



Arizona State Retirement System

**Actuarial Report on the
Valuation of the System**

As of June 30, 2012



January 23, 2013

Retirement Board
Arizona State Retirement System
3300 North Central Avenue
14th Floor
Phoenix, Arizona 85012

Actuarial Valuation of the System as of June 30, 2012

Dear Retirement Board Members:

We certify that the information contained in the attached 2012 actuarial valuation report is accurate and fairly presents the actuarial position of the defined contribution program administered by the Arizona State Retirement System (the System) as of June 30, 2012.

We have made all calculations for this report in conformity with generally accepted actuarial principles and practices, and with the Actuarial Standards of Practice issued by the Actuarial Standards Board. In our opinion, the report's results comply with the requirements of the Arizona Constitution and statutes and, where applicable, the Internal Revenue Code, the Employee Retirement Income Security Act of 1974 (ERISA), and the Statements of the Governmental Accounting Standards Board. The undersigned actuaries are independent. They are both Enrolled Actuaries, members of the American Academy of Actuaries and one is a Fellow and one is an Associate of the Society of Actuaries. They meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions contained in this report. They are experienced in performing valuations for large public retirement systems and are fully qualified to provide actuarial services to the State of Arizona. They are available to answer any questions.

Actuarial Valuations

The primary purpose of the valuation report is to determine the funded status (i.e., the ratio of market assets to total liabilities) as of June 30, 2012. Arizona State Retirement System (ASRS) former rules call for the reduction of benefits whenever the funded status is less than 95%. The former rules permit benefits to be increased if the funded status exceeds 105%. Based on the Arizona Attorney General's opinion letter of November 24, 2009, which the Board has adopted, System benefits cannot be "diminished or impaired" as defined under Article 29 of the Arizona Constitution. The ASRS Plan guarantees benefits for members who retired or will retire on or after July 1, 1981. The State guarantees the other System benefits. System liabilities of \$406,514,877 (System liability valued using Plan assumptions) for post-June 30, 1981 retirees are included in the Plan valuation. The liability for pre-July 1981 retirees is \$511,335, of which \$85,137 is not funded.

Valuations of the System shall be performed annually, as of June 30, the last day of both the System's year and ASRS' fiscal year.

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Benefit Provisions

Each employer and each active member contribute 7% of the active members' compensation to the System. These amounts accumulate with assumed interest before retirement. If the Board authorizes supplemental credits, non-retired members' balances are increased. When members retire, the System converts their accumulated account balances into actuarially equivalent monthly annuity payments, using interest and mortality assumptions. Supplemental credits that arise after retirement are distributed to the retired members in the form of 13th checks. These checks are the annual annuity amounts equivalent to the post-retirement supplemental credits.

There have been no changes in benefit provisions since last year's valuation.

Assumptions and Methods

We assume investment earnings of 8%, net of all expenses.

We assume that mortality experience follows the 1994 GAM – Generational table with Projection Scale AA, with rates at each age equal to 50% of the male rate plus 50% of the female rate and further improved mortality for members with annual System income greater than \$14,400. The adjustment for large amounts was to apply the following factors to the baseline mortality rates:

Age	Factor
0 – 49	No Adjustment
50 – 75	80%
76 – 111	86%
112	88%
113	90%
114	92%
115	94%
116	96%
117	98%
118 and over	No Adjustment

This mortality assumption includes an assumption about mortality improvement before and after the valuation date.

There have been no changes in assumptions and/or methods since the prior valuation.

The valuation calculates liabilities for nonretired members to be their account balances. For retired members, the liability is the present value of remaining monthly annuity and annual 13th check payments. We value assets at market (as reported by ASRS staff), and divide the market value of assets by total liabilities. The ratio is the funded status.

Executive Summary

The table below develops the funded status of the System (including both benefits guaranteed by the Plan and benefits guaranteed by the State) as of June 30, 2012:

Assets at market	\$	354,380,490
Liabilities for:		
Nonretired members	\$	33,032,926
Retired members – monthly annuities		349,068,942
Retired members – 13 th checks		<u>43,088,693</u>
Total	\$	425,190,561
Funded status (assets/liabilities)		83.35%

ASRS former rules say that benefits must be reduced when the System’s funded status is less than 95%, and that the Board may increase benefits when funded status is greater than 105%. In this valuation, funded status is 83.35%. Due to the Attorney General’s opinion letter of November 24, 2009, which the Board has adopted, the ASRS Plan guarantees benefits for members who retired or will retire on or after July 1, 1981. The State guarantees the other System benefits. System liabilities of \$406,514,877 (System liability valued using Plan assumptions) for post-June 30, 1981 retirees are included in the Plan valuation. The liability for pre-July 1981 retirees is \$511,335.

