

# Arizona State Retirement System

## Actuarial Report on the Valuation of the Plan

As of June 30, 2015



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March 4, 2016

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

**Re: Valuation of the Arizona State Retirement System Plan as of June 30, 2015**

Dear Retirement Board Members:

We certify that the information contained in the attached 2015 actuarial valuation report is accurate and fairly presents the actuarial position of the Arizona State Retirement System (ASRS) Plan (the Plan) as of June 30, 2015.

Valuations are performed annually as of June 30, which is the last day of both the Plan's plan year and ASRS' fiscal year.

**Purpose of this Report**

The primary purpose of the valuation is to determine the required member and employer contribution rates, to describe the current financial condition of the Plan, and to analyze changes in its financial condition. The report includes information that ASRS requires for its Comprehensive Annual Financial Report (CAFR) and it summarizes census data.

Use of this report for any other purposes or by anyone other than ASRS staff or Board, or ASRS' auditors may not be appropriate and may result in mistaken conclusions because of failure to understand applicable assumptions, methods, or inapplicability of the report for that purpose. The attached pages should not be provided without a copy of this cover letter. Buck will not accept any liability for any statement made about the report without prior review by Buck.

**Contribution Rates**

The actuarial valuation includes a calculation of the contribution rates payable by members and participating employers. These rates, when applied to payroll, yield contribution amounts sufficient to fund the normal cost plus the amortization of the unfunded actuarial accrued liability. Contribution rates are set annually, based on the valuation of the preceding year. The rate calculated in this report (22.67% of payroll) will apply in the fiscal year beginning July 1, 2016.

## **Actuarial Assumptions and Methods**

The actuary performs experience studies for ASRS every five years. The most recent experience study was completed in 2013 using experience from July 1, 2007 to June 30, 2012. Based on this most recent experience study, revised actuarial assumptions were approved by the Board and implemented starting with the June 30, 2013 valuation. There have been no changes in actuarial assumptions or methods since the last valuation.

In our opinion, the actuarial assumptions used are reasonable, taking into account the experience of the Plan and reasonable expectations, and represent our best estimate of the anticipated experience. The assumptions and methods are summarized in Section 9 of this report.

Future actuarial measurements may differ significantly from current measurements due to Plan experience differing from that anticipated by the economic and demographic assumptions, increases or decreases expected as part of the natural operation of the methodology used for the measurements, and changes in the Plan provisions or applicable law. An analysis of the potential range of such differences is beyond the scope of this valuation.

## **Data and Assets Used**

ASRS staff supplied census data for participants as of June 30, 2015. We have not audited the data, but have examined it for reasonableness and consistency with data for the prior year's valuation. ASRS staff also supplied asset information. The results of the valuation depend on the accuracy of the data.

## **Actuarial Certification**

This report has been prepared in conformity with all Actuarial Standards of Practice issued by the Actuarial Standards Board. In our opinion, the report's results comply with our understanding of the requirements of the Arizona Constitution and statutes and, where applicable, the Internal Revenue Code, the Employee Retirement Security Act of 1974 (ERISA), and Statements of the Governmental Accounting Standards Board. The undersigned actuaries are independent. They are both Fellows of the Society of Actuaries, Enrolled Actuaries, and Members of the American Academy of Actuaries. They meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions contained herein. The undersigned actuaries are not qualified as attorneys or accountants, so their views on such matters are subject to the opinion of counsel and auditors.

ASRS prepared all trend data schedules in the financial section of ASRS' CAFR. ASRS also prepared all supporting schedules in the actuarial section of the CAFR.

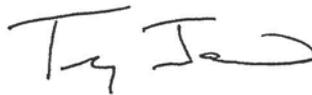
There are separate reports for GASB 67 and 68 results for the 401(a) portion of the Plan.

We look forward to discussing this report with you at your convenience.

Sincerely,



David J. Kershner, FSA, EA, MAAA, FCA  
Principal and Consulting Actuary



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# Section 1 – Executive Summary

## **Contribution Rates and Funded Status**

The contribution rate calculated in this valuation will become effective on July 1, 2016, and will remain in effect through June 30, 2017. As shown in Exhibit 6.2, last year's contribution rate of 22.70% was expected to decrease to 22.44% due to normal operations of the Plan. As described below, the Plan had a loss on liability experience and a loss on investments during the 2015 fiscal year. These losses, in combination with the one-year delay in the contribution rate change, caused the expected contribution rate of 22.44% to increase to 22.67% in this valuation.<sup>1</sup>

The funded status of the Plan (the ratio of actuarial assets to actuarial accrued liabilities) increased slightly from 76.9% as of June 30, 2014 to 77.5% as of June 30, 2015. The unfunded actuarial accrued liability has increased during this period from \$9.904 billion to \$10.014 billion.

The funded status, when measured using the market value of assets, would be slightly improved. For both 2014 and 2015, the market value of assets is somewhat higher than the actuarial value, as there is deferred asset appreciation still to be recognized in future years.

## **Gains and Losses**

The valuation of the Plan reflects a loss on the investment return on the actuarial value of assets of \$40 million for the year ending June 30, 2015. Investment gains/losses are recognized in the actuarial assets over a ten-year period. The rate of return on actuarial assets for the 2015 fiscal year was 7.88% on the pension assets (401(a)) and 7.75% on the health supplement assets (401(h)). These compare to last year's returns of 7.64% and 7.55%, respectively. The actuarially assumed rate of return is 8%. There was also a liability experience loss of \$245 million. The gains and losses are further discussed in Section 6.

## **Demographic Changes**

The number of active members increased from 203,201 to 203,252. Valuation payroll increased 1.8% from \$8.909 billion to \$9.072 billion. The payroll for fiscal year 2016 was calculated by projecting a smoothed payroll forward one year with the salary scale. Smoothed payroll averages the payroll reported for the prior two fiscal years.

The number of inactive members increased from 215,325 to 219,346 since the last valuation. The number of retirees/beneficiaries increased from 126,255 to 131,536.

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<sup>1</sup> Due to rounding the contribution rate show in some sections of this report is 22.68%.

## Changes in Plan Provisions

The following changes in Plan provisions were enacted by the 2015 Legislature of the State of Arizona (these changes did not have an impact on the Plan liabilities or contribution rates):

- Actuarial Valuation Methods**  
 The legislation gives the Arizona State Retirement System Board of Trustees authority to change the actuarial valuation method of the Plan beginning June 30, 2016. Prior to the passage of this legislation the ASRS was required by statute to use the Projected Unit Credit method.
- Service Purchase**  
 The legislation modifies service purchase laws so that they are consistent with Arizona case law whereby the right to purchase service was defined as a benefit by the Arizona Court of Appeals. As a result, legislation delineated service purchase rights that individuals hired on or after July 20, 2011 could purchase no more than 60 months of credited service and individuals hired on or after July 1, 2010 must have at least 5 years of service to initiate a service purchase request.
- Participation Opt-out**  
 Legislation passed in 2012 allowed individuals 65 years of age or older and with no prior ASRS membership to opt-out of participation in the Plan. The ability to opt-out was to expire on July 1, 2015. The legislation removed the July 1, 2015 sunset on the election thereby permitting the opt-out provision in perpetuity.

## Reserve for Permanent Benefit Increases

Since the actuarial investment return (on the actuarial value of 401(a) assets) of 7.88% is below 8% for fiscal year 2015, there are no additional "Excess Investment Earnings" to be allocated for Permanent Benefit Increases (PBIs).

## Projected Contribution Rates

Below are 10 years of projected contribution rates assuming no growth in population, 2.5% annual growth, 2.5% annual reduction and a closed group (no new entrants).

Total Contribution Rate – Member + Employer				
Fiscal Year Beginning July 1	No Growth	2.5% Annual Growth	2.5% Annual Reduction	Closed Group
2016	22.67%	22.67%	22.67%	22.67%
2017	22.66%	22.49%	22.86%	23.64%
2018	22.89%	22.48%	23.33%	24.99%
2019	22.63%	21.98%	23.32%	25.93%
2020	21.76%	20.93%	22.65%	26.07%
2021	20.96%	19.96%	22.04%	26.18%
2022	20.55%	19.38%	21.87%	26.85%
2023	20.02%	18.69%	21.52%	27.36%
2024	19.60%	18.14%	21.32%	28.11%
2025	19.54%	17.88%	21.52%	29.59%

These forecasts age the population, anticipate both inward and outward migration and status changes, and perform closed-group valuations for each fiscal year. These forecasts assume future investment returns of 8.0% on Market Value of Assets and exclude potential future PBIs.

These projections illustrate the sensitivity of Plan contribution rates to workforce changes. They do not represent a full analysis of the possible range of future measurements because other factors, such as actual investment returns and pay increases, changes in rates of mortality, disability, retirement and termination, changes in Plan provisions and changes in methods or assumptions will also affect future measurements.

The key results of this valuation, compared to those of last year's valuation, are as follows (dollar amounts, other than averages for individual members, are in millions):

	June 30, 2014	June 30, 2015
<b>Demographic Information</b>		
• Number of Members		
Actives	203,201	203,252
Inactives	215,325	219,346
Receiving benefits	126,255	131,536
Disabled (LTD)	<u>4,206</u>	<u>4,002</u>
Total	548,987	558,136
• Covered projected payroll	\$ 8,909	\$ 9,072
• Average age/service for actives	45.7/9.6	45.7/9.6
• Average pay for actives	\$ 43,841	\$ 44,636
• Total Active Member Contribution Balance <sup>1</sup>	\$ 7,432,555,362	\$ 7,790,853,563
• Average Active Member Contribution Balance <sup>1</sup>	\$ 36,577	\$ 38,331
• Median Active Member Contribution Balance <sup>1</sup>	\$ 26,432	\$ 26,985
• Total Inactive Member Contribution Balance <sup>1</sup>	\$ 1,320,372,780	\$ 1,429,094,649
• Average Inactive Member Contribution Balance <sup>1</sup>	\$ 6,132	\$ 6,515
• Median Inactive Member Contribution Balance <sup>1</sup>	\$ 1,249	\$ 1,338
• Average monthly benefit for retirees and beneficiaries (401(a) only)	\$ 1,639	\$ 1,647
• Average monthly benefit for members who retired in the last fiscal year (401(a) only)	\$ 1,621	\$ 1,663
• Average age at valuation date for retirees and beneficiaries	70.1	70.4
• Average age at retirement for retirees and beneficiaries	60.3	60.3
• Average age at valuation date for members who retired in the last fiscal year	62.2	62.5
<b>Financial Information</b>		
• Total normal cost rate <sup>2</sup>	13.40%	13.29%
• Unfunded actuarial accrued liability <sup>2</sup>	\$ 9,904	\$ 10,014
• Funded status of pension (401(a)) <sup>2</sup>	76.3%	77.1%
• Funded status of health (401(h))	93.1%	90.1%
• Funded status of total plan <sup>2</sup>	76.9%	77.5%
• Unrounded total contribution rate <sup>2</sup>	22.70%	22.67%
• Member contribution rate	11.35%	11.34%
• Employer contribution rate	11.35%	11.34%
• Member and employer contributions	\$ 2,047	\$ 2,110
• Benefit and refunded payments	\$ 2,869	\$ 2,989
• Administrative expenses	\$ 27	\$ 27
• Net external cash flow	\$ (849)	\$ (906)
• PBI		
Additional liability for July 1 <sup>st</sup> PBI	\$ 0.0	\$ 0.0
Percentage increase	0%	0%
Per year of service factor	\$ 0.0	\$ 0.0
PBI reserve before July 1 <sup>st</sup> PBI	\$ 0.0	\$ 0.0

<sup>1</sup> Contribution balances with 8% interest to June 30, 2005, 4% interest from July 1, 2005 to June 30, 2013, and 2% interest thereafter.

<sup>2</sup> Includes System liabilities and assets for System members who retired or will retire on or after July 1, 1981.

	June 30, 2014	June 30, 2015
• Actuarial gains/(losses)		
Assets	\$ (110)	\$ (40)
Liability Experience	93	(245)
System Experience	0	(5)
Legislative and Administrative Changes	N/A	N/A
Assumption Changes	N/A	N/A
Funding Method Change	N/A	N/A
Total	\$ (17)	\$ (290)
• 401(a) Pension Only		
Actuarial Accrued Liability (AAL) <sup>1</sup>	\$ 41,349	\$ 42,968
Unfunded AAL/(Surplus) <sup>1</sup>	\$ 9,801	\$ 9,855
Actuarial Value of Assets as % of AAL <sup>1</sup>	76.3%	77.1%
Unfunded AAL/(Surplus) as % of payroll <sup>1</sup>	110.0%	108.6%
• 401(h) Health Only		
Actuarial Accrued Liability (AAL)	\$ 1,477	\$ 1,605
Unfunded AAL/(Surplus)	\$ 103	\$ 159
Actuarial Value of Assets as % of AAL	93.1%	90.1%
Unfunded AAL/(Surplus) as % of payroll	1.2%	1.7%
• Changes in Contribution Rate:		
	<b>Contribution Rate</b>	<b>Change in Rate</b>
1. 2014 Valuation	22.70%	-
2. Expected Experience	22.44%	-0.26%
3. Contribution Lag Gain/(Loss)	22.37%	-0.07%
4. Plan Liability Experience	22.63%	+0.26%
5. Plan Asset Experience	22.67%	+0.04%
6. System Experience	22.67%	+0.00%

<sup>1</sup> Includes System liabilities and assets for System members who retired or will retire on or after July 1, 1981.

**Split of Total Contribution Rate:**

Item	401(a) <sup>1</sup> Account	401(h) Account	Total
1. Member Contribution Rates	11.34%	0.00%	11.34%
2. Employer Contribution Rates	<u>10.78%</u>	<u>0.56%</u>	<u>11.34%</u>
3. Total Contribution Rates	22.12%	0.56%	22.68%

<sup>1</sup> Includes post-1981 System liabilities and assets.

	June 30, 2014		June 30, 2015	
<b>Asset Amounts</b>	<b>Market Value</b>	<b>Actuarial Value</b>	<b>Market Value</b>	<b>Actuarial Value</b>
Pension 401(a) <sup>1</sup>	\$ 33,693,458,017	\$ 31,547,987,085	\$ 33,645,474,834	\$ 33,112,994,638
Health 401(h)	<u>1,465,095,569</u>	<u>1,374,129,582</u>	<u>1,470,609,637</u>	<u>1,446,698,253</u>
Total Plan <sup>1</sup>	\$ 35,158,553,586	\$ 32,922,116,667	\$ 35,116,084,471	\$ 34,559,692,891
<b>Asset Returns</b>	<b>Market Value</b>	<b>Actuarial Value</b>	<b>Market Value</b>	<b>Actuarial Value</b>
Pension 401(a)	19.28%	7.64%	2.49%	7.88%
Health 401(h)	19.22%	7.55%	2.62%	7.75%
Total Plan	19.28%	7.64%	2.50%	7.87%
<b>Liabilities</b>				
Pension 401(a) <sup>1</sup>	\$ 41,349,317,003	\$ 41,349,317,003	\$ 42,968,128,455	\$ 42,968,128,455
Health 401(h)	<u>1,476,696,928</u>	<u>1,476,696,928</u>	<u>1,605,430,560</u>	<u>1,605,430,560</u>
Total Plan <sup>1</sup>	\$ 42,826,013,931	\$ 42,826,013,931	\$ 44,573,559,015	\$ 44,573,559,015
<b>Funded Status</b>	<b>Market Value</b>	<b>Actuarial Value</b>	<b>Market Value</b>	<b>Actuarial Value</b>
Pension 401(a) <sup>1</sup>	81.5%	76.3%	78.3%	77.1%
Health 401(h)	99.2%	93.1%	91.6%	90.1%
Total Plan <sup>1</sup>	82.1%	76.9%	78.8%	77.5%

<sup>1</sup> Includes System liabilities and assets for System members who retired or will retire on or after July 1, 1981.

