

# Arkansas Public Employees Retirement System

Actuarial Valuation and Experience Gain/Loss Analysis  
June 30, 2021



# Outline of Contents

Section	Pages	Items
	--	Cover letter
<b>A</b>		<b><i>Valuation Results</i></b>
	1	Comments
	2	Recommendations and Other Observations
	3	Computed Contributions
	4	Summary Statement of Resources and Obligations
	5	Computed Actuarial Liabilities
	6	Expected Development of Present Population
	7-10	Comparative Statements
	11-12	Short Condition Test
	13-16	Summary of Risk Measures
<b>B</b>		<b><i>Valuation Data</i></b>
	1-6	Summary of Benefit Provisions Evaluated
	7	Revenues and Expenditures
	8-9	Reported Accrued Assets Available for Benefits
	10	Development of Funding Value of Assets
	11-18	Member Data
<b>C</b>		<b><i>Gain/(Loss) Analysis</i></b>
	1	Comments
	2	Changes in Unfunded Actuarial Accrued Liabilities
	3-4	Experience Gain/(Loss): By Risk Area
	5	Actuarial Gains/(Losses): By Risk Area
	6	Gain/(Loss) from Investment Return
	7-13	Actual and Expected Terminations by Decrement
<b>D</b>		<b><i>District Judges – Valuation Results and Valuation Data</i></b>
	1-3	Results
	4	Benefit Provisions
	5	Revenues and Expenditures
	6	Development of Funding Value of Assets
	7-9	Valuation Data
	10	Change in Unfunded Actuarial Accrued Liabilities
	11	Schedule of Funding Progress
<b>E</b>		<b><i>Actuarial Methods and Assumptions and Other Technical Assumptions</i></b>
	1-12	Methods and Assumptions



# Outline of Contents

Section	Pages	Items
<b>F</b>		<b><i>Financial Principles</i></b>
	1-2	Principles and Operational Techniques
	3	Financing Diagram
	4	Actuarial Valuation Process
	5-6	Glossary
	7	Meaning of “Unfunded Actuarial Accrued Liabilities”



November 5, 2021

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

Ladies and Gentlemen:

The results of the **June 30, 2021 actuarial valuation** of the Arkansas Public Employees Retirement System together with **the annual gain and loss analysis** for the year ended June 30, 2021 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 the employer contribution rate for the fiscal year beginning July 1, 2023.

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, 2021. 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.

The contribution rate in this report is determined using the actuarial assumptions and methods disclosed in Section E of this report. This report includes risk metrics on pages A-13 through A-16 but does not include a more robust assessment of the risks of future experience not meeting the actuarial assumptions. Additional assessment of risks was outside the scope of this assignment.

This valuation assumed the continuing ability of the plan sponsor to make the contributions necessary to fund this plan. A determination regarding whether or not the plan sponsor is actually able to do so is outside our scope of expertise and was not performed.

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


This report has been prepared by 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,  
Gabriel, Roeder, Smith & Company

  
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MDD/HGB/DLH:ah

## SECTION A

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### 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.

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**Benefit Changes.** The June 30, 2021 valuation reflects the following changes in benefit provisions:

- Extending the maximum time allowed in the DROP from 7 years to 10 years, effective March 31, 2021.
- Increasing contributory plan member contributions from 5% to 7%, in 0.25% increments, starting July 1, 2022.
- For members hired on or after July 1, 2022
  - Change the final average compensation period from 3 years to 5 years.
  - COLA increases will be the lesser of 3.0% or the increase in the Consumer Price Index (CPI).

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**Assumption Changes.** There were no assumption changes in the June 30, 2021 valuation.

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**Method Changes.** The amortization period for APERS was updated for the June 30, 2021 valuation to a 16-year period. There have been no other changes in methods since the June 30, 2020 valuation.

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**APERS Status.** Based upon the results of the June 30, 2021 actuarial valuation, **APERS continues to satisfy the general financial objective** of level contribution financing.

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**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 84% funded ratio. On a market value of assets basis, the System has a 94% funded ratio.

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**Employer Contribution Rates.** Based upon experience through June 30, 2021, the State and Local Government contribution rate (including General Assembly members) will be 15.32% of covered payroll for the fiscal year beginning July 1, 2023.

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**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, 2021 (from) to:		Employer Accum. Account After Transfers
	Retirement Reserve Account	Deferred Annuity Account	
\$3,776,908,572	\$404,148,081	\$21,351,263	\$3,351,409,228

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 4.1% (the employer normal cost for the new contribution plans) as non-contributory members leave employment and employee contributions increase;
- (2) The unfunded actuarial accrued liabilities will be fully amortized as of June 30, 2039; 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, 2023

Contribution for	Contributions Expressed as %'s of Active Payroll For Fiscal Year Beginning July 1, 2023			Total
	Non-Contributory	Contributory	DROP	
Normal Cost:				
Age and service annuities (including DROP and reduced retirement)				8.24%
Separation benefits				2.39%
Disability benefits				0.53%
Death-in-service annuities				0.31%
Administrative expenses				0.40%
Total	9.35%	12.65%	9.24%	11.87%
Member contributions	0.00%	5.50%	0.00%	4.18%
Employer Normal Cost	9.35%	7.15%	9.24%	7.69%
Unfunded Actuarial Accrued Liabilities				7.63% *
<b>Total Employer Contribution</b>				<b>15.32%</b>

\* The unfunded actuarial accrued liability and total payroll is projected to the beginning of Fiscal Year 2023 when determining the unfunded amortization rate. Unfunded actuarial accrued liabilities were amortized over a 16-year period.

Note: The above contribution rates are based upon State and Local payroll that includes payroll for DROP participants and retired members returned to work. The total payroll is \$1,906,134,478 as of June 30, 2021.

# Summary Statement of System Resources and Obligations

## Year Ended June 30, 2021

### Present Resources and Expected Future Resources

A.	Present Valuation Assets:		
	1. Net assets from System financial statements	\$	11,148,502,679
	2. Market value adjustment		(1,255,979,851)
	3. Valuation assets		9,892,522,828
B.	Actuarial present value of expected future employer contributions:		
	1. For normal costs		838,288,706
	2. For unfunded actuarial accrued liability		1,928,974,641
	3. Total		2,767,263,347
C.	Actuarial present value of expected future member contributions		848,498,696
D.	Total Present and Expected Future Resources	\$	13,508,284,871

### Actuarial Present Value of Expected Future Benefit Payments

A.	To retirees and beneficiaries		\$ 6,531,001,850
B.	To vested terminated members		580,335,670
C.	To present active and DROP members:		
	1. Allocated to service rendered prior to valuation date - actuarial accrued liability		4,710,159,949
	2. Allocated to service likely to be rendered after valuation date		1,686,787,402
	3. Total		6,396,947,351
D.	Total Actuarial Present Value of Expected Future Benefit Payments	\$	13,508,284,871

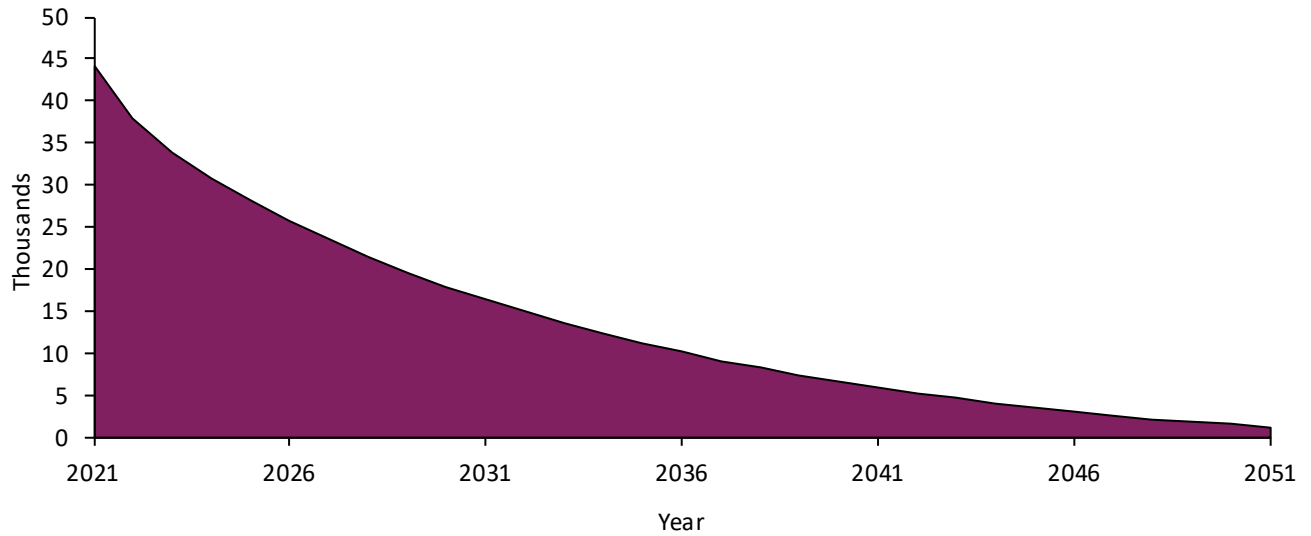
## Computed Actuarial Liabilities and Allocation Using Entry Age Actuarial Cost Method as of June 30, 2021

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	\$ 6,531,001,850	\$ -	\$ 6,531,001,850
Age and service allowances based on total service likely to be rendered by present active members and current DROP participants	5,608,025,413	1,211,781,011	4,396,244,402
Separation benefits (refunds of contributions and deferred allowances) likely to be paid to present active and inactive members	1,058,449,545	351,475,317	706,974,228
Disability benefits likely to be paid to present active members	175,311,308	77,942,225	97,369,083
Death-in-service benefits likely to be paid on behalf of present active members	135,496,755	45,588,849	89,907,906
<b>Total</b>	<b>\$ 13,508,284,871</b>	<b>\$ 1,686,787,402</b>	<b>\$ 11,821,497,469</b>
Applicable assets (funding value)	\$ 9,892,522,828	\$ -	\$ 9,892,522,828
Liabilities to be covered by future contributions	\$ 3,615,762,043	\$ 1,686,787,402	\$ 1,928,974,641