The tables that follow are organized as follows:

Table 1	Demographic Data
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Table 5	Gain and Loss Analysis
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Table 7	System Provisions
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In preparing this actuarial valuation, we have relied on census data and asset information provided by the staff of the ASRS. While we have not verified the data at their source, we have performed tests for consistency and reasonableness. We find the data to be consistent and reasonable.

Sincerely,


Charles E. Chittenden, FSA, EA, MAAA
Principal and Consulting Actuary


Douglas J. Fiddler, ASA, EA, MAAA
Director, Retirement Actuary

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Table 1
Demographic Data

CENSUS DATA FOR NONRETIRED MEMBERS

	6/30/2011	6/30/2012
Active Members		
Number of members	18	11
Total of balances	\$ 28.7 million	\$ 18.0 million
Average balance	\$ 1,592,324	\$ 1,639,853
Average age	66.0	65.1
Inactive Members		
Number of members	43	36
Total of balances	\$ 12.9 million	\$ 11.0 million
Average balance	\$ 299,080	\$ 304,892
Average age	78.7	80.8

CENSUS DATA FOR RETIRED MEMBERS

	6/30/2011	6/30/2012
Annuity		
Number receiving	1,493	1,446
Average age of members receiving	78.3	78.9
Total annual amount	\$ 39.4 million	\$ 39.9 million
Average annual amount	\$ 26,416	\$ 27,621
Median annual amount	\$ 14,628	\$ 15,658
Maximum annual amount	\$ 212,258	\$ 295,494
13th Check		
Number receiving	1,043 *	985 **
Average age of members receiving	81.0	81.7
Total annual amount	\$ 6.4 million	\$ 6.1 million
Average annual amount	\$ 6,183	\$ 6,170
Median annual amount	\$ 4,002	\$ 3,956
Maximum annual amount	\$ 46,527	\$ 44,800

* 1,357 eligible for 13th checks. 314 have zero 13th check amounts (i.e., no supplemental credits since retirement).

** 1,304 eligible for 13th checks. 319 have zero 13th check amounts (i.e., no supplemental credits since retirement).

**Data Reconciliation
as of June 30, 2012**

	Active Members	Inactive, Non-Retired Members	Retired Members and Beneficiaries	Total
As of June 30, 2011	18	43	1,493	1,554
Vested Terminations	0	0	0	0
Nonvested Terminations	0	0	0	0
Transfer Out	0	0	0	0
Disabled	0	0	0	0
Retirements	(6)	(5)	11	0
New Beneficiaries	0	0	14	14
Deaths with Beneficiary	0	0	(14)	(14)
Deaths without Beneficiary	(1)	(1)	(57)	(59)
Benefit Termination/Cashout	0	(1)	(1)	(2)
Data Adjustments	0	0	0	0
Net Change	(7)	(7)	(47)	(61)
As of June 30, 2012	11	36	1,446	1,493

Distribution of Active Members by Age and Years of Service
Total Active Employees
as of June 30, 2012

CURRENT AGE	YEARS OF SERVICE				Total
	Below 35	35-39	40-44	45 & Over	
Below 55	0	0	0	0	0
55-59	0	2	2	0	4
60-64	0	0	3	0	3
65-69	0	0	1	0	1
70 & Over	0	0	2	1	3
TOTAL	0	2	8	1	11

**Distribution of Retired Members and Beneficiaries by Age and Years of Service
Higher Education Employees
Count and Average Annual Annuity
as of June 30, 2012**

