Arkansas Teacher Retirement System

Annual Actuarial Valuation of Active and Inactive Members
June 30, 2017

Report of the June 30, 2017 Actuarial Valuation

OUTLINE OF CONTENTS

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December 15, 2017

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 non-retired members as of June 30, 2017.*** 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 a separate report. These 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.

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 Section G. These assumptions reflect experience during the period July 1, 2010 to June 30, 2015 and expectations for the future.

The findings in this report are based on data and other information through June 30, 2017. 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.

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To the best of our knowledge, this report is complete and accurate and was made in accordance with standards of practice promulgated by the Actuarial Standards Board. The actuarial assumptions used for the valuation produce results which, individually and in the aggregate, are reasonable.

This report has been prepared by actuaries who have substantial experience valuing public employee retirement systems. Brian B. Murphy, Judith A. Kermans and Heidi G. Barry are Members of the American Academy of Actuaries (MAAA) and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions contained herein. The actuaries submitting this report are independent of the plan sponsor.

Respectfully submitted,

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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, 2017 actuarial valuations, ***ATRS is satisfying the financial objective of level-contribution-percent financing.***

This report contains the results of the June 30, 2017 valuation. The table below shows a summary of the data used in the valuation. This data was the basis for determining valuation results and recommended employer contribution rates.

	Number	Average	Type of Average
Active not in T-DROP	68,337	$37,707	Pay
Active in T-DROP	3,811	62,127	Pay
Deferred Vested	12,401	5,877	Annual Projected Benefit
Retired	45,092	23,169	Annual Current Benefit
Total Members	**129,641**		

Included in the 2017 valuation were 3,881 reemployed retirees (included in the Retired data file) with total earnings of $108.4 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 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 has endeavored to get employer contributions on behalf of all working members.

Executive Summary - (Continued)

This valuation was affected by the following assumption changes, contribution rate changes and plan provision changes. The Board adopted these changes during 2017.

Assumption Changes

(1) Lowered the assumed rate of interest to 7.5% from 8%
(2) Decreased the assumed rate of price inflation to 2.5%.
(3) Decreased the assumed rate of payroll growth to 2.75%.
(4) Changed the post retirement mortality tables to the RP 2014 Healthy Annuitant headcount weighted tables with projection scale MP 2017. Scaled the base rates to ATRS experience.
(5) Made other miscellaneous changes as described in the separate experience study report.

Contribution Rate Changes

Employer and member contribution rates will change in the future according to the following schedule.

	Contribution Rate	
Fiscal Year	**Member**	**Employer**
2018-2019	6.00%	14.00%
2019-2020	6.25%	14.25%
2020-2021	6.50%	14.50%
2021-2022	6.75%	14.75%
2023 and Later	7.00%	15.00%

Plan Provision Changes

(1) Lowered the noncontributory multiplier from 1.39% to 1.25% beginning in FY 2020.
(2) Lowered the initial contributory multiplier to 1.75% for the first 10 years of service (FY 2019 and thereafter). Once a contributory person reaches 10 years of service, all contributory years including the first 10, are credited at the standard rate (currently 2.15%). Due to timing issues this provision will be reflected in the June 30, 2018 valuation.
(3) Lowered the initial non-contributory multiplier to 1% for the first 10 years of service (FY 2019 and thereafter). Once the contributory person reaches 10 years of service, all non-contributory years including the first 10, are credited at the standard rate (1.39% through 2019 and 1.25% beginning in FY 2020). Due to timing issues this provision will be reflected in the June 30, 2018 valuation.
(4) Increased the final average salary period to 5 years from the current 3 years. However, at the end of fiscal 2018, the 3 year final average salary will be calculated for all members. The final average salary for benefit calculation purposes will be the greater of the 5 year final average salary at retirement and the three year final average salary that was calculated at the end of fiscal 2018.
(5) Lowered the retiree benefit stipend from $75 per month to $50 per month and removed the stipend from the base for purposes of COLA calculations.
(6) Lowered the TDROP interest rate to a fixed 3% for future crediting. In years when actual ATRS returns are 2% or more above the actuarial assumed rate, the Board may increase the credited interest rate up to 6%.

(7) Updated the annuitization factors for TDROP annuity options. The factors will use a static version of the updated mortality table and an interest rate that changes by year as follows. 7.5% in FY 2018, 7% in FY 2019, 6% in FY 2020, 5% in FY 2021, 4% in FY 2022, and 3% from and after FY 2023. The board may adjust the rate to a higher rate, not to exceed the actuarial interest assumption, and considering the interest rate payable on 10 year US treasuries.

(8) Updated the factors for beneficiary annuity options. The factors will use a static version of the updated mortality table and an assumed interest of 5%.

(9) Increased the Cash Balance Account (CBA) interest rate. The interest rate will vary by year of participation as follows.

Fiscal Year of Participation	Crediting Rate
1	2.50%
2	2.75%
3	3.00%
4	3.25%
5	3.50%
6 and later	4.00%

(10) Increased the reduction for an early retirement benefit to 10/12ths of 1% per month from 5/12th of 1% per month.

Results of the Valuation

The amortization period this year is 29 years, unchanged from last year's period of 29 years. This result was affected by the assumption changes, benefit changes, and contribution rate changes described on the preceding pages. In particular, it is heavily dependent upon member and employer rates increasing in accordance with the schedule on page A-2. While 29 years is a reasonable period that meets statutory requirements, use of such a period will result in unfunded liabilities that are projected to increase in dollar amount for approximately the next 10 years. This condition is called "negative amortization" and is falling out of favor. The ATRS has targeted 18 years as the threshold in recent legislation.

The Arkansas Teacher Retirement System remains stable with a 79.5% funded position as of June 30, 2017. Unless there is an investment gain in Fiscal Year 2018, the amortization period is likely to increase in the next valuation due to scheduled phase-in of investment losses.

The rate of Investment return was 15.98%# this year. 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 9.68%, compared to an assumed 8.0% return for Fiscal 2017. The smoothing is expected to introduce upward pressure on the amortization period next year, although as of June 30, 2017, the market value of assets exceeded the actuarial value of assets by approximately $153 million. (Please refer to page D-3 for details.)

\# *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 7.50% on the actuarial value of assets), it is expected that:

1) The unfunded actuarial accrued liabilities will be fully amortized after 29 years.
2) The funded status of the plan will increase gradually towards a 100% funded ratio.
3) The unfunded accrued liability will increase for an extended period 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:

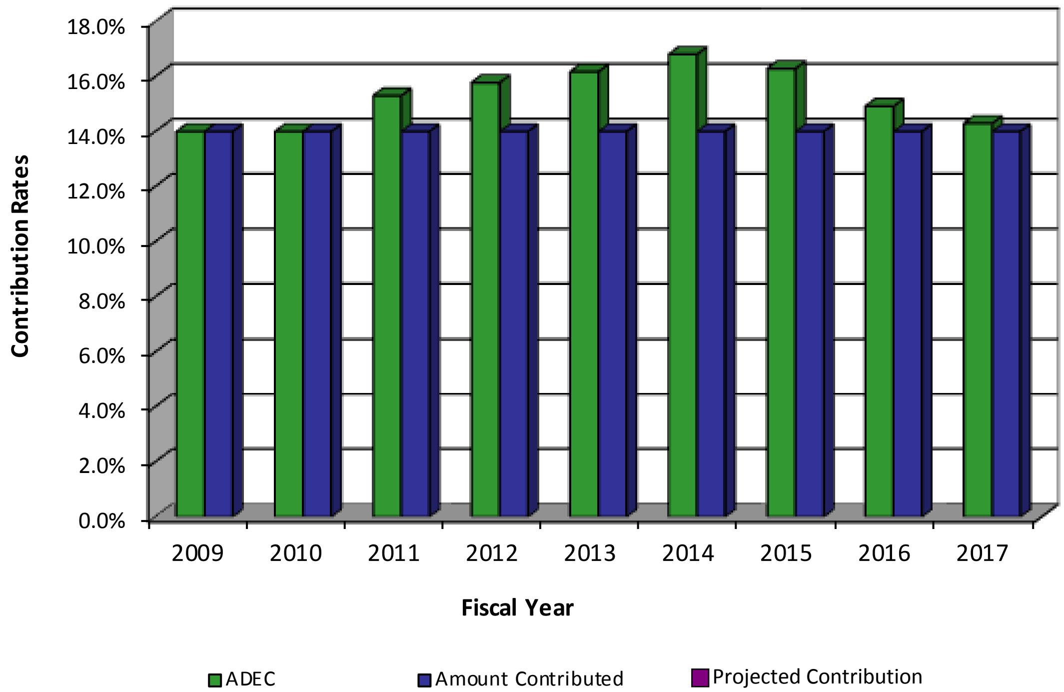
1) The measurement is inappropriate for assessing the sufficiency of plan assets to cover the estimated cost of settling the plan’s benefit obligations, in other words of transferring the obligations to an unrelated third party in an arm’s length market value type transaction.
2) The measurement is dependent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

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.



Since the amortization period exceeded 30 years in the 2009-2015 valuations, the amount contributed is less than the 30-year contribution in FY 2011-2017. In FY 2009 (June 30, 2007 valuation) and FY 2010 (June 30, 2008 valuation), the amount contributed equaled the 30-year contribution.

SECTION B

VALUATION RESULTS

Determination of Amortization Period
Computed as of June 30, 2017 and June 30, 2016

Computed Contributions for	Percents of Active Member Payroll			
	June 30, 2017			June 30, 2016
	Teachers	Support	Combined	Combined
Normal Cost				
Age & Service Annuities	10.37%	6.85%	**9.29%**	8.90%
Deferred Annuities	1.18%	2.07%	**1.45%**	1.77%
Survivor Benefits	0.36%	0.27%	**0.33%**	0.18%
Disability Benefits	0.48%	0.37%	**0.45%**	0.46%
Refunds of Member Contributions	0.46%	1.10%	**0.66%**	0.52%
Total	12.85%	10.66%	**12.18%**	11.83%
Average Member Contributions	6.41%	4.90%	**5.94%**	5.05%
Net Employer Normal Cost	6.44%	5.76%	**6.24%**	6.78%
Unfunded Actuarial Accrued Liabilities			**8.76%**	7.22%
Employer Contribution Rate			**15.00%**	14.00%
Amortization Years			**29**	29

The calculated amortization period of 29 years, is based on anticipated increases in the employer and member contribution rates. The current employer and member contribution rates are 14% and 6%, respectively. The employer and member rates are scheduled to increase by 0.25% increments beginning in Fiscal Year 2020 and ending in Fiscal Year 2023. The ultimate employer and member contribution rates will be 15% and 7%, respectively.

The amortization period is the number of years it will take to pay off the unfunded liability of $4.2 billion assuming that the employer contribution rate increases to 15% according to the schedule described above. Since 2000, the period has varied from a low of 19 years to a high of over 100 years. Unless there is an investment gain in FY 2018, the amortization period is likely to increase in the next valuation. Please see additional comments regarding the amortization period on page A-3.

Computed Employer Contribution Rates
10-Year Comparative Statement

Valuation Date June 30	Active Members in Valuation ** Number	Active Members in Valuation ** Annual Payroll ($Millions)	Average Annual Pay Amount	Average Annual Pay % Change	Consumer Price (Inflation) Index Value	Consumer Price (Inflation) Index % Change	Employer Contributions Computed Financing Period (Years)	Employer Contributions Total Employer Rate
2008#	70,172	$ 2,268	$ 32,319	2.1 %	$ 218.8	5.0 %	21	14.0 %
2009	70,655	2,318	32,804	1.5 %	215.7	(1.4)%	45	14.0 %
2010#	72,208	2,381	32,980	0.5 %	218.0	1.1 %	52	14.0 %
2011#*	76,780	2,728	35,534	7.7 %	225.7	3.6 %	66	14.0 %
2012	75,627	2,714	35,891	1.0 %	229.5	1.7 %	over 100	14.0 %
2013#	74,925	2,727	36,400	1.4 %	233.5	1.8 %	70	14.0 %
2014	74,352	2,758	37,092	1.9 %	238.3	2.1 %	39	14.0 %
2015	72,919	2,777	38,088	2.7 %	238.6	0.1 %	33	14.0 %
2016	72,232	2,785	38,557	1.2 %	241.0	1.0 %	29	14.0 %
2017#*	72,148	2,814	38,997	1.1 %	245.0	1.6 %	29	15.0 %

* *Revised assumptions; employer and employee rates scheduled to increase to 15% and 7%, respectively, in 4 steps beginning in FY 2020.*

\# *Legislated benefit or contribution rate changes.*

** *Beginning with the June 30, 2011 valuation, active members include T-DROP members and payroll. ATRS also receives contributions on return to work retirees, but they are not included on this schedule.*

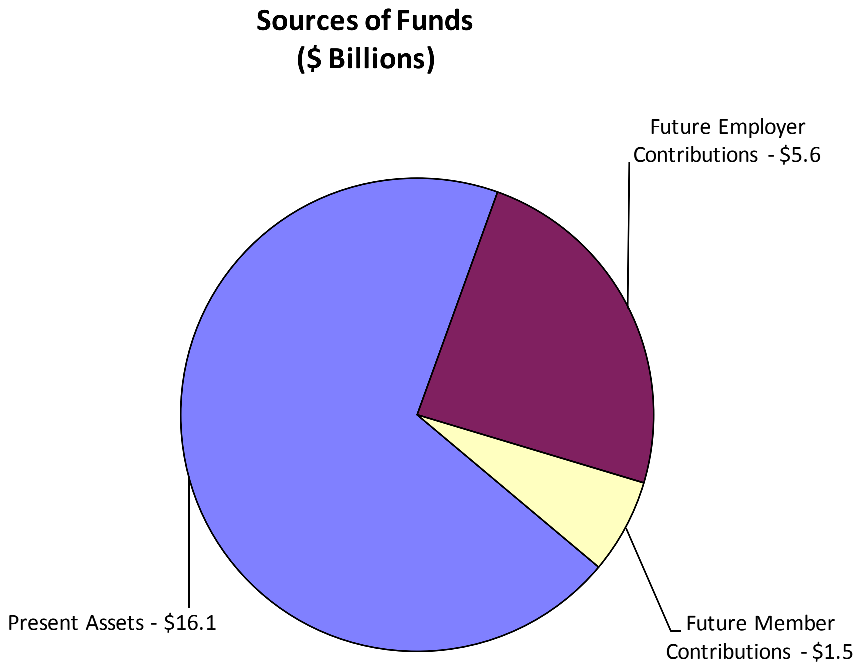
Computed Actuarial Liabilities as of June 30, 2017

