

Arkansas Teacher Retirement System

Annual Actuarial Valuation of Annuities Being Paid to
Retirees and Beneficiaries

June 30, 2022



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December 9, 2022

Board of Trustees
Arkansas Teacher Retirement System
Little Rock, Arkansas

Dear Board Members:

Presented in this report are the results of the ***Annual Actuarial Valuation of annuities being paid to retirees and beneficiaries*** of the Arkansas Teacher Retirement System (ATRS).

The date of the valuation was June 30, 2022 (using amounts payable as of July 1, 2022).

This report 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 Retirement System only in its entirety and only with the permission of the Board. GRS is not responsible for unauthorized use of this report.

The valuation was based upon census data and financial information provided by the System's administrative staff. Preparation of this data requires considerable staff time. The helpful cooperation of the Arkansas Teacher Retirement System staff in furnishing the data is acknowledged with appreciation. We checked for internal and year-to-year consistency, but did not audit the data. We are not responsible for the accuracy or completeness of the data provided by ATRS.

This report was prepared using certain assumptions approved by the Board. The actuarial assumptions used for valuation purposes are summarized in the Appendix. These assumptions reflect experience during the period July 1, 2015 to June 30, 2020 and expectations for the future.

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.

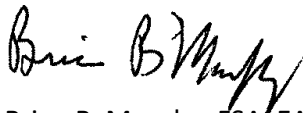
Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: plan experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements; and changes in plan provisions or applicable law. The scope of an actuarial valuation does not contain an analysis of the potential range of such future measurements.

This is one of multiple documents comprising the actuarial results. The other documents include the active and inactive valuation dated December 9, 2022, and the presentation dated December 5, 2022.

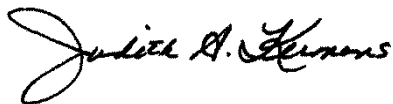
To the best of our knowledge, the information contained in this report is accurate and fairly presents the actuarial position of the Arkansas Teacher Retirement System as of the valuation date. All calculations have been made in conformity with generally accepted actuarial principles and practices and with the Actuarial Standards of Practice issued by the Actuarial Standards Board. The actuarial assumptions used for the valuation produce results which, individually and in the aggregate, are reasonable.

This report has been prepared by actuaries who have substantial experience valuing public employee retirement systems. Brian B. Murphy, Judith A. Kermans 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. The actuaries submitting this report are independent of the plan sponsor.

Respectfully submitted,
Gabriel, Roeder, Smith & Company



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BBM/JAK/HGB:ah



Comments

As expected, during the year ended June 30, 2022 the number of retired lives increased, as did the total amount being paid monthly to retired lives.

The financing diagram on page 6 shows the general pattern in which cash benefits increase (the green line). The schedule below shows how ATRS history illustrates the general pattern.

June 30	Retired Lives Receiving Benefits		
	No.	Annual Amounts (Millions)	% of Active Payroll
1967	3,846	\$ 6.27	
1972	5,453	11.08	
1977	7,524	23.96	
1982	8,828	36.64	
1987	10,526	66.45	10.0%
1992	12,033	115.50	10.7%
1997	14,233	194.90	15.0%
1998	14,802	220.38	16.1%
1999	15,887	248.75	17.4%
2000	16,657	280.14	18.9%
2001	17,778	309.03	19.8%
2002	19,199	334.15	20.5%
2003	20,271	359.98	21.4%
2004	21,428	386.23	22.1%
2005	22,680	415.04	21.1%
2006	24,153	449.77	21.6%
2007	25,611	484.55	22.1%
2008	26,801	515.56	22.7%
2009	28,818	564.59	23.5%
2010	30,587	612.77	24.8%
2011	32,099	657.08	23.3%
2012	34,160	709.17	25.3%
2013	36,254	763.76	27.1%
2014	38,478	822.19	28.8%
2015	40,748	916.62	31.9%
2016	43,095	983.87	34.1%
2017	45,092	1,044.74	35.8%
2018	46,824	1,099.35	36.8%
2019	48,677	1,146.74	37.9%
2020	50,133	1,194.82	38.8%
2021	51,405	1,242.70	38.8%
2022	52,748	1,293.75	39.0%

A significant financial goal for the Arkansas Teacher Retirement System was to reach a point in time where System assets fully covered the liabilities for future benefit payments to retirees and beneficiaries then on rolls. This goal was achieved in 1980 and retired life liabilities continue to be 100% funded.



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 7.25% on the actuarial value of assets), it is expected that:

- 1) The unfunded actuarial accrued liabilities will be fully amortized after 26 years;
- 2) The funded status of the plan will increase gradually towards a 100% funded ratio; and
- 3) The unfunded accrued liability will increase for several years before beginning to decline.

Limitations of Funded Status Measurements

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

- 1) The measurement is inappropriate for assessing the sufficiency of plan assets to cover the estimated cost of settling the plan's benefit obligations, in other words of transferring the obligations to an unrelated third party in an arm's length market value type transaction.
- 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. 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.

Limitations of Project Scope

Actuarial standards do not require the actuary to evaluate the ability of the plan sponsor or other contributing entity to make required contributions to the plan when due. Such an evaluation was not within the scope of this project and is not within the actuary's domain of expertise. Consequently, the actuary performed no such evaluation.

FINANCIAL PRINCIPLES

Financial Principles and Operational Techniques

Promises Made and To Be Paid For. As each year is completed, the System in effect hands an “IOU” to each member then acquiring a year of service credit. The “IOU” says: “The Arkansas Teacher 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 financial objective of the ATRS is that this year’s taxpayers contribute the money to cover the IOUs being handed out this year so that **the employer contribution rate will remain approximately level from generation to generation** -- our children and our grandchildren will not have to contribute greater percents of pay than we contribute now. This objective was set forth in Act 793 of 1977.

(There are systems which have **a design for deferring contributions to future taxpayers**, lured by a lower contribution rate now and putting aside the fact that the contribution rate must then relentlessly grow much greater over decades of time -- consume now, and let your children face higher contribution rates after you retire.)

An inevitable byproduct 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 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)