CURRENT AGE	YEARS OF SERVICE										TOTAL
	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40-44	45+	
Under 55	2	0	0	0	0	0	1	0	0	0	3
	\$4,635	\$0	\$0	\$0	\$0	\$0	\$45,957	\$0	\$0	\$0	\$18,409
55-59	0	1	0	0	0	0	1	1	0	0	3
	\$0	\$8,748	\$0	\$0	\$0	\$0	\$20,615	\$58,092	\$0	\$0	\$29,152
60-64	0	1	0	0	0	1	0	3	2	0	7
	\$0	\$10,210	\$0	\$0	\$0	\$18,068	\$0	\$58,385	\$130,887	\$0	\$66,458
65-69	8	17	1	1	2	2	9	14	0	0	54
	\$26,837	\$26,150	\$38,882	\$6,196	\$78,535	\$38,882	\$77,611	\$88,258	\$0	\$0	\$53,209
70-74	12	79	13	7	9	13	29	17	3	0	182
	\$23,118	\$29,928	\$53,090	\$51,688	\$76,051	\$51,187	\$65,334	\$98,219	\$171,669	\$0	\$50,127
75-79	9	71	16	4	10	32	28	10	3	1	184
	\$22,848	\$20,394	\$22,509	\$64,460	\$18,662	\$43,255	\$78,638	\$87,025	\$104,592	\$212,258	\$40,437
80-84	5	51	21	10	14	25	20	9	0	0	155
	\$10,358	\$12,957	\$17,417	\$15,335	\$25,933	\$39,150	\$68,564	\$88,426	\$0	\$0	\$30,585
85-89	1	36	23	7	9	9	5	3	0	0	93
	\$10,258	\$7,169	\$12,605	\$11,374	\$15,309	\$31,130	\$36,035	\$50,138	\$0	\$0	\$14,908
90-94	0	13	5	3	1	0	1	0	0	0	23
	\$0	\$2,746	\$6,989	\$3,650	\$11,659	\$0	\$39,909	\$0	\$0	\$0	\$5,790
95 & Over	0	4	0	1	0	0	0	0	0	0	5
	\$0	\$1,764	\$0	\$2,525	\$0	\$0	\$0	\$0	\$0	\$0	\$1,916
TOTAL	37	273	79	33	45	82	94	57	8	1	709
	\$20,786	\$19,185	\$22,529	\$26,433	\$34,237	\$41,516	\$68,649	\$86,931	\$136,320	\$212,258	\$37,115

The average annuity does not include 13th checks.

**Distribution of Retired Members and Beneficiaries by Age and Years of Service
Other Education Employees
Count and Average Annual Annuity
as of June 30, 2012**

CURRENT AGE	YEARS OF SERVICE										TOTAL	
	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40-44	45+		
Under 55	0	0	0	0	0	0	0	0	0	0	0	0
	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
55-59	0	0	0	0	0	1	0	0	0	0	0	1
	\$0	\$0	\$0	\$0	\$0	\$7,519	\$0	\$0	\$0	\$0	\$0	\$7,519
60-64	0	0	0	0	0	0	4	5	0	0	0	9
	\$0	\$0	\$0	\$0	\$0	\$0	\$82,738	\$89,712	\$0	\$0	\$0	\$86,613
65-69	0	8	3	0	0	10	7	8	0	0	0	36
	\$0	\$15,970	\$31,595	\$0	\$0	\$47,293	\$74,249	\$84,724	\$0	\$0	\$0	\$52,584
70-74	0	47	5	7	6	25	8	2	0	0	0	100
	\$0	\$13,799	\$17,513	\$17,514	\$20,917	\$31,570	\$61,814	\$78,734	\$0	\$0	\$0	\$24,255
75-79	0	68	13	2	7	6	4	0	0	0	0	100
	\$0	\$10,211	\$12,865	\$44,081	\$19,215	\$28,275	\$38,683	\$0	\$0	\$0	\$0	\$14,087
80-84	0	69	27	5	8	3	2	1	1	0	0	116
	\$0	\$6,216	\$8,527	\$4,934	\$11,834	\$20,424	\$19,622	\$27,367	\$78,330	\$0	\$0	\$8,489
85-89	0	53	24	9	2	0	0	0	0	0	0	88
	\$0	\$2,991	\$6,093	\$6,523	\$8,067	\$0	\$0	\$0	\$0	\$0	\$0	\$4,313
90-94	1	28	12	3	0	0	0	0	0	0	0	44
	\$1,599	\$1,703	\$2,507	\$2,601	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$1,981
95 & Over	0	7	4	1	2	1	0	0	0	0	0	15
	\$0	\$1,169	\$2,018	\$2,264	\$6,905	\$2,007	\$0	\$0	\$0	\$0	\$0	\$2,289
TOTAL	1	280	88	27	25	46	25	16	1	0	0	509
	\$1,599	\$7,550	\$8,684	\$11,267	\$15,385	\$32,666	\$61,567	\$81,949	\$78,330	\$0	\$0	\$15,717

The average annuity does not include 13th checks.

