# Arkansas Teacher Retirement System

## Annual Actuarial Valuation of
## Active and Inactive Members
## June 30, 2023

# Report of the June 30, 2023 Actuarial Valuation

## Outline of Contents

800.521.0498 | P: 248.799.9000 | www.grsconsulting.com

November 28, 2023

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 active and inactive members as of June 30, 2023.*** The June 30th annual valuation of retired lives receiving monthly benefits indicates the liabilities for future benefit payments to existing retirees. These liabilities are covered in detail in a separate report. They are also covered briefly in this report on page B-4.

The purposes of the valuation are to measure the System's funding progress and to determine the amortization period that results from the statutory employer and employee rates and the actuarial assumptions that the Board has adopted. This report should not be relied on for any purpose other than the purposes described herein. Financial results associated with the benefits described in this report that are developed for purposes other than those identified above may be significantly different than those in this report.

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.

This 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 (ATRS) 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 any data provided by ATRS.

This report was prepared using certain assumptions approved by the Board. All actuarial assumptions used in this report are reasonable for the purposes of this valuation. The combined effect of the assumptions is expected to have no significant bias (i.e. not significantly optimistic or pessimistic). All actuarial assumptions and methods used in the valuation follow the guidance in the applicable Actuarial Standards of Practice. The actuarial assumptions used for valuation purposes are summarized in Section G. These assumptions reflect expectations of future experience under the plan. They were developed in connection with an experience study covering the period July 1, 2015 to June 30, 2020.

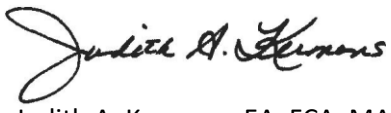
This report was prepared using our proprietary valuation model and related software which, in our professional judgment, has the capability to provide results that are consistent with the purposes of the valuation and has no material limitations or known weaknesses. We performed tests to ensure that 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.

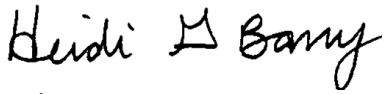
To the best of our knowledge, the information contained in this report is accurate and fairly presents the actuarial position of the Arkansas Teacher Retirement System as of the valuation date. All calculations have been made in conformity with generally accepted actuarial principles and practices and 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. 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).

This report has been prepared by actuaries who have substantial experience valuing public employee retirement systems. Judith A. Kermans, Heidi G. Barry and Derek Henning 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.

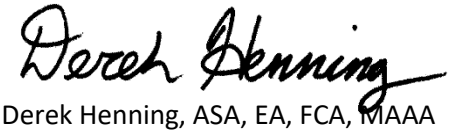
Respectfully submitted,
Gabriel, Roeder, Smith & Company



Judith A. Kermans, EA, FCA, MAAA



Heidi G. Barry, ASA, FCA, MAAA



Derek Henning, ASA, EA, FCA, MAAA

JAK/HGB/DH:ah

C0248

# SECTION A

## EXECUTIVE SUMMARY

# Executive Summary

***General Financial Objective***. Section 24-7-401 (a) of the Arkansas Code provides as follows (emphasis added):

(1) The financial objective of the Arkansas Teacher Retirement System is to establish and receive contributions that expressed as percentages of active member payroll will **remain approximately level from generation to generation of Arkansas citizens.**
(2) Contributions received each year shall be sufficient:
  (A) To **fully cover the costs of benefit commitments** being made to members for their service being rendered **in that year**; and
  (B) To **make a level payment** that if paid annually over a reasonable period of future years will **fully cover the unfunded costs** of benefit commitments for service previously rendered.

***Arkansas Teacher Retirement System Status***: Based upon the results of the June 30, 2023 actuarial valuations, ***ATRS is satisfying the financial objective of level-contribution-percent financing.***

This report contains the results of the June 30, 2023 valuation. The table below shows a summary of the data used in the valuation. This data was the basis for determining valuation results.

| | Number | Average | Type of Average |
|---|---|---|---|
| Active not in T-DROP | 68,249 | $45,897 | Pay |
| Active in T-DROP | 3,138 | 70,134 | Pay |
| Deferred Vested | 14,355 | 6,063 | Annual Projected Benefit |
| Retired | 54,646 | 24,643 | Annual Current Benefit |
| **Total Members** | **140,388** | | |

Included in the 2023 valuation were 4,108 reemployed retirees (included in the Retired data file) with total earnings of $139.5 million. ATRS receives full employer contributions on these individuals per Arkansas Code Section 24-7-708. The actuarial valuation assumes the number of working members will remain constant at the current level. In some recent years, the total number of working members has decreased. A decreasing population means less contribution income for the retirement system than expected and can lead to funding difficulty in extreme cases. ATRS receives employer contributions on behalf of all working members.

***Actuarial Assumptions and Methods:*** There were no assumption or method changes in the June 30, 2023 valuation. In our judgement the actuarial assumptions in use, and in particular the 7.25% investment return assumption, are reasonable for the purposes described in this report.

The actuarial valuation reflects a minimum base salary for teachers of $50,000, and a minimum salary increase of $2,000 for teachers earning more than $50,000 during the 2023-2024 school year due to ACT 237, also known as the LEARNS Act. The LEARNS Act was effective as of August 1, 2023. The increases in pays, as a result of the LEARNS Act, were not reflected in the data submitted for the actuarial valuation. Our model reflects an estimate of those increases.

# Executive Summary (Continued)

***Benefit Changes:*** There were no benefit provision changes reflected in the June 30, 2023 valuation.

***Results of the Valuation***

**The amortization period this year is 26 years**, unchanged from last year's period of 26 years. On a market value basis, the amortization period is 30 years. While an amortization period of 26 years meets statutory requirements, the ATRS has targeted 18 years in its financial objectives in order to eliminate negative amortization. The contribution rate based upon the target amortization period (18 years) would be approximately 17.2% of payroll.

**The statutory employer contribution rate is 15%.** The statutory employer contribution rate is a reasonable actuarially determined contribution rate based on the results of the June 30, 2023 valuation.

**The Arkansas Teacher Retirement System remains stable with an 82.1% funded position** as of June 30, 2023. If experience is reasonably in line with expectations in Fiscal Year 2024, the amortization period is likely to decrease in the next valuation due to the scheduled phase-in of net investment gains in FY 2024. (Please refer to page D-3 for details.)

**The rate of investment return on a market value basis was 8.71%#** this year. As of June 30, 2023, the actuarial value of assets exceeded the market value of assets by approximately $340 million. (Please refer to page D-3 for details.) Investment gains and losses that occur each year are smoothed in over a 4-year period. After considering smoothing, the recognized return this year was 6.88%, compared to an assumed 7.25% return for Fiscal Year 2023. A phase-in of net investment gains is scheduled for the Fiscal Years 2024 and 2026, while a phase-in of net investment losses is scheduled for the Fiscal Year 2025.

\# *The actuary calculated this return figure which may not exactly match the investment consultant's figure.*

# Executive Summary (Continued)

## 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 funding 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 funding value of assets. Unless otherwise indicated, with regard to any funded status measurements presented in this report:

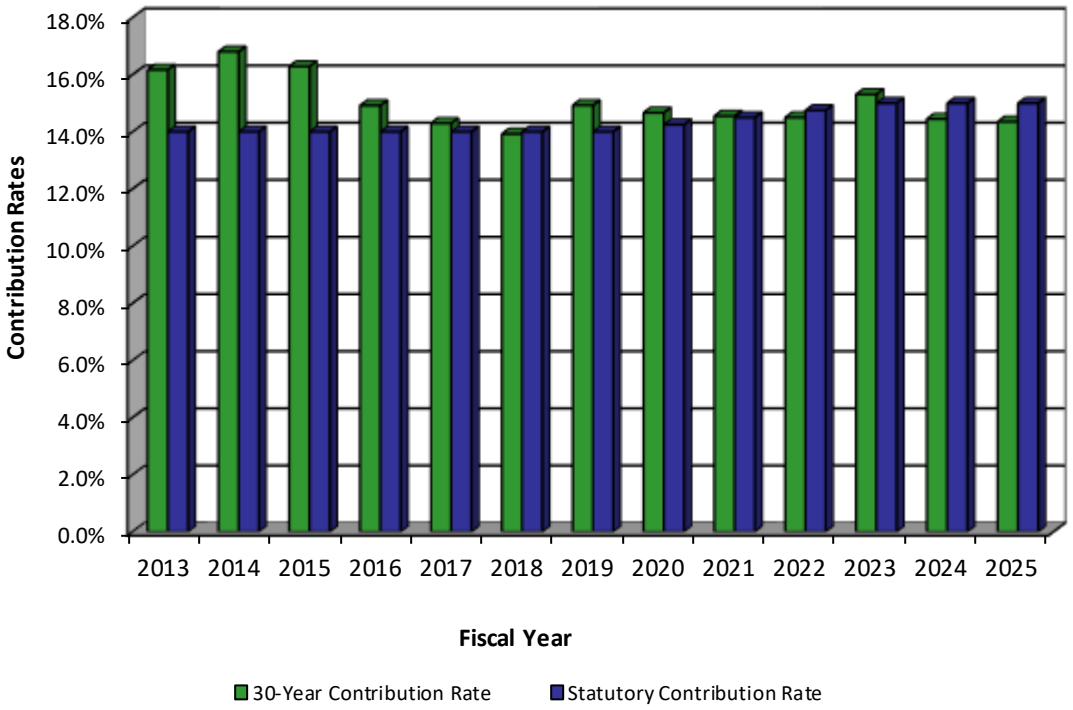
1) The measurement is inappropriate for assessing the sufficiency of plan assets to cover the estimated cost of settling the plan's benefit obligations; in other words, of transferring the obligations to an unrelated third party in an arm's length market value type transaction;
2) The measurement is 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); and
3) The measurement would produce a different result if the market value of assets were used instead of the funding 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.

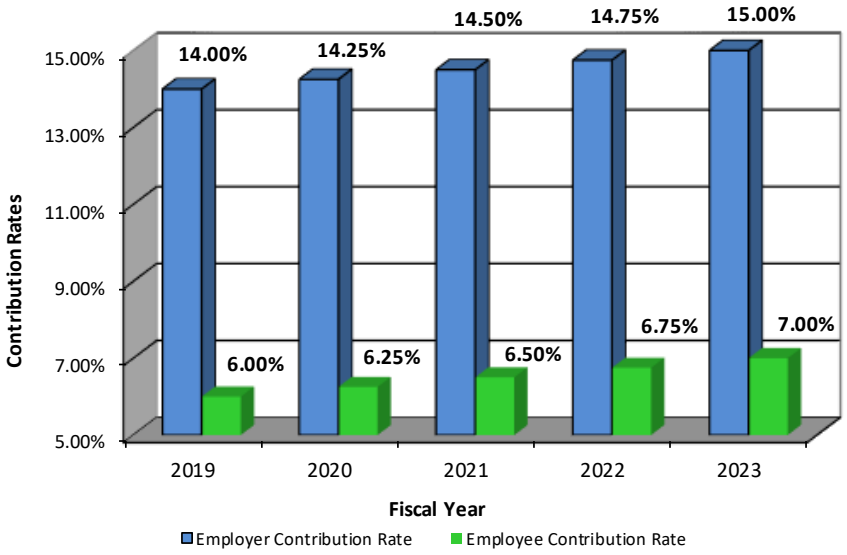
# Executive Summary (Concluded)

The following graph shows a history of the amounts contributed vs. the employer contributions based on a maximum amortization period of 30 years. The results would look different if the Employer Contribution were calculated according to the Board's target of 18 years.




The amount contributed is less than the 30-year contribution in FY 2013-2017, FY 2019-2021 and FY 2023. In FY 2018 and FY 2022, the amount contributed exceeded the 30-year contribution.

The following graph also shows a recent history of the employer and employee amounts contributed.



# SECTION B

## VALUATION RESULTS

# Determination of Amortization Period
# Computed as of June 30, 2023 and June 30, 2022

| Computed Contributions for | Percents of Active Member Payroll | | | |
|---|---|---|---|---|
| | June 30, 2023 | | | June 30, 2022 |
| | Teachers | Support | Combined | Combined |
| Normal Cost | | | | |
| Age & Service Annuities | 11.24% | 7.54% | **10.24%** | 10.20% |
| Deferred Annuities | 1.49% | 2.31% | **1.71%** | 1.73% |
| Survivor Benefits | 0.27% | 0.19% | **0.25%** | 0.25% |
| Disability Benefits | 0.41% | 0.39% | **0.40%** | 0.40% |
| Refunds of Member Contributions | 0.48% | 1.22% | **0.68%** | 0.68% |
| Total | 13.89% | 11.65% | **13.28%** | 13.26% |
| Average Member Contributions | 6.62% | 5.16% | **6.23%** | 6.21% |
| Net Employer Normal Cost | 7.27% | 6.49% | **7.05%** | 7.05% |
| Unfunded Actuarial Accrued Liabilities | | | **7.95%** | 7.95% |
| **Employer Contribution Rate** | | | **15.00%** | 15.00% |
| **Amortization Years** | | | **26** | 26 |

The calculated amortization period of 26 years is based on employer and member contribution rates of 15.00% and 7.00%, respectively. See page A-4 for a recent history of employer and employee contribution rates.

The amortization period is the number of years it will take to pay off the unfunded liability of $4.6 billion, assuming contributions remain at the Fiscal 2024 level. Since 2000, the period has varied from a low of 19 years to a high of over 100 years. If experience in FY 2024 is reasonably in line with expectations, the amortization period is likely to decrease in the next valuation due to the phase-in of net investment gains. Please see additional comments regarding the amortization period on page A-2.

# Employer Contribution Rates
# 10-Year Comparative Statement

| Valuation Date June 30 | Active Members in Valuation ** | | Average Annual Pay | | Consumer Price (Inflation) Index | Employer Contributions | |
|---|---|---|---|---|---|---|---|
| | Number | Annual Payroll ($ Millions) | Amount | % Change | % Change | Computed Financing Period (Years) | Total Employer Rate |
| 2014 | 74,352 | $ 2,758 | $ 37,092 | 1.9 % | 2.1 % | 39 | 14.00 % |
| 2015 | 72,919 | 2,777 | 38,088 | 2.7 % | 0.1 % | 33 | 14.00 % |
| 2016 | 72,232 | 2,785 | 38,557 | 1.2 % | 1.0 % | 29 | 14.00 % |
| 2017#* | 72,148 | 2,814 | 38,997 | 1.1 % | 1.6 % | 29 | 14.00 % |
| 2018# | 72,341 | 2,872 | 39,702 | 1.8 % | 2.9 % | 28 | 14.00 % |
| 2019# | 72,164 | 2,907 | 40,285 | 1.5 % | 1.6 % | 28 | 14.00 % |
| 2020# | 70,539 | 2,954 | 41,884 | 4.0 % | 0.6 % | 27 | 14.25 % |
| 2021#* | 70,098 | 3,086 | 44,030 | 5.1 % | 5.4 % | 32 | 14.50 % |
| 2022# | 71,378 | 3,199 | 44,811 | 1.8 % | 9.1 % | 26 | 14.75 % |
| 2023# | 71,387 | 3,353 | 46,963 | 4.8 % | 3.0 % | 26 | 15.00 % |

* *Revised assumptions.*

\# *Legislated benefit or contribution rate changes.*

** *Includes T-DROP members and payroll. ATRS also receives contributions on return to work retirees, but they are not included on this schedule.*

# Computed Actuarial Liabilities
# as of June 30, 2023

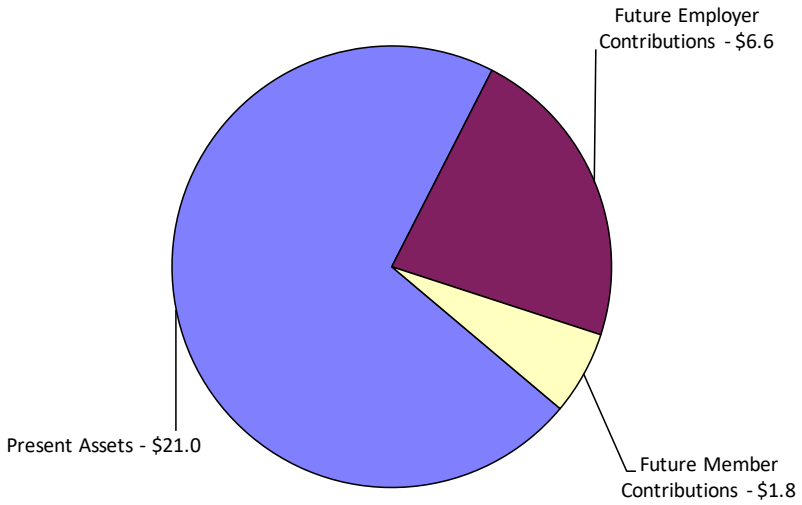
| Actuarial Present Value of | (1) Total Present Value | Entry Age Actuarial Cost Method (2) Portion Covered by Future Normal Cost Contributions | Entry Age Actuarial Cost Method (3) Actuarial Accrued Liabilities (1)-(2) |
|---|---|---|---|
| Age and service retirement allowances based on total service likely to be rendered by present active members. | $ 10,997,036,288 | $ 2,892,841,180 | $ 8,104,195,108 |
| Age and service retirement allowances based on total service likely to be rendered by present T-DROP members. | 1,901,631,818 | 39,016,167 | 1,862,615,651 |
| Vested deferred benefits likely to be paid present active and inactive members. | 1,531,547,444 | 487,889,511 | 1,043,657,933 |
| Survivor benefits expected to be paid on behalf of present active members. | 187,006,996 | 71,372,302 | 115,634,694 |
| Disability benefits expected to be paid on behalf of present active members. | 222,460,200 | 111,729,654 | 110,730,546 |
| Refunds of member contributions expected to be paid on behalf of present active members. | 27,682,895 | 183,329,469 | (155,646,574) |
| Benefits payable to present retirees and beneficiaries. | 14,510,824,580 | - | 14,510,824,580 |
| Total | $ 29,378,190,221 | $ 3,786,178,283 | $ 25,592,011,938 |
| Funding Value of Assets. | 21,014,908,823 | - | 21,014,908,823 |
| Liabilities to be covered by future contributions. | $ 8,363,281,398 | $ 3,786,178,283 | $ 4,577,103,115 |

# Liabilities for Retirees July 1, 2023
# Tabulated by Type of Benefit Being Paid

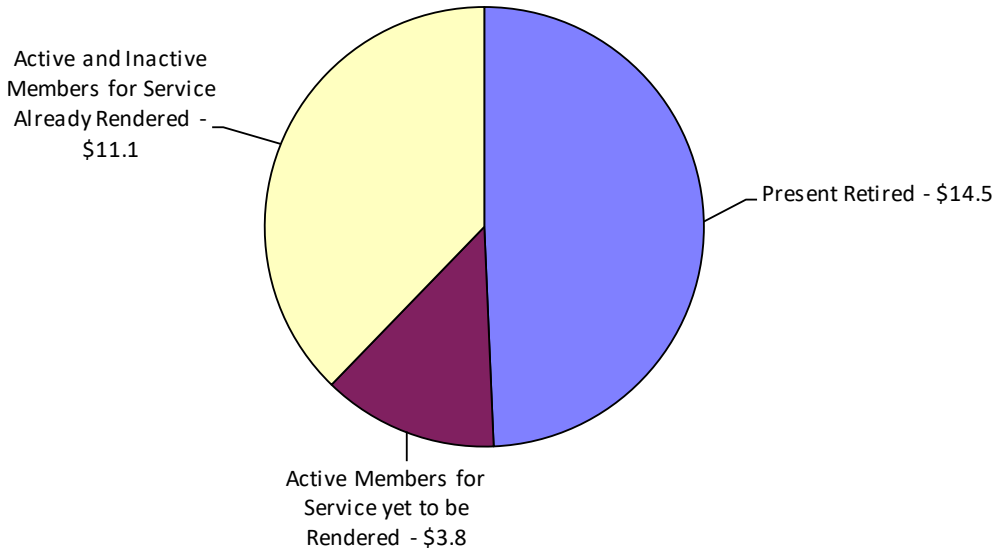
| Type of Annuity | Liabilities July 1, 2023 | | |
|---|---|---|---|
| | Men | Women | Totals |
| **RETIREMENT RESERVE ACCOUNT** | | | |
| Age and Service Annuities | | | |
| Option 1 (Straight Life) | $ 1,689,414,444 | $ 8,297,371,626 | $ 9,986,786,070 |
| Option A (100% Joint & Survivor) | 873,027,296 | 1,002,061,590 | 1,875,088,886 |
| Option B ( 50% Joint & Survivor) | 424,790,992 | 709,644,492 | 1,134,435,484 |
| Option C (10 Years Certain & Life) | 49,130,959 | 174,265,413 | 223,396,372 |
| Beneficiaries | 79,661,361 | 218,926,252 | 298,587,613 |
| Total Age and Service | 3,116,025,052 | 10,402,269,373 | 13,518,294,425 |
| Disability Annuities | | | |
| Option 1 | 51,727,061 | 290,258,569 | 341,985,630 |
| Option A | 25,650,567 | 48,545,604 | 74,196,171 |
| Option B | 7,427,623 | 12,651,982 | 20,079,605 |
| Option C | - | - | - |
| Beneficiaries | 21,825,654 | 25,300,416 | 47,126,070 |
| Total Disability | 106,630,905 | 376,756,571 | 483,387,476 |
| Act 793 | 7,172,197 | 4,650,082 | 11,822,279 |
| Retirement Reserve Account | 3,229,828,154 | 10,783,676,026 | 14,013,504,180 |
| Act 808 Retirement Reserve Account | 4,977,143 | 1,252,213 | 6,229,356 |
| Total Retirement Reserve Account | 3,234,805,297 | 10,784,928,239 | 14,019,733,536 |
| **SURVIVORS' BENEFIT ACCOUNT** | | | |
| Beneficiaries of Deceased Members | $ 57,386,933 | $ 62,567,136 | $ 119,954,069 |
| **RETIREMENT SYSTEM TOTALS** | | | |
| Total Annuity Liabilities | $ 3,292,192,230 | $ 10,847,495,375 | $ 14,139,687,605 |
| Cash Benefit Account Liabilities | | | 226,279,957 |
| Liabilities for Lump Sum Death Benefits | | | 144,857,018 |
| Total | | | $ 14,510,824,580 |

# Financing $29.4 Billion of Benefit Promises for Present Active and Retired Members June 30, 2023

**Sources of Funds ($ Billions)**




**Uses of Funds**



# Short Condition Test

ATRS' funding objective is to meet long-term benefit promises through contributions that remain approximately level from year to year as a percent of member payroll. If the contributions to the System are level in concept and soundly executed, the System will ***pay all promised benefits when due -- the ultimate test of financial soundness***. Testing for level contribution rates is the long-term test.