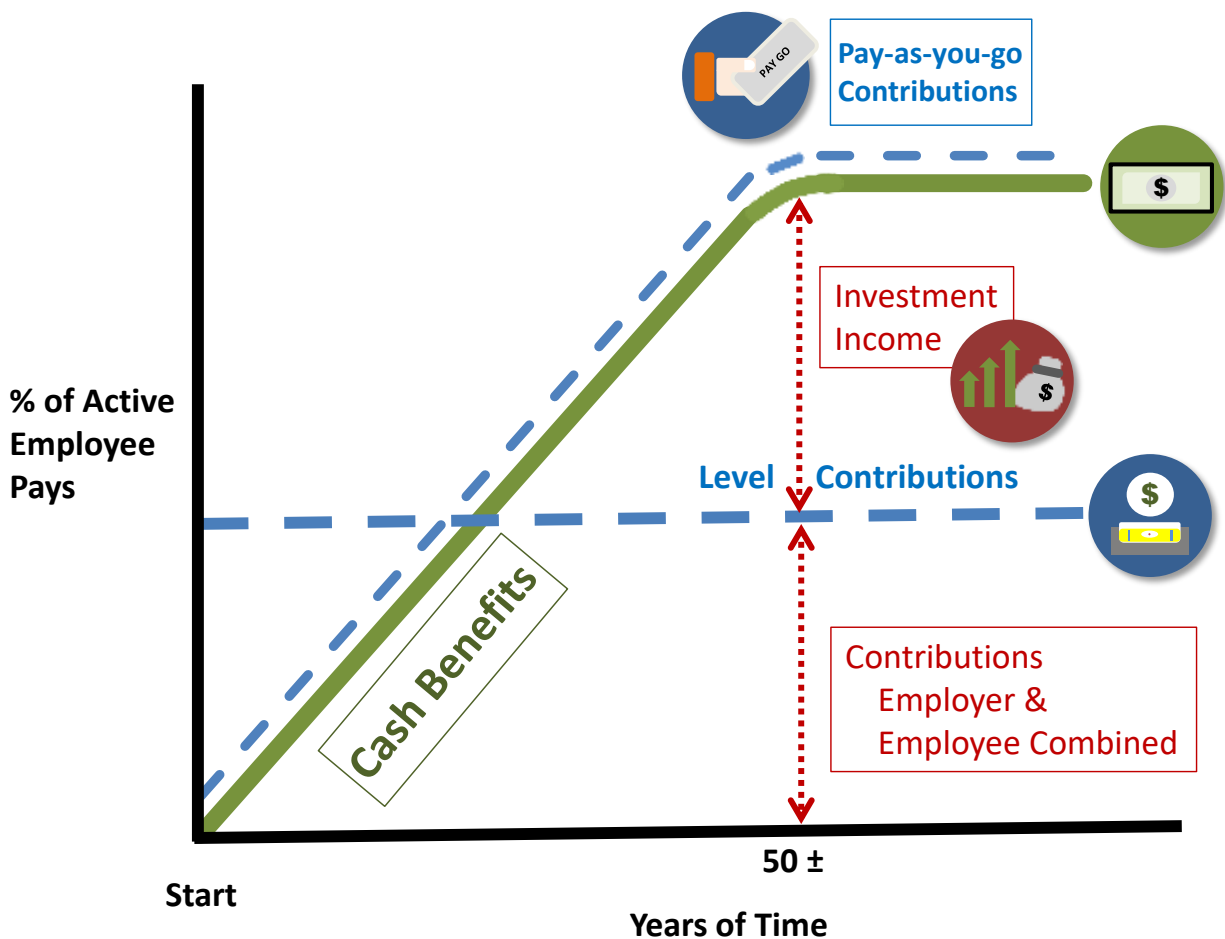
... plus ...

Interest on Unfunded Actuarial Accrued Liabilities (unfunded accrued liabilities are the difference between (i) liabilities for service already rendered and (ii) the accrued assets of the plan).

Computing Contributions to Support System Benefits. From a given schedule of benefits and from the employee data and asset data furnished, the actuary determines the contribution rates to support the benefits, by means of **an actuarial valuation**. 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 System 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 accuracy of the assumptions or the skill of the actuary and the precision of the calculations made. The future can be predicted with considerable but not complete precision. ATRS 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 continual 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 preceding 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), and 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
 - Retired lives now receiving benefits
 - Former employees with vested benefits not yet payable
 - Active employees
- B. + **Asset data** (cash & investments), furnished by plan administrator
- C. + **Benefit provisions** that establish eligibility and amounts of payments to members
- D. + **Assumptions concerning future financial 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**

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, material changes may occur in the anticipated number of covered employees, covered payroll, or other relevant contribution base. In a fixed rate plan with unfunded liabilities, a reduction in covered payroll can have a negative effect on the system as actual employer contributions are based on a lower than expected payroll;
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. Teacher shortages and reductions in school age populations may have an effect on the System other than 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 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 are discussed below and on the following pages. An additional historical summary of plan maturity measures can be found on page 11.

	2022	2021	2020	2019	2018
Ratio of the Market Value of Assets to Total Payroll	5.9	6.7	5.7	6.1	6.1
Ratio of Actuarial Accrued Liability to Payroll	7.4	7.5	7.6	7.5	7.3
Ratio of Actives to Retirees and Beneficiaries	1.4	1.4	1.4	1.5	1.5
Ratio of Net Cash Flow to Market Value of Assets	-1.0%	-3.2%	-3.9%	-3.6%	-3.5%
Duration of the Present Value of Future Benefits	14.03	14.02	13.83	13.82	13.86

Ratio of the Market Value of Assets to Payroll

The relationship between assets and payroll is a useful indicator of the potential volatility of contributions. The market value of assets is currently 5.9 times the payroll indicating that a return on assets 2% different from assumed would equal approximately 12% of payroll. Such a change could affect the amortization period by approximately five years based on 2022 results. While asset smoothing would reduce the effect, asset gains and losses much larger than 2% are common. An increasing level of this maturity measure generally indicates an increasing volatility in the amortization period.

Ratio of Actuarial Accrued Liability to Payroll

As the ratio of actuarial accrued liability to payroll increases, the amortization period becomes increasingly sensitive to the effects of demographic gains and losses, and assumption changes. For example, a 1% demographic gain or loss would correspond to 7.4% of payroll and would affect the amortization period by three years based on the 2022 results.

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 benefits and expenses exceed contributions, and existing funds may be 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.



Plan Maturity Measures (Concluded)

Duration of Present Value of Future Benefits

The modified 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, the current duration of 14.0 (which is based on a 7.25% discount rate) indicates that the present value of future benefits would increase approximately 14.0% if the assumed rate of return were lowered 1%. Such a change could affect the amortization period by 20 years or more.

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.

Plan Maturity Measures (Based on Market Value of Assets)

Valuation Date June 30	(1) Accrued Liabilities (AAL)	(2) Market Value of Assets	(3) Unfunded AAL (1)-(2)	(4) Valuation Payroll	(5) % Change in Payroll	(6) Funded Ratio (2)/(1)	(7) Annuitant Liabilities (AnnLiab)	(8) AnnLiab/AAL (7)/(1)	(9) Liability/Payroll (1)/(4)	(10) Assets/Payroll (2)/(4)	(11) Est. Portfolio Std. Dev.	(12) Std. Dev. % of Pay (10)x(11)	(13) Unfunded/Payroll (3)/(4)	(14) Net External Cash Flow (NECF)	(15) NECF/Assets (14)/(2)	(16) Portfolio Rate of Return	(17) 10-year Trailing Average
2012	\$ 16,139	\$ 11,484	\$ 4,655	\$ 2,803		71.2%	\$ 7,649	47.4%	575.8%	409.7%			166.1%	\$ (285)	-2.5%	-1.1%	6.6%
2013#	16,718	12,830	3,888	2,819	0.6%	76.7%	8,181	48.9%	593.0%	455.1%			137.9%	(337)	-2.6%	14.9%	8.0%
2014	17,310	14,856	2,454	2,851	1.1%	85.8%	8,777	50.7%	607.2%	521.1%			86.1%	(395)	-2.7%	19.2%	8.2%
2015	18,136	15,036	3,100	2,874	0.8%	82.9%	9,778	53.9%	631.0%	523.1%			107.9%	(445)	-3.0%	4.3%	7.7%
2016	18,812	14,559	4,253	2,888	0.5%	77.4%	10,430	55.4%	651.3%	504.0%			147.3%	(505)	-3.5%	0.2%	6.3%
2017**	20,298	16,285	4,013	2,922	1.2%	80.2%	11,337	55.9%	694.7%	557.4%			137.3%	(556)	-3.4%	16.0%	6.0%
2018	20,935	17,493	3,442	2,986	2.2%	83.6%	11,851	56.6%	701.1%	585.8%	12.7%	77.3%	115.3%	(607)	-3.5%	11.4%	7.6%
2019	21,709	17,742	3,967	3,027	1.4%	81.7%	12,460	57.4%	717.2%	586.1%	12.5%	76.3%	131.1%	(642)	-3.6%	5.2%	10.4%
2020	22,352	16,902	5,450	3,078	1.7%	75.6%	12,890	57.7%	726.2%	549.1%	12.5%	71.5%	177.1%	(665)	-3.9%	-1.0%	8.8%
2021*	23,987	21,469	2,518	3,205	4.1%	89.5%	13,596	56.7%	748.4%	669.8%	13.8%	92.1%	78.6%	(677)	-3.2%	31.7%	9.6%
2022	24,697	19,679	5,018	3,320	3.6%	79.7%	14,044	56.9%	743.8%	592.7%	13.7%	81.1%	151.1%	(192)	-1.0%	-7.5%	8.9%