Distribution of Retired Members and Beneficiaries by Age and Years of Service
City Employees
Count and Average Annual Annuity
as of June 30, 2012

CURRENT AGE	YEARS OF SERVICE										TOTAL	
	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40-44	45+		
Under 55	0	0	0	0	0	0	0	0	0	0	0	0
	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
55-59	0	0	0	0	0	0	0	0	0	0	0	0
	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
60-64	0	0	0	1	1	0	2	2	1	0	7	7
	\$0	\$0	\$0	\$12,474	\$25,627	\$0	\$48,570	\$85,050	\$51,489	\$0	\$50,976	\$50,976
65-69	0	1	1	0	2	0	2	2	0	0	8	8
	\$0	\$29,475	\$12,847	\$0	\$42,654	\$0	\$68,692	\$83,148	\$0	\$0	\$53,914	\$53,914
70-74	0	1	1	1	1	2	1	0	0	0	7	7
	\$0	\$16,030	\$32,120	\$112,274	\$20,235	\$33,091	\$47,099	\$0	\$0	\$0	\$41,991	\$41,991
75-79	0	4	2	1	3	4	1	0	1	0	16	16
	\$0	\$18,701	\$1,693	\$24,028	\$21,509	\$34,637	\$26,244	\$0	\$63,191	\$0	\$24,671	\$24,671
80-84	0	2	2	0	1	0	0	0	0	0	5	5
	\$0	\$14,545	\$7,883	\$0	\$7,165	\$0	\$0	\$0	\$0	\$0	\$10,404	\$10,404
85-89	0	0	3	1	0	0	0	0	0	0	4	4
	\$0	\$0	\$5,577	\$4,594	\$0	\$0	\$0	\$0	\$0	\$0	\$5,331	\$5,331
90-94	0	0	0	0	0	0	0	0	0	0	0	0
	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
95 & Over	0	1	0	0	0	0	0	0	0	0	1	1
	\$0	\$1,786	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$1,786	\$1,786
TOTAL	0	9	9	4	8	6	6	4	2	0	48	48
	\$0	\$16,798	\$8,983	\$38,342	\$25,358	\$34,122	\$51,311	\$84,099	\$57,340	\$0	\$32,332	\$32,332

The average annuity does not include 13th checks.

Distribution of Retired Members and Beneficiaries by Age and Years of Service
County Employees
Count and Average Annual Annuity
as of June 30, 2012

CURRENT AGE	YEARS OF SERVICE										TOTAL	
	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40-44	45+		
Under 55	0	0	0	0	0	0	0	0	0	0	0	0
	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
55-59	0	1	0	0	0	0	0	0	0	0	0	1
	\$0	\$6,291	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$6,291
60-64	0	1	0	0	0	0	0	5	0	0	0	6
	\$0	\$1,227	\$0	\$0	\$0	\$0	\$0	\$110,760	\$0	\$0	\$0	\$92,505
65-69	0	0	1	0	1	0	4	1	0	0	0	7
	\$0	\$0	\$23,136	\$0	\$41,070	\$0	\$58,975	\$103,212	\$0	\$0	\$0	\$57,617
70-74	0	2	1	0	1	3	0	1	0	0	0	8
	\$0	\$6,558	\$25,607	\$0	\$13,777	\$36,135	\$0	\$66,979	\$0	\$0	\$0	\$28,486
75-79	0	1	3	4	2	1	0	0	0	0	0	11
	\$0	\$4,062	\$11,866	\$9,807	\$20,587	\$8,427	\$0	\$0	\$0	\$0	\$0	\$11,681
80-84	0	9	0	1	4	0	1	0	0	0	0	15
	\$0	\$5,803	\$0	\$6,372	\$10,986	\$0	\$21,289	\$0	\$0	\$0	\$0	\$8,256
85-89	0	5	4	1	2	0	0	0	0	0	0	12
	\$0	\$3,336	\$3,997	\$4,088	\$5,203	\$0	\$0	\$0	\$0	\$0	\$0	\$3,930
90-94	0	1	1	1	1	0	0	0	0	0	0	4
	\$0	\$1,086	\$1,828	\$3,862	\$1,833	\$0	\$0	\$0	\$0	\$0	\$0	\$2,153
95 & Over	0	0	0	0	0	0	0	0	0	0	0	0
	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
TOTAL	0	20	10	7	11	4	5	7	0	0	0	64
	\$0	\$4,735	\$10,216	\$7,650	\$13,837	\$29,208	\$51,438	\$103,428	\$0	\$0	\$0	\$23,447

The average annuity does not include 13th checks.

