

**ARKANSAS TEACHER RETIREMENT SYSTEM**  
ANNUAL ACTUARIAL VALUATION OF ANNUITIES  
BEING PAID TO RETIREES AND BENEFICIARIES  
JUNE 30, 2013



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## REPORT OF ACTUARIAL VALUATION OF ATRS RETIRED LIVES

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December 16, 2013

Board of Trustees  
Arkansas Teacher Retirement System  
Little Rock, Arkansas

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

*The date of the valuation* was June 30, 2013 (using amounts payable as of July 1, 2013).

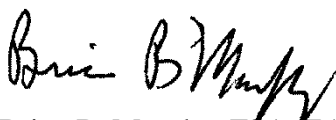
The valuation was based upon census data and financial information provided by the System's administrative staff. Data was checked for internal and year-to-year consistency, but was not otherwise audited. Preparation of this data requires considerable staff time. The helpful cooperation of the Arkansas Teacher Retirement System staff in furnishing the data is acknowledged with appreciation.

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

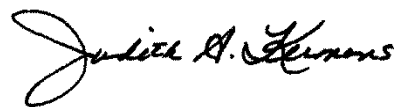
To the best of our knowledge, this report is complete and accurate and was made in accordance with standards of practice promulgated by the Actuarial Standards Board of the American Academy of Actuaries. The actuarial assumptions used for the valuation produce results which, individually and in the aggregate,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

This report has been prepared by actuaries who have substantial experience valuing public employee retirement systems. The signing actuaries are Members of the American Academy of Actuaries (MAAA) and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion contained herein.

Respectfully submitted,



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



Judith A. Kermans, EA, MAAA, FCA

BBM/JAK:bd

## COMMENTS

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As expected, during the year ended June 30, 2013 the number of retired lives increased, as did the total amount being paid monthly to retired lives.

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

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June 30	Retired Lives Receiving Benefits		
	No.	Annual Rates (millions)	% of Active Payroll
1967	3,846	\$ 6.27	
1972	5,453	11.08	
1977	7,524	23.96	
1982	8,828	36.64	
1987	10,526	66.45	10.0%
1992	12,033	115.50	10.7%
1997	14,233	194.90	15.0%
1998	14,802	220.38	16.1%
1999	15,887	248.75	17.4%
2000	16,657	280.14	18.9%
2001	17,778	309.03	19.8%
2002	19,199	334.15	20.5%
2003	20,271	359.98	21.4%
2004	21,428	386.23	22.1%
2005	22,680	415.04	21.2%
2006	24,153	449.77	21.6%
2007	25,611	484.55	21.1%
2008	26,801	515.56	21.5%
2009	28,818	564.59	22.8%
2010	30,587	612.77	23.1%
2011	32,099	657.08	24.1%
2012	34,160	709.17	26.1%
2013	36,254	763.76	28.0%

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

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# **FINANCIAL PRINCIPLES**

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## ANNUAL RESERVE TRANSFERS

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

Reserve Account	June 30, 2013 Balance Reported	Transfer Amount	June 30, 2013 Balance After Transfer
RRA	\$7,933,255,409	\$ 50,463,024	\$7,983,718,433
808 RRA	21,150,401	(59,012)	21,091,389
SBA	87,759,726	380,076	88,139,802
EAA	(3,033,603,218)	(50,784,088)	(3,084,387,306)
<b>Total</b>	<b>\$5,008,562,318</b>	<b>\$ 0</b>	<b>\$5,008,562,318</b>

Lump sum death benefits for retirees are paid from the Employer Accumulation Account and are not included in the figures shown in this report. The liabilities for lump sum death benefits for retirees are currently \$87.6 million.

## FINANCIAL PRINCIPLES AND OPERATIONAL TECHNIQUES

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

The related ***key financial questions*** are:

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

***The present taxpayers***, who receive the benefit of the member’s present year of service?

***Or the future taxpayers***, who happen to be in Arkansas at the time the IOU becomes a cash demand?

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The financial objective of the ATRS is that this year’s taxpayers contribute the money to cover the IOUs being handed out this year so that ***the employer contribution rate will remain approximately level from generation to generation*** -- our children and our grandchildren will not have to contribute greater percents of pay than we contribute now. This objective was set forth in Act 793 of 1977.

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

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

Translated to actuarial terminology, this level-cost objective means that the contribution rates must total at least the following:

Normal Cost (the cost of members' service being rendered this year)

... plus ...