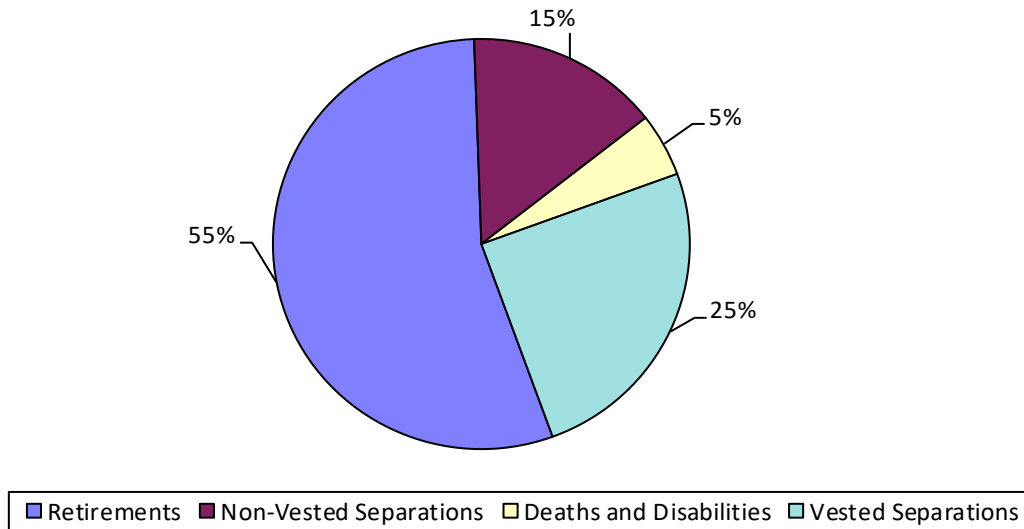


# Expected Development of Present Population June 30, 2021

## 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 44,116 active members (includes DROP). Eventually, 15% of the population is expected to terminate covered employment prior to retirement and forfeit eligibility for an employer provided benefit. About 80% 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 #	10,321	8,157	79.0	2,164	25	121		15.32
2018	10,694	8,416	78.7	2,278	26	123		15.32
2019	11,129	8,739	78.5	2,390	24	124		15.32
2020	11,513	9,090	79.0	2,423	23	126		15.32
<b>2021</b>	<b>11,834</b>	<b>9,893</b>	<b>83.6</b>	<b>1,941</b>	<b>17</b>	<b>102</b>		<b>15.32</b>
<b>2021 @</b>	<b>11,821</b>	<b>9,893</b>	<b>83.7</b>	<b>1,928</b>	<b>16</b>	<b>101</b>		<b>15.32</b>

\* 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.



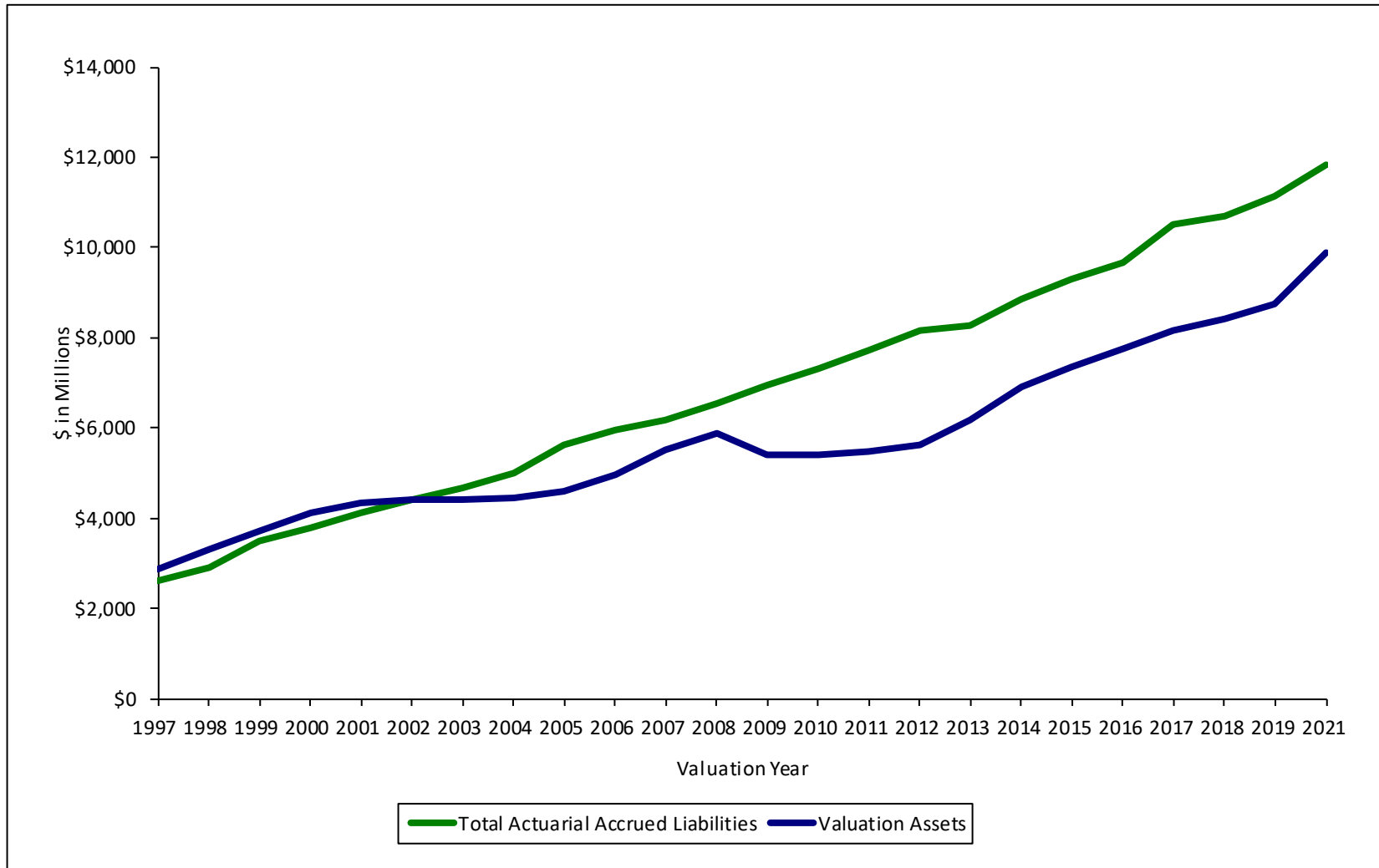
# Active Members and Retired Lives Historical Comparative Schedule

Valuation Date	Active Members				Retired Lives (Including DROP Members)			
	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%
6/30/19	45,965	1,802.4	39,212	5.1%	38,543	1.2	609.1	33.8%
6/30/20	44,373	1,795.7	40,469	3.2%	39,805	1.1	637.1	35.5%
<b>6/30/21</b>	<b>42,669</b>	<b>1,781.8</b>	<b>41,759</b>	<b>3.2%</b>	<b>40,762</b>	<b>1.0</b>	<b>658.8</b>	<b>37.0%</b>

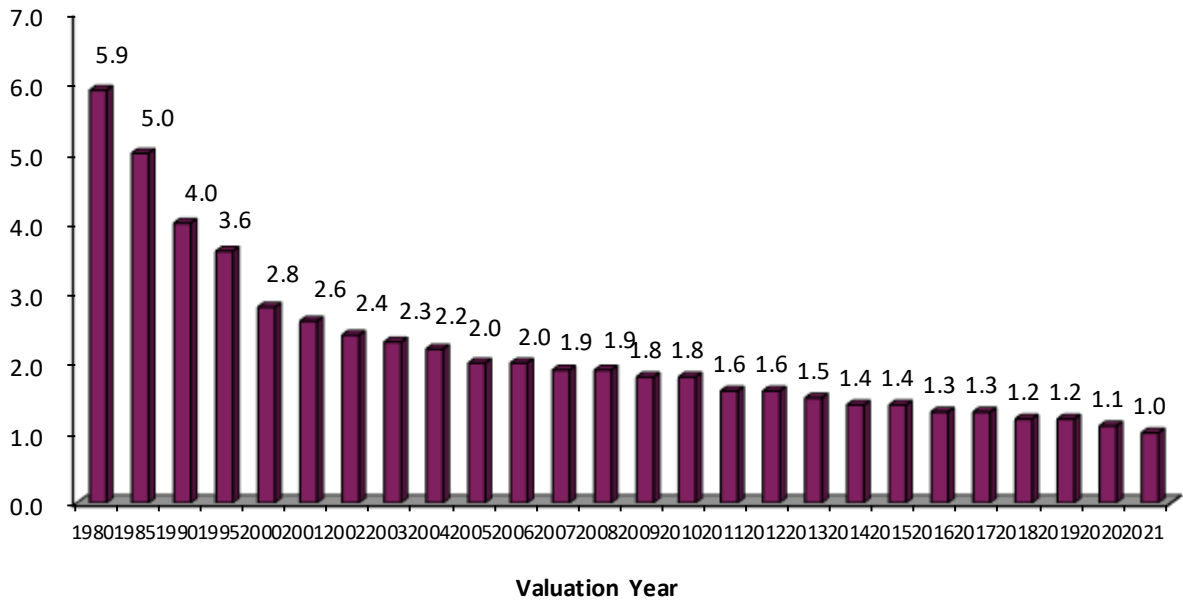
The above valuation payroll results do not include DROP payroll.



