the population is expected to terminate covered employment prior to retirement and forfeit eligibility for a monthly benefit. 90% of the present population is expected to receive monthly retirement benefits either by retiring directly from active service, or by separating from service without withdrawing contributions. 6% of the present population is expected to become eligible for death-in-service or disability benefits.

Reported Assets Applicable to Benefit Liabilities

Reserve Account	Fund Balance		
	Tier One*	Tier Two*	Total#
Member Deposit Account			$ 456,095
MDA Interest Reserve			16,969
Employers Accumulation Account			78,154,961
Retirement Reserve Account			348,703,425
DROP Reserve			4,744,177
Deferred Annuity Account			7,427,950
Misc. Reserve Accounts			1,095
Total	**$284,331,765**	**$155,172,907**	**$439,504,672**
Funding Value Adjustment	**6,253,170**	**3,275,180**	**9,528,350**
Valuation Assets	**$290,584,935**	**$158,448,087**	**$449,033,022**

** Fund balances for Tier One and Tier Two were not provided by the System.*
 # After recommended reserve transfers (see page A-6).

Revenues & Expenditures

Assets Beginning of Year - Market Value		**$402,335,114**
Revenues:	Member Contributions	0
	Employer Payroll Contributions[&]	
	Tier One	990,700
	Tier Two	10,002,740
	Employer Supplemental Contributions	10,619,747
	Other Sources*	7,972,431
	Investment Income	42,295,128
	Other	0
	Total Revenue	**71,880,746**
Expenditures:	Retirement Benefits Paid	
	Tier One	26,638,262
	Tier Two	2,288,332
	DROP Benefits Paid	
	Tier One	2,346,542
	Tier Two	137,743
	Refund of Member Contributions	0
	Administrative Expenses	227,099
	Investment Expenses	3,073,210
	Other	0
	Total Expenditures	**34,711,188**
Assets End of Year - Market Value		**$439,504,672**

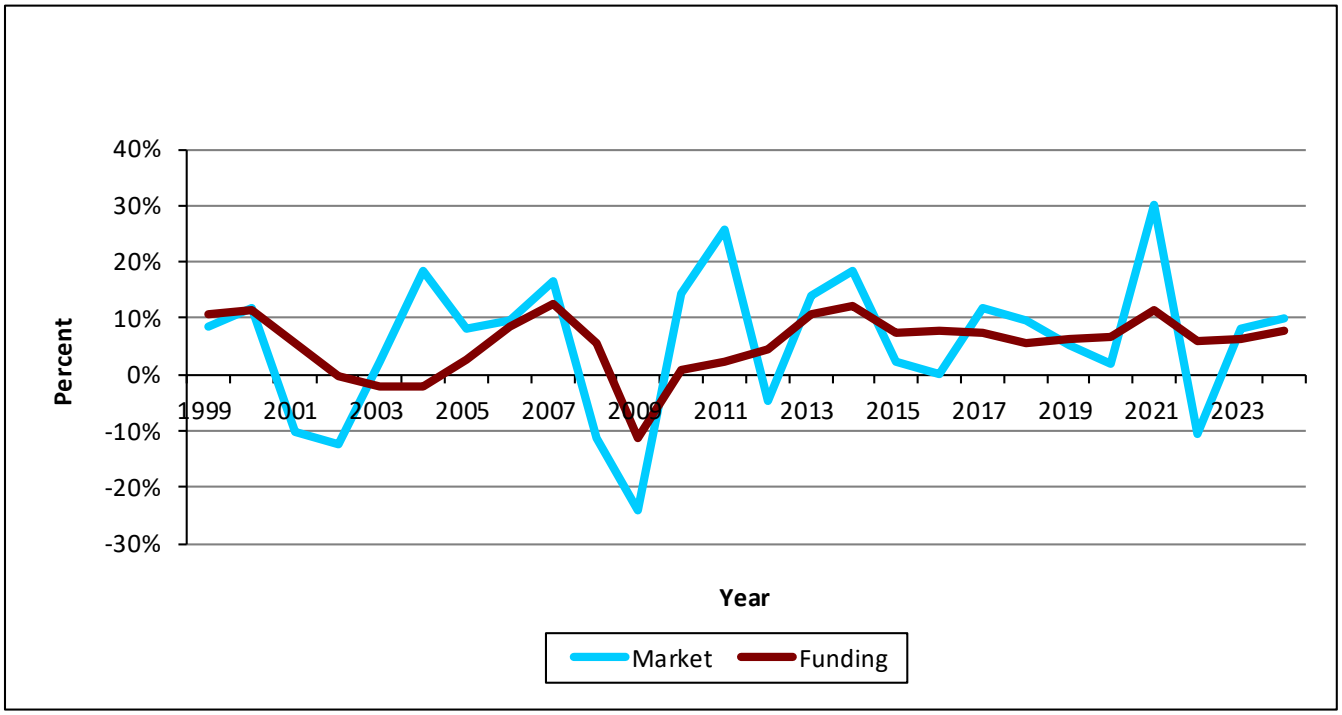
[&] 26% of payroll effective with Act 415.
** Includes court fees, drivers' license reinstatement fees, motor vehicle title fees and other items.*