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

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

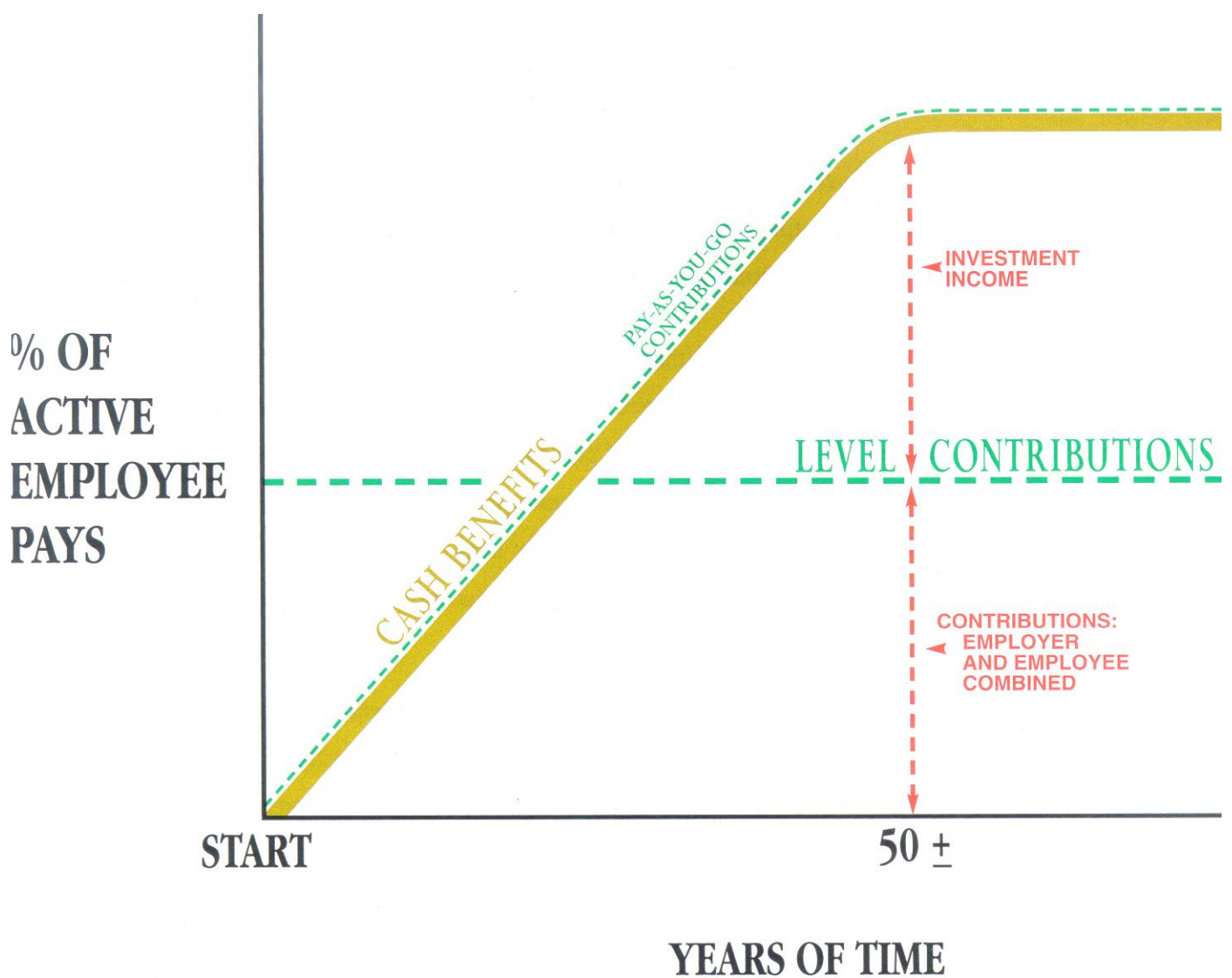
An actuarial valuation has a number of ingredients such as: the rate of investment income which plan assets will earn; the rates of withdrawal of active members who leave covered employment before qualifying for any monthly benefit; the rates of mortality; the rates of disability; the rates of pay increases;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

In an actuarial valuation, assumptions must be made as to what the above rates will be, for the next year and for decades in the future. Only the subsequent actual experience of the System can indicate the degree of accuracy of the assumptions.

***Reconciling Differences Between Assumed Experience and Actual Experience.*** Once actual experience has occurred and been observed, it will not coincide exactly with assumed experience, regardless of the accuracy of the assumptions or the skill of the actuary and the precision of the calculations made. The future can be predicted with considerable but not complete precision.

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





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

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

Economic Risk Areas

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

Non-Economic Risk Areas

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

## THE ACTUARIAL VALUATION PROCESS

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*The financing diagram* on the opposite page shows the relationship between the two fundamentally different philosophies of paying for retirement benefits: the method where contributions match cash benefit payments (or barely exceed cash benefit payments, as in the Federal Social Security program), and is thus an *increasing contribution method*; and the *level contribution method* which equalizes contributions between the generations.

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*The actuarial valuation* is the mathematical process by which the level contribution rate is determined, and the flow of activity constituting the valuation may be summarized as follows:

A. *Census data*, furnished by plan administrator

Retired lives now receiving benefits

Former employees with vested benefits not yet payable

Active employees

B. + *Asset data* (cash & investments), furnished by plan administrator

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

D. + *Assumptions concerning future financial experience in various risk areas*, which assumptions are established by the Board of Trustees after consulting with the actuary

E. + *The funding method* for employer contributions (the long-term planned pattern for employer contributions)

F. + *Mathematically combining the assumptions, the funding method, and the data*

G. = Determination of:

*Plan financial position*, and/or

*New Employer Contribution Rate*

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## **BENEFIT PROVISIONS**

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**SUMMARY OF PROVISIONS**  
**JUNE 30, 2013**

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**1. Post-Retirement Increases – A.C.A. §§ 24-7-713, 24-7-727 (compound COLA).**

Each July 1, annuities are adjusted to be equal to the base annuity times 100% plus 3% for each full year in the period from the effective date of the base annuity to the current July 1. The base annuity is the amount of the member's annuity on the later of July 1, 2001 or the effective date of retirement, as re-determined by Acts 396 of 1999 and 992 of 1997. The July 1, 2009 cost of living adjustment for retirees was compounded. The annuity was adjusted by multiplying 3% times the June 30, 2009 retirement benefit amount. After it was calculated on July 1, 2009, the base amount was reset to be the July 1, 2009 benefit amount. Future cost of living raises will be established by the new updated base amount. Future cost of living adjustments will be evaluated on an annual basis to determine if a simple or compound cost of living increase will be given, depending on the financial condition of the System. Act 967 of 2013 would allow the ATRS Board to reverse the compounding of a benefit and reset the base amount to the pre-compounding amount. If this were to occur, it would include participants in the T-DROP plan. The future benefits of a member would not be reduced to recover any benefits paid to a member as a result of the compounding. In addition, the member's benefit on the date of the reversal would not be impacted, but future COLA's would be based upon the reset base amount. This act is dependent upon the actuary's certification that the amortization period is in excess of 30 years to pay unfunded liabilities prior to any reversal of the compounding of the COLA.