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

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

(6) The Funded ratio is the most widely known measure of a plan's financial strength, but the trend in the funded ratio is much more important than the absolute ratio. The funded ratio should trend to 100%. As it approaches 100%, it is important to re-evaluate the level of investment risk in the portfolio and potentially to re-evaluate the assumed rate of return.

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

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

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

(16) and (17) Investment return is probably the largest single risk that most systems face. The year by year return and the 10-year geometric average give an indicator of the past performance of the investment program. Of course, past performance is not a guarantee of future results. Some of the trailing averaged are distorted by the extraordinary events of 2008.



BENEFIT PROVISIONS

Summary of Benefit Provisions

June 30, 2022

- 1. Post-Retirement Increases – A.C.A. §§ 24-7-713, 24-7-727 (compound COLA).** Each July 1, annuities are adjusted to be equal to the base annuity times 100% plus 3% for each full year in the period from the effective date of the base annuity to the current July 1. The base annuity is the amount of the member's annuity on the later of July 1, 2001 or the effective date of retirement. The July 1, 2009 cost of living adjustment for retirees was compounded. The annuity was set to 103% of the June 30, 2009 retirement benefit amount. After it was calculated on July 1, 2009, the base amount was reset to be the July 1, 2009 benefit amount. Future cost of living raises will be established by the new updated base amount. Future cost of living adjustments will be evaluated on an annual basis to determine if a simple or compound cost of living increase will be given, depending on the financial condition of the System.
- 2. Lump Sum Death Benefit – A.C.A. § 24-7-720.** Beneficiaries of deceased active members or retirees with 10 or more years of ATRS credited service are eligible to receive a lump sum death benefit of up to \$10,000. Resolution 2020-27 on September 28, 2021 set the minimum amount of the lump sum death benefit for all eligible members to six thousand six hundred sixty-seven dollars (\$6,667); retired members who retired on or before July 1, 2007 will receive an additional six hundred sixty-six dollars and sixty cents (\$666.60) for each contributory year of service credit up to the maximum amount of ten thousand dollars (\$10,000); and all other members will receive an additional three hundred thirty-three dollars and thirty cents (\$333.30) for each contributory year of service credit up to the maximum amount of ten thousand dollars (\$10,000).
- 3. Act 808 Retirement – A.C.A. § 24-4-732.** Any employee of a state agency who was an active member of the Arkansas Teacher Retirement System on April 8, 1987, and who qualified for retirement before January 1, 1988, could become a member of the Arkansas Public Employees Retirement System and retire from that system. All credited service was transferred to that system but the member's contributions were retained by the Arkansas Teacher Retirement System and the benefit amount is transferred monthly to the Arkansas Public Employees Retirement System. Each July 1, annuities are adjusted by 3% (compound escalator).
- 4. Act 793 Retirement – A.C.A. § 24-4-522.** Any employee who was a member of the rehabilitation services in 1977 was permitted to become a member of the Arkansas Public Employees Retirement System. Liabilities associated with prior service earned through June 30, 1978 remain in the Arkansas Teacher Retirement System. Future service is allocated to the Arkansas Public Employees Retirement System. Each July 1, annuities are adjusted by 3% (compound escalator).



Summary of Benefit Provisions

June 30, 2022

5. **Retiree Benefit Stipend – A.C.A. § 24-7-713.** Each retired member as of June 30, 2008, with 5 or more years of ATRS credited service receives a \$75 per month stipend. Members in T-DROP do not receive the \$75 per month stipend until actual retirement. For all members retiring on or after July 1, 2008, a minimum of 10 years of ATRS credited service is required to receive the \$75 per month stipend. The ATRS Board is allowed to set the stipend to a minimum of \$1 per month and a maximum of \$75 per month. By Board Resolution 2017-34 on November 13, 2017 the benefit stipend is removed from the base amount for all retirees and beneficiaries beginning in fiscal year 2019 and the benefit stipend will be reduced to \$50.00 for fiscal year 2020 and beyond. The Resolution contains a "hold harmless" provision that prevents the lowering of the stipend if it would actually reduce the total monthly benefit. This would only affect retirees when the COLA is less than \$25 per month.
6. **T-DROP Cash Balance Account.** Effective July 1, 2012, a T-DROP cash balance account was established that allows members exiting (retiring) from T-DROP to place all or a portion of their T-DROP proceeds into a Cash Balance Account (CBA) at ATRS. On November 13, 2017, by Resolution 2017-38 the Board set the CBA interest rate schedule based on years of participation as follows: 2.50% for year one, 2.75% for year two, 3.00% for year three, 3.25% for year four, 3.50% for year five, and 4.00% for year six and beyond. Each fiscal year, the Board can grant an incentive interest rate to encourage continued participation in the CBA program. For fiscal year 2022, the Board granted CBA participants an incentive rate of 1.0%, by Resolution 2021-36 on September 27, 2021.

7. **Optional Forms of Benefits – A.C.A. § 24-7-706:**

Option 1 (Straight Life Annuity)

A member will receive the maximum monthly benefit for which he/she qualifies, throughout his/her lifetime. No monthly benefits will be paid to his/her beneficiary after the member's death. Should a member die before he/she has drawn benefits in an amount equal to his/her contributions plus earned interest, the balance will be paid to a designated beneficiary. The designated beneficiary may be anyone chosen by the member.

Option A (100% Survivor Annuity)

Under this option a member will receive a reduced annuity throughout his/her lifetime. Upon the member's death, the designated beneficiary will receive the same annuity for the balance of his/her lifetime.

Option B (50% Survivor Annuity)

Under this option a member will receive a reduced annuity throughout his/her lifetime. Upon the member's death, the designated beneficiary will receive one-half (1/2) of this annuity for the balance of his/her lifetime.