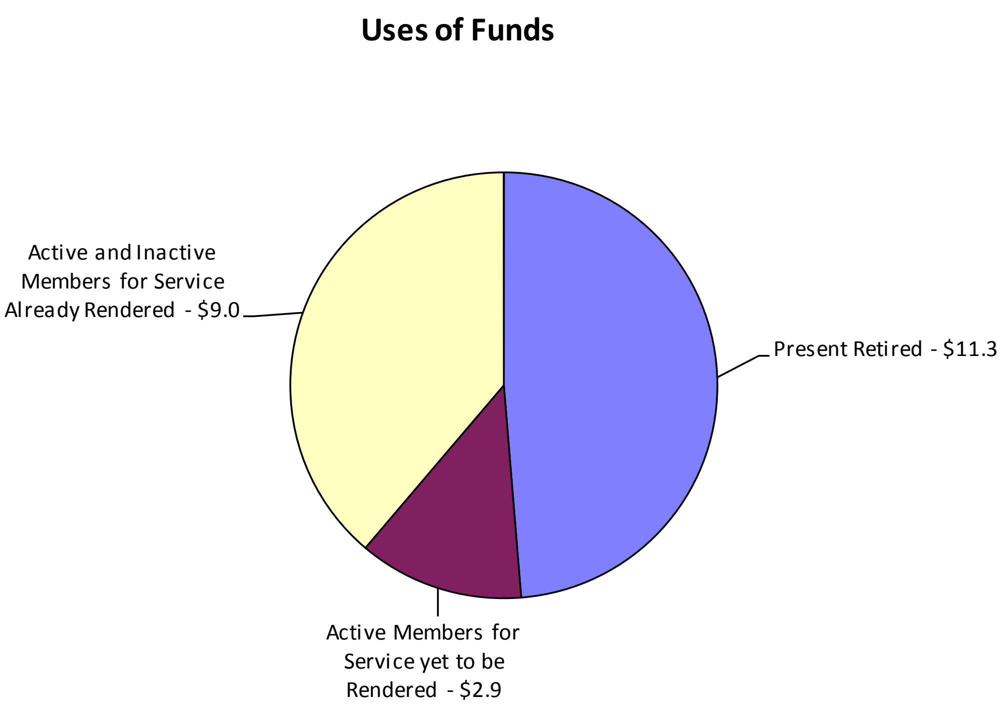
Actuarial Present Value of	(1) Total Present Value	Entry Age Actuarial Cost Method (2) Portion Covered by Future Normal Cost Contributions	(3) Actuarial Accrued Liabilities (1)-(2)
Age and service retirement allowances based on total service likely to be rendered by present active members.	$ 8,035,249,926	$2,182,371,955	$ 5,852,877,971
Age and service retirement allowances based on total service likely to be rendered by present T-DROP members.	2,214,644,163	31,602,868	2,183,041,295
Vested Deferred Benefits likely to be paid present active and inactive members.	1,156,454,706	343,142,634	813,312,072
Survivor benefits expected to be paid on behalf of present active members.	212,276,017	79,246,103	133,029,914
Disability Benefits expected to be paid on behalf of present active members.	207,864,749	102,992,128	104,872,621
Refunds of Member contributions expected to be paid on behalf of present active members.	19,199,225	145,112,904	(125,913,679)
Benefits payable to present retirees and beneficiaries.	11,337,222,705	0	11,337,222,705
Total	$23,182,911,491	$2,884,468,592	$20,298,442,899
Applicable Assets	16,131,466,927	0	16,131,466,927
Liabilities to be Covered by Future Contributions	$ 7,051,444,564	$2,884,468,592	$ 4,166,975,972

Liabilities for Retirees July 1, 2017
Tabulated by Type of Benefit Being Paid

Type of Annuity	Liabilities July 1, 2017 Men	Women	Totals
RETIREMENT RESERVE ACCOUNT			
Age & Service Annuities			
Option 1 (Straight Life)	$ 1,340,763,380	$ 6,269,128,115	$ 7,609,891,495
Option A (100% Joint & Survivor)	790,024,323	802,085,824	1,592,110,147
Option B (50% Joint & Survivor)	387,285,607	585,640,079	972,925,686
Option C (10 Years Certain & Life)	31,758,126	139,577,768	171,335,894
Beneficiaries	47,944,961	151,906,605	199,851,566
Total Age & Service	2,597,776,397	7,948,338,391	10,546,114,788
Disability Annuities			
Option 1	49,047,704	265,221,848	314,269,552
Option A	28,297,839	41,082,209	69,380,048
Option B	5,818,795	11,407,754	17,226,549
Option C	389,801	4,192,000	4,581,801
Beneficiaries	20,203,795	23,592,077	43,795,872
Total Disability	103,757,934	345,495,888	449,253,822
Total Retirement Reserve Account	2,701,534,331	8,293,834,279	10,995,368,610
SURVIVORS' BENEFIT ACCOUNT			
Beneficiaries of Deceased Members	$ 45,907,387	$ 58,761,608	$ 104,668,995
OTHER LIABILITIES			
Act 793	$ 10,597,479	$ 6,041,912	$ 16,639,391
Act 808	10,582,650	3,824,991	14,407,641
RETIREMENT SYSTEM TOTALS			
Total Annuity Liabilities	2,768,621,847	8,362,462,790	11,131,084,637
Cash Benefit Account Liabilities			91,084,101
Liabilities for Lump Sum Death Benefits			115,053,967
Total	$ 2,768,621,847	$ 8,362,462,790	$ 11,337,222,705

Financing $23.2 Billion of Benefit Promises for Present Active and Retired Members June 30, 2017





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; 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.

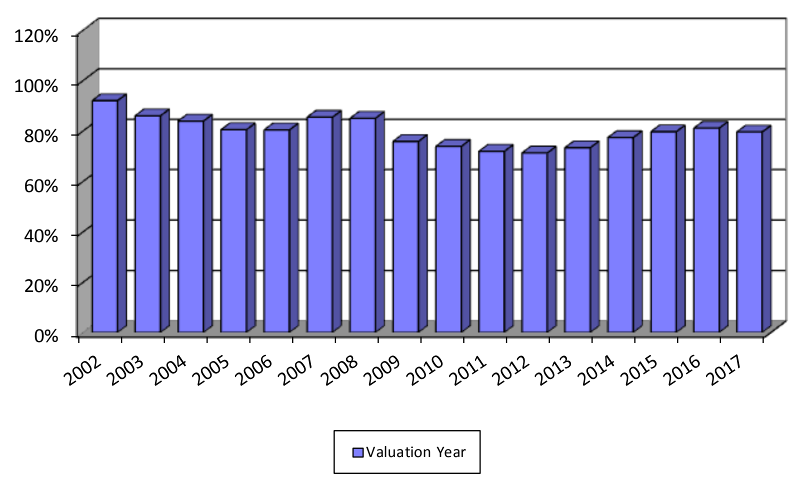
The schedule below illustrates the history of Liability 3 of the System and is indicative of the ATRS objective of following the discipline of level percent-of-payroll financing.

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-----------------------							
2008#	$ 732	$ 5,544	$ 7,058	$ 11,319	100%	100%	71%	85%
2009	790	6,041	7,188	10,617	100%	100%	53%	76%
2010#	848	6,516	7,333	10,845	100%	100%	47%	74%
2011#*	929	7,132	7,460	11,146	100%	100%	41%	72%
2012	981	7,649	7,509	11,484	100%	100%	38%	71%
2013#	1,027	8,181	7,510	12,247	100%	100%	40%	73%
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%

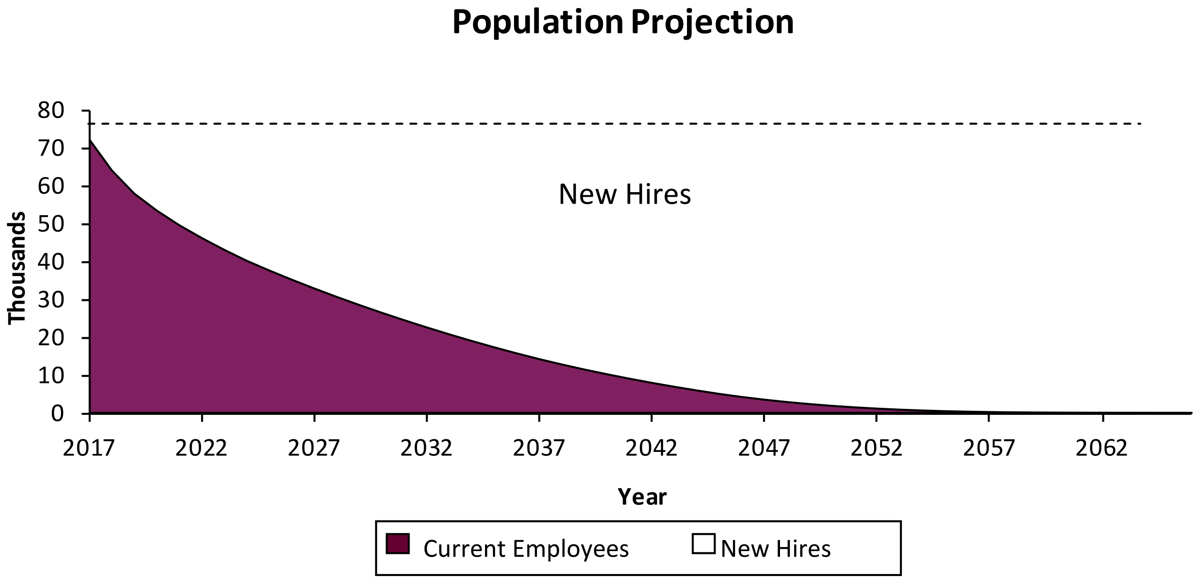
* *Revised actuarial assumptions or methods.*

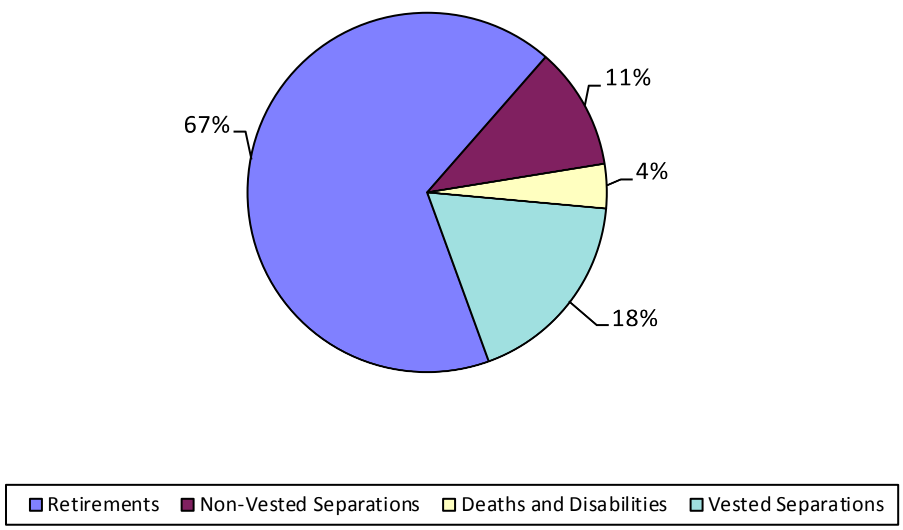
\# *Legislated benefit or contribution rate change.*

Actuarial Value of Assets as a Percent of Accrued Liabilities (Funded Ratio)



Expected Development of Present Population June 30, 2017 (Excludes Rehired Retirees)





The charts show the expected future development of the present population in simplified terms. The retirement system presently covers 72,148 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 89% of the present population is expected to receive monthly retirement benefits. Approximately 4% of the present population is expected to become eligible for death-in-service or disability benefits. Within 9 years, over half of the covered membership is expected to consist of new hires.

SECTION C

SUMMARY OF BENEFITS

Summary of Provisions
June 30, 2017

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.

   Act 750 of 2017 allows the ATRS Board 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 left 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 ATRS 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 employed by a system employer as an active member (Act 973 of 2011). 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. Act 219 of 2015 requires an ATRS disability retiree 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. Additionally, the retiree may apply for an extension of the 36 month deadline if the retiree can demonstrate the SSA determination is in progress. Act 549 of 2017 allows a disabled retiree to return to work for an ATRS covered employer as a part-time employee or in a lesser position than held previously and not be disqualified from disability retirement.

4. **Disability Retirement – A.C.A. § 24-7-704 (Cont.)** If a retiree tries to return to full time employment, but cannot hold out to work, the suspended disability benefit will be what it would have been had they not tried to return to work, or a recomputed benefit using the additional service, whichever is higher. Additionally, this act allows that a retiree who was unable to secure a Social Security disability determination letter may seek the ATRS medical committee's review of the case and its findings shall be ruled as a final disposition in the matter.

5. **Final Average Salary (FAS) – A.C.A. § 24-7-736.** A member's final average salary is the average of the annual salaries paid during the period of 3 years of credited service producing the highest annual average. Beginning July 1, 2009, no salary paid in any year which is utilized in the computation of the members' final average salary, shall exceed the percentage increase of the base year, unless the difference in value between the next-highest year and the base year is within the amount of the salary differential (defined below). (Act 611 of 2017). If a member has a break in covered employment for eight years or more between any of the member's highest salary years used in the calculation of final average salary, then anti-spiking checking does not apply to the next highest year in the formula (Act 225 of 2011 – effective date of law July 27, 2011). There will no longer be any stacking of part-time college/teaching work for school district employees (Act 513 of 2011). Act 555 of 2013 limits the use of a reciprocal system's calculation of FAS if the ATRS member's reciprocal service credit is less than the number of years used to calculate the FAS for ATRS. Beginning July 1, 2014, if a member has less than three years of reciprocal service (the number of years used to calculate ATRS' FAS), then ATRS will obtain the salary and service credit from the reciprocal system, and use that salary and service as if it had all been earned in ATRS to calculate a FAS for retirement. Act 720 of 2013 made a minor change to final average salary for members who stop work during their last year of employment immediately before retirement. The Board may adjust the final average salary calculation by board resolution provided that the percentage range is no lower than 105% nor higher than 120% per year; and the salary differential is no lower than $1,250 nor higher than $5,000. Act 611 of 2017. The ATRS Board adjusted the percentage to 110% and salary differential allowance to $5,000 by Resolution 2017-13 on April 17, 2017. **Effective in Fiscal Year 2019, a member's final average salary is the average of the annual salaries paid during the period of 5 years of credited service producing the highest annual average. A benchmark 3-year FAS of as of 6/30/2018 is established as a minimum FAS.**

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 non-contributory service times 1.39% of FAS (through 2019, 1.25% thereafter); plus stipend for all members with 10 or more years of ATRS actual service.** Act 966 of 2013 allows the ATRS Board to set the contributory multiplier for service credit earned after June 30, 2013, within a range of 1.75% to 2.15%. 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, this act would allow the Board to set special multiplier rates for the first 10 years of ATRS service earned after June 30, 2013, for both contributory and noncontributory service. This act is dependent upon the actuary's certification that the amortization period is in excess of 18 (Act 551 of 2017) years to pay unfunded liabilities prior to any reduction to the multipliers.

Summary of Provisions
June 30, 2017

6. **Age & Service Annuity and Disability Annuity – A.C.A. §§ 24-7-705, 24-7-727 (stipend) Cont. The non-contributory multiplier will become 1.25% beginning in FY 2020. Also the contributory multiplier and non-contributory multiplier for the first 10 years of service has been reduced 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 rate in place at the time the service was earned.**

7. **T-DROP – ACA § 24-7-1301-1316.** A member with 28 or more years of service may participate in the Teacher Deferred Retirement Option Plan (T-DROP, Act 1096 of 1995). An amount equal to the amount that would have been paid had the member retired, reduced by 1% for each year of contributory, 1% for each year of reciprocal (Act 162 of 2011) and 6/10% for each year of non-contributory service, is deposited into a T-DROP account. **For active participants who enter the T-DROP Plan July 1, 2013 or later, the reduction for contributory, reciprocal, and noncontributory service credit is 1% for each year and fractional year of service credit (Act 605 of 2013).** 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. Act 750 of 2017 allows the Board to adjust the additional T-DROP reduction factor (24-7-1314) between ½% and 1% of the plan benefit for each month the member begins participating in the plan prior to having 30 years of credited service. The annual addition to the T-DROP account is increased each year by 3% of the member's annuity at the initial participation date and the account is credited with 2% less than the system's rate of return (not less than 2%, nor greater than 6% interest on the mean balance) each year. Deposits to T-DROP 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 participation, but do not accumulate additional service credit or make member contributions. Beginning July 1, 2010, members who remain in T-DROP for more than 10 years (post 10-year T-DROPers) get interest on T-DROP account balances. The 10-year plus T-DROP interest rate that will be credited to an active members' T-DROP account must be no less than 4% and no greater than 6% as determined by the Board of Trustees. Act 1049 of 2017 allows the ATRS Board to adjust the applicable T-DROP interest rates (24-7-1307). A fixed interest rate may be adopted by board resolution prior to the beginning of the fiscal year and which would apply to subsequent fiscal years unless modified by the Board. Alternatively, a variable interest rate formula that is based on investment returns and other factors may be adopted by Board resolution prior to the beginning of a fiscal year. In addition to the applicable interest rate for the fiscal year, the Board may adopt by Board resolution a T-DROP participation incentive rate during a fiscal year if investment returns justify an incentive rate for the fiscal year. The Board may approve an incentive rate in addition to the 6% if the ATRS rate of return is greater than the ATRS assumed rate of return in the preceding calendar year. The rate may not exceed 7.5%. Upon actual retirement, the member may receive the T-DROP account balance in the form of a lump sum or as an additional annuity. Beginning July 1, 2011, the T-DROP distribution may be a combination of both lump sum and annuity allowing members to take a partial annuity along with a corresponding partial lump sum (Act 162 of 2011). Act 1049 of 2017 allows the interest rate for 10 year plus plan interest rate (24-7-1307) shall be determined appropriate by the Board and adopted by the resolution prior to the beginning of the fiscal year in which the interest rate shall apply. The Board set the regular T-DROP interest rate at a variable 5% for fiscal year 2017-18 by resolution 2017-15 and the post 10 year T-DROP interest rate at a variable 6% by resolution 2017-16, both on April 17, 2017. The Board has set the interest rate at 3% beginning in FY 2019 and later. The T-DROP interest rate may be adjusted above 3% to provide an

7. **T-DROP – ACA § 24-7-1301-1316 (Cont).** incentive if the estimated ATRS rate of return is 2% greater than the ATRS actuarial assumed rate of return in the preceding calendar year. The rate may not exceed 6%.

