

Arkansas Public Employees Retirement System

Actuarial Valuation and Experience Gain/Loss Analysis
June 30, 2018



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November 8, 2018

Board of Trustees
Arkansas Public Employees Retirement System
Little Rock, Arkansas

Ladies and Gentlemen:

The results of the **June 30, 2018 actuarial valuation** of the Arkansas Public Employees Retirement System together with **the annual gain and loss analysis** for the year ended June 30, 2018 are presented in this report. The purpose of the valuation and gain/loss analysis is to measure funding progress in relation to the actuarial cost method and to determine employer contribution rates for the fiscal years beginning July 1, 2019 and July 1, 2020.

Calculations required for compliance with the Governmental Accounting Standards Board (GASB) Statements No. 67 and No. 68 have been issued in separate reports.

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

The findings in this report are based on data and other information through June 30, 2018. Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as: plan experience differing from that anticipated by the economic and demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the plan's funded status); and changes in plan provisions or applicable law. Due to the limited scope of the actuary's assignment, the actuary did not perform an analysis of the potential range of such future measurements.

The actuarial methods and assumptions used in the actuarial valuation are summarized in Section E of this report. The assumptions are established by the Board after consulting with the actuary. The actuarial assumptions used for the valuation produce results which, individually and in the aggregate, are reasonable.

The cooperation of the Executive Director and the APERS staff in furnishing the materials required for these valuations is acknowledged with appreciation.


This report has been prepared by individuals who have substantial experience valuing public employee retirement systems. To the best of our knowledge, this report is complete and accurate and was made in accordance with standards of practice promulgated by the Actuarial Standards Board and in conformance with Title 24 of the Arkansas Code.

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

The signing individuals are independent of the plan sponsor.

Respectfully submitted,


Mita D. Drazilov, ASA, FCA, MAAA


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SECTION A

VALUATION RESULTS

Comments

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

The general financial objective of each Arkansas public employee retirement plan shall be to establish and receive contributions that, expressed as percentages of active member payroll, will remain approximately level from generation to generation of Arkansas citizens. More specifically, contributions received each year shall be sufficient both:

- (1) To fully cover the costs of benefit commitments being made to members for their service being rendered in that year; and
- (2)(A) 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.
- (B) Alternatively, if the costs of benefit commitments for service previously rendered are overfunded, the plan may deduct a level payment that, if deducted annually over a reasonable period of future years, will fully liquidate the overfunded portion of such costs.

Benefit Changes. The most recent benefit changes were reflected in the June 30, 2009 valuation. No benefit changes have been adopted for consideration in the June 30, 2018 valuation.

Assumption Changes. The June 30, 2018 valuation reflects a change in the demographic assumptions resulting from the experience study covering the period from July 1, 2012 through June 30, 2017.

Method Changes. In conjunction with the adoption of the demographic assumptions, the amortization period for APERS was updated for the June 30, 2018 valuation to a 26-year period. There have been no other changes in methods since the June 30, 2017 valuation.

APERS Status. Based upon the results of the June 30, 2018 actuarial valuation, **APERS continues to satisfy the general financial objective** of level contribution financing.

APERS Reserve Strength. As a by-product of achieving level contribution financing, actuarial accrued liabilities usually become more and more funded over a period of years. On a funding value of assets basis, the System has a 79% funded ratio. On a market value of assets basis, the System has an 80% funded ratio.

Employer Contribution Rates. Based upon experience through June 30, 2018, the State and Local Government contribution rate (including General Assembly members) will be 15.32% of covered payroll for the fiscal years beginning July 1, 2019 and July 1, 2020.

District Judges. Results for the District Judges are presented in Section D. These results are not included in any of the numbers presented in Sections A, B and C.

Recommendations

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

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

This year's recommended transfer amounts are as follows:

Employer Accum. Account Before Transfers	Transfers as of July 1, 2018 (from) to:		Employer Accum. Account After Transfers
	Retirement Reserve Account	Deferred Annuity Account	
\$2,087,205,686	\$292,746,347	\$(11,986,330)	\$1,806,445,669

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

Other Observations

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

Given the plan's contribution allocation procedure, if all actuarial assumptions are met (including the assumption of the plan earning 7.15% on the actuarial value of assets), it is expected that:

- (1) The employer normal cost as a percentage of pay will decrease to approximately 7.4% (the employer normal cost for the new contribution plans) as non-contributory members leave employment;
- (2) The unfunded actuarial accrued liabilities will be fully amortized after 26 years; and
- (3) The funded status of the plan will increase gradually towards a 100% funded ratio.

Limitations of Funded Status Measurements

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

- (1) The measurement is inappropriate for assessing the sufficiency of plan assets to cover the estimated cost of settling the plan's benefit obligations.
- (2) The measurement is dependent upon the actuarial cost method which, in combination with the plan's amortization policy, affects the timing and amounts of future contributions. The amounts of future contributions will most certainly differ from those assumed in this report due to future actual experience differing from assumed experience based upon the actuarial assumptions. A funded status measurement in this report of 100% is not synonymous with no required future contributions. If the funded status were 100%, the plan would still require future normal cost contributions (i.e., contributions to cover the cost of the active membership accruing an additional year of service credit).
- (3) The measurement would produce a different result if the market value of assets were used instead of the actuarial value of assets, unless the market value of assets is used in the measurement.

Employer Contribution Rates Computed for Fiscal Years Beginning July 1, 2019 and July 1, 2020

Contribution for	Contributions Expressed as %'s of Active Payroll For Fiscal Year Beginning July 1, 2019
	State and Local and General Assembly
Normal Cost:	
Age and service annuities (including DROP and reduced retirement)	8.09%
Separation benefits	2.03%
Disability benefits	0.52%
Death-in-service annuities	0.32%
Administrative expenses	0.40%
Total	11.36%
Member contributions	3.47%
Employer Normal Cost	7.89%
Unfunded Actuarial Accrued Liabilities	7.43% *
Total Employer Contribution	15.32%

* *Unfunded actuarial accrued liabilities were amortized over a 26-year period.*

Note: State and Local payroll includes payroll for DROP participants and retired members returned to work.

Summary Statement of System Resources and Obligations

Year Ended June 30, 2018

Present Resources and Expected Future Resources

A.	Present Valuation Assets:	
	1. Net assets from System financial statements	\$ 8,571,821,992
	2. Market value adjustment	<u>(155,467,758)</u>
	3. Valuation assets	8,416,354,234
B.	Actuarial present value of expected future employer contributions:	
	1. For normal costs	1,013,578,357
	2. For unfunded actuarial accrued liability	<u>2,277,910,924</u>
	3. Total	3,291,489,281
C.	Actuarial present value of expected future member contributions	<u>535,359,540</u>
D.	Total Present and Expected Future Resources	<u><u>\$ 12,243,203,055</u></u>

Actuarial Present Value of Expected Future Benefit Payments

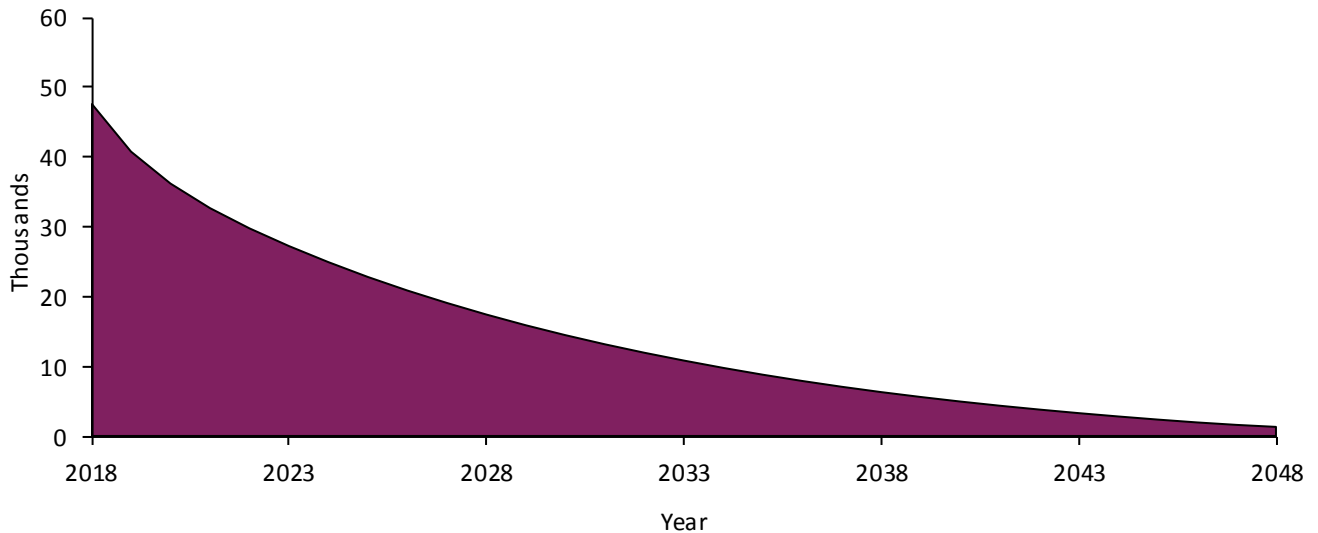
A.	To retirees and beneficiaries:	\$ 5,717,945,221
B.	To vested terminated members	516,560,663
C.	To present active and DROP members:	
	1. Allocated to service rendered prior to valuation date - actuarial accrued liability	4,459,759,274
	2. Allocated to service likely to be rendered after valuation date	<u>1,548,937,897</u>
	3. Total	6,008,697,171
D.	Total Actuarial Present Value of Expected Future Benefit Payments	<u><u>\$ 12,243,203,055</u></u>

Computed Actuarial Liabilities and Allocation Using Entry Age Actuarial Cost Method as of June 30, 2018

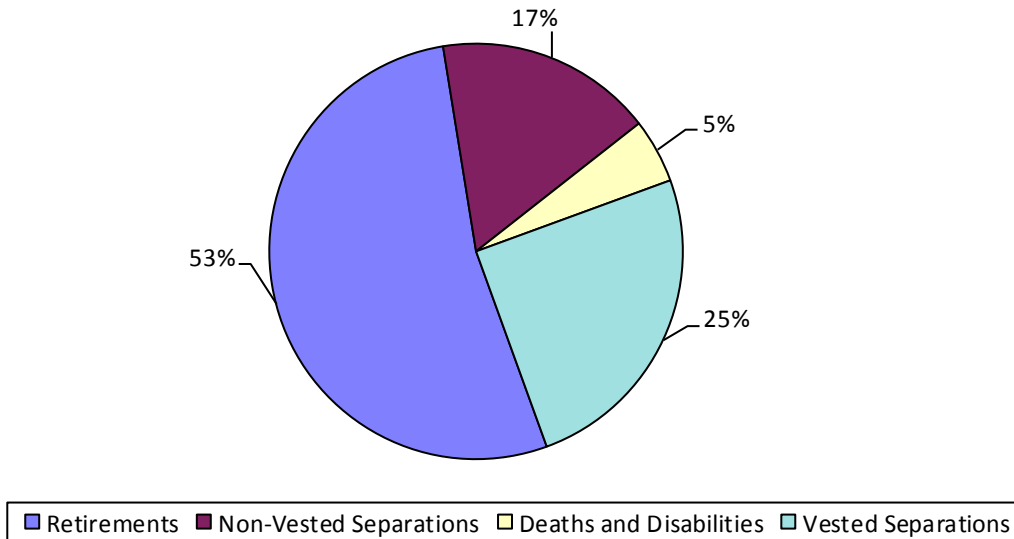
Actuarial Present Value of	Total Present Value	Portion Covered By Future Normal Cost Contributions	Actuarial Accrued Liabilities (1) - (2)
Benefits to be paid to current retirees, beneficiaries, and future beneficiaries of current retirees	\$5,717,945,221	\$ 0	\$5,717,945,221
Age and service allowances based on total service likely to be rendered by present active members and current DROP participants	5,272,407,914	1,143,330,985	4,129,076,929
Separation benefits (refunds of contributions and deferred allowances) likely to be paid to present active and inactive members	956,910,650	286,892,694	670,017,956
Disability benefits likely to be paid to present active members	164,685,516	73,489,754	91,195,762
Death-in-service benefits likely to be paid on behalf of present active members	131,253,754	45,224,464	86,029,290
Total	\$12,243,203,055	\$1,548,937,897	\$ 10,694,265,158
Applicable assets (funding value)	8,416,354,234	0	8,416,354,234
Liabilities to be covered by future contributions	\$ 3,826,848,821	\$1,548,937,897	\$ 2,277,910,924

Expected Development of Present Population June 30, 2018

Closed Group Population Projection



Expected Termination Type from Active Employment



The charts show the expected future development of the present population in simplified terms. The Retirement System presently covers 47,644 active members (includes DROP). Eventually, 17% of the population is expected to terminate covered employment prior to retirement and forfeit eligibility for an employer provided benefit. About 78% of the present population is expected to receive monthly retirement benefits either by retiring directly from active service, retiring from DROP, or retiring from vested deferred status. About 5% of the present population is expected to become eligible for death-in-service or disability benefits. Within 8 years, over half of the covered membership is expected to consist of new hires.

Valuation Results Comparative Statement (\$ Millions)

Valuation Date June 30,	Actuarial Accrued Liabilities & Reserves	Valuation Assets	% Funded	Unfunded Actuarial Accrued Liabilities & Reserves			Contribution Rate Computed Percents	
				Dollars	Amortiz. Period *	% of Payroll	General Assembly	State & Local**
2001 @	\$4,111	\$ 4,342	105.6 %	\$(231)	50	(22) %	148.78 %	10.00 %
2002 #	4,398	4,404	100.1	(6)	6	(1)	150.95	10.00
2003 #	4,674	4,416	94.5	258	30	22	222.80	11.09
2004	5,005	4,438	88.7	567	30	48	201.39	12.54
2005 @#	5,619	4,584	81.6	1,035	22	85	459.47	12.54
2006	5,936	4,949	83.4	987	19	78	464.67	12.54
2007 @	6,174	5,498	89.1	676	18	52	410.58	11.01
2008 #	6,543	5,866	89.7	677	14	49	408.06	11.00
2009 @	6,938	5,413	78.0	1,525	30	106	521.36	12.46
2010	7,304	5,409	74.1	1,895	30	124	518.69	13.47
2011 #	7,734	5,467	70.7	2,267	30	147	939.81	14.24
2012	8,163	5,625	68.9	2,538	30	151		14.88
2013 #	8,284	6,159	74.3	2,125	25	126		14.76
2014 #	8,864	6,895	77.8	1,969	23	113		14.50
2015 #	9,295	7,352	79.1	1,943	25	111		14.50
2016	9,663	7,769	80.4	1,894	21	106		14.75
2017	10,510	8,157	77.6	2,353	30	132		15.32
2017 #	10,321	8,157	79.0	2,164	25	121		15.32
2018	10,694	8,416	78.7	2,278	26	123		15.32

* Amortization period is for State division prior to 2001, State and Local division for 2001 and later and may be rounded above. General Assembly unfunded actuarial accrued liabilities are amortized over an 18-year period as of June 30, 2008.