Summary of Benefit Provisions

June 30, 2022

Option C (Annuity for Ten Years Certain and Life Thereafter)

A reduced monthly benefit payable for 120 months. After that time, or if the beneficiary dies prior to 120 months, a member's monthly allowance will revert to the amount he/she would have received under the regular plan and continue for life. If the member dies before receiving 120 payments, the designated beneficiary will receive a monthly benefit in the same amount until monthly benefits to both the member and the beneficiary equal 120 monthly payments. No further benefits are then payable to the beneficiary.

Pop-Up Election

Following the death of or a divorce from the member's designated beneficiary, his or her benefit reverts (pops-up) to the straight life annuity amount from the elected optional annuity amount. The member may then elect new beneficiaries in accordance with Arkansas Code and rules adopted by the ATRS board.

Option Factors are based upon a 5.0% interest rate and the RP-2014/MP2017 tables (static projection to 2022) adjusted with a 50% unisex mix.

Sample Benefit Computations for a Member Retiring July 1, 2022 with a Simple 3% COLA

Data for an example member is shown below.

Annual retirement benefit as of July 1, 2022 (excluding stipend): \$30,000

Projected benefits, taking into account increases after retirement would be:

Year Ended June 30	Annual Amount		\$ Increase
	Base	Current	
2023	\$30,000	\$30,000	\$ 0
2024	30,000	30,900	900
2025	30,000	31,800	900
2026	30,000	32,700	900
2027	30,000	33,600	900

Thereafter, the amount would increase by \$900 annually for life. Act 793 members and Act 808 members receive compound COLAs.

CHANGES IN PURCHASING POWER

Benefit Changes During Recent Years of Retirement and Related Changes in Purchasing Power (1990 \$)

Year Ended June 30	Increase Beginning of Year	Benefit Dollars in Year*	Inflation (Loss) in Year#	Purchasing Power at Year End	
				1990 \$	% of 1990
1990	\$ ----	\$ 11,000	----	\$ 11,000	100%
1991	330	11,330	(4.7)%	10,822	98%
1992	1,005	12,335	(3.1)%	11,429	104%
1993	1,045	13,380	(3.0)%	12,036	109%
1994	1,082	14,462	(2.5)%	12,693	115%
1995	400	14,862	(3.0)%	12,660	115%
1996	400	15,262	(2.8)%	12,652	115%
1997	772	16,034	(2.3)%	12,993	118%
1998	481	16,515	(1.7)%	13,161	120%
1999	1,383	17,898	(2.0)%	13,989	127%
2000	1,129	19,027	(3.7)%	14,336	130%
2001	1,406	20,433	(3.2)%	14,911	136%
2002	807	21,240	(1.1)%	15,337	139%
2003	562	21,802	(2.1)%	15,417	140%
2004	562	22,364	(3.3)%	15,314	139%
2005	562	22,926	(2.5)%	15,312	139%
2006	562	23,488	(4.3)%	15,037	137%
2007	562	24,050	(2.7)%	14,994	136%
2008	562	24,612	(5.0)%	14,611	133%
2009	562	25,174	1.4 %	15,161	138%
2010	755	25,929	(1.1)%	15,453	140%
2011	778	26,707	(3.6)%	15,370	140%
2012	778	27,485	(1.7)%	15,558	141%
2013	778	28,263	(1.8)%	15,723	143%
2014	778	29,041	(2.1)%	15,828	144%
2015	778	29,819	(0.1)%	16,232	148%
2016	778	30,597	(1.0)%	16,491	150%
2017	778	31,375	(1.6)%	16,638	151%
2018	778	32,153	(2.9)%	16,575	151%
2019	751	32,904	(1.6)%	16,687	152%
2020+	451	33,355	(0.6)%	16,807	153%
2021	751	34,106	(5.4)%	16,306	148%
2022	751	34,857	(9.1)%	15,281	139%
2023	751	35,608			
2024					

* The \$11,000 benefit used to begin this schedule is an arbitrary amount. A different beginning amount could show a different purchasing power amount, but the same in percent loss.

Based on Consumer Price Index, All Urban Consumers, United States City Average (June values).

+ The Retiree Benefit Stipend was reduced by \$300 in FY 2020.



Benefit Changes During Recent Years of Retirement and Related Changes in Purchasing Power (2000 \$)

Year Ended June 30	Increase Beginning of Year	Benefit Dollars in Year*	Inflation (Loss) in Year#	Purchasing Power at Year End	
				2000 \$	% of 2000
2000	\$ ----	\$ 11,600	----	\$ 11,600	100%
2001	1,003	12,603	(3.2)%	12,207	105%
2002	523	13,126	(1.1)%	12,579	108%
2003	372	13,498	(2.1)%	12,668	109%
2004	372	13,870	(3.3)%	12,605	109%
2005	372	14,242	(2.5)%	12,624	109%
2006	372	14,614	(4.3)%	12,417	107%
2007	372	14,986	(2.7)%	12,400	107%
2008	372	15,358	(5.0)%	12,100	104%
2009	372	15,730	1.4 %	12,573	108%
2010	472	16,202	(1.1)%	12,815	110%
2011	486	16,688	(3.6)%	12,746	110%
2012	486	17,174	(1.7)%	12,902	111%
2013	486	17,660	(1.8)%	13,039	112%
2014	486	18,146	(2.1)%	13,125	113%
2015	486	18,632	(0.1)%	13,460	116%
2016	486	19,118	(1.0)%	13,675	118%
2017	486	19,604	(1.6)%	13,797	119%
2018	486	20,090	(2.9)%	13,745	118%
2019	459	20,549	(1.6)%	13,831	119%
2020+	159	20,708	(0.6)%	13,848	119%
2021	459	21,167	(5.4)%	13,431	116%
2022	459	21,626	(9.1)%	12,582	108%
2023	459	22,085			
2024					

* The \$11,600 benefit used to begin this schedule is an arbitrary amount. A different beginning amount could show a different purchasing power amount, but the same in percent loss.

Based on Consumer Price Index, All Urban Consumers, United States City Average (June values).

+ The Retiree Benefit Stipend was reduced by \$300 in FY 2020.

Benefit Changes During Recent Years of Retirement and Related Changes in Purchasing Power (2010 \$)

Year Ended June 30	Increase Beginning of Year	Benefit Dollars in Year*	Inflation (Loss) in Year#	Purchasing Power at Year End	
				2010 \$	% of 2010
2010	\$ ----	\$ 11,900	----	\$ 11,900	100%
2011	357	12,257	(3.6)%	11,836	99%
2012	357	12,614	(1.7)%	11,981	101%
2013	357	12,971	(1.8)%	12,108	102%
2014	357	13,328	(2.1)%	12,188	102%
2015	357	13,685	(0.1)%	12,499	105%
2016	357	14,042	(1.0)%	12,699	107%
2017	357	14,399	(1.6)%	12,812	108%
2018	357	14,756	(2.9)%	12,764	107%
2019	330	15,086	(1.6)%	12,837	108%
2020+	30	15,116	(0.6)%	12,780	107%
2021	330	15,446	(5.4)%	12,391	104%
2022	330	15,776	(9.1)%	11,605	98%
2023	330	16,106			
2024					

* The \$11,900 benefit used to begin this schedule is an arbitrary amount. A different beginning amount could show a different purchasing power amount, but the same in percent loss.