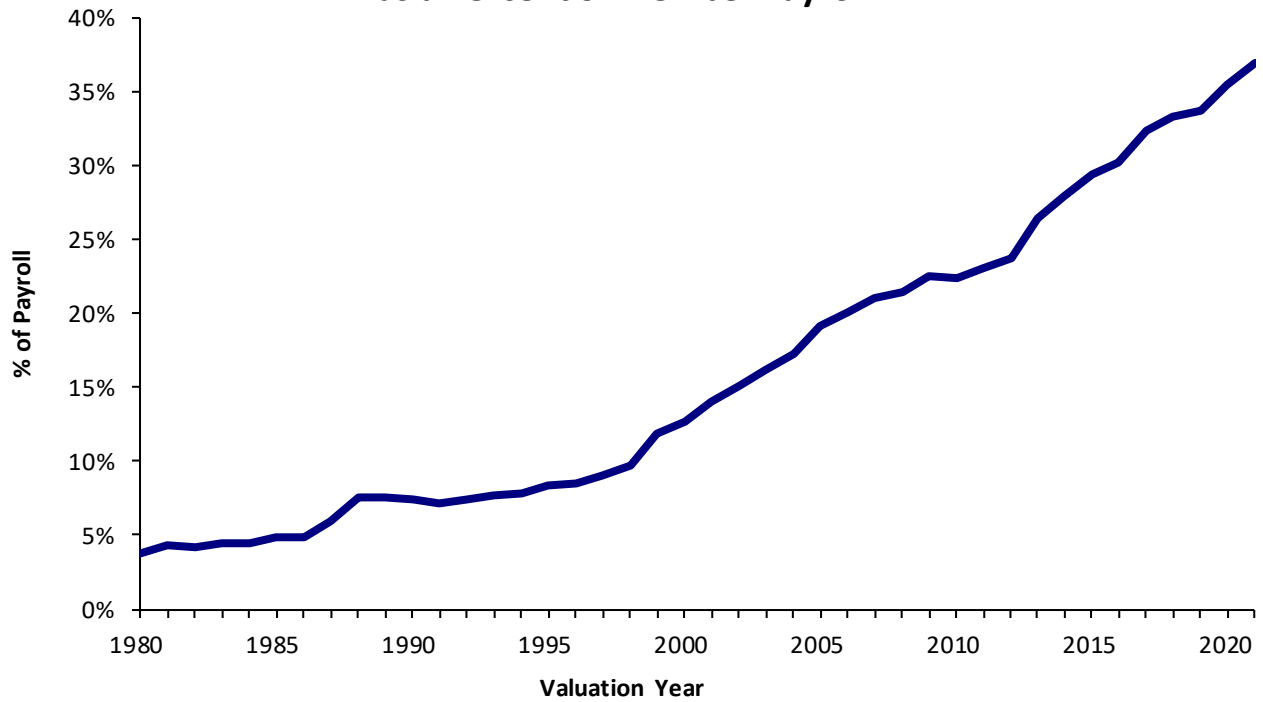
## Actuarial Accrued Liabilities and Assets



### 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.

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**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
<b>STATE DIVISION (including sub-divisions)</b>								
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%
<b>LOCAL GOVERNMENT DIVISION</b>								
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%
<b>STATE AND LOCAL GOVERNMENT DIVISION</b>								
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%
2019	376.0	6,015.8	4,737.0	8,738.7	100%	100%	50%	79%
2020	410.2	6,270.1	4,832.7	9,090.4	100%	100%	50%	79%
<b>2021</b>	<b>439.2</b>	<b>6,531.0</b>	<b>4,864.2</b>	<b>9,892.5</b>	<b>100%</b>	<b>100%</b>	<b>60%</b>	<b>84%</b>
<b>2021#</b>	<b>439.2</b>	<b>6,531.0</b>	<b>4,851.3</b>	<b>9,892.5</b>	<b>100%</b>	<b>100%</b>	<b>60%</b>	<b>84%</b>

# After legislated changes in benefit provisions.

@ After changes in actuarial assumptions.



## Risks Associated With Measuring the Accrued Liability and Actuarially Determined Contribution

The determination of the accrued liability and the actuarially determined contribution requires the use of assumptions regarding future economic and demographic experience. Risk measures, as illustrated in this report, are intended to aid in the understanding of the effects of future experience differing from the assumptions used in the course of the actuarial valuation. Risk measures may also help with illustrating the potential volatility in the accrued liability and the actuarially determined contribution that result from the differences between actual experience and the actuarial assumptions.

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

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

1. **Investment Risk** – actual investment returns may differ from the expected returns;
2. **Asset/Liability Mismatch** – changes in asset values may not match changes in liabilities, thereby altering the gap between the accrued liability and assets and consequently altering the funded status and contribution requirements;
3. **Contribution Risk** – actual contributions may differ from expected future contributions. For example, actual contributions may not be made in accordance with the plan's funding policy or material changes may occur in the anticipated number of covered employees, covered payroll, or other relevant contribution base;
4. **Salary and Payroll Risk** – actual salaries and total payroll may differ from expected, resulting in actual future accrued liability and contributions differing from expected;
5. **Longevity Risk** – members may live longer or shorter than expected and receive pensions for a period of time other than assumed;
6. **Other Demographic Risks** – members may terminate, retire or become disabled at times or with benefits other than assumed resulting in actual future accrued liability and contributions differing from expected.

The effects of certain trends in experience can generally be anticipated. For example if the investment return since the most recent actuarial valuation is less (or more) than the assumed rate, the cost of the plan can be expected to increase (or decrease). Likewise if longevity is improving (or worsening), increases (or decreases) in cost can be anticipated.

The computed contribution rate shown on page A-3 may be considered as a minimum contribution rate that complies with the Board's funding policy. The timely receipt of the actuarially determined contributions is critical to support the financial health of the plan. Users of this report should be aware that contributions made at the actuarially determined rate do not necessarily guarantee benefit security.

# Plan Maturity Measures

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

	<u>2021</u>	<u>2020</u>	<u>2019</u>
Ratio of the market value of assets to total payroll	5.85	4.53	4.55
Ratio of actuarial accrued liability to payroll	6.20	5.97	5.76
Ratio of actives to retirees and beneficiaries	1.0	1.1	1.2
Ratio of net cash flow to market value of assets	(2.2)%	(2.7)%	(2.5)%
Duration of the actuarial accrued liability	14.23	14.38	14.47

## Funded Ratio

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

## Ratio of Market Value of Assets to Payroll

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

## Ratio of Actuarial Accrued Liability to Payroll

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

## Ratio of Unfunded Actuarial Accrued Liability to Payroll

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

### **Ratio of Actives to Retirees and Beneficiaries**

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

### **Ratio of Net Cash Flow to Market Value of Assets**

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

### **Standard Deviation of Investment Return to Payroll**

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

### **Duration of Present Value of Future Benefits**

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

### **Additional Risk Assessment**

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

## Summary of Risk Measures

Valuation Date June 30,	Funded Ratio		UAAL Amortization Period	Total UAAL / Total Payroll	Total Actuarial Value of Assets / Total Payroll		Standard Deviation of Investment Return / Total Payroll
	Based on AVA	Based on MVA			Total AAL / Total Payroll	Total AAL / 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 %
2019	79	79	24	1.2	4.5	5.8	62 %
2020	79	76	23	1.3	4.7	6.0	62 %
2021	84	94	17	1.0	5.2	6.2	76 %
2021 @	84	94	16	1.0	5.2	6.2	76 %

@ After legislated changes in benefit provisions.

# After changes in actuarial assumptions.

\*\* Unavailable.

**Funded ratio:** The funded ratio is expected to trend toward 100% by June 30, 2039 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, 2039.

**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**

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### **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 (60 months for members hired on or after July 1, 2022)

Average of highest 36 calendar months of covered compensation (60 months for members hired on or after July 1, 2022)

### 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.

For members first hired on or after July 1, 2022, the redetermined amount is the monthly benefit payable as of the preceding July 1 increased by the lesser of three percent (3%), or the percentage change in the Consumer Price Index for Urban Wage Earnings and Clerical Workers (CPI-W) over the one-year period ending in the December preceding the redetermination date.

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

For members first hired on or after July 1, 2022, the redetermined amount is the monthly benefit payable as of the preceding July 1 increased by the lesser of three percent (3%), or the percentage change in the Consumer Price Index for Urban Wage Earnings and Clerical Workers (CPI-W) over the one-year period ending in the December preceding the redetermination date.

### Member Contribution Rates

5% of covered compensation (pre-tax). Beginning July 1, 2022, the member contribution rate will increase in increments of 0.25% per year until it reaches the maximum 7%. 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 10 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 and 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	(1.8)%	11,112	139%
2020	795	27,310	(1.0)%	11,334	142%
2021	819	28,129	(5.4)%	11,080	139%
2022	844	28,973			

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

## Revenues and Expenditures July 1, 2020 Through June 30, 2021 Market Value

	Totals
<b>Balance 7/1/2020</b>	<b>\$8,743,979,371</b>
Revenues	
Member contributions	74,260,147
Employer contributions	305,641,811
Transfers	3,741,391
Other	1,294,460
Investment return*	2,658,214,035
Total	3,043,151,844
Expenditures	
Benefits paid and refunds	621,708,196
Expenses	11,611,089
Total	633,319,285
Reserve Adjustments	0
<b>Balance 6/30/2021</b>	<b>\$11,153,811,930</b>
<b>Less Contributions Receivable</b>	<b>5,309,251</b>
<b>Balance Available for Funding Valuation</b>	<b>\$11,148,502,679</b>

\* Net of investment expenses.

Note: Results may not total due to rounding.