---

***A short condition test*** is one means of checking a system's progress under its funding program. In a short condition test, the plan's present assets (cash and investments) are compared with: 1) Member contributions on deposit; 2) The liabilities for future benefits to present retired lives; and 3) The liabilities for service already rendered by members. In a system that has been following the discipline of level percent-of-payroll financing, the liabilities for member contributions on deposit (liability 1) and the liabilities for future benefits to present retired lives (liability 2) will be fully covered by present assets (except in rare circumstances). In addition, the liabilities for service already rendered by members (liability 3) will be partially covered by the remainder of present assets. The larger the funded portion of liability 3, the stronger the condition of the system. Liability 3 being fully funded is unusual, but highly desired.

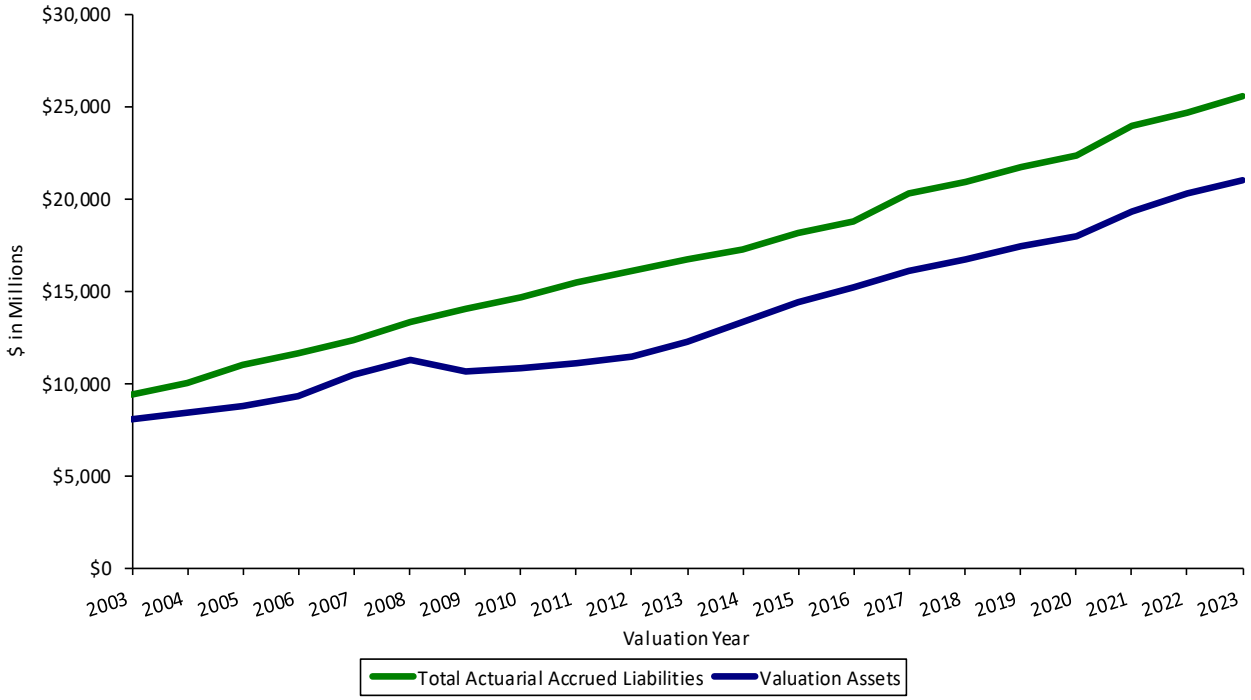
The schedule below illustrates the history of Liability 3 of the System and is indicative of the ATRS' objective of following the discipline of level percent-of-payroll financing.

---

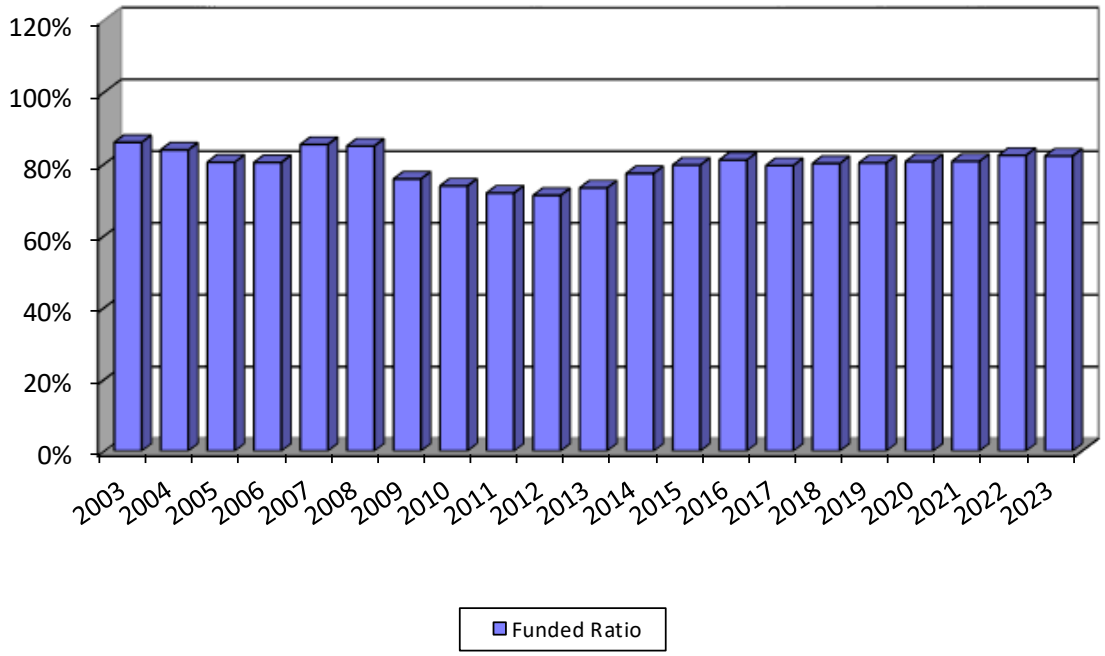
| Val. Date June 30 | (1) Member Contrb. | (2) Retirees and Benef. | (3) Active and Inactive Members (Employer Financed Portion) | Present Valuation Assets | Portion of Present Values Covered by Present Assets | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | (1) | (2) | (3) | Total |
| | ----------$ Millions---------- | | | | | | | |
| 2014 | $ 1,077 | $ 8,777 | $ 7,456 | $ 13,375 | 100% | 100% | 47% | 77% |
| 2015 | 1,128 | 9,778 | 7,230 | 14,434 | 100% | 100% | 49% | 80% |
| 2016 | 1,184 | 10,430 | 7,198 | 15,239 | 100% | 100% | 50% | 81% |
| 2017#* | 1,254 | 11,337 | 7,707 | 16,131 | 100% | 100% | 46% | 79% |
| 2018# | 1,312 | 11,851 | 7,772 | 16,756 | 100% | 100% | 46% | 80% |
| 2019# | 1,377 | 12,460 | 7,872 | 17,413 | 100% | 100% | 45% | 80% |
| 2020# | 1,455 | 12,890 | 8,007 | 18,007 | 100% | 100% | 46% | 81% |
| 2021#* | 1,544 | 13,596 | 8,847 | 19,343 | 100% | 100% | 48% | 81% |
| 2022# | 1,648 | 14,044 | 9,005 | 20,328 | 100% | 100% | 51% | 82% |
| 2023# | 1,751 | 14,511 | 9,330 | 21,015 | 100% | 100% | 51% | 82% |

* *Revised actuarial assumptions or methods.*
\# *Legislated benefit or contribution rate changes.*

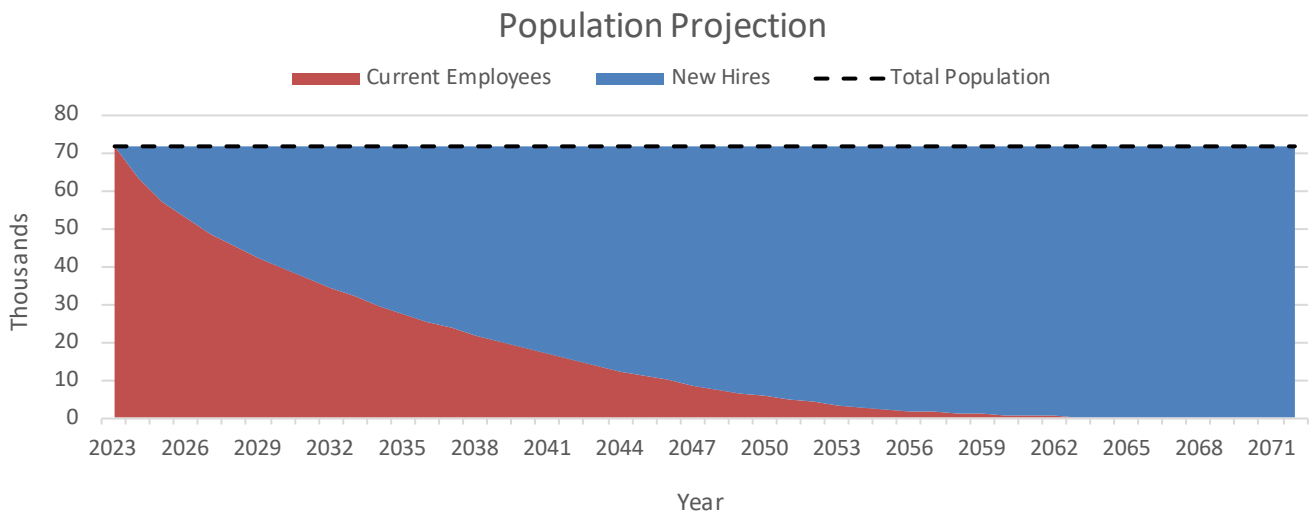
# Actuarial Accrued Liabilities and Valuation Assets

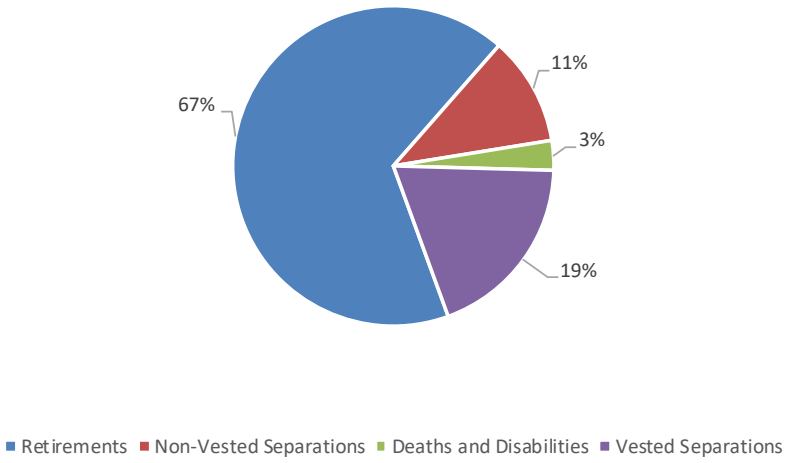



# Valuation Assets as a Percent of Accrued Liabilities (Funded Ratio)



# Expected Development of Present Active Population
# June 30, 2023 (Excludes Rehired Retirees)




The charts show the expected future development of the present population in simplified terms. The Retirement System presently covers 71,387 active members (includes T-DROP). Eventually, 11% of the population is expected to terminate covered employment prior to retirement and forfeit eligibility for an employer provided benefit. Approximately 86% of the present population is expected to receive monthly retirement benefits. Approximately 3% of the present population is expected to become eligible for death-in-service or disability benefits. Within nine years, over half of the covered active membership is expected to consist of new hires.

# SECTION C

## SUMMARY OF BENEFITS

# Summary of Benefit Provisions
# June 30, 2023

1. **Voluntary Retirement** – **A.C.A. § 24-7-701.** A member may retire at age 60 with 5 or more years of credited service, or after 28 years of credited service regardless of age.

2. **Early Retirement – A.C.A. § 24-7-702.** A member who has more than 25 but less than 28 years of credited service and has not attained age 60 years may retire and receive an immediate early retirement annuity. The early annuity is an age & service annuity reduced by the lesser of (i) and (ii) below:

   (i) 10/12 of 1% multiplied by the number of months by which early retirement precedes completion of 28 years of service, or

   (ii) 10/12 of 1% multiplied by the number of months by which early retirement precedes the attainment of age 60 years.

   The ATRS Board is allowed to set by resolution the early annuity reduction at a rate between 5% and 15% per year, to be prorated monthly if the System's actuary certifies that the amortization period to pay the unfunded liabilities exceeds 18 years. The Board adjusted the reduction to 10% per year beginning August 1, 2017 by Resolution 2017-14 on April 17, 2017.

3. **Deferred Retirement – A.C.A. § 24-7-707.** An inactive member who has 5 or more years of credited ATRS service will be entitled to an age & service annuity beginning at age 60, provided accumulated contributions are on deposit with the retirement system.

4. **Disability Retirement – A.C.A. § 24-7-704.** An active member with 5 or more years of actual and reciprocal service, who becomes totally and permanently disabled may be retired and receive a disability annuity computed in the same manner as an age & service annuity. In order to qualify for disability retirement, the member must exhibit symptoms of physical or mental incapacitation while the member is an active member. A member who is eligible for age and service retirement (age 60 and 5 years of service or 28 years of service at any age) is no longer eligible to apply for disability retirement.

   An ATRS disability retiree is required to obtain a Social Security Administration determination letter finding that the retiree is disabled within 36 months of the effective date of disability retirement. If a member cannot provide the SSA determination letter within the 36-month period, benefits will be terminated, the member will be returned to active service, and all member history will be restored. The requirement to qualify for SSA disability shall not apply to a disability retiree who was age 57 or older before July 1, 2015, because that member would qualify for age & service benefits prior to requiring the SSA determination of disability. The retiree may apply for an extension of the 36-month deadline if the retiree can demonstrate the SSA determination is in progress. There is a rebuttable presumption that if a Teacher Retirement member is qualified for Social Security Administration disability benefits then they would also qualify for ATRS disability retirement benefits.

   A disability retiree may be employed with a covered employer for less than (80) days of actual service during a fiscal year. The covered employer who employs a disability retiree under this subsection shall remit contributions on all salary paid to the disability retiree in an amount equal

4. **Disability Retirement – A.C.A. § 24-7-704 (Cont.)** to the employer contributions rate. The retiree will continue receiving their annuity from the system and shall not accrue additional service credit. If a retiree tries to return to full time employment, and fails, the suspended disability benefit will be restored to what it would have been had they not tried to return to work, or a recomputed benefit using the additional service, whichever is higher.

5. **Final Average Salary (FAS) – A.C.A. § 24-7-736 and A.C.A. § 24-7-601.** The ATRS Board made changes to the final average salary (FAS) by Resolution 2017-33 on November 13, 2017. Effective July 1, 2018, a member's final average salary is the average of the five (5) highest service year salaries (5-year FAS).

   Members active in ATRS or a reciprocal system as of June 30, 2018 and with at least 3 full years of service in ATRS can use a benchmark 3-year FAS, which is the average of the three (3) highest service year salaries as of June 30, 2018. The three (3) highest service year salaries are adjusted for anti-spiking before being used in the calculation of the benchmark 3-year FAS.

   In calculating the 5-year FAS, if a member has less five (5) years of credited service, the final average salary of the member shall be the total salary paid to the member for his or her years of credited service divided by the member's total credited years of service.

   The Board may adjust the final average salary anti-spiking parameters by board resolution provided that the anti-spiking percentage range is no lower than 105% nor higher than 120% per year; and the anti-spiking amount is no lower than $1,250 nor higher than $5,000. The ATRS Board set the anti-spiking percentage to 110% and the anti-spiking amount to $5,000 by Resolution 2017-13 on April 17, 2017.

   If a member has at least five (5) years of credited service the five (5) highest service year salaries shall be adjusted for anti-spiking and the final average salary will be calculated as follows:

   a. The service year salaries are ranked from lowest to highest.
   b. The lowest service year salary in the ranking shall be the base salary.
   c. The next-highest-ranked service year salary shall be compared to the base salary.
   d. The next-highest service year salary in the calculation of final average salary that is less than eight (8) years from the base salary year, shall not exceed the base salary value plus $5,000 unless the next-highest year's value is less than or equal to 110% of the base salary.
   e. After comparison of the base salary to the next-highest service year salary, a reduction to the next-highest service year salary is made if required to satisfy the conditions of the prior step.
   f. The next-highest service year salary, with any required reduction, becomes the new base salary to compare to the next succeeding highest service year salary in the ranking until all service year salaries in the ranking have been compared.
   g. The total value of the base salaries shall then be divided by the applicable number of years to be used in computing final average salary.

**Final Average Salary (FAS) – A.C.A. § 24-7-736 and A.C.A. § 24-7-601 (Cont.)** ATRS members with reciprocal service credit will also have a reciprocal FAS calculated. The reciprocal FAS is generally a value calculated by the non-ATRS reciprocal system. Effective March 2, 2021, ATRS will use the value calculated by the non-ATRS reciprocal system only if the member has at least two (2) years of service credit in that system.

The highest of the 5-year FAS, benchmark 3-year FAS, or reciprocal FAS will be used to calculate retirement benefits for the member.

6. **Age & Service Annuity and Disability Annuity – A.C.A. §§ 24-7-705, 24-7-727 (stipend).** The annuity payable will not be less than the total of: years of contributory service times 2.15% of FAS; plus years of noncontributory service times 1.39% of FAS (1.25% for service earned after 2019); plus a stipend for all members with 10 or more years of ATRS actual service. The ATRS Board is allowed to set the contributory multiplier for service credit earned after June 30, 2013, within a range of 1.75% to 2.15%. Also, the noncontributory multiplier for service credit earned after June 30, 2013, may be set within a range of 0.5% and 1.39%. In addition, the Board is allowed to set special multiplier rates for the first 10 years of ATRS service earned after June 30, 2013, for both contributory and noncontributory service. By Board Resolution 2017-31 on November 13, 2017, the noncontributory multiplier was set to 1.25% beginning in FY 2020. By Board Resolution 2017-32 on November 13, 2017, the contributory multiplier and noncontributory multiplier for the first 10 years of service was set to 1.75% and 1.0% respectively beginning July 1, 2018. Once a member accrues 10 years of service, all service including the first 10 years is then credited at the standard multiplier rate in place at the time the service was earned.