# Section 2 – Summary of Valuation Results

The key valuation results as of June 30, 2015, are as follows:

	401(a) Account	401(h) Account	Total
I. Actuarial accrued liabilities			
A. Liabilities due to members' benefits			
1. Active members			
a. Retirement benefits	\$ 13,459,091,238	\$ 0	\$ 13,459,091,238
b. Health insurance premium supplement	0	692,278,453	692,278,453
c. Disability deferred retirement benefits	360,038,697	0	360,038,697
d. Pre-retirement death benefits	233,452,269	0	233,452,269
e. Withdrawal benefits	1,194,181,550	0	1,194,181,550
f. Total active members	\$ 15,246,763,754	\$ 692,278,453	\$ 15,939,042,207
2. Inactive members	1,963,698,739	79,250,569	2,042,949,308
3. Retired members and beneficiaries	24,421,887,636	785,877,113	25,207,764,749
4. Formerly disabled members now receiving benefits	958,662,489	42,717,847	1,001,380,336
5. Benefit increases for other-than-plan members	1,304,684	5,306,578	6,611,262
6. Post-1981 System members	375,811,153	0	375,811,153
7. Total present value of benefits	\$ 42,968,128,455	\$ 1,605,430,560	\$ 44,573,559,015
B. Other miscellaneous liabilities and reserves	0	0	0
C. Reserve for future PBIs	0	0	0
D. Total actuarial accrued liability	\$ 42,968,128,455	\$ 1,605,430,560	\$ 44,573,559,015
II. Actuarial value of assets <sup>1</sup>	33,112,994,638	1,446,698,253	34,559,692,891
III. Unfunded actuarial accrued liability (Item I. – Item II.)	9,855,133,817	158,732,307	10,013,866,124
IV. Amortization of unfunded actuarial accrued liability (per Section 38-737)			
A. Base unfunded actuarial accrued liability amortization at beginning of year	\$ 825,425,503	\$ 18,292,502	\$ 843,718,005
B. Expected alternate contributions	(25,617,017)	(363,164)	(25,980,181)
C. Interest to middle of year on A and B	31,992,339	717,174	32,709,513
D. Total unfunded actuarial accrued liability amortization (A+B+C)	\$ 831,800,825	\$ 18,646,512	\$ 850,447,337
V. Normal cost for the year			
A. Normal cost at beginning of year	\$ 1,128,175,020	\$ 30,954,564	\$ 1,159,129,584
B. Interest to middle of year	45,127,001	1,238,183	46,365,184
C. Total normal cost for the year (A+B)	\$ 1,173,302,021	\$ 32,192,747	\$ 1,205,494,768
VI. Total contribution for the year (Item IV. + Item V.)	\$ 2,005,102,846	\$ 50,839,259	\$ 2,055,942,105
VII. Total covered payroll (projected to 2015/2016 plan year)	\$ 9,072,376,682	\$ 9,072,376,682	\$ 9,072,376,682
VIII. Total contribution for fiscal year 2017 as a percentage of covered payroll			
A. Member portion	11.34%	0.00%	11.34%
B. Employer portion	10.78%	0.56%	11.34%
C. Total	22.12%	0.56%	22.68%
IX. Present value of future covered payroll	\$ 59,618,621,219	\$ 0	\$ 59,618,621,219
X. Present value of future benefits <sup>1</sup>	\$ 51,308,106,033	\$ 1,732,178,074	\$ 53,040,284,107
XI. Present value of future normal cost (Item X. – Item I.D.)	\$ 8,339,977,578	\$ 126,747,514	\$ 8,466,725,092

<sup>1</sup>Includes System assets and liabilities for System members who retired or will retire on or after July 1, 1981 for 401(a).

## Section 3 – Assets

This section shows the change in the assets during the year, calculates the return on assets for the Plan, and determines the actuarial value of assets under the asset valuation method that was adopted by the Board on November 15, 2002.

### Market Value of Assets

The market value of assets represents the fair market value of assets as of June 30, 2014, and June 30, 2015, as reported by ASRS.

### Actuarial Value of Assets

The asset valuation method starts with the market value of assets and is modified by the difference between expected investment return and actual investment return on the market value of assets. Effective June 30, 2002, 10% of this difference is recognized in the valuation immediately following the year in which it occurs. The remaining 90% is deferred until future valuations with an additional 10% recognized in each subsequent valuation until 100% of the difference is recognized in the tenth year. There is no corridor, i.e., no requirement that the actuarial value be within a given percentage of the market value. The Board adopted this actuarial asset valuation method on November 15, 2002. Prior to June 30, 2002, the phase-in period was five years and there was a 20% corridor around market values.

The market value of assets (including System assets) as of June 30, 2015, was \$35,116,084,471 and the actuarial value of assets was \$34,559,692,891 (98% of market value). The combined deferred amount as of June 30, 2015 was \$556,391,580. That is, \$556,391,580 of net investment gains that occurred before June 30, 2015 will be recognized in future valuations.

### Asset Returns

To determine the estimated return for the year, we assume that the cash flow from benefit payments and refunds occurs at the beginning of each month, while all other cash flow occurs in the middle of the year.

During the twelve months ended June 30, 2015, the Plan had an estimated return of 7.88% on the 401(a) actuarial assets and 7.75% on the 401(h) actuarial assets, compared to the assumed rate of 8%. During the same period, the Plan had an estimated return of 2.49% on the 401(a) market assets and 2.62% on the 401(h) market assets.

The Plan's assets as of June 30, 2015 are split between the retirement program (401(a)), the health premium supplement program (401(h)) and the System assets for System members who retired or will retire on or after July 1, 1981 as follows:

Item	401(a) Account	401(h) Account	System	Total
1. Market Value of Assets	\$33,329,078,636	\$ 1,470,609,637	\$ 316,396,198	\$35,116,084,471
2. Actuarial Value of Assets	\$32,783,434,444	\$ 1,446,698,253	\$ 329,560,194	\$34,559,692,891

### Exhibit 3.1a - Change in Assets during the Year (401(a) Only)

	Year Ending June 30, 2014	Year Ending June 30, 2015
1. Market value, beginning of year	\$ 28,677,043,323	\$ 33,337,146,512
2. Contributions and receipts during the year		
a. Member contributions <sup>1</sup>	995,245,287	1,031,919,007
b. Employer contributions <sup>1</sup>	965,930,233	1,004,711,445
c. Member reimbursements of member contributions	32,441,245	19,672,650
d. Member reimbursements of employer contributions	0	0
e. Other miscellaneous receipts	0	0
f. Total	\$ 1,993,616,765	\$ 2,056,303,102
3. Investment income for the year (net of investment expenses)	\$ 5,459,203,282	\$ 844,355,933
4. Benefit payments		
a. Retirement benefits	\$ (2,481,586,767)	\$ (2,594,432,744)
b. Death benefits	(39,274,820)	(32,962,143)
c. Total	\$ (2,520,861,587)	\$ (2,627,394,887)
5. Refunds of contributions	(246,163,451)	(255,583,680)
6. Employer adjustments	0	0
7. Administrative expenses	(25,821,505)	(26,139,644)
8. Miscellaneous	0	0
9. Other		
a. Transfers from other plans	\$ 1,044,463	\$ 1,028,767
b. Reimbursements and lump sums	0	0
c. Transfers to PSPRS	(914,778)	(637,467)
d. Increase in System retired reserves	0	0
e. Employer contributions released	0	0
f. Supplemental credits	N/A	N/A
g. Transfers from System	0	0
h. Total	\$ 129,685	\$ 391,300
10. Change in audited assets, beginning of year	0	0
11. Total change in market value	\$ 4,660,103,189	\$ (8,067,876)
12. Market value, end of year	\$ 33,337,146,512	\$ 33,329,078,636

<sup>1</sup> Member contribution rates were 11.30% for fiscal 2014, and 11.48% for fiscal 2015. Employer contribution rates were 10.70% for fiscal 2014 and 10.89% for fiscal 2015.

### Exhibit 3.1b - Change in Assets During the Year (401(h) Only)

	Year Ending June 30, 2014	Year Ending June 30, 2015
1. Market value, beginning of year	\$ 1,274,036,072	\$ 1,465,095,569
2. Contributions and receipts during the year		
a. Member contributions	\$ 0	\$ 0
b. Employer contributions <sup>1</sup>	53,405,674	53,585,626
c. Member reimbursements of member contributions	0	0
d. Member reimbursements of employer contributions	0	0
e. Other miscellaneous receipts	0	0
f. Total	\$ 53,405,674	\$ 53,585,626
3. Investment income for the year (net of investment expenses)	240,538,096	39,021,483
4. Benefit payments	(101,746,644)	(105,912,908)
5. Refunds of contributions	0	0
6. Employer adjustments	0	0
7. Administrative expenses	(1,137,629)	(1,148,747)
8. Miscellaneous	0	0
9. Other	0	19,968,614 <sup>2</sup>
10. Change in audited assets, beginning of year	0	0
11. Total change in market value	\$ 191,059,497	\$ 5,514,068
12. Market value, end of year	\$ 1,465,095,569	\$ 1,470,609,637

<sup>1</sup> Contribution rates were 0.60% for fiscal 2014, and 0.59% for fiscal 2015.

<sup>2</sup> Federal Government Reimbursements correction. This amount was previously excluded, but it was discovered by ASRS this year that the money was spent, so it is added back in.

### Exhibit 3.2a - Calculation of Excess Investment Income for Actuarial Value of Assets (401(a) Only)

Item	Plan Year Ending June 30			
	2012	2013	2014	2015
1. Market value of assets, beginning of year	\$ 26,440,256,592	\$ 26,047,713,626	\$ 28,677,043,323	\$ 33,337,146,512
2. Contributions	1,809,439,747	1,903,004,623	1,993,616,765	2,056,303,102
3. Benefits paid	(2,279,475,678)	(2,398,441,756)	(2,520,861,587)	(2,627,394,887)
4. Refunds paid	(207,078,258)	(218,528,202)	(246,163,451)	(255,583,680)
5. Administrative expenses, assumed end of year	(30,632,862)	(32,450,862)	(25,821,505)	(26,139,644)
6. Other changes and net transfers	(2,787,617)	507,500	129,685	391,300
7. Net investment income for year, net of all expenses	287,358,840	3,315,787,532	5,433,381,777	818,216,289
8. Expected net investment income at 8%				
a. Market value of assets, beginning of year	2,115,220,527	2,083,817,090	2,294,163,466	2,666,971,721
b. Contributions	72,377,590	77,200,185	79,744,671	82,252,124
c. Benefits	(98,777,279)	(103,932,476)	(109,237,335)	(113,853,778)
d. Refunds	(8,973,391)	(9,469,555)	(10,667,083)	(11,075,293)
e. Administrative expenses	0	0	0	0
f. Other	(111,505)	20,300	5,187	15,652
g. Total	2,079,735,942	2,047,635,544	2,254,008,906	2,624,310,426
9. Excess investment income for year (Item 7 - Item 8.g.)	\$ (1,792,377,102)	\$ 1,268,151,988	\$ 3,179,372,871	\$ (1,806,094,137)

**Exhibit 3.2b - Calculation of Excess Investment Income for Actuarial Value of Assets (401(h) Only)**

Item	Plan Year Ending June 30			
	2012	2013	2014	2015
1. Market value of assets, beginning of year	\$ 1,194,727,820	\$ 1,167,345,698	\$ 1,274,036,072	\$ 1,465,095,569
2. Contributions	54,462,585	57,153,530	53,405,674	53,585,626
3. Benefits paid	(93,915,382)	(95,762,723)	(101,746,644)	(105,912,908)
4. Refunds paid	0	0	0	0
5. Administrative expenses, assumed end of year	(1,369,883)	(1,439,333)	(1,137,629)	(1,148,747)
6. Other changes and net transfers	0	0	0	19,968,614
7. Net investment income for year, net of all expenses	12,070,675	145,299,567	239,400,467	37,872,736
8. Expected net investment income at 8%				
a. Market value of assets, beginning of year	95,578,226	93,387,656	101,922,886	117,207,646
b. Contributions	2,178,503	2,286,141	2,136,227	2,143,425
c. Benefits	(4,069,667)	(4,149,718)	(4,409,021)	(4,589,559)
d. Refunds	0	0	0	0
e. Administrative expenses	0	0	0	0
f. Other	0	0	0	0
g. Total	93,687,062	91,524,079	99,650,092	114,761,512
9. Excess investment income for year (Item 7 - Item 8.g.)	\$ (81,616,387)	\$ 53,775,488	\$ 139,750,375	\$ (76,888,776)

### Exhibit 3.3a - Development of Actuarial Value of Assets (401(a) Only)

Item	Valuation as of June 30, 2014	Valuation as of June 30, 2015
1. Excess (shortfall) of investment income for current year and previous eight years:		
a. Current year	\$ 3,179,372,871	\$ (1,806,094,137)
b. Current year – 1	1,268,151,988	3,179,372,871
c. Current year – 2	(1,792,377,102)	1,268,151,988
d. Current year – 3	3,588,521,827	(1,792,377,102)
e. Current year – 4	1,259,547,369	3,588,521,827
f. Current year – 5	(6,298,770,518)	1,259,547,369
g. Current year – 6	(4,056,160,670)	(6,298,770,518)
h. Current year – 7	2,181,339,141	(4,056,160,670)
i. Current year – 8	385,506,263	2,181,339,141
2. Deferral of excess (shortfall) of investment income for:		
a. Current year (90% deferral)	\$ 2,861,435,584	\$ (1,625,484,723)
b. Current year – 1 (80% deferral)	1,014,521,590	2,543,498,297
c. Current year – 2 (70% deferral)	(1,254,663,971)	887,706,392
d. Current year – 3 (60% deferral)	2,153,113,096	(1,075,426,261)
e. Current year – 4 (50% deferral)	629,773,685	1,794,260,914
f. Current year – 5 (40% deferral)	(2,519,508,207)	503,818,948
g. Current year – 6 (30% deferral)	(1,216,848,201)	(1,889,631,155)
h. Current year – 7 (20% deferral)	436,267,828	(811,232,134)
i. Current year – 8 (10% deferral)	38,550,626	218,133,914
j. Total deferred for year	\$ 2,142,642,030	\$ 545,644,192
3. Market value of plan assets, end of year		
a. Excluding System assets	\$ 33,337,146,512	\$ 33,329,078,636
b. Including System assets	\$ 33,693,458,017	\$ 33,645,474,834
4. Actuarial value of plan assets, end of year		
a. Excluding System assets (Item 3.a. - Item 2.j.)	\$ 31,194,504,482	\$ 32,783,434,444
b. Including System assets	\$ 31,547,987,085	\$ 33,112,994,638

### Exhibit 3.3b - Development of Actuarial Value of Assets (401(h) Only)

Item	Valuation as of June 30, 2014	Valuation as of June 30, 2015
1. Excess (shortfall) of investment income for current year and previous eight years:		
a. Current year	\$ 139,750,375	\$ (76,888,776)
b. Current year – 1	53,775,488	139,750,375
c. Current year – 2	(81,616,387)	53,775,488
d. Current year – 3	162,067,515	(81,616,387)
e. Current year – 4	56,654,835	162,067,515
f. Current year – 5	(280,417,337)	56,654,835
g. Current year – 6	(182,147,911)	(280,417,337)
h. Current year – 7	94,970,630	(182,147,911)
i. Current year – 8	15,509,847	94,970,630
2. Deferral of excess (shortfall) of investment income for:		
a. Current year (90% deferral)	\$ 125,775,338	\$ (69,199,898)
b. Current year – 1 (80% deferral)	43,020,390	111,800,300
c. Current year – 2 (70% deferral)	(57,131,471)	37,642,842
d. Current year – 3 (60% deferral)	97,240,509	(48,969,832)
e. Current year – 4 (50% deferral)	28,327,418	81,033,758
f. Current year – 5 (40% deferral)	(112,166,935)	22,661,934
g. Current year – 6 (30% deferral)	(54,644,373)	(84,125,201)
h. Current year – 7 (20% deferral)	18,994,126	(36,429,582)
i. Current year – 8 (10% deferral)	<u>1,550,985</u>	<u>9,497,063</u>
j. Total deferred for year	\$ 90,965,987	\$ 23,911,384
3. Market value of plan assets, end of year	\$ 1,465,095,569	\$ 1,470,609,637
4. Actuarial value of plan assets, end of year (Item 3 - Item 2.j.)	\$ 1,374,129,582	\$ 1,446,698,253

### Exhibit 3.3c - Development of Actuarial Value of Assets (System Only)

Item	Valuation as of June 30, 2014	Valuation as of June 30, 2015
1. Excess (shortfall) of investment income for current year and previous eight years:		
a. Current year	\$ 27,750,764	\$ (22,543,836)
b. Current year – 1	14,578,335	27,750,764
c. Current year – 2	(26,115,426)	14,578,335
d. Current year – 3	54,309,075	(26,115,426)
e. Current year – 4	24,922,896	54,309,075
f. Current year – 5	(118,851,796)	24,922,896
g. Current year – 6	(81,141,855)	(118,851,796)
h. Current year – 7	51,494,804	(81,141,855)
i. Current year – 8	10,087,653	51,494,804
2. Deferral of excess (shortfall) of investment income for:		
a. Current year (90% deferral)	\$ 24,975,688	\$ (20,289,452)
b. Current year – 1 (80% deferral)	11,662,668	22,200,611
c. Current year – 2 (70% deferral)	(18,280,798)	10,204,835
d. Current year – 3 (60% deferral)	32,585,445	(15,669,256)
e. Current year – 4 (50% deferral)	12,461,448	27,154,538
f. Current year – 5 (40% deferral)	(47,540,718)	9,969,158
g. Current year – 6 (30% deferral)	(24,342,557)	(35,655,539)
h. Current year – 7 (20% deferral)	10,298,961	(16,228,371)
i. Current year – 8 (10% deferral)	<u>1,008,765</u>	<u>5,149,480</u>
j. Total deferred for year	\$ 2,828,902	(13,163,996)
3. Market value of plan assets, end of year	\$ 356,558,465	316,566,976
4. Actuarial value of plan assets, end of year (Item 3 - Item 2.j.)	\$ 353,729,563	329,730,972

The June 30, 2015 System asset values that are included in Plan assets for System members who retired or will retire on or after July 1, 1981 are \$316,396,198 (market value) and \$329,560,194 (actuarial value).