## Reported Accrued Assets Available for Benefits June 30, 2021

Retirement System Account	Reported Assets June 30, 2021
Employer Accumulation Account	\$ 3,351,409,228 *
Members Deposit Account	510,376,141
Members Deposit Interest Reserve	96,338,168
Retirement Reserve Account	6,531,001,850 *
Deferred Annuity Reserve Account	580,335,670 *
DROP Reserve	84,268,647
Miscellaneous Reserves	82,226
Total Market Value	\$ 11,153,811,930
Less Contributions Receivable	5,309,251
Market Value Available for Funding	\$ 11,148,502,679
Funding Value of Assets	\$ 9,892,522,828
Valuation Asset Adjustment	(1,255,979,851)
Adjusted Employer Accum. Account	\$ 2,095,429,377

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

# Reported Accrued Assets Available for Benefits

## June 30, 2021

### (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:	2019	2020	2021	2022	2023	2024
A. Funding Value Beginning of Year	\$ 8,416,354,234	\$ 8,738,714,746	\$ 9,090,423,393			
B. Market Value End of Year	8,803,211,537	8,738,362,156	11,148,502,679			
C. Market Value Beginning of Year	8,571,821,992	8,803,211,537	8,738,362,156			
D. Non-Investment Net Cash Flow	(219,167,312)	(238,916,672)	(248,381,476)			
E. Investment Income						
E1. Market Total: B - C - D	450,556,857	174,067,291	2,658,521,999			
E2. Assumed Rate	7.15%	7.15%	7.15%			
E3. Amount for Immediate Recognition	594,024,272	616,375,135	641,187,831			
E4. Amount for Phased-In Recognition	(143,467,415)	(442,307,844)	2,017,334,168			
F. Phased-In Recognition of Investment Income						
F1. Current Year: 0.25 x E4	(35,866,854)	(110,576,961)	504,333,542			
F2. First Prior Year	51,403,353	(35,866,854)	(110,576,961)	\$ 504,333,542		
F3. Second Prior Year	69,290,648	51,403,353	(35,866,854)	(110,576,961)	\$ 504,333,542	
F4. Third Prior Year	(137,323,595)	69,290,646	51,403,353	(35,866,853)	(110,576,961)	\$ 504,333,542
F5. Total Phase-Ins	(52,496,448)	(25,749,816)	409,293,080	357,889,728	393,756,581	504,333,542
G. Preliminary Funding Value End of Year: A + D + E3 + F5	\$ 8,738,714,746	\$ 9,090,423,393	\$ 9,892,522,828			
H. Adjustment to Minimum of 75% of B, Maximum 125% of B	0	0	0			
<b>I. Funding Value End of Year</b>	<b>\$ 8,738,714,746</b>	<b>\$ 9,090,423,393</b>	<b>\$ 9,892,522,828</b>			
J. Difference Between Market & Funding Value	64,496,791	(352,061,237)	1,255,979,851			
<b>K. Recognized Rate of Return</b>	<b>6.5%</b>	<b>6.9%</b>	<b>11.7%</b>			
L. Market Rate of Return	5.3%	2.0%	30.9%			
M. Ratio of Funding Value to Market Value	99%	104%	89%			

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 40,762, involving annual annuities of \$658,846,020, distributed as follows:

Division	Number	Annuities Being Paid July 1, 2021	
		Monthly	Annualized
State & Local	39,007	\$ 50,326,645	\$ 603,919,740
General Assembly	107	160,946	1,931,352
Governor	1	5,640	67,680
Wildlife	151	552,159	6,625,908
State Constitutional Officers	14	64,649	775,788
Penitentiary	0	0	0
<b>Sub-total</b>	<b>39,280</b>	<b>51,110,039</b>	<b>613,320,468</b>
DROP	1,447	3,757,235	45,086,820
DROP "Frozen"	35	36,561	438,732
<b>Totals</b>	<b>40,762</b>	<b>\$ 54,903,835</b>	<b>\$ 658,846,020</b>

DROP "Frozen" members are members who previously participated in the APERS DROP, but are currently working with another agency and are no longer accruing DROP benefits with APERS. Because their date of retirement is unknown, they were assumed to retire in the following year.

**Inactive members**, entitled to deferred annuities, included in the valuation totaled 14,802, involving deferred monthly annuities of \$7,007,468, distributed as follows:

Division	Number of Inactive Members	Deferred Annuities	
		Monthly	Annualized
State and Local	14,792	\$ 6,997,871	\$ 83,974,452
General Assembly	4	2,950	35,400
Wildlife	3	1,494	17,928
State Constitutional Officers	3	5,153	61,836
<b>Totals</b>	<b>14,802</b>	<b>\$ 7,007,468</b>	<b>\$ 84,089,616</b>

**Retirement System Totals**  
**Annuities Being Paid Retirees and Beneficiaries**  
**and DROP Participants**  
**June 30, 2021**  
**by Attained Age and Type of Retirement**

Attained Ages	DROP Members Currently Active In APERS		DROP "Frozen" Members Currently Active in Another Agency		Age & Service*		Disability		Death-in-Service Beneficiaries		Totals	
	No.	Annual Amount	No.	Annual Amount	No.	Annual Annuities	No.	Annual Annuities	No.	Annual Annuities	No.	Annual Annuities
Under 40					87	\$ 563,220	13	\$ 63,528	195	\$ 871,332	295	\$ 1,498,080
40-44				\$ -	32	198,888	46	321,372	30	159,228	108	679,488
45-49	13	\$ 371,736			89	1,585,968	92	719,928	41	278,880	235	2,956,512
50-54	227	7,172,520			428	10,842,516	209	2,124,564	81	761,472	945	20,901,072
55-59	520	16,146,996	3	48,000	2,023	40,966,872	454	4,486,548	139	1,190,520	3,139	62,838,936
60-64	517	15,768,120	14	116,340	5,135	86,401,176	697	7,426,332	183	1,579,896	6,546	111,291,864
65-69	134	4,452,408	9	249,732	8,505	136,945,644	699	7,798,032	211	1,972,188	9,558	151,418,004
70-74	30	991,344	9	24,660	8,155	132,982,764	573	6,230,160	138	1,405,980	8,905	141,634,908
75-79	6	183,696			4,948	77,132,736	299	3,053,796	106	1,023,048	5,359	81,393,276
80-84					3,095	44,901,804	70	731,100	66	662,220	3,231	46,295,124
85-89					1,580	24,276,060	26	367,800	29	333,924	1,635	24,977,784
90-94					631	10,040,820	6	121,896	15	134,376	652	10,297,092
95-99					131	2,329,656	2	34,716	6	100,320	139	2,464,692
Over 100					14	190,440			1	8,748	15	199,188
<b>Totals</b>	<b>1,447</b>	<b>\$45,086,820</b>	<b>35</b>	<b>\$438,732</b>	<b>34,853</b>	<b>\$569,358,564</b>	<b>3,186</b>	<b>\$33,479,772</b>	<b>1,241</b>	<b>\$10,482,132</b>	<b>40,762</b>	<b>\$658,846,020</b>

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



## Annuities Being Paid June 30, 2021 by Type of Annuity

Type of Annuity	Number	Annual Annuities
<b>Age &amp; Service Retirees</b>		
Life	22,419	\$ 381,918,324
Option A- 60 ( 5 years certain)	2,138	28,970,364
Option A-120 (10 years certain)	3,465	45,611,340
Option B- 50 (joint and 50% survivor)	1,912	40,590,636
Option B- 75 (joint and 75% survivor)	2,962	51,565,500
<b>Totals</b>	<b>32,896</b>	<b>548,656,164</b>
<b>Disability Retirees</b>		
Life	2,151	22,836,300
Option A- 60	189	1,883,688
Option A-120	398	4,074,252
Option B- 50	159	1,811,808
Option B- 75	289	2,873,724
<b>Totals</b>	<b>3,186</b>	<b>33,479,772</b>
<b>Beneficiaries of Age &amp; Service and Disability Retirees</b>		
Life	43	912,864
Option A- 60	44	331,620
Option A-120	304	2,916,672
Option B- 50	420	4,152,684
Option B- 75	849	9,940,320
<b>Totals</b>	<b>1,660</b>	<b>18,254,160</b>
<b>Total Age &amp; Service Retirees &amp; Beneficiaries</b>	<b>34,556</b>	<b>566,910,324</b>
<b>Death-in-Service Beneficiaries</b>	<b>1,241</b>	<b>10,482,132</b>
<b>Total Death and Disability Retirees &amp; Beneficiaries</b>	<b>4,427</b>	<b>43,961,904</b>
<b>QDRO Alternate Payees</b>	<b>297</b>	<b>2,448,240</b>
<b>Total Retirees &amp; Beneficiaries</b>	<b>39,280</b>	<b>613,320,468</b>
<b>DROP Participants</b>	<b>1,447</b>	<b>45,086,820</b>
<b>DROP "Frozen" Participants</b>	<b>35</b>	<b>438,732</b>
<b>Total Including DROP Participants</b>	<b>40,762</b>	<b>\$ 658,846,020</b>

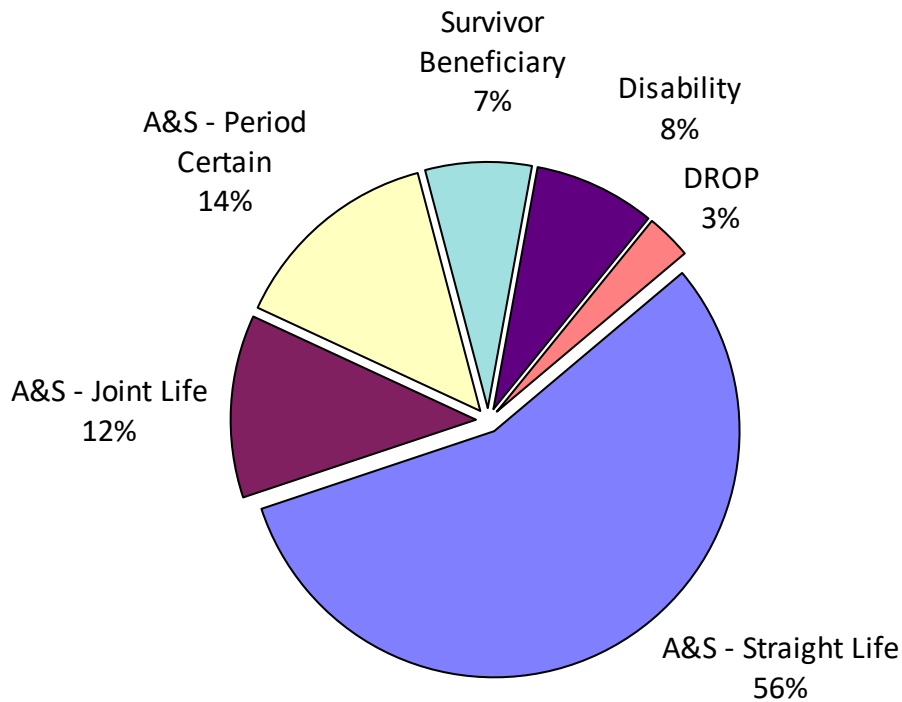
The average monthly benefit is \$1,346.94