7. **T-DROP – A.C.A. §§ 24-7-1301–1316.** A member with 28 or more years of service may participate in the Teacher Deferred Retirement Option Plan (T-DROP). T-DROP participants do not make member contributions. A T-DROP deposit is made monthly to the participant's T-DROP account. The T-DROP deposit is the amount that would have been paid had the member retired, reduced by 1% for each year of contributory, noncontributory, and reciprocal service. Members who enter T-DROP with less than 30 years of service are subject to an additional 6% reduction for each year less than 30 years. T-DROP deposits are increased each year by 3% of the member's initial T-DROP deposit. T-DROP Deposits cease at the earlier of 10 years of T-DROP participation or separation from service. T-DROP participants may continue in covered employment after 10 years of T-DROP participation, but do not accumulate additional T-DROP deposits.

   T-DROP participants receive interest annually on the balance of the T-DROP account. Regular T-DROP interest is credited for 10 or less years of participation. Post 10-year T-DROP interest is credited for more than 10 years of participation.

   Regular T-DROP interest is a combination of a fixed interest rate and an incentive interest rate. An incentive rate may be approved by the Board to encourage continued participation in T-DROP, if the estimated ATRS rate of return is 2% greater than the ATRS actuarial assumed rate of return in the preceding calendar year. Beginning in fiscal year 2019, the Board has set the Regular T-DROP fixed interest rate at 3% and the maximum incentive rate at 3% by Resolution 2017-35 on November 13, 2017.

**T-DROP – A.C.A. §§ 24-7-1301–1316 (Cont.)** The fixed and incentive interest rates may be adopted by board resolution before the first quarter of the fiscal year and would apply to subsequent fiscal years unless modified by the Board. For fiscal year 2022, the Board set the Regular T-DROP fixed interest rate at 3% and the incentive interest rate at 3%, resulting in a total interest rate of 6%, by Resolution 2021-33 on September 27, 2021.

Post 10-year T-DROP interest has been in effect since July 1, 2010. The Post 10-year T-DROP interest rate can be determined as appropriate by the Board and adopted by the resolution prior to the first quarter of the fiscal year in which the interest rate shall apply. Post 10-year T-DROP interest is a combination of a variable interest rate and an incentive interest rate, to encourage continued participation in T-DROP. The Post 10-year T-DROP variable interest rate formula is based on investment returns and other factors. On November 13, 2017, the ATRS Board by Resolution 2017-36 set the formula for the variable interest rate and the maximum combined variable and incentive interest rate for fiscal year 2019 and beyond. The Post 10-year T-DROP variable interest rate is calculated as 2% less than the system's rate of return, but not less than 4%, nor greater than 6%. The maximum Post 10-year T-DROP combined interest rate including the incentive interest rate is 7.5%. The Post 10-year T-DROP incentive interest rate can be awarded if the estimated ATRS rate of T-DROP – A.C.A. § 24-7-1301-1316 return is 2% greater than the ATRS actuarial assumed rate of return in the preceding calendar year. For fiscal year 2022, the Board set the Post 10-year T-DROP variable interest rate at 6% and the incentive interest rate at 1.5%, resulting in a combined interest rate of 7.5%, by Resolution 2021-35 on September 27, 2021.

Upon actual retirement, the member may receive the T-DROP account balance in the form of a lump sum, a Cash Balance Account (CBA), or as an additional annuity. The T-DROP distribution may be a combination of lump sum, CBA, and additional annuity.

8. **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.

9. **Survivor Benefits – A.C.A. § 24-7-710.** Upon the death of an active member, who has 5 or more years of actual and reciprocal service, the following annuities are payable:

   (a) The surviving spouse receives an annuity computed in the same manner as if the member had (i) retired the date of his death with entitlement to an annuity, (ii) elected Option A - 100% Survivor Annuity, and (iii) nominated the spouse as joint beneficiary. If the member has attained age 60 and has acquired 5 years of credited service or has acquired 25 years of

**Survivor Benefits – A.C.A. § 24-7-710. Cont.**

(a) credited service regardless of age, the annuity begins immediately; otherwise the annuity begins the month following the date the member would have attained age 60. Under certain circumstances, a lump sum distribution may be made to the beneficiary(ies) of the deceased member.

(b) A surviving child's benefit is prorated to an amount equal to 1% of the member's highest salary year for each quarter of a year credited as actual service in the system, up to 20% or up to a maximum of $20,000 per year. If there is more than 1 surviving dependent, the benefits are capped to the lesser of 60% of the member highest salary or $60,000 per year to be divided equally among the dependents. A child is dependent until the child's death, marriage, or attainment of age 18 (age 23 if the child is a full-time student).

A child of a deceased member is considered a dependent child and is eligible for the dependent child annuity to eighteen years of age or older, but no older than twenty-three years of age if the dependent child stays continuously enrolled as a full-time student at an accredited school, college, university or vocational-technical school.

10. **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).

11. **Member Contributions – A.C.A. § 24-7-406.** Contributory members pay 7% of their salaries. Through FY 2019, contributory members contributed 6% of their salaries. Members that are participating in the T-DROP program or are working retirees do not make member contributions. If a member leaves service prior to becoming eligible to retire, the accumulated member contributions are returned upon request. No interest is credited to a member's contributions for the first year of membership; after 1 year, interest is credited. The ATRS Board set the interest rate on refunded contributions to 0.08% for fiscal year 2017 and beyond by Resolution 2017-17 on April 17, 2017. By Resolution 2017-30 on November 13, 2017, the Board set the member contribution rate to 6.25%, 6.50%, 6.75%, and 7.00% for FY 2020, FY 2021, FY 2022, and FY 2023 respectively and 7.00% thereafter. Effective July 1, 1986, a noncontributory plan was created. Effective July 1, 1999 the default choice for new members is contributory. Effective July 1, 1997, all future member contributions are tax deferred in accordance with §414(h) of the Internal Revenue Code of the United States. Each July 1, members who previously elected to be noncontributory may elect to change to contributory status. The election is irrevocable.

A member, who was reported as non-contributory and should have been contributory, may remain in a non-contributory status for the current fiscal year and will be pending for the next fiscal year as

11. **Member Contributions – A.C.A. § 24-7-406 (Cont.)** contributory. If the member owes contributions, he or she may have the system convert the contributory service to noncontributory service rather than pay the balance due.

    Members who are contracted for 181 days or more in a fiscal year must be contributory. Effective July 1, 2021 the number of contracted days increased to 185.

12. **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).

13. **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).

14. **Retiree Benefit Stipend – A.C.A. § 24-7-713.** The current stipend amount is $50 per month. 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.

15. **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 in benefits 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(ies) will receive (equal shares of) 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(ies) will receive (equal shares of) one-half (1/2) of this annuity for the balance of his/her lifetime.

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

A reduced monthly benefit payable for 120 months. After that time, 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 PUB-2010 General Healthy Retiree/MP-2020 tables (generational projections using retirement year 2025) adjusted with a 50% unisex mix.

16. **Refund of Member Contributions – A.C.A. § 24-7-711.** Any termination refund made to a member or a lump sum payout made to a surviving spouse after July 1, 2011, cancels all service credit, including noncontributory service credit; any repurchase of refunded service will be as contributory years at actuarial cost. All membership rights (including noncontributory service credit) and beneficiary designations to the ATRS are cancelled when a member gets a refund of his or her contributions.

17. **Contract Buyout – A.C.A. § 24-7-735.** During periods of contract buyout/litigation/termination, members will not receive service credit if no on-call service or on-site work is performed. ATRS will not allow the purchase of the time between actual work and the settlement unless the settlement was made to resolve a claim of wrongful termination.

18. **Actuarial Cost of Service – A.C.A. §§ 24-1-107, 24-2-502, 24-7-202, 24-7-406, 24-7-501, 24-7-502, 24-7-612, 24-7-602, 24-7-603, 24-7-604, 24-7-606, 24-7-607, 24-7-610, 24-7-611.** Effective July 1, 2011, all service purchases will be at actuarial cost. Act 279 of 2021 allows inactive members to purchase service at actuarial cost before monthly retirement benefits or T-DROP deposits begin.

19. **Deceased Member Refund of Contributions – § 24-7-711.** Effective July 1, 2011, if a beneficiary is not eligible for survivor benefits, or if a surviving spouse is eligible and chooses a contribution refund, the interest on the refund stops the July 1 following the member's death.

20. **Look-back Period – A.C.A. §§ 24-7-202, 24-7-205.** Effective July 1, 2011, absent intentional nondisclosure, fraud, misrepresentation, criminal act, or obvious/documented error by an employer of ATRS members can no longer establish old service previously unreported unless such service is acquired by purchase at actuarial cost. ATRS is allowed to correct an understated service credit error upon which all required contributions have been paid or when understated service credit is well documented and undisputed, even if beyond the 5-year look-back period.

21. **Service Credit Requirements – A.C.A. §§ 24-7-501, 24-7-502, 24-7-601, 24-7-603, 24-7-604, 24-7-606, 24-7-607, 24-7-611.** Effective July 1, 2011, members must receive 160 days of service to be credited with a year of service credit.

22. **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.

23. **Purchase of "Air Time" as a Result of Wrongful Termination – A.C.A. §§ 24-7-702, 24-7-735, 6-17-413.** A member is allowed to purchase service credit under a settlement agreement or court order to resolve a claim of wrong termination if the service credit is purchased from the date of termination by an ATRS employer to the date of the resolution of the dispute. This service credit would be purchased at actuarial cost.

24. **Buyout of Inactive Members – A.C.A. § 24-7-505.** The ATRS Board created a voluntary "buyout plan" for inactive vested members. The System will make a one-time lump sum payment to a member, a surviving spouse, or an alternate payee in exchange for a member, surviving spouse, or alternate payee's cancellation of membership and retirement benefit rights. The buyout plan will be established by Board rules. Rule is 16 Cash and Savings Help Program for Members (CASH) defines the terms of the "buyout plan". Depending upon the success of the plan, it may be extended by the Board. The ATRS Board expanded the CASH program to include all inactive vested members, regardless of service type by Resolution 2017-18 on May 10, 2017. The ATRS Board offered the FY 2022 CASH program for all inactive vested members to end on June 30, 2022 by Resolution 2021-37 on September 27, 2021.

25. **Private School Service – A.C.A. § 24-7-607.** Prior to 2015, private school service had to be recognized by the Arkansas Department of Education as positions that required the issuance of teaching licenses. The certification of this service credit was performed by one employee of the Arkansas Department of Education, and that one employee retired. Upon that employee's retirement, the Arkansas Department of Education no longer certified private school service credit. No certifications occurred for approximately a year until legislation could be passed to allow ATRS to make this determination. In addition, a distinction was made between certified and noncertified private school service credit. Certified private school service (basically administrative and teaching) could be purchased at actuarial cost, up to 15 years. Noncertified private school service could be purchased at actuarial cost, up to 5 years.

26. **Military Service Credit – A.C.A. § 24-7-602.** Act 301 of 2015 made technical corrections to the ATRS laws. In the military service credit section, ATRS was not in compliance with a state law that was passed in 2009, Act 295, which repealed the requirement for free military service credit to be granted only if the service was not credited under any other plan except Social Security and the requirement that receipt of a pension from the federal military retirement system paid solely for disability shall not be considered as having service with another retirement plan. The military technical corrections bill raised questions by some of the legislators, and Act 558 of 2015 was passed to further clarify military service credit. Compulsory military service was changed throughout the law to read: "federal military draft". The word "honorable" was inserted before discharge in order for the member to obtain free military service credit throughout the law.

27. **Pension Advance Prohibition – A.C.A. § 24-7-715. Prohibits a pension advance company from** obtaining a retiree's benefit to repay a loan.

28. **Accrued Sick Leave – A.C.A. § 24-7-601.** Unused accrued sick leave, whether paid or unpaid, is allowed to count as service credit to determine retirement eligibility for survivor benefits and lump sum death benefits. One day of service shall be added to the service credit for the fiscal year of the member's death for each day of unused sick leave. This does not include catastrophic leave and other unused donated leave.

29. **Spousal Survivor Benefit – A.C.A. § 24-7-710.** Members may direct an alternative residual beneficiary to receive a lump sum payment of the member's residue amount or T-DROP balance. No spousal survivor benefits will be payable if an alternative beneficiary who is not the surviving spouse is designated by the member.

30. **Settlement Agreements – A.C.A. § 24-7-202, § 24-7-735.** Salary or service credit may be purchased as part of a settlement agreement between a member and their employer. Salary will be added to the salary at the time of purchase and will be determined using the same factors used to calculate an additional monthly benefit in the annuitization of a T-DROP distribution. It is assumed the member would have retired immediately at the time of the purchase.

31. **Outsourcing – A.C.A. § 24-7-506.** Outsourcing is defined to mean employment for an ATRS covered employer through a third party, private employer, independent contractor, or other contractual relationship. A person who performs services that are necessary for the normal daily operation for an ATRS covered employer is considered an Embedded Employee. The ATRS covered employer has a one-time decision to choose between two options for handling their Embedded Employees. The first option for the ATRS covered employer is to become a participating employer and make embedded employees participating members of ATRS. The second option for the ATRS covered employer is to become a Surcharge Employer and opt to pay a surcharge on the Embedded Employee's salary to ATRS to help cover the actuarial cost. The surcharge starts at ½% the first year and slowly rises to 3% over 4 years with a hard cap of 4%. The Embedded Employees of a Surcharge Employer will not be members of ATRS. The services necessary for normal daily operations include: substitute teaching, teacher's aides, food service, transportation service, custodial service, security services, and school nursing. Only those working on the premises are subject to the surcharge. The surcharge is ONLY on

**Outsourcing – A.C.A. § 24-7-506 (Cont.)** SALARY of embedded employees. All salary is reported in the aggregate with the contractor's salary amount being the final word unless it is clearly in error. The Division of Youth Services shall be a participating Employer and may designate any or all Embedded Employees as members of ATRS. The law does not apply to post-secondary higher education institutions.

32. **Concurrent Reciprocal Service Credit – A.C.A. § 24-7-601.** ATRS members have the option of waiving their ATRS service in the event the member had concurrent service in two (2) state supported retirement systems. The member has the option to surrender either ATRS service or the reciprocal plan service. If a member worked full-time under a reciprocal retirement system and only part-time under ATRS, the member can to waive the ATRS service to obtain a higher benefit based upon the full-time service in the other system. Concurrent reciprocal members have the option to voluntarily elect to waive service in ATRS.

33. **Employer Contribution Rate – A.C.A. § 24-7-401.** Employer contributions are collected on active members, T-DROP participants (even those who work beyond the 10-year participation period), and working retirees. Through fiscal year 2019, the employer contribution rate is 14%. For the fiscal year beginning July 1, 2018, the Board may modify the employer contribution rate for future fiscal years above 14% in increments of 0.25% per fiscal year provided the system has a greater than 18-year amortization period to pay unfunded liabilities without an employer contribution rate of more than 14% limited to a maximum employer contribution rate of 15%. By Resolution 2017-40 on November 13, 2017, the Board set the employer contribution rate to 14.25%, 14.50%, 14.75%, and 15.00% for FY 2020, FY 2021, FY 2022, and FY 2023 respectively and 15.00% thereafter.

34. **Forfeiture of Benefits by Certain Persons – A.C.A. §§ 24-1-301, 302, 303, 304, 305.** A beneficiary's benefits under a public retirement system can be forfeited when the beneficiary unlawfully kills a member or retiree.

35. **Socially responsible investments – A.C.A. § 24-7-105.** A decision on whether to invest, not invest, or withdraw from investment the funds of the Arkansas Teacher Retirement System or an alternate retirement plan of the system shall not be based on a consideration that the location of the investment, fund, company, or any other type of investment vehicle is in the State of Israel.

36. **Normal Retirement Age & Separation Period – A.C.A. §§ 24-7-202, 24-7-502.** In order for a member to start drawing retirement benefits the IRS requires them to have a bona fide termination of employment or have attained the “normal retirement age”. ATRS ensures the bona fide termination of employment by requiring a member stay separated from covered employment for six (6) months before returning to work for an ATRS covered employer. The ATRS "normal retirement age" is defined as age 65 with 5 years of actual service OR at least age 60 years of age or older if the member's age and the member's combined years of actual service, T-DROP service and reciprocal service total 98. A member who has attained the normal retirement age may draw full retirement benefits and remain employed without separating from employment.

# Sample Benefit Calculations for a Member Retiring June 30, 2023

The data for the Example member is shown below:

| | | |
|---|---|---|
| A. | $35,000 | Final Average Compensation |
| B. | 32 | Total Service Credit |
| C. | 27 | Contributory Service Credit |
| D. | 60 | Age of Retiree |
| E. | 55 | Age of Spouse |
| F. | 100% | Percentage of Retirement Allowance to Continue to Spouse after Retiree's Death (Retiree Chooses this Percentage) |

The computations that would be made for this case are:

| | | Annual |
|---|---|---|
| G. | Non-Contributory Base: 1.39% x A x B | $15,568 |
| H. | Extra for Contributory: 0.76% x A x C | 7,182 |
| I. | Subtotal Benefit: G + H | 22,750 |
| J. | Health Stipend | 600 |
| K. | Total Benefit: I + J | 23,350 |
| L. | Adjustment for Line F election: (1 - 0.78571) x I | 4,875 |
| M. | Annual Amount Payable | $18,475 |

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

| Year Ended June 30 | Annual Amount |
|---|---|
| 2024 | $18,475 |
| 2025 | 19,011 |
| 2026 | 19,547 |
| 2027 | 20,083 |
| 2028 | 20,619 |

Thereafter, the amount would increase by $536 annually for life.

# Sample T-DROP Benefit Calculations for a Member Entering T-DROP June 30, 2023

The data for the Example member is shown below:

| | | |
|---|---|---|
| A. | $35,000 | Final Average Compensation |
| B. | 28 | Total Service Credit |
| C. | 28 | Contributory Service Credit |
| D. | 55 | Age of Retiree |

The computations that would be made for this case are:

| | | | Annual Amount |
|---|---|---|---|
| E. | Non-Contributory Base: | 1.39% x A x B | $13,622 |
| F. | Extra for Contributory: | 0.76% x A x C | 7,448 |
| G. | Reduction for T-DROP Plan: (1% for each year of service) 0.28 x (E+F) | | 5,900 |
| H. | Reduction for Entering T-DROP with less than 30 years of service (6% for each year less than 30): 0.12 x (E + F - G) | | 1,820 |
| I. | Annual Deposit E + F – G – H | | $13,350 |

Projected Deposits, taking into account increases after DROP, and 5 years duration would be:

| Year Ended June 30 | Amount Deposited |
|---|---|
| 2024 | $13,350 |
| 2025 | 13,751 |
| 2026 | 14,151 |
| 2027 | 14,552 |
| 2028 | 14,952 |
| Total | $70,756 |

The amount deposited, plus credited interest, can be paid as a lump sum or as an annuity. A portion of the deposits can also be placed into a Cash Balance account.

# SECTION D

## FINANCIAL INFORMATION

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

# Asset Valuation Method

An essential step in the valuation process is comparing valuation assets with computed liabilities. Valuation assets are those assets that are recognized for funding purposes.

Asset valuation methods are distinguished by the timing of the recognition of investment income. Total investment income is the sum of ordinary income and capital value changes. Under a pure market value approach, ordinary investment income and all capital value changes would be recognized immediately. Because of market volatility, use of pure market values in retirement funding can result in volatile contribution rates and unstable financial ratios, contrary to ATRS' objectives.