### Exhibit 3.4a - Actual Versus Expected Actuarial Assets (401(a) Only)

Item	Valuation as of June 30, 2014	Valuation as of June 30, 2015
1. Actuarial assets, beginning of year	\$ 29,733,566,151	\$ 31,194,504,482
2. Total contributions	1,993,616,765	2,056,303,102
3. Benefits paid	(2,520,861,587)	(2,627,394,887)
4. Refunds paid	(246,163,451)	(255,583,680)
5. Other changes and net transfers	129,685	391,300
6. Assumed net investment income at 8%		
a. Beginning of year assets	2,378,685,292	2,495,560,359
b. Contributions	79,744,671	82,252,124
c. Benefits	(109,237,335)	(113,853,778)
d. Refunds	(10,667,083)	(11,075,293)
e. Other	5,187	15,652
f. Total	\$ 2,338,530,732	\$ 2,452,899,064
7. Expected actuarial assets, end of year (Sum of Items 1 through 6)	\$ 31,298,818,295	\$ 32,821,119,381
8. Actual actuarial assets, end of year	\$ 31,194,504,482	\$ 32,783,434,444
9. Asset gain/(loss) for year (Item 8 - Item 7)	\$ (104,313,813)	\$ (37,684,937)

Excludes System assets

### Exhibit 3.4b - Actual Versus Expected Actuarial Assets (401(h) Only)

Item	Valuation as of June 30, 2014	Valuation as of June 30, 2015
1. Actuarial assets, beginning of year	\$ 1,324,595,696	\$ 1,374,129,582
2. Total contributions	53,405,674	53,585,626
3. Benefits paid	(101,746,644)	(105,912,908)
4. Refunds paid	0	0
5. Other changes and net transfers	0	19,968,614
6. Assumed net investment income at 8%		
a. Beginning of year assets	105,967,656	109,930,367
b. Contributions	2,136,227	2,143,425
c. Benefits	(4,409,021)	(4,589,559)
d. Refunds	0	0
e. Other	0	0
f. Total	\$ 103,694,862	\$ 107,484,233
7. Expected actuarial assets, end of year (Sum of Items 1 through 6)	\$ 1,379,949,588	\$ 1,449,255,147
8. Actual actuarial assets, end of year	\$ 1,374,129,582	\$ 1,446,698,253
9. Asset gain/(loss) for year (Item 8 - Item 7)	\$ (5,820,006)	\$ (2,556,894)

### Exhibit 3.5a - Estimate of Returns for the Year (401(a) Only)

Item	Basis of Assets	
	Market Value	Actuarial Value
1. Beginning of year asset value	\$ 33,337,146,512	\$ 31,194,504,482
2. End of year asset value	\$ 33,329,078,636	\$ 32,783,434,444
3. Contributions	\$ 2,056,303,102	\$ 2,056,303,102
4. Other Changes and Transfers	\$ 391,300	\$ 391,300
5. Benefit Payments and Refunds	\$ (2,882,978,567)	\$ (2,882,978,567)
6. Estimated yield based on mid-year timing for contributions and 13/24 timing for benefit payments	2.49%	7.88%

### Exhibit 3.5b – History of Returns (401(a) Only)

Year Ending June 30	Market Value	Actuarial Value
2002	(11.29%)	6.36%
2003	1.83%	2.88%
2004	17.37%	2.46%
2005	8.42%	3.20%
2006	9.83%	6.03%
2007	17.69%	7.29%
2008	(7.46%)	6.44%
2009	(18.28%)	3.04%
2010	14.57%	2.03%
2011	24.80%	4.04%
2012	1.11%	6.16%
2013	12.95%	6.66%
2014	19.28%	7.64%
2015	2.49%	7.88%

### Exhibit 3.5c - Estimate of Returns for the Year (401(h) Only)

Item	Basis of Assets	
	Market Value	Actuarial Value
1. Beginning of year asset value	\$ 1,465,095,569	\$ 1,374,129,582
2. End of year asset value	\$ 1,470,609,637	\$ 1,446,698,253
3. Contributions	\$ 53,585,626	\$ 53,585,626
4. Other Changes and Transfers	\$ 19,968,614	\$ 19,968,614
5. Benefit Payments and Refunds	\$ (105,912,908)	\$ (105,912,908)
6. Estimated yield based on mid-year timing for contributions and 13/24 timing for benefit payments	2.62%	7.75%

### Exhibit 3.5d – History of Returns (401(h) Only)

Year Ending June 30	Market Value	Actuarial Value
2002	(20.04%)	9.10%
2003	1.31%	4.66%
2004	16.39%	4.53%
2005	8.42%	4.99%
2006	9.74%	4.26%
2007	17.73%	5.65%
2008	(7.62%)	5.02%
2009	(17.83%)	1.96%
2010	14.44%	1.07%
2011	24.68%	3.01%
2012	1.03%	6.01%
2013	12.70%	6.49%
2014	19.22%	7.55%
2015	2.62%	7.75%

### Exhibit 3.6 - History of Cash Flows

Year Ending June 30	Contributions	Expenditures During the Year				External Cash Flow	End of Year Market Value of Assets	External Cash Flows as Percentage of Market Value
		Benefit Payments	Refunds of Contributions	Administrative Expenses <sup>1</sup>	Total			
1988	\$ 226,391,986	\$ (184,014,825)	\$ (32,440,739)	\$ (1,858,980)	\$ (218,314,544)	\$ 8,077,442	\$ 6,354,326,735	0.1%
1989	309,456,756	(211,706,362)	(32,763,953)	(2,796,196)	(247,266,511)	62,190,245	7,314,715,626	0.9%
1990	129,780,928	(291,865,604)	(31,871,455)	(3,016,679)	(326,753,738)	(196,972,810)	7,784,051,423	(2.5%)
1991	267,194,502	(313,739,121)	(27,329,212)	(4,889,991)	(345,958,324)	(78,763,822)	8,298,777,637	(0.9%)
1992	265,305,634	(351,219,516)	(24,689,694)	(6,282,138)	(382,191,348)	(116,885,714)	9,375,565,917	(1.2%)
1993	278,158,497	(414,519,290)	(21,419,534)	(5,774,866)	(441,713,690)	(163,555,193)	10,712,781,278	(1.5%)
1994	256,841,228	(445,763,795)	22,516,743)	(5,222,224)	(473,502,762)	(216,661,534)	10,680,073,807	(2.0%)
1995	326,663,838	(484,729,970)	(24,364,930)	(5,826,425)	(514,921,325)	(188,257,487)	12,356,078,492	(1.5%)
1996 <sup>2</sup>	299,724,778	(510,236,051)	(26,307,534)	(5,345,583)	(541,889,168)	(242,164,390)	13,917,637,400	(1.7%)
1997 <sup>2</sup>	309,394,448	(550,078,719)	(30,838,244)	(6,740,459)	(587,657,422)	(278,262,974)	16,397,938,329	(1.7%)
1998 <sup>2</sup>	321,349,998	(598,804,992)	(29,749,907)	(8,386,901)	(636,941,800)	(315,591,802)	19,389,956,806	(1.6%)
1999 <sup>2</sup>	347,970,526	(652,854,456)	(26,089,213)	(9,932,871)	(688,876,540)	(340,906,014)	21,836,381,722	(1.6%)
2000 <sup>2</sup>	283,772,496	(723,611,965)	(64,976,507)	(10,775,218)	(799,363,690)	(515,591,194)	23,187,551,913	(2.2%)
2001 <sup>2</sup>	367,191,042	(828,545,637)	(91,824,591)	(9,843,046)	(930,213,274)	(563,022,232)	21,872,916,420	(2.6%)
2002 <sup>2</sup>	321,775,573	(986,288,636)	(42,765,105)	(15,375,486)	(1,044,429,227)	(722,653,654)	18,594,856,337	(3.9%)
2003 <sup>2</sup>	375,522,329	(1,126,828,875)	(35,948,463)	(21,395,972)	(1,184,173,310)	(808,650,981)	18,116,820,935	(4.5%)
2004 <sup>2</sup>	865,966,060	(1,292,412,047)	(34,006,055)	(23,644,210)	(1,350,062,312)	(484,076,252)	20,748,573,247	(2.3%)
2005 <sup>2</sup>	946,697,219	(1,468,665,813)	(42,026,148)	(22,249,002)	(1,532,940,963)	(586,243,744)	21,901,025,604	(2.7%)
2006 <sup>2</sup>	1,265,185,960	(1,592,951,667)	(59,696,449)	(27,629,361)	(1,680,277,477)	(415,091,517)	23,641,112,938	(1.8%)
2007 <sup>2</sup>	1,631,168,370	(1,707,925,342)	(76,120,285)	(30,401,477)	(1,814,497,104)	(183,278,734)	27,639,018,747	(0.7%)
2008 <sup>2</sup>	1,805,731,259	(1,827,041,000)	(104,080,495)	(29,870,547)	(1,960,992,042)	(155,260,783)	25,296,109,758	(0.6%)
2009 <sup>2</sup>	1,757,935,919	(1,954,488,617)	(118,609,040)	(28,027,253)	(2,101,124,910)	(343,188,991)	20,403,436,175	(1.7%)
2010 <sup>2</sup>	1,702,232,331	(2,095,421,087)	(145,833,143)	(29,027,912)	(2,270,282,142)	(568,049,811)	22,775,017,196	(2.5%)
2011 <sup>2</sup>	1,735,218,977	(2,235,835,982)	(177,035,003)	(28,086,442)	(2,440,957,427)	(705,738,450)	27,834,984,412	(2.6%)
2012 <sup>2</sup>	1,863,902,332	(2,373,391,060)	(207,078,258)	(32,002,745)	(2,612,472,063)	(748,569,730)	27,215,059,324	(2.8%)
2013 <sup>2</sup>	1,987,158,153	(2,494,204,479)	(218,528,202)	(33,890,195)	(2,746,622,876)	(759,464,723)	29,951,079,395	(2.5%)
2014 <sup>2</sup>	2,047,022,439	(2,622,608,231)	(246,163,451)	(26,959,134)	(2,895,730,816)	(848,708,377)	34,802,242,081	(2.4%)
2015 <sup>2</sup>	2,109,888,728	(2,733,307,795)	(255,583,680)	(27,288,391)	(3,016,179,866)	(906,291,138)	34,799,688,273	(2.6%)

<sup>1</sup> Including LTD management fees prior to 1996

<sup>2</sup> 401(a) assets and 401(h) assets combined, excludes System assets and cash flows

### Exhibit 3.7 – History of Asset Values and Ratios

Year Ending 06/30	401(a)			401(h)			Total		
	Actuarial Value of Assets	Market Value of Assets	AVA/MVA Ratio	Actuarial Value of Assets	Market Value of Assets	AVA/MVA Ratio	Actuarial Value of Assets	Market Value of Assets	AVA/MVA Ratio
2015	\$ 32,783,434,444	\$ 33,329,078,636	98.4%	\$ 1,446,698,253	\$ 1,470,609,637	98.4%	\$ 34,230,132,697	\$34,799,688,273	98.4%
2014	31,194,504,482	33,337,146,512	93.6%	1,374,129,582	1,465,095,569	93.8%	32,568,634,064	34,802,242,081	93.6%
2013	29,733,566,151	28,677,043,323	103.7%	1,324,595,696	1,274,036,072	104.0%	31,058,161,847	29,951,079,395	103.7%
2012	28,548,705,130	26,047,713,626	109.6%	1,281,566,359	1,167,345,698	109.8%	29,830,271,489	27,215,059,324	109.6%
2011	27,559,411,373	26,440,256,592	104.2%	1,247,443,042	1,194,727,820	104.4%	28,806,854,415	27,634,984,412	104.2%
2010	27,117,832,654	21,779,421,537	124.5%	1,251,145,282	995,595,659	125.7%	28,368,977,936	22,775,017,196	124.6%
2009	27,093,788,614	19,506,243,433	138.9%	1,266,370,836	897,192,742	141.1%	28,360,159,450	20,403,436,175	139.0%
2008	26,612,440,139	24,208,124,045	109.9%	1,239,385,591	1,087,985,713	113.9%	27,851,825,730	25,296,109,758	110.1%
2007	25,309,888,063	26,476,068,259	95.6%	1,166,799,842	1,162,950,488	100.3%	26,476,687,905	27,639,018,747	95.8%
2006	23,766,572,590	22,671,365,333	104.8%	1,084,950,186	969,747,605	111.9%	24,851,522,776	23,641,112,938	105.1%
2005	22,808,290,293	21,029,394,547	108.5%	1,028,228,830	871,636,743	118.0%	23,836,519,123	21,901,031,290	108.8%
2004	22,659,396,324	19,940,524,999	113.6%	983,508,438	808,048,248	121.7%	23,642,904,762	20,748,573,247	113.9%
2003	22,572,007,289	17,418,714,877	129.6%	944,891,222	698,106,058	135.4%	23,516,898,510	18,116,820,935	129.8%
2002	22,641,693,322	17,821,982,950	127.0%	981,322,647	772,873,387	127.0%	23,623,015,969	18,594,856,337	127.0%

Excludes System Assets

## Section 4 – Actuarial Balance Sheet

The results of the actuarial valuation of the Plan as of June 30, 2014, and June 30, 2015, are summarized in the actuarial balance sheet in Exhibit 4.1.

## Exhibit 4.1 - Actuarial Balance Sheet

### Actuarial Assets

	June 30	
	2014	2015
<b>I Current Assets at Actuarial Value:</b>		
1. Reserve for retired members and beneficiaries	\$ 24,064,285,351	\$ 25,207,764,749
2. Reserve for disabled members	961,453,753	1,001,380,336
3. Reserve for other-than-plan retirees	5,696,825	6,611,262
4. Reserve for PBIs		
(a) Reserve for July 1st PBI	0	0
(b) Reserve for future PBIs	0	0
5. Member contributions*		
(a) Plan members	9,060,386,525	9,761,401,911
(b) System members	N/A	N/A
6. Employer contributions*		
(a) Plan members	8,800,584,395	9,516,134,211
(b) System members	N/A	N/A
7. Other miscellaneous		
(a) ASRS building and land	0	0
(b) Other	0	0
8. Reserve for post-1981 System Members	392,091,786	375,811,153
9. Additional assets	(8,125,945,049)	(10,753,019,151)
10. Total assets	\$ 35,158,553,586	\$ 35,116,084,471
11. Adjustment to market value due to asset valuation method	(2,236,436,919)	(556,391,580)
12. Total actuarial value of assets	\$ 32,922,116,667	\$ 34,559,692,891
<b>II Prospective Assets:</b>		
13. Unfunded actuarial accrued liability	9,903,897,264	10,013,866,124
14. <b>Total Actuarial Assets</b>	\$ 42,826,013,931	\$ 44,573,559,015

\*Contribution balances credited with 8% interest for all years.