Development of Funding Value of Assets

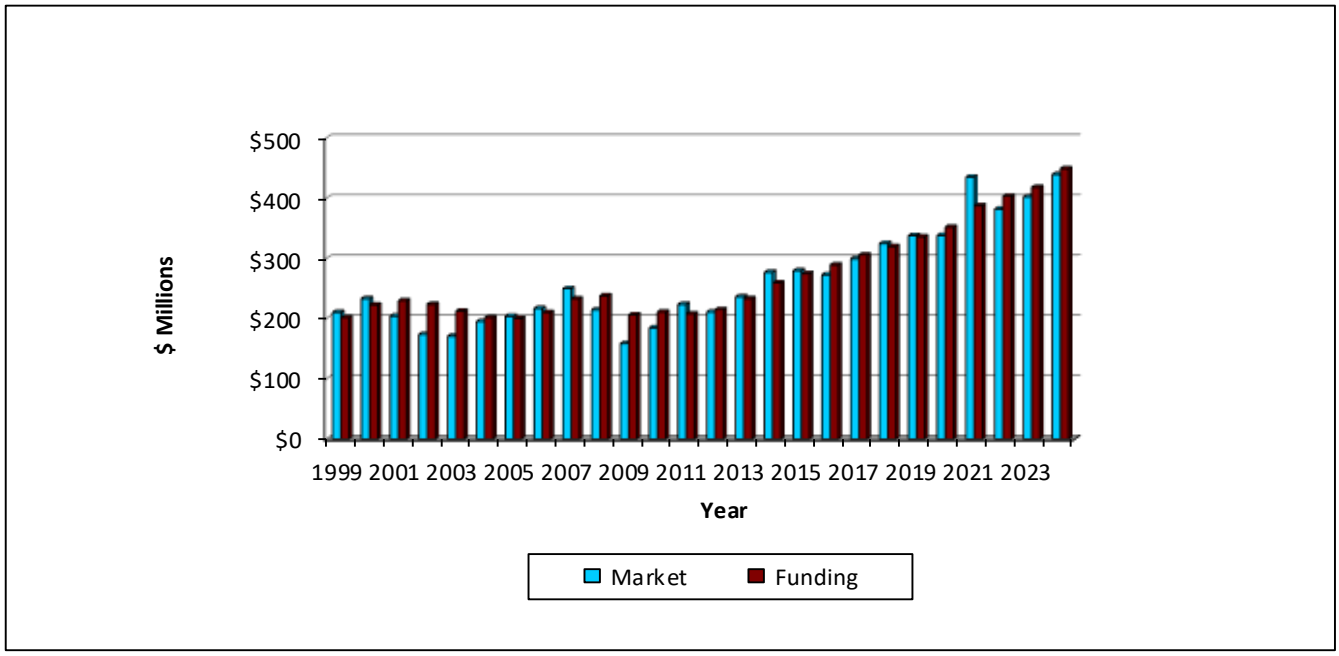
Valuation Date June 30:	2022	2023	2024	2025	2026	2027
A. Funding Value Beginning of Year	$387,537,814	$403,301,695	$418,025,613			
B. Market Value End of Year	381,940,750	402,335,114	439,504,672			
C. Market Value Beginning of Year	434,873,081	381,940,750	402,335,114			
D. Non-Investment Net Cash Flow	(6,684,881)	(10,816,140)	(2,052,360)			
E. Investment Return:						
E1. Market Total: B-C-D	(46,247,450)	31,210,504	39,221,918			
E2. Assumed Rate	7.15%	7.15%	7.00%			
E3. Amount for Immediate Recognition	27,472,720	28,453,844	29,190,770			
E4. Amount for Phased-In Recognition	(73,720,170)	2,756,660	10,031,148			
F. Phased-In Recognition of Investment Return:						
F1. Current Year: 0.25xE4	(18,430,043)	689,165	2,507,787			
F2. First Prior Year	19,102,092	(18,430,043)	689,165	$ 2,507,787		
F3. Second Prior Year	(4,275,000)	19,102,092	(18,430,043)	689,165	$ 2,507,787	
F4. Third Prior Year	(1,421,007)	(4,275,000)	19,102,090	(18,430,041)	689,165	$ 2,507,787
F5. Total Recognized Investment Gain (Loss)	(5,023,958)	(2,913,786)	3,868,999	(15,233,089)	3,196,952	2,507,787
G. Funding Value End of Year:						
G1. Preliminary Funding Value End of Year: A+D+E3+F5	403,301,695	418,025,613	449,033,022			
G2. 130% of Market Value Corridor	496,522,975	523,035,648	571,356,074			
G3. 70% of Market Value Corridor	267,358,525	281,634,580	307,653,270			
G4. Funding Value End of Year	**403,301,695**	**418,025,613**	**449,033,022**			
H. Difference Between Market & Funding Values	(21,360,945)	(15,690,499)	(9,528,350)			
I. Recognized Rate of Return	**5.8%**	**6.4%**	**7.9%**			
J. Market Value Rate of Return	(10.7)%	8.3%	9.8%			
K. Ratio of Funding Value to Market Value	105.6%	103.9%	102.2%			

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 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.

Comparison of Rates of Return



Comparison of Asset Values



SECTION C

RESULTS OF GAIN/LOSS ANALYSIS

Comments

Purpose of Gain/Loss Analysis. Regular actuarial valuations provide information about the composite change in unfunded actuarial accrued liabilities -- whether or not the liabilities are increasing or decreasing and by how much. However, 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 are 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 unfunded actuarial accrued liabilities that is 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 and pay increases) are volatile.