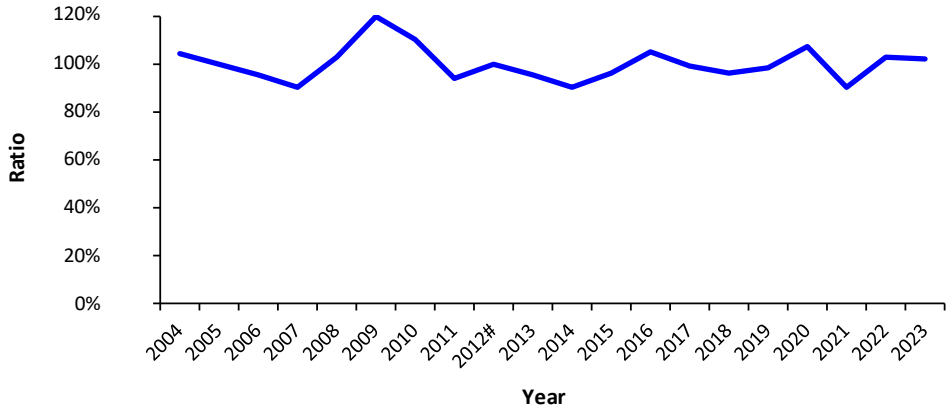
Under the ATRS asset valuation method (see page D-3), assumed investment return is recognized fully each year. Differences between actual and assumed investment return are phased-in over a closed four-year period. During periods when investment performance exceeds the assumed rate, the funding value will tend to be less than the market value. Conversely, during periods when investment performance is less than the assumed rate, funding value will tend to be greater than market value. If assumed rates are exactly realized for three consecutive years, funding value will become equal to market value.

A multi-year comparison of market value to funding (actuarial) value is on the following pages.

# Asset Valuation Method

| Valuation Date June 30 | Market Value of Assets (1) | Funding Value of Assets (2) | Ratio of FV to MV (2) / (1) |
|---|---|---|---|
| 2004 | $ 8,122 | $ 8,424 | 104% |
| 2005 | 8,811 | 8,817 | 100% |
| 2006 | 9,868 | 9,332 | 95% |
| 2007 | 11,637 | 10,519 | 90% |
| 2008 | 11,018 | 11,319 | 103% |
| 2009 | 8,847 | 10,617 | 120% |
| 2010 | 9,884 | 10,845 | 110% |
| 2011 | 11,895 | 11,146 | 94% |
| 2012# | 11,484 | 11,484 | 100% |
| 2013 | 12,830 | 12,247 | 95% |
| 2014 | 14,856 | 13,375 | 90% |
| 2015 | 15,036 | 14,434 | 96% |
| 2016 | 14,559 | 15,239 | 105% |
| 2017 | 16,285 | 16,131 | 99% |
| 2018 | 17,493 | 16,756 | 96% |
| 2019 | 17,742 | 17,413 | 98% |
| 2020 | 16,902 | 18,007 | 107% |
| 2021 | 21,469 | 19,343 | 90% |
| 2022 | 19,679 | 20,328 | 103% |
| 2023 | 20,675 | 21,015 | 102% |

**Ratio of Funding Value to Market Value**




*# Funding Value set equal to Market Value.*

This year the market value of assets is less than the funding value (see page A-2 for a more detailed explanation). To prevent unreasonably large differences between market value and funding value, there is a requirement that the recognized assets must always be between 80% and 120% of the market value (see page D-3).

# Development of Funding Value of Assets

| Year Ended June 30: | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 |
|---|---|---|---|---|---|---|---|
| A. Funding Value Beginning of Year | $ 17,412,534,651 | $ 18,007,255,143 | $ 19,342,870,512 | $ 20,328,281,484 | | | |
| B. Market Value End of Year | 16,902,076,224 | 21,468,772,872 | 19,679,467,252 | 20,675,051,918 | | | |
| C. Market Value Beginning of Year | 17,741,621,773 | 16,902,076,224 | 21,468,772,872 | 19,679,467,252 | | | |
| D. Non-Investment Net Cash Flow | (665,324,622) | (676,930,006) | (192,363,759) * | (688,831,775) | | | |
| E. Investment Return | | | | | | | |
| E1. Market Total: B - C - D | (174,220,927) | 5,243,626,654 | (1,596,941,861) | 1,684,416,441 | | | |
| E2. Assumed Rate | 7.50% | 7.50% | 7.25% | 7.25% | 7.25% | 7.25% | 7.25% |
| E3. Amount for Immediate Recognition | $ 1,280,990,426 | $ 1,325,159,261 | $ 1,395,384,926 | $ 1,448,830,256 | | | |
| E4. Amount for Phased-In Recognition: E1-E3 | (1,455,211,353) | 3,918,467,393 | (2,992,326,787) | 235,586,185 | | | |
| F. Phased-In Recognition of Investment Return | | | | | | | |
| F1. Current Year: 0.25 x E4 | (363,802,838) | 979,616,848 | (748,081,697) | 58,896,546 | Unknown | Unknown | Unknown |
| F2. First Prior Year | (85,342,509) | (363,802,838) | 979,616,848 | (748,081,697) | $ 58,896,546 | Unknown | Unknown |
| F3. Second Prior Year | 156,914,612 | (85,342,509) | (363,802,838) | 979,616,848 | (748,081,697) | $ 58,896,546 | Unknown |
| F4. Third Prior Year | 271,285,423 | 156,914,613 | (85,342,508) | (363,802,839) | 979,616,849 | (748,081,696) | $ 58,896,547 |
| **F5. Total Recognized Investment Gain** | **(20,945,312)** | **687,386,114** | **(217,610,195)** | **(73,371,142)** | 290,431,698 | (689,185,150) | 58,896,547 |
| **G. Funding Value End of Year:** | | | | | | | |
| G1. Preliminary Funding Value End of Year: A+D+E3+F5 | **18,007,255,143** | **19,342,870,512** | **20,328,281,484** | **21,014,908,823** | | | |
| G2. Upper Corridor Limit: 120% x B | **20,282,491,469** | **25,762,527,446** | **23,615,360,702** | **24,810,062,302** | | | |
| G3. Lower Corridor Limit: 80% x B | **13,521,660,979** | **17,175,018,297** | **15,743,573,802** | **16,540,041,535** | | | |
| **G4. Funding Value End of Year** | **18,007,255,143** | **19,342,870,512** | **20,328,281,484** | **21,014,908,823** | | | |
| H. Actual/Projected Difference between Market and Funding Value | (1,105,178,919) | 2,125,902,360 | (648,814,232) | (339,856,905) | (630,288,603) | 58,896,547 | - |
| I. Market Rate of Return | (1.00)% | 31.66 % | (7.47)% | 8.71 % | | | |
| J. Funding Rate of Return | 7.38 % | 11.39 % | 6.12 % | 6.88 % | | | |
| K. Ratio of Funding Value to Market Value | 106.54 % | 90.10 % | 103.30 % | 101.64 % | | | |

** Includes $507.4 million from the settlement of a lawsuit.*

The Funding Value of Assets recognizes assumed investment return (line E3) fully each year. Differences between actual and assumed investment income (line E4) are phased-in over a closed four-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. ***The Funding Value of Assets is unbiased with respect to Market Value***. At any time, it may be either greater or less than Market Value. If assumed rates (applied to the funding value of assets) are exactly realized for three consecutive years, it will become equal to Market Value.

***The assets*** of the Retirement System, as of June 30, 2023, were reported to your actuary to be $20,675,051,918. This amount, increased by a funding value adjustment of $339,856,905 this year, is used to finance the Retirement System liability.

| Accounts | Assets as of June 30 | |
|---|---|---|
| | 2023 | 2022 |
| Regular Accounts | | |
| Members' Deposit Accounts | | |
| Contributions | $ 1,718,903,627 | $ 1,619,234,265 |
| Interest | 11,599,922,370 | 10,879,135,880 |
| Total | 13,318,825,997 | 12,498,370,145 |
| T-DROP Member Deposit Accounts | | |
| Contributions | 32,472,783 | 28,418,105 |
| Interest | 18,548,379 | 19,012,373 |
| Total | 51,021,162 | 47,430,478 |
| Cash Balance Account | 226,279,957 | 207,565,576 |
| Employer's Accumulation Account | (7,256,480,855) | (7,008,787,923) |
| Retirement Reserve Account | 13,886,819,183 | 13,468,111,609 |
| Act 808 Retirement Reserve Account | 6,235,877 | 6,840,591 |
| T-Lump Sum Payable | 320,171,587 | 339,803,043 |
| Survivors Benefit Account | 112,186,981 | 110,412,603 |
| Total Regular Accounts | 20,665,059,889 | 19,669,746,122 |
| Other Accounts | | |
| Income Expense Account | 9,992,029 | 9,721,130 |
| Other Special Reserves | - | - |
| Miscellaneous | - | - |
| Total Other Accounts | 9,992,029 | 9,721,130 |
| Total Accounting Value of Assets | 20,675,051,918 | 19,679,467,252 |
| Funding Value Adjustment | 339,856,905 | 648,814,232 |
| Funding Value of Assets | $ 21,014,908,823 | $ 20,328,281,484 |

# Market Value of Assets

The net market value of assets at year-end was $20,675,051,918 and was invested as shown below:

| | Market Value at June 30 | |
|---|---|---|
| | 2023 | 2022 |
| Cash | $ 349,165,471 | $ 367,097,595 |
| Receivables | | |
| Unsettled Trades and Accrued Return | 58,090,474 | 50,990,481 |
| Member Contributions | 11,023,509 | 10,473,412 |
| Employer Contributions | 33,734,466 | 32,672,388 |
| Other | 669,443 | 668,209 |
| Total Receivables | 103,517,892 | 94,804,490 |
| Investments | | |
| Public Equity | 3,715,263,524 | 3,653,122,876 |
| Fixed Income | 1,686,126,493 | 1,385,176,472 |
| Real Estate | 175,694,289 | 203,361,821 |
| Pooled | 5,555,585,690 | 5,411,394,612 |
| State Recycling Tax Credits | 129,552,000 | 144,000,000 |
| Derivative | (17,623) | 10,632 |
| Alternative | 9,005,490,511 | 8,472,390,498 |
| Other | (133,457) | (580,788) |
| Total Investments | 20,267,561,427 | 19,268,876,123 |
| Invested Securities Lending | 457,448,502 | 770,276,668 |
| Net Equipment | 210,730 | 191,687 |
| Deferred Outflows Related to OPEB | 493,831 | 685,899 |
| Total Assets | 21,178,397,853 | 20,501,932,462 |
| Liabilities | | |
| Survivor Benefits for Minors | 14,148 | 14,149 |
| Other Payables | 6,576,235 | 6,838,994 |
| Securities Related Payables | 37,647,135 | 43,265,338 |
| Securities Lending Collateral | 457,448,502 | 770,276,667 |
| Deferred Inflows Related to OPEB | 1,659,915 | 2,070,062 |
| Total Liabilities | 503,345,935 | 822,465,210 |
| Net Market Value | $ 20,675,051,918 | $ 19,679,467,252 |
| Change from Prior Year | 995,584,666 | (1,789,305,620) |

# Market Value Reconciliation

Assets developed during the year as follows:

| | Year Ended June 30 | |
|---|---|---|
| | 2023 | 2022 |
| Net Market Value July 1 | $ 19,679,467,252 | $ 21,468,772,872 |
| Additions | | |
| Employer Contributions | 536,619,031 | 501,522,604 |
| Employee Contributions | 200,610,721 | 183,315,252 |
| Other (Including Settlement) | - | 507,446,092 |
| Appreciation | 1,550,226,801 | (1,729,497,003) |
| Interest | 66,655,648 | 30,361,656 |
| Dividends | 128,765,267 | 151,306,900 |
| Real Estate | 6,437,924 | 6,387,875 |
| Other | 1,244,319 | 1,308,741 |
| Securities Lending Activity | 3,789,883 | 3,527,825 |
| Total Additions | 2,494,349,594 | (344,320,058) |
| Deductions | | |
| Age and Service Benefits | 1,183,189,280 | 1,135,131,535 |
| Disability Benefits | 40,457,469 | 40,631,115 |
| Option Benefits | 39,659,615 | 36,681,111 |
| Survivor Benefits | 12,949,173 | 12,527,408 |
| Reciprocal Service | 67,375,786 | 64,615,316 |
| Act 808 | 1,605,876 | 1,953,045 |
| Refunds | 12,583,767 | 10,426,792 |
| Active Member Death | 396,423 | 681,421 |
| T-DROP Benefits | 47,464,578 | 64,370,804 |
| CBA Benefits | 17,726,519 | 15,630,112 |
| CASH Benefit Program | 2,653,041 | 1,999,048 |
| Investment Expense | 64,810,579 | 53,687,251 |
| Administrative Expense | 7,892,822 | 6,650,604 |
| Total Deductions | 1,498,764,928 | 1,444,985,562 |
| Miscellaneous | - | - |
| Net Market Value June 30 | $ 20,675,051,918 | $ 19,679,467,252 |

# Schedule of Funding Progress
# (Dollar Amounts in Millions)

| Valuation Date June 30 | (1) Funding Value of Assets | (2) Entry Age AAL | (3) UAAL (2)-(1) | (4) Funding Ratio (1)/(2) | (5) Annual Payroll | Liabilities as a % of Payroll | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | | Unfunded (3)/(5) | Funded (1)/(5) | Total (2)/(5) |
| 2004 | $ 8,424 | $ 10,050 | $ 1,626 | 83.8% | $ 1,748 | 93.0% | 481.9% | 574.9% |
| 2005 | 8,817 | 10,973 | 2,156 | 80.4% | 1,962 | 109.9% | 449.4% | 559.3% |
| 2006 | 9,332 | 11,623 | 2,291 | 80.3% | 2,080 | 110.1% | 448.7% | 558.8% |
| 2007+ | 10,519 | 12,329 | 1,810 | 85.3% | 2,191 | 82.6% | 480.1% | 562.7% |
| 2008+ | 11,319 | 13,334 | 2,015 | 84.9% | 2,268 | 88.8% | 499.1% | 587.9% |
| 2009 | 10,617 | 14,019 | 3,402 | 75.7% | 2,318 | 146.8% | 458.0% | 604.8% |
| 2010+ | 10,845 | 14,697 | 3,852 | 73.8% | 2,381 | 161.8% | 455.5% | 617.3% |
| 2011+* | 11,146 | 15,521 | 4,375 | 71.8% | 2,728 | 160.4% | 408.6% | 569.0% |
| 2012 | 11,484 | 16,139 | 4,655 | 71.2% | 2,714 | 171.5% | 423.2% | 594.7% |
| 2013+* | 12,247 | 16,718 | 4,471 | 73.3% | 2,727 | 164.0% | 449.1% | 613.1% |
| 2014 | 13,375 | 17,310 | 3,935 | 77.3% | 2,758 | 142.7% | 484.9% | 627.6% |
| 2015 | 14,434 | 18,136 | 3,702 | 79.6% | 2,777 | 133.3% | 519.8% | 653.1% |
| 2016 | 15,239 | 18,812 | 3,573 | 81.0% | 2,785 | 128.3% | 547.2% | 675.5% |
| 2017+* | 16,131 | 20,298 | 4,167 | 79.5% | 2,814 | 148.1% | 573.2% | 721.3% |
| 2018+* | 16,756 | 20,935 | 4,179 | 80.0% | 2,872 | 145.5% | 583.4% | 728.9% |
| 2019+ | 17,413 | 21,709 | 4,296 | 80.2% | 2,907 | 147.8% | 599.0% | 746.8% |
| 2020+ | 18,007 | 22,352 | 4,345 | 80.6% | 2,954 | 147.1% | 609.6% | 756.7% |
| 2021+* | 19,343 | 23,987 | 4,644 | 80.6% | 3,086 | 150.5% | 626.8% | 777.3% |
| 2022+ | 20,328 | 24,697 | 4,369 | 82.3% | 3,199 | 136.6% | 635.4% | 772.0% |
| 2023+ | 21,015 | 25,592 | 4,577 | 82.1% | 3,353 | 136.5% | 626.8% | 763.3% |

*+ Legislated benefit or contribution rate changes.*

** Revised actuarial assumptions.*

A system with a high ratio of assets or liabilities to payroll will tend to experience more volatility than a system with a lesser ratio, assuming a similar asset allocation.

# 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 D-11.

| | 2023 | 2022 | 2021 | 2020 | 2019 |
|---|---|---|---|---|---|
| Ratio of the Market Value of Assets to Total Payroll | 5.9 | 5.9 | 6.7 | 5.7 | 6.1 |
| Ratio of Actuarial Accrued Liability to Payroll | 7.3 | 7.4 | 7.5 | 7.6 | 7.5 |
| Ratio of Actives to Retirees and Beneficiaries | 1.3 | 1.4 | 1.4 | 1.4 | 1.5 |
| Ratio of Net Cash Flow to Market Value of Assets | -3.3% | -1.0% | -3.2% | -3.9% | -3.6% |
| Duration of the Present Value of Future Benefits | 14.16 | 14.03 | 14.02 | 13.83 | 13.82 |

## 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 2023 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 7.3% of payroll and would affect the amortization period by three years based on the 2023 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

## 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 14.2 (which is based on a 7.25% discount rate) indicates that the present value of future benefits would increase approximately 14.2% 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. Porfolio 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% |
| 2023 | 25,592 | 20,675 | 4,917 | 3,492 | 5.2% | 80.8% | 14,511 | 56.7% | 732.9% | 592.1% | 13.9% | 82.3% | 140.8% | (689) | -3.3% | 8.7% | 8.3% |

*(*) 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 or an increased level of volatility in results.*

*(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 and 2021.*

# 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 ATRS 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 ATRS is set equal to the expected return on the System's diversified portfolio of assets (referred to sometimes as the investment return assumption). For ATRS, the investment return assumption is 7.25%.

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

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

| Type of Member | Valuation Accrued Liabilities | LDROM |
|---|---|---|
| Retirees | $14,510,824,580 | $19,425,406,435 |
| Deferreds | 697,814,529 | 1,299,446,005 |
| Actives | 10,383,372,829 | 16,684,907,712 |
| **Totals** | **$25,592,011,938** | **$37,409,760,152** |

# Low-Default-Risk Obligation Measure

## Commentary Regarding the LDROM

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

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

***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 it could immunize half of it, it 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 potential for credit default risk.

***Places the Appropriateness of Potential Employer Contribution Rate Reductions or Benefit Enhancements in a Better Context:*** Many Public Employees Retirement System 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 also consider information based upon the LDROM criteria.

***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 could consider securing benefits by investing in a low default risk laddered bond portfolio.