Based on Consumer Price Index, All Urban Consumers, United States City Average (June values).

+ The Retiree Benefit Stipend was reduced by \$300 in FY 2020.

VALUATION DATA

Summary of Annuities Being Paid Retirees and Beneficiaries July 1, 2022 by Disbursing Account and Gender

Disbursing Account	Men		Women		Totals	
	No.	Annual Annuities	No.	Annual Annuities	No.	Annual Annuities
RETIREMENT RESERVE ACCOUNT						
Age & Service Annuities						
Retirees	10,383	\$285,877,105	37,027	\$912,135,578	47,410	\$1,198,012,683
Beneficiaries	444	9,810,606	986	23,713,698	1,430	33,524,304
Totals	10,827	295,687,711	38,013	935,849,276	48,840	1,231,536,987
Disability						
Retirees	513	8,050,146	2,146	33,332,881	2,659	41,383,027
Beneficiaries	138	2,216,353	136	2,492,674	274	4,709,027
Totals	651	10,266,499	2,282	35,825,555	2,933	46,092,054
Act 793	72	1,122,756	67	566,412	139	1,689,168
Retirement Reserve Account	11,550	307,076,966	40,362	972,241,243	51,912	1,279,318,209
Act 808 Retirement Reserve Account	20	1,335,084	12	503,628	32	1,838,712
Total Retirement Reserve Account	11,570	308,412,050	40,374	972,744,871	51,944	1,281,156,921
SURVIVOR'S BENEFIT ACCOUNT						
Beneficiaries of Deceased Members	406	6,015,919	398	6,580,467	804	12,596,386
RETIREMENT SYSTEM TOTALS						
Total Annuities Being Paid	11,976	\$314,427,969	40,772	\$979,325,338	52,748	\$1,293,753,307
Prior Year Totals	11,779	\$305,396,793	39,626	\$937,304,571	51,405	\$1,242,701,364
Average Age	72.0		71.8		71.8	

Summary of Annuities Being Paid Retirees and Beneficiaries July 1, 2022 by Disbursing Account and Source of Financing

Disbursing Account	Annual Annuities		Total	
	Employee Financed	Employer Financed	No.	Annual Annuities
RETIREMENT RESERVE ACCOUNT				
Age & Service Annuities				
Retirees	\$ 68,002,225	\$ 1,130,010,458	47,410	\$ 1,198,012,683
Beneficiaries	347,883	33,176,421	1,430	33,524,304
Totals	68,350,108	1,163,186,879	48,840	1,231,536,987
Disability				
Retirees	1,393,946	39,989,081	2,659	41,383,027
Beneficiaries	138,996	4,570,031	274	4,709,027
Totals	1,532,942	44,559,112	2,933	46,092,054
Act 793	112,021	1,577,147	139	1,689,168
Retirement Reserve Account	69,995,071	1,209,323,138	51,912	1,279,318,209
Act 808 Retirement Reserve Account	74,770	1,763,942	32	1,838,712
Total Retirement Reserve Account	70,069,841	1,211,087,080	51,944	1,281,156,921
SURVIVOR'S BENEFIT ACCOUNT				
Beneficiaries of Deceased Members	396,938	12,199,448	804	12,596,386
RETIREMENT SYSTEM TOTALS				
Total Annuities Being Paid	\$ 70,466,779	\$ 1,223,286,528	52,748	\$ 1,293,753,307
Prior Year Totals	\$ 72,241,409	\$ 1,170,459,955	51,405	\$ 1,242,701,364

Annuities Being Paid Retirees and Beneficiaries July 1, 2022 by Type of Annuity Being Paid

Type of Annuity	No.	Annual Amounts		
		Original Annuities	Base Annuities	Current Annuities
RETIREMENT RESERVE ACCOUNT				
Age & Service				
Option 1 (Basic single life)	38,468	\$ 617,098,978	\$ 702,879,935	\$ 939,937,432
Option A (Joint & 100% Survivor)	5,508	94,907,492	107,427,937	144,844,545
Option B (Joint & 50% Survivor)	2,724	61,998,751	72,481,207	97,809,004
Option C (10-year certain)	710	12,294,866	12,421,694	15,421,702
Beneficiaries	1,430	26,739,759	23,985,625	33,524,304
Totals	48,840	813,039,846	919,196,398	1,231,536,987
Disability				
Option 1	2,222	23,706,475	25,436,063	34,359,351
Option A	358	3,982,125	4,004,215	5,327,844
Option B	79	1,205,552	1,277,898	1,695,832
Option C	0	-	-	-
Beneficiaries	274	3,339,543	3,313,728	4,709,027
Totals	2,933	32,233,695	34,031,904	46,092,054
Act 793	139	800,638	1,689,168	1,689,168
Retirement Reserve Account	51,912	846,074,179	954,917,470	1,279,318,209
Act 808 Retirement Reserve Account	32	596,879	1,838,712	1,838,712
Total Retirement Reserve Account	51,944	846,671,058	956,756,182	1,281,156,921
SURVIVOR'S BENEFIT ACCOUNT				
Beneficiaries of Deceased Members				
Age 0-17	128	1,138,253	1,136,742	1,252,522
Age 18-23	78	778,150	773,463	876,265
Other	598	6,981,465	7,795,494	10,467,599
Totals	804	8,897,868	9,705,699	12,596,386
RETIREMENT SYSTEM TOTALS				
Total Annuities Being Paid	52,748	\$ 855,568,926	\$ 966,461,881	\$ 1,293,753,307

The Original Annuity is the annuity at the date of retirement (includes stipend).

The Base Annuity is the amount from which the 3.0% COLA is calculated.

The Current Annuity is the annuity payable at July 1, 2022 including the COLA granted on July 1.



Annuities Being Paid July 1, 2022
from the Retirement Reserve Account to
AGE AND SERVICE Retirees and Beneficiaries
by Attained Ages

Attained Age	Annual Amounts			
	No.	Original Annuities	Base Annuities	Current Annuities
Under 40	9	\$ 168,402	\$ 145,983	\$ 195,449
40-44	7	107,659	98,437	119,753
45-49	16	206,141	197,573	211,384
50-54	339	9,249,784	9,032,408	9,906,034
55-59	1,307	35,508,697	35,338,824	41,917,671
60-64	6,534	125,668,288	127,210,287	156,237,318
65-69	11,733	207,598,865	218,862,618	282,218,960
70-74	12,479	207,664,237	232,037,790	318,134,255
75-79	8,515	128,392,820	155,220,654	220,282,904
80-84	4,651	61,774,715	81,777,093	117,276,127
85-89	2,167	25,696,158	38,428,947	55,169,625
90-94	869	9,140,424	16,526,531	23,689,820
95 & Up	214	1,863,656	4,319,253	6,177,687
Totals	48,840	\$813,039,846	\$919,196,398	\$1,231,536,987
Avg. Age	71.8			

Amounts in the Original Annuities column include the original \$900 Retiree Benefit Stipend. Amounts in the Base Annuities column exclude this amount for purposes of determining the COLA. Amounts in the Current Annuities column include the current \$600 Retiree Benefit Stipend.