## Schedule of Average Benefit Payments (Voluntary Retirements Still Receiving Benefits as of June 30, 2021)

	Years of Credited Service				
	10-14	15-19	20-24	25-29	30+
<b>Retirement Effective Dates</b> <b>July 1, 2020 to June 30, 2021</b>					
Average Monthly Benefit	\$ 457.37	\$ 1,060.55	\$ 1,606.85	\$2,432.62	\$3,301.21
Average Monthly FAS	2,851.81	3,453.29	3,779.53	2,677.10	2,450.06
Number of Active Retirees	1,263	317	264	389	224
<b>Retirement Effective Dates</b> <b>July 1, 2019 to June 30, 2020</b>					
Average Monthly Benefit	451.44	1,004.78	1,585.78	2,420.94	3,200.58
Average Monthly FAS	2,799.62	3,364.22	3,907.00	2,773.78	2,266.86
Number of Active Retirees	920	276	210	337	173
<b>Retirement Effective Dates</b> <b>July 1, 2018 to June 30, 2019</b>					
Average Monthly Benefit	495.95	974.86	1,579.78	2,341.94	3,062.03
Average Monthly FAS	2,732.91	3,240.31	3,671.23	2,762.75	2,458.18
Number of Active Retirees	856	264	220	384	181
<b>Retirement Effective Dates</b> <b>July 1, 2017 to June 30, 2018</b>					
Average Monthly Benefit	462.46	1,010.87	1,496.07	2,299.55	2,865.02
Average Monthly FAS	2,709.85	3,312.19	3,697.72	2,405.83	1,864.28
Number of Active Retirees	761	270	187	396	220
<b>Retirement Effective Dates</b> <b>July 1, 2016 to June 30, 2017</b>					
Average Monthly Benefit	493.21	1,055.66	1,509.39	2,344.68	3,067.04
Average Monthly FAS	2,825.79	3,290.71	3,437.04	3,532.05	3,805.78
Number of Active Retirees	834	279	197	465	216
<b>Retirement Effective Dates</b> <b>July 1, 2015 to June 30, 2016</b>					
Average Monthly Benefit	485.46	1,031.63	1,508.46	2,333.81	2,986.05
Average Monthly FAS	2,846.30	3,291.30	3,744.66	3,664.84	4,033.59
Number of Active Retirees	815	231	162	438	220
<b>Retirement Effective Dates</b> <b>July 1, 2014 to June 30, 2015</b>					
Average Monthly Benefit	474.38	1,136.87	1,593.00	2,387.91	2,913.06
Average Monthly FAS	2,765.41	3,231.61	3,499.39	3,490.54	3,712.43
Number of Active Retirees	823	254	208	466	208
<b>Retirement Effective Dates</b> <b>July 1, 2013 to June 30, 2014</b>					
Average Monthly Benefit	445.16	981.00	1,462.90	2,290.35	2,872.65
Average Monthly FAS	2,687.30	3,004.05	3,443.02	3,483.20	3,634.92
Number of Active Retirees	739	227	169	467	167
<b>Retirement Effective Dates</b> <b>July 1, 2012 to June 30, 2013</b>					
Average Monthly Benefit	450.77	942.33	1,534.61	2,355.22	2,833.23
Average Monthly FAS	2,544.44	2,827.70	3,513.09	3,311.12	3,639.78
Number of Active Retirees	774	203	182	500	195
<b>Retirement Effective Dates</b> <b>July 1, 2011 to June 30, 2012</b>					
Average Monthly Benefit	428.05	976.34	1,422.96	2,373.57	2,771.53
Average Monthly FAS	2,543.21	2,943.78	3,209.52	3,379.05	3,400.41
Number of Active Retirees	710	204	161	424	155
<b>Retirement Effective Dates</b> <b>July 1, 2011 to June 30, 2021</b>					
Average Monthly Benefit	464.82	1,021.21	1,537.36	2,356.05	2,993.79
Average Monthly FAS	2,741.90	3,219.27	3,605.61	3,183.05	3,124.82
Number of Active Retirees	8,495	2,525	1,960	4,266	1,959

## Annuities Being Paid by Type June 30, 2021



## New Retirees June 30, 2021

	<b>New Retirees June 30, 2021</b>	
	<b>Age &amp; Service</b>	<b>Disability</b>
<b>Number*</b>	2,439	238
<b>Average Age (yrs.)</b>	63.2	56.2
<b>Average Service (yrs.)</b>	16.4	14.7
<b>Average Monthly Benefit</b>	\$ 1,236	\$ 864

\* 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, 2021**  
**by Attained Age**

<b>Attained Ages</b>	<b>No.</b>	<b>Estimated Annual Annuities</b>
Under 40	1,893	\$ 10,248,324
40-44	1,946	11,311,416
45-49	2,548	15,056,388
50-54	3,175	18,629,292
55-59	2,618	15,525,984
60-64	1,688	9,256,800
65-69	934	4,061,412
<b>Totals</b>	<b>14,802</b>	<b>\$ 84,089,616</b>

**Liabilities for Deferred Annuities June 30, 2021**

<b>Number of Inactive Members</b>	<b>Estimated Annual Annuities</b>	<b>Annuity Liabilities</b>
14,802	\$ 84,089,616	\$ 580,335,670

**State and Local Division  
(Excluding General Assembly)  
Active Members\* in Valuation June 30, 2021  
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	271							271	\$ 7,153,814
20-24	2,384	21						2,405	71,633,857
25-29	3,213	617	7					3,837	132,407,501
30-34	2,671	1,385	403	15				4,474	172,240,615
35-39	2,078	1,380	900	401	10			4,769	199,946,413
40-44	1,764	1,182	990	879	274	5		5,094	222,833,185
45-49	1,472	1,028	897	797	780	160	5	5,139	231,235,245
50-54	1,337	1,060	881	766	761	445	87	5,337	241,805,037
55-59	1,276	995	806	693	714	409	151	5,044	222,370,925
60	227	207	172	146	115	82	27	976	43,725,533
61	187	167	171	146	127	71	35	904	40,734,047
62	160	146	147	131	125	62	22	793	35,692,441
63	129	137	115	105	79	56	20	641	28,948,709
64	108	131	118	100	79	53	14	603	27,194,893
65	92	105	89	79	75	53	22	515	24,517,079
66	84	78	74	52	41	30	7	366	16,241,474
67	69	56	38	44	33	20	17	277	12,927,847
68	52	61	44	40	24	20	7	248	10,403,367
69	35	46	27	21	23	8	8	168	7,353,497
70 & over	203	186	141	122	82	39	33	806	32,380,344
<b>Totals</b>	<b>17,812</b>	<b>8,988</b>	<b>6,020</b>	<b>4,537</b>	<b>3,342</b>	<b>1,513</b>	<b>455</b>	<b>42,667</b>	<b>\$1,781,745,823</b>

\* Not including DROP participants.

**Group Averages**

Age:	44.7 years
Service:	9.0 years
Annual Pay:	\$41,759





**General Assembly Sub-Division  
Active Members in Valuation June 30, 2021  
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									
61									
62									
63				1				1	\$ 42,802
64									
65									
66									
67									
68									
69									
70									
71									
72									
73									
74									
75									
76									
77				1				1	42,802
78									
79									
<b>Totals</b>				<b>2</b>				<b>2</b>	<b>\$85,604</b>

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

**Group Averages**

Age:	70.2 years
Service:	18.5 years
Annual Pay:	\$42,802

## SECTION C

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### **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.**

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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, 2020 to June 30, 2021

	<u>Total (\$ in millions)</u>
(1) UAAL* at beginning of year	\$ 2,422.6
(2) Employer normal cost from last valuation	149.7
(3) Actual employer contributions	305.6
(4) Interest accrual: $[(1) + \frac{1}{2}[(2) - (3)]] \times .0715$	167.6
(5) Expected UAAL before changes: $(1) + (2) - (3) + (4)$	2,434.3
(6) Increase from benefit changes	(12.9)
(7) Changes from revised actuarial assumptions and methods	0.0
(8) New entrant liabilities	53.4
(9) Expected UAAL after changes: $(5) + (6) + (7) + (8)$	2,474.8
(10) Actual UAAL at end of year	1,929.0
<hr/>	
(11) Gain/(Loss): $(9) - (10)$	\$ 545.8

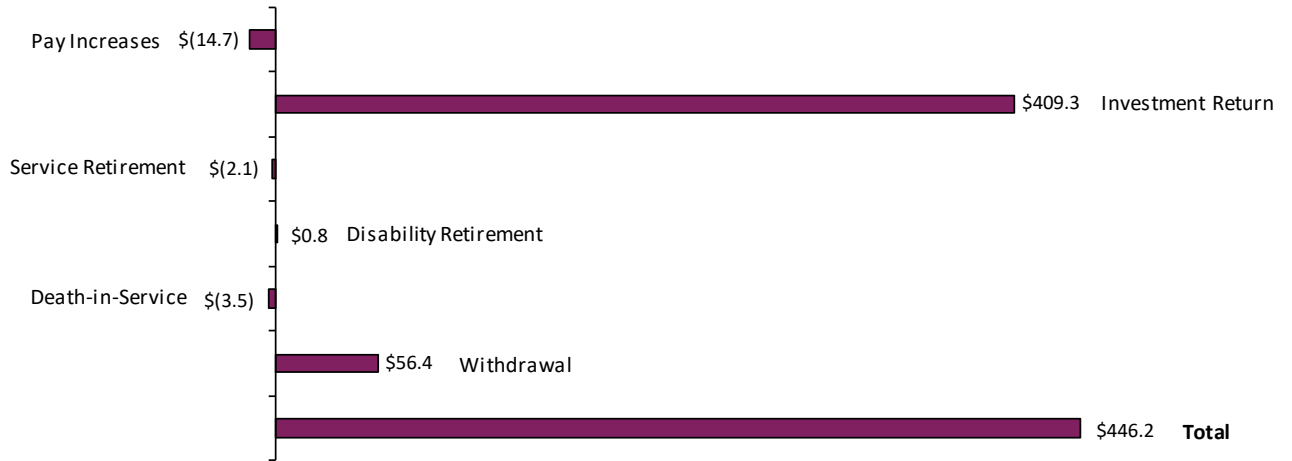
\* *Unfunded actuarial accrued liability.*