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, as re-determined by Acts 396 of 1999 and 992 of 1997. The July 1, 2009 cost of living adjustment for retirees was compounded. The annuity was adjusted by multiplying 3% times 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. Act 967 of 2013 gives the ATRS Board authority to reverse the compounding of a benefit and reset the base amount to the pre-compounding amount. If this reversal were to occur, it would include participants in the T-DROP plan. The future benefits of a member would not be reduced to recover any benefits paid to a member as a result of the compounding. In addition, the member's benefit on the date of the reversal would not be impacted, but future COLA's would be based upon the reset base amount. *This act is dependent upon the actuary's certification that the amortization period is in excess of 30 years to pay unfunded liabilities prior to any reversal of the compounding of the COLA*. Act 780 of 2017 allows the right to reverse the 2009 compound COLA when unfunded liabilities exceed an 18 year amortization. The act also allows a phase in of the change during months in which a COLA raise is given to prevent any retiree or option beneficiary from having an actual reduction in monthly benefit payments.

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 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. Act 505 of 2017. 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).

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

   (b) Beginning July 1, 2013, survivors have three months to file an application for benefits if the benefits are to begin the month of the member's death. Otherwise, the benefits will begin the month that the survivor application is filed with the system (Act 571 of 2013).

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 ($6,667 for non-contributory service-benefit). The amount will be prorated for members who have both contributory service and non-contributory service. Members with 15 or more years of contributory service will receive the full $10,000 (Act 977 of 2011).

11. **Members' Contributions – A.C.A. § 24-7-406.** Through FY 2019, contributory members contribute 6% of their salaries. If a member leaves service prior to becoming eligible to retire, the accumulated contributions are returned upon request. No interest is credited to a member's contributions for the first year of membership; after 1 year, interest credits are 1%. Effective July 1, 1986, a non-contributory 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. Effective July 1, 2005, all non-contributory members whose status changes from support to teacher (contracted for more than 181 days), will become contributory. Each July 1, members who previously elected to be non-contributory may elect to change to contributory status under Act 385 of 2005. The election is irrevocable. Employer contributions are collected at a rate of 14% on active members, T-DROP participants (even those who work beyond the 10-year participation period), and working retirees (Act 743 of 2009). Act 602 of 2013 allows the ATRS Board to set the member contribution rate between 6% and 7% of salary. Act 550 of 2017 allows the ATRS Board to increase the employee contribution rate if the amortization period to pay the unfunded liabilities of the system exceeds 18 years. **The contribution rate for FY 2017-2019 remains at 6%. The rates are 6.25%, 6.50%, 6.75% and 7.00% for FY 2020, FY 2021, FY 2022 and FY 2023 & thereafter, respectively.**

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).

Summary of Provisions
June 30, 2017

14. **Retiree Health 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 $75 per month toward retiree health care premiums. Members in T-DROP do not receive the $75 per month 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. Act 603 of 2013 allows the ATRS Board to increase or decrease the stipend to a minimum of $1 per month and a maximum of $75 per month. This act is dependent upon the actuary's certification that the amortization period is in excess of 18 years to pay unfunded liabilities prior to any reduction in the current stipend. The stipend for fiscal year 2018 remains at $75 per month. **By Board resolution, for members retiring on or after May 1, 2017, the benefit stipend will not be in the member's base benefits. It will be removed from the base benefit for all retirees in Fiscal Year 2019. Beginning in Fiscal Year 2020 the benefit stipend for all retirees will be $50 per month. The Board enacted a "hold harmless" provision that prevents the lowering of the stipend from actually reducing 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 will receive the same annuity for the balance of his/her lifetime.

    Option B *(50% Survivor Annuity)*

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

    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.

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

Summary of Provisions
June 30, 2017

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 (Act 976 of 2011); any repurchase of refunded service will be as contributory years at actuarial cost (Act 69 of 2011). Act 140 of 2013 specifies that 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 (Act 163 of 2011).

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 69 of 2011).

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 (Act 136 of 2011).

20. **Limit Lookback to Five Years – A.C.A. §§ 24-7-202, 24-7-205.** Effective July 1, 2011, absent intentional nondisclosure, fraud, misrepresentation, or criminal act, members can no longer establish old service previously unreported (Act 138 of 2011). Act 241 of 2017 allows ATRS to correct an understated service credit error upon which all required contributions have been paid, 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 (Act 974 of 2011).

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. The interest rate credited will be between 2.5% and 4.0%, increasing 25 basis points for each year on deposit through the 5th year, and then 4% for the 6th and subsequent years.

23. **Delinquent Member Contributions – A.C.A. § 24-7-205.** Act 336 of 2013 allows members to forfeit service credit for any contributory fiscal year for which there is a balance due to the system.

24. **Purchase of Air Time as a Result of Wrongful Termination – A.C.A. §§ 24-7-702, 24-7-735, 6-17-413.** Act 521 of 2013 allows a member 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.

25. **Buyout of Inactive Members—A.C.A. § 24-7-505.** Act 606 of 2013 allows the ATRS Board to create 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. The rule is 16-1 Cash and Savings Help Program for Members (CASH). This particular plan offering ended June 30, 2015. Depending upon the success of the plan, it may be extended by the Board. Act 647 of 2017 allows the buyout plan to be extended, modified, or expanded by board resolution. 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.

26. **Private School Service—A.C.A. § 24-7-607.** Prior to Act 90 of 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. ATRS went 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.

27. **Military Service Credit—A.C.A. § 24-7-602**. Act 301 of 2015 was for technical corrections to the laws. In the military service credit section, ATRS was not in compliance with a state law that was passed in 2009, Act 295, which deleted 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.

28. **Lump-Sum Payment of Reserve Value of Small Annuity—A.C.A. 24-7-716**. Prior to passage of Act 225 of 2015, ATRS would pay out a reserve value to a member whose monthly benefit was less than $20 per month. This was optional for the member. The reserve value was calculated by multiplying the annual annuity by the reserve factor for the member's age. Act 225 of 2015 repealed this law.

29. **Pension Advance Prohibition – A.C.A. § 24-7-715**. Prohibits a pension advance company from obtaining a retiree's benefit to repay a loan. Act 199 of 2017.

30. **Accrued Sick Leave – A.C.A. § 24-7-601**. Allows unused accrued sick leave, whether paid or unpaid, 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. This does not include catastrophic leave and other unused donated leave. Act 200 of 2017.

31. **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 is designated by the member. Act 243 of 2017.

32. **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 his/her 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. Act 436 of 2017.

33. **Outsourcing – A.C.A. § 24-7-506**. This Act defines outsourcing to mean employment for an ATRS covered employer through a third party, private employer, independent contractor, or other contractual relationship. This Act defines that a person who performs services that are necessary for the normal daily operation for an ATRS covered employer is considered an Embedded Employee. This Act gives the ATRS covered employer a one-time decision to choose between two options for handling their Embedded Employees. The decision must be made within 60 days after the effective date of this Act or that first outsourcing. 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 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 shall not apply to post-secondary higher education institutions. Act 575 of 2017.

34. **Concurrent Reciprocal Service Credit – A.C.A. § 24-7-601**. This act allows ATRS members with the option of waiving their ATRS service in the event the member had concurrent service in two (2) state-supported retirement systems. This Act gives the member the option to choose ATRS service or the reciprocal plan service to surrender. If a member worked full time under a reciprocal retirement system and only part-time under ATRS, this Act will allow the member to waive the ATRS service to obtain a higher benefit based upon the full time service in the other system. This act will allow concurrent reciprocal members the option to voluntarily elect to waive service in ATRS. The member's employer-accrued contributions and employee-accrued contributions in the system remain with the system. Act 612 of 2017.

35. **Employer Contribution Rate – A.C.A. § 24-7-401.** 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 .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%. Act 821 of 2017. The employer contribution rate for fiscal year 2017-18 remains at 14%. It will increase in steps of 0.25% beginning in FY 2020 until it reaches 15%.

36. **Forfeiture of Benefits by Certain Persons – A.C.A. §§ 24-1-301, 302, 303, 304, 305**. Act 756 of 2017 provides for a beneficiary's forfeiture of benefits under a public retirement system when the beneficiary unlawfully kills a member or retirant.

Sample Benefit Computations for a Member Retiring June 30, 2017

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	900
K.	Total Benefit: I + J	23,650
L.	Adjustment for Line F election: (1 - 0.78571) x I	4,875
M.	Annual Amount Payable	$18,775

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

Year Ended June 30	Annual Amount
2018	$18,775
2019	19,311
2020	19,847
2021	20,383
2022	20,919

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

Sample T-DROP Benefit Computations for a Member Entering T-DROP June 30, 2017

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 contributory 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
2018	$13,350
2019	13,751
2020	14,151
2021	14,552
2022	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 4-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 3 consecutive years, funding value will become equal to market value.

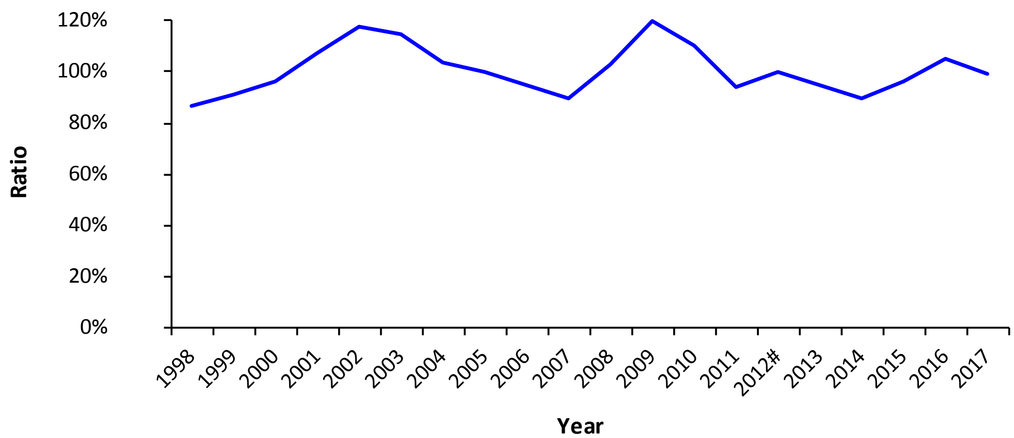
A multi-year comparison of market value to funding (actuarial) value is on the following page.

Asset Valuation Method

Valuation Date June 30	Market Value of Assets (1)	Actuarial Value of Assets (2)	Ratio of AV to MV (2) / (1)
1998	$ 6,656	$ 5,815	87%
1999	7,403	6,740	91%
2000	7,978	7,620	96%
2001	7,643	8,166	107%
2002	7,084	8,328	118%
2003	7,050	8,113	115%
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%

 # Actuarial Value set equal to Market Value.

Ratio of Actuarial Value to Market Value



This year the market value of assets is greater than the actuarial value (see page A-3 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:	2014	2015	2016	2017	2018	2019	2020
A. Funding Value Beginning of Year	$ 12,246,805,197	$ 13,374,765,500	$ 14,433,823,989	$ 15,238,522,015			
B. Market Value End of Year	14,856,276,668	15,035,701,313	14,558,576,729	16,284,808,245			
C. Market Value Beginning of Year	12,829,565,578	14,856,276,668	15,035,701,313	14,558,576,729			
D. Non-Investment Net Cash Flow	(394,588,772)	(444,707,451)	(504,645,210)	(555,761,481)			
E. Investment Return							
E1. Market Total: B - C - D	2,421,299,862	624,132,096	27,520,626	2,281,992,997			
E2. Assumed Rate	8.00%	8.00%	8.00%	8.00%	7.50%	7.50%	7.50%
E3. Amount for Immediate Recognition	963,960,865	1,052,192,942	1,134,520,111	1,196,851,302			
E4. Amount for Phased-In Recognition: E1-E3	1,457,338,997	(428,060,846)	(1,106,999,485)	1,085,141,695			
F. Phased-In Recognition of Investment Return							
F1. Current Year: 0.25 x E4	364,334,749	(107,015,212)	(276,749,871)	271,285,424	Unknown	Unknown	Unknown
F2. First Prior Year	194,253,461	364,334,749	(107,015,212)	(276,749,871)	$ 271,285,424	Unknown	Unknown
F3. Second Prior Year	-	194,253,461	364,334,749	(107,015,212)	(276,749,871)	$ 271,285,424	Unknown
F4. Third Prior Year	-	-	194,253,459	364,334,750	(107,015,210)	(276,749,872)	$ 271,285,423
F5. Total Recognized Investment Gain	**558,588,210**	**451,572,998**	**174,823,125**	**251,855,091**	(112,479,657)	(5,464,448)	271,285,423
G. Funding Value End of Year:							
G1. Preliminary Funding Value End of Year: A+D+E2+F6	**13,374,765,500**	**14,433,823,989**	**15,238,522,015**	**16,131,466,927**			
G2. Upper Corridor Limit: 120% x B	**17,827,532,002**	**18,042,841,576**	**17,470,292,075**	**19,541,769,894**			
G3. Lower Corridor Limit: 80% x B	**11,885,021,335**	**12,028,561,050**	**11,646,861,383**	**13,027,846,596**			
G4. Funding Value End of Year	**13,374,765,500**	**14,433,823,989**	**15,238,522,015**	**16,131,466,927**			
H. Actual/Projected Difference between Market and Funding Value	1,481,511,168	601,877,324	(679,945,286)	153,341,318	265,820,975	271,285,423	-
I. Market Rate of Return	19.17 %	4.26 %	0.19 %	15.98 %			
J. Funding Rate of Return	12.64 %	11.43 %	9.23 %	9.68 %			
K. Ratio of Funding Value to Market Value	90.03 %	96.00 %	104.67 %	99.06 %			

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

The assets of the Retirement System, as of June 30, 2017, were reported to your actuary to be $16,284,808,245. This amount, together with a market value adjustment of $153,341,318 this year, is used to finance the Retirement System liability.

Accounts	Assets at June 30 2017	Assets at June 30 2016
Regular Accounts		
Members' Deposit Accounts		
Contributions	$ 1,229,715,817	$ 1,159,759,877
Interest	8,648,950,788	7,150,581,061
Total	9,878,666,605	8,310,340,938
T-Drop Member Deposit Accounts		
Contributions	24,594,867	24,074,666
Interest	31,995,573	37,090,183
Total	56,590,440	61,164,849
Cash Balance Account	91,084,101	69,976,233
Employer's Accumulation Account	(4,840,656,333)	(3,985,107,737)
Retirement Reserve Account	10,545,265,390	9,533,653,119
Act 808 Retirement Reserve Account	13,986,693	14,894,565
T-Lump Payable	430,583,531	454,943,811
Survivors Benefit Account	99,931,749	88,768,471
Total Regular Accounts	16,275,452,176	14,548,634,249
Other Accounts		
Income Expense Account	9,356,069	9,942,480
Other Special Reserves	-	-
Miscellaneous	-	-
Total Other Accounts	9,356,069	9,942,480
Total Accounting Value of Assets	16,284,808,245	14,558,576,729
Market Value Adjustment	(153,341,318)	679,945,286
Funding Value of Assets	$ 16,131,466,927	$ 15,238,522,015

Market Value of Assets

The net market value of assets at year-end was $16,284,808,245 and was invested as shown below.