## Actuarial Liabilities

	June 30	
	2014	2015
<b>III Present Value of Benefits Being Paid:</b>		
15. (a) Benefits for retired members and beneficiaries	\$ 23,372,573,046	\$ 24,421,887,636
(b) Health insurance premium supplement	691,712,305	785,877,113
16. (a) Benefits for disabled members	922,994,040	958,662,489
(b) Health insurance premium supplement	38,459,713	42,717,847
17. (a) Benefits for other-than-plan members	1,418,810	1,304,684
(b) Health insurance premium supplement	4,278,015	5,306,578
18. Total present value of benefits being paid	\$ 25,031,435,929	\$ 26,215,756,347
<b>IV Present Value of Benefits Payable in the Future to Current Members:</b>		
19. Active members		
(a) Service retirement benefits	\$ 13,177,773,688	\$ 13,459,091,238
(b) Health insurance premium supplement	694,678,630	692,278,453
(c) Disability retirement benefits	352,860,155	360,038,697
(d) Pre-retirement death benefits	219,629,458	233,452,269
(e) Withdrawal benefits	1,159,134,630	1,194,181,550
(f) Total active members	\$ 15,604,076,561	\$ 15,939,042,207
20. Inactive members		
(a) Retirement Benefits	\$ 1,750,841,390	\$ 1,963,698,739
(b) Health insurance premium supplement	47,568,265	79,250,569
(c) Total inactive members	\$ 1,798,409,655	\$ 2,042,949,308
21. Post-1981 System members	392,091,786	375,811,153
22. Total	\$ 42,826,013,931	\$ 44,573,559,015
<b>V Other Liabilities and Reserves:</b>		
23. Reserve for other miscellaneous liabilities	\$ 0	\$ 0
24. Reserve for PBIs	\$ 0	\$ 0
<b>25. Total Actuarial Liabilities</b>	<b>\$ 42,826,013,931</b>	<b>\$ 44,573,559,015</b>

## Exhibit 4.2 - Relative Size of Unfunded Actuarial Accrued Liability

Year Ending June 30	Unfunded Actuarial Accrued Liability (in Millions)	Relative to Covered Payroll		Relative to Actuarial Value of Current Assets		Relative to Total Actuarial Liabilities	
		Covered Payroll (in Millions)	Percent of Covered Payroll	Current Assets (in Millions)	Percent of Current Assets	Actuarial Liabilities (in Millions)	Percent of Actuarial Liabilities
1980	\$ 436	\$ 1,373	31.8%	\$ 1,631	26.7%	\$ 3,400	12.8%
1981	364	1,567	23.2%	1,982	18.4%	3,946	9.2%
1982	472	1,734	27.2%	2,255	20.9%	4,547	10.4%
1983	301	1,841	16.3%	2,777	10.8%	5,009	6.0%
1984	248	1,906	13.0%	3,174	7.8%	5,351	4.6%
1985	301	2,120	14.2%	3,654	8.2%	5,874	5.1%
1986	95	2,361	4.0%	4,538	2.1%	6,718	1.4%
1987	(129)	2,478	(5.2%)	5,531	(2.3%)	7,636	(1.7%)
1988	(292)	2,818	(10.3%)	6,000	(4.9%)	8,251	(3.5%)
1989	(510)	2,994	(17.0%)	6,686	(7.6%)	6,176	(8.3%)
1990	(552)	3,212	(17.2%)	7,297	(7.6%)	6,745	(8.2%)
1991	(654)	3,453	(18.9%)	7,822	(8.4%)	7,168	(9.1%)
1992	(632)	3,616	(17.5%)	8,842	(7.1%)	8,210	(7.7%)
1993	(849)	3,748	(22.7%)	9,770	(8.7%)	8,921	(9.5%)
1994	(872)	4,126	(21.1%)	10,540	(8.3%)	9,668	(9.0%)
1995	(1,217)	4,432	(27.5%)	11,521	(10.6%)	10,304	(11.8%)
1996	(1,468)	4,632	(31.7%)	12,579	(11.7%)	11,111	(13.2%)
1997	(1,784)	4,836	(36.9%)	14,169	(12.6%)	12,385	(14.4%)
1998	(2,530)	5,164	(49.0%)	16,168	(15.6%)	13,638	(18.6%)
1999	(2,639)	5,488	(48.1%)	18,761	(14.1%)	16,122	(16.4%)
2000	(3,578)	5,894	(60.7%)	21,127	(16.9%)	17,549	(20.4%)
2001	(2,587)	6,357	(40.7%)	22,855	(11.3%)	20,269	(12.8%)
2002	(1,036)	6,989	(14.8%)	23,623	(4.4%)	22,587	(4.6%)
2003	787	7,297	10.8%	23,517	3.3%	24,304	3.2%
2004	2,275	7,486	30.4%	23,643	9.6%	25,918	8.8%
2005	4,106	8,032	51.1%	23,837	17.2%	27,943	14.7%
2006	4,845	8,312	58.3%	24,852	19.5%	29,697	16.3%
2007	5,519	9,162	60.2%	26,477	20.8%	31,996	17.2%
2008	6,019	9,708	62.0%	27,852	21.6%	33,871	17.8%
2009	7,382	9,835	75.1%	28,360	26.0%	35,743	20.7%
2010 <sup>1</sup>	8,735	9,420	92.7%	28,823	30.3%	37,558	23.3%
2011 <sup>1</sup>	9,324	9,601	102.9%	29,231	31.9%	38,555	24.2%
2012 <sup>1</sup>	9,723	8,809	109.6%	30,230	32.2%	39,952	24.3%
2013 <sup>1</sup>	9,961	8,753	113.8%	31,435	31.7%	41,397	24.1%
2014 <sup>1</sup>	9,904	8,909	111.2%	32,922	30.1%	42,826	23.1%
2015 <sup>1</sup>	10,014	9,072	110.4%	34,560	29.0%	44,574	22.5%

<sup>1</sup> Includes System liabilities and assets for System members who retired or will retire on or after July 1, 1981.

## Section 5 – Contribution Rates

### Normal Cost

As shown in Exhibit 5.1, the total normal cost as of June 30, 2015, is 13.29% of pay compared to 13.40% in the 2014 valuation. This normal cost is developed based on the prescribed Projected Unit Credit (PUC) actuarial funding method. It includes both employer and member components.

### Summary of Cost Items

Exhibit 5.2 compares key actuarial items for the 2015 valuation with the corresponding items for the 2014 valuation.

### Contribution Rates<sup>1</sup>

The employer and member contribution rates are each determined as one-half of the percent of pay needed to pay the normal cost of the Plan and to amortize the Unfunded Actuarial Accrued Liability (UAAL). For the valuation as of June 30, 2015, the normal cost of the Plan is 13.29% and the amortization of the UAAL is 9.38%. The employer and member contribution rates are equal to:

$$\frac{1}{2} \times (13.29\% + 9.38\%) = 11.34\%$$

If the UAAL of the Plan were eliminated, the employer and member contribution rates would be:

$$\frac{1}{2} \times (13.29\% + 0.00\%) = 6.65\%$$

This difference of 4.69% (i.e., 11.34% - 6.65%) is due entirely to the UAAL of the Plan. Thus, the current UAAL of the Plan is equivalent to a 4.69% increase in the employer and member contribution rates determined in the 2015 valuation.

As noted above, the employer and member contribution rates determined in the 2015 valuation are each 11.34% of pay. Because of the separation of the health premium supplement into the 401(h) account, we must split the contribution rates into 401(a) and 401(h) portions. We have assumed that all member contributions will be contributed to the 401(a) account. This assumption is made to avoid any possible qualification problems due to refunds of member contributions. The contribution rates are allocated as shown below:

Item	401(a) Account	401(h) Account	Total
1. Member Contribution Rates	11.34%	0.00%	11.34%
2. Employer Contribution Rates	<u>10.78%</u>	<u>0.56%</u>	<u>11.34%</u>
3. Total Contribution Rates	22.12%	0.56%	22.68%

Exhibit 5.3 shows the history of the contribution rates.

<sup>1</sup> Includes System assets and liabilities for System members who retired or will retire on or after July 1, 1981.

**Exhibit 5.1 - Normal Cost by Component**

Benefit Component	Normal Cost as % of Pay	
	June 30, 2014	June 30, 2015
1. Retirement benefits	9.70%	9.65%
2. Health insurance premium supplement	0.37%	0.35%
3. Disability benefits (deferred retirement)	0.37%	0.37%
4. Death benefits	0.22%	0.23%
5. Termination benefits	2.74%	2.69%
6. Total	13.40%	13.29%

## Exhibit 5.2 - Summary of Cost Items

	Valuation as of June 30, 2014		Valuation as of June 30, 2015	
		Cost as % of Pay		Cost as % of Pay
1. Member Counts				
a. Active members	203,201		203,252	
b. Inactive members	215,325		219,346	
c. Retired members and beneficiaries	126,255		131,536	
d. Disabled retirees	4,206		4,002	
e. Total	548,987		558,136	
f. Other-than-plan retirees receiving only benefit increases (401(a))	170		154	
g. Other-than-plan retirees receiving only health insurance benefits (401(h))	502		504	
h. Other-than-plan retirees receiving both benefit increases (401(a)) and health insurance benefits (401(h))	97		91	
2. Covered payroll	\$ 8,908,620,792		\$ 9,072,376,682	
3. Averages for active members				
a. Average age	45.7		45.7	
b. Average years of service	9.6		9.6	
c. Average pay	\$ 43,841		\$ 44,636	
4. Normal cost rate	13.40%		13.29%	
5. Actuarial accrued liability <sup>1</sup>				
a. Retired members and beneficiaries	\$ 24,064,285,351		\$ 25,207,764,749	
b. Disabled members	961,453,753		1,001,380,336	
c. Benefits for other-than- plan retirees	5,696,825		6,611,262	
d. Active members	15,604,076,561		15,939,042,207	
e. Inactive members	1,798,409,655		2,042,949,308	
f. Post-1981 System members	392,091,786		375,811,153	
g. Reserve for PBIs	0		0	
h. Total	\$ 42,826,013,931	480.7%	\$ 44,573,559,015	491.3%
6. Current actuarial assets <sup>1</sup>	\$ 32,922,116,667	369.6%	\$ 34,559,692,891	380.9%
7. Unfunded actuarial accrued liability <sup>1</sup>	\$ 9,903,897,264	111.2%	\$ 10,013,866,124	110.4%

<sup>1</sup> Includes System liabilities and assets for System members who retired or will retire on or after July 1, 1981.

**Exhibit 5.2 – Summary of Cost Items (cont.)**

	Valuation as of June 30, 2014		Valuation as of June 30, 2015	
		Cost as % of Pay		Cost as % of Pay
8. Section 38-737 unfunded actuarial accrued liability amortization period				
• 401(a)	30 years		30 years	
• 401(h)	15 years		15 years	
9. Section 38-737 contribution rate <sup>1</sup>				
A. 401(a) Account				
a. Member	11.35%		11.34%	
b. Employer	10.85%		10.78%	
c. Total	22.20%		22.12%	
B. 401(h) Account				
a. Member	0.00%		0.00%	
b. Employer	0.50%		0.56%	
c. Total	0.50%		0.56%	
C. Total of Combined Accounts				
a. Member	11.35%		11.34%	
b. Employer	11.35%		11.34%	
c. Total	22.70%		22.68%	
10. Estimated return on 401(a) actuarial assets	7.64%		7.88%	
11. Relative size of unfunded actuarial accrued liability <sup>1</sup>				
a. As percentage of actuarial assets	30.1%		29.0%	
b. As percentage of covered payroll	111.2%		110.4%	
c. As percentage of total actuarial accrued liability	23.1%		22.5%	

<sup>1</sup> Includes System liabilities and assets for System members who retired or will retire on or after July 1, 1981.

### Exhibit 5.3 - History of Contribution Rates

Fiscal Year Beginning July 1	Calculated Rates		Actual Rates		Total Rate	
	Member	Employer	Member	Employer	Calculated	Actual
1980	7.00%	6.28%	7.00%	7.00%	13.28%	14.00%
1981	7.00	6.29	7.00	7.00	13.29	14.00
1982	7.00	5.79	7.00	7.00	12.79	14.00
1983	7.00	6.04	7.00	7.00	13.04	14.00
1984	6.27	6.27	6.27	6.27	12.54	12.54
1985	5.67	5.67	5.67	5.67	11.34	11.34
1986	5.53	5.53	5.53	5.53	11.06	11.06
1987	5.16	5.16	4.00	4.00	10.32	8.00
1988	5.09	5.09	5.09	5.09	10.18	10.18
1989	4.69	4.69	2.00	2.00	9.38	4.00
1990	3.82	3.82	3.82	3.82	7.64	7.64
1991	3.60	3.60	3.60	3.60	7.20	7.20
1992	3.59	3.59	3.59	3.59	7.18	7.18
1993	4.09	4.09	3.14	3.14	8.18	6.28
1994	3.75	3.75	3.75	3.75	7.50	7.50
1995	3.95	3.95	3.36	3.36	7.90	6.72
1996	3.20	3.20	3.20	3.20	6.40	6.40
1997	3.05	3.05	3.05	3.05	6.10	6.10
1998	2.85	2.85	2.85	2.85	5.70	5.70
1999	2.17	2.17	2.17	2.17	4.34	4.34
2000	2.73 <sup>1</sup>	2.73 <sup>1</sup>	2.17	2.17	5.46 <sup>1</sup>	4.34
2001	1.92	1.92	2.00	2.00	3.84	4.00
2002	3.86 <sup>1</sup>	3.86 <sup>1</sup>	2.00	2.00	7.72 <sup>1</sup>	4.00
2003	5.20	5.20	5.20	5.20	10.40	10.40
2004	6.96 <sup>1</sup>	6.96 <sup>1</sup>	5.20	5.20	13.92 <sup>1</sup>	10.40
2005	7.75	7.75	6.90 <sup>2</sup>	6.90 <sup>2</sup>	15.50	13.80 <sup>2</sup>
2006	8.70 <sup>1</sup>	8.70 <sup>1</sup>	8.60 <sup>2</sup>	8.60 <sup>2</sup>	17.40 <sup>1</sup>	17.20 <sup>2</sup>
2007	9.10	9.10	9.10	9.10	18.20	18.20
2008	8.94	8.94	8.95	8.95	17.88	17.90
2009	9.00	9.00	9.00	9.00	18.00	18.00
2010	9.58	9.58	9.60	9.60	19.15	19.20
2011 <sup>3</sup>	10.48	10.48	10.50	10.50	20.96	21.00
2012 <sup>3</sup>	10.90	10.90	10.90	10.90	21.80	21.80
2013 <sup>3</sup>	11.28	11.28	11.30	11.30	22.55	22.60
2014 <sup>3</sup>	11.48	11.48	11.48	11.48	22.96	22.96
2015 <sup>3</sup>	11.35	11.35	11.35	11.35	22.70	22.70
2016 <sup>3</sup>	11.34	11.34	11.34	11.34	22.67	22.68

<sup>1</sup> This is a hypothetical rate. The actual contribution rate was set by the prior year valuation.

<sup>2</sup> Legislative action fixed the rates for fiscal 2006 and 2007 at 6.90% and 8.60%, respectively.

<sup>3</sup> Includes System liabilities and assets for System members who retired or will retire on or after July 1, 1981.

## Section 6 – Actuarial Gains and Losses

The purpose of this section is to outline the sources of the actuarial gains and losses during the year that have caused the UAAL to change.

The June 30, 2015 valuation of the Plan reflects a loss on the investment return on the actuarial value of assets of \$40 million for fiscal 2015. Investment gains/losses are recognized in actuarial assets over a ten-year period. The rate of return on actuarial assets for fiscal 2015 was 7.88% on the pension assets (401(a)) and 7.75% on the health supplement assets (401(h)). These compare to last year's returns of 7.64% and 7.55%, respectively. The assumed rate of return is 8%. There was also a liability experience loss of \$245 million and a System experience loss of \$5 million during fiscal 2015. Therefore, the total net loss for the year was \$290 million.