## Experience Gains/(Losses) by Risk Area During the Period July 1, 2020 to June 30, 2021

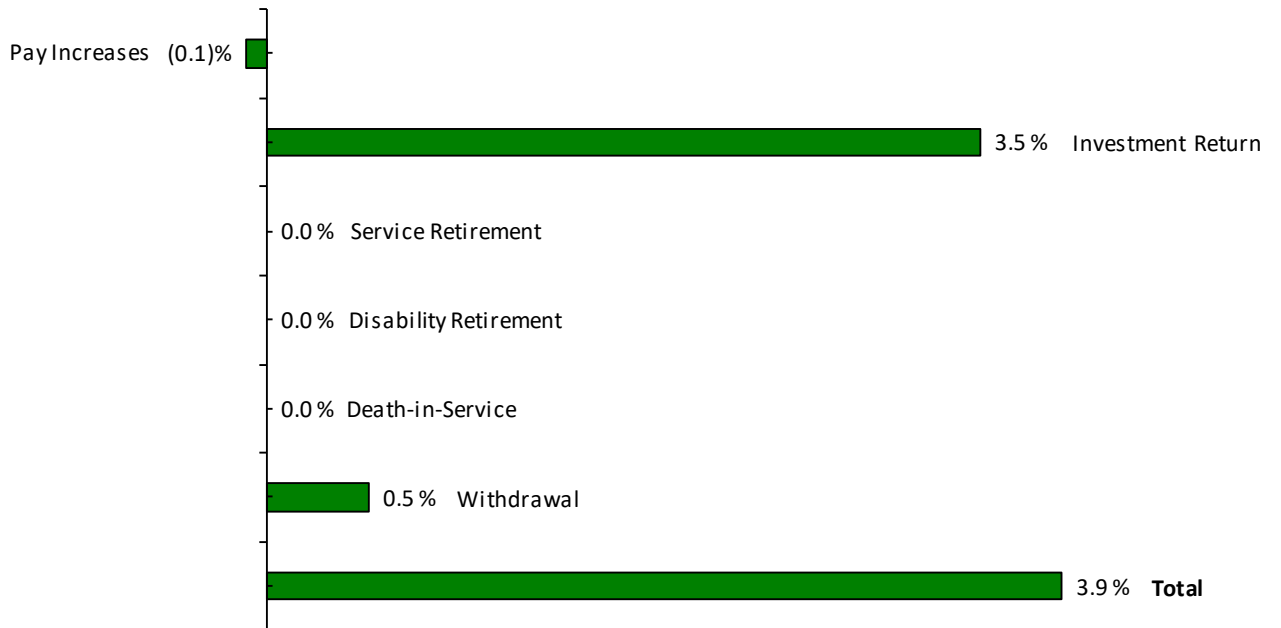
Type of Risk Area	Total (\$ in millions)	% of Accrued Liabilities
<b>ECONOMIC RISK AREAS .....</b>		
<b>Pay Increases.</b> If there are smaller pay increases than assumed, there is a gain. If greater increases, a loss.	\$ (14.7)	(0.1)%
<b>Investment Return.</b> If there is greater investment return than assumed, there is a gain. If less return, a loss.	409.3	3.5 %
<b>NON-ECONOMIC RISK AREAS .....</b>		
<b>Non-Casualty Retirements.</b> 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.	(2.1)	0.0 %
<b>Disability Retirements.</b> If there are fewer disabilities than assumed, there is a gain. If more, a loss.	0.8	0.0 %
<b>Death-in-Service Benefits.</b> If there are fewer claims than assumed, there is a gain. If more, a loss.	(3.5)	0.0 %
<b>Withdrawal.</b> If more liabilities are released by other separations than assumed, there is a gain. If smaller releases, a loss.	56.4	0.5 %
<b>Total Active Member Actuarial Gains/(Losses)</b>	\$ 446.2	3.9 %
<b>Retired Life Mortality.</b>	75.0	0.6 %
<b>Other.</b> Includes data adjustments at retirement, timing of financial transactions, and miscellaneous unidentified sources.	\$ 24.6	0.2 %
<b>Total Actuarial Gains/(Losses)</b>	\$ 545.8	4.7 %

# Actuarial Gains/(Losses) Active Members 2020-2021 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		Accrued Liability End of Year
	Pay Increases	Invest- ments	Age & Service		Death-In- Service	Withdrawal	Gain/(Loss)		
			Retirement	Disability			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
2019	2.6	(52.5)	0.1	1.2	(2.6)	47.6	(3.6)	(0.1)%	11,128.8
2020	2.2	(25.7)	(0.5)	1.0	(3.1)	36.4	10.3	0.1 %	11,513.0
<b>2021</b>	<b>(14.7)</b>	<b>409.3</b>	<b>(2.1)</b>	<b>0.8</b>	<b>(3.5)</b>	<b>56.4</b>	<b>446.2</b>	<b>3.9 %</b>	<b>11,821.5</b>



## Development of Gain/(Loss) From Investment Return\* During the Period July 1, 2020 to June 30, 2021

	<u>\$ Millions</u>
1. Total Assets Beginning of Year	\$ 9,090.4
2. Total Assets End of Year (Funding Value)	
a. Actual	\$ 9,892.5
b. If net investment return had been 7.15%	<u>\$ 9,483.2</u>
3. Gain/(Loss): 2a. minus 2b.	\$ 409.3

\* "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, 2020 to June 30, 2021  
(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	112	96
66	87	78
67	55	53
68	49	37
69	28	25
70	16	19
71	14	20
72	21	16
73	14	14
74	13	12
75 & Up	34	42
	<b>443</b>	<b>412</b>

# Additionally, there were 155 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 68.7

Service at retirement 13.8

**Active Members  
Who Became Reduced Early Retirees  
During the Period July 1, 2020 to June 30, 2021  
(Early Retirements With Reduced Benefits  
Beginning Immediately)**

Ages	State & Local Early Retirement	
	Actual	Expected
55	13	14
56	15	14
57	23	16
58	16	19
59	27	22
60	23	27
61	34	29
62	67	97
63	50	82
64	53	56
<b>Totals</b>	<b>321</b>	<b>376</b>

Averages, in Years:

Age at retirement	60.2
Service at retirement	17.4

**Active and DROP Members Who Retired or  
Active Members Who Entered the DROP  
During the Period July 1, 2020 to June 30, 2021  
(28 or More Years of Service)**

Years of Service	State & Local			
	Retirement		DROP	
	Actual	Expected	Actual	Expected
28	36	50	41	n/a
29	49	46	46	n/a
30	55	50	24	n/a
31	55	41	18	n/a
32	49	36	6	n/a
33	24	24	5	n/a
34	40	29	4	n/a
35	40	34	1	n/a
36	29	26	2	n/a
37	26	22	1	n/a
38 & Up	77	181	5	n/a
<b>Totals</b>	<b>480</b>	<b>539</b>	<b>153</b>	

Averages, in Years:

Age at retirement	61.7	57.9
Service at retirement	34.0	30.1

**Active Members Who Became Disability Retirees  
During the Period July 1, 2020 to June 30, 2021  
(and Who Were Active Members as of June 30, 2020)**

Ages	State & Local Disabilities	
	Actual	Expected
20- 24		
25- 29		
30- 34		2
35- 39		3
40- 44	4	5
45- 49	2	9
50- 54	15	16
55- 59	15	25
60 & Up	17	26
<b>Totals</b>	<b>53</b>	<b>86</b>

Averages, in Years:

Age at retirement            56.1

Service at retirement       15.6

**Active Members Who Left Active Status with a  
Deferred Benefit Payable  
During the Period July 1, 2020 to June 30, 2021  
(Vested Separations)**

Ages	State & Local Vested Separations	
	Actual	Expected
Below 30	84	107
30- 34	175	200
35- 39	178	187
40- 44	189	175
45- 49	179	144
50- 54	185	122
55- 59	148	82
60 & Up	97	48
<b>Totals</b>	<b>1,235</b>	<b>1,065</b>

Averages, in Years:

Age at termination      46.6

Service at termination   10.5

**Active Members Who Left Active Status with  
No Benefit Payable  
During the Period July 1, 2020 to June 30, 2021  
(Non-Vested Separations)**

Service at Termination	State & Local Non-Vested Separations	
	Actual	Expected
0	1,894	1,647
1	1,272	1,095
2	744	636
3	534	433
4	272	1
<b>Totals</b>	<b>4,716</b>	<b>3,812</b>

Averages, in Years:

Age at termination	45.2
Service at termination	1.9

**Members Active Both Beginning and End of Year  
Salary Increases by Age Group  
During the Period July 1, 2020 to June 30, 2021**

Age Groups	Number	Beginning Pay	Ending Pay		Percentage Increase	
			Expected	Actual	Expected	Actual
Below 25	1,371	\$ 40,660,499	\$ 44,494,716	\$ 43,371,055	9.4%	6.7%
25- 29	2,942	100,487,700	108,006,915	106,831,101	7.5%	6.3%
30- 34	3,749	142,450,997	151,048,979	151,057,210	6.0%	6.0%
35- 39	4,205	173,349,632	182,466,290	183,533,024	5.3%	5.9%
40- 44	4,588	196,781,916	206,197,325	206,839,745	4.8%	5.1%
45- 49	4,691	208,324,151	217,712,018	218,453,153	4.5%	4.9%
50- 54	5,007	223,512,196	232,650,381	234,983,688	4.1%	5.1%
55- 59	5,172	230,126,940	238,962,698	241,700,455	3.8%	5.0%
60-64	4,016	185,856,818	192,482,316	193,557,272	3.6%	4.1%
65 & Over	2,115	92,829,246	95,880,911	96,216,581	3.3%	3.6%
<b>Totals</b>	<b>37,856</b>				<b>4.7%</b>	<b>5.2%</b>

## **SECTION D**

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### **DISTRICT JUDGES – VALUATION RESULTS AND VALUATION DATA**



## District Judges

### Employer Contribution Rates Computed for Fiscal Years Beginning July 1, 2023

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)	17.41%	
Separation benefits	1.81%	
Disability benefits	1.58%	
Death-in-service annuities	1.26%	
Total	22.06%	
Member contributions	5.00%	
Employer Normal Cost	17.06%	
Unfunded Actuarial Accrued Liabilities	50.07% *	\$529,610 **
<b>Total Employer Contribution</b>	<b>67.13%</b>	<b>\$529,610</b>

\* *Unfunded actuarial accrued liabilities were amortized over a 5.6-year period.*