** Local Government rate was 6.00% for the 1998 valuation, 7.00% for the 1999 valuation, and 8.00% for the 2000 valuation. Beginning with the June 30, 2012 valuation, results include General Assembly.

@ After legislated changes in benefit provisions.

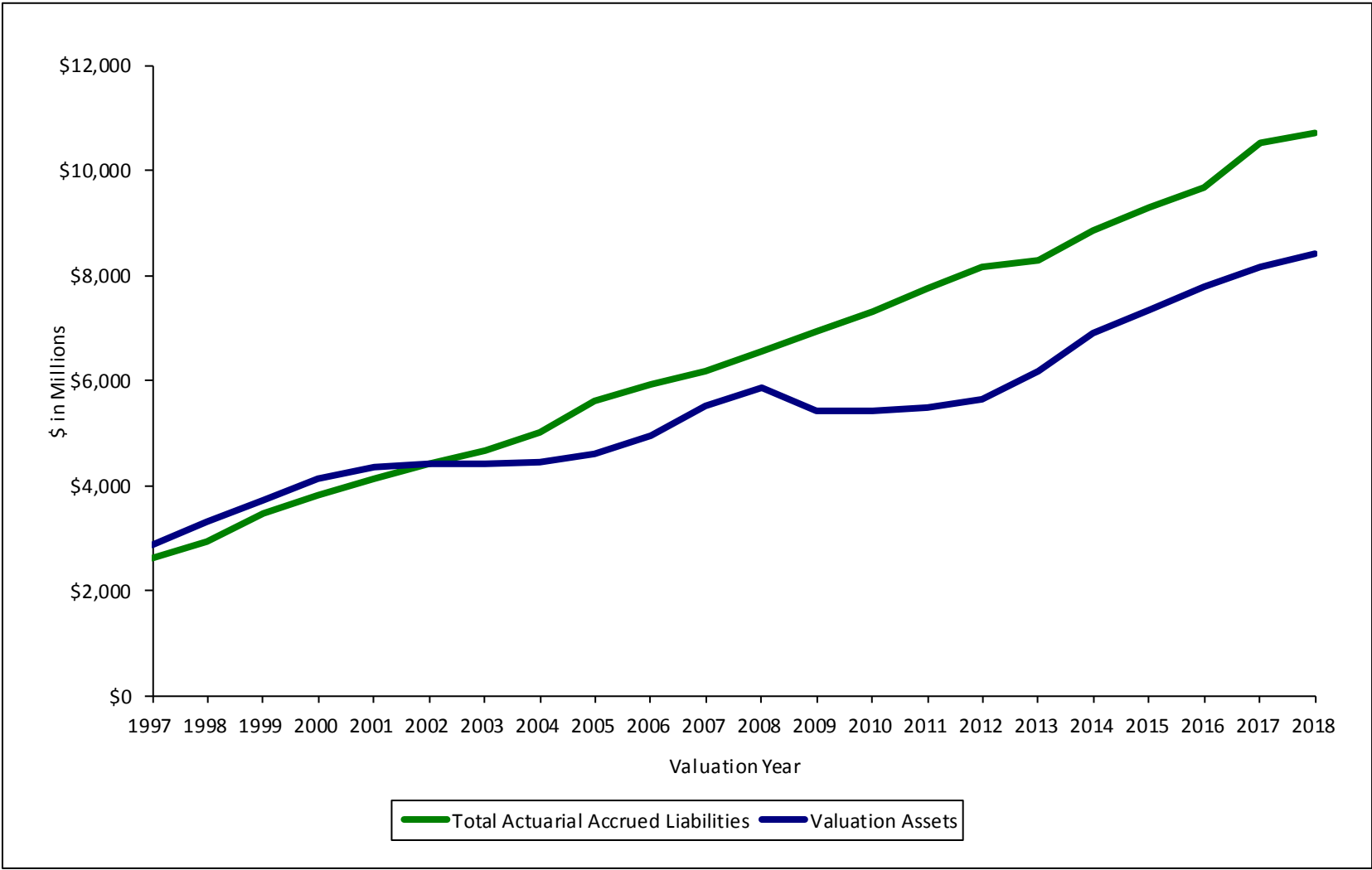
After changes in actuarial assumptions.

Active Members and Retired Lives Historical Comparative Schedule

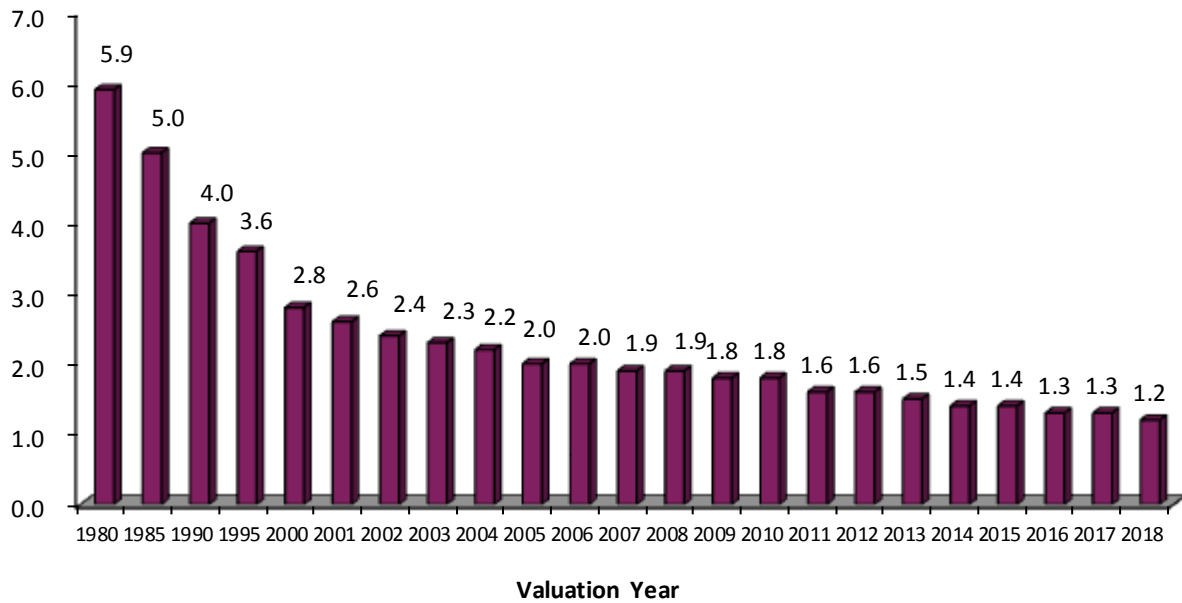
Valuation Date	Active Members				Retired Lives			
	No.	Valuation Payroll			No.	Active per Retired	Annual Benefits	
		\$ Millions	Average	% Incr.			\$ Millions	As a % of Pay
6/30/84	NA	NA	NA	NA	7,036	NA	\$ 19.1	4.4%
6/30/85	NA	NA	NA	NA	7,331	NA	22.0	4.8%
6/30/86	NA	NA	NA	NA	7,649	NA	24.1	4.9%
6/30/87	NA	NA	NA	NA	8,074	NA	30.2	6.0%
6/30/88	NA	NA	NA	NA	9,155	NA	39.6	7.5%
6/30/89	NA	NA	NA	NA	9,418	NA	42.9	7.6%
6/30/90	NA	NA	NA	NA	9,747	NA	44.9	7.4%
6/30/91	NA	NA	NA	NA	10,110	NA	49.2	7.6%
6/30/92	39,752	\$ 698.2	\$ 17,564	NA	10,456	3.8	51.9	7.4%
6/30/93	39,849	733.4	18,404	4.8%	10,840	3.7	56.8	7.7%
6/30/94	40,940	778.7	19,021	3.3%	11,213	3.7	60.7	7.8%
6/30/95	42,041	834.5	19,850	4.4%	11,683	3.6	70.1	8.4%
6/30/96	42,712	889.3	20,821	4.9%	12,073	3.5	76.2	8.6%
6/30/97	43,068	938.5	21,791	4.7%	12,644	3.4	84.8	9.0%
6/30/98	43,047	974.7	22,644	3.9%	13,480	3.2	94.6	9.7%
6/30/99	43,064	1,008.9	23,427	3.5%	14,688	2.9	119.3	11.8%
6/30/00	43,121	1,050.0	24,351	3.9%	15,544	2.8	133.6	12.7%
6/30/01	42,556	1,070.1	25,146	3.3%	16,643	2.6	150.0	14.0%
6/30/02	42,230	1,111.5	26,320	4.7%	17,748	2.4	167.6	15.1%
6/30/03	42,879	1,147.9	26,772	1.7%	18,838	2.3	186.0	16.2%
6/30/04	42,826	1,175.8	27,455	2.6%	19,872	2.2	203.4	17.3%
6/30/05	42,938	1,214.9	28,295	3.1%	21,080	2.0	232.9	19.2%
6/30/06	43,453	1,267.1	29,159	3.1%	22,234	2.0	254.7	20.1%
6/30/07	43,630	1,302.6	29,855	2.4%	22,409	1.9	274.8	21.1%
6/30/08	44,357	1,379.8	31,106	4.2%	23,555	1.9	297.0	21.5%
6/30/09	44,702	1,433.7	32,073	3.1%	24,972	1.8	323.1	22.5%
6/30/10	45,394	1,522.7	33,544	4.6%	25,880	1.8	342.2	22.5%
6/30/11	45,145	1,542.9	34,177	1.9%	28,137	1.6	375.7	24.3%
6/30/12	45,937	1,606.1	34,962	2.3%	29,282	1.6	399.5	24.9%
6/30/13	45,707	1,612.7	35,285	0.9%	30,533	1.5	426.2	26.4%
6/30/14	45,841	1,638.0	35,735	1.3%	31,914	1.4	457.1	27.9%
6/30/15	45,722	1,645.0	35,979	0.7%	33,106	1.4	483.9	29.4%
6/30/16	45,676	1,686.5	36,923	2.6%	34,214	1.3	509.7	30.2%
6/30/17	46,094	1,668.8	36,204	(1.9)%	36,260	1.3	540.1	32.4%
6/30/18	46,207	1,723.6	37,302	3.0%	37,398	1.2	575.1	33.4%

The above valuation payroll results do not include DROP payroll.

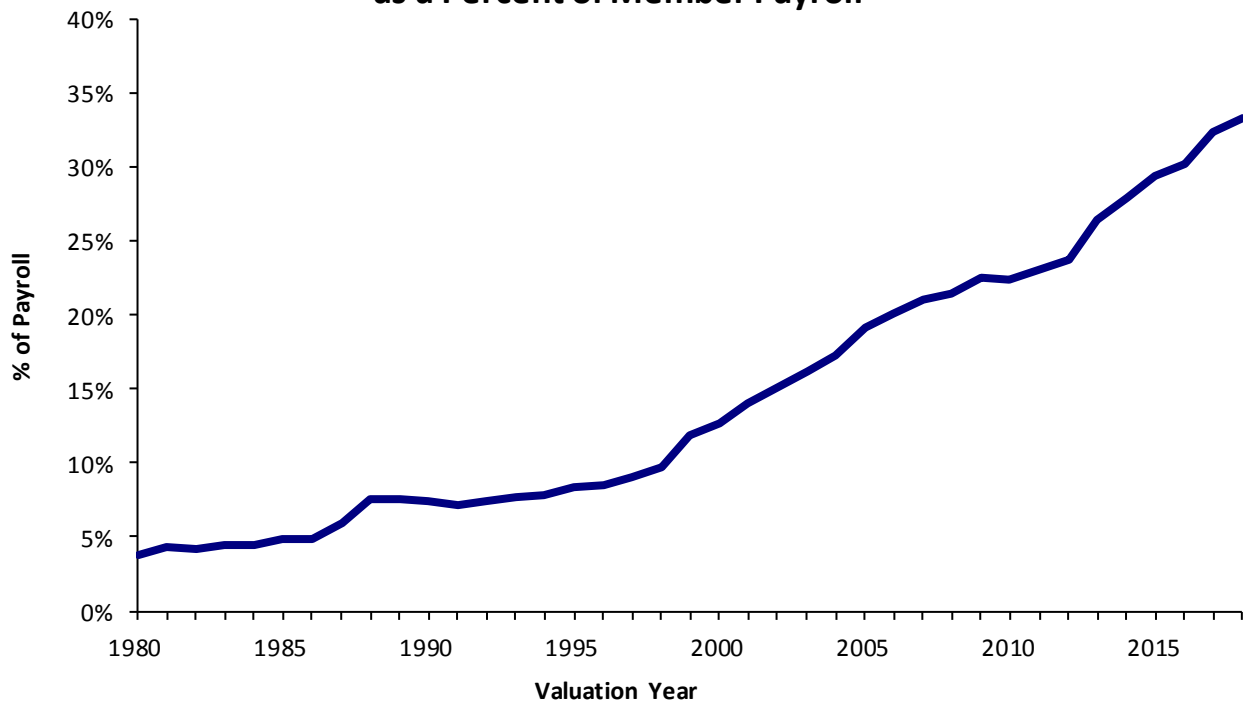
Actuarial Accrued Liabilities & Assets



Active Members Per Retired Life



Retirement Benefits Being Paid as a Percent of Member Payroll



Short Condition Test

The APERS 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 condition 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) Active member contributions on deposit;
- 2) The liabilities for future benefits to present retired lives; and
- 3) The liabilities for service already rendered by active members.

In a System that has been following the discipline of level percent-of-payroll financing, the liabilities for active 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 unusual circumstances). In addition, the liabilities for service already rendered by active members (liability 3) will be partially covered by the remainder of present assets. The larger the funded portion of liability 3, the stronger the condition of the System. Liability 3 being fully funded is uncommon.