Changes in actuarial assumptions 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 financial assumptions***.

The Arkansas State Police Retirement System had an aggregate loss during the 2023-2024 observation year. Details are shown on pages C-2 to C-6.

Derivation of Experience Gain/Loss
Year Ended June 30, 2024
(in $1,000's)

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:

(1)	UAAL * at start of year	$ 129,531
(2)	Normal cost from last valuation	10,548
(3)	Employer contributions	29,586
(4)	Interest accrual: (1) x 0.07 + ((2) - (3)) x 0.035	8,401
(5)	Expected UAAL before changes: (1) + (2) - (3) + (4)	118,894
(6)	Change for revised actuarial assumptions and/or valuation methods	0
(7)	Change from benefit changes	0
(8)	Expected UAAL after changes: (5) + (6) + (7)	118,894
(9)	Actual UAAL at end of year	120,924
(10)	Gain/(loss): (8) - (9)	$ (2,030)

---

(11)	Actuarial accrued liability at start of year	$ 547,557
(12)	Gain/(loss) as percent of actuarial accrued liabilities at start of year: (10) / (11)	(0.4)%
(13)	Investment gain/(loss)	$ 3,869
	As a percent of AAL at the start of the year: (13) / (11)	0.7%
(14)	Liability gain/(loss)	$ (5,899)
	As a percent of AAL at the start of the year: (14) / (11)	(1.1)%

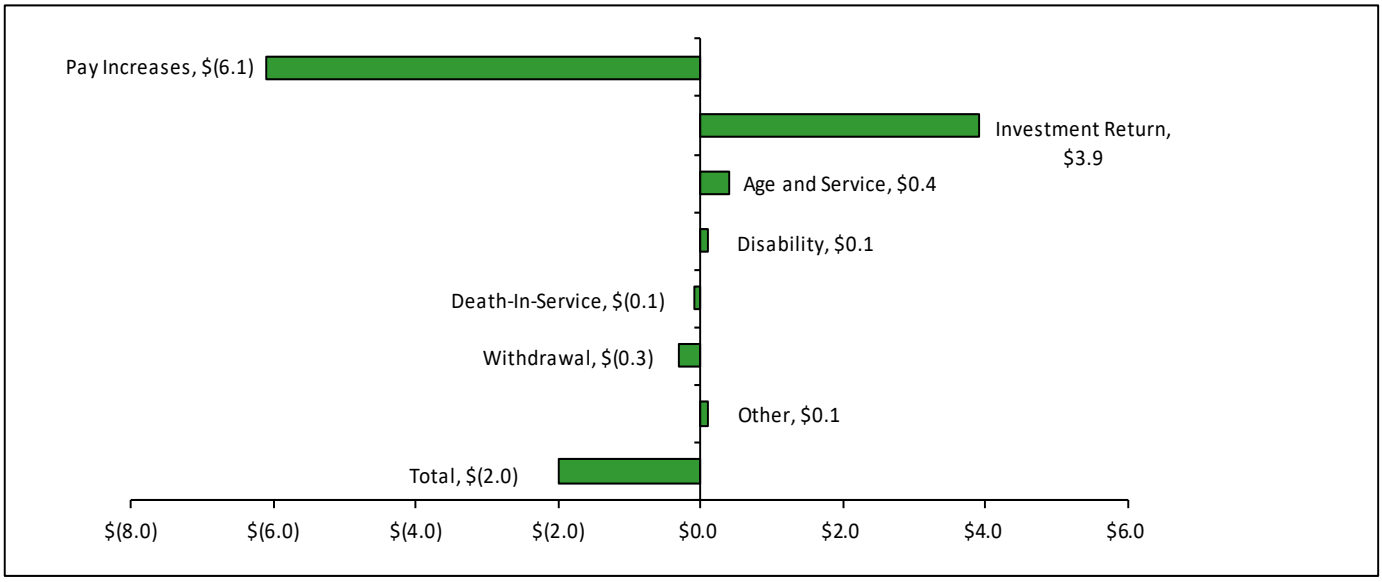
* *Unfunded actuarial accrued liability.*