**2. Lump Sum Death Benefit – A.C.A. § 24-7-720.** Beneficiaries of deceased active members or retirees with 10 or more years of ATRS credited service are eligible to receive a lump sum death benefit of up to \$10,000 (\$6,667 for non-contributory service-benefit). The amount will be prorated for members who have both contributory service and non-contributory service. Members with 15 or more years of contributory service will receive the full \$10,000 (Act 977 of 2011).

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

**SUMMARY OF PROVISIONS**  
**JUNE 30, 2013**

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4. **Act 793 Retirement – A.C.A. § 24-4-522.** Any employee who was a member of the rehabilitation services in 1977 was permitted to become a member of the Arkansas Public Employees Retirement System. Liabilities associated with prior service earned through June 30, 1978 remain in the Arkansas Teacher Retirement System. Future service is allocated to the Arkansas Public Employees Retirement System. Each July 1, annuities are adjusted by 3% (compound escalator).
  
5. **Retiree Health Stipend – A.C.A. § 24-7-713.** Each retired member as of June 30, 2008, with 5 or more years of ATRS credited service receives \$75 per month toward retiree health care premiums. Members in T-DROP do not receive the \$75 per month until actual retirement. For all members retiring on or after July 1, 2008, a minimum of 10 years of ATRS credited service is required to receive the \$75 per month stipend. Act 603 of 2013 allows the ATRS Board to increase or decrease the stipend to a minimum of \$1 per month and a maximum of \$75 per month. This act is dependent upon the actuary's certification that the amortization period is in excess of 30 years to pay unfunded liabilities prior to any reduction in the current stipend. The stipend for fiscal year 2015 remains at \$75 per month.
  
6. **T-DROP Cash Balance Account.** Effective July 1, 2012, a T-DROP cash balance account was established that allows members exiting T-DROP to place all or a portion of their T-DROP proceeds into a Cash Balance Account (CBA) at ATRS. The interest rate credited will be between 2.0% and 4.0%, increasing 25 basis points for each year on deposit.

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

**Option 1 (*Straight Life Annuity*)**

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

**Option A (*100% Survivor Annuity*)**

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

**SUMMARY OF PROVISIONS**  
**JUNE 30, 2013**

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**Option B (*50% Survivor Annuity*)**

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

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

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

Option Factors are based upon an 8.0% interest rate and the 1971 Group Annuity Mortality Table projected to 1984, with a 75% unisex mix.

**SAMPLE BENEFIT COMPUTATIONS FOR A MEMBER  
RETIRING JULY 1, 2013 WITH A  
SIMPLE 3% COLA**

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The data for the Example member is shown below.

Monthly retirement benefit as of July 1, 2013: \$2,500

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

<u>Year Ended June 30</u>	<u>Annual Amount</u>		<u>\$ Increase</u>
	<u>Base</u>	<u>Current</u>	
2014	\$30,000	\$30,000	\$ 0
2015	30,000	30,900	900
2016	30,000	31,800	900
2017	30,000	32,700	900
2018	30,000	33,600	900

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

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## **CHANGES IN PURCHASING POWER**

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**BENEFIT CHANGES DURING RECENT YEARS OF RETIREMENT  
& RELATED CHANGES IN PURCHASING POWER (1980 \$)**

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

\* The \$5,000 benefit used to begin this schedule is an arbitrary amount. A different beginning amount would show a different purchasing power amount, but the same in percent loss.

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

**BENEFIT CHANGES DURING RECENT YEARS OF RETIREMENT  
& RELATED CHANGES IN PURCHASING POWER (1990 \$)**

Year Ended June 30	Increase Beginning of Year	Benefit Dollars in Year*	Inflation (Loss) in Year#	Purchasing Power At Year End	
				1990 \$	% of 1990
1990	\$ - - - -	\$ 5,000	- - - -	\$5,000	100%
1991	150	5,150	(4.7)%	4,919	98%
1992	457	5,607	(3.1)%	5,195	104%
1993	475	6,082	(3.0)%	5,471	109%
1994	492	6,574	(2.5)%	5,770	115%
1995	182	6,756	(3.0)%	5,755	115%
1996	182	6,938	(2.8)%	5,751	115%
1997	330	7,268	(2.3)%	5,889	118%
1998	667	7,935	(1.7)%	6,324	126%
1999	177	8,112	(2.0)%	6,340	127%
2000	849	8,961	(3.7)%	6,756	135%
2001	826	9,787	(3.2)%	7,143	143%
2002	387	10,174	(1.1)%	7,346	147%
2003	270	10,444	(2.1)%	7,385	148%
2004	270	10,714	(3.3)%	7,337	147%
2005	270	10,984	(2.5)%	7,336	147%
2006	270	11,254	(4.3)%	7,205	144%
2007	270	11,524	(2.7)%	7,185	144%
2008	270	11,794	(5.0)%	7,002	140%
2009	270	12,064	1.4 %	7,265	145%
2010	362	12,426	(1.1)%	7,405	148%
2011	373	12,799	(3.6)%	7,366	147%
2012	373	13,171	(1.7)%	7,456	149%
2013	373	13,544	(1.8)%	7,535	151%
2014	373	13,917			

\* The \$5,000 benefit used to begin this schedule is an arbitrary amount. A different beginning amount would show a different purchasing power amount, but the same in percent loss.