Distribution of Retired Members and Beneficiaries by Age and Years of Service
State Employees
Count and Average Annual Annuity
as of June 30, 2012

CURRENT AGE	YEARS OF SERVICE										TOTAL	
	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40-44	45+		
Under 55	0	0	0	0	0	0	0	0	0	0	0	0
	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
55-59	0	0	0	0	0	0	0	0	0	0	0	0
	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
60-64	0	1	0	0	0	3	0	1	0	0	0	5
	\$0	\$25,890	\$0	\$0	\$0	\$44,044	\$0	\$86,819	\$0	\$0	\$0	\$48,968
65-69	0	3	0	1	0	3	3	5	1	0	0	16
	\$0	\$23,003	\$0	\$6,451	\$0	\$31,773	\$53,730	\$83,351	\$99,302	\$0	\$0	\$53,001
70-74	0	8	1	0	0	2	4	1	0	0	0	16
	\$0	\$20,203	\$11,472	\$0	\$0	\$17,946	\$51,607	\$73,568	\$0	\$0	\$0	\$30,562
75-79	0	13	4	1	0	4	4	0	0	0	0	26
	\$0	\$8,807	\$18,447	\$27,033	\$0	\$27,066	\$34,123	\$0	\$0	\$0	\$0	\$17,695
80-84	0	10	4	4	4	3	2	0	0	0	0	27
	\$0	\$10,218	\$20,805	\$11,714	\$13,141	\$17,110	\$41,723	\$0	\$0	\$0	\$0	\$15,540
85-89	0	7	2	2	0	0	0	0	0	0	0	11
	\$0	\$3,193	\$11,972	\$4,372	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$5,004
90-94	0	4	0	2	0	1	0	0	0	0	0	7
	\$0	\$1,460	\$0	\$3,476	\$0	\$9,531	\$0	\$0	\$0	\$0	\$0	\$3,189
95 & Over	0	3	2	1	0	0	0	0	0	0	0	6
	\$0	\$1,500	\$9,461	\$1,887	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$4,218
TOTAL	0	49	13	11	4	16	13	7	1	0	0	114
	\$0	\$10,324	\$16,257	\$8,902	\$13,141	\$27,029	\$45,197	\$82,449	\$99,302	\$0	\$0	\$22,493

The average annuity does not include 13th checks.

**Distribution of Retired Members and Beneficiaries by Age and Years of Service
Political Subdivision Employees
Count and Average Annual Annuity
as of June 30, 2012**

CURRENT AGE	YEARS OF SERVICE										TOTAL	
	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40-44	45+		
Under 55	0	0	0	0	0	0	0	0	0	0	0	0
	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
55-59	0	0	0	0	0	0	0	0	0	0	0	0
	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
60-64	0	0	0	0	0	0	0	0	0	0	0	0
	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
65-69	0	0	0	0	0	0	0	0	0	0	0	0
	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
70-74	0	0	0	0	0	0	0	0	0	0	0	0
	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
75-79	0	0	0	0	0	0	0	0	0	0	0	0
	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
80-84	0	0	0	0	0	0	0	0	0	0	0	0
	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
85-89	0	1	0	0	0	0	0	0	0	0	0	1
	\$0	\$5,103	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$5,103
90-94	0	0	0	0	0	0	0	0	0	0	0	0
	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
95 & Over	0	1	0	0	0	0	0	0	0	0	0	1
	\$0	\$3,151	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$3,151
TOTAL	0	2	0	0	0	0	0	0	0	0	0	2
	\$0	\$4,127	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$4,127

The average annuity does not include 13th checks.