Gains & Losses by Risk Area
During the Period July 1, 2023 to June 30, 2024

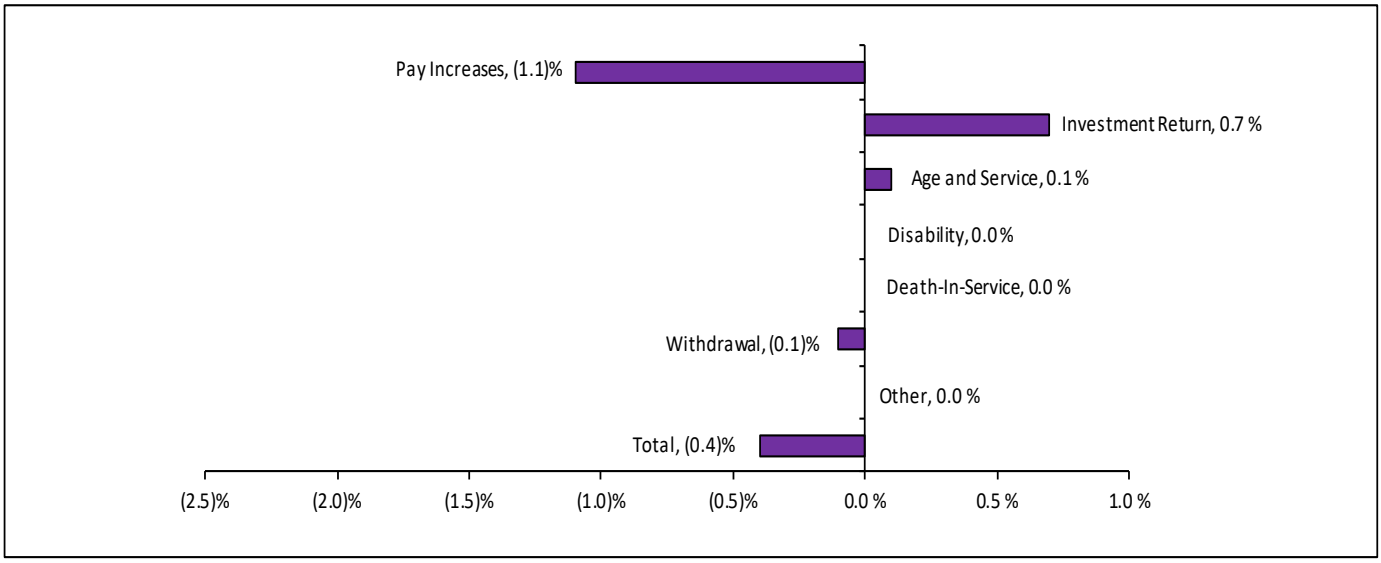
Type of Risk Area	Gain/Loss in Period $ Millions	Gain/Loss in Period Percent of Liabilities
ECONOMIC RISK AREAS ...		
Pay Increases. If there are smaller pay increases than assumed, there is a gain. If greater increases, a loss.	$(6.1)	(1.1)%
Investment Return. If there is greater recognized investment return than assumed, there is a gain. If less return, a loss.	3.9	0.7 %
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.	0.4	0.1 %
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, there is a gain. If smaller releases, 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.	(0.3)	(0.1)%
Actuarial Gain/Loss	$(2.1)	(0.4)%
Other. Gains and losses resulting from group size change, data adjustments, timing of financial transactions, and retiree mortality.	0.1	0.0 %
TOTAL GAIN (OR LOSS) DURING PERIOD	**$(2.0)**	**(0.4)%**

Gains & Losses by Risk Area
Actuarial Gain/Loss Experience
2023-2024 Year

Amount as $ Millions



% of Accrued Liabilities



Gains & Losses by Risk Area
Comparative Statement
($ in Millions)

Year Ending June 30	Gain/Loss by Risk Area							Total Experience Gain/Loss		Accrued Liability End of Year
	Pay Increases	Investments	Age & Service Retirement	Disability	Death-in-Service	Withdrawal	Other	Dollars	% of AAL	
2005	$ 1.7	$(10.3)	$ 0.0	$ 0.1	$ 0.0	$0.0	$(3.5)	$ (12.0)	(4.2)%	$281.3
2006	0.5	1.3	(0.1)	0.1	0.0	0.4	(0.6)	1.6	0.6 %	291.2
2007@	2.5	9.6	(0.4)	0.2	0.0	2.9	(3.5)	11.3	3.9 %	307.7
2008	(2.0)	(5.4)	(0.7)	0.0	0.0	0.4	(0.8)	(8.5)	(2.8)%	320.1
2009@	(0.7)	(45.0)	(1.6)	0.1	0.0	(0.2)	1.5	(45.9)	(14.4)%	325.9
2010	3.8	(14.8)	(0.5)	0.1	0.0	(0.4)	2.3	(9.5)	(2.9)%	333.6
2011	1.5	(12.2)	(1.0)	0.1	0.0	0.1	0.0	(11.5)	(3.5)%	343.2
2012	0.2	(7.6)	(0.4)	0.1	0.0	(0.3)	(0.8)	(8.8)	(2.6)%	355.3
2013@	2.6	5.4	(1.0)	0.0	0.0	0.4	1.3	8.7	2.4 %	361.5
2014@	(0.8)	9.9	(0.4)	0.0	0.0	0.2	1.6	10.5	2.9 %	381.9
2015@	1.1	(1.1)	(0.9)	0.1	0.0	0.0	2.6	1.8	0.5 %	399.0
2016	0.9	0.6	0.2	0.1	0.0	0.0	(1.8)	0.0	0.0 %	408.7
2017@	2.1	0.0	(1.4)	0.1	0.0	(0.3)	3.0	3.5	0.8 %	429.1
2018	(1.0)	(4.4)	(0.7)	0.1	(0.2)	0.3	(0.2)	(6.1)	(1.4)%	442.9
2019	(0.4)	(2.1)	(0.1)	0.1	(0.3)	0.1	13.8	11.1	2.4 %	454.6
2020#	(4.1)	(1.4)	0.3	0.1	(0.3)	(0.2)	(2.7)	(8.3)	(1.8)%	472.9
2021#	2.1	15.2	(0.1)	(0.1)	(0.3)	(0.1)	1.4	18.1	3.8 %	491.3
2022	(0.5)	(5.0)	0.2	0.0	(0.3)	0.4	4.7	(0.5)	(0.1)%	500.3
2023@	(18.0)	(2.9)	0.0	0.0	(0.3)	0.0	(4.9)	(26.1)	(5.2)%	547.6
2024	**(6.1)**	**3.9**	**0.4**	**0.1**	**(0.1)**	**(0.3)**	**0.1**	**(2.0)**	**(0.4)%**	**570.0**

@ Revised actuarial assumptions and/or methods.
 # After legislated changes in benefit provisions.