## Exhibit 6.1 - Actuarial Gain or Loss for the Year

	Valuation as of June 30, 2014	Valuation as of June 30, 2015
<b>A. Calculation of Total Actuarial Gain or Loss</b>		
1. Unfunded actuarial accrued liability (UAAL), previous year	\$ 9,961,347,225	\$ 9,903,897,264
2. Normal cost	\$ 1,177,164,609	\$ 1,194,645,439
3. Contributions and other	\$ (2,014,581,194)	\$ (2,130,248,642)
4. Interest at 8%		
a. On UAAL	796,907,778	792,311,781
b. On normal cost	47,086,584	47,785,818
c. On contributions	(80,583,248)	(84,411,201)
d. Total	\$ 763,411,114	\$ 755,686,398
5. Expected UAAL (Sum of Items 1 - 4)	\$ 9,887,341,754	\$ 9,723,980,459
6. Actual UAAL	\$ 9,903,897,264	\$ 10,013,866,124
7. Gain/(loss) for the year (Item 5 - Item 6)	\$ (16,555,510)	\$ (289,885,665)
<b>B. Source of Gains and Losses</b>		
8. Asset gain/(loss) for the year (Exhibits 3.4a and 3.4b, Item 9)	\$ (110,133,819)	\$ (40,241,831)
9. Asset gain/(loss) as a percentage of actuarial assets	-0.3%	-0.1%
10. PBI		
a. Excess Earnings Reserve for Fiscal Year 2014	\$ 0	\$ 0
b. Excess Earnings Reserve for Fiscal Year 2015	\$ 0	\$ 0
11. System gain/(loss) allocated to the Plan	\$ (251,440)	\$ (4,553,041)
12. Total actuarial accrued liability gain/(loss) for the year (Item 7 - Item 8 – Item 10a – Item 10b – Item 11)	\$ 93,829,749	\$ (245,090,793)
13. Analysis of actuarial accrued liability gain/(loss)		
a. Legislative changes	\$ N/A	\$ N/A
b. Assumption changes	N/A	N/A
c. Experience liability gain/(loss)	93,829,749	(245,090,793)
d. Total actuarial accrued liability gain/(loss)	\$ 93,829,749	\$ (245,090,793)
14. Experience liability gain/(loss) as percentage of total actuarial liability (Items 11 and 13c as % of Item 5h of Exhibit 5.2)	0.22%	-0.56%

## Exhibit 6.2 - Change in Contribution Rate

	Unfunded Actuarial Accrued Liability (\$ Millions)	Combined Contribution Rate	Change in Combined Contribution Rate
1. Valuation as of June 30, 2014	\$ 9,904	22.70%	-
2. Expected Experience	9,791	22.44%	-0.26%
3. Delay in contribution rate change	9,724	22.37%	-0.07%
4. Liability experience	9,969	22.63%	+0.26%
5. Asset experience	10,009	22.67%	+0.04%
6. System experience allocated to the Plan	10,014	22.67%	+0.00%

## Exhibit 6.3 - Change in Actuarial Accrued Liability

	Actuarial Accrued Liability
1. Valuation as of June 30, 2014	\$42,826,013,931
2. Expected Experience	1,497,901,250
3. Assumption and Plan Provisions Changes	0
4. System (Gain)/Loss allocated to the Plan	4,553,041
5. Liability (Gain)/Loss	<u>245,090,793</u>
6. Valuation as of June 30, 2015	\$44,573,559,015

## Exhibit 6.4 – Experience Liability Gain/(Loss)

Decrement	Annual Gain/(Loss) as of June 30, 2015	Total Gain/(Loss) Since July 1, 2013*
Active Mortality	\$ (116,252)	\$ (1,827,971)
Active Withdrawal	(17,528,915)	(34,459,872)
Active Disability	(140,019)	(2,082,991)
Active Retirement	35,995,677	69,363,059
New Entrants/Rehires	(80,169,946)	(142,391,328)
Salary	12,035,706	53,407,274
Inactive Mortality	27,424,557	88,768,196
Other	<u>(222,591,601)</u>	<u>(182,037,411)</u>
Total	\$ (245,090,793)	\$ (151,261,044)

\*Date of most recent experience study.

## Section 7 – Permanent Benefit Increase (PBI)

Exhibit 7.1 shows the determination of the PBI for 2015. The determination of the "Excess Investment Earnings" held in reserve for future PBIs is shown in Items 12 through 14. As shown in Item 14c, no assets are available for future PBIs. Since the investment return (on the actuarial value of assets) of 7.88% is below 8% for fiscal 2015, there are no additional "Excess Investment Earnings" to be allocated for Permanent Benefit Increases (PBIs). Future PBI and enhanced PBI awards are not included in this valuation.

## Exhibit 7.1 – Determination of Permanent Benefit Increase (PBI)\*

<b>Determination of PBI, EPBI effective July 1, 2016</b>	
1. Actuarial Present Value (APV) for all Retirees and Beneficiaries as of June 30, 2014 (401(a) Only)	\$ 23,372,573,046
2. Rate of Return on Actuarial Value of Assets for Fiscal Year Ending June 30, 2014	7.64%
3. Excess Earnings Available for PBI	
a. Carry-over From Prior Year	\$ 0
b. Current Year (Item 1 x [Item 2 – 8%])	0
c. Total Excess Earnings Available for PBI (Item 3.a + Item 3.b.)	\$ 0
4. One Percent of APV of all Retirees and Beneficiaries as of June 30, 2014	\$ 233,725,730
5. Preliminary PBI % (Item 3.c / Item 4)	0.0%
6. Actual PBI % (Item 5, but not greater than 4% and equal to 0% if less than 1%)	0.0%
7. Target Cost of 2015 PBI (Item 4 x Item 6)	\$ 0
8. APV of \$1 Per Year of Service for Eligible Group	0
9. Per Year of Service Factor for 2015 PBI (item 7 / Item 8)	0
10. Excess Investment Earnings to be Carried Forward to Next Year	0
11. Determination of EPBI (8% of 3c)	\$ 0
<b>Determination of Reserves for Future PBIs:</b>	
12. Actuarial Present Value (APV) for all Retirees and Beneficiaries as of June 30, 2015 (401(a) only)	\$ 24,421,887,636
13. Rate of Return on Actuarial Value of Assets for Fiscal Year Ending June 30, 2015	7.88%
14. Excess Earnings Reserves for Future PBIs	
a. Carry Over From Prior Year (Item 10)	\$ 0
b. Current Year (Item 12 x [Item 13 – 8%, minimum 0])	0
c. Total Excess Earnings Reserves for Future PBIs	\$ 0

\*Only applicable for members hired before September 13, 2013.

## Exhibit 7.2 – Historical Permanent Benefit Increases

Valuation Year	PBI Amount	Valuation Year	PBI Amount
1996	\$11.88	2006	\$0.00
1997	\$19.07	2007	\$0.00
1998	\$10.96	2008	\$0.00
1999	\$10.71	2009	\$0.00
2000	\$29.49	2010	\$0.00
2001	\$29.79	2011	\$0.00
2002	\$31.40	2012	\$0.00
2003	\$35.43	2013	\$0.00
2004	\$35.30	2014	\$0.00
2005	\$25.90	2015	\$0.00

## Section 8 – Historical and CAFR Information

This section focuses on historical and required CAFR information.

### **Schedule of Funding Progress (401(a))**

The Schedule of Funding Progress shows a historical comparison of the 401(a) assets and liabilities using the 401(a) actuarial funding method.

### **Schedule of Employer Contributions (401(a))**

The Schedule of Employer Contributions compares the actual employer contributions to the actuarially-determined contributions, which equal the normal cost plus amortization of unfunded actuarial accrued liabilities, determined using the 401(a) actuarial funding method.

### **GASB 43 Schedule of Funding Progress (401(h))**

The Governmental Accounting Standards Board (GASB) issued Statement No. 43 that establishes reporting and disclosure requirements for public sector postemployment benefit plans other than pension plans. The Schedule of Funding Progress shows a historical comparison of the 401(h) assets and liabilities using the 401(h) actuarial funding method.

### **GASB 43 Schedule of Employer Contributions (401(h))**

The required Schedule of Employer Contributions compares the actual employer contributions to the “Annual Required Contributions” (ARC). The ARC is the employer contribution determined under GASB 43 standards (normal cost plus amortization of unfunded actuarial accrued liabilities) which are determined using the 401(h) actuarial funding method.

### **Retiree and Beneficiary Experience**

The annual CAFR requires the disclosure of historical summary data for retired members.

### **Solvency Test**

The annual CAFR requires the disclosure of a “Solvency Test.” This test compares actuarial assets to actuarial accrued liabilities applying assets to contribution balances of active and inactive members first, then to the liabilities of retired members and beneficiaries, and finally to the remaining liabilities of active and inactive members.

### Exhibit 8.1a - Schedule of Funding Progress (401(a))

Valuation Date	Actuarial Value of Assets (AVA)	Actuarial Accrued Liability (AAL)	Unfunded Actuarial Accrued Liability (UAAL) (3) - (2)	Funded Ratio (2) / (3)	Annual Covered Payroll	UAAL as % of Payroll (4) / (6)
(1)	(2)	(3)	(4)	(5)	(6)	(7)
06/30/1993	\$ 9,770	\$ 8,921	\$ (849)	109.5%	\$ 3,748	(22.7%)
06/30/1994	10,549	9,668	(872)	109.0%	4,126	(21.1%)
06/30/1995	11,521	10,304	(1,217)	111.8%	4,432	(27.5%)
06/30/1996	12,579	11,111	(1,468)	113.2%	4,632	(31.7%)
06/30/1997	13,692	11,694	(1,998)	117.1%	4,836	(41.3%)
06/30/1998	15,577	12,910	(2,667)	120.7%	5,164	(51.7%)
06/30/1999	18,043	15,476	(2,567)	116.6%	5,488	(46.8%)
06/30/2000	20,292	16,854	(3,438)	120.4%	5,894	(58.3%)
06/30/2001	21,888	19,012	(2,876)	115.1%	6,357	(45.2%)
06/30/2002	22,642	21,285	(1,357)	106.4%	6,989	(19.4%)
06/30/2003	22,572	22,935	363	98.4%	7,297	5.0%
06/30/2004	22,659	24,506	1,847	92.5%	7,486	24.7%
06/30/2005	22,808	26,486	3,678	86.1%	8,032	45.8%
06/30/2006	23,767	28,192	4,426	84.3%	8,312	53.2%
06/30/2007	25,310	30,390	5,080	83.3%	9,162	55.4%
06/30/2008	26,613	32,425	5,812	82.1%	9,708	59.9%
06/30/2009	27,094	34,290	7,196	79.0%	9,835	73.2%
06/30/2010	27,572	36,073	8,501	76.4%	9,420	90.2%
06/30/2011	27,984	37,051	9,067	75.5%	9,061	100.1%
06/30/2012	28,948	38,450	9,502	75.3%	8,869	107.1%
06/30/2013	30,111	39,912	9,801	75.4%	8,753	112.0%
06/30/2014	31,548	41,349	9,801	76.3%	8,909	110.0%
06/30/2015	33,113	42,968	9,855	77.1%	9,072	108.6%

Note: Dollar amounts in millions.  
 Values shown for valuation dates on or after June 30, 1996 are for the 401(a) plan only.  
 Values shown for valuation dates on or after June 30, 2010 include System assets and liabilities for System members who retired or will retire on or after July 1, 1981.

### Exhibit 8.1b - Schedule of Employer Contributions (401(a))

Fiscal Year	Actuarially-Determined Contribution	Percentage Contributed
1993	\$ 135,644,868	100.0%
1994	162,452,872	76.8%
1995	158,559,931	100.0%
1996	78,608,439	100.0%
1997	89,756,995	100.0%
1998	78,004,461	100.0%
1999	85,964,481	100.0%
2000	195,810,628	100.0%
2001	209,320,281	100.0%
2002	130,647,669	100.0%
2003	137,622,205	100.0%
2004	297,268,473	100.0%
2005	317,919,116	100.0%
2006	477,119,869	100.0%*
2007	663,207,139	100.0%
2008	759,171,555	100.0%
2009	753,909,718	100.0%
2010	763,005,105	100.0%
2011	786,581,145	100.0%
2012	852,107,785	100.0%
2013	911,255,171	100.0%
2014	965,930,233	100.0%
2015	1,004,711,445	100.0%

\* Ignores short-term differences. The legislature set the contribution rate for fiscal 2006 to be lower than the actuarially calculated rate and the rate for 2007 to be higher than the actuarially calculated rate. Thus, the contribution deficiency for 2006 and excess for 2007 are both short-term differences.

Note: Contribution amounts shown for fiscal year 1996 and after are the contribution amounts for the 401(a) plan only.  
 Values shown for valuation dates on or after June 30, 2010 include System assets and liabilities for System members who retired or will retire on or after July 1, 1981.

### Exhibit 8.2a - Schedule of Funding Progress (401(h))

Valuation Date	Actuarial Value of Assets (AVA)	Actuarial Accrued Liability (AAL)	Unfunded Actuarial Accrued Liability (UAAL) (3) - (2)	Funded Ratio (2) / (3)	Annual Covered Payroll	UAAL as % of Payroll (4) / (6)
(1)	(2)	(3)	(4)	(5)	(6)	(7)
06/30/2005	\$ 1,028	\$ 1,456	\$ 428	70.6%	\$ 8,032	5.3%
06/30/2006	\$ 1,085	\$ 1,505	\$ 420	72.1%	\$ 8,312	5.1%
06/30/2007	\$ 1,167	\$ 1,605	\$ 438	72.7%	\$ 9,162	4.8%
06/30/2008	\$ 1,239	\$ 1,446	\$ 207	85.7%	\$ 9,708	2.1%
06/30/2009	\$ 1,266	\$ 1,452	\$ 186	87.2%	\$ 9,835	1.9%
06/30/2010	\$ 1,251	\$ 1,485	\$ 234	84.2%	\$ 9,420	2.5%
06/30/2011	\$ 1,247	\$ 1,504	\$ 257	82.9%	\$ 9,061	2.8%
06/30/2012	\$ 1,282	\$ 1,502	\$ 220	85.3%	\$ 8,869	2.5%
06/30/2013	\$ 1,325	\$ 1,485	\$ 160	89.2%	\$ 8,753	1.8%
06/30/2014	\$ 1,374	\$ 1,477	\$ 103	93.0%	\$ 8,909	1.2%
06/30/2015	\$ 1,447	\$ 1,605	\$ 158	90.1%	\$ 9,072	1.7%

Note: Dollar amounts in millions.

### Exhibit 8.2b - Schedule of Employer Contributions (401(h))

Fiscal Year	Annual Required Contribution	Percentage Contributed
2005	\$ 85,350,074	100.0%
2006	\$ 93,461,175	100.0%*
2007	\$ 103,473,474	100.0%
2008	\$ 99,026,974	100.0%
2009	\$ 90,489,881	100.0%
2010	\$ 59,393,098	100.0%
2011	\$ 51,047,543	100.0%
2012	\$ 54,462,585	100.0%
2013	\$ 57,153,530	100.0%
2014	\$ 53,405,674	100.0%
2015	\$ 53,585,626	100.0%

\* Ignores short-term differences. The legislature set the contribution rate for fiscal 2006 to be lower than the actuarially calculated rate and the rate for fiscal 2007 to be higher than the actuarially calculated rate. Thus, the contribution deficiency for 2006 and excess for 2007 are both short-term differences.

### Exhibit 8.3 - Notes to Required Supplementary Information

The information presented in the required supplementary schedules was determined as part of the actuarial valuations at the dates indicated. Additional information as of the latest actuarial valuation follows:

Valuation date	June 30, 2015
Actuarial cost method	Projected Unit Credit
Amortization method	Level dollar, 30 years, closed for 401(a) Level dollar, 15 years, closed for 401(h)
Payroll growth rate for amortization	N/A
Asset valuation method	10-year smoothed market
Actuarial assumptions:	
Investment rate of return	8.00%
Projected salary increases*	3.00% to 6.75%
*Includes wage inflation of 3.00%	
Future Permanent Benefit Increases	Not Valued

### Exhibit 8.4 – Components of Normal Cost<sup>1</sup>

	2015
Components of the normal cost are as follows:	
Retirement benefits	9.65%
Health insurance premium supplement	0.35%
Survivor benefits	0.23%
Withdrawals	2.69%
Long-term disability benefit	<u>0.37%</u>
Total normal cost	13.29%
Amortization of the UAAL	<u>9.38%</u>
Required contribution rate for FY 2017	22.67%

<sup>1</sup>Includes System liabilities and assets for System members who retired or will retire on or after July 1, 1981.