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

**BENEFIT CHANGES DURING RECENT YEARS OF RETIREMENT  
& RELATED CHANGES IN PURCHASING POWER (2000 \$)**

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Year Ended June 30	Increase Beginning of Year	Benefit Dollars in Year*	Inflation (Loss) in Year#	Purchasing Power At Year End	
				2000 \$	% of 2000
2000	\$ - - - -	\$ 5,900	- - - -	\$5,900	100%
2001	177	6,077	(3.2)%	5,886	100%
2002	252	6,329	(1.1)%	6,065	103%
2003	179	6,508	(2.1)%	6,108	104%
2004	179	6,687	(3.3)%	6,078	103%
2005	179	6,867	(2.5)%	6,086	103%
2006	179	7,046	(4.3)%	5,987	101%
2007	179	7,225	(2.7)%	5,978	101%
2008	179	7,404	(5.0)%	5,834	99%
2009	179	7,583	1.4 %	6,061	103%
2010	228	7,811	(1.1)%	6,178	105%
2011	234	8,045	(3.6)%	6,145	104%
2012	234	8,280	(1.7)%	6,221	105%
2013	234	8,515	(1.8)%	6,287	107%
2014	234	8,749			

\* The \$5,900 benefit used to begin this schedule is an arbitrary amount. A different beginning amount would show a different purchasing power amount, but the same in percent loss.

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

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## **VALUATION DATA**

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**SUMMARY OF  
ANNUITIES BEING PAID RETIREES AND BENEFICIARIES JULY 1, 2013  
BY DISBURSING ACCOUNT AND GENDER**

Disbursing Account	Men		Women		Totals	
	No.	Annual Annuities	No.	Annual Annuities	No.	Annual Annuities
<b>Retirement Reserve Account</b>						
Age & Service Annuities						
Retirees	7,741	\$ 193,183,279	24,040	\$502,286,957	31,781	\$ 695,470,236
Beneficiaries	220	3,895,673	602	12,124,124	822	16,019,797
Totals	7,961	197,078,952	24,642	514,411,081	32,603	711,490,033
Disability						
Retirees	506	7,071,298	1,924	26,624,060	2,430	33,695,358
Beneficiaries	152	2,059,386	148	2,343,631	300	4,403,017
Totals	658	9,130,684	2,072	28,967,691	2,730	38,098,375
Act 793	111	1,451,654	100	744,645	211	2,196,299
Total retirees and beneficiaries being paid from Retirement Reserve Account	8,730	207,661,290	26,814	544,123,417	35,544	751,784,707
<b>Survivor's Benefit Account</b>	302	3,591,344	330	4,900,323	632	8,491,667
<b>Act 808</b>	44	2,444,801	34	1,040,052	78	3,484,853
<b>Totals</b>	<b>9,076</b>	<b>213,697,435</b>	<b>27,178</b>	<b>550,063,792</b>	<b>36,254</b>	<b>763,761,227</b>
Prior Year Totals	8,681	\$ 202,316,111	25,479	\$506,855,443	34,160	\$ 709,171,554

**SUMMARY OF  
ANNUITIES BEING PAID RETIREES AND BENEFICIARIES JULY 1, 2013  
BY DISBURSING ACCOUNT AND SOURCE OF FINANCING**

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Disbursing Account	Annual Annuities		Total	
	Employee Financed	Employer Financed	No.	Annual Annuities
<b>Retirement Reserve Account</b>				
Age & Service Annuities				
Retirees	\$ 81,178,004	\$ 614,292,232	31,781	\$ 695,470,236
Beneficiaries	691,189	15,328,608	822	16,019,797
Totals	81,869,193	629,620,840	32,603	711,490,033
Disability				
Retirees	2,797,028	30,898,330	2,430	33,695,358
Beneficiaries	248,566	4,154,451	300	4,403,017
Totals	3,045,594	35,052,781	2,730	38,098,375
Act 793	187,195	2,009,104	211	2,196,299
Total retirees and beneficiaries being paid from Retirement Reserve Account	85,101,982	666,682,725	35,544	751,784,707
<b>Survivor's Benefit Account</b>	555,088	7,936,579	632	8,491,667
<b>Act 808</b>	187,392	3,297,461	78	3,484,853
<b>Totals</b>	<b>85,844,462</b>	<b>677,916,765</b>	<b>36,254</b>	<b>763,761,227</b>
Prior Year Totals	\$ 85,662,243	\$ 623,509,311	34,160	\$ 709,171,554