Short Condition Test Comparative Statement (\$ in Millions)

Val'n. Date: June 30	Entry Age Accrued Liability			Valuation Assets	Portion of Present Values Covered by Present Assets			
	(1) Active Member Contr.	(2) Retirees and Benef.	(3) Active Members (Employer Financed Portion)		(1)	(2)	(3)	Total
STATE DIVISION (including sub-divisions)								
1998@	\$17.2	\$ 640.3	\$1,395.9	\$2,328.5	100%	100%	119%	113%
1999@#	16.9	784.0	1,634.2	2,637.1	100%	100%	112%	108%
2000	15.8	747.5	1,865.7	2,943.3	100%	100%	117%	112%
LOCAL GOVERNMENT DIVISION								
1998@	\$ 8.8	\$ 337.9	\$ 501.1	\$ 968.1	100%	100%	124%	114%
1999#	8.8	446.9	587.9	1,074.7	100%	100%	105%	103%
2000	7.6	440.0	706.0	1,178.1	100%	100%	103%	102%
STATE AND LOCAL GOVERNMENT DIVISION								
2001#	\$23.4	\$1,305.0	\$2,759.2	\$4,335.5	100%	100%	109%	106%
2002@	20.5	1,502.7	2,850.8	4,397.2	100%	100%	101%	101%
2003@	20.5	1,624.7	3,004.7	4,408.3	100%	100%	92%	95%
2004	20.5	1,762.2	3,197.6	4,429.9	100%	100%	83%	89%
2005@	15.5	1,878.2	3,701.7	4,576.1	100%	100%	72%	82%
2006	15.5	1,990.6	3,907.3	4,941.1	100%	100%	75%	84%
2007#	29.7	2,268.5	3,856.7	5,489.3	100%	100%	83%	89%
2008@	45.8	2,463.9	4,014.9	5,858.1	100%	100%	83%	90%
2009	66.4	2,750.3	4,059.9	5,406.8	100%	100%	64%	79%
2009#	66.4	2,750.3	4,103.5	5,406.8	100%	100%	63%	78%
2010	92.8	2,928.7	4,266.1	5,403.5	100%	100%	56%	74%
2011@	119.2	3,268.3	4,327.8	5,462.6	100%	100%	48%	71%
2012	122.1	3,518.7	4,521.9	5,625.4	100%	100%	44%	69%
2013@	147.9	3,855.2	4,281.1	6,159.3	100%	100%	50%	74%
2014@	176.3	4,246.7	4,440.6	6,894.9	100%	100%	56%	78%
2015@	201.1	4,654.5	4,439.2	7,351.7	100%	100%	56%	79%
2016	228.4	4,929.2	4,505.1	7,768.9	100%	100%	58%	80%
2017	291.1	5,547.3	4,671.8	8,157.0	100%	100%	50%	78%
2017@	291.1	5,460.9	4,568.5	8,157.0	100%	100%	53%	79%
2018	334.7	5,717.9	4,641.7	8,416.4	100%	100%	51%	79%

After legislated changes in benefit provisions.

@ After changes in actuarial assumptions.

Summary of Risk Measures

Valuation Date June 30,	Funded Ratio		UAAL	Total Actuarial Value			Standard Deviation of
	Based on AVA	Based on MVA	Amortization Period	Total UAAL / Total Payroll	of Assets / Total Payroll	Total AAL / Total Payroll	Investment Return / Total Payroll
2005 @#	82 %	83 %	22	0.9	3.8	4.6	**
2006	83	87	19	0.8	3.9	4.7	**
2007 @	89	97	18	0.5	4.2	4.7	**
2008 #	90	86	14	0.5	4.3	4.7	**
2009 @	78	62	30	1.1	3.8	4.8	**
2010	74	65	30	1.2	3.6	4.8	**
2011 #	71	75	30	1.5	3.4	4.8	**
2012	69	70	30	1.5	3.3	4.8	**
2013 #	74	77	25	1.3	3.6	4.9	**
2014 #	78	85	23	1.1	4.0	5.1	59 %
2015 #	79	81	25	1.1	4.2	5.3	58 %
2016	80	76	21	1.1	4.3	5.4	56 %
2017 #	78	76	25	1.3	4.6	5.9	56 %
2018	79	80	26	1.2	4.6	5.8	63 %

@ After legislated changes in benefit provisions.

After changes in actuarial assumptions.

** Unavailable. This measurement will be built prospectively beginning with the June 30, 2014 valuation.

Funded ratio: The funded ratio is expected to trend toward 100% by June 30, 2045 under the current amortization period.

UAAL Amortization Period: The statutory amortization period is expected to decrease by one year each year.

UAAL / Total Payroll: The ratio of the unfunded actuarial accrued liability to payroll is expected to trend towards 0% by June 30, 2045.

Funding Value of Assets / Total Payroll: As the funded ratio increases, this ratio is expected to converge to the ratio of Total AAL / Payroll.

Total AAL / Total Payroll: This measure is expected to increase as the System matures.

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

SECTION B

VALUATION DATA

Summary of Provisions Evaluated (Excludes Special Provisions for General Assembly) (Last Changed as of 7/1/2009)

The Old Contributory Plan is available to persons who became members of APERS before January 1, 1978. The Non-Contributory Plan applies to all persons first hired after January 1, 1978 and before July 1, 2005 in APERS-covered employment. The New Contributory Plan applies to all persons hired after July 1, 2005 in APERS-covered employment or Non-Contributory members who elected to participate in the New Contributory Plan.

New Contributory Plan

Non-Contributory Plan

Voluntary Retirement

With a full benefit, after either (a) age 65 with 5 years of service, or (b) 28 years of actual service, regardless of age. For sheriff and public safety members, the age 65 requirement is reduced 1 month for each 2 months of actual service, but not below age 55 (age 52 for sheriff members with a minimum of 10 years of actual service).

With a full benefit, after either (a) age 65 with 5 years of service, or (b) 28 years of actual service, regardless of age. For sheriff and public safety members, the age 65 requirement is reduced 1 month for each 2 months of actual service, but not below age 55 (age 52 for sheriff members with a minimum of 10 years of actual service).

With a reduced benefit, after age 55 with 5 years of service or any age with 25 years of service. The reduction is equal to ½ of 1% for each month retirement precedes normal retirement age or 1% for each month below 28 years of actual service, whichever is less.

With a reduced benefit, after age 55 with 5 years of service or any age with 25 years of service. The reduction is equal to ½ of 1% for each month retirement precedes normal retirement age or 1% for each month below 28 years of actual service, whichever is less.

Final Average Compensation (FAC)

Average of highest 36 calendar months of covered compensation.

Average of highest 36 calendar months of covered compensation.

Full Age & Service Retirement Benefit

2.00% of FAC times years of service (2.03% for service prior to July 1, 2007), plus .5% of FAC times years of service over 28 years for service after July 1, 2009. The minimum monthly benefit is \$150 minus any age and beneficiary option reductions.

1.72% of FAC times years and months of credited service (1.75% for service prior to July 1, 2007), plus .5% of FAC times years of service over 28 years for service after July 1, 2009. If retirement is prior to age 62, an additional .33% of FAC times years of service will be paid until age 62. The portion of the APERS benefit based on service before 1978 cannot be less than the amount provided by contributory provisions in effect at the time of retirement. The minimum monthly benefit is \$150 minus any age and beneficiary option reductions.

Summary of Provisions Evaluated

New Contributory Plan

Non-Contributory Plan

Benefit Increases After Retirement

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

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

Member Contribution Rates

5% of covered compensation (pre-tax). Member contributions are refundable if APERS-covered employment terminates before a monthly benefit is payable. Members will earn interest on the contributions at a rate of 4% annually.

No employee contributions for service after January 1, 1978. If there is service before January 1, 1978, contributions for that period are refundable later in the same manner as under the Contributory Plan.

Vested Retirement Benefits

5 or more years of service, and leaving APERS-covered employment before full retirement age. Deferred full retirement benefit, based on service and pay at termination, begins at age 65. A death benefit is payable to surviving spouse of member who dies before benefit commencement.

5 or more years of service and leaving APERS-covered employment before full retirement age. Deferred full retirement benefit, based on service and pay at termination, begins at age 65. A death benefit is payable to surviving spouse of member who dies before benefit commencement.

In place of deferred full benefit, at age 55 or older a qualifying member can elect an immediate reduced benefit.

In place of deferred full benefit, at age 55 or older a qualifying member can elect an immediate reduced benefit.

Total and Permanent Disability

Disabled after 5 or more years of service, including credit for 18 of the 24 months preceding disability.

Disabled after 5 or more years of service, including credit for 18 of the 24 months preceding disability.

Amount is computed as an age & service benefit, based on service and pay at disability.

Amount is computed as an age & service benefit, based on service and compensation at disability.

Summary of Provisions Evaluated

New Contributory Plan

Non-Contributory Plan

Death After Retirement

If death occurs before total monthly benefit payments equal member's accumulated contributions, the difference is refunded.

Member contributions before 1978 are protected in the same manner as under the Contributory Plan.

A retiring member can also elect an optional form of benefit, which provides beneficiary protection paid for by reducing the retired member's benefit amount. Should the member elect a straight life benefit and decease within 12 months of the date of retirement, a benefit may be payable to the surviving spouse under certain conditions.

A retiring member can also elect an optional form of benefit, which provides beneficiary protection paid for by reducing the retired member's benefit amount. Should the member elect a straight life benefit and decease within 12 months of the date of retirement, a benefit may be payable to the surviving spouse under certain conditions.

Death While In APERS-Covered Employment

Member's accumulated contributions are refundable.

Member's accumulated contributions before 1978 are refundable.

If the member had 5 or more years of service, monthly benefits are payable instead. Surviving spouse receives a benefit computed as if member had retired and elected the Joint & 75% Survivor Option. Payment begins immediately.

If the member had 5 or more years of service, monthly benefits are payable instead. Surviving spouse receives a benefit computed as if member had retired and elected the Joint & 75% Survivor Option. Payment begins immediately.

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

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

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

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

Summary of Provisions Evaluated Credited Service

Membership Group	Service Credits
Public Safety Members (including State Capitol Police and Wildlife Sub-Division members) hired before July 1, 1997	1-1/2 times regular rate with 5 years actual service required to meet benefit eligibility rules.
Governor (hired before July 1, 1999)	3 times regular rate with 5 years actual service required to meet death-in-service eligibility and 4 years actual service required for other benefit eligibility.
Elected State Constitutional Officers (hired before July 1, 1999)	2-1/2 times regular rate with 5 years actual service required to meet benefit eligibility.
General Assembly	Regular crediting rate with 5 years of actual service required to meet death-in-service eligibility and 10 years of actual service required for other benefit eligibility.
Other Elected Public Officials (municipal and county officials)	2 times regular rate with 5 years actual service required to meet benefit eligibility.
All Other Members	Regular rate.

Arkansas Public Employees Deferred Retirement Option Plan

Members with 28 years of actual service in APERS or in combination with a reciprocal system are eligible to participate.

Members, for a maximum of 7 years, may continue employment and have 75% of their accrued benefit (at date of participation with 30 or more years of service) paid into the Deferred Retirement Option Plan in lieu of any further benefit accruals.

The payments into the Deferred Retirement Option Plan accumulate with interest at a rate established by the Board. The interest is paid on the mean balance and is paid to the member at termination of active membership in either a lump sum or as an annuity.

Employer contributions continue for members participating in the DROP.

Summary of Provisions Evaluated

General Assembly Division

Additional Benefit Provisions

Voluntary Retirement Eligibility

Age 65 with 10 or more years of credited service, 28 years of actual service regardless of age, or age 55 with 12 or more years of actual service, 10 of which must be as a member of the General Assembly. In addition, a member of the General Assembly who was a member of the General Assembly on July 1, 1979, or holding any other Arkansas elective office on July 1, 1979, is eligible to retire with 17.5 years of actual service regardless of age.

Vesting

Termination of employment prior to normal retirement age after completing 10 or more years of credited service.

Retirement Benefit

\$35.00 per month times years of General Assembly service. The amount is \$40.00 per month per year of service for any member who served as Speaker of the House of Representatives or President Pro Tempore of the Senate.

Disability

Eligibility: 10 years of credited service.

Amount: Accrued retirement benefit.

Death-In-Service

Eligibility: 5 years of service.

Amount - Less than 10 years in General Assembly: Same as for regular members.

Amount - 10 or more years in General Assembly: 100% of the benefit the member would have been entitled to had he or she been at retirement age payable to an eligible surviving spouse.

Death-After-Retirement

100% of the benefit the member was receiving payable to an eligible surviving spouse.

Participation

A member of the General Assembly may, at any time, elect either (i) to be covered by regular benefit provisions, or (ii) to discontinue an APERS membership.

Summary of Provisions Evaluated

Illustration of Benefit Changes During Recent Years of Retirement & Related Changes in Purchasing Power

Year Ended June 30	Increase Beginning of Year	Benefit Dollars In Year	Inflation (Loss) In Year#	Purchasing Power at Year End	
				1985 \$	% of 1985
1985	--	\$ 8,000	(3.7)%	\$8,000	100%
1986	\$ 240	8,240	(1.7)%	8,102	101%
1987	240	8,480	(3.7)%	8,041	101%
1988	240	8,720	(3.9)%	7,958	99%
1989	240	8,960	(5.1)%	7,780	97%
1990	240	9,200	(4.7)%	7,630	95%
1991	240	9,440	(4.7)%	7,478	93%
1992	661	10,101	(3.1)%	7,761	97%
1993	303	10,404	(3.0)%	7,761	97%
1994	584	10,988	(2.5)%	7,996	100%
1995	275	11,263	(3.0)%	7,958	99%
1996	1,064	12,327	(2.8)%	8,472	106%
1997	345	12,672	(3.0)%	8,506	106%
1998	760	13,432	(2.3)%	8,761	110%
1999	309	13,741	(1.7)%	8,896	111%
2000	990	14,731	(3.7)%	9,194	115%
2001	442	15,173	(3.2)%	9,172	115%
2002	713	15,886	(1.1)%	9,502	119%
2003	477	16,363	(2.1)%	9,586	120%
2004	491	16,854	(3.0)%	9,586	120%
2005	506	17,360	(3.2)%	9,570	120%
2006	521	17,881	(4.1)%	9,465	118%
2007	715	18,596	(2.4)%	9,617	120%
2008	558	19,154	(5.6)%	9,380	118%
2009	575	19,729	2.1 %	9,864	123%
2010	592	20,321	(1.2)%	10,036	125%
2011	610	20,931	(3.6)%	9,962	125%
2012	628	21,559	(1.4)%	10,118	126%
2013	647	22,206	(2.0)%	10,221	128%
2014	666	22,872	(2.0)%	10,322	129%
2015	686	23,558	(0.2)%	10,614	133%
2016	707	24,265	(0.8)%	10,843	136%
2017	728	24,993	(1.7)%	10,979	137%
2018	750	25,743	(2.9)%	10,984	137%
2019	772	26,515			

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

Revenues and Expenditures July 1, 2017 Through June 30, 2018 Market Value

	Totals
Balance 7/1/2017	\$8,006,754,125
Revenues	
Member contributions	63,233,303
Employer contributions	275,781,385
Transfers	4,616,262
Other	2,157,775
Investment return*	780,178,927
Total	1,125,967,652
Expenditures	
Benefits paid and refunds	542,506,388
Expenses	11,465,651
Total	553,972,039
Reserve Adjustments	0
Balance 6/30/2018	\$8,578,749,738
Less Contributions Receivable	6,927,746
Balance Available for Funding Valuation	\$8,571,821,992

* Net of investment expenses.