### Exhibit 8.5 – Schedule of Plan Active Member Valuation Data

Valuation As of June 30	Number	Annual Payroll	Annual Average Pay	Increase in Average Pay
2004	205,482	\$ 7,485,590,038	\$ 36,429	1.0%
2005	212,202	8,032,457,947	37,853	3.9%
2006	217,676	8,311,869,615	38,185	0.9%
2007	224,001	9,161,803,726	40,901	7.1%
2008	226,415	9,708,352,896	42,879	4.8%
2009	222,515	9,834,810,345	44,198	3.1%
2010	213,530	9,419,951,810	44,115	(0.2%)
2011	208,939	9,060,630,604	43,365	(1.7%)
2012	203,994	8,868,678,184	43,475	0.3%
2013	202,693	8,752,783,004	43,182	(0.7%)
2014	203,201	8,908,620,792	43,841	1.5%
2015	203,252	9,072,376,682	44,636	1.8%

### Exhibit 8.6a – Schedule of Plan Retirees Added to and Removed from Rolls (401(a))

Valuation As of June 30	Added to Rolls			Removed from Rolls			Rolls – End of Year			Percent Increase in Total Annual Allowances
	Number	Annual Allowances*	Average Annual Allowances	Number	Annual Allowances	Average Annual Allowances	Number	Annual Allowances*	Average Annual Allowances	
2004	5,882	\$ 159,779,107	\$ 27,164	1,733	\$ 23,506,435	\$ 13,564	64,121	\$ 1,168,664,755	\$ 18,226	13.2%
2005	6,429	129,398,517	20,127	1,815	26,570,628	14,639	68,735	1,271,492,645	18,498	8.8%
2006	6,522	160,698,938	24,640	2,176	29,274,714	13,453	73,081	1,402,916,869	19,197	10.3%
2007	6,919	138,099,329	19,959	1,391	21,174,343	15,222	78,609	1,519,841,855	19,334	8.3%
2008	7,269	142,348,411	19,583	2,101	28,994,115	13,800	83,777	1,633,196,151	19,495	7.5%
2009	7,458	145,821,459	19,552	2,185	26,600,736	12,174	89,050	1,752,416,874	19,679	7.3%
2010	8,846	169,020,787	19,107	2,199	32,024,832	14,563	95,697	1,889,412,829	19,744	7.8%
2011	8,732	170,547,373	19,531	2,323	34,684,356	14,935	102,106	2,025,265,846	19,835	7.2%
2012	8,606	162,693,011	18,905	2,485	37,409,835	15,054	108,227	2,150,549,022	19,871	6.2%
2013	8,901	166,945,373	18,756	2,720	43,009,451	15,812	114,408	2,274,484,944	19,880	5.8%
2014	7,743	150,590,436	19,449	2,692	41,360,235	15,364	119,459	2,383,715,145	19,954	4.8%
2015	8,008	159,769,275	19,951	3,037	48,677,814	16,028	124,430	2,494,806,606	20,050	4.7%

\* Includes PBIs.

### Exhibit 8.6b – Schedule of Plan Beneficiaries Added to and Removed from Rolls (401(a))

Valuation As of June 30	Added to Rolls			Removed from Rolls			Rolls – End of Year			Percent Increase in Total Annual Allowances
	Number	Annual Allowances*	Average Annual Allowances	Number	Annual Allowances	Average Annual Allowances	Number	Annual Allowances*	Average Annual Allowances	
2004	548	\$ 9,284,219	\$ 16,942	463	\$ 3,476,244	\$ 7,508	4,810	\$ 61,361,104	\$ 12,757	10.5%
2005	576	6,611,195	11,478	268	2,901,597	10,827	5,118	65,070,702	12,714	6.0%
2006	621	10,168,738	16,375	322	3,442,543	10,691	5,417	71,796,897	13,254	10.3%
2007	474	6,437,518	13,581	906	9,357,927	10,329	4,985	68,876,488	13,817	-4.1%
2008	515	6,537,322	12,694	321	4,424,864	13,785	5,179	70,988,946	13,707	3.1%
2009	500	7,397,536	14,795	305	3,432,448	11,254	5,374	74,954,034	13,948	5.6%
2010	514	7,399,119	14,395	278	3,641,429	13,099	5,610	78,711,724	14,031	5.0%
2011	556	8,519,134	15,322	276	3,816,954	13,830	5,890	83,413,904	14,162	6.0%
2012	621	9,279,263	14,942	307	4,285,570	13,960	6,204	88,407,597	14,250	6.0%
2013	588	9,029,111	15,356	325	4,317,260	13,284	6,467	93,119,448	14,399	5.3%
2014	642	9,888,433	15,403	313	4,215,170	13,467	6,796	98,792,711	14,537	6.1%
2015	687	9,369,100	13,638	377	3,812,473	10,113	7,106	104,349,338	14,685	5.6%

\* Includes PBIs.

### Exhibit 8.6c – Schedule of Plan Retirees and Beneficiaries Added to and Removed from Rolls (401(a))

Valuation As of June 30	Added to Rolls			Removed from Rolls			Rolls – End of Year			Percent Increase in Total Annual Allowances
	Number	Annual Allowances*	Average Annual Allowances	Number	Annual Allowances	Average Annual Allowances	Number	Annual Allowances*	Average Annual Allowances	
2004	6,430	\$ 169,063,326	\$ 26,293	2,196	\$ 26,982,679	\$ 12,287	68,931	\$ 1,230,025,859	\$ 17,844	13.1%
2005	7,005	136,009,712	19,416	2,083	29,472,225	14,149	73,853	1,336,563,347	18,098	8.7%
2006	7,143	170,867,676	23,921	2,498	32,717,257	13,097	78,498	1,474,713,766	18,787	10.3%
2007	7,393	144,536,847	19,551	2,297	30,532,270	13,292	83,594	1,588,718,343	19,005	7.7%
2008	7,784	148,885,733	19,127	2,422	33,418,979	13,798	88,956	1,704,185,097	19,158	7.3%
2009	7,958	153,218,995	19,253	2,490	30,033,184	12,062	94,424	1,827,370,908	19,353	7.2%
2010	9,360	176,419,906	18,848	2,477	35,666,261	14,399	101,307	1,968,124,553	19,427	7.7%
2011	9,288	179,066,507	19,279	2,599	38,511,310	14,818	107,926	2,108,679,750	19,526	7.1%
2012	9,227	171,972,274	18,638	2,792	41,695,405	14,934	114,431	2,238,956,619	19,566	6.2%
2013	9,489	175,974,484	18,545	3,045	47,326,711	15,542	120,875	2,367,604,392	19,587	5.7%
2014	8,385	160,478,869	19,139	3,005	45,575,405	15,167	126,255	2,482,507,856	19,663	4.9%
2015	8,695	169,138,375	19,452	3,414	52,490,287	15,375	131,536	2,599,155,944	19,760	4.7%

\* Includes PBIs.

### Exhibit 8.6d - Schedule of Benefit Recipients Added to and Removed from Rolls (401(h))

Valuation As of June 30	Added to Rolls			Removed from Rolls			Rolls – End of Year			Percent Increase in Annual Allowances
	Number	Annual Allowances	Average Annual Allowances	Number	Annual Allowances	Average Annual Allowances	Number	Annual Allowances	Average Annual Allowances	
2010	5,689	\$ 10,358,376	\$ 1,821	2,647	\$ 6,487,680	\$ 2,451	57,795	\$ 86,092,944	\$ 1,490	4.7%
2011	6,047	10,459,392	1,730	3,199	7,707,744	2,409	60,643	88,844,592	1,465	3.2%
2012	5,867	9,754,788	1,663	3,285	8,936,184	2,720	63,225	89,663,196	1,418	0.9%
2013	5,861	9,434,508	1,610	4,159	9,127,908	2,195	64,927	89,969,796	1,386	0.3%
2014	5,609	8,620,656	1,537	3,350	8,597,436	2,566	67,186	89,993,016	1,339	0.0%
2015	7,429	15,954,804	2,148	3,119	7,965,132	2,554	71,496*	97,982,688	1,370	8.9%

\* Includes 595 System members receiving 401(h) benefits and 1,280 members receiving LTD benefits and 401(h) benefits.

**Exhibit 8.7 – Schedule of Unfunded (Over) Accrued Liabilities (401(a) and 401(h))**

Year Ended June 30	Aggregate Accrued Liabilities	Actuarial Value of Net Assets	Assets as a % of Accrued Liabilities	Unfunded (over) Accrued Liabilities – (UAL)	Active Member Payroll	UAL as a % of Active Member Payroll
2004	\$ 25,918,329,505	\$ 23,642,904,763	91.2%	\$ 2,275,424,742	\$ 7,485,590,038	30.4%
2005	27,942,601,285	23,836,519,123	85.3%	4,106,082,162	8,032,457,947	51.1%
2006	29,696,631,262	24,851,522,776	83.7%	4,845,108,486	8,311,869,615	58.3%
2007	31,995,671,426	26,476,687,905	82.8%	5,518,983,521	9,161,803,726	60.2%
2008	33,870,864,745	27,851,825,730	82.2%	6,019,039,015	9,708,352,896	62.0%
2009	35,742,538,572	28,360,159,450	79.3%	7,382,379,122	9,834,810,345	75.1%
2010	37,557,862,066	28,823,144,688	76.7%	8,734,717,378	9,419,951,810	92.7%
2011	38,555,369,013	29,230,960,267	75.8%	9,324,408,746	9,060,630,604	102.9%
2012	39,952,371,191	30,229,577,272	75.7%	9,722,793,919	8,868,678,184	109.6%
2013	41,396,575,487	31,435,228,262	75.9%	9,961,347,225	8,752,783,004	113.8%
2014	42,826,013,931	32,922,116,667	76.9%	9,903,897,264	8,908,620,792	111.2%
2015	44,573,559,015	34,559,692,891	77.5%	10,013,866,124	9,072,376,682	110.4%

**Exhibit 8.8a – Solvency Test (401(a))**

Year Ended June 30	Aggregate Accrued Liabilities for			Net Assets Available for Benefits	Portion of Accrued Liabilities Covered by Net Assets Available for Benefits		
	(1)	(2)	(3)		(1)	(2)	(3)
	Active and Inactive Member Contributions *	Retirees and Beneficiaries	Active and Inactive Members(Employer Financed Portion)				
2001	\$ 2,876,445,119	\$ 9,184,997,812	\$ 6,980,343,913 **	\$ 21,888,183,666	100.0%	100.0%	100.0%
2002	3,046,008,125	10,141,767,789	8,097,396,037 **	22,641,693,322	100.0	100.0	100.0
2003	3,110,690,039	10,911,141,534	8,912,910,871 **	22,572,007,289	100.0	100.0	95.9
2004	3,407,611,954	11,888,766,685	9,209,865,919 **	22,659,396,325	100.0	100.0	79.9
2005	3,717,945,957	12,970,620,699	9,797,630,212 **	22,808,290,293	100.0	100.0	62.5
2006	4,168,243,157	13,998,186,812	10,025,660,085 **	23,766,572,590	100.0	100.0	55.9
2007	5,533,036,906	15,191,806,375	9,665,632,410	25,309,888,063	100.0	100.0	47.4
2008	6,256,502,949	16,357,773,654	9,810,200,566	26,612,440,139	100.0	100.0	40.8
2009	7,054,925,502	17,455,947,713	9,779,242,657	27,093,788,614	100.0	100.0	26.4
2010	7,704,328,621	19,246,476,421	9,121,714,675	27,571,999,406	100.0	100.0	6.8
2011	8,374,149,814	20,541,081,742	8,135,947,783	27,983,517,225	100.0	95.5	0.0
2012	9,110,894,718	21,699,459,353	7,639,934,669	28,948,010,913	100.0	91.4	0.0
2013	9,917,301,188	23,684,426,598	6,310,027,446	30,110,632,566	100.0	85.3	0.0
2014	10,780,693,824	24,689,077,682	5,879,545,497	31,547,987,085	100.0	84.1	0.0
2015	11,714,896,096	25,757,665,962	5,495,566,397	33,112,994,638	100.0	83.1	0.0

\*Contribution balances credited with 8% interest for all years.

\*\*401(a) liabilities for 2006 and earlier include 401(h) liabilities for inactive members.

Values shown for valuation dates on or after June 30, 2010 include System assets and liabilities for System members who retired or will retire on or after July 1, 1981.

**Exhibit 8.8b – Solvency Test (401(h))**

Year Ended June 30	Aggregate Accrued Liabilities for			Net Assets Available for Benefits	Portion of Accrued Liabilities Covered by Net Assets Available for Benefits		
	(1)	(2)	(3)		(1)	(2)	(3)
	Active and Inactive Member Contributions	Retirees and Beneficiaries	Active and Inactive Members(Employer Financed Portion)				
2001	\$ 0	\$ 404,565,100	\$ 822,162,500*	\$ 966,959,873	100.0%	100.0%	68.4%
2002	0	455,596,600	846,152,200*	981,322,647	100.0	100.0	62.1
2003	0	517,510,480	851,386,523*	944,891,222	100.0	100.0	50.2
2004	0	533,183,961	878,900,986*	983,508,438	100.0	100.0	51.2
2005	0	552,285,029	904,119,388*	1,028,228,830	100.0	100.0	52.6
2006	0	578,560,443	925,980,765*	1,084,950,186	100.0	100.0	54.7
2007	0	598,088,408	1,007,107,327	1,166,799,842	100.0	100.0	56.5
2008	0	619,808,594	826,578,982	1,239,385,591	100.0	100.0	75.0
2009	0	627,536,754	824,885,946	1,266,370,836	100.0	100.0	77.4
2010	0	652,876,059	832,466,290	1,251,145,282	100.0	100.0	71.9
2011	0	669,593,178	834,596,496	1,247,443,042	100.0	100.0	69.2
2012	0	674,713,116	827,369,335	1,281,566,359	100.0	100.0	73.3
2013	0	738,731,217	746,089,038	1,324,595,696	100.0	100.0	78.5
2014	0	734,450,033	742,246,895	1,374,129,582	100.0	100.0	86.2
2015	0	833,901,538	771,529,022	1,446,698,253	100.0	100.0	79.4

\* 401(h) liabilities for 2006 and earlier are included in 401(a) liabilities for inactive members.

**Exhibit 8.8c – Solvency Test (401(a) and 401(h))**

Year Ended June 30	Aggregate Accrued Liabilities for			Net Assets Available for Benefits	Portion of Accrued Liabilities Covered by Net Assets Available for Benefits		
	(1)	(2)	(3)		(1)	(2)	(3)
	Active and Inactive Member Contributions	Retirees and Beneficiaries	Active and Inactive Members(Employer Financed Portion)				
2004	\$ 3,407,611,954	\$ 12,421,950,646	\$ 10,088,766,905	\$ 23,642,904,763	100.0%	100.0%	77.4%
2005	3,717,945,957	13,522,905,728	10,701,749,600	23,836,519,123	100.0	100.0	61.6
2006	4,168,243,157	14,576,747,255	10,951,640,850	24,851,522,776	100.0	100.0	55.8
2007	5,533,036,906	15,789,894,783	10,672,739,737	26,476,687,905	100.0	100.0	48.3
2008	6,256,502,949	16,977,582,248	10,636,779,548	27,851,825,730	100.0	100.0	43.4
2009	7,054,925,502	18,083,484,467	10,604,128,603	28,360,159,450	100.0	100.0	30.4
2010	7,704,328,621	19,899,352,480	9,954,180,965	28,823,144,688	100.0	100.0	12.3
2011	8,374,149,814	21,210,674,920	8,970,544,279	29,230,960,267	100.0	98.3	0.0
2012	9,110,894,718	22,374,172,469	8,467,304,004	30,229,577,272	100.0	94.4	0.0
2013	9,917,301,188	24,423,157,815	7,056,116,484	31,435,228,262	100.0	88.1	0.0
2014	10,780,693,824	25,423,527,715	6,621,792,392	32,922,116,667	100.0	87.1	0.0
2015	11,714,896,096	26,591,567,500	6,267,095,419	34,559,692,891	100.0	85.9	0.0

\*Contribution balances credited with 8% interest for all years.