**Annuities Being Paid July 1, 2022
from the Retirement Reserve Account to
DISABILITY Retirees and Beneficiaries by Attained Ages**

Attained Age	Annual Amounts			
	No.	Original Annuities	Base Annuities	Current Annuities
Under 40	9	\$ 75,117	\$ 69,804	\$ 84,074
40-44	24	249,895	240,295	264,061
45-49	94	1,155,293	1,093,855	1,293,912
50-54	215	2,885,457	2,742,979	3,258,057
55-59	373	4,411,808	4,187,300	5,161,284
60-64	593	6,693,734	6,379,913	8,351,755
65-69	576	6,243,819	6,189,478	8,653,493
70-74	511	5,174,473	5,679,728	8,249,249
75-79	328	3,455,739	4,327,950	6,267,205
80-84	137	1,407,250	2,082,644	3,007,412
85-89	49	357,999	693,078	1,002,583
90-94	18	99,563	265,512	383,750
95 & Up	6	23,548	79,368	115,219
Totals	2,933	\$32,233,695	\$34,031,904	\$46,092,054
Avg. Age	65.9			

Amounts in the Original Annuities column include the original \$900 Retiree Benefit Stipend. Amounts in the Base Annuities column exclude this amount for purposes of determining the COLA. Amounts in the Current Annuities column include the current \$600 Retiree Benefit Stipend.

**Annuities Being Paid July 1, 2022
from the Retirement Reserve Account to
ACT 793 Retirees and Beneficiaries by Attained Ages**

Attained Age	Annual Amounts		
	No.	Original Annuities	Current Annuities
Under 40	-	\$ -	\$ -
40-44	-	-	-
45-49	-	-	-
50-54	-	-	-
55-59	-	-	-
60-64	-	-	-
65-69	11	24,187	41,965
70-74	28	103,641	187,160
75-79	42	241,400	486,021
80-84	34	241,228	496,842
85-89	17	127,341	308,240
90-94	7	62,841	168,940
95 & Up	-	-	-
Totals	139	\$800,638	\$1,689,168
Avg. Age	78.3		

Base annuities are equal to current annuities since the COLA is compounded.

**Annuities Being Paid July 1, 2022
from the Retirement Reserve Account to
SURVIVOR BENEFICIARIES by Attained Ages**

Attained Age	Annual Amounts			
	No.	Original Annuities	Base Annuities	Current Annuities
Under 40	215	\$1,962,805	\$1,954,055	\$ 2,188,817
40-44	4	29,032	29,482	37,945
45-49	4	45,760	47,039	55,158
50-54	23	310,117	301,973	366,749
55-59	40	556,005	531,467	650,534
60-64	99	1,226,223	1,199,013	1,482,352
65-69	135	1,728,469	1,739,278	2,308,834
70-74	112	1,277,110	1,383,931	1,913,397
75-79	90	1,100,297	1,372,710	1,938,456
80-84	47	372,120	562,352	814,748
85-89	24	215,322	391,627	562,397
90-94	9	72,808	184,834	264,267
95 & Up	2	1,800	7,938	12,732
Totals	804	\$8,897,868	\$9,705,699	\$12,596,386
Avg. Age	55.3			

Amounts in the Original Annuities column include the original \$900 Retiree Benefit Stipend. Amounts in the Base Annuities column exclude this amount for purposes of determining the COLA. Amounts in the Current Annuities column include the current \$600 Retiree Benefit Stipend.

**Annuities Being Paid July 1, 2022
from the ACT 808 Retirement Reserve Account to
ACT 808 Retirees and Beneficiaries by Attained Ages**

Attained Age	Annual Amounts		
	No.	Original Annuities	Current Annuities
Under 40	-	\$ -	\$ -
40-44	-	-	-
45-49	-	-	-
50-54	-	-	-
55-59	-	-	-
60-64	-	-	-
65-69	-	-	-
70-74	-	-	-
75-79	-	-	-
80-84	3	41,788	138,330
85-89	11	235,966	766,642
90-94	11	205,250	598,738
95 & Up	7	113,875	335,002
Totals	32	\$596,879	\$1,838,712
Avg. Age	90.6		

Base annuities are the same as current annuities since the COLA is compounded.

Retiree and Beneficiary Data as of June 30

Year	Estimated Number		Total Retirees*	Annual Allowances (Millions)	% Increase in Annual Allowances@	Average Annual Allowances
	Added	Removed				
1992	455	312	12,033	\$ 115.50	10.4%	\$ 9,599
1993	589	316	12,306	129.71	12.3%	10,540
1994	846	512	12,640	141.87	9.4%	11,224
1995	908	342	13,206	156.59	10.4%	11,857
1996	1,107	654	13,659	170.59	8.9%	12,489
1997	1,049	475	14,233	194.90	14.3%	13,694
1998	809	240	14,802	220.38	13.1%	14,888
1999	1,582	497	15,887	248.75	12.9%	15,658
2000	1,249	479	16,657	280.14	12.6%	16,818
2001	1,571	450	17,778	309.03	10.3%	17,383
2002	1,989	568	19,199	334.15	8.1%	17,404
2003	1,621	549	20,271	359.98	7.7%	17,758
2004	1,685	528	21,428	386.23	7.3%	18,025
2005	1,822	570	22,680	415.04	7.5%	18,300
2006	1,958	485	24,153	449.77	8.4%	18,622
2007	2,017	559	25,611	484.55	7.7%	18,920
2008	1,703	513	26,801	515.56	6.4%	19,237
2009	2,721	704	28,818	564.59	9.5%	19,591
2010	2,588	819	30,587	612.77	8.5%	20,034
2011	2,394	882	32,099	657.08	7.2%	20,470
2012	2,932	871	34,160	709.17	7.9%	20,760
2013	3,039	945	36,254	763.76	7.7%	21,067
2014	3,156	932	38,478	822.19	7.7%	21,368
2015	3,326	1,056	40,748	916.62	11.5%	22,495
2016	3,272	925	43,095	983.87	7.3%	22,830
2017	2,996	999	45,092	1,044.74	6.2%	23,169
2018	2,927	1,195	46,824	1,099.35	5.2%	23,478
2019	2,849	996	48,677	1,146.74	4.3%	23,558
2020	2,811	1,355	50,133	1,194.82	4.2%	23,833
2021	2,852	1,580	51,405	1,242.70	4.0%	24,175
2022	2,788	1,445	52,748	1,293.75	4.1%	24,527

* T-DROP participants are classified as active members for purposes of the valuation and are not included in this schedule.

@ Upon actual retirement, T-DROP account balances may be paid in the form of an additional annuity – a “T-DROP Annuity.” Annual annuities shown include T-DROP annuities beginning in 2015.



REPORTED ASSETS

Reported Assets

The assets of the Retirement System, as of June 30, 2022, were reported to your actuary to be \$19,679,467,252. This amount, increased by a funding value adjustment of \$648,814,232 this year, is used to finance the Retirement System liability.