\*\* *Unfunded actuarial accrued liabilities were amortized over a 14-year period.*

# District Judges

## Summary Statement of System Resources and Obligations

### Year Ended June 30, 2021

#### Present Resources and Expected Future Resources

	<b>Totals</b>
A. Present Valuation Assets:	
1. Net assets from system financial statements	\$ 31,641,776
2. Market value adjustment	<u>(2,577,735)</u>
3. Valuation assets	29,064,041
B. Actuarial present value of expected future employer contributions:	
1. For normal costs	800,941
2. For unfunded actuarial accrued liability	<u>7,925,761</u>
3. Total	8,726,702
C. Actuarial present value of expected future member contributions	<u>234,885</u>
D. Total Present and Expected Future Resources	<u><u>\$ 38,025,628</u></u>

#### Actuarial Present Value of Expected Future Benefit Payments and Reserves

A. To retirees and beneficiaries	\$ 24,462,952
B. To vested terminated members	5,044,499
C. To present active members:	
1. Allocated to service rendered prior to valuation date - actuarial accrued liability	7,482,351
2. Allocated to service likely to be rendered after valuation date	<u>1,035,826</u>
3. Total	8,518,177
D. Reserve	<u>0</u>
E. Total Actuarial Present Value of Expected Future Benefit Payments	<u><u>\$ 38,025,628</u></u>

## District Judges

### Computed Actuarial Liabilities and Allocation Using Entry Age Actuarial Cost Method as of June 30, 2021

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	\$24,462,952	\$ 0	\$24,462,952
Age and service allowances based on total service likely to be rendered by present active members	8,188,682	830,286	7,358,396
Separation benefits (refunds of contributions and deferred allowances) likely to be paid to present active and inactive members	5,080,706	82,755	4,997,951
Disability benefits likely to be paid to present active members	15,598	68,052	(52,454)
Death-in-service benefits likely to be paid on behalf of present active members	277,690	54,733	222,957
<b>Total</b>	<b>\$38,025,628</b>	<b>\$1,035,826</b>	<b>\$36,989,802</b>
Applicable assets (funding value)	29,064,041	0	29,064,041
Liabilities to be covered by future contributions	\$8,961,587	\$1,035,826	\$ 7,925,761



# District Judges

## Summary of Provisions Evaluated

<b>Voluntary Retirement</b>	<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.
<b>Final Average Compensation (FAC)</b>	Average of the final three calendar years of employment.
<b>Benefit Service</b>	Service performed on or after January 1, 2005.
<b>Eligibility Service</b>	Benefit service plus service in Old Local District Judges Plan.
<b>Full Age &amp; Service Retirement Benefit</b>	2.50% of FAC times actual service.
<b>Benefit Increases After Retirement</b>	Annually, there will be a cost-of-living adjustment equal to 3% of the current benefit.
<b>Member Contribution Rates</b>	Active members contribute 5% of their salaries. If a member leaves service before becoming eligible to retire, accumulated contributions may be refunded.
<b>Vested Retirement Benefits</b>	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.
<b>Total and Permanent Disability</b>	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.
<b>Death After Retirement</b>	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, 2020 Through June 30, 2021**  
**Market Value**

	Plan		Totals
	New Plan and Paid-Off Old Plan	Still Paying Old Plan	
<b>Balance 7/1/2020</b>	\$ 22,440,349	\$ 2,590,971	\$ 25,031,320
Adjustment	-	-	-
Revenues			
Member contributions	98,688	-	98,688
Employer contributions	839,037	702,475	1,541,512
Other	-	-	-
Investment return	6,655,705	768,717	7,424,422
<b>Total</b>	<b>\$ 7,593,430</b>	<b>\$ 1,471,192</b>	<b>\$ 9,064,622</b>
Expenditures			
Benefits paid	1,529,077	769,112	2,298,189
Refunds	-	-	-
Investment Expenses	110,030	12,708	122,738
Administrative Expenses	29,797	3,442	33,239
<b>Total</b>	<b>\$ 1,668,904</b>	<b>\$ 785,262</b>	<b>\$ 2,454,166</b>
Preliminary Balance	\$ 28,364,875	\$ 3,276,901	\$ 31,641,776
Employer Paid Off Old Liability	328,885	(328,885)	-
<b>Balance 6/30/2021</b>	<b>\$ 28,693,760</b>	<b>\$ 2,948,016</b>	<b>\$ 31,641,776</b>

Note: Results may not total due to rounding.

## Development of Funding Value of Assets New Plan and Paid-Off Old Plan June 30, 2021

Valuation Date June 30:	2019	2020	2021	2022	2023	2024
A. Funding Value Beginning of Year	\$ 21,881,408	\$ 23,349,843	\$ 24,385,156			
B. Market Value End of Year	21,731,314	22,440,349	28,693,760			
C. Market Value Beginning of Year	20,984,906	21,731,314	22,440,349			
D. Non-Investment Net Cash Flow	801,732	269,149	(292,264)			
E. Investment Income						
E1. Market Total: B - C - D	(55,324)	439,886	6,545,675			
E2. Assumed Rate	7.15%	7.15%	7.15%			
E3. Amount for Immediate Recognition	1,592,853	1,679,025	1,733,210			
E4. Amount for Phased-In Recognition	(1,648,177)	(1,239,139)	4,812,465			
F. Phased-In Recognition of Investment Income						
F1. Current Year: 0.25 x E4	(412,044)	(309,785)	1,203,116			
F2. First Prior Year	(191,366)	(412,044)	(309,785)	\$ 1,203,116		
F3. Second Prior Year	336	(191,366)	(412,044)	(309,785)	\$ 1,203,116	
F4. Third Prior Year	(323,076)	334	(191,364)	(412,045)	(309,784)	\$ 1,203,117
F5. Total Phase-Ins	(926,150)	(912,861)	289,923	481,286	893,332	1,203,117
G. Preliminary Funding Value End of Year: A + D + E3 + F5	23,349,843	24,385,156	26,116,025			
H. Adjustment to Minimum of 75% of B, Maximum 125% of B	0	0	0			
<b>I. Funding Value End of Year</b>	<b>23,349,843</b>	<b>24,385,156</b>	<b>26,116,025</b>			
J. Difference Between Market & Funding Value	(1,618,529)	(1,944,807)	2,577,735			
<b>K. Recognized Rate of Return</b>	<b>3.0%</b>	<b>3.3%</b>	<b>8.3%</b>			
L. Market Rate of Return	(0.3)%	2.0%	29.4%			
M. Ratio of Funding Value to Market Value	107%	109%	91%			

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 189, involving monthly annuities of \$218,333, distributed as follows:

Plan	Number of Retired Records	Annuities Being Paid July 1, 2021	
		Monthly	Annualized
New Plan	47	\$ 81,998	\$ 983,976
Old Plan Paid Off	76	73,814	885,768
Still Paying Old Plan	66	62,521	750,252
<b>Totals</b>	<b>189</b>	<b>\$ 218,333</b>	<b>\$ 2,619,996</b>

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, 2021 was reported to be 133, consisting of 115 original retirees and 18 survivors.

Actual Number of Retired Members: 133

Average Age: 74.2 years

Average Age at Retirement: 63.5 years

Average Years of Service: 8.6 years

Average Monthly Benefit: \$1,641.60

**Inactive members**, entitled to deferred annuities, included in the valuation totaled 86, involving estimated deferred monthly annuities of \$40,647 distributed as follows:

Plan	Number of Inactive Records	Estimated Deferred Annuities	
		Monthly	Annualized
New Plan	11	\$ 8,112	\$ 97,344
Old Plan Paid Off	39	20,022	240,264
Still Paying Old Plan	36	12,513	150,156
<b>Totals</b>	<b>86</b>	<b>\$ 40,647</b>	<b>\$ 487,764</b>

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, 2021 was reported to be 73.

## District Judges Detail by Employer

Employer	ER ID	<u>Participants Covered</u>		Retiree	Deferred	Retiree	Deferred	Total	Assets	Unfunded	14-year
		Deferred	Retired	Mon. Ben.	Mon. Ben.	Liability	Liability	Liability	Allocated	Actuarial	Payoff of
		Vested		7/1/2021	7/1/2021	6/30/2021	6/30/2021	6/30/2021	6/30/2021	Liability (UAL)	Unfunded Liability
Ashdown	90141	2	1	\$ 243.26	\$ 550.08	\$ 13,388	\$ 65,628	\$ 79,016	\$ 58,020	\$ 20,996	\$ 2,340
Ashdown (County)	90941	2	1	402.57	910.30	23,451	108,604	132,055	111,453	20,602	2,296
Batesville	90132	0	2	1,218.61	0.00	142,131	0	142,131	50,186	91,945	10,246
Benton District Court	90962	0	2	2,398.38	0.00	188,762	0	188,762	37,309	151,453	16,878
Biscoe	90159	0	1	150.00	0.00	17,905	0	17,905	732	17,173	1,914
Bryant	90133	0	1	517.50	0.00	36,034	0	36,034	(7,208)	43,242	4,819
Conway	90123	1	2	3,413.05	966.66	298,558	131,168	429,726	182,762	246,964	27,521
Dermott	90109	2	1	312.50	205.08	33,054	30,934	63,988	21,357	42,631	4,751
Dermott (County)	90909	2	1	312.50	205.08	33,054	30,934	63,988	21,357	42,631	4,751
Devalls Bluff	90359	0	1	225.00	0.00	27,219	0	27,219	1,414	25,805	2,876
East Camden	90252	1	2	578.37	89.23	63,110	11,520	74,630	18,706	55,924	6,232
Greenwood	90265	0	1	771.00	0.00	81,346	0	81,346	(7,896)	89,242	9,945
Helena	90154	2	0	0.00	27.72	0	2,576	2,576	(22,404)	24,980	2,784
Helena (County)	90954	2	0	0.00	27.72	0	2,576	2,576	(22,412)	24,988	2,785
Hope	90110	0	1	650.00	0.00	69,557	0	69,557	(22,986)	92,543	10,313
Hope (County)	90929	0	1	650.00	0.00	69,557	0	69,557	(13,728)	83,285	9,281
Lawrence County	90938	0	2	1,016.99	0.00	100,639	0	100,639	29,101	71,538	7,972
Little Rock	90260	9	15	20,491.00	4,244.95	2,131,482	554,101	2,685,583	1,160,644	1,524,939	169,936
Marked Tree	90256	0	1	948.14	0.00	58,473	0	58,473	(11,418)	69,891	7,788
Marshall	90964	0	1	701.31	0.00	59,956	0	59,956	10,102	49,854	5,556
Mt. Home	90103	0	2	2,844.09	0.00	281,120	0	281,120	55,531	225,589	25,139
Newport	90134	1	1	458.00	234.22	34,724	31,535	66,259	39,577	26,682	2,973
North Little Rock	90460	8	10	14,887.28	3,181.01	1,372,653	437,051	1,809,704	736,505	1,073,199	119,595
Ozark	90124	0	2	1,125.19	0.00	118,243	0	118,243	54,471	63,772	7,107
Ozark (County)	90924	0	2	1,125.19	0.00	118,243	0	118,243	52,487	65,756	7,328
Pocahontas	90161	0	2	676.25	0.00	88,914	0	88,914	32,466	56,448	6,290
Pocahontas (County)	90961	0	2	676.25	0.00	88,914	0	88,914	16,004	72,910	8,125
Prairie Grove	90372	0	2	1,861.93	0.00	180,051	0	180,051	(9,943)	189,994	21,172
Searcy	90273	1	2	1,383.33	1,179.36	96,165	133,857	230,022	137,420	92,602	10,319
Stuttgart	90201	1	2	704.61	530.85	43,363	66,926	110,289	78,385	31,904	3,555
Tyronza	90456	1	1	850.64	40.12	101,678	5,610	107,288	60,887	46,401	5,171
West Helena	90254	1	1	928.00	120.27	97,736	18,019	115,755	99,136	16,619	1,852
<b>UAL&gt;0 as of 6/30/2021</b>		<b>36</b>	<b>66</b>	<b>\$62,520.94</b>	<b>\$12,512.65</b>	<b>\$6,069,480</b>	<b>\$1,631,039</b>	<b>\$7,700,519</b>	<b>\$2,948,017</b>	<b>\$4,752,502</b>	<b>\$529,610</b>