Note: Results may not total due to rounding.

Reported Accrued Assets Available for Benefits June 30, 2018

Retirement System Account	Reported Assets June 30, 2018
Employer Accumulation Account	\$ 1,806,445,669 *
Members Deposit Account	385,971,614
Members Deposit Interest Reserve	68,144,501
Retirement Reserve Account	5,717,945,221 *
Deferred Annuity Reserve Account	516,560,663 *
DROP Reserve	83,598,204
Miscellaneous Reserves	83,866
Total Market Value	<u>\$ 8,578,749,738</u>
Less Contributions Receivable	<u>6,927,746</u>
Market Value Available for Funding	\$ 8,571,821,992
Funding Value of Assets	\$ 8,416,354,234
Valuation Asset Adjustment	(155,467,758)
Adjusted Employer Accum. Account	\$ 1,650,977,911

* After recommended reserve transfers (see page A-2).

Reported Accrued Assets Available for Benefits

June 30, 2018

(Concluded)

The Employers Accumulation Account represents employer contributions accumulated for benefits on behalf of present members.

The Members Deposit Account represents member contributions accumulated for (1) monthly benefits at retirement, and (2) refunds upon termination if monthly benefits are not payable.

The Members Deposit Interest Reserve Account represents interest credited on member contributions.

The Retirement Reserve Account represents reserves, from employer and member contributions, held for the monthly benefits being paid to present retired lives.

The Deferred Annuity Account represents employer reserves held for future monthly benefits to present inactive members.

In financing the liabilities, the Fund balances displayed on the previous page were applied to the actuarial accrued liabilities.

Development of Funding Value of Assets

Valuation Date June 30:	2016	2017	2018	2019	2020	2021
A. Funding Value Beginning of Year	\$ 7,351,734,654	\$ 7,768,871,751	\$ 8,157,037,661			
B. Market Value End of Year	7,350,771,708	7,998,520,598	8,571,821,992			
C. Market Value Beginning of Year	7,530,670,312	7,350,771,708	7,998,520,598			
D. Non-Investment Net Cash Flow	(175,483,016)	(204,502,660)	(208,183,314)			
E. Investment Income						
E1. Market Total: B - C - D	(4,415,588)	852,251,550	781,484,708			
E2. Assumed Rate	7.50%	7.50%	7.15%			
E3. Amount for Immediate Recognition	544,878,798	575,088,960	575,871,296			
E4. Amount for Phased-In Recognition	(549,294,386)	277,162,590	205,613,412			
F. Phased-In Recognition of Investment Income						
F1. Current Year: 0.25 x E4	(137,323,597)	69,290,648	51,403,353			
F2. First Prior Year	(91,741,812)	(137,323,597)	69,290,648	\$ 51,403,353		
F3. Second Prior Year	177,354,370	(91,741,812)	(137,323,597)	69,290,648	\$ 51,403,353	
F4. Third Prior Year	99,452,354	177,354,371	(91,741,813)	(137,323,595)	69,290,646	\$ 51,403,353
F5. Total Phase-Ins	47,741,315	17,579,610	(108,371,409)	(16,629,594)	120,693,999	51,403,353
G. Preliminary Funding Value End of Year: A + D + E3 + F5	\$ 7,768,871,751	\$ 8,157,037,661	\$ 8,416,354,234			
H. Adjustment to Minimum of 75% of B, Maximum 125% of B	0	0	0			
I. Funding Value End of Year	\$ 7,768,871,751	\$ 8,157,037,661	\$ 8,416,354,234			
J. Difference Between Market & Funding Value	(418,100,043)	(158,517,063)	155,467,758			
K. Recognized Rate of Return	8.2%	7.7%	5.8%			
L. Market Rate of Return	(0.1)%	11.8%	9.9%			
M. Ratio of Funding Value to Market Value	106%	102%	98%			

The Funding Value of Assets recognizes assumed investment return (line E3) fully each year. Differences between actual and assumed investment return (Line E4) are phased-in over a closed 4-year period. During periods when investment performance exceeds the assumed rate, Funding Value of Assets will tend to be less than Market Value. During periods when investment performance is less than the assumed rate, Funding Value of Assets will tend to be greater than Market Value. If assumed rates are exactly realized for 3 consecutive years, Funding Value will become equal to Market Value.

Summary of Annuitants on Rolls

Retirees and beneficiaries (including DROP participants) on rolls included in the valuation totaled 37,398, involving annual annuities of \$575,077,140, distributed as follows:

Division	Number	Annuities Being Paid July 1, 2018	
		Monthly	Annualized
State & Local	35,699	\$ 43,370,715	\$ 520,448,580
General Assembly	121	174,251	2,091,012
Governor	1	5,161	61,932
Wildlife	125	408,319	4,899,828
State Constitutional Officers	13	53,820	645,840
Penitentiary	0	0	0
Sub-total	35,959	44,012,266	528,147,192
DROP	1,439	3,910,829	46,929,948
Totals	37,398	\$ 47,923,095	\$ 575,077,140

Inactive members, entitled to deferred annuities, included in the valuation totaled 13,856, involving deferred monthly annuities of \$6,258,717, distributed as follows:

Division	Number of Inactive Members	Deferred Annuities	
		Monthly	Annualized
State and Local	13,810	\$ 6,241,965	\$ 74,903,580
General Assembly	42	12,809	153,708
Wildlife	2	1,303	15,636
State Constitutional Officers	2	2,640	31,680
Totals	13,856	\$ 6,258,717	\$ 75,104,604

Retirement System Totals
Annuities Being Paid Retirees and Beneficiaries
and DROP Participants
June 30, 2018
by Attained Age and Type of Retirement

Attained Ages	DROP		Age & Service*		Disability		Death-in-Service Beneficiaries		Totals	
	No.	Annual Amount	No.	Annual Annuities	No.	Annual Annuities	No.	Annual Annuities	No.	Annual Annuities
Under 40			68	\$ 387,048	24	\$ 114,588	221	\$ 941,328	313	\$ 1,442,964
40-44			33	291,780	45	284,724	26	158,832	104	735,336
45-49	17	\$ 540,444	108	1,871,664	118	975,192	46	317,796	289	3,705,096
50-54	203	6,043,800	457	11,057,952	233	2,200,896	76	746,100	969	20,048,748
55-59	569	19,385,928	2,175	44,439,432	496	4,724,208	135	1,047,360	3,375	69,596,928
60-64	496	16,276,404	5,184	86,782,728	696	7,057,980	182	1,596,420	6,558	111,713,532
65-69	125	3,867,492	7,921	120,603,660	736	7,275,180	156	1,430,880	8,938	133,177,212
70-74	24	709,380	6,551	97,187,484	520	5,013,768	131	1,298,772	7,226	104,209,404
75-79	5	106,500	4,294	58,695,420	184	1,762,488	93	791,460	4,576	61,355,868
80-84			2,751	37,325,952	65	718,512	51	524,412	2,867	38,568,876
85-89			1,419	19,382,820	15	222,576	32	293,724	1,466	19,899,120
90-94			536	8,192,940	4	56,796	16	204,912	556	8,454,648
95-99			129	1,739,640	1	10,716	4	25,248	134	1,775,604
Over 100			26	385,800			1	8,004	27	393,804
Totals	1,439	\$46,929,948	31,652	\$488,344,320	3,137	\$30,417,624	1,170	\$9,385,248	37,398	\$575,077,140

* Including survivor beneficiaries of deceased retirees and QDRO alternate payees.

Annuities Being Paid June 30, 2018 by Type of Annuity

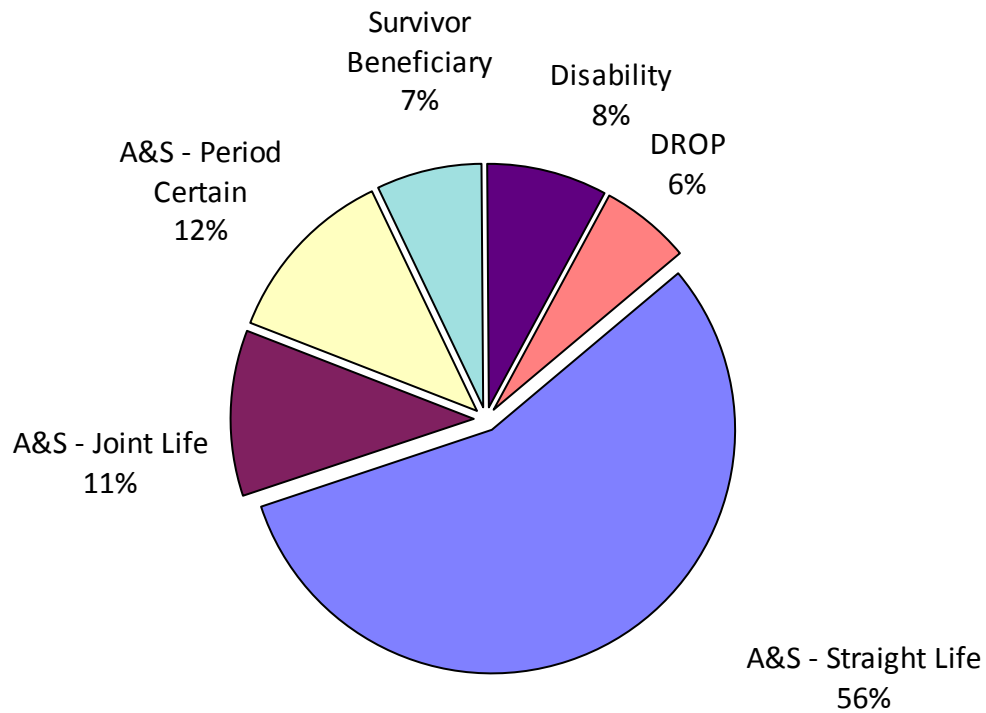
Type of Annuity	Number	Annual Annuities
Age & Service Retirees		
Life	21,060	\$ 336,694,560
Option A- 60 (5 years certain)	1,669	22,168,596
Option A-120 (10 years certain)	2,972	37,212,192
Option B- 50 (joint and 50% survivor)	1,628	32,453,616
Option B- 75 (joint and 75% survivor)	2,621	42,849,240
Totals	29,950	471,378,204
Disability Retirees		
Life	2,145	21,176,568
Option A- 60	174	1,526,964
Option A-120	388	3,622,584
Option B- 50	158	1,564,176
Option B- 75	272	2,527,332
Totals	3,137	30,417,624
Beneficiaries of Age & Service and Disability Retirees		
Life	47	923,856
Option A- 60	49	470,436
Option A-120	280	2,633,172
Option B- 50	373	3,419,424
Option B- 75	693	7,513,524
Totals	1,442	14,960,412
Total Age & Service Retirees & Beneficiaries	31,392	486,338,616
Death-in-Service Beneficiaries	1,170	9,385,248
Total Death and Disability Retirees & Beneficiaries	4,307	39,802,872
QDRO Alternate Payees	260	2,005,704
Total Retirees & Beneficiaries	35,959	528,147,192
DROP Participants	1,439	46,929,948
Total Including DROP Participants	37,398	\$ 575,077,140

The average monthly benefit is \$1,281.43

Schedule of Average Benefit Payments (Voluntary Retirements Still Receiving Benefits as of June 30, 2018)

	Years of Credited Service				
	10-14	15-19	20-24	25-29	30+
Retirement Effective Dates July 1, 2017 to June 30, 2018					
Average Monthly Benefit	\$ 448.69	\$ 948.96	\$ 1,376.67	\$2,320.39	\$2,944.11
Average Monthly FAS	2,706.87	3,298.25	3,637.60	2,423.47	1,827.85
Number of Active Retirees	914	331	220	442	246
Retirement Effective Dates July 1, 2016 to June 30, 2017					
Average Monthly Benefit	455.60	984.93	1,377.18	2,305.32	3,073.99
Average Monthly FAS	2,778.74	3,295.27	3,426.86	3,690.52	4,112.53
Number of Active Retirees	843	300	200	461	215
Retirement Effective Dates July 1, 2015 to June 30, 2016					
Average Monthly Benefit	454.82	970.78	1,394.04	2,283.63	2,924.85
Average Monthly FAS	2,827.27	3,267.71	3,740.30	3,749.98	4,183.96
Number of Active Retirees	844	242	162	450	220
Retirement Effective Dates July 1, 2014 to June 30, 2015					
Average Monthly Benefit	452.82	1,054.15	1,473.11	2,307.68	2,845.54
Average Monthly FAS	2,776.27	3,246.04	3,471.76	3,649.56	3,878.24
Number of Active Retirees	861	261	220	465	207
Retirement Effective Dates July 1, 2013 to June 30, 2014					
Average Monthly Benefit	448.42	914.13	1,377.04	2,210.95	2,779.85
Average Monthly FAS	2,689.41	3,005.17	3,419.36	3,541.89	3,893.73
Number of Active Retirees	772	240	179	474	159
Retirement Effective Dates July 1, 2012 to June 30, 2013					
Average Monthly Benefit	428.84	890.37	1,509.72	2,297.09	2,792.77
Average Monthly FAS	2,547.58	2,856.25	3,538.79	3,515.35	3,940.39
Number of Active Retirees	812	211	186	493	186
Retirement Effective Dates July 1, 2011 to June 30, 2012					
Average Monthly Benefit	398.93	908.21	1,317.61	2,250.27	2,673.60
Average Monthly FAS	2,542.55	2,927.34	3,216.91	3,451.41	3,505.05
Number of Active Retirees	748	214	170	434	151
Retirement Effective Dates July 1, 2010 to June 30, 2011					
Average Monthly Benefit	420.69	925.88	1,410.28	2,222.28	2,612.02
Average Monthly FAS	2,568.83	2,851.26	3,162.22	3,367.59	3,393.61
Number of Active Retirees	659	192	183	436	187
Retirement Effective Dates July 1, 2009 to June 30, 2010					
Average Monthly Benefit	362.24	845.23	1,194.88	2,202.81	2,569.14
Average Monthly FAS	2,262.69	2,676.80	2,737.31	3,504.97	3,761.87
Number of Active Retirees	593	168	148	352	159
Retirement Effective Dates July 1, 2008 to June 30, 2009					
Average Monthly Benefit	394.54	818.31	1,324.77	2,213.24	2,657.56
Average Monthly FAS	2,201.99	2,467.92	2,796.96	3,281.84	3,522.84
Number of Active Retirees	648	210	191	498	212
Retirement Effective Dates July 1, 2008 to June 30, 2018					
Average Monthly Benefit	430.00	1,850.15	3,271.96	2,883.56	6,330.67
Average Monthly FAS	1,516.68	1,874.02	1,865.21	1,739.38	1,893.00
Number of Active Retirees	7,694	2,369	1,859	4,505	1,942

Annuities Being Paid by Type June 30, 2018



New Retirees June 30, 2018

	<u>New Retirees June 30, 2018</u>	
	<u>Age & Service</u>	<u>Disability</u>
Number*	2,139	141
Average Age (yrs.)	62.6	56.7
Average Service (yrs.)	18.0	13.6
Average Monthly Benefit	\$1,295.02	\$752.35

* May include members who become new retirees from a non-active status.