Distribution of Retired Members and Beneficiaries by Age and Years of Service
All Groups
Count and Average Annual Annuity
as of June 30, 2012

CURRENT AGE	YEARS OF SERVICE										TOTAL
	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40-44	45+	
Under 55	2	0	0	0	0	0	1	0	0	0	3
	\$4,635	\$0	\$0	\$0	\$0	\$0	\$45,957	\$0	\$0	\$0	\$18,409
55-59	0	2	0	0	0	1	1	1	0	0	5
	\$0	\$7,519	\$0	\$0	\$0	\$7,519	\$20,615	\$58,092	\$0	\$0	\$20,253
60-64	0	3	0	1	1	4	6	16	3	0	34
	\$0	\$12,442	\$0	\$12,474	\$25,627	\$37,550	\$71,349	\$89,652	\$104,421	\$0	\$70,630
65-69	8	29	6	2	5	15	25	30	1	0	121
	\$26,837	\$23,131	\$28,275	\$6,323	\$56,690	\$43,067	\$70,109	\$86,656	\$99,302	\$0	\$53,297
70-74	12	137	21	15	17	45	42	21	3	0	313
	\$23,118	\$23,385	\$40,330	\$39,779	\$49,646	\$37,003	\$62,922	\$93,702	\$171,669	\$0	\$40,126
75-79	9	157	38	12	22	47	37	10	4	1	337
	\$22,848	\$14,877	\$16,846	\$36,358	\$19,401	\$38,490	\$68,090	\$87,025	\$94,241	\$212,258	\$29,176
80-84	5	141	54	20	31	31	25	10	1	0	318
	\$10,358	\$9,030	\$12,870	\$11,562	\$18,110	\$35,205	\$60,611	\$82,321	\$78,330	\$0	\$19,877
85-89	1	102	56	20	13	9	5	3	0	0	209
	\$10,258	\$4,517	\$8,800	\$7,788	\$12,640	\$31,130	\$36,035	\$50,138	\$0	\$0	\$9,065
90-94	1	46	18	9	2	1	1	0	0	0	78
	\$1,599	\$1,964	\$3,714	\$3,285	\$6,746	\$9,531	\$39,909	\$0	\$0	\$0	\$3,222
95 & Over	0	16	6	3	2	1	0	0	0	0	28
	\$0	\$1,542	\$4,499	\$2,225	\$6,905	\$2,007	\$0	\$0	\$0	\$0	\$2,649
TOTAL	38	633	199	82	93	154	143	91	12	1	1,446
	\$20,281	\$12,814	\$14,766	\$18,065	\$25,085	\$36,760	\$63,950	\$86,855	\$115,239	\$212,258	\$27,621

The average annuity does not include 13th checks.

Table 2
Liabilities

Liabilities as of June 30, 2011

Non-retired	Total Balances from Employee Contributions	Total Balances from Employer Contributions	Total Balances
Active	\$ 7,182,352	\$ 21,479,481	\$ 28,661,833
Inactive	\$ 1,753,785	\$ 11,106,673	\$ 12,860,458
Non-members	<u>N/A</u>	<u>N/A</u>	<u>\$ 3,749,148</u>
Total	\$ 8,936,137	\$ 32,586,154	\$ 45,271,439
	Liability for Monthly Annuity	Liability for 13 th Check	Total Liability
Retired	\$ 349,376,225	\$ 46,909,046	\$ 396,285,271
Total			\$ 441,556,710

Liabilities as of June 30, 2012

Non-retired	Total Balances from Employee Contributions	Total Balances from Employer Contributions	Total Balances
Active	\$ 4,502,410	\$ 13,535,974	\$ 18,038,384
Inactive	\$ 1,511,932	\$ 9,464,180	\$ 10,976,112
Non-members	<u>N/A</u>	<u>N/A</u>	<u>\$ 4,018,430</u>
Total	\$ 6,014,342	\$ 23,000,154	\$ 33,032,926
	Liability for Monthly Annuity	Liability for 13 th Check	Total Liability
Retired	\$ 349,068,942	\$ 43,088,693	\$ 392,157,635
Total			\$ 425,190,561

Includes liabilities for both benefits guaranteed by the Plan and benefits guaranteed by the State.

Non-members are former members who are eligible for refunds. Their printed records were discovered and first included in the June 30, 2006 valuation. They are referred to as the Green Bar people.