# SECTION E

## COVERED MEMBER DATA

# Active Members in Valuation June 30, 2023
# by Attained Age and Years of Service
# (Excludes T-DROP and Rehired Retirees)

| 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 |
| Under 20 | 720 | | | | | | | 720 | $ 2,250,399 |
| 20-24 | 2,353 | 18 | | | | | | 2,371 | 62,564,059 |
| 25-29 | 4,804 | 1,344 | 4 | | | | | 6,152 | 253,894,513 |
| 30-34 | 3,255 | 3,457 | 816 | 4 | | | | 7,532 | 329,886,799 |
| 35-39 | 2,800 | 2,365 | 2,577 | 738 | 7 | | | 8,487 | 393,835,409 |
| 40-44 | 2,507 | 2,105 | 1,737 | 2,627 | 613 | 5 | | 9,594 | 476,967,042 |
| 45-49 | 1,794 | 1,676 | 1,493 | 1,756 | 2,136 | 539 | | 9,394 | 499,109,439 |
| 50-54 | 1,633 | 1,400 | 1,340 | 1,644 | 1,625 | 1,813 | 65 | 9,520 | 504,506,622 |
| 55-59 | 1,242 | 1,079 | 908 | 1,335 | 1,268 | 1,102 | 103 | 7,037 | 329,180,355 |
| 60 | 254 | 190 | 163 | 225 | 240 | 200 | 15 | 1,287 | 56,261,607 |
| 61 | 251 | 205 | 145 | 222 | 227 | 151 | 15 | 1,216 | 52,805,606 |
| 62 | 214 | 183 | 126 | 175 | 165 | 143 | 19 | 1,025 | 42,806,861 |
| 63 | 198 | 153 | 100 | 118 | 112 | 109 | 14 | 804 | 32,098,018 |
| 64 | 183 | 111 | 106 | 105 | 91 | 97 | 12 | 705 | 27,327,459 |
| 65 | 156 | 106 | 74 | 95 | 72 | 61 | 14 | 578 | 21,926,290 |
| 66 | 127 | 105 | 32 | 28 | 22 | 23 | 14 | 351 | 11,635,105 |
| 67 | 122 | 63 | 29 | 15 | 21 | 14 | 4 | 268 | 8,030,441 |
| 68 | 109 | 56 | 22 | 10 | 8 | 6 | 2 | 213 | 5,520,497 |
| 69 | 92 | 41 | 15 | 5 | 2 | 4 | 4 | 163 | 3,872,859 |
| 70 & Up | 473 | 247 | 65 | 23 | 7 | 7 | 10 | 832 | 17,974,047 |
| **Totals** | **23,287** | **14,904** | **9,752** | **9,125** | **6,616** | **4,274** | **291** | **68,249** | **$3,132,453,427** |

Group Averages:

Age: 44.0 years

Service: 10.2 years

# FEMALE Active Members in Valuation June 30, 2023
# by Attained Age and Years of Service
# (Excludes T-DROP and Rehired Retirees)

| 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 |
| Under 20 | 291 | | | | | | | 291 | $ 1,055,354 |
| 20-24 | 1,809 | 11 | | | | | | 1,820 | 49,553,843 |
| 25-29 | 3,585 | 1,058 | 1 | | | | | 4,644 | 187,342,629 |
| 30-34 | 2,610 | 2,641 | 617 | 2 | | | | 5,870 | 245,157,690 |
| 35-39 | 2,316 | 1,867 | 1,944 | 597 | 3 | | | 6,727 | 296,920,220 |
| 40-44 | 2,027 | 1,753 | 1,365 | 2,037 | 475 | 4 | | 7,661 | 364,726,456 |
| 45-49 | 1,409 | 1,373 | 1,195 | 1,399 | 1,678 | 408 | | 7,462 | 378,601,609 |
| 50-54 | 1,212 | 1,077 | 1,090 | 1,373 | 1,324 | 1,397 | 51 | 7,524 | 382,159,687 |
| 55-59 | 854 | 786 | 680 | 1,121 | 1,083 | 883 | 74 | 5,481 | 246,982,632 |
| 60 | 175 | 133 | 120 | 174 | 209 | 169 | 11 | 991 | 42,569,511 |
| 61 | 170 | 144 | 98 | 177 | 196 | 124 | 11 | 920 | 39,742,093 |
| 62 | 131 | 134 | 87 | 130 | 142 | 119 | 14 | 757 | 30,637,023 |
| 63 | 147 | 87 | 71 | 85 | 90 | 97 | 10 | 587 | 22,187,431 |
| 64 | 102 | 76 | 75 | 83 | 77 | 83 | 11 | 507 | 19,304,223 |
| 65 | 77 | 67 | 49 | 72 | 53 | 53 | 13 | 384 | 14,539,535 |
| 66 | 79 | 64 | 23 | 22 | 21 | 21 | 10 | 240 | 7,770,099 |
| 67 | 70 | 30 | 21 | 13 | 18 | 9 | 4 | 165 | 4,944,847 |
| 68 | 64 | 30 | 12 | 7 | 7 | 6 | 1 | 127 | 3,169,167 |
| 69 | 72 | 19 | 9 | 3 | 2 | 3 | 3 | 111 | 2,481,014 |
| 70 & Up | 268 | 106 | 35 | 18 | 4 | 4 | 6 | 441 | 9,266,050 |
| **Totals** | **17,468** | **11,456** | **7,492** | **7,313** | **5,382** | **3,380** | **219** | **52,710** | **$ 2,349,111,113** |

Group Averages:

Age: 44.0 years

Service: 10.4 years

# MALE Active Members in Valuation June 30, 2023
# by Attained Age and Years of Service
# (Excludes T-DROP and Rehired Retirees)

| 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 |
| Under 20 | 429 | | | | | | | 429 | $ 1,195,045 |
| 20-24 | 544 | 7 | | | | | | 551 | 13,010,216 |
| 25-29 | 1,219 | 286 | 3 | | | | | 1,508 | 66,551,884 |
| 30-34 | 645 | 816 | 199 | 2 | | | | 1,662 | 84,729,109 |
| 35-39 | 484 | 498 | 633 | 141 | 4 | | | 1,760 | 96,915,189 |
| 40-44 | 480 | 352 | 372 | 590 | 138 | 1 | | 1,933 | 112,240,586 |
| 45-49 | 385 | 303 | 298 | 357 | 458 | 131 | | 1,932 | 120,507,830 |
| 50-54 | 421 | 323 | 250 | 271 | 301 | 416 | 14 | 1,996 | 122,346,935 |
| 55-59 | 388 | 293 | 228 | 214 | 185 | 219 | 29 | 1,556 | 82,197,723 |
| 60 | 79 | 57 | 43 | 51 | 31 | 31 | 4 | 296 | 13,692,096 |
| 61 | 81 | 61 | 47 | 45 | 31 | 27 | 4 | 296 | 13,063,513 |
| 62 | 83 | 49 | 39 | 45 | 23 | 24 | 5 | 268 | 12,169,838 |
| 63 | 51 | 66 | 29 | 33 | 22 | 12 | 4 | 217 | 9,910,587 |
| 64 | 81 | 35 | 31 | 22 | 14 | 14 | 1 | 198 | 8,023,236 |
| 65 | 79 | 39 | 25 | 23 | 19 | 8 | 1 | 194 | 7,386,755 |
| 66 | 48 | 41 | 9 | 6 | 1 | 2 | 4 | 111 | 3,865,006 |
| 67 | 52 | 33 | 8 | 2 | 3 | 5 | | 103 | 3,085,594 |
| 68 | 45 | 26 | 10 | 3 | 1 | | 1 | 86 | 2,351,330 |
| 69 | 20 | 22 | 6 | 2 | | 1 | 1 | 52 | 1,391,845 |
| 70 & Up | 205 | 141 | 30 | 5 | 3 | 3 | 4 | 391 | 8,707,997 |
| **Totals** | **5,819** | **3,448** | **2,260** | **1,812** | **1,234** | **894** | **72** | **15,539** | **$ 783,342,314** |

Group Averages:

Age: 44.2 years

Service: 9.4 years

# Summary of Active Members
# (Excludes T-DROP and Rehired Retirees)

| | Educational | | Support | | Total Active Members | |
|---|---|---|---|---|---|---|
| | No. | Valuation Payroll | No. | Valuation Payroll | No. | Valuation Payroll |
| Female | 29,167 | $ 1,667,034,058 | 23,543 | $ 682,077,055 | 52,710 | $ 2,349,111,113 |
| Male | 8,323 | 539,276,152 | 7,216 | 244,066,162 | 15,539 | 783,342,314 |
| All | 37,490 | $ 2,206,310,210 | 30,759 | $ 926,143,217 | 68,249 | $ 3,132,453,427 |

| | Educational | Support | Total |
|---|---|---|---|
| Members Contributing Now | 35,778 | 18,342 | 54,120 |
| Members Not Contributing | 1,712 | 12,417 | 14,129 |
| All | 37,490 | 30,759 | 68,249 |

| June 30 | Number | Group Averages | | | Active Member Payroll ($ Millions) |
|---|---|---|---|---|---|
| | | Age | Years of Service | Annual Earnings | |
| 2005 | 65,793 | 44.2 | 9.4 | $29,826 | $1,962 |
| 2006 | 67,710 | 44.3 | 9.3 | 30,714 | 2,080 |
| 2007 | 69,226 | 44.4 | 9.3 | 31,645 | 2,191 |
| 2008 | 70,172 | 44.5 | 9.4 | 32,319 | 2,268 |
| 2009 | 70,655 | 44.7 | 9.5 | 32,804 | 2,318 |
| 2010 | 72,208 | 44.7 | 9.7 | 32,980 | 2,381 |
| 2011 | 72,293 | 44.8 | 9.9 | 33,995 | 2,458 |
| 2012 | 71,195 | 45.0 | 10.1 | 34,362 | 2,446 |
| 2013 | 70,660 | 45.0 | 10.2 | 34,920 | 2,467 |
| 2014 | 70,225 | 44.7 | 10.2 | 35,673 | 2,505 |
| 2015 | 68,945 | 44.6 | 10.3 | 36,717 | 2,531 |
| 2016 | 68,368 | 44.4 | 10.2 | 37,235 | 2,546 |
| 2017 | 68,337 | 44.3 | 10.2 | 37,707 | 2,577 |
| 2018 | 68,645 | 44.2 | 10.2 | 38,477 | 2,641 |
| 2019 | 68,457 | 44.1 | 10.1 | 39,065 | 2,674 |
| 2020 | 66,900 | 44.3 | 10.3 | 40,709 | 2,723 |
| 2021 | 66,633 | 44.2 | 10.5 | 42,901 | 2,859 |
| 2022 | 68,127 | 44.1 | 10.2 | 43,758 | 2,981 |
| 2023 | 68,249 | 44.0 | 10.2 | 45,897 | 3,132 |

# Deferred Vested Members at June 30, 2023
# by Attained Age

| Age | Number | Estimated Annual Benefits | Contribution Balance |
|---|---|---|---|
| Below 40 | 2,107 | $ 11,831,565 | $ 30,161,483 |
| 40 | 298 | 2,076,514 | 5,064,887 |
| 41 | 328 | 2,340,528 | 5,724,708 |
| 42 | 355 | 2,734,030 | 6,502,533 |
| 43 | 375 | 3,074,889 | 7,315,134 |
| 44 | 408 | 2,949,550 | 6,949,626 |
| 45 | 347 | 2,622,166 | 6,138,269 |
| 46 | 390 | 2,987,368 | 7,221,672 |
| 47 | 397 | 2,871,478 | 6,507,495 |
| 48 | 397 | 3,202,128 | 7,297,425 |
| 49 | 470 | 3,420,143 | 7,696,007 |
| 50 | 432 | 3,190,442 | 6,800,123 |
| 51 | 475 | 3,408,588 | 7,287,490 |
| 52 | 536 | 3,659,660 | 7,129,678 |
| 53 | 530 | 3,551,306 | 6,862,977 |
| 54 | 501 | 3,502,779 | 7,089,374 |
| 55 | 534 | 3,701,980 | 7,346,686 |
| 56 | 558 | 3,539,983 | 6,541,403 |
| 57 | 545 | 3,559,380 | 6,796,800 |
| 58 | 598 | 3,821,963 | 7,268,395 |
| 59 | 666 | 3,945,260 | 7,101,847 |
| 60 & Up | 3,058 | 10,745,852 | 17,576,625 |
| Future Beneficiaries # | 50 | 303,391 | 0 |
| **Totals** | **14,355** | **$ 87,040,943** | **$ 184,380,637** |

*# These are beneficiaries of deceased active members who are eligible for a pension at age 62.*

An inactive member is no longer actively working in a position covered by ATRS but has sufficient service credit to qualify for a monthly benefit at retirement age.

# All Members Participating in T-DROP at June 30, 2023 by Attained Age

| Age | Number | Current T-DROP Contribution | Original T-DROP Contribution | T-DROP Account Balance | Pay |
|---|---|---|---|---|---|
| 48 | 2 | $ 31,889 | $ 30,960 | $ 31,463 | $ 103,794 |
| 49 | 3 | 47,972 | 46,280 | 58,106 | 174,711 |
| 50 | 2 | 47,003 | 44,899 | 72,719 | 122,906 |
| 51 | 33 | 685,442 | 662,438 | 759,636 | 2,128,725 |
| 52 | 97 | 2,382,934 | 2,286,783 | 3,276,522 | 7,173,213 |
| 53 | 146 | 3,480,462 | 3,320,505 | 5,836,210 | 10,845,789 |
| 54 | 196 | 4,583,636 | 4,288,336 | 10,711,499 | 14,242,710 |
| 55 | 244 | 5,914,173 | 5,464,382 | 17,224,292 | 17,892,178 |
| 56 | 260 | 6,066,403 | 5,516,426 | 21,333,448 | 18,787,287 |
| 57 | 273 | 6,265,767 | 5,612,565 | 25,156,909 | 19,092,577 |
| 58 | 267 | 6,382,333 | 5,624,252 | 30,002,257 | 19,549,272 |
| 59 | 283 | 6,538,218 | 5,809,761 | 34,904,837 | 19,903,559 |
| 60 | 322 | 6,974,918 | 6,423,177 | 41,688,650 | 22,602,145 |
| 61 | 258 | 5,458,830 | 5,068,366 | 36,520,275 | 17,535,931 |
| 62 | 226 | 4,163,261 | 4,343,223 | 31,814,787 | 15,734,689 |
| 63 | 168 | 3,239,762 | 3,073,800 | 21,883,880 | 11,266,451 |
| 64 | 149 | 2,703,534 | 2,722,506 | 20,056,872 | 10,163,792 |
| 65 | 111 | 1,843,476 | 1,856,100 | 12,791,123 | 6,830,920 |
| 66 | 36 | 483,605 | 502,146 | 3,614,768 | 2,033,910 |
| 67 | 32 | 543,433 | 570,462 | 4,760,101 | 2,011,740 |
| 68 | 12 | 124,890 | 168,331 | 1,450,848 | 652,189 |
| 69 | 5 | 64,808 | 100,434 | 1,041,341 | 371,818 |
| 70 | 4 | 68,594 | 79,191 | 829,761 | 270,502 |
| 71 | 3 | 50,207 | 41,166 | 361,451 | 180,442 |
| 72 | 2 | 35,078 | 31,095 | 346,726 | 128,355 |
| 73 | 1 | - | 9,665 | 177,611 | 42,630 |
| 74 | 1 | 18,024 | 14,536 | 150,839 | 36,220 |
| 76 | 2 | 37,819 | 50,179 | 695,807 | 202,878 |
| **Totals** | **3,138** | **$ 68,236,471** | **$ 63,761,964** | **$ 327,552,738** | **$ 220,081,333** |

A T-DROP member continues to work, but does not accrue additional retirement benefits and does not make member contributions. A reduced benefit is paid into the T-DROP account (see pages C-3 and C-4) during T-DROP participation. Deposits to T-DROP cease at 10 years of T-DROP participation. ATRS receives full employer contributions on behalf of T-DROP participants.

# All Members Participating in T-DROP at June 30, 2023 by Years in T-DROP

| Years in T-DROP | Number | Current T-DROP Contribution | Original T-DROP Contribution | T-DROP Account Balance | Pay |
|---|---|---|---|---|---|
| 1 | 570 | $ 12,567,373 | $ 12,228,050 | $ 12,422,901 | $ 39,482,222 |
| 2 | 453 | 9,874,571 | 9,322,048 | 19,664,154 | 30,949,492 |
| 3 | 402 | 8,617,753 | 7,904,772 | 25,916,304 | 27,458,489 |
| 4 | 386 | 8,213,399 | 7,333,093 | 33,150,374 | 26,351,212 |
| 5 | 360 | 8,734,468 | 7,608,151 | 44,481,462 | 26,350,468 |
| 6 | 266 | 6,379,146 | 5,411,954 | 39,363,488 | 18,645,393 |
| 7 | 237 | 5,799,094 | 4,797,487 | 42,118,768 | 17,068,495 |
| 8 | 189 | 4,556,782 | 3,699,720 | 38,393,533 | 13,652,358 |
| 9 | 142 | 3,493,885 | 2,769,411 | 33,490,235 | 10,501,180 |
| 10 | 100 | - | 2,034,427 | 28,351,138 | 7,441,198 |
| 11 | 14 | - | 309,015 | 4,544,191 | 1,021,905 |
| 12 | 10 | - | 197,445 | 3,076,964 | 616,846 |
| 13 | 5 | - | 90,094 | 1,482,554 | 314,224 |
| 14 | 1 | - | 14,652 | 254,845 | 73,317 |
| 15 | 1 | - | 9,665 | 177,611 | 42,630 |
| 16 | 1 | - | 18,793 | 364,306 | 61,793 |
| 18 | 1 | - | 13,187 | 299,910 | 50,111 |
| **Totals** | **3,138** | **$ 68,236,471** | **$ 63,761,964** | **$ 327,552,738** | **$ 220,081,333** |

A T-DROP member continues to work, but does not accrue additional retirement benefits and does not make member contributions. A reduced benefit is paid into the T-DROP account (see pages C-3 and C-4) during T-DROP participation. Deposits to T-DROP cease at 10 years of T-DROP participation. ATRS receives full employer contributions on behalf of T-DROP participants.

# Active, T-DROP and Return to Work Members as of June 30, 2023

| June 30 | Number | | | | Total Payroll |
|---|---|---|---|---|---|
| | Active | T-DROP | RTW | Total | $ Millions |
| 2014 | 70,225 | 4,127 | 3,845 | 78,197 | $ 2,851 |
| 2015 | 68,945 | 3,974 | 3,741 | 76,660 | 2,874 |
| 2016 | 68,368 | 3,864 | 3,829 | 76,061 | 2,888 |
| 2017 | 68,337 | 3,811 | 3,881 | 76,029 | 2,922 |
| 2018 | 68,645 | 3,696 | 4,029 | 76,370 | 2,986 |
| 2019 | 68,457 | 3,707 | 4,077 | 76,241 | 3,027 |
| 2020 | 66,900 | 3,639 | 4,019 | 74,558 | 3,078 |
| 2021 | 66,633 | 3,465 | 3,575 | 73,673 | 3,205 |
| 2022 | 68,127 | 3,251 | 3,643 | 75,021 | 3,320 |
| 2023 | 68,249 | 3,138 | 4,108 | 75,495 | 3,492 |

The actuarial valuation assumes the number of working members will remain constant at the current level. In some recent years the total number of working members has decreased. A decreasing population means less contribution income for the Retirement System than expected and can lead to funding difficulties in extreme cases.