Retirement System Totals
Annuities Likely to be Paid Present Inactive Members
June 30, 2018
by Attained Age

Attained Ages	No.	Estimated Annual Annuities
Under 40	1,967	\$ 9,888,024
40-44	1,771	9,241,656
45-49	2,596	14,203,464
50-54	2,810	15,922,116
55-59	2,318	13,234,056
60-64	1,558	8,979,540
65-69	836	3,635,748
Totals	13,856	\$ 75,104,604

Liabilities for Deferred Annuities June 30, 2018

Number of Inactive Members	Estimated Annual Annuities	Annuity Liabilities
13,856	\$ 75,104,604	\$ 516,560,663

**State and Local Division
(Excluding General Assembly)
Active Members* in Valuation June 30, 2018
by Attained Age and Years of Service**

Attained Age	Years of Service to Valuation Date							Totals	
	0-4	5-9	10-14	15-19	20-24	25-29	30 plus	No.	Valuation Payroll
Under 20	295							295	\$ 5,084,543
20-24	2,822	24						2,846	70,887,171
25-29	3,913	635	19					4,567	139,196,963
30-34	2,932	1,376	496	17				4,821	166,941,822
35-39	2,322	1,321	1,172	355	7			5,177	196,272,966
40-44	1,830	1,163	1,069	822	253	2		5,139	201,885,369
45-49	1,817	1,169	989	914	685	200	2	5,776	232,986,692
50-54	1,598	1,021	914	848	737	503	107	5,728	230,704,868
55-59	1,301	1,050	958	834	679	445	195	5,462	221,104,021
60	210	181	176	144	114	76	34	935	38,507,080
61	204	191	184	165	104	76	27	951	38,509,997
62	162	151	155	144	119	64	38	833	34,921,646
63	151	138	131	118	87	59	26	710	28,805,484
64	104	104	115	84	89	57	27	580	25,030,357
65	104	120	98	88	70	42	27	549	22,593,675
66	58	82	64	54	42	25	12	337	13,397,578
67	69	73	44	28	29	19	10	272	10,998,347
68	63	31	48	26	18	10	7	203	7,828,218
69	52	47	43	30	25	12	7	216	8,087,852
70 & over	232	160	146	134	70	40	26	808	29,810,381
Totals	20,239	9,037	6,821	4,805	3,128	1,630	545	46,205	\$1,723,555,030

* Not including DROP participants.

Group Averages

Age:	44.8 years
Service:	9.4 years
Annual Pay:	\$37,302

**General Assembly Sub-Division
Active Members in Valuation June 30, 2018
by Attained Age and Years of Service**

Attained Age	Years of Service to Valuation Date							No.	Valuation Payroll
	0-4	5-9	10-14	15-19	20-24	25-27	28 Plus		
60				1				1	\$ 40,294
61									
62									
63									
64									
65									
66									
67									
68									
69									
70									
71									
72									
73									
74				1				1	40,294
75									
76									
77									
78									
79									
Totals				2				2	\$80,588

While not used in the computations, the following *group averages* are computed and shown for their general interest.

Group Averages

Age:	67.2 years
Service:	15.5 years
Annual Pay:	\$40,294

SECTION C

GAIN/(LOSS) ANALYSIS

Gain/(Loss) Analysis Comments

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

But valuations do not show the portion of the change attributable to each risk area within the Retirement System: the rate of investment return which plan assets earn; the rates of withdrawal of active members who leave covered employment; the rates of mortality; the rates of disability; the rates of pay increases; and the ages at actual retirement. In an actuarial valuation, assumptions must be made as to what these rates will be, for the next year and for decades in the future.

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

The fact that actual experience differs from assumed experience is to be expected – **the future cannot be predicted with precision**. The economic risk areas (particularly investment return and pay increases) are volatile. Inflation directly affects economic risk areas, and inflation seems to defy reliable prediction.

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

Changes in Unfunded Actuarial Accrued Liabilities During the Period July 1, 2017 to June 30, 2018

	<u>Total (\$ in millions)</u>
(1) UAAL* at beginning of year (After adoption of new assumptions)	\$ 2,163.5
(2) Employer normal cost from last valuation	142.0
(3) Actual employer contributions	275.8
(4) Interest accrual: [(1) + ½[(2) - (3)]]x .0715	149.9
(5) Expected UAAL before changes: (1) + (2) - (3) + (4)	2,179.6
(6) Increase from benefit changes	0.0
(7) Changes from revised actuarial assumptions and methods	0.0
(8) New entrant liabilities	78.3
(9) Expected UAAL after changes: (5) + (6) + (7) + (8)	2,257.9
(10) Actual UAAL at end of year	2,277.9
<hr/>	
(11) Gain/(Loss): (9) - (10)	\$ (20.0)

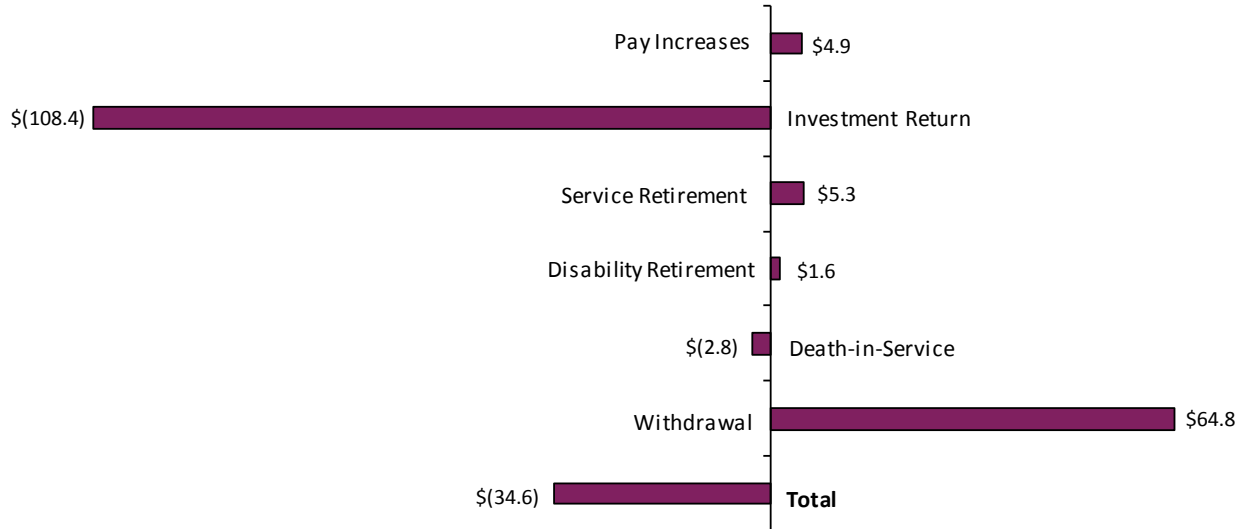
* Unfunded actuarial accrued liability.

Gains/(Losses) by Risk Area During the Period July 1, 2017 to June 30, 2018

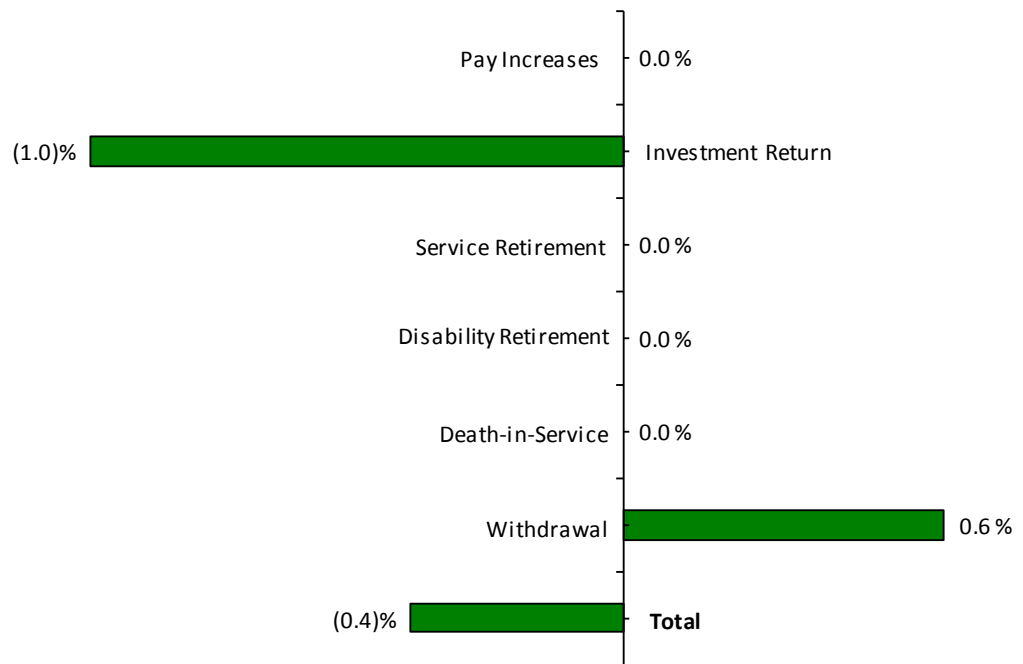
Type of Risk Area	Total (\$ in millions)	% of Accrued Liabilities
ECONOMIC RISK AREAS		
Pay Increases. If there are smaller pay increases than assumed, there is a gain. If greater increases, a loss.	\$ 4.9	0.0 %
Investment Return. If there is greater investment return than assumed, there is a gain. If less return, a loss.	(108.4)	(1.0)%
NON-ECONOMIC RISK AREAS		
Non-Casualty Retirements. If members retire at older ages or with lower final average pays than assumed, there is a gain. If younger ages or higher average pays, a loss.	5.3	0.0 %
Disability Retirements. If there are fewer disabilities than assumed, there is a gain. If more, a loss.	1.6	0.0 %
Death-in-Service Benefits. If there are fewer claims than assumed, there is a gain. If more, a loss.	(2.8)	0.0 %
Withdrawal. If more liabilities are released by other separations than assumed, there is a gain. If smaller releases, a loss.	64.8	0.6 %
Total Active Member Actuarial Gains/(Losses)	\$ (34.6)	(0.4)%
Retired Life Mortality.	12.8	0.1 %
Other. Includes data adjustments at retirement, timing of financial transactions, and miscellaneous unidentified sources.	\$ 1.8	0.0 %
Total Actuarial Gains/(Losses)	\$ (20.0)	(0.3)%

Actuarial Gains/(Losses) Active Members 2017-2018 Plan Year

Amounts in \$ Millions



% of Accrued Liabilities



Actuarial Gains/(Losses) by Risk Area Active Members - Comparative Statement (\$ in Millions)

Year Ending June 30	Gain/(Loss) By Risk Area						Total Experience Gain/(Loss)		Accrued Liability End of Year
	Pay Increases	Invest- ments	Age & Service Retirement	Disability	Death-In- Service	Withdrawal	Dollars	% of AAL	
1992	\$2.7	\$27.9	\$ 2.7	\$ 1.2	\$ 2.1	\$(6.1)	\$30.5	3.2 %	\$ 1,607.6
1993	(2.6)	36.3	1.6	1.3	3.1	4.2	43.9	2.7 %	1,711.3
1994	26.0	21.5	3.8	1.4	2.4	(2.2)	52.9	3.1 %	1,853.8
1995	32.0	68.1	(2.1)	(1.5)	(3.0)	(1.7)	91.8	4.5 %	2,057.4
1996	(0.7)	103.5	5.7	2.9	1.4	5.3	118.1	5.8 %	2,290.6
1997	(2.2)	155.3	7.7	3.6	1.9	4.9	171.2	7.5 %	2,605.6
1998	18.2	197.4	(4.4)	4.2	2.1	20.6	238.1	9.1 %	2,882.5
1999	(0.6)	153.1	(0.3)	3.2	(0.1)	25.8	181.1	5.5 %	3,478.7
2000	(13.1)	134.1	2.2	2.8	(0.1)	20.7	146.6	4.2 %	3,803.4
2001	31.3	(37.0)	3.3	3.0	0.1	18.9	19.6	0.5 %	4,111.0
2002	5.4	(247.1)	3.7	(2.5)	0.5	(4.2)	(244.2)	(5.6)%	4,398.0
2003	36.0	(292.6)	11.2	3.3	(0.1)	15.2	(227.0)	(4.9)%	4,398.0
2004	16.2	(274.0)	18.4	0.5	0.2	8.6	(230.0)	(4.6)%	5,004.5
2005	46.7	(143.4)	20.1	0.5	0.5	28.5	(47.1)	(0.8)%	5,619.4
2006	(15.4)	46.5	17.0	0.8	0.0	11.4	60.3	1.0 %	5,936.3
2007	53.2	215.5	12.4	0.8	0.1	17.2	299.2	4.8 %	6,173.8
2008	(35.8)	(0.5)	(1.4)	0.9	0.1	10.0	(26.7)	(0.4)%	6,542.7
2009	1.9	(808.1)	(7.3)	1.1	0.0	4.9	(807.5)	(11.6)%	6,937.9
2010	(2.8)	(319.7)	(2.1)	2.4	(0.1)	(7.7)	(330.0)	(4.5)%	7,304.2
2011	65.1	(259.8)	10.7	(5.9)	(0.1)	7.7	(182.3)	(2.4)%	7,734.1
2012	35.8	(189.5)	11.1	0.8	(0.2)	(4.2)	(146.1)	(1.8)%	8,162.7
2013	89.2	190.9	27.6	0.8	(0.3)	3.4	311.6	3.7 %	8,284.2
2014	86.7	351.3	13.4	0.9	(0.3)	5.6	457.6	5.3 %	8,863.6
2015	93.6	71.4	17.1	1.3	(0.3)	23.8	206.9	2.3 %	9,294.8
2016	(10.8)	47.7	18.7	1.2	(0.3)	14.6	71.1	0.8 %	9,662.7
2017	110.6	17.6	25.5	1.9	(0.3)	29.7	185.0	1.8 %	10,510.2
2018	4.9	(108.4)	5.3	1.6	(2.8)	64.8	(34.6)	(0.4)%	10,694.3

Development of Gain/(Loss) From Investment Return* During the Period July 1, 2017 to June 30, 2018

	<u>\$ Millions</u>
1. Total Assets Beginning of Year	\$ 8,157.0
2. Total Assets End of Year (Funding Value)	
a. Actual	\$ 8,416.4
b. If net investment return had been 7.15%	\$ 8,524.8
3. Gain/(Loss): 2a. minus 2b.	\$ (108.4)

* "Investment return" as used in this Gain/(Loss) Analysis means essentially: assumed investment income; plus/minus a four-year phase-in of differences between actual and assumed investment return (see page B-10).