Values shown for valuation dates on or after June 30, 2010 include System assets and liabilities for System members who retired or will retire on or after July 1, 1981.

**Exhibit 8.9 – Schedule of Recommended Versus Actual Plan Contributions (401(a))**

Year Ended June 30	Active Member Payroll	Actual Member Contributions	Member Retirement Contribution Rate – Actual	Actuary Recommended Contribution
2004	\$ 7,486,000,000	\$ 377,436,100	5.20%	5.20%
2005	8,032,000,000	403,269,191	5.20%	5.20%
2006	8,312,000,000	570,581,044	6.90%*	7.75%*
2007	9,162,000,000	766,624,734	8.60%*	7.75%*
2008	9,708,000,000	857,502,851	9.10%	9.10%
2009	9,835,000,000	844,405,884	8.95%	8.95%
2010	9,420,000,000	808,814,419	9.00%	9.00%
2011	9,061,000,000	833,205,706	9.60%	9.60%
2012	8,869,000,000	905,908,620	10.50%	10.50%
2013	8,753,000,000	947,959,053	10.90%	10.90%
2014	8,909,000,000	995,245,287	11.30%	11.30%
2015	9,072,000,000	1,031,919,007	11.48%	11.48%

\* The 7.75% rate was determined in the 2004 valuation and would have applied to the 2006/2007 biennium. The Legislature adopted a stair-step approach to increasing contribution rates and set the rate at 6.90% for fiscal 2006 and 8.60% for fiscal 2007.

**Exhibit 8.10a – Analysis of Financial Experience (millions) (401(a))**

Year Ended June 30	Unfunded Actuarial Liability (UAAL), Prior Year	Normal Cost for the Year	Contributions for the Year	Interest at 8% on UAAL	Interest at 8% on Normal Cost <sup>1</sup>	Interest at 8% on Contributions	Total Interest	Expected UAAL	Actual UAAL	Gain (Loss) for the Year <sup>2</sup>
2002	\$ (2,846.40)	\$ 701.14	\$ (317.73)	\$ (227.71)	\$ 56.09	\$ (12.71)	\$ (184.33)	\$ (2,647.32)	\$ (1,356.52)	\$ (1,290.80)
2003	(1,356.52)	781.41	(371.27)	(108.52)	62.51	(14.85)	(60.86)	(1,007.24)	362.74	(1,369.98)
2004	362.74	900.43	(786.31)	29.02	72.03	(31.45)	69.60	546.46	1,846.85	(1,300.39)
2005	1,846.85	958.24	(861.35)	147.75	76.66	(34.45)	189.95	2,133.69	3,677.91	(1,544.22)
2006	3,677.91	1,023.15	(1,171.73)	294.23	81.85	(46.87)	329.22	3,858.54	4,425.52	(566.98)
2007	4,425.52	1,116.57	(1,527.70)	354.04	89.33	(61.11)	382.26	4,396.65	5,080.59	(683.94)
2008	5,080.59	1,165.17	(1,616.67)	406.45	93.21	(64.67)	434.99	5,064.08	5,812.04	(747.96)
2009	5,812.04	1,205.10	(1,598.33)	464.96	96.41	(63.93)	497.44	5,916.24	7,196.33	(1,280.08)
2010	7,196.33	1,234.67	(1,571.82)	575.71	98.77	(62.87)	611.61	7,470.79	8,500.52	(1,029.73)
2011	8,500.52	1,215.14	(1,619.79)	680.04	97.21	(64.79)	712.46	8,808.33	9,067.66	(259.33)
2012	9,067.66	1,170.47	(1,758.02)	725.41	93.64	(70.32)	748.73	9,228.84	9,502.28	(273.44)
2013	9,502.28	1,164.58	(1,859.21)	760.18	93.17	(74.37)	778.98	9,586.63	9,801.12	(214.49)
2014	9,801.12	1,143.11	(1,961.18)	784.09	45.72	(78.45)	751.36	9,734.41	9,801.33	(66.92)
2015	9,801.33	1,161.38	(2,056.69)	784.11	46.46	(82.27)	748.30	9,654.32	9,855.13	(200.81)

<sup>1</sup> Middle of year beginning in 2014, beginning of year prior to 2014.

<sup>2</sup> Gain/Loss includes assumption and plan changes.

Values shown for valuation dates on or after June 30, 2010 include System assets and liabilities for System members who retired or will retire on or after July 1, 1981.

**Exhibit 8.10b – Analysis of Financial Experience (millions) (401(h))**

Year Ended June 30	Unfunded Actuarial Liability (UAAL), Prior Year	Normal Cost for the Year	Contributions for the Year	Interest at 8% on UAAL	Interest at 8% on Normal Cost <sup>1</sup>	Interest at 8% on Contributions	Total Interest	Expected UAAL	Actual UAAL	Gain (Loss) for the Year <sup>2</sup>
2002	\$ 259.77	\$ 45.77	\$ (4.04)	\$ 20.78	\$ 3.66	\$ (0.16)	\$ 24.28	\$ 325.78	\$ 320.42	\$ 5.36
2003	320.42	50.32	(4.26)	25.63	4.03	(0.17)	29.49	395.97	424.00	(28.03)
2004	424.00	50.35	(79.66)	33.92	4.03	(3.19)	34.76	429.46	428.57	0.89
2005	428.57	51.98	(85.35)	34.29	4.16	(3.41)	35.03	430.23	428.17	2.06
2006	428.17	52.31	(93.46)	34.25	4.18	(3.74)	34.70	421.72	419.59	2.13
2007	419.59	55.04	(103.47)	33.57	4.40	(4.14)	33.83	404.99	438.39	(33.40)
2008	438.39	53.73	(99.03)	35.07	4.30	(3.96)	35.41	428.50	207.00	221.50
2009	207.00	46.38	(90.48)	16.56	3.71	(3.62)	16.65	179.55	186.05	(6.50)
2010	186.05	41.88	(59.39)	14.88	3.35	(2.38)	15.85	184.39	234.20	(49.81)
2011	234.20	40.28	(51.05)	18.74	3.22	(2.04)	19.92	243.35	256.75	(13.40)
2012	256.75	38.42	(54.46)	20.54	3.07	(2.18)	21.43	262.14	220.51	41.63
2013	220.51	35.54	(57.16)	17.64	2.84	(2.28)	18.20	217.09	160.23	56.86
2014	160.23	34.05	(53.40)	12.82	1.36	(2.14)	12.04	152.92	102.57	50.35
2015	102.57	33.27	(73.56) <sup>3</sup>	8.20	1.33	(2.14)	7.39	69.67	158.74	(89.07)

<sup>1</sup> Middle of year beginning in 2014, beginning of year prior to 2014.

<sup>2</sup> Gain/Loss includes assumption and plan changes.

<sup>3</sup> Includes Federal Government Reimbursement correction.

**Exhibit 8.10c – Analysis of Financial Experience for the Plan (millions) ((401(a) and 401(h))**

Year Ended June 30	Prior Year Unfunded Actuarial Liability (UAAL)	Normal Cost for the Year	Contributions for the Year	Interest at 8% on UAAL	Interest at 8% on Normal Cost <sup>1</sup>	Interest at 8% on Contributions	Total Interest	Expected UAAL	Actual UAAL	Gain (Loss) for the Year <sup>2</sup>
2004	\$ 786.74	\$ 950.78	\$ (865.97)	\$ 62.94	\$ 76.06	\$ (34.64)	\$ 104.36	\$ 975.91	\$ 2,275.42	\$ (1,299.51)
2005	2,275.42	1,010.22	(946.70)	182.03	80.82	(37.87)	224.98	2,563.94	4,106.08	(1,542.15)
2006	4,106.08	1,075.46	(1,265.19)	328.49	86.04	(50.61)	363.92	4,280.27	4,845.11	(564.84)
2007	4,845.11	1,171.61	(1,631.17)	387.61	93.73	(65.25)	416.09	4,801.64	5,518.98	(717.34)
2008	5,518.98	1,218.90	(1,715.70)	441.52	97.51	(68.63)	470.40	5,492.58	6,019.04	(526.46)
2009	6,019.04	1,251.48	(1,688.81)	481.52	100.12	(67.55)	514.09	6,095.80	7,382.38	(1,286.58)
2010	7,382.38	1,276.55	(1,631.21)	590.59	102.12	(65.25)	627.46	7,655.18	8,734.72	(1,079.54)
2011	8,734.72	1,255.41	(1,670.83)	648.78	100.43	(66.83)	732.38	9,051.68	9,324.41	(272.73)
2012	9,324.41	1,208.89	(1,812.48)	745.95	96.71	(72.50)	770.16	9,490.98	9,722.79	(231.81)
2013	9,722.79	1,200.12	(1,916.37)	777.82	96.01	(76.65)	797.18	9,803.72	9,961.35	(157.63)
2014	9,961.35	1,177.16	(2,014.58)	796.91	47.09	(80.58)	763.42	9,887.35	9,903.90	(16.55)
2015	9,903.90	1,194.65	(2,130.25) <sup>3</sup>	792.31	47.79	(84.41)	755.69	9,723.99	10,013.87	(289.88)

<sup>1</sup> Middle of year beginning in 2014, beginning of year prior to 2014.

<sup>2</sup> Gain/Loss includes assumption and plan changes.

<sup>3</sup> Includes Federal Government Reimbursement correction.

Values shown for valuation dates on or after June 30, 2010 include System assets and liabilities for System members who retired or will retire on or after July 1, 1981.

## Exhibit 8.11 – Contributions Calculated and Received

Calculated Contribution Amounts and Rates – 401(a) and 401(h) and LTD*						
	For the Contribution Period Ending June 30, 2015 (2013 Valuation)		For the Contribution Period Ending June 30, 2016 (2014 Valuation)		For the Contribution Period Ending June 30, 2017 (2015 Valuation)	
401(a) Normal Cost	\$ 1,143,109,197	13.06%	\$ 1,161,382,910	13.03%	\$ 1,173,302,021	12.94%
401(a) Amortization of Unfunded Liability	814,868,064	9.31%	817,013,378	9.17%	831,800,825	9.18%
401(a) Total	\$ 1,957,977,261	22.37%	\$ 1,978,396,288	22.20%	\$ 2,005,102,846	22.12%
401(h) Normal Cost	\$ 34,055,412	0.39%	\$ 33,262,529	0.37%	\$ 32,192,747	0.35%
401(h) Amortization of Unfunded Liability	17,492,880	0.20%	11,584,943	0.13%	18,646,512	0.21%
401(h) Total	\$ 51,548,292	0.59%	\$ 44,847,472	0.50%	\$ 50,839,259	0.56%
LTD Normal Cost	\$ 15,925,104	0.18%	\$ 16,377,427	0.18%	\$ 16,835,980	0.19%
LTD Amortization of Unfunded Liability	4,873,172	0.06%	5,565,759	0.06%	7,805,384	0.09%
LTD Total	\$ 20,798,276	0.24%	\$ 21,943,186	0.24%	\$ 24,641,364	0.28%
Actuarial Total	\$ 2,030,323,829	23.20%	\$ 2,045,186,946	22.94%	\$ 2,080,583,469	22.96%

Actual Contributions Received – Amount and as a Percentage of Actual Covered Payroll		
	For the Contribution Period Ending June 30, 2015	
Employers' Retirement – 401(a)	\$ 1,004,711,445	10.89%
Members' Retirement – 401(a)	1,031,919,007	11.48%
Health Premium Benefit – 401(h)	53,585,626	0.59%
Employers' Long-Term Disability*	10,811,875	0.12%
Members' Long-Term Disability*	10,811,875	0.12%
Total	\$ 2,111,839,828	23.20%

\* LTD results are determined in a separate valuation.

All values shown include System assets and liabilities for System members who retired or will retire on or after July 1, 1981.

# Section 9 – Summary of Actuarial Methods and Assumptions

**Adopted by Board Action on May 24, 2013  
Effective as of June 30, 2013**

## A. Actuarial Assumptions

### 1. Investment Yield Rate

8% per annum compounded annually, net of all expenses

### 2. Mortality – The mortality assumption was chosen to be used from June 30, 2013 to June 30, 2017. The rates were projected to the middle point of this period and include an appropriate level of conservatism that reflects expected future mortality improvements.

#### a. Pre-retirement

50% of 1994 GAM – Static, Projected to 2015 with Projection Scale BB, with no setback and no adjustment for amount of Plan/System income. Rates at representative ages are shown below.

Age	Rates of Mortality (Active)	
	Male Members	Female Members
20	0.000207	0.000128
25	0.000270	0.000127
30	0.000269	0.000146
35	0.000292	0.000211
40	0.000406	0.000344
45	0.000692	0.000476
50	0.001127	0.000639
55	0.001882	0.000987
60	0.003149	0.001779
65	0.005325	0.003450
70	0.008633	0.005639
75	0.013718	0.009380
80	0.023121	0.016632
85	0.038025	0.029474
90	0.066498	0.052712

b. Post-retirement Non-disabled rates are based on the 1994 GAM – Static, Projected to 2015 with Projection Scale BB with adjustments for small and large benefit amounts. Disabled rates are based on the experience of other large public sector retirement systems and ASRS’ own experience. Rates (with no adjustment for benefit amount) after retirement at representative ages are shown below.

Age	Rates of Mortality			
	Males		Females	
	Non-Disabled	Disabled	Non-Disabled	Disabled
20	0.000414	0.034940	0.000256	0.026940
25	0.000539	0.038890	0.000253	0.027440
30	0.000538	0.051100	0.000292	0.038300
35	0.000584	0.063540	0.000423	0.053930
40	0.000812	0.058810	0.000688	0.056980
45	0.001384	0.040920	0.000951	0.037590
50	0.002253	0.034740	0.001277	0.025700
55	0.003763	0.031360	0.001975	0.022840
60	0.006299	0.031110	0.003558	0.018030
65	0.010650	0.030860	0.006901	0.013930
70	0.017267	0.033730	0.011278	0.012990
75	0.027435	0.048250	0.018760	0.020770
80	0.046241	0.055540	0.033265	0.036470
85	0.076050	0.090010	0.058948	0.063400
90	0.132997	0.146340	0.105424	0.112480

Non-disabled mortality rates are decreased for members with annual Plan/System income greater than \$14,400 and increased for members with annual Plan/System income less than \$6,000 as shown below.

Age	Large Adjustment		Small Adjustment	
	Male	Female	Male	Female
0 – 49	No Adjustment		No Adjustment	
50 – 75	75%	84%	139%	133%
76 – 111	81%	90%	105%	100%
112	84%	92%	104%	100%
113	87%	94%	103%	100%
114	90%	96%	102%	100%
115	93%	98%	101%	100%
116	96%	100%	100%	100%
117	99%	100%	100%	100%
118 and over	100%	100%	100%	100%

Post-retirement mortality rates for currently non-retired members are assumed to be the rates for non-disabled retirees unadjusted for amount of Plan/System income.

3. Disability Rates – sample rates are shown below.

Rates of Decrement due to Disability	
Age	Unisex Rates
20	0.000491
25	0.000541
30	0.000654
35	0.000997
40	0.001583
45	0.002449
50	0.003649
55	0.004280
60	0.004655

4. Withdrawal Rates – Rates by completed years of service are shown below (for causes other than death, disability, or retirement).