	Market Value at June 30	
	2017	**2016**
Cash	$ 273,336,545	$ 228,375,223
Receivables		
Unsettled Trades and Accrued Return	58,987,011	89,180,723
Member Contributions	8,368,529	8,909,917
Employer Contributions	28,371,709	30,479,999
Other	203,914	373,109
Total Receivables	95,931,163	128,943,748
Investments		
Government Securities	15,055,571	25,157,800
Domestic Equities	2,342,524,863	2,736,847,861
International Equities	987,229,454	733,961,206
Commingled Funds	7,313,897,063	5,808,435,670
Corporate Bonds	642,108,955	608,322,817
Asset and Mortgage-backed Securities	40,631,854	33,238,073
Mortgages (CMO's)	-	-
Conventional Mortgages	-	-
Alternative Investments	4,297,122,835	4,261,910,693
Limited Partnerships	70,178,093	37,471,079
Real Estate	59,095,506	58,730,872
Other Investments	224,000,000	-
Investment Derivative Instruments	(284,155)	(195,507)
Total Investments	15,991,560,039	14,303,880,564
Invested Securities Lending	431,215,542	574,498,212
Net Equipment	276,426	309,256
Total Assets	16,792,319,715	15,236,007,003
Liabilities		
Survivor Benefits for Minors	342,588	302,374
Other Payables	6,924,468	6,226,684
Securities Related Payables	69,054,717	95,998,275
Securities Lending Collateral	431,189,697	574,902,941
Total Liabilities	507,511,470	677,430,274
Net Market Value	$ 16,284,808,245	$ 14,558,576,729
Change from Prior Year	1,726,231,516	(477,124,584)

Market Value Reconciliation

Assets developed during the year as follows:

	Year Ended June 30	
	2017	2016
Net Market Value July 1	$ 14,558,576,729	$ 15,035,701,313
Additions		
Employer Contributions	414,954,939	410,461,299
Employee Contributions	133,109,940	130,997,913
Appreciation	2,210,725,328	(63,612,934)
Interest	25,667,651	21,904,797
Dividends	76,202,416	78,774,203
Real Estate	7,516,675	7,205,691
Other	8,547,919	29,930,559
Securities Lending Activity	4,620,171	4,698,995
Total Additions	2,881,345,039	620,360,523
Deductions		
Age & Service Benefits	907,314,702	852,695,640
Disability Benefits	38,833,696	37,812,689
Option Benefits	26,843,481	24,637,113
Survivor Benefits	10,470,562	9,946,290
Reciprocal Service	49,175,662	45,746,432
Act 808	2,874,444	3,000,785
Refunds	10,874,003	10,145,471
Active Member Death	474,719	357,921
T-DROP Benefits	42,969,143	52,760,622
CBA Benefits	9,735,670	8,600,786
CASH Benefit Program	4,260,278	400,673
Investment Expense	43,461,569	43,321,655
Administrative Expense	7,825,594	8,059,030
Total Deductions	1,155,113,523	1,097,485,107
Miscellaneous	-	-
Net Market Value June 30	$ 16,284,808,245	$ 14,558,576,729

Schedule of Funding Progress
(Dollar amounts in Millions)

Valuation Date June 30	(1) Actuarial 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)
1998+*	$ 5,815	$ 6,188	$ 373	94.0%	$ 1,368	27.3%	425.0%	452.3%
1999+	6,740	6,834	94	98.6%	1,429	6.6%	471.6%	478.2%
2000+	7,620	7,879	259	96.7%	1,485	17.4%	513.2%	530.6%
2001+	8,166	8,561	395	95.4%	1,557	25.4%	524.4%	549.8%
2002*	8,328	9,062	734	91.9%	1,628	45.1%	511.5%	556.6%
2003+	8,113	9,445	1,332	85.9%	1,683	79.1%	482.1%	561.2%
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%

+ *Legislated benefit or contribution rate change.*

* *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.

Schedule of Employer Contributions

Fiscal Year Ended June 30	Valuation Date June 30	Covered Payroll *	Annual Required Contribution	(A) Annual Required Contribution	(B) Actual Contribution Dollars	(B)/(A) Percent Contributed
2014	2012	$2,850,860,174	16.8%	$478,944,509	$404,920,441	84.5%
2015	2013	2,873,988,053	16.3%	468,460,053	408,281,905	87.2%
2016	2014	2,888,392,668	14.9%	430,370,508	410,461,299	95.4%
2017	2015	2,921,965,125	14.3%	417,841,013	414,954,939	99.3%

* *Annual payroll of active, T-DROP and return to work employees as of June 30. Actual contributions were based on pay actually paid throughout the year which was different from the payroll reported above.*

Risk 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) Funded Ratio (2)/(1)	(6) Liability/ Payroll (1)/(4)	(7) Assets/ Payroll (2)/(4)	(8) Unfunded/ Payroll (3)/(4)	(9) Net External Cash Flow (NECF)	(10) NECF/ Assets (9)/(2)	(11) Portfolio Rate of Return	(12) 10 year Trailing Average
2003#	$ 9,445	$ 7,050	$ 2,395	$ 1,683	74.6%	561.2%	418.9%	142.3%	$ (109)	-1.6%	1.1%	
2004	10,050	8,122	1,928	1,748	80.8%	574.9%	464.6%	110.3%	(115)	-1.4%	17.0%	
2005	10,973	8,811	2,162	1,962	80.3%	559.3%	449.1%	110.2%	(84)	-1.0%	9.6%	
2006	11,623	9,868	1,755	2,080	84.9%	558.8%	474.4%	84.4%	(110)	-1.1%	13.3%	
2007#	12,329	11,637	692	2,191	94.4%	562.7%	531.1%	31.6%	(118)	-1.0%	19.2%	
2008#	13,334	11,018	2,316	2,268	82.6%	587.9%	485.8%	102.1%	(135)	-1.2%	-4.2%	
2009	14,019	8,847	5,172	2,318	63.1%	604.8%	381.7%	223.1%	(172)	-1.9%	-18.3%	
2010#	14,697	9,884	4,813	2,381	67.2%	617.3%	415.1%	202.2%	(203)	-2.1%	14.2%	3.6%
2011#*	15,521	11,895	3,626	2,728	76.6%	569.0%	436.1%	132.9%	(201)	-1.7%	22.6%	6.1%
2012	16,139	11,484	4,655	2,714	71.2%	594.7%	423.2%	171.5%	(285)	-2.5%	-1.1%	6.6%
2013#	16,718	12,830	3,888	2,727	76.7%	613.1%	470.5%	142.6%	(337)	-2.6%	14.9%	8.0%
2014	17,310	14,856	2,454	2,758	85.8%	627.6%	538.6%	89.0%	(395)	-2.7%	19.2%	8.2%
2015	18,136	15,036	3,100	2,777	82.9%	653.1%	541.5%	111.6%	(445)	-3.0%	4.3%	7.7%
2016	18,812	14,559	4,253	2,785	77.4%	675.5%	522.8%	152.7%	(505)	-3.5%	0.2%	6.3%
2017#*	20,298	16,285	4,013	2,814	80.2%	721.3%	578.7%	142.6%	(556)	-3.4%	16.0%	6.0%

(*) 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.

(5). 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.

(6) and (7) 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.

(8) 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.

(9) and (10) 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.

(11) and (12) 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 realism of the systems assumed return. The averages are of course distorted by the extraordinary events of 2008.

SECTION E

COVERED MEMBER DATA

Active Members in Valuation June 30, 2017
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	766							766	$ 1,516,142
20-24	1,955	10						1,965	39,207,398
25-29	4,975	1,084	11					6,070	206,425,292
30-34	3,255	3,109	925	10				7,299	269,630,968
35-39	2,876	2,144	2,913	648	2			8,583	336,187,462
40-44	2,353	2,012	2,104	2,354	585	2		9,410	394,929,420
45-49	1,996	1,781	2,071	1,770	2,109	478		10,205	437,509,365
50-54	1,519	1,261	1,697	1,547	1,466	1,353	59	8,902	361,855,143
55-59	1,321	1,078	1,399	1,434	1,370	987	83	7,672	286,565,564
60	219	209	200	227	262	216	22	1,355	50,190,907
61	240	185	200	214	222	174	20	1,255	46,962,650
62	167	171	176	180	170	150	18	1,032	37,686,925
63	174	134	163	109	108	131	12	831	28,855,805
64	122	147	118	98	108	110	13	716	26,019,880
65	117	115	118	84	86	74	18	612	20,647,633
66	116	86	53	30	30	16	9	340	8,790,451
67	108	57	37	13	12	6	1	234	5,481,867
68	95	44	22	6	7	1	4	179	3,385,627
69	97	48	25	5	2	3		180	3,172,285
70 & Up	368	228	88	27	10	7	3	731	11,746,867
Totals	**22,839**	**13,903**	**12,320**	**8,756**	**6,549**	**3,708**	**262**	**68,337**	**$2,576,767,651**

Group Averages:

Age: 44.3 years

Service: 10.2 years

WOMEN Active Members in Valuation June 30, 2017
by Attained Age and Years of Service
(Excludes T-Drop and Rehired Retirees)

Attained Age	Years of Service to Valuation Date 0-4	5-9	10-14	15-19	20-24	25-29	30 Plus	Totals No.	Valuation Payroll
Under 20	252							252	$ 612,776
20-24	1,416	2						1,418	29,907,541
25-29	3,780	818	8					4,606	154,073,202
30-34	2,571	2,345	744	3				5,663	200,981,193
35-39	2,336	1,654	2,267	514	1			6,772	253,692,898
40-44	1,877	1,629	1,690	1,817	448	1		7,462	296,751,544
45-49	1,524	1,442	1,743	1,457	1,660	389		8,215	337,296,483
50-54	1,048	965	1,416	1,311	1,188	1,034	49	7,011	273,285,350
55-59	896	787	1,105	1,211	1,178	808	66	6,051	219,191,767
60	149	143	150	184	213	183	18	1,040	37,509,071
61	148	134	153	177	191	158	17	978	36,052,296
62	97	109	128	134	135	131	17	751	26,914,325
63	98	87	122	82	90	114	10	603	21,093,644
64	69	99	87	73	101	88	10	527	19,085,287
65	62	75	81	64	75	62	16	435	14,931,962
66	60	56	35	25	25	14	6	221	5,703,438
67	61	32	25	13	8	5	1	145	3,617,425
68	55	16	15	5	6	1	3	101	1,872,682
69	50	27	17	3	2	3		102	1,807,787
70 & Up	196	99	50	14	5	5	3	372	5,859,304
Totals	**16,745**	**10,519**	**9,836**	**7,087**	**5,326**	**2,996**	**216**	**52,725**	**$ 1,940,239,975**

Group Averages:

Age: 44.3 years

Service: 10.5 years

MEN Active Members in Valuation June 30, 2017
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	514							514	$ 903,366
20-24	539	8						547	9,299,857
25-29	1,195	266	3					1,464	52,352,090
30-34	684	764	181	7				1,636	68,649,775
35-39	540	490	646	134	1			1,811	82,494,564
40-44	476	383	414	537	137	1		1,948	98,177,876
45-49	472	339	328	313	449	89		1,990	100,212,882
50-54	471	296	281	236	278	319	10	1,891	88,569,793
55-59	425	291	294	223	192	179	17	1,621	67,373,797
60	70	66	50	43	49	33	4	315	12,681,836
61	92	51	47	37	31	16	3	277	10,910,354
62	70	62	48	46	35	19	1	281	10,772,600
63	76	47	41	27	18	17	2	228	7,762,161
64	53	48	31	25	7	22	3	189	6,934,593
65	55	40	37	20	11	12	2	177	5,715,671
66	56	30	18	5	5	2	3	119	3,087,013
67	47	25	12		4	1		89	1,864,442
68	40	28	7	1	1		1	78	1,512,945
69	47	21	8	2				78	1,364,498
70 & Up	172	129	38	13	5	2		359	5,887,563
Totals	**6,094**	**3,384**	**2,484**	**1,669**	**1,223**	**712**	**46**	**15,612**	**$ 636,527,676**

Group Averages:

Age: 44.1 years

Service: 9.1 years

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

	Teachers		Support		Total Active Members	
	No.	Valuation Payroll	No.	Valuation Payroll	No.	Valuation Payroll
Women	27,345	$ 1,351,730,455	25,380	$ 588,509,520	52,725	$ 1,940,239,975
Men	7,610	428,681,928	8,002	207,845,748	15,612	636,527,676
All	34,955	$ 1,780,412,383	33,382	$ 796,355,268	68,337	$ 2,576,767,651

	Teachers	Support	Total
Members Contributing Now	32,388	18,476	50,864
Members Not Contributing	2,567	14,906	17,473
All	34,955	33,382	68,337

		Group Averages			Active Member Payroll
June 30	Number	Age	Service	Annual Earnings	($ Millions)
2001	61,389	43.7	9.5	$25,365	$1,557
2002	62,011	43.8	9.4	26,254	1,628
2003	62,432	44.0	9.5	26,963	1,683
2004	63,185	44.2	9.5	27,660	1,748
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

Deferred Vested Members at June 30, 2017
by Attained Age

Age	Number	Estimated Annual Benefits	Contribution Balance
Below 40	1,802	$ 11,274,705	$ 23,701,563
40	225	1,588,587	3,518,289
41	251	1,679,831	3,273,675
42	278	1,859,510	3,680,045
43	296	1,892,916	3,444,814
44	265	1,731,879	3,256,978
45	328	2,069,707	3,518,633
46	406	2,696,866	4,552,593
47	363	2,392,543	4,068,806
48	380	2,607,445	4,186,098
49	417	2,464,646	3,367,364
50	433	2,600,997	4,141,723
51	435	2,626,335	3,860,346
52	515	3,078,930	4,587,707
53	556	3,214,519	5,062,597
54	508	3,063,643	4,500,436
55	532	3,112,221	4,822,445
56	543	3,382,202	5,995,450
57	525	3,420,745	5,816,764
58	585	3,688,160	6,180,361
59	575	3,764,504	6,103,465
60 & Up	2,103	8,160,166	11,240,521
Future Beneficiaries #	80	506,799	0
Totals	**12,401**	**$ 72,877,856**	**$ 122,880,673**

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

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

All Members Participating in T-DROP at June 30, 2017
by Attained Age

Age	Number	Current T-DROP Contribution	Original T-DROP Contribution	T-DROP Account Balance	Pay
48	1	$ 7,430	$ 7,214	$ 7,292	$ 22,656
49	6	82,401	79,194	110,802	305,652
50	19	334,779	344,812	408,798	1,102,974
51	75	1,395,348	1,433,800	2,044,905	4,574,921
52	135	2,634,716	2,689,516	4,664,251	8,424,651
53	216	4,147,757	4,212,750	9,471,608	13,139,906
54	264	5,167,127	5,271,888	15,190,426	16,598,637
55	328	6,829,451	6,771,675	24,930,451	20,800,030
56	347	7,298,763	6,974,822	30,974,317	21,172,500
57	355	7,497,151	7,473,897	38,874,947	22,555,031
58	353	7,420,131	7,319,140	44,977,724	22,086,320
59	346	7,127,279	7,189,813	49,482,043	21,893,261
60	325	5,596,941	6,389,868	47,328,600	19,665,837
61	280	4,354,746	5,670,203	43,394,551	17,562,697
62	225	2,645,111	4,506,060	38,985,720	14,128,045
63	173	2,364,003	3,300,940	27,895,902	10,865,693
64	164	1,822,433	3,071,855	28,599,280	9,930,657
65	103	944,907	1,947,947	16,681,734	6,205,055
66	44	488,873	821,226	5,703,346	2,560,897
67	16	170,196	276,285	2,600,454	1,034,209
68	12	148,869	217,123	1,248,851	698,851
69	9	164,560	166,270	1,130,806	534,165
70	10	138,489	190,304	1,917,297	643,695
71	2	-	34,235	251,204	107,966
74	1	-	24,306	343,545	58,046
75	1	1,507	1,277	9,361	62,089
79	1	-	12,570	215,505	32,881
Totals	**3,811**	**$ 68,782,968**	**$ 76,398,990**	**$ 437,443,720**	**$ 236,767,322**

A T-DROP member continues to work, but does not accrue retirement benefits. A reduced benefit is paid into the T-DROP account (see pages C-2 and C-3) during T-DROP participation. Deposits to T-DROP cease at 10 years of T-DROP participation. T-DROP participants may continue in covered employment after 10 years of participation, but do not accumulate additional service credit or make member contributions. ATRS receives full employer contributions on behalf of these people.