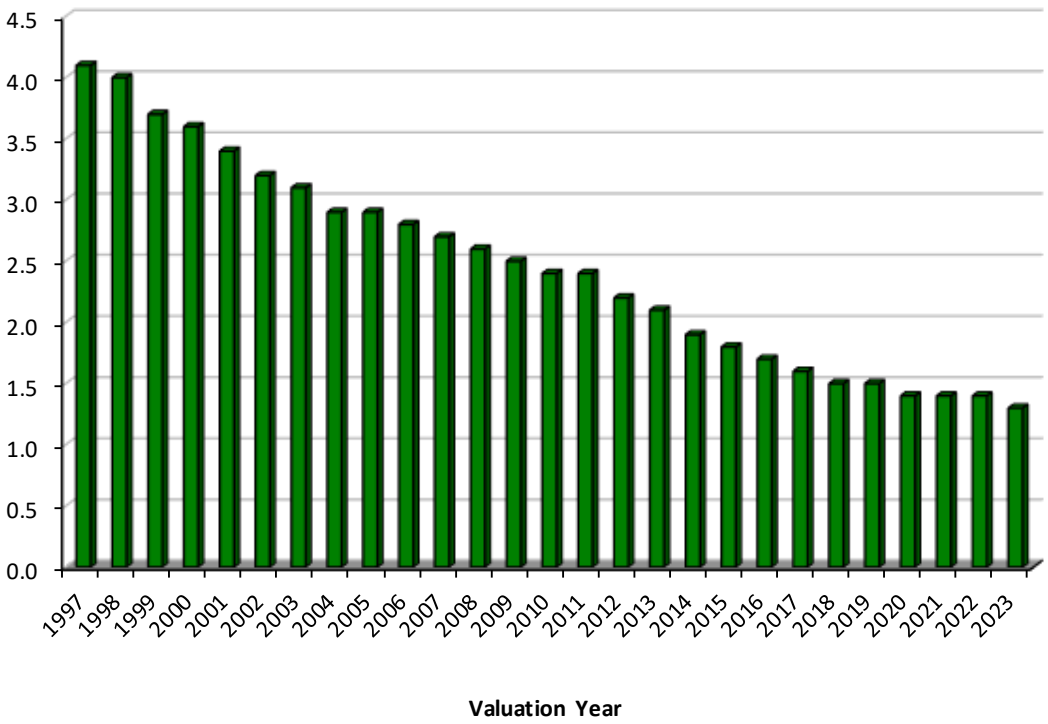
# Annuities Being Paid Retirees and Beneficiaries July 1, 2023 by Type of Annuity Being Paid

| Type of Annuity | No. | Annual Amounts | | |
|---|---|---|---|---|
| | | Original Annuities | Base Annuities | Current Annuities |
| **RETIREMENT RESERVE ACCOUNT** | | | | |
| Age and Service | | | | |
| Option 1 (Basic single life) | 40,060 | $ 645,738,331 | $ 726,676,861 | $ 982,437,433 |
| Option A (Joint & 100% Survivor) | 5,595 | 95,988,271 | 107,765,649 | 147,170,803 |
| Option B (Joint & 50% Survivor) | 2,783 | 63,486,737 | 73,460,832 | 100,348,785 |
| Option C (10-year certain) | 774 | 13,739,084 | 13,755,337 | 16,992,558 |
| Beneficiaries | 1,519 | 29,199,569 | 25,668,859 | 36,535,227 |
| Totals | 50,731 | 848,151,992 | 947,327,538 | 1,283,484,806 |
| Disability | | | | |
| Option 1 | 2,202 | 23,971,617 | 25,491,149 | 34,783,736 |
| Option A | 356 | 3,990,596 | 4,001,425 | 5,373,331 |
| Option B | 80 | 1,246,966 | 1,313,808 | 1,764,040 |
| Option C | - | - | - | - |
| Beneficiaries | 282 | 3,503,010 | 3,394,184 | 4,899,609 |
| Totals | 2,920 | 32,712,189 | 34,200,566 | 46,820,716 |
| Act 793 | 131 | 750,736 | 1,616,848 | 1,616,848 |
| Retirement Reserve Account | 53,782 | 881,614,917 | 983,144,952 | 1,331,922,370 |
| Act 808 Retirement Reserve Account | 27 | 503,922 | 1,572,478 | 1,572,478 |
| Total Retirement Reserve Account | 53,809 | 882,118,839 | 984,717,430 | 1,333,494,848 |
| **SURVIVOR'S BENEFIT ACCOUNT** | | | | |
| Beneficiaries of Deceased Members | | | | |
| Age 0 - 17 | 143 | $ 1,274,975 | $ 1,273,464 | $ 1,409,056 |
| Age 18 - 23 | 68 | 656,668 | 654,960 | 743,071 |
| Other | 626 | 7,310,354 | 8,089,863 | 10,968,739 |
| Totals | 837 | 9,241,997 | 10,018,287 | 13,120,866 |
| **RETIREMENT SYSTEM TOTALS** | | | | |
| Total Annuities Being Paid | 54,646 | $ 891,360,836 | $ 994,735,717 | $ 1,346,615,714 |

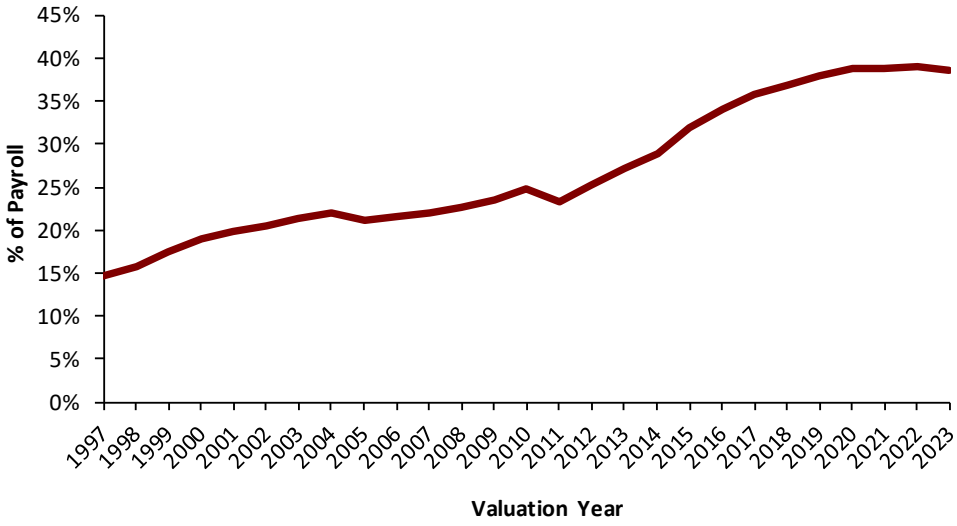
**The Original Annuity** is the annuity at the date of retirement.
**The Base Annuity** is the amount from which the 3.0% COLA is calculated.
**The Current Annuity** is the annuity payable at July 1, 2023 (Includes July 1 COLA).

# Historical Graphs

## Active Members Per Retired Life *




## Retirement Benefits Being Paid as a Percent of Member Payroll *




** Beginning with the June 30, 2011 valuation, active members include T-DROP participants in payroll.*

# 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 | (3.0)% | 15,160 | 138% |
| 2024 | 751 | 36,359 | | | |

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

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

# 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 | (3.0)% | 12,479 | 108% |
| 2024 | 459 | 22,544 | | | |

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

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

# 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 | (3.0)% | 11,506 | 97% |
| 2024 | 330 | 16,436 | | | |

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

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

# SECTION F

## FINANCIAL PRINCIPLES AND OPERATIONAL TECHNIQUES

# 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 various financial assumptions or the skill of the actuary and the precision of the calculations made. The System 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.

# Actuarial Valuation Process

***The financing diagram*** on the next 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

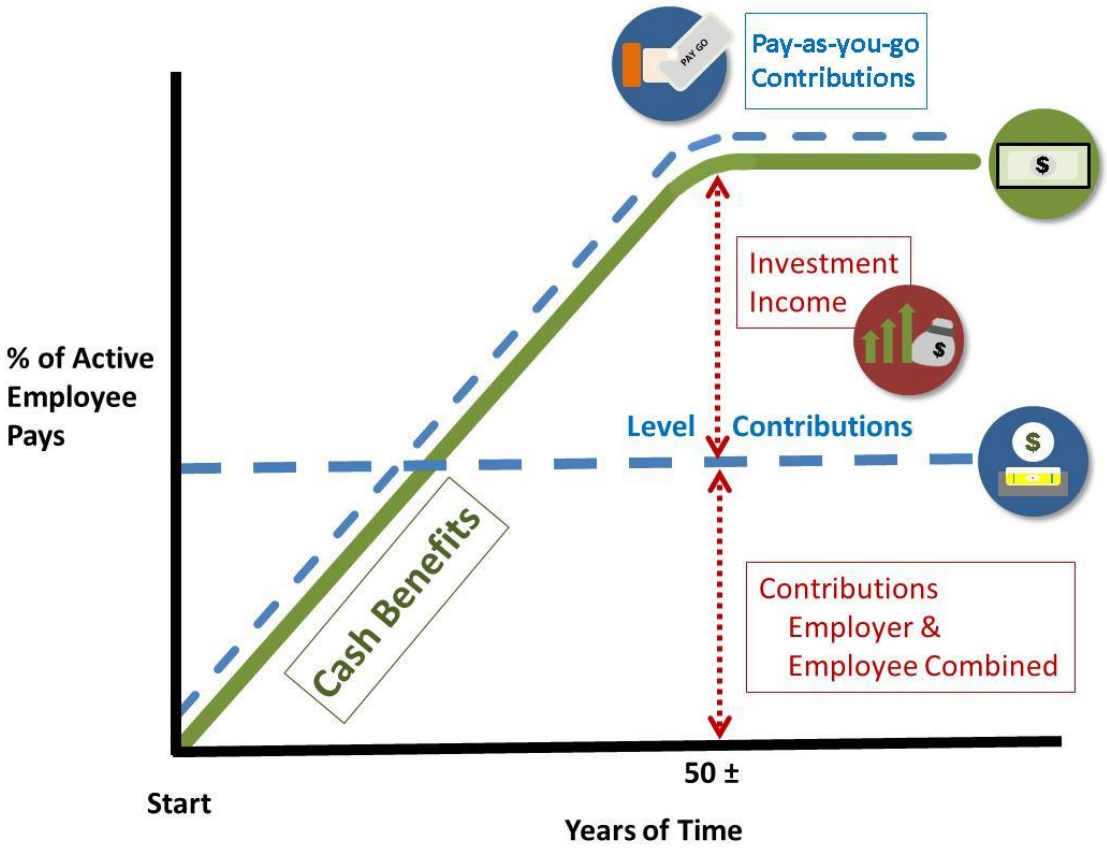
C. + **Benefit provisions** that establish eligibility and amounts of payments to members

D. + ***Assumptions concerning future financial experiences 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***




**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

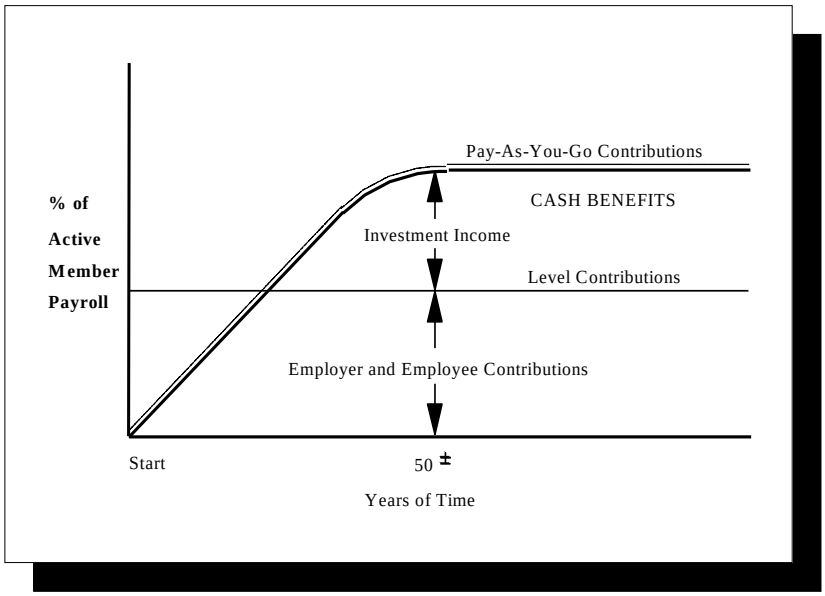
# SECTION G

## ACTUARIAL ASSUMPTIONS

# Selection of Assumptions Used in Actuarial Valuations

## Economic Assumptions

Investment return
Pay increases to individual employees
Active member group size and
total payroll growth




## Demographic Assumptions

Actual ages at service retirement
Disability while actively employed
Separations before retirement
Mortality after retirement
Mortality before retirement

# Relationship Between Plan Governing Body and the Actuary

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

Guidance regarding the selection of economic assumptions for measuring pension obligations is provided by Actuarial Standards of Practice (ASOP) No. 27. The standard requires that the selected economic assumptions be consistent with each other. That is, the selection of the investment return assumption should be consistent with the selection of the payroll growth and inflation assumptions.

ASOP No. 27 defines a reasonable economic assumption as an assumption that has the following characteristics: (a) It is appropriate for the purpose of the measurement; (b) It reflects the actuary's professional judgment; (c) It takes into account historical and current economic data that is relevant as of the valuation date; (d) It reflects the actuary's estimate of future experience, the actuary's observation of the estimates inherent in market data, or a combination thereof; and (e) It has no significant bias (i.e., it is not significantly optimistic or pessimistic), except when provisions for adverse deviation or plan provisions that are difficult to measure are included and disclosed under Section 3.5.1, or when alternative assumptions are used for the assessment of risk.

# Summary of Assumptions Used in Actuarial Valuations for the Arkansas Teacher Retirement System Assumptions Adopted by the Board of Trustees After Consulting with Actuary

The actuarial assumptions used in the valuation are shown in this section. The rationale for the assumptions is provided in the Experience Study covering the period July 1, 2010 through June 30, 2015. The Board of Trustees adopts the actuarial assumptions used for actuarial valuation purposes after consulting with the actuary. The actuarial assumptions represent estimates of future experience.

## Economic Assumptions

The ***price inflation*** assumption is 2.50%. It is assumed that the 3% COLA will always be paid.

***The investment return rate*** used in the valuation was 7.25% per year, compounded annually (net after administrative expenses). This rate was first used for the ***June 30, 2021*** valuation. The assumed real rate of return over price inflation is 4.75%.

The ***wage inflation*** assumption is 2.75%. This consists of 2.50% related to pure price inflation and 0.25% related to general economic improvements. This assumption was first used for the ***June 30, 2017*** valuation.

***Pay increase assumptions*** for individual active members are shown on page G-9. Part of the assumption for each service year is for a merit and/or seniority increase, and the other 2.75% recognizes wage inflation. These rates were first used for the ***June 30, 2021*** valuation.

The Active Member Group (Active, T-DROP, RTW) size is assumed to remain constant at its present level.

***Total active member payroll*** is assumed to increase 2.75% per year, which is the portion of the individual pay increase assumptions attributable to wage inflation. This rate was first used for the ***June 30, 2017*** valuation.

## Non-Economic Assumptions

***The mortality tables*** used were the Pub-2010 General Healthy Retired, General Disabled Retiree and General Employee Mortality amount weighted tables for males and females. Mortality rates were adjusted for future mortality improvements using projection scale MP-2020 from 2010.

A limited fluctuation credibility procedure was used to determine the appropriate scaling factor of each gender and each member classification (see the 2015-2020 Experience Study), and are shown below:

| | Scaling Factor |
|---|---|
| Healthy Male Retirees | **105%** |
| Healthy Female Retirees | **105%** |
| Disabled Male Retirees | **104%** |
| Disabled Female Retirees | **104%** |
| Male Active Members | **100%** |
| Female Active Members | **100%** |

Related values are shown on page G-4. These tables were first used for the ***June 30, 2021*** valuation.

***The probabilities of retirement*** for members eligible to retire are shown on pages G-5 and G-6. The rates for full retirement and reduced retirement were first used in the ***June 30, 2021*** valuation.

***The probabilities of withdrawal from service***, ***death-in-service*** and ***disability*** are shown for sample ages on pages G-7 and G-8. These rates were first used in the ***June 30, 2021*** valuation.

***The entry age actuarial cost method of valuation*** was used in determining accrued liabilities and normal cost. T-DROP members are treated as active members. Normal cost runs from the date of entry to the date of retirement.

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 (the total of principal & interest) which are level percents of payroll contributions.

These cost methods were first used in the June 30, 1986 valuation.

The Fiscal Year 2023 employer and member contribution rates were 15% and 7%, respectively.

---

***Asset Valuation Method.*** A market value related asset method is used as described on page D-1. This method was first used in the June 30, 1995 valuation. It was modified following the 1997-2002 Experience Study to include an 80% - 120% market value corridor.

***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. Members whose dates of birth were not supplied were assumed to be 40 years old on the valuation date. Members whose salaries were not supplied and that entered T-DROP were assumed to have the group average pay of those with salary data as of the valuation date that entered T-DROP.

# Single Life Retirement Values*

| Sample Attained Ages in 2023 | Present Value of $1.00 Monthly for Life | | Present Value of $1 Monthly for Life Increasing 3.0% Simple Annually | | Future Life Expectancy (Years) | | Percent Dying within Next Year | |
|---|---|---|---|---|---|---|---|---|
| | Male | Female | Male | Female | Male | Female | Male | Female |
| 40 | $159.96 | $162.49 | $213.47 | $218.30 | 45.36 | 48.37 | 0.09 % | 0.05 % |
| 45 | 155.57 | 158.81 | 205.04 | 210.97 | 40.12 | 43.08 | 0.12 % | 0.07 % |
| 50 | 149.87 | 153.98 | 194.63 | 201.82 | 35.02 | 37.91 | 0.29 % | 0.22 % |
| 55 | 142.93 | 148.16 | 182.42 | 191.08 | 30.14 | 32.96 | 0.43 % | 0.30 % |
| 60 | 134.14 | 140.50 | 167.74 | 177.74 | 25.44 | 28.11 | 0.66 % | 0.42 % |
| 65 | 123.21 | 130.50 | 150.50 | 161.41 | 20.97 | 23.41 | 0.97 % | 0.62 % |
| 70 | 109.70 | 117.76 | 130.52 | 141.96 | 16.74 | 18.90 | 1.49 % | 0.99 % |
| 75 | 93.73 | 102.22 | 108.40 | 119.79 | 12.85 | 14.69 | 2.51 % | 1.75 % |
| 80 | 76.09 | 84.50 | 85.47 | 96.11 | 9.43 | 10.92 | 4.50 % | 3.24 % |
| 85 | 58.67 | 66.08 | 64.10 | 73.00 | 6.64 | 7.75 | 8.29 % | 6.17 % |
| 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% Simple Annually | Portion of Age 60 Lives Still Alive | |
|---|---|---|---|
| | | Male | Female |
| 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 |

# Probabilities of Retirement for Members

| Retirement Ages | % of Active Participants Retiring with Unreduced Benefits | | | |
|---|---|---|---|---|
| | Education | | Support | |
| | Male | Female | Male | Female |
| 48 | 8% | 7% | 8% | 8% |
| 49 | 8% | 7% | 8% | 8% |
| 50 | 8% | 7% | 8% | 8% |
| 51 | 8% | 7% | 8% | 8% |
| 52 | 8% | 7% | 8% | 8% |
| 53 | 8% | 7% | 8% | 8% |
| 54 | 8% | 7% | 8% | 8% |
| 55 | 8% | 8% | 8% | 8% |
| 56 | 10% | 8% | 8% | 8% |
| 57 | 10% | 10% | 8% | 11% |
| 58 | 10% | 12% | 8% | 11% |
| 59 | 14% | 15% | 8% | 15% |
| 60 | 17% | 18% | 13% | 15% |
| 61 | 24% | 20% | 13% | 16% |
| 62 | 27% | 29% | 28% | 26% |
| 63 | 27% | 26% | 25% | 20% |
| 64 | 27% | 28% | 25% | 24% |
| 65 | 60% | 57% | 57% | 59% |
| 66 | 60% | 57% | 47% | 49% |
| 67 | 50% | 42% | 44% | 40% |
| 68 | 45% | 42% | 44% | 40% |
| 69 | 45% | 42% | 44% | 40% |
| 70 | 45% | 42% | 44% | 40% |
| 71 | 45% | 42% | 44% | 40% |
| 72 | 45% | 42% | 44% | 40% |
| 73 | 45% | 42% | 44% | 40% |
| 74 | 45% | 42% | 44% | 40% |
| 75 | 100% | 100% | 100% | 100% |
| Ref | 3245 | 3246 | 3247 | 3248 |

These rates are based upon data presented in the 2015-2020 experience study and were first used in the 2021 valuation.

# Probabilities of Reduced Retirement for Members

| Retirement Ages | % of Active Participants Retiring with Reduced Benefits | | | |
|---|---|---|---|---|
| | Education | | Support | |
| | Male | Female | Male | Female |
| 45 | 1.0% | 1.0% | 2.0% | 3.0% |
| 46 | 1.0% | 1.0% | 2.0% | 3.0% |
| 47 | 1.0% | 1.0% | 2.0% | 3.0% |
| 48 | 1.0% | 1.0% | 2.0% | 3.0% |
| 49 | 1.0% | 1.0% | 2.0% | 3.0% |
| 50 | 2.0% | 2.0% | 3.0% | 4.0% |
| 51 | 3.0% | 2.0% | 3.0% | 4.0% |
| 52 | 3.0% | 3.0% | 4.0% | 4.0% |
| 53 | 4.0% | 4.0% | 4.0% | 4.0% |
| 54 | 5.0% | 4.0% | 5.0% | 4.0% |
| 55 | 6.0% | 5.0% | 6.0% | 4.0% |
| 56 | 6.0% | 5.0% | 7.0% | 6.0% |
| 57 | 8.0% | 5.0% | 7.0% | 6.0% |
| 58 | 9.0% | 6.0% | 7.0% | 6.0% |
| 59 | 6.0% | 6.0% | 7.0% | 6.0% |
| Ref | 3249 | 3250 | 3251 | 3252 |

These rates are based upon data presented in the 2015-2020 experience study and were first used in the 2021 valuation.

# Duration of T-DROP for Members

Present T-DROP members are assumed to remain in T-DROP according to the following table:

| Entry Age | Assumed Duration Years |
|---|---|
| 50-56 | 7 |
| 57 | 6 |
| 58 | 5 |
| 59+ | 4 |

# T-DROP Participation

It was assumed that active members will participate in the T-DROP at the time in which entering the T-DROP would provide the highest value of benefits.