Investment Gain/Loss
During the Period July 1, 2023 to June 30, 2024

		$ Millions
1.	Total Assets Beginning of Year - Funding Value	$418.03
2.	Total Assets End of Year - Funding Value	
	a. Actual	449.03
	b. If net investment return had been 7.00%*	445.16
3.	Gain/Loss: 2(a) minus 2(b)	$ 3.87

* *"Investment return" as used in this Gain/Loss Analysis means essentially: assumed return plus/minus phase-in recognition of cumulative market gains or losses (see page B-13).*

Salary Increases by Age Group
Members Active Both Beginning and End of Year
During the Period of July 1, 2023 to June 30, 2024

Age Groups	Expected Increase	Actual Increase
25-29	7.2%	9.9%
30-34	6.2%	12.7%
35-39	5.3%	11.1%
40-44	5.0%	10.7%
45-49	4.7%	7.1%
50-54	4.5%	7.3%
55-59	4.3%	5.1%

Active Members Who Separated from Active Membership During the Period from July 1, 2023 to June 30, 2024

Age Groups	Normal Retirement*		Death-in-Service		Disability Retirement		Terminated Vested		Non-Vested Separations	
	A	E	A	E	A	E	A	E	A	E
20-24										0.8
25-29								1.2	2	2.1
30-34						0.1	2	2.6	4	2.3
35-39				0.1		0.3	3	3.0		0.3
40-44						0.3		1.4		0.1
45-49	2	1.9		0.1		0.3		0.6		
50-54	3	6.8		0.1		0.3				
55-59	11	9.0		0.1						
60-64	6	4.1								
65	1	1.0								
Totals	**23**	**22.8**		**0.4**		**1.3**	**5**	**8.8**	**6**	**5.6**

A: Actual
E: Expected

** From active or DROP to retired status.*

SECTION D

ACTUARIAL METHODS AND ASSUMPTIONS

Summary of Actuarial Assumptions Used for State Police Actuarial Valuations Assumptions Adopted by Board of Trustees after Consulting with Actuary

In accordance with Section 24-6-204 of the Arkansas Code, the Board of Trustees adopts the actuarial assumptions used for actuarial valuation purposes.

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, 2017 through June 30, 2022 (please see our report dated May 10, 2023 and our follow-up letter dated September 20, 2023). The actuarial assumptions represent estimates of future experience.

Economic Assumptions

The investment return assumption used in making the valuation was 7.00% per year, compounded annually (net after investment expenses). The assumed real rate of return is the portion of investment return, which is more than the wage inflation rate. Considering assumed wage inflation of 3.25%, the 7.00% investment return rate translates to an effective assumed real rate of return of 3.75%. The wage inflation assumption was revised for the June 30, 2015 valuation and the investment return assumption was revised for the June 30, 2023 valuation.

Pay increase assumptions for individual active members are shown on page D-5. Part of the assumption for each age is for a merit and/or seniority increase, and the other 3.25% recognizes wage inflation. The wage inflation assumption consists of 2.50% for price inflation and 0.75% for real wage growth. The pay increase assumption for individual active members was revised for the June 30, 2023 valuation.

Total active member payroll is assumed to increase 3.25% a year, which is the portion of the individual pay increase assumptions recognizing wage 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 PubS-2010 Amount-Weighted Below-Median Income Safety Retiree Mortality tables for healthy retirees, multiplied by 114% for males and 108% for females. The **disabled retiree mortality tables**, for post-retirement disabled mortality, used in evaluating allowances to be paid were the PubNS-2010 Amount-Weighted Safety Disabled Retiree Mortality tables for disabled retirees, multiplied by 114% for males and 108% for females. The **pre-retirement mortality tables** used were 75% of the PubS-2010 Amount-Weighted Below-Median Safety 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 (post-retirement) and D-5 (pre-retirement). These assumptions were first used for the June 30, 2023 valuation.

The probabilities of retirement for members eligible to retire are shown on page D-4. The assumption was revised for the June 30, 2023 valuation.

The probabilities of death-in-service, disability and withdrawal from service are shown for sample ages on page D-5. The assumption for death-in-service was revised for the June 30, 2023 valuation.

The individual entry-age normal actuarial cost method of the valuation was used in determining liabilities and normal cost.

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 contribution amounts (principal & interest) which are level percent-of-payroll contributions.

Present assets (cash & investments) were valued on a market related basis in which differences between actual and assumed returns are phased-in 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).

Single Life Retirement Values
Based on the PubS-2010
Amount-Weighted Below-Median Income
Safety Retiree Mortality Tables
and 7.00% Interest

Sample Attained Ages	Present Value of $1.00 Monthly for Life		Present Value of $1.00 Monthly for Life Increasing 3% Annually		Future Life Expectancy (Years) 2024 *	
	Men	Women	Men	Women	Men	Women
40	$ 161.57	$ 166.22	$ 240.56	$ 252.13	42.69	46.87
45	156.38	162.13	226.84	239.90	37.60	41.64
50	150.07	156.45	211.47	225.12	32.69	36.44
55	141.70	148.96	193.42	207.86	27.88	31.35
60	131.23	139.61	173.08	188.41	23.26	26.47
65	118.75	128.27	151.04	167.04	18.95	21.87
70	104.00	114.51	127.42	143.63	14.95	17.55
75	87.35	98.31	103.08	118.69	11.35	13.58
80	69.71	80.58	79.36	93.73	8.25	10.08
85	52.93	62.97	58.36	70.78	5.77	7.21