Active, TDROP and Return to Work Members as of June 30, 2017

June 30	Number				Total Payroll $Millions
	Active	TDROP	RTW	Total	
2011	72,293	4,487	4,093	80,873	$ 2,818
2012	71,195	4,432	4,001	79,628	2,803
2013	70,660	4,265	4,025	78,950	2,819
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

The actuarial valuation assumes the number of working members will remain constant at the current level. In 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.

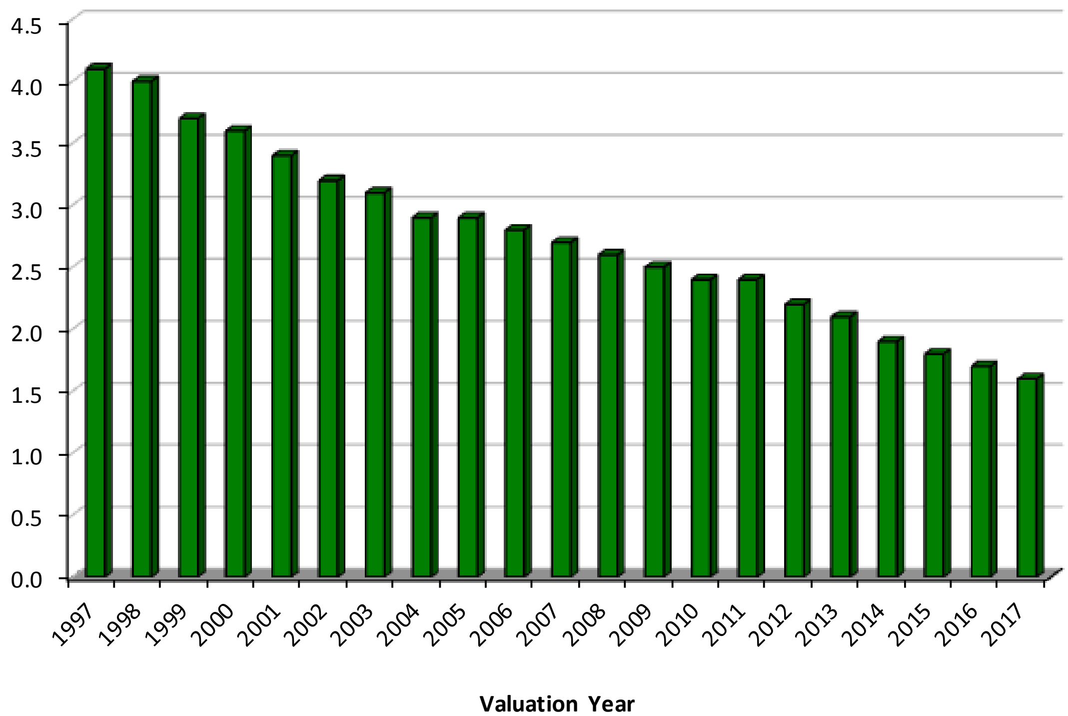
Annuities Being Paid Retirees and Beneficiaries July 1, 2017
by Type of Annuity Being Paid

Type of Annuity	No.	Annual Amounts: Original Annuities	Base Annuities	Current Annuities
RETIREMENT RESERVE ACCOUNT				
Age & Service				
Option 1 (Basic single life)	31,870	$ 480,445,833	$ 612,167,853	$ 738,206,651
Option A (Joint & 100% Survivor)	4,996	83,955,510	103,132,031	124,168,827
Option B (Joint & 50% Survivor)	2,488	54,914,351	70,004,883	84,881,031
Option C (10 year certain)	686	10,698,878	11,821,428	13,945,808
Beneficiaries	1,048	18,155,764	19,060,059	23,386,957
Totals	41,088	648,170,336	816,186,254	984,589,274
Disability				
Option 1	2,278	22,621,045	27,670,242	33,045,230
Option A	373	3,961,131	4,392,674	5,161,550
Option B	82	1,124,725	1,307,213	1,557,834
Option C	36	321,146	323,116	393,121
Beneficiaries	294	3,173,082	3,769,675	4,638,623
Totals	3,063	31,201,129	37,462,920	44,796,358
Totals	44,151	679,371,465	853,649,174	1,029,385,632
SURVIVOR'S BENEFIT ACCOUNT				
Beneficiaries of Deceased Members	698	$ 7,231,096	$ 8,898,509	$ 10,574,602
OTHER ANNUITIES				
Act 793	189	$ 1,062,758	$ 1,964,285	$ 1,964,285
Act 808	54	1,037,095	2,820,203	2,820,203
RETIREMENT SYSTEM TOTALS				
Total Annuities Being Paid	45,092	$ 688,702,414	$ 867,332,170	$ 1,044,744,722

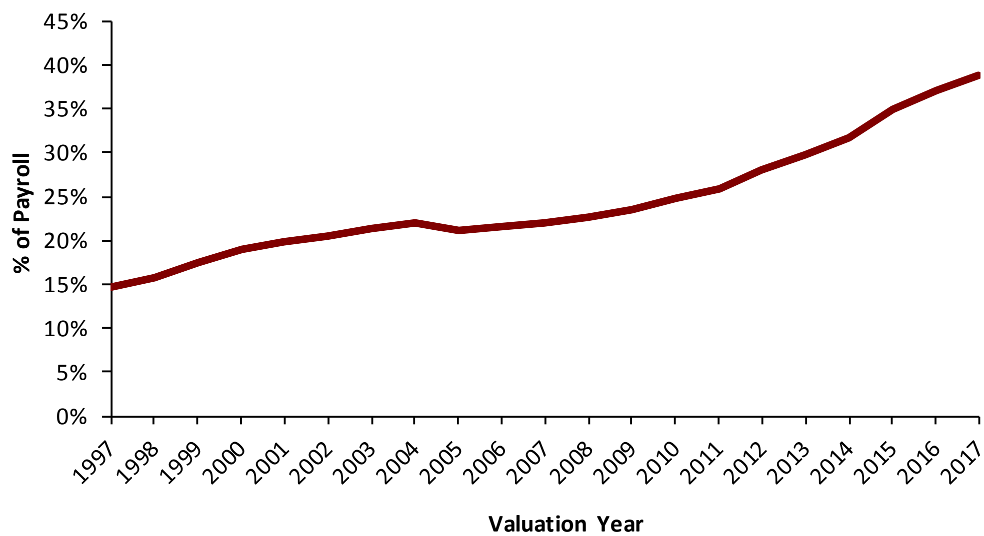
The Original Annuity is the annuity at the date of retirement.
The Base Annuity is the amount from which the 3.0% COLA is calculated. Base annuities include the stipend.
The Current Annuity is the annuity payable at July 1, 2017 (Includes July 1 COLA).

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 and payroll.*

Benefit Changes During Recent Years of Retirement & Related Changes in Purchasing Power (1980 $)

Year Ended June 30	Increase Beginning of Year	Benefit Dollars in Year*	Inflation (Loss) in Year#	Purchasing Power at Year End	
				1980 $	% of 1980
1980	$ - - - -	$ 5,000	- - - -	$ 5,000	100%
1981	75	5,075	(9.6)%	4,632	93%
1982	152	5,227	(7.1)%	4,456	89%
1983	152	5,379	(2.6)%	4,471	89%
1984	431	5,810	(4.2)%	4,633	93%
1985	438	6,248	(3.7)%	4,802	96%
1986	509	6,757	(1.7)%	5,103	102%
1987	197	6,954	(3.7)%	5,067	101%
1988	400	7,354	(3.9)%	5,154	103%
1989	503	7,857	(5.1)%	5,236	105%
1990	497	8,354	(4.7)%	5,319	106%
1991	230	8,584	(4.7)%	5,220	104%
1992	762	9,346	(3.1)%	5,513	110%
1993	792	10,138	(3.0)%	5,806	116%
1994	820	10,958	(2.5)%	6,123	122%
1995	303	11,261	(3.0)%	6,107	122%
1996	303	11,564	(2.8)%	6,103	122%
1997	1,657	13,221	(2.3)%	6,821	136%
1998	1,214	14,435	(1.7)%	7,324	146%
1999	323	14,758	(2.0)%	7,344	147%
2000	1,039	15,797	(3.7)%	7,583	152%
2001	1,220	17,017	(3.2)%	7,907	158%
2002	672	17,689	(1.1)%	8,132	163%
2003	468	18,157	(2.1)%	8,174	163%
2004	468	18,625	(3.3)%	8,120	162%
2005	468	19,093	(2.5)%	8,118	162%
2006	468	19,561	(4.3)%	7,973	159%
2007	468	20,029	(2.7)%	7,950	159%
2008	468	20,497	(5.0)%	7,747	155%
2009	468	20,965	1.4 %	8,038	161%
2010	629	21,594	(1.1)%	8,193	164%
2011	648	22,242	(3.6)%	8,149	163%
2012	648	22,890	(1.7)%	8,249	165%
2013	648	23,538	(1.8)%	8,336	167%
2014	648	24,186	(2.1)%	8,392	168%
2015	648	24,834	(0.1)%	8,606	172%
2016	648	25,482	(1.0)%	8,744	175%
2017	648	26,130	(1.6)%	9,041	181%
2018	648	26,778			

* *The $5,000 benefit used to begin this schedule is an arbitrary amount. A smaller beginning amount would 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 & 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	$ - - - -	$ 5,000	- - - -	$ 5,000	100%
1991	150	5,150	(4.7)%	4,919	98%
1992	457	5,607	(3.1)%	5,195	104%
1993	475	6,082	(3.0)%	5,471	109%
1994	492	6,574	(2.5)%	5,770	115%
1995	182	6,756	(3.0)%	5,755	115%
1996	182	6,938	(2.8)%	5,751	115%
1997	330	7,268	(2.3)%	5,889	118%
1998	667	7,935	(1.7)%	6,324	126%
1999	177	8,112	(2.0)%	6,340	127%
2000	849	8,961	(3.7)%	6,756	135%
2001	826	9,787	(3.2)%	7,143	143%
2002	387	10,174	(1.1)%	7,346	147%
2003	270	10,444	(2.1)%	7,385	148%
2004	270	10,714	(3.3)%	7,337	147%
2005	270	10,984	(2.5)%	7,336	147%
2006	270	11,254	(4.3)%	7,205	144%
2007	270	11,524	(2.7)%	7,185	144%
2008	270	11,794	(5.0)%	7,002	140%
2009	270	12,064	1.4 %	7,265	145%
2010	362	12,426	(1.1)%	7,405	148%
2011	373	12,799	(3.6)%	7,366	147%
2012	373	13,171	(1.7)%	7,456	149%
2013	373	13,544	(1.8)%	7,535	151%
2014	373	13,917	(2.1)%	7,585	152%
2015	373	14,290	(0.1)%	7,779	156%
2016	373	14,663	(1.0)%	7,903	158%
2017	373	15,036	(1.6)%	8,171	163%
2018	373	15,409			

* *The $5,000 benefit used to begin this schedule is an arbitrary amount. A smaller beginning amount would 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 & 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	$ - - - -	$ 5,900	- - - -	$ 5,900	100%
2001	177	6,077	(3.2)%	5,886	100%
2002	252	6,329	(1.1)%	6,065	103%
2003	179	6,508	(2.1)%	6,108	104%
2004	179	6,687	(3.3)%	6,078	103%
2005	179	6,867	(2.5)%	6,086	103%
2006	179	7,046	(4.3)%	5,987	101%
2007	179	7,225	(2.7)%	5,978	101%
2008	179	7,404	(5.0)%	5,834	99%
2009	179	7,583	1.4 %	6,061	103%
2010	228	7,811	(1.1)%	6,178	105%
2011	234	8,045	(3.6)%	6,145	104%
2012	234	8,280	(1.7)%	6,221	105%
2013	234	8,515	(1.8)%	6,287	107%
2014	234	8,749	(2.1)%	6,328	107%
2015	234	8,983	(0.1)%	6,490	110%
2016	234	9,217	(1.0)%	6,593	112%
2017	234	9,451	(1.6)%	6,816	116%
2018	234	9,685			

* *The $5,900 benefit used to begin this schedule is an arbitrary amount. A smaller beginning amount would 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

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 <u>taxpayers</u>***, 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.

The 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

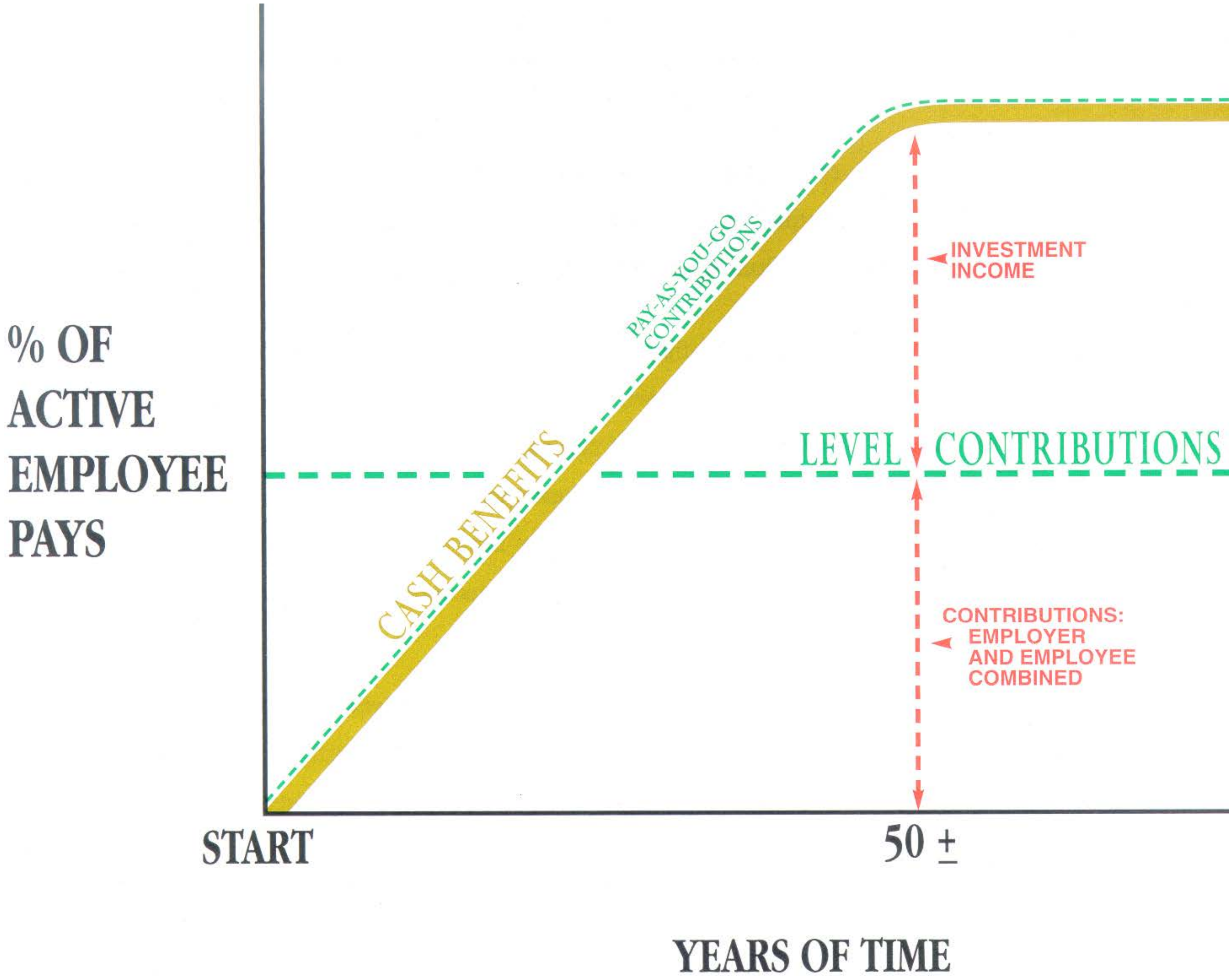
C. + **Benefit provisions** that establish eligibility and amounts of payments to members