Totals may not add due to rounding.

NOTE: Dewitt (90101) and Hamburg (90202) were removed this year due to having a negative UAL as of June 30, 2021. Wynne (90519) was removed due to making an additional UAL lump sum payment of \$76,291 during the year.





## District Judges

### Active Members in Valuation June 30, 2021

### 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									
50-54				1				1	\$ 152,088
55-59				1				1	152,088
60									
61				2				2	174,732
62									
63				1				1	152,088
64				3				3	384,887
65				1				1	152,088
66				1				1	152,088
67				1				1	29,361
68									
69									
70 & over				1				1	158,451
<b>Totals</b>				<b>12</b>				<b>12</b>	<b>\$1,507,871</b>

#### Group Averages

Age:	62.5 years
Benefit Service:	16.5 years
Eligibility Service:	20.6 years
Annual Pay:	\$125,656

## District Judges

### Change in Unfunded Actuarial Accrued Liabilities During the Period July 1, 2020 to June 30, 2021

	New Plan and Paid Off Old Plan	Still Paying Old Plan	Total
(1) UAAL* at beginning of year	\$ 3,228,589	\$ 5,635,127	\$ 8,863,716
(2) Normal cost from last valuation	337,914	-	337,914
(3) Actual contributions	937,725	702,475	1,640,200
(4) Interest accrual: [(1) + ½[(2) - (3)]]x .0715	209,401	377,798	587,199
(5) Expected UAAL before changes: (1) + (2) - (3) + (4)	2,838,179	5,310,450	8,148,629
(6) Increase from benefit changes	-	-	-
(7) Changes from revised actuarial assumptions and methods	-	-	-
(8) Expected UAAL after changes: (5) + (6) + (7)	2,838,179	5,310,450	8,148,629
(9) Actual UAAL at end of year	3,173,257	4,752,504	7,925,761
(10) Gain/(Loss): (8) - (9)	\$ (335,078)	\$ 557,946	\$ 222,868

\* 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%
6/30/19	26,127,578	35,407,678	9,280,100	73.8%	2,458,323	377.5%
6/30/20	26,976,127	35,839,843	8,863,716	75.3%	2,465,194	359.6%
<b>6/30/21</b>	<b>29,064,041</b>	<b>36,989,802</b>	<b>7,925,761</b>	<b>78.6%</b>	<b>1,507,871</b>	<b>525.6%</b>

@ After changes in actuarial assumptions and methods.

## **SECTION E**

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### **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-2006 Healthy Annuitant  
Generational Mortality Tables  
and 7.15% Interest  
June 30, 2021**

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) 2021 *	
	Men	Women	Men	Women	Men	Women
40	\$ 156.14	\$ 159.98	\$ 229.59	\$ 239.26	41.16	44.84
45	151.04	156.00	216.64	227.89	36.25	39.87
50	144.59	150.65	201.76	214.31	31.49	34.94
55	136.61	143.54	184.97	198.27	26.91	30.10
60	126.83	134.60	166.21	180.05	22.54	25.44
65	115.12	123.73	145.72	159.88	18.43	21.03
70	101.32	110.49	123.69	137.63	14.61	16.87
75	85.44	94.80	100.50	113.70	11.12	13.01
80	68.16	77.27	77.31	89.24	8.05	9.57
85	51.04	59.38	55.98	66.20	5.52	6.70

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	85	89
75	155	72	80
80	180	56	66

\* Applicable to calendar year 2021. 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, 2021

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, 2021**

<b>Service</b>	<b>Percent of Eligible Active Members Retiring Within Next Year</b>
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, 2021

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, 2021

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, 2021

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	0.22	0.13	0.34	0.34	1.00	3.25	4.25
55		2.1	2.1	0.37	0.22	0.60	0.60	0.68	3.25	3.93
60		1.3	1.3	0.65	0.34	0.85	0.85	0.42	3.25	3.67

\* Applicable to calendar year 2021. 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, 2021

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	0.22	0.13	0.39	0.39
55		0.8	0.8	0.37	0.22	0.71	0.71
60		0.8	0.8	0.65	0.34	1.13	1.13

\* Applicable to calendar year 2021. 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, 2021

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, 2021

### 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 \$60,000,000 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 10 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, 2021

### 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, 2021 valuation the reported payroll for these members was approximately \$124 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**

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### **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).

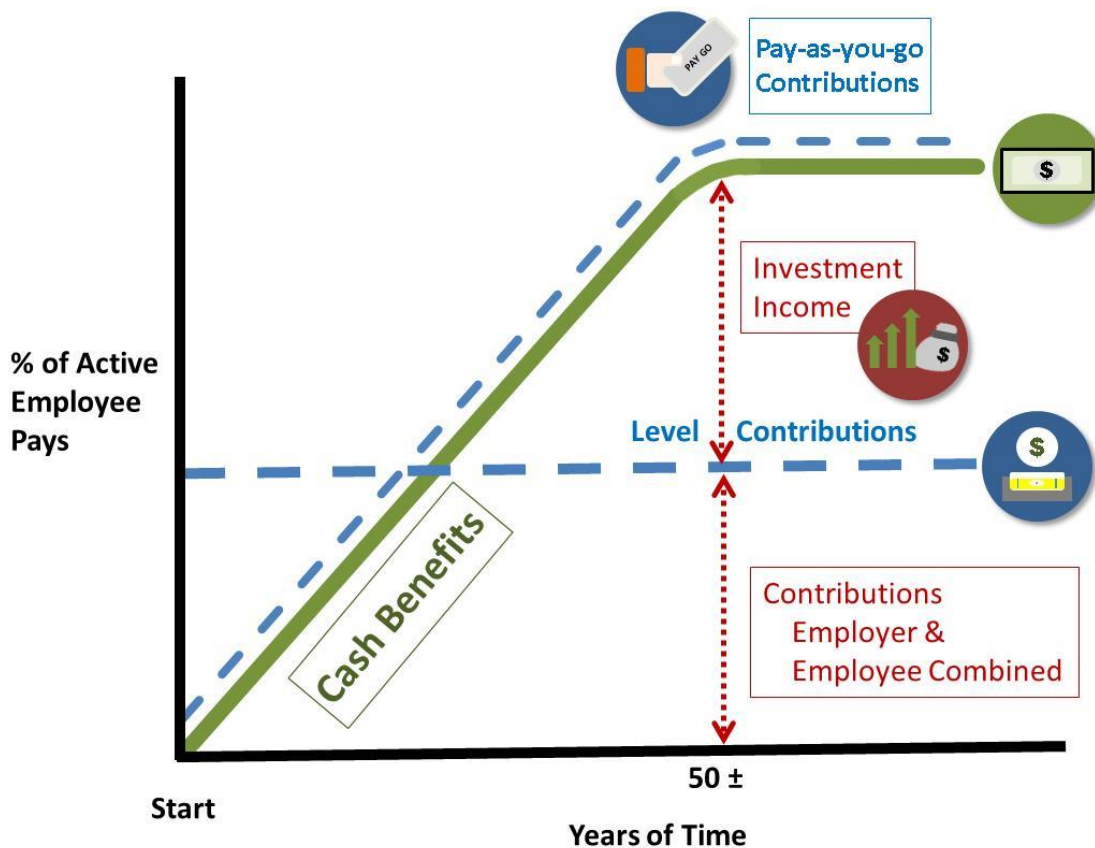
**Computing Contributions to Support Fund Benefits.** From a given schedule of benefits and from employee and asset data, the actuary calculates the contribution rates to support the benefits by means of ***an actuarial valuation and a funding method.***

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

# 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

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

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

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

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

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

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

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

**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.”

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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 5, 2021

Mr. Duncan Baird, 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, 2021 Actuarial Valuation and Gain/(Loss) Analysis of Financial Experience**

Dear Duncan:

Enclosed are 25 copies of this report.

Sincerely,  
Gabriel, Roeder, Smith & Company

A handwritten signature in black ink that reads "Mita Drazilov". The signature is written in a cursive, flowing style.

Mita D. Drazilov, ASA, FCA, MAAA

MDD:ah  
Enclosures

cc: David L. Hoffman, GRS