Table 3
Asset Summary

Asset Allocation	6/30/2011	6/30/2012
Cash	\$ 9,289	\$ 3,324,139
Total Receivables	15,265,444	10,645,310
Temporary Investments	53,247,017	20,388,502
Fixed Income Securities	115,995,503	95,423,877
Common and Preferred Stocks	219,306,533	208,548,884
Real Estate Mortgages and Contracts	23,439,781	20,245,189
Private Equity	0	0
Opportunistic Investments	6,954,072	9,369,771
Total Liabilities	<u>(35,251,339)</u>	<u>(13,565,182)</u>
Total Assets	\$ 398,966,300	\$ 354,380,490
Asset Reconciliation	6/30/2011	6/30/2012
Beginning of Year Market Value	\$ 367,540,422	\$ 398,966,300
Contributions	161,098	118,676
Investment Income	81,948,119	4,127,483
Benefit Payments	(46,590,782)	(48,201,651)
Refunds	(3,684,090)	(211,216)
Expenses	(407,964)	(418,763)
Other	<u>(503)</u>	<u>(339)</u>
End of Year Market Value	\$ 398,966,300	\$ 354,380,490
Rate of Return	23.96%	0.99%

Includes assets for all System members including both members who retired prior to July 1, 1981, whose benefits are guaranteed by the State, and members who retired on or after July 1, 1981, whose benefits are guaranteed by the Plan.

Table 4**Funded Status**

	6/30/2011	6/30/2012
1. Market value of assets	\$ 398,966,300	\$ 354,380,490
2. Total System liabilities	\$ 441,556,710	\$ 425,190,561
3. Funded Status (#1 / #2)	90.35%	83.35%
4. Surplus/(Unfunded) (#1 - #2)	\$ (42,590,410)	\$ (70,810,071)

	6/30/2012		
	Pre-1981 ¹	Post-1981 ²	Total
1. Market value of assets	\$ 426,198	\$ 353,954,292	\$ 354,380,490
2. Total System liabilities	\$ 511,335	\$ 424,679,226	\$ 425,190,561
3. Funded Status (#1 / #2)	83.35%	83.35%	83.35%
4. Surplus/(Unfunded) (#1 - #2)	\$ (85,137)	\$ (70,724,934)	\$ (70,810,071)

¹ Members who retired prior to July 1, 1981, whose benefits are guaranteed by the State.

² Members who retired on or after July 1, 1981, whose benefits are guaranteed by the Plan.

Table 5
Gain and Loss Analysis

	Fiscal Year Ended:	
	6/30/2011	6/30/2012
1. Surplus/(Deficit) at Beginning of Fiscal Year	\$ (89,242,598)	\$ (42,590,410)
2. Interest on Line 1	(7,139,408)	(3,407,233)
3. Liabilities Experience Gain/(Loss)	(517,479)	1,302,999
4. Asset Experience Gain/(Loss)	<u>54,309,075</u>	<u>(26,115,427)</u>
5. Surplus/(Deficit) at End of Fiscal Year	\$ (42,590,410)	\$ (70,810,071)

	Fiscal Year Ended:	
	6/30/2011	6/30/2012
<u>Sources of Liability Gain/(Loss)</u>		
1. Annuity Mortality	\$ (1,215,543)	\$ (405,451)
2. 13th Check Mortality	608,885	921,707
3. Green Bar Members	224,613	1,213
4. Other	<u>(135,434)</u>	<u>785,530</u>
5. Total Liability Gain/(Loss)	\$ (517,479)	\$ 1,302,999

	Fiscal Year Ended:	
	6/30/2011	6/30/2012
<u>Development of Asset Gain/(Loss)</u>		
1. Market Value of Assets, Beginning of Year	\$ 367,540,422	\$ 398,966,300
2. Interest on Line 1	29,403,234	31,917,304
3. Contributions	161,098	118,676
4. Interest on Line 3	6,444	4,747
5. Benefit Payments	46,590,782	48,201,651
6. Refunds	3,684,090	211,216
7. Other	503	339
8. Interest on Lines 5 and 6 and 7	<u>2,178,598</u>	<u>2,097,904</u>
9. Expected Market Value of Assets, End of Year	\$ 344,657,225	\$ 380,495,917
10. Market Value of Assets, End of Year	\$ 398,966,300	\$ 354,380,490
11. Asset Gain/(Loss)	\$ 54,309,075	\$ (26,115,427)