Accounts	Assets as of June 30	
	2022	2021
Regular Accounts		
Members' Deposit Accounts		
Contributions	\$ 1,619,234,265	\$ 1,517,838,030
Interest	10,879,135,880	12,934,857,979
Total	12,498,370,145	14,452,696,009
T-DROP Member Deposit Accounts		
Contributions	28,418,105	25,976,011
Interest	19,012,373	21,070,652
Total	47,430,478	47,046,663
Cash Balance Account	207,565,576	183,336,816
Employer's Accumulation Account	(7,008,787,923)	(6,500,901,628)
Retirement Reserve Account	13,468,111,609	12,792,323,810
Act 808 Retirement Reserve Account	6,840,591	8,234,533
T-Lump Payable	339,803,043	369,188,176
Survivors Benefit Account	110,412,603	107,149,458
Total Regular Accounts	19,669,746,122	21,459,073,837
Other Accounts		
Income Expense Account	9,721,130	9,699,035
Other Special Reserves	-	-
Miscellaneous	-	-
Total Other Accounts	9,721,130	9,699,035
Total Accounting Value of Assets	19,679,467,252	21,468,772,872
Funding Value Adjustment	648,814,232	(2,125,902,360)
Funding Value of Assets	\$ 20,328,281,484	\$ 19,342,870,512

VALUATION RESULTS

Liabilities for Annuities Being Paid July 1, 2022 Tabulated by Type of Annuity Being Paid

Type of Annuity	Liabilities July 1, 2022		
	Men	Women	Totals
RETIREMENT RESERVE ACCOUNT			
Age & Service Annuities			
Option 1 (Straight Life)	\$ 1,637,705,241	\$ 7,981,045,530	\$ 9,618,750,771
Option A (100% Joint & Survivor)	875,791,144	989,195,008	1,864,986,152
Option B (50% Joint & Survivor)	422,178,320	695,380,303	1,117,558,623
Option C (10 Years Certain & Life)	38,195,176	162,895,015	201,090,191
Beneficiaries	77,843,637	200,841,586	278,685,223
Total Age & Service	3,051,713,518	10,029,357,442	13,081,070,960
Disability Annuities			
Option 1	50,747,633	288,782,704	339,530,337
Option A	27,059,408	47,071,512	74,130,920
Option B	7,018,017	12,490,008	19,508,025
Option C	-	-	-
Beneficiaries	21,246,640	24,885,925	46,132,565
Total Disability	106,071,698	373,230,149	479,301,847
Act 793	7,736,987	4,948,415	12,685,402
Retirement Reserve Account	3,165,522,203	10,407,536,006	13,573,058,209
Act 808 Retirement Reserve Account	5,641,760	1,760,832	7,402,592
Total Retirement Reserve Account	3,171,163,963	10,409,296,838	13,580,460,801
SURVIVORS' BENEFIT ACCOUNT			
Beneficiaries of Deceased Members	54,465,951	61,495,176	115,961,127
RETIREMENT SYSTEM TOTALS			
Total Annuity Liabilities	3,225,629,914	10,470,792,014	13,696,421,928
Cash Benefit Account Liabilities			207,565,576
Liabilities for Lump Sum Death Benefits			139,834,612
Total	\$ 3,225,629,914	\$ 10,470,792,014	\$ 14,043,822,116

Annual Reserve Transfers

The annual accounting transfers listed below are recommended so that retired life accounts will be fully funded as of the valuation date.

Reserve Account	June 30, 2022 Balance Reported	Transfer Amount	June 30, 2022 Balance After Transfer
Retiree Accounts			
RRA	\$ 13,468,111,609	\$ 104,946,600	\$ 13,573,058,209
808 RRA	6,840,591	562,001	7,402,592
SBA	110,412,603	5,548,524	115,961,127
Total Retiree Accounts	13,585,364,803	111,057,125	13,696,421,928
EAA	(7,008,787,923)	(111,057,125)	(7,119,845,048)
Total	\$ 6,576,576,880	\$ -	\$ 6,576,576,880

Lump sum death benefits for retirees are paid from the Employer Accumulation Account and are not included in the figures shown in this report. The actuarial accrued liabilities for lump sum death benefits for retirees are currently \$139.8 million. The Cash Balance Account includes an additional \$207.6 million of retiree liabilities and is not included in the schedule above. No reserve transfers are required for this account.

Retirement Reserve Account

Comparative Statement of Annuities, Accrued Liabilities and Assets (\$ Millions)

Valuation Date June 30	Annual Annuities Being Paid			Average	Computed Liabilities	Applicable Assets	Unfunded Retired Life Liabilities	Ratio of Assets to Liabilities
	No.	Amount	% Incr.					
1980*##	8,001	\$ 30.10	3.5%	\$ 3,761	\$ 280.70	\$ 280.7	none	100.0%
1985*+	9,331	51.49	13.6%	5,518	479.9	479.9	none	100.0%
1990	11,054	87.84	7.2%	7,946	847.7	847.7	none	100.0%
1995	12,622	150.45	10.8%	11,920	1,428.6	1,428.6	none	100.0%
2000*##	16,172	275.65	14.6%	17,045	2,828.8	2,828.8	none	100.0%
2005	22,147	409.42	7.5%	18,486	4,148.1	4,148.1	none	100.0%
2006	23,606	443.98	8.4%	18,808	4,483.4	4,483.4	none	100.0%
2007	25,038	478.30	7.7%	19,103	4,816.4	4,816.4	none	100.0%
2008	26,258	509.29	6.5%	19,396	5,391.3	5,391.3	none	100.0%
2009	28,228	557.83	9.5%	19,762	5,891.9	5,891.9	none	100.0%
2010	29,969	605.55	8.6%	20,206	6,358.0	6,358.0	none	100.0%
2011^	31,498	649.47	7.3%	20,619	6,972.6	6,972.6	none	100.0%
2012	33,533	701.09	7.9%	20,907	7,481.0	7,481.0	none	100.0%
2013	35,622	755.26	7.7%	21,202	8,004.8	8,004.8	none	100.0%
2014	37,824	813.33	7.7%	21,503	8,561.9	8,561.9	none	100.0%
2015@	40,070	907.09	11.5%	22,638	9,515.7	9,515.7	none	100.0%
2016	42,395	973.78	7.4%	22,969	10,157.2	10,157.2	none	100.0%
2017* ^	44,394	1,034.17	6.2%	23,295	11,026.4	11,026.4	none	100.0%
2018	46,108	1,088.30	5.2%	23,603	11,515.7	11,515.7	none	100.0%
2019	47,979	1,137.79	4.5%	23,714	12,094.6	12,094.6	none	100.0%
2020	49,365	1,182.98	4.0%	23,964	12,494.4	12,494.4	none	100.0%
2021^	50,633	1,230.58	4.0%	24,304	13,163.2	13,163.2	none	100.0%
2022	51,944	1,281.16	4.1%	24,664	13,580.5	13,580.5	none	100.0%

* After plan amendments.

After change in interest assumption from 6.0% to 7.0%, change in post-retirement adjustments from 1.5% to 3.0% and recommended reserve transfer.

+ After redetermination of base, retroactive application of new minimum benefit formula and reserve transfers.

Includes Act 808 and Act 793 retirees beginning in 2000.

^ After changes in assumptions.

@ Upon actual retirement, T-DROP account balances maybe paid in the form of an additional annuity – a “T-DROP Annuity.” Annual annuities shown include T-DROP annuities beginning in 2015.