* *Applicable to calendar year 2024. Life expectancies and rates in future years are determined by the fully generational MP-2021 projection scale.*

Sample Attained Ages	$100 Benefit Increasing 3% Yearly
55	$100.00
60	115.93
65	134.39
70	155.79
75	180.60
80	209.36

Probabilities of Retirement for Members Eligible to Retire

Retirement Ages	Percent of Eligible Active Members Retiring Within Next Year		Years of Service	Percent of Eligible Active Members Retiring Within Next Year
	Tier One	Tier Two		Tier Two
47	1%	-		
48	1%	-	28	20%
49	3%	-	29	10%
50	7%	3%	30	10%
51	10%	3%	31	10%
52	8%	3%	32	10%
53	10%	6%	33	20%
54	10%	10%	34	35%
55	8%	35%	35	40%
56	8%	25%	36 & Over	100%
57	10%	25%		
58	18%	25%		
59	40%	25%		
60	50%	25%		
61	50%	30%		
62	50%	100%		
63	80%	100%		
64	100%	100%		
65	100%	100%		

A member is assumed to be eligible to retire at age 52 (55 for Tier Two) with 17 years of service, or at age 50 with 28 years of service (Tier One), or at any age with 28 years of service (Tier Two). A member is assumed to be eligible to retire early at age 47 (50 for Tier Two) with 17 years of service. For a Tier Two member with 28 or more years of service at the beginning of a year, the percentages shown for service based retirement (28 or more years) take precedence over the percentages associated with age based retirement.

For purposes of modeling, Tier Two members who are eligible to retire under the service based condition are assumed to have one year of credited service in addition to the credited service that is reported for valuation purposes.

It was assumed that members eligible to enter the DROP will do so to maximize the value of their benefits.

Separations from Active Employment before Age and Service Retirement & Individual Pay Increases

Sample Ages	Percent of Active Members Separating Within the Next Year				Pay Increase Assumptions for Active Members		
	Death				Merit & Seniority	Base (Economic)	Increase Next Year
	Male	Female	Disability	Other			
20	0.03%	0.02%	0.06%	5.50%	5.00%	3.25%	8.25%
25	0.04%	0.02%	0.09%	5.50%	4.40%	3.25%	7.65%
30	0.06%	0.04%	0.19%	5.50%	3.40%	3.25%	6.65%
35	0.07%	0.05%	0.31%	4.18%	2.40%	3.25%	5.65%
40	0.08%	0.06%	0.43%	2.64%	1.88%	3.25%	5.13%
45	0.09%	0.07%	0.55%	1.43%	1.60%	3.25%	4.85%
50	0.11%	0.08%	0.67%	0.55%	1.30%	3.25%	4.55%
55	0.17%	0.12%	0.79%	0.00%	1.10%	3.25%	4.35%

Probabilities of death are for calendar year 2024.

Miscellaneous and Technical Assumptions
June 30, 2024

Marriage Assumption:	95% of males and 95% of females are assumed to be married for purposes of death-in-service benefits. 90% of males and 90% of females are assumed to be married for purposes of death-after-retirement benefits. Male spouses are assumed to be three years older than female spouses for active member valuation purposes.
Pay Increase Timing:	Beginning of 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 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.
Decrement Relativity:	Decrement rates are used directly from the experience study, without adjustment for multiple decrement table effects.
Decrement Operation:	Disability and withdrawal decrements do not operate during the period a member is assumed to be eligible for an unreduced benefit.
DROP Participants:	It was assumed that members will participate in the forward DROP to the extent that participating in the forward DROP would provide the highest value of benefits.
Incidence of Contributions:	Contributions are assumed to be received continuously throughout the year.
Data Adjustments and Loads:	Act 224 granted active participants a one-time $5,000 stipend for fiscal year ending June 30, 2023. For active members assuming to enter the DROP or retire from active status within the next 4 years for Tier One and 3 years for Tier Two, the member's FAP was increased by a load factor to reflect the stipend that may impact the calculation of the FAP. The FAP load factor was 0.9% and 1.4% for Tier One and Tier Two members, respectively.
Benefit Service:	Exact fractional service is used to determine the amount of benefit payable.
Tier One DROP Interest Credit:	Interest is assumed to be credited at 3.25%.
Tier Two DROP Interest Credit:	Interest is assumed to be credited at 3.25%.
Administrative Expenses:	The normal cost was increased by 0.70% of payroll to fund administrative expenses.

SECTION E

FINANCIAL PRINCIPLES

Financial Principles and Operational Techniques

Promises Made, and Eventually Paid. As each year is completed, ASPRS in effect hands an "IOU" to each member then acquiring a year of service credit --- the "IOU" says: "The Arkansas State Police 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?

The law governing ASPRS financing intends that this year's taxpayers contribute the money to cover the IOUs being handed out this year. By following this principle, funds will be accumulated during members' periods of active participation which, when combined with investment income, are expected to be sufficient to pay promised benefits throughout the years of retirement.