Table 6

Recommendations

ASRS former rules say that benefits must be reduced when the System's funded status is less than 95%, and that the Board may increase benefits when funded status is greater than 105%. In this valuation, funded status is 83.35%. Based on the Arizona Attorney General's opinion letter of November 24, 2009, which was adopted by the Board, benefits cannot be "diminished or impaired" as defined under Article 29 of the Arizona Constitution. The ASRS Plan guarantees benefits for members who retired or will retire on or after July 1, 1981. The State guarantees the other System benefits. System liabilities valued using Plan assumptions for post-June 30, 1981 retirees are included in the Plan valuation.

We recommend no distribution of supplemental credits, based on our June 30, 2012 valuation and we continue to recommend annual valuations of the System to ensure that assets remain sufficient to provide benefits.

Table 7

System Provisions

The System is a Defined Contribution Plan, and was the original retirement program when ASRS was created in 1953. System benefits are based on the total amount of member and employer contributions, interest and supplemental credits in a member's retirement account at the time of retirement. Most members of the System elected to join the ASRS Plan when it became available, but those who never elected to receive benefits only under the ASRS Plan still accrue benefits and are entitled to receive retirement annuities according to the terms of the System.

While they are active, System members contribute a percentage of their salary and their employers contribute the same percentage to their System retirement accounts. The percentage is currently 7%. System retirement accounts are credited annually with interest at the actuarial valuation rate. Investment return in excess of actuarial interest is called a supplemental credit. System retirement accounts were considered guaranteed, except for supplemental credits, before the Attorney General's opinion letter of November 24, 2009. In light of that opinion, System retiree accounts are now considered entirely guaranteed.

At retirement, System members receive their choice of the benefits that the System will provide and the benefits that the defined benefit Plan will provide. The System benefit is a monthly annuity that is the actuarial equivalent of the entire retirement account balance. The Plan benefit is a percentage of final average salary, multiplied by years of service.

If the Board elects to distribute supplemental credits after a member's retirement, they are distributed to the member through 13th checks. The amount of a 13th check that arises from a supplemental credit is calculated actuarially as an annual annuity with a present value equal to the amount of the supplemental credit. When supplemental credits occur in more than one year of a member's retirement, the amounts are added and one 13th check is paid.

ASRS former rule said that if the funded status of the System as measured in an actuarial valuation is less than 95%, the Board will reduce non-guaranteed benefits so that the funded status is restored to 95%. If the funded status exceeds 105%, the Board may (but is not required to) increase benefits until the funded status declines to 105%. The Board is authorized to change actuarial assumptions. Changes in the investment earnings assumption or the mortality assumption will change the funded status and can thus lead to benefit increases or decreases. Methods for adjusting benefits are detailed in ASRS rules. Based on the Arizona Attorney General's opinion letter of November 24, 2009, which the Board has adopted, benefits cannot be "diminished or impaired" as defined under Article 29 of the Arizona Constitution. Under this opinion, all benefits are guaranteed. The ASRS Plan guarantees benefits for members who retired or will retire on or after July 1, 1981. The State guarantees the other System benefits. System liabilities valued using Plan assumptions for post-June 30, 1981 retirees are included in the Plan valuation.

The annuity options available to System members include straight life annuity, joint and survivor annuity with 100%, 66-2/3%, or 50% of the benefit continuing to the contingent survivor, or life annuity with 5, 10 or 15 years of certain payments.

Table 8
Actuarial Assumptions

- 1. Investment Yield Rate** 8%, net of all expenses
- 2. Mortality** 1994 GAM-Generational table with Projection Scale AA
- Rates at each age equal to 50% of the male rate plus 50% of the female rate.
- Improved mortality for members with annual System income greater than \$14,400, as follows:

<u>Age</u>	<u>Factor Applied to Mortality Rate</u>
0 – 49	No Adjustment
50 – 75	80%
76 – 111	86%
112	88%
113	90%
114	92%
115	94%
116	96%
117	98%
118 and over	No Adjustment

This mortality assumption includes an assumption about mortality improvement before and after the valuation date.

- 3. Liabilities for Nonretired Members** Assumed to be their account balances.
- 4. Data and Assets** Census data and assets were provided by the staff at ASRS and were tested for consistency and reasonableness.