**Active and DROP Members
Who Became Age & Service Retirees
During the Period July 1, 2017 to June 30, 2018
(Retirement With Unreduced Benefit
Beginning Immediately)
Attained Age of 65 or Older With Less
Than 28 Years of Service**

Ages	State & Local Retirements	
	Actual#	Expected
65	117	97
66	69	68
67	30	48
68	24	31
69	19	26
70	22	22
71	17	20
72	6	11
73	7	10
74	8	11
75 & Up	24	35
	343	379

Additionally, there were 176 new age and service retirees with less than 28 years of non-reciprocal service and under the age of 65.

Averages, in Years:

Age at retirement 68.5

Service at retirement 14.2

**Active Members
Who Became Reduced Early Retirees
During the Period July 1, 2017 to June 30, 2018
(Early Retirements With Reduced Benefits
Beginning Immediately)**

Ages	State & Local Early Retirement	
	Actual #	Expected
55	14	15
56	9	14
57	12	18
58	5	20
59	19	22
60	25	27
61	24	30
62	80	97
63	49	81
64	40	58
Totals	277	382

Averages, in Years:

Age at retirement	60.8
Service at retirement	17.5

**Active and DROP Members Who Retired or
Active Members Who Entered the DROP
During the Period July 1, 2017 to June 30, 2018
(28 or More Years of Service)**

Years of Service	State & Local			
	Retirement		DROP	
	Actual	Expected	Actual	Expected
28	197	202	179	n/a
29	63	59	38	n/a
30	69	72	25	n/a
31	34	29	8	n/a
32	20	20	12	n/a
33	13	19	8	n/a
34	18	19	9	n/a
35	8	10	3	n/a
36	11	11	3	n/a
37	3	8	1	n/a
38 & Up	5	57	3	n/a
Totals	441	507	289	

Averages, in Years:

Age at retirement	60.9	57.6
Service at retirement	30.8	30.5

**Active Members Who Became Disability Retirees
During the Period July 1, 2017 to June 30, 2018
(and Who Were Active Members as of June 30, 2017)**

Ages	State & Local Disabilities	
	Actual	Expected
20- 24		0
25- 29		0
30- 34		1
35- 39		3
40- 44		5
45- 49	3	10
50- 54	6	17
55- 59	17	26
60 & Up	11	26
Totals	37	88

Averages, in Years:

Age at retirement 57.1

Service at retirement 13.8

**Active Members Who Left Active Status with a
Deferred Benefit Payable
During the Period July 1, 2017 to June 30, 2018
(Vested Separations)**

Ages	State & Local Vested Separations	
	Actual	Expected
Below 30	46	104
30- 34	129	198
35- 39	151	191
40- 44	134	168
45- 49	157	154
50- 54	144	121
55- 59	101	82
60 & Up	109	46
Totals	971	1,065

Averages, in Years:

Age at termination 47.3

Service at termination 11.0

**Active Members Who Left Active Status with
No Benefit Payable
During the Period July 1, 2017 to June 30, 2018
(Non-Vested Separations)**

Service at Termination	State & Local Non-Vested Separations	
	Actual	Expected
0	2,038	2,621
1	1,020	1,130
2	574	719
3	415	426
4	216	133
Totals	4,263	5,030

Averages, in Years:

Age at termination	45.3
Service at termination	1.9

**Members Active Both Beginning and End of Year
Salary Increases by Age Group
During the Period July 1, 2017 to June 30, 2018**

Age Groups	Number	Beginning Pay	Ending Pay		Percentage Increase	
			Expected	Actual	Expected	Actual
Below 25	1,708	\$ 41,058,407	\$ 44,930,927	\$ 46,560,670	9.4%	13.4%
25- 29	3,354	98,956,581	106,243,214	109,846,632	7.4%	11.0%
30- 34	3,872	131,258,947	139,155,014	143,486,487	6.0%	9.3%
35- 39	4,440	163,662,833	172,513,310	176,144,876	5.4%	7.6%
40- 44	4,521	174,008,448	182,719,128	186,296,797	5.0%	7.1%
45- 49	5,333	209,187,805	218,826,402	220,958,462	4.6%	5.6%
50- 54	5,404	216,049,448	225,268,509	226,984,482	4.3%	5.1%
55- 59	5,498	227,201,851	236,403,526	238,632,365	4.1%	5.0%
60-64	4,073	173,215,445	179,768,209	181,165,390	3.8%	4.6%
65 & Over	2,086	83,027,405	85,725,796	85,887,341	3.3%	3.4%
Totals	40,289				4.9%	6.5%

SECTION D

DISTRICT JUDGES – VALUATION RESULTS AND VALUATION DATA

District Judges

Employer Contribution Rates Computed June 30, 2018

Contribution for	Computed Employer Contributions	
	New Plan and Paid-Off Old Plan (% of Active Payroll)	Still Paying Old Plan (Annual \$)
Normal Cost:		
Age and service annuities (including reduced retirement)	18.12%	
Separation benefits	1.60%	
Disability benefits	1.46%	
Death-in-service annuities	1.32%	
Total	22.50%	
Member contributions	5.00%	
Employer Normal Cost	17.50%	
Unfunded Actuarial Accrued Liabilities	25.01% *	\$644,413 **
Total Employer Contribution	42.51%	\$644,413

* Unfunded actuarial accrued liabilities were amortized over a 8.6-year period.

** Unfunded actuarial accrued liabilities were amortized over a 17-year period.

District Judges

Summary Statement of System Resources and Obligations

Year Ended June 30, 2018

Present Resources and Expected Future Resources

	Totals
A. Present Valuation Assets:	
1. Net assets from system financial statements	\$ 24,002,394
2. Market value adjustment	896,502
3. Valuation assets	24,898,896
B. Actuarial present value of expected future employer contributions:	
1. For normal costs	1,503,170
2. For unfunded actuarial accrued liability	10,202,104
3. Total	11,705,274
C. Actuarial present value of expected future member contributions	431,020
D. Total Present and Expected Future Resources	\$ 37,035,190

Actuarial Present Value of Expected Future Benefit Payments and Reserves

A. To retirees and beneficiaries	\$ 19,306,890
B. To vested terminated members	6,218,142
C. To present active members:	
1. Allocated to service rendered prior to valuation date - actuarial accrued liability	9,575,968
2. Allocated to service likely to be rendered after valuation date	1,934,190
3. Total	11,510,158
D. Reserve	0
E. Total Actuarial Present Value of Expected Future Benefit Payments	\$ 37,035,190

District Judges

Computed Actuarial Liabilities and Allocation Using Entry Age Actuarial Cost Method as of June 30, 2018

Actuarial Present Value of	(1) Total Present Value	(2) Portion Covered By Future Normal Cost Contributions	Actuarial Accrued Liabilities (1) - (2)
Benefits to be paid to current retirees, beneficiaries, and future beneficiaries of current retirees	\$19,306,890	\$ 0	\$19,306,890
Age and service allowances based on total service likely to be rendered by present active members	10,768,578	1,558,129	9,210,449
Separation benefits (refunds of contributions and deferred allowances) likely to be paid to present active and inactive members	6,398,700	143,643	6,255,057
Disability benefits likely to be paid to present active members	128,123	124,779	3,344
Death-in-service benefits likely to be paid on behalf of present active members	432,899	107,639	325,260
Total	\$37,035,190	\$1,934,190	\$35,101,000
Applicable assets (funding value)	24,898,896	0	24,898,896
Liabilities to be covered by future contributions	\$12,136,294	\$1,934,190	\$10,202,104

District Judges

Summary of Provisions Evaluated

Voluntary Retirement	<i>With a full benefit</i> , after either (a) age 50 with 20 years of eligibility service, (b) age 60 with 16 years of eligibility service, or (c) age 65 with 8 years of eligibility service.
Final Average Compensation (FAC)	Average of the final three calendar years of employment.
Benefit Service	Service performed on or after January 1, 2005.
Eligibility Service	Benefit service plus service in Old Local District Judges Plan.
Full Age & Service Retirement Benefit	2.50% of FAC times actual service.
Benefit Increases After Retirement	Annually, there will be a cost-of-living adjustment equal to 3% of the current benefit.
Member Contribution Rates	Active members contribute 5% of their salaries. If a member leaves service before becoming eligible to retire, accumulated contributions may be refunded.
Vested Retirement Benefits	8 years of eligibility service. Deferred full retirement benefit, based on benefit service and pay at termination, begins when member would have been eligible for voluntary retirement.
Total and Permanent Disability	An active member with 3 or more consecutive years of eligibility service who becomes totally and permanently disabled may be retired and receive a disability annuity computed in the same manner as an age and service annuity.
Death After Retirement	If the member was eligible for normal retirement at the time of death, an eligible beneficiary will begin receiving a 50% joint and survivor pension computed in the same manner as a service retirement pension as if the member had retired the last day of his life.

District Judges
Revenues and Expenditures
July 1, 2017 Through June 30, 2018
Market Value

	Plan		Totals
	New Plan and Paid-Off Old Plan	Still Paying Old Plan	
Balance 7/1/2017	\$ 18,365,290	\$ 3,677,374	\$ 22,042,664
Adjustment	-	-	-
Revenues			
Member contributions	197,242	-	197,242
Employer contributions	1,002,848	2,038,628	3,041,476
Other	-	-	-
Investment return	782,472	177,520	959,992
Total	\$ 1,982,562	\$ 2,216,148	\$ 4,198,710
Expenditures			
Benefits paid	1,060,513	1,028,742	2,089,255
Refunds	-	-	-
Investment Expenses	96,310	21,850	118,160
Administrative Expenses	25,728	5,837	31,565
Total	\$ 1,182,551	\$ 1,056,429	\$ 2,238,980
Preliminary Balance	\$ 19,165,301	\$ 4,837,093	\$ 24,002,394
Employer Paid Off Old Liability	1,819,605	(1,819,605)	-
Balance 6/30/2018	\$ 20,984,906	\$ 3,017,488	\$ 24,002,394

Note: Results may not total due to rounding.

Development of Funding Value of Assets New Plan and Paid-Off Old Plan June 30, 2018

Valuation Date June 30:	2016	2017	2018	2019	2020	2021
A. Funding Value Beginning of Year	\$ 15,915,500	\$ 17,514,502	\$ 19,346,829			
B. Market Value End of Year	16,112,450	18,365,290	20,984,906			
C. Market Value Beginning of Year	15,536,710	16,112,450	18,365,290			
D. Non-Investment Net Cash Flow	650,292	904,404	1,933,454			
E. Investment Income						
E1. Market Total: B - C - D	(74,552)	1,348,436	686,162			
E2. Assumed Rate	7.50%	7.50%	7.15%			
E3. Amount for Immediate Recognition	1,217,755	1,347,094	1,451,624			
E4. Amount for Phased-In Recognition	(1,292,307)	1,342	(765,462)			
F. Phased-In Recognition of Investment Income						
F1. Current Year: 0.25 x E4	(323,077)	336	(191,366)			
F2. First Prior Year	(336,393)	(323,077)	336	\$ (191,366)		
F3. Second Prior Year	239,963	(336,393)	(323,077)	336	\$ (191,366)	
F4. Third Prior Year	150,462	239,963	(336,392)	(323,076)	334	\$ (191,364)
F5. Total Phase-Ins	(269,045)	(419,171)	(850,499)	(514,106)	(191,032)	(191,364)
G. Preliminary Funding Value End of Year: A + D + E3 + F5	17,514,502	19,346,829	21,881,408			
H. Adjustment to Minimum of 75% of B, Maximum 125% of B	0	0	0			
I. Funding Value End of Year	17,514,502	19,346,829	21,881,408			
J. Difference Between Market & Funding Value	(1,402,052)	(981,539)	(896,502)			
K. Recognized Rate of Return	5.8%	5.2%	3.0%			
L. Market Rate of Return	(0.5)%	8.1%	3.5%			
M. Ratio of Funding Value to Market Value	109%	105%	104%			

The Funding Value of Assets recognizes assumed investment return (line E3) fully each year. Differences between actual and assumed investment return (Line E4) are phased-in over a closed 4-year period. During periods when investment performance exceeds the assumed rate, Funding Value of Assets will tend to be less than Market Value. During periods when investment performance is less than the assumed rate, Funding Value of Assets will tend to be greater than Market Value. If assumed rates are exactly realized for 3 consecutive years, Funding Value will become equal to Market Value.

District Judges Summary of Annuitants on Rolls

Retirees and beneficiaries on rolls included in the valuation totaled 167, involving monthly annuities of \$173,904, distributed as follows:

Plan	Number of Retired Records	Annuities Being Paid July 1, 2018	
		Monthly	Annualized
New Plan	34	\$ 41,863	\$ 502,356
Old Plan Paid Off	60	60,248	722,976
Still Paying Old Plan	73	71,793	861,516
Totals	167	\$ 173,904	\$ 2,086,848

A retiree's monthly benefit may be allocated to more than one employer or more than one plan. The actual number of retired members as of June 30, 2018 was reported to be 118, consisting of 102 original retirees and 16 survivors.

Actual Number of Retired Members: 118

Average Age: 73.2 years

Average Age at Retirement: 63.9 years

Average Years of Service: 10.3 years

Average Monthly Benefit: \$1,473.76

Inactive members, entitled to deferred annuities, included in the valuation totaled 101, involving estimated deferred monthly annuities of \$50,488 distributed as follows:

Plan	Number of Inactive Records	Estimated Deferred Annuities	
		Monthly	Annualized
New Plan	7	\$ 8,155	\$ 97,860
Old Plan Paid Off	47	26,653	319,836
Still Paying Old Plan	47	15,680	188,160
Totals	101	\$ 50,488	\$ 605,856

An inactive member's monthly benefit may be allocated to more than one employer or more than one plan. The actual number of deferred members as of June 30, 2018 was reported to be 85.