**ANNUITIES BEING PAID RETIREES AND BENEFICIARIES JULY 1, 2013**  
**BY TYPE OF ANNUITY BEING PAID**

Type of Annuity	No.	Annual Amounts		
		Original Annuities	Base Annuities	Current Annuities
<b>RETIREMENT RESERVE ACCOUNT</b>				
Age & Service				
Option 1 (Basic single life)	25,200	\$ 356,544,245	\$ 479,326,673	\$ 533,159,118
Option A (Joint & 100% Survivor)	3,797	62,149,229	76,973,949	85,562,892
Option B (Joint & 50% Survivor)	2,039	43,397,552	56,074,927	62,428,959
Option C (10 year certain)	745	11,581,432	12,937,694	14,319,267
Beneficiaries	822	12,510,511	14,330,011	16,019,797
Totals	32,603	486,182,969	639,643,254	711,490,033
Disability				
Option 1	1,976	18,484,214	24,801,823	27,461,902
Option A	314	3,240,672	3,841,308	4,227,825
Option B	78	1,005,069	1,250,440	1,382,037
Option C	62	537,230	563,027	623,594
Beneficiaries	300	2,972,389	3,943,549	4,403,017
Totals	2,730	26,239,574	34,400,147	38,098,375
Act 793	211	1,249,974	2,196,299	2,196,299
Totals	35,544	513,672,517	676,239,700	751,784,707
<b>SURVIVOR'S BENEFIT ACCOUNT</b>				
Beneficiaries of Deceased Members	632	\$ 5,704,975	\$ 7,663,423	\$ 8,491,667
<b>ACT 808</b>				
Act 808	78	\$ 1,384,760	\$ 3,484,853	\$ 3,484,853
<b>RETIREMENT SYSTEM TOTALS</b>				
Total Annuities Being Paid	36,254	\$ 520,762,252	\$ 687,387,976	\$ 763,761,227

**The Original Annuity** is the annuity at the date of retirement.

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

**The Current Annuity** is the annuity payable at July 1, 2013.

**ANNUITIES BEING PAID JULY 1, 2013  
FROM THE RETIREMENT RESERVE ACCOUNT TO  
AGE AND SERVICE RETIREES AND BENEFICIARIES  
BY ATTAINED AGES**

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Attained Age	Annual Amounts			
	No.	Original Annuities	Base Annuities	Current Annuities
Under 40	10	\$ 121,515	\$ 118,622	\$ 132,857
40-44	4	51,535	51,457	57,633
45-49	25	429,538	433,385	452,362
50-54	325	7,850,079	7,929,478	8,537,481
55-59	1,420	37,311,178	39,660,102	43,953,603
60-64	6,788	120,252,094	135,321,577	149,102,693
65-69	9,108	145,305,543	175,283,179	194,847,997
70-74	6,475	88,511,699	120,575,175	134,955,175
75-79	3,916	45,910,734	72,853,176	81,557,196
80-84	2,508	25,599,188	48,339,052	54,130,815
85-89	1,319	10,760,999	25,508,751	28,566,098
90-94	541	3,307,670	10,489,594	11,746,850
95 & Up	164	771,197	3,079,706	3,449,273
<b>Totals</b>	<b>32,603</b>	<b>\$486,182,969</b>	<b>\$639,643,254</b>	<b>\$711,490,033</b>



**ANNUITIES BEING PAID JULY 1, 2013**  
**FROM THE RETIREMENT RESERVE ACCOUNT TO**  
**DISABILITY RETIREES AND BENEFICIARIES BY ATTAINED AGES**

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Attained Age	Annual Amounts			
	No.	Original Annuities	Base Annuities	Current Annuities
Under 40	41	\$ 339,728	\$ 343,763	\$ 372,152
40-44	44	340,679	345,788	368,952
45-49	109	1,042,107	1,081,617	1,153,182
50-54	290	2,831,335	3,009,854	3,270,414
55-59	516	5,202,283	5,724,822	6,265,042
60-64	648	6,667,326	7,754,202	8,597,093
65-69	500	5,175,260	6,907,020	7,730,530
70-74	266	2,539,830	4,082,890	4,572,823
75-79	131	1,124,706	2,186,562	2,448,951
80-84	92	557,527	1,528,201	1,711,589
85-89	60	297,053	961,683	1,077,053
90-94	25	99,074	369,685	414,046
95 & Up	8	22,666	104,060	116,548
<b>Totals</b>	<b>2,730</b>	<b>\$26,239,574</b>	<b>\$34,400,147</b>	<b>\$38,098,375</b>

**ANNUITIES BEING PAID JULY 1, 2013  
FROM THE RETIREMENT RESERVE ACCOUNT TO  
ACT 793 RETIREES AND BENEFICIARIES BY ATTAINED AGES**

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Attained Age	Annual Amounts		
	No.	Original Annuities	Current Annuities
Under 40	-	\$ -	\$ -
40-44	-	-	-
45-49	-	-	-
50-54	-	-	-
55-59	5	14,630	19,675
60-64	26	89,391	125,469
65-69	51	269,175	405,424
70-74	44	310,473	506,986
75-79	33	234,692	401,474
80-84	30	200,461	402,282
85-89	19	113,912	289,449
90-94	3	17,240	45,540
95 & Up	-	-	-
<b>Totals</b>	<b>211</b>	<b>\$1,249,974</b>	<b>\$2,196,299</b>