Survivors' Benefit Account Accrued Liabilities and Assets Comparative Statement

Valuation Date June 30	Annual Annuities Being Paid		Computed Liabilities	Applicable Assets	Unfunded Accrued Liabilities	Ratio of Assets to Liabilities
	No.	Amount				
1980*#	393	\$ 772,631	\$ 7,042,644	\$ 7,042,644	none	100.0%
1985*+	421	1,240,399	12,411,800	12,411,800	none	100.0%
1990	424	1,830,743	18,117,244	18,117,244	none	100.0%
1995	416	2,723,940	26,220,218	26,220,218	none	100.0%
2000*	485	4,487,519	43,701,138	43,701,138	none	100.0%
2005	533	5,619,675	56,257,745	56,257,745	none	100.0%
2006	547	5,791,974	57,605,939	57,605,939	none	100.0%
2007	573	6,250,603	63,481,565	63,481,565	none	100.0%
2008	543	6,269,551	66,496,539	66,496,539	none	100.0%
2009	590	6,761,034	70,857,161	70,857,161	none	100.0%
2010	618	7,224,585	75,108,334	75,108,334	none	100.0%
2011^	601	7,605,212	81,150,385	81,150,385	none	100.0%
2012	627	8,081,913	84,930,745	84,930,745	none	100.0%
2013	632	8,491,667	88,139,802	88,139,802	none	100.0%
2014	654	8,861,734	89,793,996	89,793,996	none	100.0%
2015	678	9,530,889	95,272,795	95,272,795	none	100.0%
2016	700	10,084,359	98,960,258	98,960,258	none	100.0%
2017* ^	698	10,574,602	104,668,995	104,668,995	none	100.0%
2018	716	11,042,074	107,043,067	107,043,067	none	100.0%
2019	741	11,313,962	106,306,434	106,306,434	none	100.0%
2020	768	11,843,667	108,528,929	108,528,929	none	100.0%
2021^	772	12,116,736	113,740,676	113,740,676	none	100.0%
2022	804	12,596,386	115,961,127	115,961,127	none	100.0%

* Includes plan amendments.

After change in interest assumption from 6.0% to 7.0%, change in post-retirement adjustments from 1.5% to 3.0% and recommended reserve transfer.

+ After redetermination of base annuity, retroactive application of new minimum benefit formula and recommended reserve transfer.

^ After changes in assumptions.



Annual Allowances of Retired Lives by Year of Retirement as of June 30, 2022

Calendar Year of Retirement	No.	Annual Amount Being Paid			Average
		Original	Total Increase	Current	
2022*	606	\$ 7,627,366	\$ 391,994	\$ 8,019,360	\$13,233
2021	2,694	47,734,414	6,685,722	54,420,136	20,200
2020	2,711	46,059,215	7,641,449	53,700,664	19,808
2019	2,743	44,415,794	9,076,319	53,492,113	19,501
2018	2,728	45,424,711	10,378,965	55,803,676	20,456
2017	2,738	45,221,846	12,900,020	58,121,866	21,228
2016	2,807	46,055,508	14,729,591	60,785,099	21,655
2015	2,988	49,040,747	17,474,383	66,515,130	22,261
2014	2,935	49,565,393	19,206,774	68,772,167	23,432
2013	2,681	45,508,071	19,655,670	65,163,741	24,306
2012	2,614	42,738,075	20,149,154	62,887,229	24,058
2011	2,341	38,702,736	19,314,437	58,017,173	24,783
2010	1,988	32,720,292	18,399,513	51,119,805	25,714
2009	2,040	34,207,550	20,471,212	54,678,762	26,803
2008	1,969	31,404,062	18,647,293	50,051,355	25,420
2007	1,823	28,875,996	17,496,893	46,372,889	25,438
2006	1,592	25,840,930	17,206,224	43,047,154	27,040
2005	1,563	25,580,687	19,175,442	44,756,129	28,635
2004	1,379	21,556,263	15,672,031	37,228,294	26,997
2003	1,224	18,913,514	14,577,713	33,491,227	27,362
2002	1,176	18,794,252	14,658,789	33,453,041	28,446
2001	1,128	16,634,240	13,342,956	29,977,196	26,576
2000	998	16,249,288	13,977,446	30,226,734	30,287
1999	829	12,635,468	12,209,124	24,844,592	29,969
1998	788	11,253,448	11,413,659	22,667,107	28,765
1997	596	9,554,459	10,599,439	20,153,898	33,815
1996	455	7,690,143	8,662,380	16,352,523	35,940
1995	493	7,949,379	9,381,513	17,330,892	35,154
1994	483	7,883,069	10,094,920	17,977,989	37,222
1993	343	5,724,666	7,886,506	13,611,172	39,683
1992	208	2,782,815	4,152,462	6,935,277	33,343
1991	156	1,888,448	2,921,331	4,809,779	30,832
1990	171	1,787,538	3,335,950	5,123,488	29,962
1989	171	1,956,347	3,648,721	5,605,068	32,778
1988	141	1,566,995	3,185,452	4,752,447	33,705
Before 1987	448	4,025,201	9,462,934	13,488,135	30,107
TOTAL	52,748	\$855,568,926	\$438,184,381	\$1,293,753,307	\$24,527

* Reporting for calendar year 2022 is not yet complete. The July 1st retirees are not included in the schedule.



APPENDIX

APPENDIX

Single Life Retirement Values Based on PubG-2010 Mortality Amount-Weighted Tables Adjusted Using MP-2020 Projection Scale and 7.25% Interest

Sample Attained Ages in 2022*	Present Value of \$1.00 Monthly for Life		Present Value of \$1 Monthly for Life Increasing 3.0% Annually		Future Life Expectancy (Years)		Percent Dying within Next Year	
	Men	Women	Men	Women	Men	Women	Men	Women
40	\$159.89	\$162.44	\$213.33	\$218.19	45.27	48.29	0.09 %	0.05 %
45	155.49	158.74	204.88	210.83	40.03	43.00	0.12 %	0.07 %
50	149.75	153.88	194.42	201.63	34.93	37.83	0.29 %	0.22 %
55	142.77	148.03	182.14	190.85	30.06	32.88	0.44 %	0.31 %
60	133.94	140.35	167.43	177.49	25.36	28.04	0.67 %	0.43 %
65	123.01	130.34	150.20	161.15	20.90	23.34	0.97 %	0.62 %
70	109.50	117.58	130.24	141.69	16.68	18.84	1.49 %	0.99 %
75	93.52	102.01	108.12	119.49	12.80	14.64	2.52 %	1.77 %
80	75.88	84.29	85.20	95.85	9.39	10.88	4.54 %	3.27 %
85	58.49	65.92	63.89	72.80	6.62	7.72	8.35 %	6.20 %
Base	2705 x 1.05	2706 x 1.05	2705 x 1.05	2706 x 1.05				
Projection	964	965	964	965				

* Rates and life expectancies in future years are determined by the MP-2020 projection scale.

Age	Benefit Increasing 3.0% Yearly	Portion of Age 60 Lives Still Alive	
		Men	Women
60	\$100.00	100%	100%
65	115.00	96%	98%
70	130.00	91%	94%
75	145.00	84%	89%
80	160.00	73%	81%
Ref		2705 x 1.05	2706 x 1.05

The above chart is an illustration for a member who retires at age 60 in 2022.