# Teachers
# Separations from Active Employment
# Before Age and Service Retirement

| Sample Ages in 2023 | Years of Service | Percent of Active Members Separating within the Next Year | | | | | |
|---|---|---|---|---|---|---|---|
| | | Death * | | Disability | | Other | |
| | | Male | Female | Male | Female | Male | Female |
| | 0 | | | | | 17.00% | 13.00% |
| | 1 | | | | | 13.80% | 11.30% |
| | 2 | | | | | 11.30% | 10.50% |
| | 3 | | | | | 8.90% | 8.30% |
| | 4 | | | | | 6.30% | 6.50% |
| 25 | 5 & Up | 0.03% | 0.01% | 0.02% | 0.02% | 5.80% | 6.50% |
| 30 | | 0.05% | 0.02% | 0.02% | 0.02% | 4.20% | 4.80% |
| 35 | | 0.07% | 0.03% | 0.02% | 0.03% | 2.90% | 3.20% |
| 40 | | 0.09% | 0.04% | 0.04% | 0.07% | 2.00% | 2.10% |
| 45 | | 0.11% | 0.06% | 0.13% | 0.17% | 1.70% | 1.70% |
| 50 | | 0.14% | 0.08% | 0.31% | 0.37% | 1.60% | 1.70% |
| 55 | | 0.21% | 0.12% | 0.61% | 0.63% | 1.60% | 1.70% |
| 60 | | 0.33% | 0.19% | 0.82% | 0.89% | 1.50% | 1.60% |
| 65 | | 0.47% | 0.28% | 0.82% | 0.89% | 1.20% | 1.30% |
| Ref: | | 2723 x 1.00 | 2724 x 1.00 | 1217 x 1 | 1218 x 1 | 1364<br>1574 | 1365<br>1575 |

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

# Support Employees
# Separations from Active Employment
# Before Age and Service Retirement

| Sample Ages in 2023 | Years of Service | Percent of Active Members Separating within the Next Year | | | | | |
|---|---|---|---|---|---|---|---|
| | | Death * | | Disability | | Other | |
| | | Male | Female | Male | Female | Male | Female |
| | 0 | | | | | 54.50% | 48.50% |
| | 1 | | | | | 29.90% | 27.20% |
| | 2 | | | | | 19.80% | 19.00% |
| | 3 | | | | | 15.50% | 15.30% |
| | 4 | | | | | 12.00% | 12.80% |
| 25 | 5 & Up | 0.03% | 0.01% | 0.02% | 0.01% | 10.60% | 9.90% |
| 30 | | 0.05% | 0.02% | 0.05% | 0.03% | 7.80% | 7.00% |
| 35 | | 0.07% | 0.03% | 0.10% | 0.04% | 5.70% | 5.10% |
| 40 | | 0.09% | 0.04% | 0.13% | 0.08% | 4.40% | 4.30% |
| 45 | | 0.11% | 0.06% | 0.21% | 0.16% | 3.70% | 4.00% |
| 50 | | 0.14% | 0.08% | 0.45% | 0.33% | 3.50% | 3.90% |
| 55 | | 0.21% | 0.12% | 0.88% | 0.61% | 3.50% | 3.70% |
| 60 | | 0.33% | 0.19% | 1.36% | 0.79% | 3.40% | 3.20% |
| 65 | | 0.47% | 0.28% | 1.36% | 0.79% | 2.70% | 2.50% |
| Ref: | | 2723 x 1.00 | 2724 x 1.00 | 1219 x 1 | 1220 x 1 | 1366<br>1576 | 1367<br>1577 |

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

# Individual Pay Increases

| Education | | | |
|---|---|---|---|
| | Pay Increase Assumptions for an Individual Member | | |
| Years of Service | Merit & Seniority | Base (Economic) | Increase Next Year |
| 1 | 2.50% | 2.75% | 5.25% |
| 2 | 2.20% | 2.75% | 4.95% |
| 3 | 1.90% | 2.75% | 4.65% |
| 4 | 1.80% | 2.75% | 4.55% |
| 5 | 1.70% | 2.75% | 4.45% |
| 6 | 1.60% | 2.75% | 4.35% |
| 7 | 1.50% | 2.75% | 4.25% |
| 8 | 1.40% | 2.75% | 4.15% |
| 9 | 1.30% | 2.75% | 4.05% |
| 10 | 1.25% | 2.75% | 4.00% |
| 11 | 1.20% | 2.75% | 3.95% |
| 12 | 1.15% | 2.75% | 3.90% |
| 13 | 1.10% | 2.75% | 3.85% |
| 14 | 1.05% | 2.75% | 3.80% |
| 15 | 1.00% | 2.75% | 3.75% |
| 16 | 0.95% | 2.75% | 3.70% |
| 17 | 0.85% | 2.75% | 3.60% |
| 18 | 0.75% | 2.75% | 3.50% |
| 19 | 0.65% | 2.75% | 3.40% |
| 20 | 0.55% | 2.75% | 3.30% |
| 21 | 0.50% | 2.75% | 3.25% |
| 22 | 0.45% | 2.75% | 3.20% |
| 23 | 0.40% | 2.75% | 3.15% |
| 24 | 0.30% | 2.75% | 3.05% |
| 25 | 0.20% | 2.75% | 2.95% |
| 26 | 0.15% | 2.75% | 2.90% |
| 27 | 0.10% | 2.75% | 2.85% |
| 28 | 0.25% | 2.75% | 3.00% |
| 29+ | 0.00% | 2.75% | 2.75% |
| Ref: | 931 | | |

| Support | | | |
|---|---|---|---|
| | Pay Increase Assumptions for an Individual Member | | |
| Years of Service | Merit & Seniority | Base (Economic) | Increase Next Year |
| 1 | 3.00% | 2.75% | 5.75% |
| 2 | 2.60% | 2.75% | 5.35% |
| 3 | 1.60% | 2.75% | 4.35% |
| 4 | 1.45% | 2.75% | 4.20% |
| 5 | 1.35% | 2.75% | 4.10% |
| 6 | 1.25% | 2.75% | 4.00% |
| 7 | 1.20% | 2.75% | 3.95% |
| 8 | 1.15% | 2.75% | 3.90% |
| 9 | 1.10% | 2.75% | 3.85% |
| 10 | 1.05% | 2.75% | 3.80% |
| 11 | 1.00% | 2.75% | 3.75% |
| 12 | 0.95% | 2.75% | 3.70% |
| 13 | 0.90% | 2.75% | 3.65% |
| 14 | 0.80% | 2.75% | 3.55% |
| 15 | 0.75% | 2.75% | 3.50% |
| 16 | 0.70% | 2.75% | 3.45% |
| 17 | 0.65% | 2.75% | 3.40% |
| 18 | 0.60% | 2.75% | 3.35% |
| 19 | 0.50% | 2.75% | 3.25% |
| 20 | 0.45% | 2.75% | 3.20% |
| 21 | 0.40% | 2.75% | 3.15% |
| 22 | 0.35% | 2.75% | 3.10% |
| 23 | 0.30% | 2.75% | 3.05% |
| 24 | 0.25% | 2.75% | 3.00% |
| 25 | 0.25% | 2.75% | 3.00% |
| 26 | 0.25% | 2.75% | 3.00% |
| 27 | 0.25% | 2.75% | 3.00% |
| 28 | 0.40% | 2.75% | 3.15% |
| 29+ | 0.00% | 2.75% | 2.75% |
| Ref: | 932 | | |

# Miscellaneous and Technical Assumptions
# June 30, 2023

| | |
|---|---|
| **Marriage Assumption:** | 100% of males and 100% of females are assumed to be married for purposes of death-in-service benefits. Male members are assumed to have a beneficiary three years younger and female members are assumed to have a beneficiary two years older. |
| **Pay Increase Timing:** | Beginning of (Fiscal) year. This is equivalent to assuming that reported pays represent amounts paid to members during the year ended on the valuation date. |
| **Decrement Timing:** | Decrements are assumed to occur mid-year, with the exception of normal and early retirement, which are assumed to occur at the beginning of the year. This implies that people who worked the entire school year are reported as active members even if they retired at the end of the year. |
| **Eligibility Testing:** | Eligibility for benefits is determined based upon the age nearest birthday and the service nearest whole year on the date of the valuation. |
| **Decrement Relativity:** | Decrement rates are used directly from the experience study, without adjustment for multiple decrement table effects. |
| **Decrement Operation:** | Disability does not operate during the first 5 years of service. Disability and turnover do not operate during retirement eligibility. |
| **Normal Form of Benefit:** | The assumed normal form of benefit is the straight life form. |
| **Incidence of Contributions:** | Contributions are assumed to be received continuously throughout the year based upon the computed percent of payroll shown in this report, and the actual payroll payable at the time contributions are made. The payroll used for this purpose is payroll for all active members plus payroll for members in the T-DROP and retirees who returned to work. |
| **Liability Adjustments:** | The liability calculations assume that the non-contributory and contributory multipliers for the first ten years of service are at the standard rate at the time the service is earned. |
| **Data Adjustments:** | Members whose dates of birth were not supplied were assumed to be 40 years old on the valuation date.<br><br>Members whose salaries were not supplied and that entered the T-DROP were assumed to have the group average pay of those with salary data as of the valuation that entered the T-DROP. |

# SECTION H

## GLOSSARY

# Glossary

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

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

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

***Actuarial Assumptions***. Estimates of future plan experience with respect to rates of mortality, disability, turnover, retirement, rate or rates of investment income and salary increases. Decrement assumptions (rates of mortality, disability, turnover and retirement) are generally based on past experience, often modified for projected changes in conditions. Economic assumptions (salary increases and investment income) consist of an underlying rate in an inflation-free environment plus a provision for a long-term average rate of inflation.

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

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

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

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

***Actuary***. A person who is trained in the applications of probability and compound interest to solve problems in business and finance that involve payment of money in the future, contingent upon the occurrence of future events. Most actuaries in the United States are Members of the American Academy of Actuaries. The Society of Actuaries is an international research, education and membership organization for actuaries in the life and health insurance, employee benefits, and pension fields. It administers a series of examinations leading initially to Associateship and the designation A.S.A. and ultimately to Fellowship with the designation F.S.A. The federal government certifies actuaries to practice under ERISA with the designation of E.A.

***Amortization***. Paying off an interest-bearing liability by means of periodic payments of interest and principal, as opposed to paying it off with a lump sum payment.

# Glossary

***Experience Gain (Loss)***. A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions during the period between two actuarial valuation dates, in accordance with the actuarial cost method being used.

***Immunize***. Immunization is a risk-mitigation strategy that matches asset and liability duration so portfolio values are protected against interest rate changes.

***LDROM***. The Low-Default-Risk Obligation Measure (LDROM) is meant to approximately represent the lump sum cost to secure benefits by purchasing 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.

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

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

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

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

***Valuation Assets***. The value of current plan assets recognized for valuation purposes. Generally based on book value plus a portion of unrealized appreciation or depreciation.

800.521.0498 | P: 248.799.9000 | www.grsconsulting.com

November 28, 2023

Mr. Mark White
Executive Director
Arkansas Teacher Retirement System
1400 West Third
Little Rock, Arkansas 72201

**Re: Report of June 30, 2023 Actuarial Valuation of Active and Inactive Members**

Dear Mr. White:

Enclosed are 15 copies of the report. If you need anything else, please call.

Sincerely,
Gabriel, Roeder, Smith & Company

Judith A. Kermans, EA, FCA, MAAA

JAK:ah
Enclosures

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

# Arkansas Teacher Retirement System

## Annual Actuarial Valuation of Annuities Being Paid to Retirees and Beneficiaries

June 30, 2023

# OUTLINE OF CONTENTS
# Report of Actuarial Valuation of ATRS Retirees and Beneficiaries

800.521.0498 | P: 248.799.9000 | www.grsconsulting.com

November 30, 2023

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, 2023 (using amounts payable as of July 1, 2023).

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 November 28, 2023, and the presentation dated December 4, 2023.

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. 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).

This report has been prepared by actuaries who have substantial experience valuing public employee retirement systems. Judith A. Kermans, Heidi G. Barry and Derek Henning 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

Judith A. Kermans, EA, FCA, MAAA

Heidi G. Barry, ASA, FCA, MAAA

Derek Henning, ASA, EA, FCA, MAAA

JAK/HGB/DH:rmn

# Comments

As expected, during the year ended June 30, 2023 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 | % of Active Payroll |
| | | (Millions) | |
| 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% |
| 2023 | 54,646 | 1,346.62 | 38.6% |

***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.)

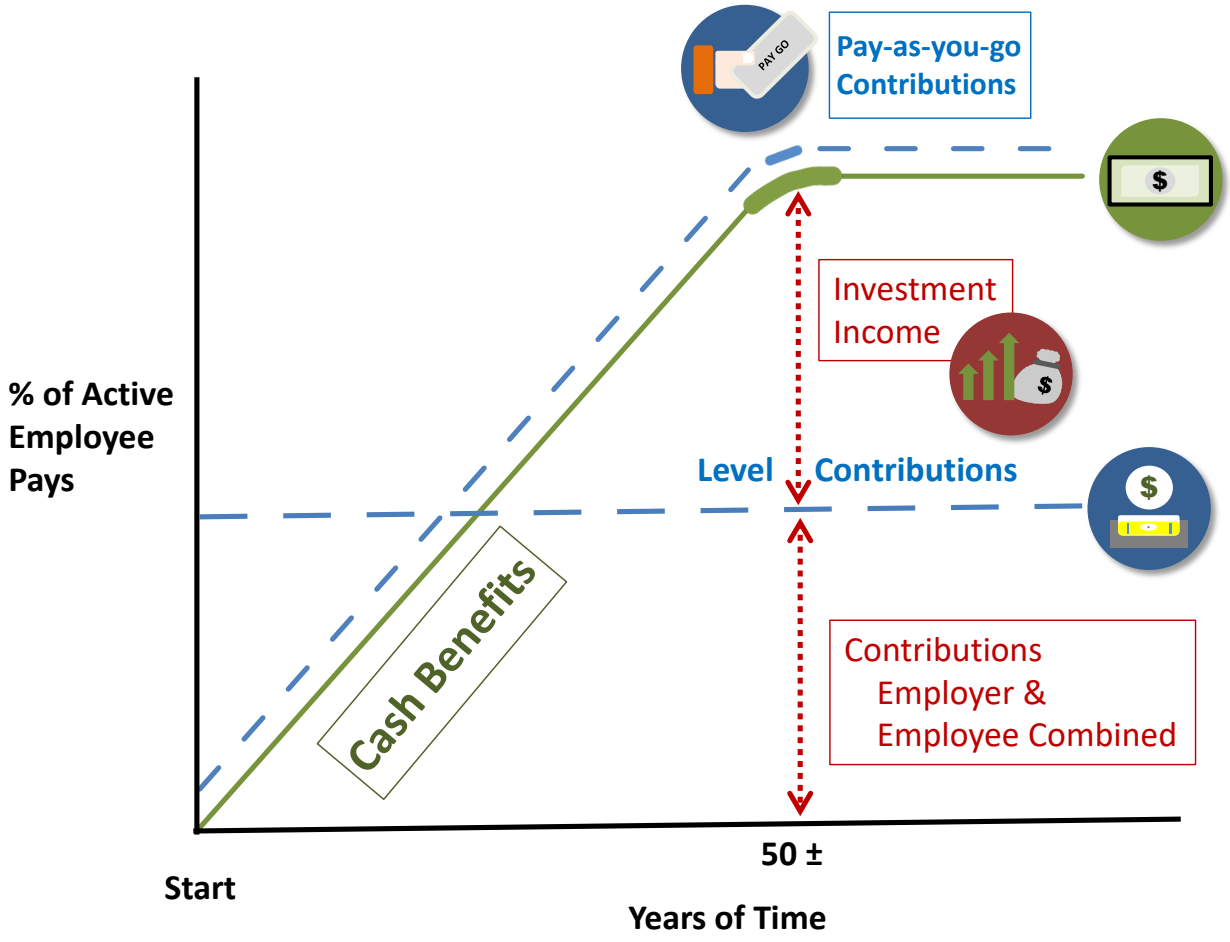
An inevitable byproduct of the level-cost design is the accumulation of reserve assets for decades and the income produced when the assets are invested. ***Investment income*** becomes the ***third and largest contributor*** for benefits to employees, and is interlocked with the contribution amounts 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.

| | 2023 | 2022 | 2021 | 2020 | 2019 |
|---|---|---|---|---|---|
| Ratio of the Market Value of Assets to Total Payroll | 5.9 | 5.9 | 6.7 | 5.7 | 6.1 |
| Ratio of Actuarial Accrued Liability to Payroll | 7.3 | 7.4 | 7.5 | 7.6 | 7.5 |
| Ratio of Actives to Retirees and Beneficiaries | 1.3 | 1.4 | 1.4 | 1.4 | 1.5 |
| Ratio of Net Cash Flow to Market Value of Assets | -3.3% | -1.0%* | -3.2% | -3.9% | -3.6% |
| Duration of the Present Value of Future Benefits | 14.16 | 14.03 | 14.02 | 13.83 | 13.82 |

** The net cash flow for 2022 includes $507.4 million from the settlement of a lawsuit.*

**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 2023 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 7.3% of payroll and would affect the amortization period by three years based on the 2023 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 14.2 (which is based on a 7.25% discount rate) indicates that the present value of future benefits would increase approximately 14.2% 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. Porfolio 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% |
| 2023 | 25,592 | 20,675 | 4,917 | 3,492 | 5.2% | 80.8% | 14,511 | 56.7% | 732.9% | 592.1% | 13.9% | 82.3% | 140.8% | (689) | -3.3% | 8.7% | 8.3% |

*(*) 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, 2023

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).

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(ies) will receive (equal shares of) 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(ies) will receive (equal shares of) one-half (1/2) of this annuity for the balance of his/her lifetime.

**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 PUB-2010 General Healthy Retiree/MP-2020 tables (generational projections using retirement year 2025) adjusted with a 50% unisex mix.

# Sample Benefit Computations for a Member Retiring July 1, 2023 with a Simple 3% COLA

Data for an example member is shown below.