District Judges Detail by Employer

Employer	ER ID	Participants Covered		Retiree	Deferred	Retiree	Deferred	Total	Assets	Unfunded	17-year
		Deferred	Retired	Mon. Ben.	Mon. Ben.	Liability	Liability	Liability	Allocated	Actuarial	Payoff of
		Vested		7/1/2018	7/1/2018	6/30/2018	6/30/2018	6/30/2018	6/30/2018	Liability (UAL)	Unfunded Liability
Ashdown	90141	2	2	\$ 466.28	\$ 550.08	\$ 30,196	\$ 69,237	\$ 99,433	\$ 48,770	\$ 50,663	\$ 5,064
Ashdown (County)	90941	2	2	771.63	910.30	51,400	114,577	165,977	81,803	84,174	8,414
Batesville	90132	1	2	1,218.61	155.62	150,745	11,682	162,427	46,973	115,454	11,541
Benton District Court	90962	0	2	2,398.38	0.00	212,925	0	212,925	65,803	147,122	14,706
Berryville	90108	1	1	152.78	475.94	16,186	62,630	78,816	53,749	25,067	2,506
Berryville (County)	90908	2	2	1,251.98	700.94	160,758	94,435	255,193	115,871	139,322	13,927
Biscoe	90159	0	1	150.00	0.00	18,858	0	18,858	344	18,514	1,851
Bryant	90133	0	1	517.50	0.00	41,176	0	41,176	(17,993)	59,169	5,914
Conway	90123	1	2	3,413.05	966.66	330,698	130,240	460,938	169,644	291,294	29,118
Dequeen	90166	0	3	4,406.12	0.00	400,604	0	400,604	(65,003)	465,607	46,542
Dermott	90109	2	1	312.50	205.08	35,568	28,065	63,633	11,867	51,766	5,174
Dermott (County)	90909	2	1	312.50	205.08	35,568	28,065	63,633	11,867	51,766	5,174
Devalls Bluff	90359	0	1	225.00	0.00	28,630	0	28,630	716	27,914	2,790
Dewitt	90101	1	1	733.48	519.44	64,703	63,532	128,235	95,743	32,492	3,248
East Camden	90252	2	1	531.53	136.07	61,874	15,051	76,925	21,325	55,600	5,558
Greenwood	90265	0	1	771.00	0.00	88,001	0	88,001	(6,884)	94,885	9,485
Hamburg	90202	1	1	225.00	457.19	14,799	57,019	71,818	54,286	17,532	1,752
Helena	90154	2	0	0.00	27.72	0	2,003	2,003	(24,141)	26,144	2,613
Helena (County)	90954	2	0	0.00	27.72	0	2,003	2,003	(24,141)	26,144	2,613
Hope	90110	0	1	650.00	0.00	74,837	0	74,837	(23,093)	97,930	9,789
Hope (County)	90929	0	1	650.00	0.00	74,837	0	74,837	(13,449)	88,286	8,825
Lawrence County	90938	0	2	1,016.99	0.00	109,639	0	109,639	34,474	75,165	7,513
Little Rock	90260	11	12	20,101.22	4,636.19	2,249,907	616,873	2,866,780	1,034,458	1,832,322	183,158
Magnolia	90114	0	1	641.98	0.00	53,551	0	53,551	39,395	14,156	1,415
Marked Tree	90256	0	1	948.14	0.00	67,840	0	67,840	(8,696)	76,536	7,650
Marshall	90964	0	1	701.31	0.00	66,714	0	66,714	16,726	49,988	4,997
Mt. Home	90103	0	3	3,574.25	0.00	335,610	0	335,610	78,903	256,707	25,660
Newport	90134	1	1	946.33	234.22	88,019	32,796	120,815	35,065	85,750	8,572
North Little Rock	90460	8	10	14,887.28	3,181.01	1,501,256	433,301	1,934,557	651,725	1,282,832	128,231
Ozark	90124	0	2	1,125.19	0.00	127,285	0	127,285	59,040	68,245	6,822

District Judges Detail by Employer

Employer	ER ID	Participants Covered		Retiree	Deferred	Retiree	Deferred	Total	Assets	Unfunded	17-year
		Deferred	Retired	Mon. Ben.	Mon. Ben.	Liability	Liability	Liability	Allocated	Actuarial	Payoff of
		Vested		7/1/2018	7/1/2018	6/30/2018	6/30/2018	6/30/2018	6/30/2018	Liability (UAL)	Unfunded Liability
Ozark (County)	90924	0	2	\$ 1,125.19	\$ 0.00	\$ 127,285	\$ 0	\$ 127,285	\$ 56,972	\$ 70,313	\$ 7,028
Pocahontas	90161	1	1	466.18	210.07	63,343	27,962	91,305	26,412	64,893	6,487
Pocahontas (County)	90961	1	1	466.18	210.07	63,343	27,962	91,305	25,691	65,614	6,559
Prairie Grove	90372	0	2	1,861.93	0.00	193,258	0	193,258	(389)	193,647	19,357
Searcy	90273	1	2	1,383.33	1,179.36	108,271	143,148	251,419	112,507	138,912	13,886
Stuttgart	90201	1	2	704.61	530.85	50,230	70,372	120,602	68,711	51,891	5,187
Tyronza	90456	1	1	850.64	40.12	107,330	4,527	111,857	59,156	52,701	5,268
West Helena	90254	1	1	928.00	120.27	105,465	14,892	120,357	99,132	21,225	2,122
Wynne	90519	0	1	906.73	0.00	103,156	0	103,156	24,149	79,007	7,897
UAL>0 as of 6/30/2018		47	73	\$71,792.82	\$15,680.00	\$7,413,865	\$2,050,372	\$9,464,237	\$3,017,488	\$6,446,749	\$644,413

NOTE: The City of Rison (90113) was determined to have a negative UAL as of June 30, 2018 and therefore was removed from this schedule.

District Judges

Active Members in Valuation June 30, 2018

by Attained Age and Years of Eligibility Service

Attained Age	Years of Service to Valuation Date							Totals	
	0-4	5-9	10-14	15-19	20-24	25-29	30 plus	No.	Valuation Payroll
Under 20									
20-24									
25-29									
30-34									
35-39									
40-44									
45-49			1					1	\$ 143,179
50-54				1				1	143,179
55-59			3	2				5	402,681
60					1			1	143,179
61			2	1		1		4	419,811
62			1				1	2	178,339
63			1					1	143,179
64						1		1	28,010
65									
66				1				1	50,785
67				1	1			2	154,274
68									
69							2	2	201,654
70 & over			2				1	3	429,537
Totals			10	6	2	2	4	24	\$2,437,807

Group Averages

Age:	62.4 years
Benefit Service:	13.5 years
Eligibility Service:	20.2 years
Annual Pay:	\$101,575

District Judges

Change in Unfunded Actuarial Accrued Liabilities During the Period July 1, 2017 to June 30, 2018

	New Plan and Paid Off Old Plan	Still Paying Old Plan	Total
(1) UAAL* at beginning of year (After adoption of new assumptions)	\$ 3,158,548	\$ 8,162,482	\$ 11,321,030
(2) Normal cost from last valuation	548,263	-	548,263
(3) Actual contributions	1,200,090	2,038,628	3,238,718
(4) Interest accrual: [(1) + ½[(2) - (3)]]x .0715	202,533	510,737	713,270
(5) Expected UAAL before changes: (1) + (2) - (3) + (4)	2,709,254	6,634,591	9,343,845
(6) Increase from benefit changes	-	-	-
(7) Changes from revised actuarial assumptions and methods	-	-	-
(8) Expected UAAL after changes: (5) + (6) + (7)	2,709,254	6,634,591	9,343,845
(9) Actual UAAL at end of year	3,755,363	6,446,741	10,202,104
(10) Gain/(Loss): (8) - (9)	\$ (1,046,109)	\$ 187,850	\$ (858,259)

* *Unfunded actuarial accrued liability.*

District Judges Schedule of Funding Progress

Actuarial Valuation Date	Actuarial Value of Assets (a)	Entry Age AAL (b)	UAAL (b)-(a)	Funded Ratio (a)/(b)	Annual Covered Payroll (c)	UAAL as a Percentage of Covered Payroll [(b-a)/(c)]
12/31/04	\$ -	\$ -	\$ -	100.0%	\$ 1,841,022	0.0%
6/30/05	7,569,919	24,134,114	16,564,195	31.4%	3,222,495	514.0%
6/30/06	10,141,040	24,943,381	14,802,341	40.7%	3,313,454	446.7%
6/30/07	12,582,548	24,387,433	11,804,885	51.6%	3,366,861	350.6%
6/30/08 @	12,398,225	24,797,303	12,399,078	50.0%	3,526,319	351.6%
6/30/09	10,004,394	25,671,893	15,667,499	39.0%	3,368,169	465.2%
6/30/10	11,112,521	26,775,249	15,662,728	41.5%	3,554,044	440.7%
6/30/11	12,950,730	27,524,848	14,574,118	47.1%	3,345,497	435.6%
6/30/12	13,925,350	28,343,368	14,418,018	49.1%	3,374,982	427.2%
6/30/13 @	16,090,536	28,823,709	12,733,173	55.8%	2,989,465	425.9%
6/30/14 @	18,562,875	30,005,138	11,442,263	61.9%	3,108,024	368.2%
6/30/15 @	19,950,819	31,433,278	11,482,459	63.5%	3,173,245	361.9%
6/30/16	21,388,494	32,390,780	11,002,286	66.0%	3,328,256	330.6%
6/30/17 @	23,024,203	34,345,233	11,321,030	67.0%	2,278,470	496.9%
6/30/18	24,898,896	35,101,000	10,202,104	70.9%	2,437,807	418.5%

@ After changes in actuarial assumptions and methods.

SECTION E

ACTUARIAL METHODS AND ASSUMPTIONS AND OTHER TECHNICAL ASSUMPTIONS

Summary of Assumptions Used For APERS Actuarial Valuations Assumptions Adopted by Board of Trustees After Consulting with Actuary

In accordance with Section 24-4-105 of the Arkansas Code, the Board of Trustees adopts the actuarial assumptions used for actuarial valuation purposes.

The actuarial assumptions used in the valuation are shown in this section. Assumptions were established based upon an Experience Study covering the period July 1, 2012 through June 30, 2017 (please see our report dated May 14, 2018). The actuarial assumptions represent estimates of future experience.

Economic Assumptions

The investment return rate used in making the valuation was 7.15% per year, compounded annually (net after investment expenses). This rate of return is not the assumed real rate of return. The real rate of return is the portion of investment return which is more than the wage inflation rate. Considering the assumed wage inflation rate of 3.25%, the 7.15% investment return rate translates to an assumed net real rate of return of 3.90%. The wage inflation assumption was first used for the June 30, 2015 valuation, including also the District Judges division. The investment return assumption was first used for the June 30, 2017 valuation, including also the District Judges division.

Pay increase assumptions for individual active members are shown on pages E-8 and E-10. Part of the assumption for each age is for a merit and/or seniority increase, and the other 3.25% recognizes wage inflation. The wage inflation assumption consists of 2.50% for price inflation and 0.75% for real wage growth. These assumptions were first used for the June 30, 2018 valuation and for the District Judges division for the June 30, 2015 valuation.

Total active member payroll is assumed to increase 3.25% a year, which is the portion of the individual pay increase assumptions attributable to wage inflation. This assumption was first used for the June 30, 2015 valuation and for the District Judges division for the June 30, 2015 valuation.

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

Non-Economic Assumptions

The mortality tables used to measure retired life mortality were the RP-2006 Healthy Annuitant benefit weighted generational mortality tables for males and females. The disability post-retirement mortality tables used were the RP-2006 Disabled Retiree benefit weighted generational mortality tables for males and females. The death-in-service mortality tables used were the RP-2006 Employee benefit weighted generational mortality tables for males and females. Mortality rates are multiplied by 135% for males and 125% for females and are adjusted for fully generational mortality improvements using Scale MP-2017. This assumption was first used for the June 30, 2018 valuation.

Non-Economic Assumptions (Concluded)

The probabilities of retirement for members eligible to retire are shown on pages E-4 through E-7. These probabilities were first used for the June 30, 2018 valuation and for the June 30, 2007 valuation for the District Judges division.

The probabilities of withdrawal from service, death-in-service and disability are shown for sample ages on pages E-8 through E-10. These probabilities were first used for the June 30, 2018 valuation and for the District Judges division for the June 30, 2018 valuation.

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

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

Unfunded actuarial accrued liabilities are amortized to produce contribution amounts (principal and interest) which are level percent-of-payroll contributions. For the District Judges division, unfunded actuarial accrued liabilities are amortized as a level dollar contribution.

Recognizing the special circumstances of the General Assembly division, modifications of the above assumptions were made where appropriate.

Present assets (cash & investments) were valued on a market related basis in which differences between actual and assumed returns are phased-in over a four-year period (including District Judges New Plan and Paid Off Old Plan). The funding value of assets may not deviate from the market value of assets by more than 25%. District Judges Still Paying Old Plan present assets (cash & investments) were valued on a market value basis.

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

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

**Single Life Retirement Values
Based on the RP-2014 Healthy Annuitant
Generational Mortality Tables
And 7.15% Interest
June 30, 2018**

Sample Attained Ages	Present Value of \$1.00 Monthly for Life		Present Value of \$1.00 Monthly for Life Increasing 3% Annually		Future Life Expectancy (Years) 2018 *	
	Men	Women	Men	Women	Men	Women
40	\$ 155.86	\$ 159.76	\$ 228.83	\$ 238.62	40.85	44.56
45	150.67	155.71	215.75	227.14	35.96	39.59
50	144.07	150.25	200.67	213.41	31.19	34.66
55	135.97	143.05	183.75	197.25	26.62	29.83
60	126.16	134.08	165.01	179.03	22.29	25.20
65	114.46	123.16	144.61	158.86	18.22	20.82
70	100.62	109.76	122.59	136.46	14.43	16.66
75	84.59	93.92	99.31	112.42	10.95	12.82
80	67.26	76.39	76.15	88.07	7.90	9.42
85	50.25	58.64	55.03	65.27	5.41	6.59

Sample Attained Ages	Benefit Increasing 3.0% Yearly	Portion of Age 60 Lives Still Alive *	
		Men	Women
60	\$100	100 %	100 %
65	116	93	96
70	134	84	89
75	155	72	80
80	180	55	66

* Applicable to calendar year 2018. Life expectancies and rates in future years are determined by the fully generational MP-2017 projection scale.

State and Local Government Division Age-Based Retirement June 30, 2018

Retirement Ages (with less than 28 years of service)	Percent of Eligible Active Members Retiring Within Next Year	
	Unreduced	Reduced
55		2.5 %
56		2.5
57		3.0
58		3.5
59		4.0
60		5.0
61		5.5
62		20.0
63		20.0
64		15.0
65	22.0 %	
66	25.0	
67	23.0	
68	18.0	
69	18.0	
70	18.0	
71	18.0	
72	18.0	
73	18.0	
74-84	20.0	
85 & Over	100.0	

A member was assumed eligible for unreduced retirement after attaining age 65 with 5 years of service or 28 years regardless of age. A member was assumed eligible for reduced retirement after attaining age 55 with 10 or more years of service.