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

**ANNUITIES BEING PAID JULY 1, 2013  
FROM THE RETIREMENT RESERVE ACCOUNT TO  
SURVIVOR BENEFICIARIES BY ATTAINED AGES**

---

Attained Age	Annual Amounts			
	No.	Original Annuities	Base Annuities	Current Annuities
Under 40	131	\$ 661,092	\$ 712,200	\$ 780,717
40-44	14	101,130	110,884	121,488
45-49	13	46,929	54,992	59,462
50-54	35	392,138	426,404	458,923
55-59	60	815,892	914,451	1,011,795
60-64	92	1,197,148	1,380,680	1,526,229
65-69	102	1,178,148	1,483,368	1,647,853
70-74	78	675,371	1,009,599	1,126,808
75-79	50	375,253	739,640	827,643
80-84	36	198,628	574,789	643,764
85-89	13	48,323	170,798	191,293
90-94	5	11,739	65,497	73,357
95 & Up	3	3,184	20,121	22,335
<b>Totals</b>	<b>632</b>	<b>\$5,704,975</b>	<b>\$7,663,423</b>	<b>\$8,491,667</b>

**ANNUITIES BEING PAID JULY 1, 2013  
FROM THE RETIREMENT RESERVE ACCOUNT TO  
ACT 808 RETIREES AND BENEFICIARIES BY ATTAINED AGES**

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Attained Age	Annual Amounts		
	No.	Original Annuities	Current Annuities
Under 40	-	\$ -	\$ -
40-44	-	-	-
45-49	-	-	-
50-54	-	-	-
55-59	-	-	-
60-64	-	-	-
65-69	-	-	-
70-74	2	24,523	63,962
75-79	13	252,206	637,731
80-84	27	463,435	1,169,846
85-89	27	544,945	1,349,703
90-94	8	95,078	251,100
95 & Up	1	4,573	12,511
<b>Totals</b>	<b>78</b>	<b>\$1,384,760</b>	<b>\$3,484,853</b>

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

**RETIREE AND BENEFICIARY DATA  
AS OF JUNE 30**

Year	Estimated Number		Total Retirees	Annual Allowances (Millions)	% Increase in Annual Allowances	Average Annual Allowances
	Added	Removed				
1990	588	337	11,654	\$ 92.69	7.0%	\$ 7,954
1991	489	253	11,890	104.60	12.8%	8,797
1992	455	312	12,033	115.50	10.4%	9,599
1993	589	316	12,306	129.71	12.3%	10,540
1994	846	512	12,640	141.87	9.4%	11,224
1995	908	342	13,206	156.59	10.4%	11,857
1996	1,107	654	13,659	170.59	8.9%	12,489
1997	1,049	475	14,233	194.90	14.3%	13,694
1998	809	240	14,802	220.38	13.1%	14,888
1999	1,582	497	15,887	248.75	12.9%	15,658
2000	1,249	479	16,657	280.14	12.6%	16,818
2001	1,571	450	17,778	309.03	10.3%	17,383
2002	1,989	568	19,199	334.15	8.1%	17,404
2003	1,621	549	20,271	359.98	7.7%	17,758
2004	1,685	528	21,428	386.23	7.3%	18,025
2005	1,822	570	22,680	415.04	7.5%	18,300
2006	1,958	485	24,153	449.77	8.4%	18,622
2007	2,017	559	25,611	484.55	7.7%	18,920
2008	1,703	513	26,801	515.56	6.4%	19,237
2009	2,721	704	28,818	564.59	9.5%	19,591
2010	2,588	819	30,587	612.77	8.5%	20,034
2011	2,394	882	32,099	657.08	7.2%	20,470
2012	2,932	871	34,160	709.17	7.9%	20,760
2013	3,039	945	36,254	763.76	7.7%	21,067

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

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## **REPORTED ASSETS**

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*The assets* of the Retirement System, as of June 30, 2013, were reported to your actuary to be \$12,829,565,578. This amount, together with a funding value adjustment of \$(582,760,381), is used to finance the Retirement System liability.

Accounts	Assets at June 30	
	2013	2012
Regular Accounts		
Members' Deposit Accounts		
Contributions	\$ 1,001,177,347	\$ 955,909,055
Interest	6,215,559,708	5,157,081,946
Total	7,216,737,055	6,112,991,001
T-Drop Member Deposit Accounts		
Contributions	25,387,239	24,701,972
Interest	57,429,987	60,072,472
Total	82,817,226	84,774,444
Cash Balance Account	14,034,807	-
Employer's Accumulation Account	(3,033,603,218)	(2,742,643,657)
Retirement Reserve Account	7,933,255,409	7,397,906,995
Act 808 Retirement Reserve Account	21,150,401	23,965,228
T-Lump Payable	497,306,284	515,374,106
Survivors Benefit Account	87,759,726	82,111,923
Total Regular Accounts	12,819,457,690	11,474,480,040
Other Accounts		
Income Expense Account	10,107,888	9,405,469
Other Special Reserves	-	-
Miscellaneous	-	-
Total Other Accounts	10,107,888	9,405,469
Total Accounting Value of Assets	12,829,565,578	11,483,885,509
Market Value Adjustment	(582,760,381)	-
<b>Funding Value of Assets</b>	<b>\$12,246,805,197</b>	<b>\$11,483,885,509</b>

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## **VALUATION RESULTS**

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**LIABILITIES FOR ANNUITIES BEING PAID JULY 1, 2013**  
**TABULATED BY TYPE OF ANNUITY BEING PAID**