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

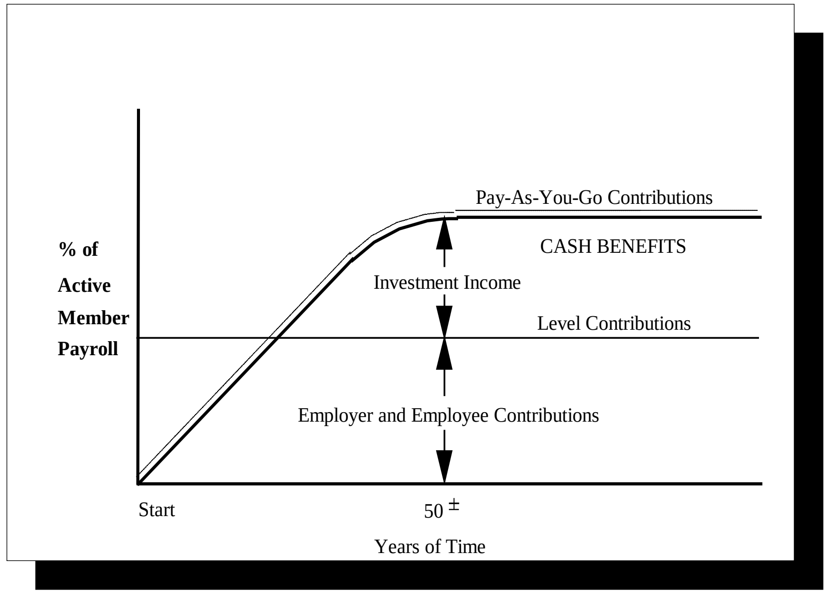
SECTION G

ACTUARIAL ASSUMPTIONS

Selection of Assumptions Used in Actuarial Valuations

Economic Assumptions

Investment return
Pay increases to individual employees:
  the portion for economic changes
Active member group size and
  total payroll growth



Demographic Assumptions

Actual ages at service retirement
Pay increases to individual members:
  the portion for merit & seniority
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.

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

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

The rationale for the assumptions is the July 1, 2010 through June 30, 2015 5-Year Experience Study.

Economic Assumptions

The ***price inflation*** assumption is 2.50% although no specific Price Inflation is needed for this valuation. It is assumed that the 3% COLA will always be paid.

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.

The investment return rate used in the valuation was 7.50% per year, compounded annually (net after administrative expenses). This rate of return is not the assumed real rate of return. The real rate of return over wage inflation in this valuation is defined to be the portion of investment return which is more than the wage inflation rate. Considering wage inflation recognition of 2.75%, the 7.50% rate translates to an assumed real rate of return over wage inflation of 4.75%. This rate was first used for the ***June 30, 2017*** valuation. The assumed real rate of return over price inflation is 5%.

Pay increase assumptions for individual active members are shown on pages G-7 and G-8. Part of the assumption for each age 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, 2017*** valuation.

The Active Member Group 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 RP-2014 Healthy Annuitant, Disabled Annuitant and Employee Mortality headcount weighted tables for males and females. Mortality rates were adjusted for future mortality improvements using projection scale MP-2017 from 2006. Related values are shown on page G-4. These tables were first used for the ***June 30, 2017*** valuation.

A limited fluctuation credibility procedure was used to determine the appropriate scaling factor of each gender and each member classification (see the 2010-2015 Experience Study), and are shown below:

	Scaling Factor
Healthy Male Retirees	**101%**
Healthy Female Retirees	**91%**
Disabled Male Retirees	**99%**
Disabled Female Retirees	**107%**
Male Active Members	**94%**
Female Active Members	**84%**

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, 2017*** 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, 2017*** valuation.

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

Differences in the past between assumed experience and actual experience ("actuarial gains and losses") become part of actuarial accrued liabilities.

Unfunded actuarial accrued liabilities are amortized to produce contribution amounts (the total of principal & interest) which are level percents of payroll contributions.

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

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 2017*	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	$150.63	$154.11	$198.39	$204.91	42.44	46.72	0.32 %	0.28 %
45	146.61	151.28	190.86	199.17	37.65	41.91	0.42 %	0.32 %
50	141.34	147.34	181.46	191.61	32.94	37.09	0.54 %	0.36 %
55	134.64	141.90	170.05	181.80	28.37	32.31	0.72 %	0.45 %
60	126.34	134.84	156.54	169.71	23.99	27.65	0.98 %	0.60 %
65	116.25	125.74	140.94	154.99	19.86	23.15	1.37 %	0.82 %
70	103.94	114.03	122.97	137.25	15.96	18.80	1.99 %	1.26 %
75	89.30	99.87	102.87	117.08	12.33	14.75	3.13 %	2.09 %
80	73.14	83.85	81.95	95.60	9.13	11.14	5.20 %	3.54 %
85	56.94	67.04	62.12	74.34	6.49	8.07	8.90 %	6.20 %
Base	2635 x 1.01	2636 x 0.91	2635 x 1.01	2636 x 0.91				
Projection	939	940	939	940				

* *Applicable to calendar year 2017. Rates and life expectancies in future years are determined by the MP-2017 projection scale.*

Sample Attained Ages	Benefit Increasing 3.0% Yearly	Portion of Age 60 Lives Still Alive	
		Men	Women
60	$100.00	100%	100%
65	115.00	95%	97%
70	130.00	87%	92%
75	145.00	78%	86%
80	160.00	66%	77%
Ref		2635 x 1.01	2636 x 0.91

Probabilities of Retirement for Members

Retirement Ages	% of Active Participants Retiring with Unreduced Benefits			
	Education		Support	
	Male	Female	Male	Female
48	8%	7%	8%	6%
49	8%	7%	8%	6%
50	8%	7%	8%	6%
51	8%	7%	8%	6%
52	8%	7%	8%	6%
53	8%	7%	8%	6%
54	8%	7%	8%	6%
55	8%	9%	8%	6%
56	8%	9%	8%	6%
57	8%	11%	8%	11%
58	8%	11%	8%	11%
59	17%	14%	8%	15%
60	17%	17%	13%	13%
61	24%	17%	13%	15%
62	24%	29%	28%	23%
63	27%	26%	25%	19%
64	27%	24%	25%	23%
65	54%	50%	47%	50%
66	54%	53%	47%	44%
67	54%	39%	47%	38%
68	54%	39%	47%	38%
69	54%	39%	47%	38%
70	54%	39%	47%	38%
71	54%	39%	47%	38%
72	54%	39%	47%	38%
73	54%	39%	47%	38%
74	54%	39%	47%	38%
75	100%	100%	100%	100%
Ref	2634	2635	2636	2637

These rates are based upon data presented in the 2010-2015 experience study and were first used in the 2017 valuation.

Probabilities of Reduced Retirement for Members

Retirement Ages	% of Active Participants Retiring with Reduced Benefits			
	Education		Support	
	Male	Female	Male	Female
50	1.5%	1.0%	0.5%	1.5%
51	1.5%	1.0%	1.0%	1.5%
52	1.5%	1.5%	1.5%	2.0%
53	1.5%	2.0%	2.0%	2.0%
54	2.0%	2.0%	2.5%	2.0%
55	2.5%	2.5%	3.0%	2.0%
56	3.0%	2.5%	3.5%	2.0%
57	5.0%	2.5%	4.5%	2.5%
58	5.0%	2.5%	4.5%	2.5%
59	3.5%	2.5%	4.5%	2.5%
Ref	2640	2638	2641	2639

These are 50% of the rates presented in the 2010-2015 experience study and were first used in the 2017 valuation. These rates anticipate reduced election of early retirement due to the increase in the early retirement reduction from 5% to 10%.

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

Teachers
Separations From Active Employment Before Age and Service Retirement & Individual Pay Increases

Sample Ages in 2017		Percent of Active Members Separating within the Next Year					
		Death		Disability		Other	
	Service	Men	Women	Men	Women	Men	Women
	0					17.80%	12.60%
	1					13.10%	11.10%
	2					12.10%	10.10%
	3					8.60%	8.70%
	4					5.70%	6.50%
25	5 & Up	0.06%	0.02%	0.03%	0.03%	4.50%	5.40%
30		0.06%	0.02%	0.03%	0.03%	3.60%	4.30%
35		0.07%	0.03%	0.03%	0.04%	2.70%	2.90%
40		0.08%	0.05%	0.05%	0.09%	2.00%	2.00%
45		0.12%	0.07%	0.16%	0.19%	1.60%	1.60%
50		0.20%	0.12%	0.40%	0.43%	1.30%	1.40%
55		0.33%	0.19%	0.86%	0.73%	1.10%	1.20%
60		0.56%	0.28%	1.15%	1.00%	0.90%	1.00%
65		0.97%	0.40%	1.15%	1.00%	0.70%	0.80%
Ref:		2633 x 0.94	2634 x 0.84	747 x 1	748 x 1	1029 1381	1030 1382

	Pay Increase Assumptions for an Individual Member		
Age	Merit & Seniority	Base (Economic)	Increase Next Year
20	5.00%	2.75%	7.75%
25	2.90%	2.75%	5.65%
30	2.40%	2.75%	5.15%
35	1.90%	2.75%	4.65%
40	1.40%	2.75%	4.15%
45	0.70%	2.75%	3.45%
50	0.30%	2.75%	3.05%
55	0.00%	2.75%	2.75%
60	0.00%	2.75%	2.75%
65	0.00%	2.75%	2.75%
Ref:	472		

Support Employees
Separations From Active Employment Before Age and Service Retirement & Individual Pay Increases

Sample Ages in 2017	Service	Percent of Active Members Separating within the Next Year					
		Death		Disability		Other	
		Men	Women	Men	Women	Men	Women
	0					49.90%	47.50%
	1					30.10%	28.30%
	2					19.40%	19.10%
	3					15.30%	14.90%
	4					11.80%	12.10%
25	5 & Up	0.06%	0.02%	0.03%	0.02%	9.20%	9.70%
30		0.06%	0.02%	0.09%	0.04%	7.30%	6.90%
35		0.07%	0.03%	0.09%	0.05%	5.60%	5.00%
40		0.08%	0.05%	0.10%	0.07%	4.50%	4.40%
45		0.12%	0.07%	0.22%	0.16%	3.70%	4.00%
50		0.20%	0.12%	0.51%	0.34%	3.30%	3.60%
55		0.33%	0.19%	0.86%	0.59%	3.30%	3.30%
60		0.56%	0.28%	1.11%	0.76%	3.30%	2.80%
65		0.97%	0.40%	1.11%	0.80%	2.80%	2.10%
Ref:		2633 x 0.94	2634 x 0.84	749 x 1	750 x 1	1031 1383	1032 1384

Age	Pay Increase Assumptions for an Individual Member		
	Merit & Seniority	Base (Economic)	Increase Next Year
20	5.00%	2.75%	7.75%
25	3.75%	2.75%	6.50%
30	2.60%	2.75%	5.35%
35	2.40%	2.75%	5.15%
40	2.10%	2.75%	4.85%
45	1.00%	2.75%	3.75%
50	0.50%	2.75%	3.25%
55	0.00%	2.75%	2.75%
60	0.00%	2.75%	2.75%
65	0.00%	2.75%	2.75%
Ref:	473		

Miscellaneous and Technical Assumptions
June 30, 2017

Marriage Assumption:	100% of males and 100% of females are assumed to be married for purposes of death-in-service benefits. Male spouses are assumed to be three years older than female spouses.
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	For simplicity, retiree benefits (not applicable to Act 793 & Act 808 retirees) were modeled assuming a stipend reduction from \$75 to \$50 per month and removal of the stipend from the base benefit (from which the simple COLA is determined) effective as of the valuation date. The actual effective dates are Fiscal Years 2020 and 2019, respectively. This model produced a liability of \$11,299,197,032. An additional liability of \$38,025,673 was estimated to account for the later effective dates. This liability is included with Option 1 Straight Life) on page B-4.

Miscellaneous and Technical Assumptions
June 30, 2017

Data Adjustments:

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 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.

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.

Arkansas Teacher Retirement System

Annual Actuarial Valuation of Annuities Being Paid to Retirees and Beneficiaries

June 30, 2017

OUTLINE OF CONTENTS
Report of Actuarial Valuation of ATRS Retired Lives

GRS Retirement Consulting

800.521.0498 | P: 248.799.9000 | F: 248.799.9020 | www.grsconsulting.com

January 8, 2018

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.

The date of the valuation was June 30, 2017 (using amounts payable as of July 1, 2017).

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 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.

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 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, 2010 to June 30, 2015 and expectations for the future.

This is one of multiple documents comprising the actuarial results. The other document is the active and inactive valuation dated December 19, 2017.

To the best of our knowledge, this report is complete and accurate and was made in accordance with standards of practice promulgated by the Actuarial Standards Board. The actuarial assumptions used for the valuation produce results which, individually and in the aggregate, are reasonable.

This report has been prepared by actuaries who have substantial experience valuing public employee retirement systems. Brian B. Murphy, Judith A. Kermans and Heidi G. Barry are Members of the American Academy of Actuaries (MAAA) and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions contained herein. The actuaries submitting this report are independent of the plan sponsor.

Respectfully submitted,

Brian B. Murphy

Brian B. Murphy, FSA, EA, FCA, MAAA, PhD

Judith A. Kermans

Judith A. Kermans, EA, FCA, MAAA

Heidi G Barry

Heidi G. Barry, ASA, FCA, MAAA

BBM/JAK/HGB:sc

Comments

As expected, during the year ended June 30, 2017 the number of retired lives increased, as did the total amount being paid monthly to retired lives.

The financing diagram on page 7 shows the general pattern in which cash benefits increase (the gold line). The schedule below shows how ATRS history illustrates the general pattern.

	Retired Lives Receiving Benefits		
June 30	**No.**	**Annual Rates**	**% 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	21.2%
2006	24,153	449.77	21.6%
2007	25,611	484.55	21.1%
2008	26,801	515.56	21.5%
2009	28,818	564.59	22.8%
2010	30,587	612.77	23.1%
2011	32,099	657.08	24.1%
2012	34,160	709.17	26.1%
2013	36,254	763.76	28.0%
2014	38,478	822.19	29.8%
2015	40,748	916.62	33.0%
2016	43,095	983.87	35.3%
2017	45,092	1,044.74	37.1%

 # Doesn't include payroll for retirees who have returned to work.

A significant financial goal for the 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 7.50% on the actuarial value of assets), it is expected that:

1) The unfunded actuarial accrued liabilities will be fully amortized after 29 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 an extended period 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

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, 2017 Balance Reported	Transfer Amount	June 30, 2017 Balance After Transfer
Retiree Accounts			
RRA	$ 10,545,265,390	$ 466,742,611	$ 11,012,008,001
808 RRA	13,986,693	420,948	14,407,641
SBA	99,931,749	4,737,246	104,668,995
Total Retiree Accounts	10,659,183,832	471,900,805	11,131,084,637
EAA	(4,840,656,333)	(471,900,805)	(5,312,557,138)
Total	**$ 5,818,527,499**	**$ -**	**$ 5,818,527,499**

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 liabilities for lump sum death benefits for retirees are currently $115.1 million.