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*** becomes ***the third and largest contributor*** for benefits to employees, 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:

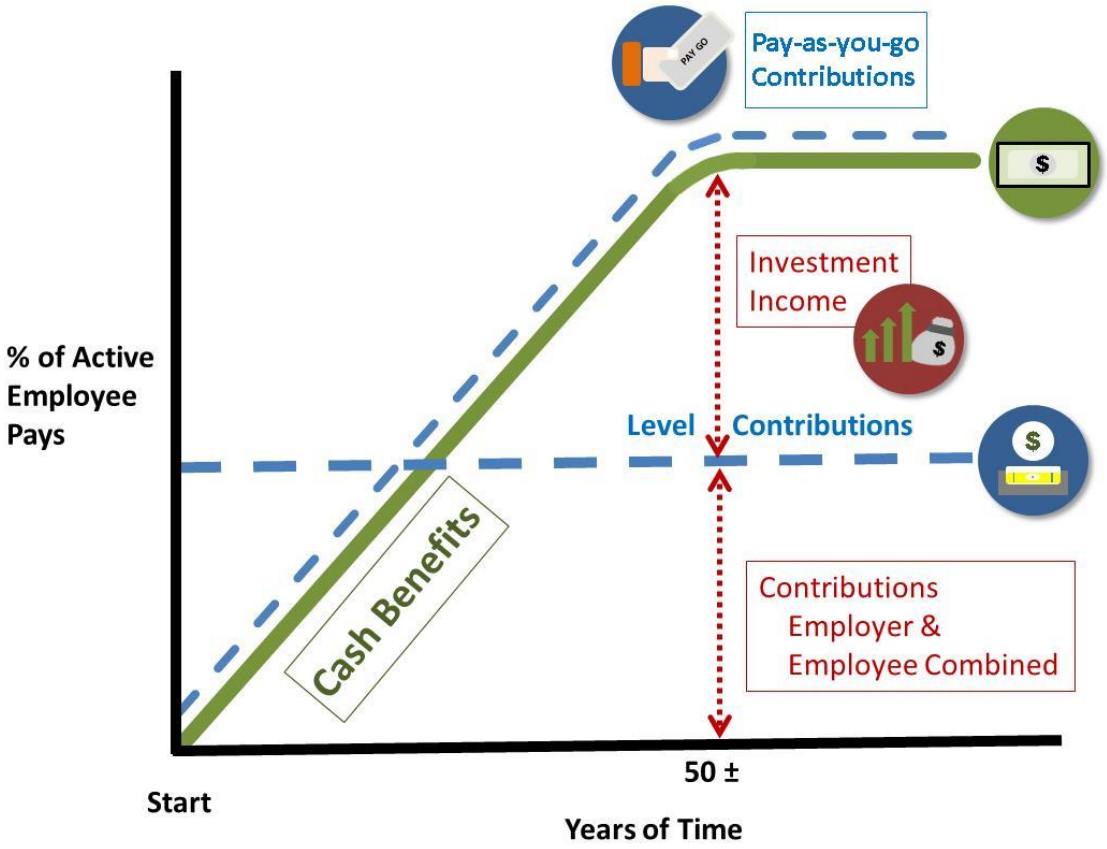
> Normal Cost (the cost of members' service being rendered this year)
> ... plus ...
> Interest on Unfunded Actuarial Accrued Liabilities (unfunded actuarial accrued liabilities are the difference between: the actuarial accrued liabilities for members' service already rendered; and the actuarial value of assets of ASPRS).

Computing Contributions to Support Fund Benefits. From a given schedule of benefits and from the employee data and asset data provided, the actuary determines 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 income which plan assets will earn; the rates of withdrawal of active members who leave covered employment before qualifying for any monthly benefit; 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. Only the subsequent actual experience of the plan can indicate the degree of accuracy of the assumptions.

Reconciling Differences between Assumed Experience and Actual Experience. Once actual experience has occurred and been observed, it will not coincide exactly with assumed experience, regardless of the wisdom of the assumptions or the skill of the actuary and the many calculations made. ASPRS 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***.



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

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 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 plan administrator.
- Retirees 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***, which assumptions are established by the Board of Trustees after consulting with the actuary.

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 Rate

SECTION F

ADDITIONAL ACTUARIAL INFORMATION

This information is presented in draft form for review by the System's auditor. Please let us know if there are any items that the auditor changes so that we may maintain consistency with the System's financial statements.

Schedule of Funding Progress
($ in Millions)

Actuarial Valuation Date	Actuarial Value of Assets (a)	Entry Age AAL (b)	UAAL (b)-(a)	Funded Ratio (a)/(b)	Annual Covered Payroll (c)	UAL as a Percentage of Covered Payroll [(b-a)/(c)]
6/30/2005 #@	$200.10	$281.28	$ 81.18	71.1%	$22.52	360.5%
6/30/2006	210.34	291.17	80.82	72.2%	23.38	345.7%
6/30/2007 @	233.13	307.66	74.53	75.8%	24.00	310.6%
6/30/2008	238.04	320.10	82.06	74.4%	25.91	316.7%
6/30/2009 #@	206.32	325.94	119.62	63.3%	26.80	446.4%
6/30/2010	211.07	333.60	122.53	63.3%	28.51	429.7%
6/30/2011	208.05	343.21	135.16	60.6%	28.06	481.6%
6/30/2012	215.01	355.30	140.29	60.5%	28.43	493.5%
6/30/2013 @	233.15	361.46	128.31	64.5%	28.01	458.1%
6/30/2014 @	259.46	381.86	122.40	67.9%	28.55	428.7%
6/30/2015 @	274.83	398.96	124.14	68.9%	29.93	414.8%
6/30/2016	289.24	408.74	119.50	70.8%	29.45	405.8%
6/30/2017 @	305.85	429.05	123.21	71.3%	29.08	423.7%
6/30/2018	319.79	442.93	123.14	72.2%	29.59	416.1%
6/30/2019	335.97	454.62	118.65	73.9%	30.29	391.7%
6/30/2020 #	352.08	472.92	120.84	74.4%	33.31	362.8%
6/30/2021 #	387.54	491.51	103.97	78.8%	33.59	309.6%
6/30/2022	403.30	500.27	96.97	80.6%	32.76	296.0%
6/30/2023 @	418.03	547.56	129.53	76.3%	37.71	343.5%
6/30/2024	**449.03**	**569.96**	**120.92**	**78.8%**	**42.91**	**281.8%**