Type of Annuity	Liabilities July 1, 2013*		
	Men	Women	Totals
<b>RETIREMENT RESERVE ACCOUNT</b>			
Age & Service Annuities			
Option 1 (Straight Life)	\$ 1,087,926,206	\$ 4,352,246,713	\$ 5,440,172,919
Option A (100% Joint & Survivor)	589,287,713	508,428,790	1,097,716,503
Option B ( 50% Joint & Survivor)	310,700,370	408,382,646	719,083,016
Option C (10 Years Certain & Life)	40,543,004	134,821,353	175,364,357
Beneficiaries	31,664,037	107,224,301	138,888,338
Total Age & Service	2,060,121,330	5,511,103,803	7,571,225,133
Disability Annuities			
Option 1	40,057,848	229,971,906	270,029,754
Option A	23,953,381	32,647,145	56,600,526
Option B	5,123,435	10,183,653	15,307,088
Option C	1,076,286	6,497,314	7,573,600
Beneficiaries	20,546,153	22,925,328	43,471,481
Total Disability	90,757,103	302,225,346	392,982,449
Act 793	12,611,934	6,898,917	19,510,851
Total Retirement Reserve Account	2,163,490,367	5,820,228,066	7,983,718,433
<b>SURVIVORS' BENEFIT ACCOUNT</b>			
Beneficiaries of Deceased Members	\$ 37,305,524	\$ 50,834,278	\$ 88,139,802
<b>OTHER LIABILITIES</b>			
Act 808	\$ 14,580,788	\$ 6,510,601	\$ 21,091,389
<b>RETIREMENT SYSTEM TOTALS</b>			
Total Annuity Liabilities	\$ 2,215,376,679	\$ 5,877,572,945	\$ 8,092,949,624

\* Does not include liabilities associated with lump sum death benefit.

**RETIREMENT RESERVE ACCOUNT**  
**COMPARATIVE STATEMENT OF ANNUITIES, ACCRUED LIABILITIES AND ASSETS**  
**(\$ MILLIONS)**

Valuation Date June 30	Annual Annuities Being Paid			Average	Computed Liabilities	Applicable Assets	Unfunded Retired Life Liabilities	Ratio of Assets to Liabilities
	No.	Amount	% Incr.					
1975*	6,381	\$ 19.80	21.4%	\$ 3,102	\$ 188.00	\$ 142.9	\$ 45.1	76.0%
1980*#	8,001	30.10	3.5%	3,761	280.7	280.7	none	100.0%
1985*+	9,331	51.49	13.6%	5,518	479.9	479.9	none	100.0%
1990	11,054	87.84	7.2%	7,946	847.7	847.7	none	100.0%
1995	12,622	150.45	10.8%	11,920	1,428.6	1,428.6	none	100.0%
2000* ##	16,172	275.65	14.6%	17,045	2,828.8	2,828.8	none	100.0%
2005	22,147	409.42	7.5%	18,486	4,148.1	4,148.1	none	100.0%
2006	23,606	443.98	8.4%	18,808	4,483.4	4,483.4	none	100.0%
2007	25,038	478.30	7.7%	19,103	4,816.4	4,816.4	none	100.0%
2008	26,258	509.29	6.5%	19,396	5,391.3	5,391.3	none	100.0%
2009	28,228	557.83	9.5%	19,762	5,891.9	5,891.9	none	100.0%
2010	29,969	605.55	8.6%	20,206	6,358.0	6,358.0	none	100.0%
2011**	31,498	649.47	7.3%	20,619	6,972.6	6,972.6	none	100.0%
2012	33,533	701.09	7.9%	20,907	7,481.0	7,481.0	none	100.0%
2013	35,622	755.26	7.7%	21,202	8,004.8	8,004.8	none	100.0%

\* Includes amendments which increased benefits to retirees.

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

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

## Includes Act 808 and Act 793 retirees beginning in 2000.

\*\* After changes in assumptions.

**SURVIVORS' BENEFIT ACCOUNT  
ACCRUED LIABILITIES AND ASSETS  
COMPARATIVE STATEMENT**

Valuation Date June 30	Annual Annuities Being Paid		Computed Liabilities	Applicable Assets	Unfunded Accrued Liabilities	Ratio of Assets to Liabilities
	No.	Amount				
1975*	274	\$ 462,116	\$ 4,321,044	\$ 4,098,953	\$ 222,091	94.9%
1980*#	393	772,631	7,042,644	7,042,644	none	100.0%
1985*+	421	1,240,399	12,411,800	12,411,800	none	100.0%
1990	424	1,830,743	18,117,244	18,117,244	none	100.0%
1995	416	2,723,940	26,220,218	26,220,218	none	100.0%
2000*	485	4,487,519	43,701,138	43,701,138	none	100.0%
2005	533	5,619,675	56,257,745	56,257,745	none	100.0%
2006	547	5,791,974	57,605,939	57,605,939	none	100.0%
2007	573	6,250,603	63,481,565	63,481,565	none	100.0%
2008	543	6,269,551	66,496,539	66,496,539	none	100.0%
2009	590	6,761,034	70,857,161	70,857,161	none	100.0%
2010	618	7,224,585	75,108,334	75,108,334	none	100.0%
2011**	601	7,605,212	81,150,385	81,150,385	none	100.0%
2012	627	8,081,913	84,930,745	84,930,745	none	100.0%
2013	632	8,491,667	88,139,802	88,139,802	none	100.0%

\* Includes amendments.

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

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

\*\* After changes in assumptions.