Annual retirement benefit as of July 1, 2023 (excluding stipend): $30,000

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

| Year Ended June 30 | Annual Amount | | $ Increase |
|---|---|---|---|
| | Base | Current | |
| 2024 | $30,000 | $30,000 | $ 0 |
| 2025 | 30,000 | 30,900 | 900 |
| 2026 | 30,000 | 31,800 | 900 |
| 2027 | 30,000 | 32,700 | 900 |
| 2028 | 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 | (3.0)% | 15,160 | 138% |
| 2024 | 751 | 36,359 | | | |

* *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 | (3.0)% | 12,479 | 108% |
| 2024 | 459 | 22,544 | | | |

** 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 | (3.0)% | 11,506 | 97% |
| 2024 | 330 | 16,436 | | | |

** 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, 2023
# 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 | 10,698 | $293,822,439 | 38,514 | $ 953,127,140 | 49,212 | $1,246,949,579 |
| Beneficiaries | 462 | 10,187,851 | 1,057 | 26,347,376 | 1,519 | 36,535,227 |
| Totals | 11,160 | 304,010,290 | 39,571 | 979,474,516 | 50,731 | 1,283,484,806 |
| Disability | | | | | | |
| Retirees | 509 | 8,118,923 | 2,129 | 33,802,184 | 2,638 | 41,921,107 |
| Beneficiaries | 144 | 2,321,721 | 138 | 2,577,888 | 282 | 4,899,609 |
| Totals | 653 | 10,440,644 | 2,267 | 36,380,072 | 2,920 | 46,820,716 |
| Act 793 | 69 | 1,076,079 | 62 | 540,769 | 131 | 1,616,848 |
| Retirement Reserve Account | 11,882 | 315,527,013 | 41,900 | 1,016,395,357 | 53,782 | 1,331,922,370 |
| Act 808 Retirement Reserve Account | 18 | 1,226,321 | 9 | 346,157 | 27 | 1,572,478 |
| **Total Retirement Reserve Account** | 11,900 | 316,753,334 | 41,909 | 1,016,741,514 | 53,809 | 1,333,494,848 |
| **SURVIVOR'S BENEFIT ACCOUNT** | | | | | | |
| Beneficiaries of Deceased Members | 430 | 6,388,917 | 407 | 6,731,949 | 837 | 13,120,866 |
| **RETIREMENT SYSTEM TOTALS** | | | | | | |
| **Total Annuities Being Paid** | **12,330** | $323,142,251 | **42,316** | $1,023,473,463 | **54,646** | $1,346,615,714 |
| Prior Year Totals | 11,976 | $314,427,969 | 40,772 | $ 979,325,338 | 52,748 | $1,293,753,307 |

| | | | |
|---|---|---|---|
| **Average Age** | **72.1** | **72.0** | **72.0** |

# Summary of
# Annuities Being Paid Retirees and Beneficiaries July 1, 2023
# 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 | $ 67,110,108 | $ 1,179,839,471 | 49,212 | $ 1,246,949,579 |
| Beneficiaries | 320,526 | 36,214,701 | 1,519 | 36,535,227 |
| Totals | 67,430,634 | 1,216,054,172 | 50,731 | 1,283,484,806 |
| Disability | | | | |
| Retirees | 1,322,042 | 40,599,065 | 2,638 | 41,921,107 |
| Beneficiaries | 132,960 | 4,766,649 | 282 | 4,899,609 |
| Totals | 1,455,002 | 45,365,714 | 2,920 | 46,820,716 |
| Act 793 | 101,240 | 1,515,608 | 131 | 1,616,848 |
| Retirement Reserve Account | 68,986,876 | 1,262,935,494 | 53,782 | 1,331,922,370 |
| Act 808 Retirement Reserve Account | 60,981 | 1,511,497 | 27 | 1,572,478 |
| Total Retirement Reserve Account | 69,047,857 | 1,264,446,991 | 53,809 | 1,333,494,848 |
| **SURVIVOR'S BENEFIT ACCOUNT** | | | | |
| Beneficiaries of Deceased Members | 389,416 | 12,731,450 | 837 | 13,120,866 |
| **RETIREMENT SYSTEM TOTALS** | | | | |
| **Total Annuities Being Paid** | **$ 69,437,273** | **$ 1,277,178,441** | **54,646** | **$ 1,346,615,714** |
| Prior Year Totals | $ 70,466,779 | $ 1,223,286,528 | 52,748 | $ 1,293,753,307 |

# Annuities Being Paid Retirees and Beneficiaries July 1, 2023 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) | 40,060 | $ 645,738,331 | $ 726,676,861 | $ 982,437,433 |
| Option A (Joint & 100% Survivor) | 5,595 | 95,988,271 | 107,765,649 | 147,170,803 |
| Option B (Joint & 50% Survivor) | 2,783 | 63,486,737 | 73,460,832 | 100,348,785 |
| Option C (10-year certain) | 774 | 13,739,084 | 13,755,337 | 16,992,558 |
| Beneficiaries | 1,519 | 29,199,569 | 25,668,859 | 36,535,227 |
| Totals | 50,731 | 848,151,992 | 947,327,538 | 1,283,484,806 |
| Disability | | | | |
| Option 1 | 2,202 | 23,971,617 | 25,491,149 | 34,783,736 |
| Option A | 356 | 3,990,596 | 4,001,425 | 5,373,331 |
| Option B | 80 | 1,246,966 | 1,313,808 | 1,764,040 |
| Option C | 0 | - | - | - |
| Beneficiaries | 282 | 3,503,010 | 3,394,184 | 4,899,609 |
| Totals | 2,920 | 32,712,189 | 34,200,566 | 46,820,716 |
| Act 793 | 131 | 750,736 | 1,616,848 | 1,616,848 |
| Retirement Reserve Account | 53,782 | 881,614,917 | 983,144,952 | 1,331,922,370 |
| Act 808 Retirement Reserve Account | 27 | 503,922 | 1,572,478 | 1,572,478 |
| Total Retirement Reserve Account | 53,809 | 882,118,839 | 984,717,430 | 1,333,494,848 |
| **SURVIVOR'S BENEFIT ACCOUNT** | | | | |
| Beneficiaries of Deceased Members | | | | |
| Age 0-17 | 143 | 1,274,975 | 1,273,464 | 1,409,056 |
| Age 18-23 | 68 | 656,668 | 654,960 | 743,071 |
| Other | 626 | 7,310,354 | 8,089,863 | 10,968,739 |
| Totals | 837 | 9,241,997 | 10,018,287 | 13,120,866 |
| **RETIREMENT SYSTEM TOTALS** | | | | |
| Total Annuities Being Paid | 54,646 | $ 891,360,836 | $ 994,735,717 | $ 1,346,615,714 |

**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, 2023 including the COLA granted on July 1.

# Annuities Being Paid July 1, 2023
# 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 | 10 | $ 201,072 | $ 167,144 | $ 225,613 |
| 40-44 | 7 | 135,270 | 113,885 | 147,928 |
| 45-49 | 16 | 254,319 | 244,014 | 266,113 |
| 50-54 | 395 | 11,523,862 | 11,269,975 | 12,312,477 |
| 55-59 | 1,265 | 34,481,611 | 34,116,765 | 40,192,553 |
| 60-64 | 6,719 | 126,833,374 | 127,691,076 | 156,578,801 |
| 65-69 | 11,805 | 207,980,139 | 216,547,931 | 280,520,472 |
| 70-74 | 12,589 | 211,568,500 | 232,793,322 | 322,200,635 |
| 75-79 | 9,343 | 144,520,919 | 170,752,946 | 246,256,251 |
| 80-84 | 5,164 | 70,687,336 | 91,491,529 | 133,808,225 |
| 85-89 | 2,292 | 28,305,466 | 41,046,004 | 60,107,234 |
| 90-94 | 888 | 9,395,251 | 16,191,879 | 23,715,174 |
| 95 & Up | 238 | 2,264,873 | 4,901,068 | 7,153,330 |
| **Totals** | **50,731** | **$848,151,992** | **$947,327,538** | **$1,283,484,806** |
| **Avg. Age** | **72.0** | | | |

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, 2023
# 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 | $ 93,541 | $ 88,229 | $ 102,592 |
| 40-44 | 22 | 255,408 | 244,008 | 269,558 |
| 45-49 | 103 | 1,297,673 | 1,237,824 | 1,456,609 |
| 50-54 | 196 | 2,708,245 | 2,582,570 | 3,022,651 |
| 55-59 | 357 | 4,655,261 | 4,420,847 | 5,428,789 |
| 60-64 | 556 | 6,199,159 | 5,889,709 | 7,792,817 |
| 65-69 | 579 | 6,233,158 | 6,089,390 | 8,591,459 |
| 70-74 | 502 | 5,215,739 | 5,543,024 | 8,182,468 |
| 75-79 | 353 | 3,800,521 | 4,608,254 | 6,812,078 |
| 80-84 | 168 | 1,683,861 | 2,402,416 | 3,547,404 |
| 85-89 | 54 | 455,900 | 789,221 | 1,163,946 |
| 90-94 | 13 | 77,190 | 189,876 | 280,234 |
| 95 & Up | 8 | 36,533 | 115,198 | 170,111 |
| **Totals** | **2,920** | **$32,712,189** | **$34,200,566** | **$46,820,716** |
| **Avg. Age** | **66.3** | | | |

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, 2023
# 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 | 7 | 15,016 | 26,971 |
| 70-74 | 27 | 93,097 | 170,738 |
| 75-79 | 37 | 189,443 | 378,565 |
| 80-84 | 36 | 255,626 | 549,058 |
| 85-89 | 17 | 129,694 | 306,695 |
| 90-94 | 7 | 67,860 | 184,821 |
| 95 & Up | - | - | - |
| **Totals** | **131** | **$750,736** | **$1,616,848** |
| **Avg. Age** | **78.8** | | |

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

# Annuities Being Paid July 1, 2023 from the Retirement Reserve Account to SURVIVOR BENEFICIARIES by Attained Ages

| Attained Age | Annual Amounts | | | |
|---|---|---|---|---|
| | No. | Original Annuities | Base Annuities | Current Annuities |
| Under 40 | 220 | $1,983,066 | $ 1,978,194 | $ 2,217,748 |
| 40-44 | 6 | 37,014 | 36,264 | 45,677 |
| 45-49 | 4 | 36,965 | 37,944 | 49,539 |
| 50-54 | 22 | 340,174 | 329,891 | 402,065 |
| 55-59 | 37 | 448,003 | 429,402 | 509,748 |
| 60-64 | 101 | 1,203,589 | 1,160,562 | 1,452,078 |
| 65-69 | 138 | 1,864,070 | 1,869,465 | 2,460,103 |
| 70-74 | 126 | 1,384,310 | 1,492,293 | 2,099,017 |
| 75-79 | 92 | 1,133,480 | 1,322,380 | 1,891,020 |
| 80-84 | 52 | 465,510 | 692,360 | 1,014,626 |
| 85-89 | 25 | 246,538 | 415,393 | 606,936 |
| 90-94 | 12 | 94,704 | 232,661 | 340,171 |
| 95 & Up | 2 | 4,574 | 21,478 | 32,138 |
| **Totals** | **837** | **$9,241,997** | **$10,018,287** | **$13,120,866** |
| **Avg. Age** | **55.6** | | | |

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, 2023 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 | 1 | 16,262 | 56,593 |
| 85-89 | 8 | 165,649 | 561,733 |
| 90-94 | 14 | 258,464 | 807,756 |
| 95 & Up | 4 | 63,547 | 146,396 |
| **Totals** | **27** | **$503,922** | **$1,572,478** |
| **Avg. Age** | **90.7** | | |

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

# Retiree and Beneficiary Data
# as of June 30

| Year | Estimated Number Added | Estimated Number Removed | Total Retirees* | Annual Allowances (Millions) | % Increase in Annual Allowances@ | Average Annual Allowances |
|---|---|---|---|---|---|---|
| 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 |
| 2023 | 3,389 | 1,491 | 54,646 | 1,346.62 | 4.1% | 24,643 |

** 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, 2023, were reported to your actuary to be $20,675,051,918. This amount, increased by a funding value adjustment of $339,856,905 this year, is used to finance the Retirement System liability.

| Accounts | Assets as of June 30 | |
|---|---|---|
| | 2023 | 2022 |
| Regular Accounts | | |
| Members' Deposit Accounts | | |
| Contributions | $ 1,718,903,627 | $ 1,619,234,265 |
| Interest | 11,599,922,370 | 10,879,135,880 |
| Total | 13,318,825,997 | 12,498,370,145 |
| T-DROP Member Deposit Accounts | | |
| Contributions | 32,472,783 | 28,418,105 |
| Interest | 18,548,379 | 19,012,373 |
| Total | 51,021,162 | 47,430,478 |
| Cash Balance Account | 226,279,957 | 207,565,576 |
| Employer's Accumulation Account | (7,256,480,855) | (7,008,787,923) |
| Retirement Reserve Account | 13,886,819,183 | 13,468,111,609 |
| Act 808 Retirement Reserve Account | 6,235,877 | 6,840,591 |
| T-Lump Sum Payable | 320,171,587 | 339,803,043 |
| Survivors Benefit Account | 112,186,981 | 110,412,603 |
| Total Regular Accounts | 20,665,059,889 | 19,669,746,122 |
| Other Accounts | | |
| Income Expense Account | 9,992,029 | 9,721,130 |
| Other Special Reserves | - | - |
| Miscellaneous | - | - |
| Total Other Accounts | 9,992,029 | 9,721,130 |
| Total Accounting Value of Assets | 20,675,051,918 | 19,679,467,252 |
| Funding Value Adjustment | 339,856,905 | 648,814,232 |
| Funding Value of Assets | $ 21,014,908,823 | $ 20,328,281,484 |

# VALUATION RESULTS

# Liabilities for Annuities Being Paid July 1, 2023
# Tabulated by Type of Annuity Being Paid

| Type of Annuity | Liabilities July 1, 2023 | | |
|---|---|---|---|
| | Men | Women | Totals |
| **RETIREMENT RESERVE ACCOUNT** | | | |
| Age & Service Annuities | | | |
| Option 1 (Straight Life) | $ 1,689,414,444 | $ 8,297,371,626 | $ 9,986,786,070 |
| Option A (100% Joint & Survivor) | 873,027,296 | 1,002,061,590 | 1,875,088,886 |
| Option B ( 50% Joint & Survivor) | 424,790,992 | 709,644,492 | 1,134,435,484 |
| Option C (10 Years Certain & Life) | 49,130,959 | 174,265,413 | 223,396,372 |
| Beneficiaries | 79,661,361 | 218,926,252 | 298,587,613 |
| Total Age & Service | 3,116,025,052 | 10,402,269,373 | 13,518,294,425 |
| Disability Annuities | | | |
| Option 1 | 51,727,061 | 290,258,569 | 341,985,630 |
| Option A | 25,650,567 | 48,545,604 | 74,196,171 |
| Option B | 7,427,623 | 12,651,982 | 20,079,605 |
| Option C | - | - | - |
| Beneficiaries | 21,825,654 | 25,300,416 | 47,126,070 |
| Total Disability | 106,630,905 | 376,756,571 | 483,387,476 |
| Act 793 | 7,172,197 | 4,650,082 | 11,822,279 |
| Retirement Reserve Account | 3,229,828,154 | 10,783,676,026 | 14,013,504,180 |
| Act 808 Retirement Reserve Account | 4,977,143 | 1,252,213 | 6,229,356 |
| Total Retirement Reserve Account | 3,234,805,297 | 10,784,928,239 | 14,019,733,536 |
| **SURVIVORS' BENEFIT ACCOUNT** | | | |
| Beneficiaries of Deceased Members | 57,386,933 | 62,567,136 | 119,954,069 |
| **RETIREMENT SYSTEM TOTALS** | | | |
| Total Annuity Liabilities | 3,292,192,230 | 10,847,495,375 | 14,139,687,605 |
| Cash Benefit Account Liabilities | | | 226,279,957 |
| Liabilities for Lump Sum Death Benefits | | | 144,857,018 |
| Total | $ 3,292,192,230 | $ 10,847,495,375 | $ 14,510,824,580 |

# 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, 2023 Balance Reported | Transfer Amount | June 30, 2023 Balance After Transfer |
|---|---|---|---|
| Retiree Accounts | | | |
| RRA | $ 13,886,819,183 | $ 126,684,997 | $ 14,013,504,180 |
| 808 RRA | 6,235,877 | (6,521) | 6,229,356 |
| SBA | 112,186,981 | 7,767,088 | 119,954,069 |
| Total Retiree Accounts | 14,005,242,041 | 134,445,564 | 14,139,687,605 |
| EAA | (7,256,480,855) | (134,445,564) | (7,390,926,419) |
| **Total** | **$ 6,748,761,186** | **$ -** | **$ 6,748,761,186** |

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 $144.9 million. The Cash Balance Account includes an additional $226.3 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% |
| 2023 | 53,809 | 1,333.49 | 4.1% | 24,782 | 14,019.7 | 14,019.7 | 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% |
| 2023 | 837 | 13,120,866 | 119,954,069 | 119,954,069 | 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, 2023

| Calendar Year of Retirement | No. | Annual Amount Being Paid | | | Average |
|---|---|---|---|---|---|
| | | Original | Total Increase | Current | |
| 2023* | 685 | $ 8,593,691 | $ 375,417 | $ 8,969,108 | $13,094 |
| 2022 | 3,231 | 51,165,451 | 5,880,770 | 57,046,221 | 17,656 |
| 2021 | 2,681 | 47,537,386 | 8,098,389 | 55,635,775 | 20,752 |
| 2020 | 2,700 | 45,878,812 | 8,995,090 | 54,873,902 | 20,324 |
| 2019 | 2,704 | 43,937,741 | 10,310,336 | 54,248,077 | 20,062 |
| 2018 | 2,694 | 44,926,799 | 11,646,740 | 56,573,539 | 21,000 |
| 2017 | 2,710 | 44,816,152 | 14,172,094 | 58,988,246 | 21,767 |
| 2016 | 2,765 | 45,423,418 | 15,960,125 | 61,383,543 | 22,200 |
| 2015 | 2,937 | 48,470,871 | 18,682,059 | 67,152,930 | 22,864 |
| 2014 | 2,885 | 48,935,718 | 20,518,174 | 69,453,892 | 24,074 |
| 2013 | 2,641 | 45,088,013 | 20,850,364 | 65,938,377 | 24,967 |
| 2012 | 2,563 | 42,261,073 | 21,221,954 | 63,483,027 | 24,769 |
| 2011 | 2,301 | 38,267,164 | 20,140,493 | 58,407,657 | 25,384 |
| 2010 | 1,944 | 32,218,623 | 19,190,119 | 51,408,742 | 26,445 |
| 2009 | 1,988 | 33,601,522 | 21,167,893 | 54,769,415 | 27,550 |
| 2008 | 1,922 | 30,912,314 | 19,117,725 | 50,030,039 | 26,030 |
| 2007 | 1,780 | 28,497,826 | 18,104,251 | 46,602,077 | 26,181 |
| 2006 | 1,537 | 24,996,620 | 17,402,417 | 42,399,037 | 27,586 |
| 2005 | 1,509 | 24,993,376 | 19,577,175 | 44,570,551 | 29,536 |
| 2004 | 1,333 | 21,151,543 | 15,988,149 | 37,139,692 | 27,862 |
| 2003 | 1,181 | 18,592,428 | 14,954,266 | 33,546,694 | 28,405 |
| 2002 | 1,114 | 17,920,428 | 14,544,427 | 32,464,855 | 29,143 |
| 2001 | 1,064 | 16,230,289 | 13,438,842 | 29,669,131 | 27,885 |
| 2000 | 949 | 15,747,988 | 13,881,080 | 29,629,068 | 31,221 |
| 1999 | 797 | 12,323,228 | 12,312,358 | 24,635,586 | 30,910 |
| 1998 | 744 | 10,706,465 | 11,220,282 | 21,926,747 | 29,471 |
| 1997 | 556 | 8,951,708 | 10,219,401 | 19,171,109 | 34,480 |
| 1996 | 415 | 7,093,337 | 8,318,022 | 15,411,359 | 37,136 |
| 1995 | 457 | 7,420,708 | 8,894,876 | 16,315,584 | 35,701 |
| 1994 | 451 | 7,410,604 | 9,760,089 | 17,170,693 | 38,072 |
| 1993 | 306 | 5,219,682 | 7,218,357 | 12,438,039 | 40,647 |
| 1992 | 183 | 2,469,695 | 3,763,041 | 6,232,736 | 34,059 |
| 1991 | 132 | 1,657,999 | 2,518,360 | 4,176,359 | 31,639 |
| 1990 | 153 | 1,590,991 | 3,067,800 | 4,658,791 | 30,450 |
| 1989 | 144 | 1,678,058 | 3,127,570 | 4,805,628 | 33,372 |
| Before 1988 | 490 | 4,673,115 | 10,616,373 | 15,289,488 | 31,203 |
| **TOTAL** | **54,646** | **$891,360,836** | **$455,254,878** | **$1,346,615,714** | **$24,643** |

** Reporting for calendar year 2023 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 2023* | 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 | $159.96 | $162.49 | $213.47 | $218.30 | 45.36 | 48.37 | 0.09 % | 0.05 % |
| 45 | 155.57 | 158.81 | 205.04 | 210.97 | 40.12 | 43.08 | 0.12 % | 0.07 % |
| 50 | 149.87 | 153.98 | 194.63 | 201.82 | 35.02 | 37.91 | 0.29 % | 0.22 % |
| 55 | 142.93 | 148.16 | 182.42 | 191.08 | 30.14 | 32.96 | 0.43 % | 0.30 % |
| 60 | 134.14 | 140.50 | 167.74 | 177.74 | 25.44 | 28.11 | 0.66 % | 0.42 % |
| 65 | 123.21 | 130.50 | 150.50 | 161.41 | 20.97 | 23.41 | 0.97 % | 0.62 % |
| 70 | 109.70 | 117.76 | 130.52 | 141.96 | 16.74 | 18.90 | 1.49 % | 0.99 % |
| 75 | 93.73 | 102.22 | 108.40 | 119.79 | 12.85 | 14.69 | 2.51 % | 1.75 % |
| 80 | 76.09 | 84.50 | 85.47 | 96.11 | 9.43 | 10.92 | 4.50 % | 3.24 % |
| 85 | 58.67 | 66.08 | 64.10 | 73.00 | 6.64 | 7.75 | 8.29 % | 6.17 % |
| 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 illlustration for a member who retires at age 60 in 2023.

800.521.0498 | P: 248.799.9000 | www.grsconsulting.com

November 30, 2023

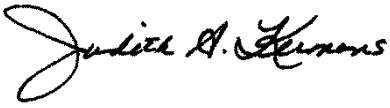
Mr. Mark White
Executive Director
Arkansas Teacher Retirement System
1400 West Third Street
Little Rock, Arkansas 72201

**Re: Report of the June 30, 2023 Actuarial Valuation of Retirees and Beneficiaries**

Dear Mr. White:

Attached is a copy of this report. Please let us know if anything else is needed.

Sincerely,
Gabriel, Roeder, Smith & Company



Judith A. Kermans, EA, FCA, MAAA

JAK:rmn
Enclosures

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