 # After legislated changes in benefit provisions.
@ After changes in actuarial assumptions or methods.

Schedule of Employer Contributions

Year Ended June 30	Annual Computed Contribution	Percent Contributed
1999	$ 6,454,835	104.55%
2000	6,356,114	109.16%
2001	5,883,192	120.77%
2002	5,780,658	119.39%
2003	6,298,145	107.80%
2004	8,375,966	90.71%
2005	9,869,227	79.70%
2006	9,988,919	96.59%
2007	9,852,432	116.39%
2008	9,996,439	116.56%
2009	10,535,605	115.25%
2010	12,748,302	161.18%
2011	12,580,828	112.30%
2012	14,052,962	139.94%
2013	13,564,538	143.56%
2014	13,956,098	139.74%
2015	14,171,551	139.60%
2016	14,285,512	138.00%
2017	14,122,584	141.34%
2018	15,154,650	138.60%
2019	15,576,959	136.45%
2020	16,885,393	129.54%
2021	16,742,255	136.08%
2022	15,903,670	142.70%
2023	18,297,528	131.11%
2024	**24,284,346**	**121.83%**

Supplementary Information

Valuation Date	June 30, 2024
Actuarial Cost Method	Entry Age Normal Cost
Amortization Method	Level Percent-of-Payroll
Remaining Amortization Period	15-year closed
Asset Valuation Method	4-year smoothed market

Actuarial Assumptions:

Investment Rate of Return	7.00%
Projected Salary Increases	4.05% - 8.25%
Including Wage Inflation at	3.25%
Cost-of-Living Adjustments	3.0% Annual compound increases

Retirees and Beneficiaries Receiving Benefits	755
Terminated Plan Members Entitled to but not yet Receiving Benefits	121
DROP Members	34
Active Plan Members	527
Total	1,437

SECTION G

APPENDIX

Statutory Employer Contributions
Arkansas Code Section 24-6-209

24-6-209. Employer's contribution.

(a) The Department of Arkansas State Police, as employer, shall make contributions to the Arkansas State Police Retirement System of twenty-six percent (26%) of active member payroll.

(b) The Director of the Department of Finance and Administration, at the request of the Executive Secretary of the Arkansas State Police Retirement System, is authorized and directed to make annual transfers on each June 30 to the State Police Retirement Fund from the remainder of insurance premium taxes enumerated in A.C.A. 19-6-301(27) before they are transferred to General Revenues enumerated in A.C.A. 19-6-201(19) such amounts of money necessary to amortize the unfunded liabilities over a period not to exceed thirty (30) years for those members not covered by the provisions of A.C.A. 24-6-401 et. seq. These transfers are intended to cover the unfunded accrued actuarial liabilities of the State Police Retirement Fund and shall not be used for the purpose of providing any benefit enhancements for the State Police Retirement System. Members of the Tier One-State Police Retirement System shall not be entitled to any benefit enhancements from these transfers unless funds from sources other than insurance premium taxes are found to provide for the retirement benefit enhancements. The amount of the transfer shall be determined by computing the dollar amount required based on the actuarially determined employer rate in the most recent annual actuarial valuation and subtracting from that amount the statutory contribution amount specified in subsection (a) of this section, the court fees provided by Act 1256 of 1995, and the driver's license renewal fees provided by Act 730 of 1995.

(c) The intent of this section is to provide for funding of any amounts of unfunded accrued actuarial liabilities of the Tier One-State Police Retirement Fund existing on June 30, 1997. These transfers shall be limited in use solely for the purpose of paying those liabilities and nothing more. In the event the transfers under this section exceed eight hundred thousand dollars $(800,000) per fiscal year, the Executive Secretary of the Arkansas State Police Retirement System shall notify the Joint Committee on Public Retirement and Social Security Programs which shall then review the use of the funds and the benefit provisions of the systems and the actuarial reports on the retirement systems to ensure compliance with the intended purpose of the funds.

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October 31, 2024

Ms. Amy Fecher
Executive Director
Arkansas State Police Retirement System
One Union National Plaza
124 West Capitol, Suite 400
Little Rock, Arkansas 72201

Re: Arkansas State Police Retirement System Report of the June 30, 2024 Actuarial Valuation and the 2023/2024 Gain/Loss Analysis

Dear Ms. Fecher:

Please find enclosed 15 copies of this report. As usual, your comments and questions are welcome.

Sincerely,
Gabriel, Roeder, Smith & Company

Mita D. Drazilov, ASA, FCA, MAAA

MDD:ah
Enclosures

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