**ANNUAL ALLOWANCES OF RETIRED LIVES  
BY YEAR OF RETIREMENT  
AS OF JUNE 30, 2013**

Calendar Year of Retirement	No.	Annual Amount Being Paid			Average
		Original	Total Increase	Current	
2013*	588	\$ 6,196,181	\$ 245,394	\$ 6,441,575	\$ 10,955
2012	2,877	45,246,811	5,368,225	50,615,036	17,593
2011	2,564	41,142,871	6,093,578	47,236,449	18,423
2010	2,233	35,338,045	6,752,204	42,090,249	18,849
2009	2,333	37,295,131	8,612,419	45,907,550	19,677
2008	2,241	34,522,715	8,723,608	43,246,323	19,298
2007	2,131	32,153,486	8,860,741	41,014,227	19,246
2006	1,918	29,087,968	9,330,192	38,418,160	20,030
2005	1,880	29,085,921	10,644,004	39,729,925	21,133
2004	1,696	24,530,397	9,346,841	33,877,238	19,975
2003	1,527	21,766,337	8,926,036	30,692,373	20,100
2002	1,460	21,772,330	9,423,298	31,195,628	21,367
2001	1,595	20,679,062	9,672,958	30,352,020	19,029
2000	1,316	19,781,823	10,449,454	30,231,277	22,972
1999	1,155	16,134,419	10,021,040	26,155,459	22,645
1998	1,148	14,517,507	10,114,061	24,631,568	21,456
1997	846	12,559,595	9,728,492	22,288,087	26,345
1996	731	11,121,628	8,950,007	20,071,635	27,458
1995	764	11,746,911	10,032,577	21,779,488	28,507
1994	785	12,144,575	11,195,709	23,340,284	29,733
1993	601	9,190,026	8,926,661	18,116,687	30,144
1992	457	5,725,421	6,590,136	12,315,557	26,949
1991	332	3,491,053	4,686,110	8,177,163	24,630
1990	377	3,853,565	5,770,046	9,623,611	25,527
1989	365	3,827,662	5,960,957	9,788,619	26,818
1988	387	3,904,675	6,461,959	10,366,634	26,787
1987	419	4,036,040	7,575,824	11,611,864	27,713
1986	281	2,461,752	5,071,583	7,533,335	26,809
1985	268	2,181,746	4,540,182	6,721,928	25,082
1984	177	1,260,977	3,001,637	4,262,614	24,083
1983	166	1,095,063	2,520,195	3,615,258	21,779
1982	107	651,476	1,831,820	2,483,296	23,208
1981	129	735,827	2,010,683	2,746,510	21,291
1980	73	341,445	1,147,678	1,489,123	20,399
1979	72	302,241	1,021,797	1,324,038	18,389
Before 1979	255	879,570	3,390,869	4,270,439	16,747
<b>TOTAL</b>	<b>36,254</b>	<b>\$520,762,252</b>	<b>\$242,998,975</b>	<b>\$763,761,227</b>	<b>\$21,067</b>

\* Reporting for calendar year 2013 is not yet complete. The July 1<sup>st</sup> retirees are not included in the schedule.

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## **APPENDIX**

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## APPENDIX

*Single Life Retirement Values  
Based on RP-2000 Mortality Tables Projected  
25 Years with Scale AA (95% for Men & 87% for Women) & 8.0% Interest*

Sample Attained Ages	Present Value of \$1.00 Monthly for Life		Present Value of \$1 Monthly for Life Increasing 3.0% Annually		Future Life Expectancy (years)		Percent Dying within Next Year	
	Men	Women	Men	Women	Men	Women	Men	Women
40	\$147.45	\$148.74	\$192.83	\$195.36	43.26	45.92	0.08 %	0.04 %
45	144.24	145.78	186.54	189.56	38.45	41.03	0.10 %	0.07 %
50	139.69	141.63	178.19	181.91	33.65	36.18	0.13 %	0.10 %
55	133.32	135.93	167.29	172.06	28.89	31.39	0.21 %	0.19 %
60	124.93	128.62	153.79	160.06	24.28	26.77	0.43 %	0.39 %
65	114.53	119.62	137.94	146.03	19.92	22.41	0.85 %	0.74 %
70	102.19	109.01	120.09	130.24	15.89	18.36	1.45 %	1.28 %
75	87.25	96.62	99.84	112.72	12.15	14.64	2.53 %	2.00 %
80	70.65	82.27	78.66	93.60	8.86	11.25	4.76 %	3.35 %
85	54.64	66.59	59.29	73.90	6.25	8.29	8.83 %	5.80 %
Ref:	472 x 0.95	473 x 0.87	472 x 0.95	473 x 0.87				

Sample Attained Ages	Benefit Increasing 3.0% Yearly	Portion of Age 60 Lives Still Alive	
		Men	Women
60	\$100.00	100%	100%
65	115.00	97%	97%
70	130.00	92%	93%
75	145.00	84%	86%
80	160.00	71%	76%
Ref		472 x 0.95	473 x 0.87

For disabled retirees the mortality table used was the 1983 Group Annuity Mortality Table set forward 5 years.

December 16, 2013

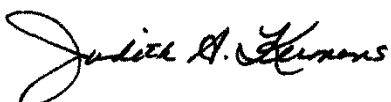
Mr. George Hopkins  
Executive Director  
Arkansas Teacher Retirement System  
1400 West Third  
Little Rock, Arkansas 72201

**Re: Report of June 30, 2013 Actuarial Valuation of Retirees & Beneficiaries**

Dear Mr. Hopkins:

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

Sincerely,



Judith A. Kermans, EA, MAAA, FCA

JAK:bd  
Enclosures