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.)

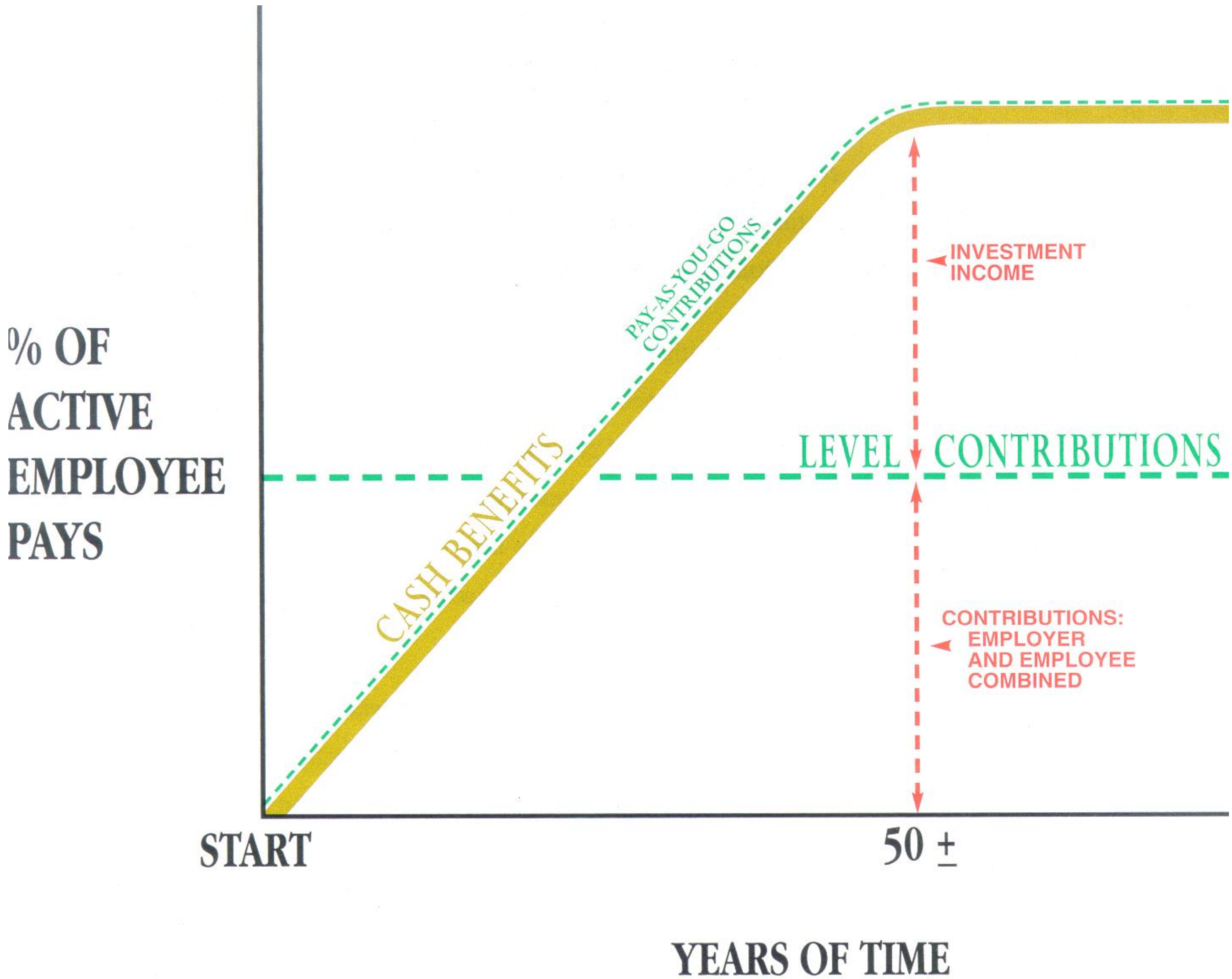
An inevitable byproduct of the level-cost design is the accumulation of reserve assets for decades and the income produced when the assets are invested. ***Investment income*** becomes the ***third and largest contributor*** for benefits to employees, and is interlocked with the contribution amounts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

The 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

Benefit Provisions

Summary of Provisions
June 30, 2017

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, as re-determined by Acts 396 of 1999 and 992 of 1997. The July 1, 2009 cost of living adjustment for retirees was compounded. The annuity was adjusted by multiplying 3% times 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. Act 967 of 2013 gives the ATRS Board authority to reverse the compounding of a benefit and reset the base amount to the pre-compounding amount. If this reversal were to occur, it would include participants in the T-DROP plan. The future benefits of a member would not be reduced to recover any benefits paid to a member as a result of the compounding. In addition, the member's benefit on the date of the reversal would not be impacted, but future COLA's would be based upon the reset base amount. *This act is dependent upon the actuary's certification that the amortization period is in excess of 30 years to pay unfunded liabilities prior to any reversal of the compounding of the COLA.* Act 780 of 2017 allows the right to reverse the 2009 compound COLA when unfunded liabilities exceed an 18 year amortization. The act also allows a phase in of the change during months in which a COLA raise is given to prevent any retiree or option beneficiary from having an actual reduction in monthly benefit payments.

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 ($6,667 for non-contributory service-benefit). The amount will be prorated for members who have both contributory service and non-contributory service. Members with 15 or more years of contributory service will receive the full $10,000 (Act 977 of 2011).

3. **Act 808 Retirement – A.C.A. § 24-4-732.** Any employee of a state agency who was an active member of the Arkansas Teacher Retirement System on April 8, 1987, and who qualified for retirement before January 1, 1988, could become a member of the Arkansas Public Employees Retirement System and retire from that system. All credited service was transferred to that system but the member's contributions were retained by the Arkansas Teacher Retirement System and the benefit amount is transferred monthly to the Arkansas Public Employees Retirement System. Each July 1, annuities are adjusted by 3% (compound escalator).

4. **Act 793 Retirement – A.C.A § 24-4-522.** Any employee who was a member of the rehabilitation services in 1977 was permitted to become a member of the Arkansas Public Employees Retirement System. Liabilities associated with prior service earned through June 30, 1978 remain in the Arkansas Teacher Retirement System. Future service is allocated to the Arkansas Public Employees Retirement System. Each July 1, annuities are adjusted by 3% (compound escalator).

Summary of Provisions
June 30, 2017

5. **Retiree Health 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 $75 per month toward retiree health care premiums. Members in T-DROP do not receive the $75 per month 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. Act 603 of 2013 allows the ATRS Board to increase or decrease the stipend to a minimum of $1 per month and a maximum of $75 per month. This act is dependent upon the actuary's certification that the amortization period is in excess of 18 years to pay unfunded liabilities prior to any reduction in the current stipend. The stipend for fiscal year 2018 remains at $75 per month. **By Board resolution, for members retiring on or after May 1, 2017, the benefit stipend will not be in the member's base benefits. It will be removed from the base benefit for all retirees in Fiscal Year 2019. Beginning in Fiscal Year 2020 the benefit stipend for all retirees will be $50 per month. The Board enacted a "hold harmless" provision that prevents the lowering of the stipend from actually reducing 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. The interest rate credited will be between 2.5% and 4.0%, increasing 25 basis points for each year on deposit through the 5th year, and then 4% for the 6th and subsequent years.

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 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 will receive the same annuity for the balance of his/her lifetime.

   Option B (50% Survivor Annuity)

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

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.

Option Factors are based upon a 5.0% interest rate and the RP-2014/MP-2017 mortality tables (static) adjusted with a 50% unisex mix.

Sample Benefit Computations for a Member Retiring July 1, 2017 with a Simple 3% COLA

Data for an Example member is shown below.

Annual retirement benefit as of July 1, 2017 (excluding stipend): $30,000

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

	Annual Amount		
Year Ended June 30	Base	Current	$ Increase
2018	$30,000	$30,000	$ 0
2019	30,000	30,900	900
2020	30,000	31,800	900
2021	30,000	32,700	900
2022	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 & Related Changes in Purchasing Power (1980 $)

Year Ended June 30	Increase Beginning of Year	Benefit Dollars in Year*	Inflation (Loss) in Year#	Purchasing Power at Year End	
				1980 $	% of 1980
1980	$ - - - -	$ 5,000	- - - -	$5,000	100%
1981	75	5,075	(9.6)%	4,632	93%
1982	152	5,227	(7.1)%	4,456	89%
1983	152	5,379	(2.6)%	4,471	89%
1984	431	5,810	(4.2)%	4,633	93%
1985	438	6,248	(3.7)%	4,802	96%
1986	509	6,757	(1.7)%	5,103	102%
1987	197	6,954	(3.7)%	5,067	101%
1988	400	7,354	(3.9)%	5,154	103%
1989	503	7,857	(5.1)%	5,236	105%
1990	497	8,354	(4.7)%	5,319	106%
1991	230	8,584	(4.7)%	5,220	104%
1992	762	9,346	(3.1)%	5,513	110%
1993	792	10,138	(3.0)%	5,806	116%
1994	820	10,958	(2.5)%	6,123	122%
1995	303	11,261	(3.0)%	6,107	122%
1996	303	11,564	(2.8)%	6,103	122%
1997	1,657	13,221	(2.3)%	6,821	136%
1998	1,214	14,435	(1.7)%	7,324	146%
1999	323	14,758	(2.0)%	7,344	147%
2000	1,039	15,797	(3.7)%	7,583	152%
2001	1,220	17,017	(3.2)%	7,907	158%
2002	672	17,689	(1.1)%	8,132	163%
2003	468	18,157	(2.1)%	8,174	163%
2004	468	18,625	(3.3)%	8,120	162%
2005	468	19,093	(2.5)%	8,118	162%
2006	468	19,561	(4.3)%	7,973	159%
2007	468	20,029	(2.7)%	7,950	159%
2008	468	20,497	(5.0)%	7,747	155%
2009	468	20,965	1.4 %	8,038	161%
2010	629	21,594	(1.1)%	8,193	164%
2011	648	22,242	(3.6)%	8,149	163%
2012	648	22,890	(1.7)%	8,249	165%
2013	648	23,538	(1.8)%	8,336	167%
2014	648	24,186	(2.1)%	8,392	168%
2015	648	24,834	(0.1)%	8,606	172%
2016	648	25,482	(1.0)%	8,744	175%
2017	648	26,130	(1.6)%	9,041	181%
2018	648	26,778			

* *The $5,000 benefit used to begin this schedule is an arbitrary amount. A different beginning amount would 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).*

Benefit Changes During Recent Years of Retirement & 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	$ - - - -	$ 5,000	- - - -	$5,000	100%
1991	150	5,150	(4.7)%	4,919	98%
1992	457	5,607	(3.1)%	5,195	104%
1993	475	6,082	(3.0)%	5,471	109%
1994	492	6,574	(2.5)%	5,770	115%
1995	182	6,756	(3.0)%	5,755	115%
1996	182	6,938	(2.8)%	5,751	115%
1997	330	7,268	(2.3)%	5,889	118%
1998	667	7,935	(1.7)%	6,324	126%
1999	177	8,112	(2.0)%	6,340	127%
2000	849	8,961	(3.7)%	6,756	135%
2001	826	9,787	(3.2)%	7,143	143%
2002	387	10,174	(1.1)%	7,346	147%
2003	270	10,444	(2.1)%	7,385	148%
2004	270	10,714	(3.3)%	7,337	147%
2005	270	10,984	(2.5)%	7,336	147%
2006	270	11,254	(4.3)%	7,205	144%
2007	270	11,524	(2.7)%	7,185	144%
2008	270	11,794	(5.0)%	7,002	140%
2009	270	12,064	1.4 %	7,265	145%
2010	362	12,426	(1.1)%	7,405	148%
2011	373	12,799	(3.6)%	7,366	147%
2012	373	13,171	(1.7)%	7,456	149%
2013	373	13,544	(1.8)%	7,535	151%
2014	373	13,917	(2.1)%	7,585	152%
2015	373	14,290	(0.1)%	7,779	156%
2016	373	14,663	(1.0)%	7,903	158%
2017	373	15,036	(1.6)%	8,171	163%
2018	373	15,409			

* *The $5,000 benefit used to begin this schedule is an arbitrary amount. A different beginning amount would 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).*

Benefit Changes During Recent Years of Retirement & 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	$ - - - -	$ 5,900	- - - -	$5,900	100%
2001	177	6,077	(3.2)%	5,886	100%
2002	252	6,329	(1.1)%	6,065	103%
2003	179	6,508	(2.1)%	6,108	104%
2004	179	6,687	(3.3)%	6,078	103%
2005	179	6,867	(2.5)%	6,086	103%
2006	179	7,046	(4.3)%	5,987	101%
2007	179	7,225	(2.7)%	5,978	101%
2008	179	7,404	(5.0)%	5,834	99%
2009	179	7,583	1.4 %	6,061	103%
2010	228	7,811	(1.1)%	6,178	105%
2011	234	8,045	(3.6)%	6,145	104%
2012	234	8,280	(1.7)%	6,221	105%
2013	234	8,515	(1.8)%	6,287	107%
2014	234	8,749	(2.1)%	6,328	107%
2015	234	8,983	(0.1)%	6,490	110%
2016	234	9,217	(1.0)%	6,593	112%
2017	234	9,451	(1.6)%	6,816	116%
2018	234	9,685			

** The $5,900 benefit used to begin this schedule is an arbitrary amount. A different beginning amount would 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).

VALUATION DATA

Summary of
Annuities Being Paid Retirees and Beneficiaries July 1, 2017
by Disbursing Account and Gender

Disbursing Account	Men No.	Men Annual Annuities	Women No.	Women Annual Annuities	Totals No.	Totals Annual Annuities
Retirement Reserve Account						
Age & Service Annuities						
Retirees	9,301	$ 245,383,264	30,739	$715,819,053	40,040	$ 961,202,317
Beneficiaries	306	6,042,921	742	17,344,036	1,048	23,386,957
Totals	9,607	251,426,185	31,481	733,163,089	41,088	984,589,274
Disability						
Retirees	574	8,250,517	2,195	31,907,218	2,769	40,157,735
Beneficiaries	149	2,182,820	145	2,455,803	294	4,638,623
Totals	723	10,433,337	2,340	34,363,021	3,063	44,796,358
Act 793	98	1,312,900	91	651,385	189	1,964,285
Total retirees and beneficiaries being paid from Retirement Reserve Account	10,428	263,172,422	33,912	768,177,495	44,340	1,031,349,917
Survivor's Benefit Account	337	4,776,315	361	5,798,287	698	10,574,602
Act 808	31	2,048,158	23	772,045	54	2,820,203
Totals	**10,796**	**269,996,895**	**34,296**	**774,747,827**	**45,092**	**1,044,744,722**
Prior Year Totals	10,415	$ 258,222,108	32,680	$725,648,853	43,095	$ 983,870,961

Summary of
Annuities Being Paid Retirees and Beneficiaries July 1, 2017
by Disbursing Account and Source of Financing

Disbursing Account	Annual Annuities: Employee Financed	Annual Annuities: Employer Financed	Total: No.	Total: Annual Annuities
Retirement Reserve Account				
Age & Service Annuities				
Retirees	$ 76,892,883	$ 884,309,434	40,040	$ 961,202,317
Beneficiaries	545,701	22,841,256	1,048	23,386,957
Totals	77,438,584	907,150,690	41,088	984,589,274
Disability				
Retirees	2,271,223	37,886,512	2,769	40,157,735
Beneficiaries	199,597	4,439,026	294	4,638,623
Totals	2,470,820	42,325,538	3,063	44,796,358
Act 793	153,641	1,810,644	189	1,964,285
Total retirees and beneficiaries being paid from Retirement Reserve Account	80,063,045	951,286,872	44,340	1,031,349,917
Survivor's Benefit Account	493,271	10,081,331	698	10,574,602
Act 808	123,215	2,696,988	54	2,820,203
Totals	**80,679,531**	**964,065,191**	**45,092**	**1,044,744,722**
Prior Year Totals	$ 82,804,973	$ 901,065,988	43,095	$ 983,870,961

Annuities Being Paid Retirees and Beneficiaries July 1, 2017
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)	31,870	$ 480,445,833	$ 612,167,853	$ 738,206,651
Option A (Joint & 100% Survivor)	4,996	83,955,510	103,132,031	124,168,827
Option B (Joint & 50% Survivor)	2,488	54,914,351	70,004,883	84,881,031
Option C (10 year certain)	686	10,698,878	11,821,428	13,945,808
Beneficiaries	1,048	18,155,764	19,060,059	23,386,957
Totals	41,088	648,170,336	816,186,254	984,589,274
Disability				
Option 1	2,278	22,621,045	27,670,242	33,045,230
Option A	373	3,961,131	4,392,674	5,161,550
Option B	82	1,124,725	1,307,213	1,557,834
Option C	36	321,146	323,116	393,121
Beneficiaries	294	3,173,082	3,769,675	4,638,623
Totals	3,063	31,201,129	37,462,920	44,796,358
Act 793	189	$ 1,062,758	$ 1,964,285	1,964,285
Totals	44,340	680,434,223	855,613,459	1,031,349,917
SURVIVOR'S BENEFIT ACCOUNT				
Beneficiaries of Deceased Members	698	$ 7,231,096	$ 8,898,509	$ 10,574,602
OTHER ANNUITIES				
Act 808	54	1,037,095	2,820,203	2,820,203
RETIREMENT SYSTEM TOTALS				
Total Annuities Being Paid	45,092	$ 688,702,414	$ 867,332,171	$ 1,044,744,722

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, 2017 including the COLA granted on July 1.