State and Local Government Division
Service Based Retirement
June 30, 2018

Service	Percent of Eligible Active Members Retiring Within Next Year
28	13 %
29	18
30	13
31	15
32	13
33	13
34	13
35	18
36	18
37	18
38	20
39	20
40 & Over	100

General Assembly Division Age-Based Retirement June 30, 2018

Retirement Ages	Percent of Eligible Active Members Retiring Within Next Year
50	30 %
51	30
52	30
53	30
54	30
55	30
56	30
57	30
58	30
59	30
60	30
61	30
62	50
63	30
64	30
65	50
66	30
67-79	20
80 & Over	100

Member may retire at age 50 with 20 or more years of service, age 60 with 16 or more years of service, or age 65 with 8 or more years of service.

District Judges Division Age-Based Retirement June 30, 2018

Retirement Ages	Percent of Eligible Active Members Retiring Within Next Year
50	10 %
51	10
52	10
53	10
54	10
55	12
56	12
57	14
58	14
59	14
60	18
61	18
62-73	30
74 & Over	100

Members may retire at age 50 with 20 or more years of service, age 60 with 16 or more years of service, or age 65 with 8 or more years of service.

State and Local Government Division Separations from Active Employment Before Service Retirement June 30, 2018

Sample Ages	Years of Service	Percent of Active Members Separating within the Next Year						Pay Increase Assumptions for an Individual Employee		
		Withdrawal		Death *		Disability		Merit & Seniority	Base (Economy)	Increase Next Year
		Men	Women	Men	Women	Men	Women			
	0	40.0 %	40.0 %							
	1	25.0	25.0							
	2	20.0	20.0							
	3	15.0	15.0							
	4	12.0	12.0							
20	5+	11.0	11.0	0.05 %	0.02 %	0.01 %	0.01 %	6.60 %	3.25 %	9.85 %
25		11.0	11.0	0.07	0.02	0.04	0.04	5.16	3.25	8.41
30		9.7	9.7	0.07	0.03	0.07	0.07	3.30	3.25	6.55
35		6.8	6.8	0.08	0.04	0.09	0.09	2.28	3.25	5.53
40		4.8	4.8	0.09	0.06	0.13	0.13	1.70	3.25	4.95
45		3.7	3.7	0.13	0.08	0.17	0.17	1.38	3.25	4.63
50		3.0	3.0	0.23	0.14	0.34	0.34	1.00	3.25	4.25
55		2.1	2.1	0.38	0.22	0.60	0.60	0.68	3.25	3.93
60		1.3	1.3	0.67	0.34	0.85	0.85	0.42	3.25	3.67

* Applicable to calendar year 2018. Rates in future years are determined by the above rates and the MP-2017 projection scale.

Pay increase rates are age based only, and not service based.

General Assembly Division

Separations from Active Employment Before Service Retirement

June 30, 2018

Sample Ages	Years of Service	Percent of Active Members Separating within the Next Year					
		Withdrawal		Death *		Disability	
		Men	Women	Men	Women	Men	Women
	0	30.0 %	30.0 %				
	1	25.0	25.0				
	2	20.0	20.0				
	3	15.0	15.0				
	4	12.0	12.0				
20	5+	9.0	9.0	0.05 %	0.02 %	0.06 %	0.06 %
25		8.3	8.3	0.07	0.02	0.06	0.06
30		5.3	5.3	0.07	0.03	0.06	0.06
35		3.0	3.0	0.08	0.04	0.06	0.06
40		2.6	2.6	0.09	0.06	0.16	0.16
45		2.4	2.4	0.13	0.08	0.22	0.22
50		1.1	1.1	0.23	0.14	0.39	0.39
55		0.8	0.8	0.38	0.22	0.71	0.71
60		0.8	0.8	0.67	0.34	1.13	1.13

* Applicable to calendar year 2018. Rates in future years are determined by the above rates and the MP-2017 projection scale.

District Judges

Separations from Active Employment Before Service Retirement

June 30, 2018

Sample Ages	Percent of Active Members Separating within the Next Year				Pay Increase Assumptions For An Individual Employee		
	Withdrawal		Disability		Merit & Seniority	Base (Economy)	Increase Next Year
	Men	Women	Men	Women			
20	2.0 %	2.0 %	0.08 %	0.08 %	2.70 %	3.25 %	5.95 %
25	2.0	2.0	0.08	0.08	2.60	3.25	5.85
30	2.0	2.0	0.08	0.08	2.20	3.25	5.45
35	2.0	2.0	0.08	0.08	1.90	3.25	5.15
40	2.0	2.0	0.20	0.20	1.40	3.25	4.65
45	2.0	2.0	0.27	0.27	1.20	3.25	4.45
50	2.0	2.0	0.49	0.49	0.70	3.25	3.95
55	2.0	2.0	0.89	0.89	0.70	3.25	3.95
60	2.0	2.0	1.41	1.41	0.00	3.25	3.25

Summary of Assumptions Used

June 30, 2018

Miscellaneous and Technical Assumptions

Marriage Assumption. 80% of males and 80% of females are assumed to be married for purposes of death-in-service benefits. District Judges division - 100% of males and 100% of females are assumed to be married for purposes of death-in-service benefits. 80% of males and 80% of females are assumed to be married for purposes of death-after-retirement benefits for active member valuation purposes.

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

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

Other Liability Adjustments. Active member non-refund normal costs and actuarial accrued liabilities were increased by 1.5% to reflect non-reported reciprocal service. Also, a 0.2% load to the normal cost and actuarial accrued liabilities is being used to account for survivor benefits payable if a retiree dies within the first year of retirement. Actuarial accrued liabilities were also increased by \$130 million to account for revisions to the data submitted and by \$50,000,000 for pending refunds.

Eligibility Testing. Eligibility for benefits is determined based upon the age nearest birthday and service nearest whole year on the date the decrement is assumed to occur.

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

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

Normal Form of Benefit. The assumed normal form of benefit is the straight life form.

District Judges Division Old Plan Deferred Members. For members that are eligible for a deferred benefit in the Old Plan and are currently active in the New Plan, it is assumed that the deferred benefit will commence at the first age at which the member is eligible to receive the benefit.

Incidence of Contributions. Contributions are assumed to be received continuously throughout the year based upon the computed percent of payroll shown in this report, and the actual payroll payable at the time contributions are made. New entrant normal cost contributions are applied to the funding of new entrant benefits.

DROP Duration. Members participating in the DROP are not allowed to participate in the DROP for more than 7 years.

DROP Participation. It was assumed that members will participate in the forward DROP to the extent that participating in the forward DROP would provide the highest value of benefits.

Summary of Assumptions Used

June 30, 2018

Miscellaneous and Technical Assumptions

DROP Interest Credit. The current interest rate credit for DROP accounts is assumed to be 3.0%.

Payroll for DROP Participants and Retired Members Returned to Work. Employers now contribute on the pays of DROP participants and retired members returned to work. For the June 30, 2018 valuation the reported payroll for these members was approximately \$123 million.

Pre-Retirement Mortality. The weighting of duty and ordinary deaths-in-service is 0%/100%.

Administrative Expenses. The normal cost was increased by 0.40% of payroll to fund administrative expenses.

SECTION F

FINANCIAL PRINCIPLES

Financial Principles and Operational Techniques of APERS

Promises Made, and To Be Paid For. As each year is completed, APERS in effect hands an “IOU” to each member then acquiring a year of service credit --- the “IOU” says: “The Arkansas Public Employees Retirement System owes you one year’s worth of retirement benefits, payments in cash commencing when you qualify for retirement.”

The related **key financial questions** are:

Which generation of taxpayers contributes the money to cover the IOU?

The present taxpayers, who receive the benefit of the member’s present year of service? **Or the future taxpayers**, who happen to be in Arkansas at the time the IOU becomes a cash demand, years and often decades later?

The law governing APERS financing intends that this year’s taxpayers contribute the money to cover the IOUs being handed out this year. With this financial objective, **the employer contribution rate is expected to remain approximately level from generation to generation of taxpayers.**

There are systems which have a design for deferring contributions to future taxpayers. Lured by a lower contribution rate now, they put aside the consequence that the contribution rate must then relentlessly grow to a level much higher than would be required if a level contribution pattern were followed.

An inevitable by-product of the level-cost design is the accumulation of reserve assets, for decades, and the income produced when the assets are invested. **Investment income** becomes **the third and largest contributor** for benefits to employees, and is interlocked with the contribution amounts required from 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 actuarial accrued liabilities are the difference between: the actuarial accrued liabilities for service already rendered and the actuarial value of assets).

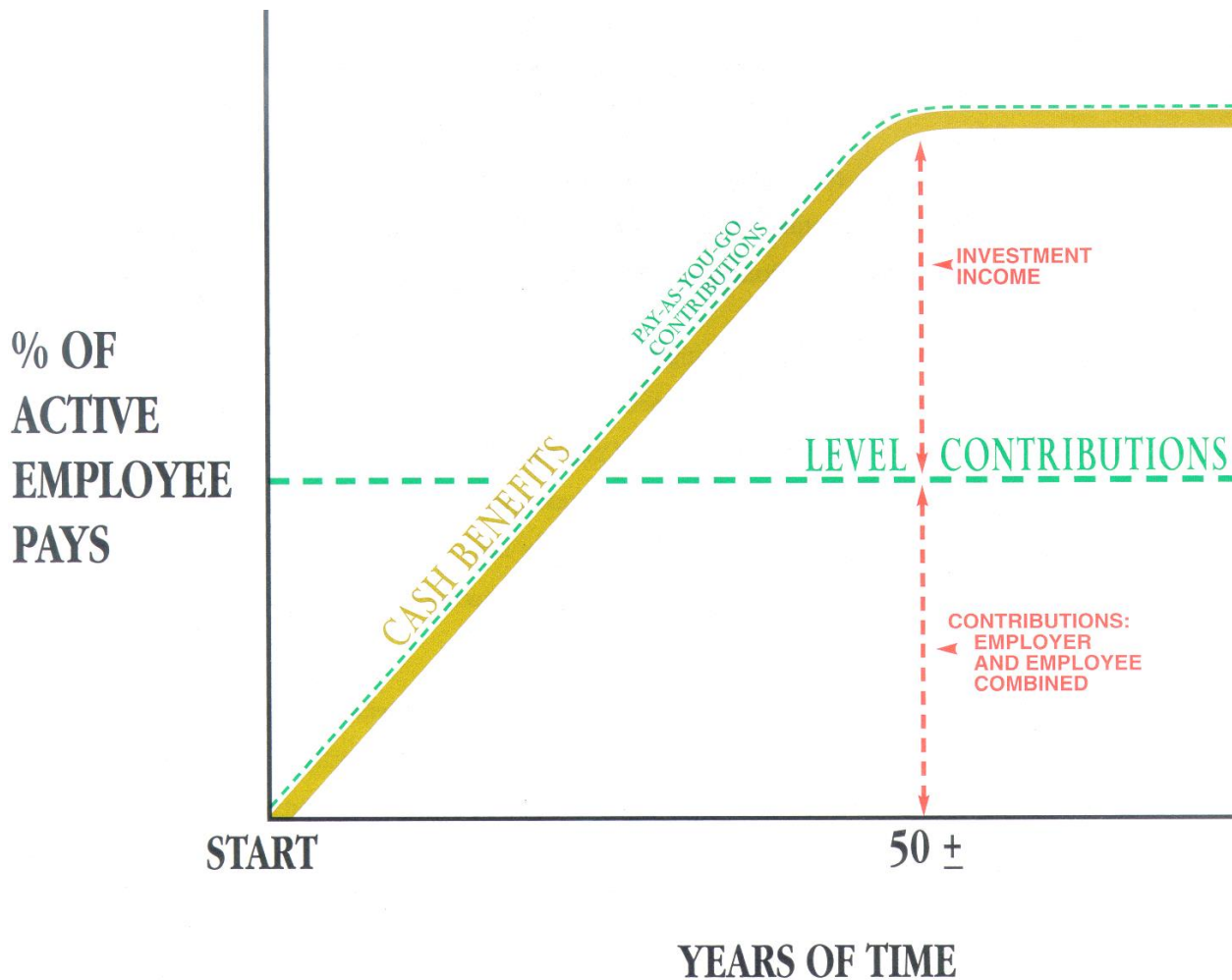
Computing Contributions to Support Fund Benefits. From a given schedule of benefits and from employee and asset data, the actuary calculates the contribution rates to support the benefits by means of ***an actuarial valuation and a funding method.***

An actuarial valuation has a number of ingredients such as: the rate of investment return which plan assets will earn; the rates of withdrawal of active members who leave covered employment; the rates of mortality; the rates of disability; the rates of pay increases; and the assumed age or ages at actual retirement.

In an actuarial valuation, assumptions must be made as to what the above rates will be for the next year and for decades in the future. The assumptions are established by the Retirement Board after receiving the advice of the actuary.

Reconciling Differences Between Assumed Experience and Actual Experience. Once actual experience has occurred and has been observed, it will not coincide exactly with assumed experience, regardless of the skill of the actuary and the many calculations made. The future cannot be predicted with 100% precision.

APERS copes with these continually changing differences by having annual actuarial valuations. Each actuarial valuation is a complete recalculation of assumed future experience, taking into account all past differences between assumed and actual experience. The result is ***continuing adjustments in financial position.***



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

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

Economic Risk Areas

- Rates of investment return
- Rates of pay increase
- Changes in active member group size

Non-Economic Risk Areas

- Ages at actual retirement
- Rates of mortality
- Rates of withdrawal of active members (turnover)
- Rates of disability

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) which is thus an *increasing contribution method*; and, the *level contribution method* which attempts to equalize contributions between the generations.

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

- A. **Census Data**, including:
 - Retired lives now receiving benefits
 - Former employees with vested benefits not yet payable
 - Active employees

- B. + **Asset data** (cash & investments)

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

- D. + **Assumptions concerning future experience** in various risk areas

- E. + **The funding method** 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

Glossary

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

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

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

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

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

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

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

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

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 a phase-in of differences between actual and assumed market rates of return.

Meaning of “Unfunded Actuarial Accrued Liabilities”

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

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

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

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

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

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

November 8, 2018

Ms. Gail H. Stone, Executive Director
Arkansas Public Employees Retirement System
One Union National Plaza
124 West Capitol, Suite 400
Little Rock, Arkansas 72201

Re: Report of the June 30, 2018 Actuarial Valuation and Gain/(Loss) Analysis of Financial Experience

Dear Gail:

Enclosed are 40 copies of this report.

Sincerely,



Mita D. Drazilov, ASA, FCA, MAAA

MDD:sc
Enclosures

cc: David L. Hoffman, GRS