Annuities Being Paid July 1, 2017
from the Retirement Reserve Account to
AGE AND SERVICE Retirees and Beneficiaries
by Attained Ages

Attained Age	No.	Annual Amounts: Original Annuities	Base Annuities	Current Annuities
Under 40	10	$ 217,818	$ 207,383	$ 246,439
40-44	2	17,624	24,372	29,391
45-49	35	655,250	660,563	697,373
50-54	413	10,292,747	10,420,998	11,282,175
55-59	1,410	37,161,138	39,156,608	45,148,083
60-64	6,772	125,681,921	140,281,224	163,460,763
65-69	12,082	204,443,356	239,755,401	286,473,220
70-74	9,071	136,918,458	174,289,646	214,874,341
75-79	5,584	73,459,901	103,478,245	128,484,007
80-84	3,125	35,345,291	57,285,456	71,101,704
85-89	1,712	17,470,281	33,829,431	41,964,487
90-94	653	5,327,054	12,922,122	16,022,812
95 & Up	219	1,179,497	3,874,805	4,804,479
Totals	**41,088**	**$648,170,336**	**$816,186,254**	**$984,589,274**

Annuities Being Paid July 1, 2017 from the Retirement Reserve Account to DISABILITY Retirees and Beneficiaries by Attained Ages

Attained Age	No.	Annual Amounts Original Annuities	Base Annuities	Current Annuities
Under 40	27	$ 235,972	$ 227,594	$ 266,392
40-44	52	417,049	420,864	473,882
45-49	134	1,476,364	1,486,434	1,637,131
50-54	259	2,863,636	2,908,853	3,256,353
55-59	552	5,922,962	6,104,887	6,970,357
60-64	659	6,932,973	7,482,922	8,897,670
65-69	602	6,056,997	7,182,922	8,858,186
70-74	420	4,215,706	5,750,126	7,122,480
75-79	186	1,901,369	3,055,834	3,789,225
80-84	88	704,843	1,448,859	1,796,583
85-89	55	316,718	922,110	1,143,419
90-94	22	131,368	361,895	448,752
95 & Up	7	25,172	109,620	135,928
Totals	**3,063**	**$31,201,129**	**$37,462,920**	**$44,796,358**

Annuities Being Paid July 1, 2017
from the Retirement Reserve Account to
ACT 793 Retirees and Beneficiaries by Attained Ages

Attained Age	No.	Annual Amounts Original Annuities	Current Annuities
Under 40	-	$ -	$ -
40-44	-	-	-
45-49	-	-	-
50-54	-	-	-
55-59	-	-	-
60-64	10	23,873	35,835
65-69	36	139,383	214,660
70-74	51	290,728	505,897
75-79	41	271,156	470,461
80-84	25	197,968	394,914
85-89	19	107,651	256,479
90-94	7	31,999	86,039
95 & Up	-	-	-
Totals	**189**	**$1,062,758**	**$1,964,285**

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

Annuities Being Paid July 1, 2017
from the Retirement Reserve Account to
SURVIVOR BENEFICIARIES by Attained Ages

Attained Age	No.	Annual Amounts: Original Annuities	Base Annuities	Current Annuities
Under 40	152	$1,089,711	$1,109,049	$ 1,248,290
40-44	2	5,997	10,576	13,115
45-49	15	102,691	115,646	140,696
50-54	22	259,951	272,676	302,328
55-59	52	810,217	854,178	970,049
60-64	104	1,474,788	1,594,444	1,856,638
65-69	118	1,377,027	1,582,212	1,887,040
70-74	101	1,160,344	1,530,338	1,893,053
75-79	61	522,509	832,008	1,027,390
80-84	38	287,677	567,475	702,917
85-89	21	110,224	311,993	386,873
90-94	9	23,510	84,789	105,138
95 & Up	3	6,450	33,125	41,075
Totals	**698**	**$7,231,096**	**$8,898,509**	**$10,574,602**

Annuities Being Paid July 1, 2017
from the Act 808 Retirement Reserve Account to
ACT 808 Retirees and Beneficiaries by Attained Ages

Attained Age	No.	Annual Amounts Original Annuities	Annual Amounts Current Annuities
Under 40	-	$ -	$ -
40-44	-	-	-
45-49	-	-	-
50-54	-	-	-
55-59	-	-	-
60-64	-	-	-
65-69	-	-	-
70-74	-	-	-
75-79	4	50,049	143,919
80-84	15	305,363	863,292
85-89	16	289,250	755,631
90-94	16	371,182	993,648
95 & Up	3	21,251	63,713
Totals	**54**	**$1,037,095**	**$2,820,203**

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

Retiree and Beneficiary Data
as of June 30

Year	Estimated Number		Total	Annual Allowances	% Increase in Annual	Average Annual
	Added	Removed	Retirees*	(Millions)	Allowances@	Allowances
1990	588	337	11,654	$ 92.69	7.0%	$ 7,954
1991	489	253	11,890	104.60	12.8%	8,797
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	2,962	965	45,092	1,044.74	6.2%	23,169

* *T-DROP participants are classified as active members for purposes of the valuation and are not included in this schedule.*
@ *T-DROP annuities for retired members included 2015 and later.*

Reported Assets

The assets of the Retirement System, as of June 30, 2017, were reported to your actuary to be $16,284,808,245. This amount, together with a funding value adjustment of $153,341,318, is used to finance the Retirement System liability.

	Assets at June 30	
Accounts	**2017**	**2016**
Regular Accounts		
Members' Deposit Accounts		
Contributions	$ 1,229,715,817	$ 1,159,759,877
Interest	8,648,950,788	7,150,581,061
Total	9,878,666,605	8,310,340,938
T-Drop Member Deposit Accounts		
Contributions	24,594,867	24,074,666
Interest	31,995,573	37,090,183
Total	56,590,440	61,164,849
Cash Balance Account	91,084,101	69,976,233
Employer's Accumulation Account	(4,840,656,333)	(3,985,107,737)
Retirement Reserve Account	10,545,265,390	9,533,653,119
Act 808 Retirement Reserve Account	13,986,693	14,894,565
T-Lump Payable	430,583,531	454,943,811
Survivors Benefit Account	99,931,749	88,768,471
Total Regular Accounts	16,275,452,176	14,548,634,249
Other Accounts		
Income Expense Account	9,356,069	9,942,480
Other Special Reserves	-	-
Miscellaneous	-	-
Total Other Accounts	9,356,069	9,942,480
Total Market Value of Assets	16,284,808,245	14,558,576,729
Funding Value Adjustment	(153,341,318)	679,945,286
Funding Value of Assets	**$16,131,466,927**	**$15,238,522,015**

VALUATION RESULTS

Liabilities for Annuities Being Paid July 1, 2017
Tabulated by Type of Annuity Being Paid

Type of Annuity	Liabilities July 1, 2017 Men	Women	Totals
RETIREMENT RESERVE ACCOUNT			
Age & Service Annuities			
Option 1 (Straight Life)	$ 1,340,763,380	$ 6,269,128,115	$ 7,609,891,495
Option A (100% Joint & Survivor)	790,024,323	802,085,824	1,592,110,147
Option B (50% Joint & Survivor)	387,285,607	585,640,079	972,925,686
Option C (10 Years Certain & Life)	31,758,126	139,577,768	171,335,894
Beneficiaries	47,944,961	151,906,605	199,851,566
Total Age & Service	2,597,776,397	7,948,338,391	10,546,114,788
Disability Annuities			
Option 1	49,047,704	265,221,848	314,269,552
Option A	28,297,839	41,082,209	69,380,048
Option B	5,818,795	11,407,754	17,226,549
Option C	389,801	4,192,000	4,581,801
Beneficiaries	20,203,795	23,592,077	43,795,872
Total Disability	103,757,934	345,495,888	449,253,822
Act 793	10,597,479	6,041,912	16,639,391
Total Retirement Reserve Account	2,712,131,810	8,299,876,191	11,012,008,001
SURVIVORS' BENEFIT ACCOUNT			
Beneficiaries of Deceased Members	$ 45,907,387	$ 58,761,608	$ 104,668,995
OTHER LIABILITIES			
Act 808	10,582,650	3,824,991	14,407,641
RETIREMENT SYSTEM TOTALS			
Total Annuity Liabilities	2,768,621,847	8,362,462,790	11,131,084,637
Cash Benefit Account Liabilities			91,084,101
Liabilities for Lump Sum Death Benefits			115,053,967
Total	$ 2,768,621,847	$ 8,362,462,790	$ 11,337,222,705

Retirement Reserve Account
Comparative Statement of Annuities, Accrued Liabilities and Assets
($ Millions)

Valuation Date June 30	Annual Annuities Being Paid No.	Amount	% Incr.	Average	Computed Liabilities	Applicable Assets	Unfunded Retired Life Liabilities	Ratio of Assets to Liabilities
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%

* *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.*
@ *TDROP annuities for retired members included 2015 and later.*

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%

* *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, 2017

Calendar Year of Retirement	No.	Annual Amount Being Paid Original	Total Increase	Current	Average
2017*	635	$ 7,090,804	$ 385,283	$ 7,476,087	$ 11,773
2016	2,921	47,164,776	8,452,656	55,617,432	19,041
2015	3,136	50,709,178	10,934,081	61,643,259	19,657
2014	3,104	51,417,911	12,613,541	64,031,452	20,629
2013	2,838	47,160,042	13,663,142	60,823,184	21,432
2012	2,807	44,713,270	14,604,280	59,317,550	21,132
2011	2,522	40,654,983	14,428,822	55,083,805	21,841
2010	2,161	34,537,255	14,307,225	48,844,480	22,603
2009	2,263	36,641,896	16,554,691	53,196,587	23,507
2008	2,175	33,773,146	15,372,125	49,145,271	22,596
2007	2,028	30,947,810	14,396,098	45,343,908	22,359
2006	1,810	28,165,580	14,677,809	42,843,389	23,670
2005	1,779	28,034,493	16,401,627	44,436,120	24,978
2004	1,587	23,508,037	13,841,370	37,349,407	23,535
2003	1,430	21,028,675	12,971,987	34,000,662	23,777
2002	1,360	20,761,927	13,129,087	33,891,014	24,920
2001	1,435	19,509,431	12,616,772	32,126,203	22,388
2000	1,198	18,641,384	13,313,804	31,955,188	26,674
1999	1,042	14,901,653	11,932,084	26,833,737	25,752
1998	1,026	13,587,449	11,664,781	25,252,230	24,612
1997	761	11,540,007	10,997,564	22,537,571	29,616
1996	638	10,031,890	9,699,086	19,730,976	30,926
1995	670	10,563,965	10,734,577	21,298,542	31,789
1994	684	10,845,348	11,951,934	22,797,282	33,329
1993	502	7,960,930	9,247,793	17,208,723	34,280
1992	355	4,365,300	5,953,857	10,319,157	29,068
1991	259	2,874,806	4,324,641	7,199,447	27,797
1990	300	3,122,284	5,363,935	8,486,219	28,287
1989	270	2,897,128	5,132,452	8,029,580	29,739
1988	275	2,928,930	5,512,996	8,441,926	30,698
1987	282	2,787,144	5,864,426	8,651,570	30,679
1986	181	1,726,938	3,666,097	5,393,035	29,796
1985	151	1,238,464	2,938,514	4,176,978	27,662
1984	98	725,270	1,952,521	2,677,791	27,324
1983	102	677,787	1,715,050	2,392,837	23,459
Before 1982	307	1,466,523	4,725,600	6,192,123	20,170
TOTAL	**45,092**	**$688,702,414**	**$356,042,308**	**$1,044,744,722**	**$23,169**

* *Reporting for calendar year 2017 is not yet complete. The July 1st retirees are not included in the schedule.*

APPENDIX

APPENDIX

Single Life Retirement Values
Based on RP-2014 Mortality Headcount Weighted Tables
Adjusted Using MP-2017 Projection Scale & 7.5% Interest

Sample Attained Ages in 2017*	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	$150.63	$154.11	$198.39	$204.91	42.44	46.72	0.32 %	0.28 %
45	146.61	151.28	190.86	199.17	37.65	41.91	0.42 %	0.32 %
50	141.34	147.34	181.46	191.61	32.94	37.09	0.54 %	0.36 %
55	134.64	141.90	170.05	181.80	28.37	32.31	0.72 %	0.45 %
60	126.34	134.84	156.54	169.71	23.99	27.65	0.98 %	0.60 %
65	116.25	125.74	140.94	154.99	19.86	23.15	1.37 %	0.82 %
70	103.94	114.03	122.97	137.25	15.96	18.80	1.99 %	1.26 %
75	89.30	99.87	102.87	117.08	12.33	14.75	3.13 %	2.09 %
80	73.14	83.85	81.95	95.60	9.13	11.14	5.20 %	3.54 %
85	56.94	67.04	62.12	74.34	6.49	8.07	8.90 %	6.20 %
Base	2635 x 1.01	2636 x 0.91	2635 x 1.01	2636 x 0.91				
Projection	939	940 x 0.91	939	940				

* *Applicable to calendar year 2017. Rates and life expectancies in future years are determined by the MP-2017 projection scale.*

Sample Attained Ages	Benefit Increasing 3.0% Yearly	Portion of Age 60 Lives Still Alive	
		Men	Women
60	$100.00	100%	100%
65	115.00	95%	97%
70	130.00	87%	92%
75	145.00	78%	86%
80	160.00	66%	77%
Ref		2635 x 1.01	2636 x 0.91

GRS Retirement Consulting
800.521.0498 | P: 248.799.9000 | F: 248.799.9020 | www.grsconsulting.com

January 8, 2018

Mr. George Hopkins
Executive Director
Arkansas Teacher Retirement System
1400 West Third
Little Rock, Arkansas 72201

Re: Report of June 30, 2017 Actuarial Valuation of Retirees & Beneficiaries

Dear Mr. Hopkins:

Enclosed are 15 copies of this report. Please let us know if anything else is needed.

Sincerely,

Judith A. Kermans

Judith A. Kermans, EA, FCA, MAAA

JAK:sc
Enclosures