Years of Service	Males	Females
0	18.50%	21.75%
1	15.75	17.00
2	12.75	14.75
3	10.75	11.75
4	9.50	10.25
5	8.50	9.75
6	7.75	8.50
7	6.75	7.75
8	5.75	6.25
9	5.50	5.75
10	5.25	5.00
11	4.75	4.50
12	4.25	4.10
13	3.50	3.80
14	3.25	3.50
15	3.00	3.25
16	2.75	3.00
17	2.75	2.75
18	2.50	2.50
19	2.25	2.25
20+	2.00	2.00

5. Salary Scale – A select and ultimate salary scale made up of a merit component and general salary increase component as follows:

Years of Service	Merit Component	Total Salary Increase*
(1)	(2)	(3)
1	3.75%	6.75%
2	3.00%	6.00%
3	1.90%	4.90%
4	1.35%	4.35%
5	1.05%	4.05%
6	0.95%	3.95%
7	0.75%	3.75%
8	0.60%	3.60%
9	0.60%	3.60%
10	0.40%	3.40%
11 to 19	0.20%	3.20%
20 or more	0.00%	3.00%

\* Total salary increase rate = wage inflation (or growth) rate (3.00%) + merit component

6. Retirement Rates – Select and ultimate retirement rates are used. Rates at representative ages and years of service are shown below, where Tier 1 represents active members hired before July 1, 2011:

		Years of Service			
	Age	0-3	11-18	25	31+
Tier 1:	50	0.00%	4.00%	5.00%	25.00%
	55	0.00	4.00	25.00	25.00
	60	0.00	9.00	25.00	25.00
	62	0.00	33.00	25.00	25.00
	65	33.00	33.00	33.00	33.00
	70	15.00	25.00	33.00	25.00
	75	15.00	25.00	33.00	25.00
	80	100.00	100.00	100.00	100.00
Tier 2:	50	0.00%	4.00%	8.33%	14.00%
	55	0.00	4.00	10.89	33.00
	60	0.00	9.00	30.00	25.00
	62	0.00	33.00	25.00	25.00
	65	33.00	33.00	33.00	33.00
	70	15.00	25.00	33.00	25.00
	75	15.00	25.00	33.00	25.00
	80	100.00	100.00	100.00	100.00

Deferred vested members are assumed to retire at their normal retirement age.

7. Future Retirees Eligible for the Health Insurance Premium Supplement

It is assumed that 60% of future retirees will be eligible to receive the post-retirement health insurance premium supplement and that 40% of those retirees will be eligible for the dependent premium supplement. These assumptions also apply to members who have been retired less than one year.

8. Proportion of Members Who Will Not Withdraw Their Contributions

It is assumed that active members who terminate (prior to eligibility for retirement) and deferred vested members who have already terminated will choose to receive the enhanced refund option if the value of the enhanced refund option is greater than the present value of the deferred benefit. Otherwise, the members are assumed to elect to receive the deferred benefit. If the member is assumed to elect the enhanced refund option, then it is also assumed that the member forfeits the health insurance premium supplement. Members who terminate eligible for early retirement are assumed to commence payments immediately.

9. Spouse Assumptions

We assume that 100% of the members are married. We also assume that the husband is three years older than the wife.

10. Modified Cash Refund Assumption

We assume that members who elect a single life annuity will receive accumulated benefit payments equal to their contributions after three years of being in receipt.

11. 415(b) Limits - Statutory

415(b) limits are not applied in the Plan valuation because there is an excess plan that pays benefits above the 415(b) limit.

12. Optional Form Load

A load of 0.174% has been added to the non-retired 401(a) liabilities to account for the election of optional forms other than a single life annuity.

13. Alternate Contribution Rate

The past service contribution rate is adjusted to consider alternate contribution rate payments. We reduce the amortization amount by the anticipated amount of alternate contributions, and adjust for interest.

14. Adjustment for Contribution Timing

Contribution rates are increased by  $\frac{1}{2}$  of a year's interest to reflect the fact that contributions are made throughout the fiscal year.

15. Future Permanent Benefit Increases (PBIs)

Future PBIs are not valued for funding purposes.

**B. Actuarial Value of Assets**

The actuarial value of assets is equal to the market value of assets less a ten-year phase-in (five-year phase-in prior to June 30, 2002) of the Excess (Shortfall) between expected investment return and actual income on the market value of assets. There is no corridor around market value within which the actuarial value is required to fall.

**C. Actuarial Funding Method**

Costs are determined under the projected unit-credit method. The ASRS Board determines the method of amortizing the unfunded actuarial accrued liability. Beginning with the June 30, 2013 valuation, the period is a closed 30-year period for the 401(a) portion of the Plan and a closed 15-year period for the 401(h) portion.

**D. Data for Valuation**

In preparing the actuarial valuation as of June 30, 2015, the actuary has relied on data and assets provided by the staff of the Arizona State Retirement System. While not verifying the data at their source, the actuary has performed tests for consistency and reasonableness.

# Section 10 – Plan Provisions

## Summary of the Benefit Provisions of the Retirement Plan as of June 30, 2015

The Arizona State Retirement Plan makes provision for the retirement, disability, and death and survivor benefits to all members of the State, instrumentalities of the State and certain political subdivisions. The major provisions of the Plan may be summarized as follows:

### A. Retirement Benefits

1. Normal Retirement Date (the earliest of the following):
  - a. a member's sixty-fifth birthday,
  - b. a member's sixty-second birthday and completion of at least ten years of credited service, or
  - c. the first day immediately following the day that the sum of the member's age and his years of total credited service equals eighty for members hired before July 1, 2011 or for members hired on or after July 1, 2011, age 60 with 25 years of credited service or age 55 with 30 years of service.
2. Monthly Life Annuity

The product of a benefit multiplier (as determined below) and the member's best 36-month average compensation (in last 120 months) for members hired before July 1, 2011 and 60-month average compensation (in the last 120 months) for members hired on or after July 1, 2011 multiplied by his or her years of total credited service. Members who commenced membership prior to 1984 can use a 60-month average and include additional types of compensation, if doing so produces a larger result.

Years of Credited Service	Benefit Multiplier
Less than 20	2.10%
20.0 to 24.99	2.15%
25.0 to 29.99	2.20%
30 or more	2.30%

3. Normal Retirement Benefit

The sum of the monthly life annuity and any prior service benefits to which the member was entitled under the System.

4. Early Retirement

Age 50 with five or more years of credited service.

## 5. Early Retirement Benefit

If not eligible for normal retirement and at least age 50 with five years of total credited service, normal retirement benefit earned to the date of retirement reduced according to the following table:

Age At Date Of Retirement																
Years of Service	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65
Members Hired Before July 1, 2011																
5-9.99	35%	40%	45%	50%	55%	60%	65%	70%	75%	80%	85%	88%	91%	94%	97%	100%
10-19.99	44%	49%	54%	59%	64%	69%	74%	79%	84%	89%	94%	97%	100%	100%	100%	100%
20	50%	55%	60%	65%	70%	75%	80%	91%	94%	97%	100%	100%	100%	100%	100%	100%
21	50%	55%	60%	65%	70%	75%	91%	94%	97%	100%	100%	100%	100%	100%	100%	100%
22	50%	55%	60%	65%	70%	91%	94%	97%	100%	100%	100%	100%	100%	100%	100%	100%
23	50%	55%	60%	65%	91%	94%	97%	100%	100%	100%	100%	100%	100%	100%	100%	100%
24	50%	55%	60%	91%	94%	97%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
25	50%	55%	91%	94%	97%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
26	50%	91%	94%	97%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
27	91%	94%	97%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
28	94%	97%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
29	97%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
30+	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Members Hired On Or After July 1, 2011																
5-9.99	35%	40%	45%	50%	55%	60%	65%	70%	75%	80%	85%	88%	91%	94%	97%	100%
10-24.99	44%	49%	54%	59%	64%	69%	74%	79%	84%	89%	94%	97%	100%	100%	100%	100%
25-29.99	44%	49%	54%	59%	64%	69%	74%	79%	84%	89%	100%	100%	100%	100%	100%	100%
30+	44%	49%	54%	59%	64%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

6. Normal Form of Benefit

Straight life annuity with cash refund feature payable monthly with benefits commencing on the day following the date of termination of employment.

7. Optional Forms:

- a. joint and contingent annuity (with pop-up) with either 100%, 66-2/3% or 50% of the reduced retirement income payable for the life of the contingent annuitant upon the death of the retiring member,
- b. period certain and life annuity (with pop-up) with five, ten, or fifteen years of payments guaranteed, or

8. Minimum Benefit

The minimum monthly benefit payable to a retired member who is at least age 75 and who has 20 or more years of service is \$600.

**B. Disability Benefits (for disability after June 30, 1988)**

1. Long Term Disability

Monthly benefit equal to two-thirds of monthly compensation reduced by percentages of other income received payable commencing six months after date of disability until the earlier of:

- a. date of cessation of total disability,
- b. or normal retirement date.

This benefit is paid by a separate LTD plan.

2. Disability Payments if Member Remains Disabled Through Normal Retirement Date

Monthly benefit member would have received if service had continued to normal retirement date assuming the member's salary remained at the level it was at his or her date of disability, also provided that the amount of total credited service is limited to 30 years unless he or she had more than 30 years at date of disability.

3. The minimum monthly benefit payable to a disabled member is \$50.00.

**C. Disability Benefits (for disability before July 1, 1988)**

1. Eligibility

Age 50 with five years of service.

2. Benefit Amount

A life annuity that can be provided by the member's contribution account. Disability payments after normal or early retirement eligibility are reduced by the actuarial value of the disability payments made up to the date of normal or early retirement eligibility.

#### **D. Pre-Retirement Death Benefits**

##### 1. Eligibility

Applicable if death occurs prior to retirement.

##### 2. Benefit

Any one of the following, at the option of the beneficiary:

- a. a lump sum equal to the sum of (i) and (ii):
  - (i) the sum of the member's member and employer balances, and
  - (ii) the amount of the member's member and employer accounts, along with any supplemental credits transferred from the System to the Plan with interest.
- b. The beneficiary may elect to receive a monthly income, in the single life form, which is actuarially equivalent to the amount in (a) at 8%.

#### **E. Vesting of Benefits**

##### 1. Vesting

A member is fully vested in his or her accrued benefit.

##### 2. Benefits Upon Vesting

A fully vested member is entitled to either:

- a. the enhanced refund option for members hired before July 1, 2011 or for members terminated due to an Employer Reduction in Force or position elimination for members hired on or after July 1, 2011, or
- b. the refund option for members hired on or after July 1, 2011 who are not terminated due to an Employer Reduction in Force or position eliminated, or,
- c. the retirement benefit payable at normal retirement earned to the date of member's termination.

The enhanced refund option allows members who terminate prior to eligibility for retirement to receive a refund of their member contributions with interest. In addition, if a member has at least five years of service, he or she is also entitled to a share of the employer contributions with interest. The share is 25% for members with five years of service and increases 15% for each additional year of service up to a maximum of 100% for ten or more years of service. The Board reduced the interest rate to be credited on withdrawal of contributions from 8% to 4% effective June 30, 2005, and from 4% to 2% effective June 30, 2013.

The refund option is the same as the enhanced refund option except it does not include any share of the employer contributions with interest.

## **F. Retiree Health Insurance Premium Supplement**

### 1. Eligibility

Retirement or disability after five years of credited service and covered by an employer-sponsored group insurance program for which the retired or disabled member must pay part of the cost. Members who elect the enhanced refund option are not eligible for this benefit.

### 2. Benefit

The benefit is payable only with respect to allowable health insurance premiums for which the member is responsible. The maximum benefits for members with ten or more years of service are:

- a. with respect to premiums paid for retirees with member only coverage:
  - \$150 per month if the retiree is under age 65
  - \$100 per month if the retiree is 65 or over
  
- b. with respect to premiums paid for retirees with family coverage:
  - \$260 per month if the member and dependent are under age 65
  - \$170 per month if the member and dependent are 65 or over
  - \$215 per month if the member is over age 65 and the dependent is under age 65
  - \$215 per month if the member is under age 65 and the dependent is over age 65

For members with five to nine years of service, the benefits are the same dollar amounts as above multiplied by a vesting fraction equal to 10% for each completed year of service (i.e., 50% to 90%).

## **G. Automatic Benefit Adjustments Based On Excess Investment Earnings**

### Permanent Benefit Increase (PBI)

Retirees who have been retired one year are eligible for a PBI up to a maximum of a 4% increase. The PBI is paid from a reserve of "Excess Investment Earnings." If there are no "Excess Investment Earnings" in the reserve, then no PBI is paid.

### Permanent Benefit Increase Enhancement (EPBI)

Provides retired members with at least ten years of service who have been retired five or more years an additional benefit. For each complete five-year period the member has been retired, an incremental benefit is paid if monies to pay the benefit are available. This benefit is funded by an interest credit of 8.0% of the reserve for future PBIs.

PBI and enhanced PBI benefits are reflected in the valuation as soon as they are awarded. Future PBIs and enhanced PBIs are not included in the valuation.

Due to legislation enacted in the 2013 legislative session, PBIs and EPBIs will not be awarded to members hired after September 13, 2013.

## **H. Member and Employer Contributions**

The contribution rate for the fiscal year beginning on July 1st is based on the results of the most recent actuarial valuation as of the last day of the preceding plan year. The member's contribution rate is equal to the required employer contribution rate. The contribution rate for fiscal year 2016 is 11.35% for each member and each employer, based on the 2014 actuarial valuation. The contribution rate for fiscal year 2017 will be 11.34% based on this valuation. Interest is credited at 8.00%; however, interest is credited at 4% from July 1, 2005 and 2% from July 1, 2013 for return of contributions upon withdrawal.

# Section 11 – Historical Changes to the Plan Provisions

## A. Legislated Plan Changes Enacted by the 1989 Legislature of the State of Arizona

### 1. Projected United Credit (PUC) Funding Method

Beginning with the June 30, 1989 actuarial valuation, the total member and employer contributions payable beginning July 1, 1990 shall be determined using the Projected Unit-Credit (PUC) funding method.

### 2. \$12,000 Minimum Average Compensation for Current Retirees

Recalculation of the retirement benefit for all plan members retired before June 30, 1989 who had ten years of credited service using a minimum average compensation of one thousand dollars per month.

### 3. 2.0% Ad Hoc COLAs

- Effective July 1, 1989, all members retired on or before June 30, 1988 shall receive a 2.0% permanent benefit increase to their December 31, 1988 base benefit.
- Effective July 1, 1990, all members retired on or before June 30, 1989 shall receive a 2.0% permanent benefit increase to their June 30, 1990 base benefit.

### 4. Early Retirement Window

During the period of May 15, 1989, through November 14, 1989, a member who is eligible for either Normal Retirement or Early Retirement with age plus credited service at least equal to 80 may retire and receive a benefit calculated using a 2.2% multiplier instead of the 2.0% multiplier in effect at that time.

### 5. 3.0% Tax Equity Allowance

Retroactive to the later of January 1, 1989 or the date payments commence, each member retiring on or before September 14, 1989 shall receive a tax equity benefit allowance consisting of a permanent increase of 3.0% in his or her January 1, 1989 base benefit.

## B. Legislated Plan Changes Enacted by the 1990 Legislature of the State of Arizona

### 1. Rule of 82

Effective May 1, 1990, the number of points (sum of member's age and years of service) required to be eligible for normal retirement shall be reduced from 85 to 82. Also, the early retirement reduction factor for members with 77 or more points but less than 82 points shall be 3% for each point or fraction thereof less than 82.

2. 3.0% Tax Equity Allowance

Each member who retires between September 15, 1989 and September 14, 1990 shall receive a tax equity benefit allowance consisting of a permanent increase of 3.0% in his or her base benefit retroactive to the date of retirement.

3. Graded Vesting for Health Insurance Premium Supplement

The Health Insurance Premium Supplement is extended to those qualifying members with between five and nine years of service. The member will be eligible to receive 10% of the benefit for each completed year of service (i.e., 50% to 90%).

**C. Legislated Plan Changes Enacted by the 1991 Legislature of the State of Arizona**

1. 3.0% Tax Equity Allowance

Each member who retires between September 15, 1990 and September 14, 1991 shall receive a tax equity benefit allowance consisting of a permanent increase of 3.0% in his or her base benefit retroactive to the date of retirement.

2. Recalculation of Retiree Benefits Using 2.0% Benefit Multiplier

Each retired member with at least ten years of service who retired prior to June 30, 1985 shall have his or her benefit recomputed. The recomputed benefit shall be equal to 2% times final average earnings times credited service plus an additional \$2 for each year of service. The retired member will receive the larger of the recalculated benefit or his/her current benefit. This increase is effective October 1, 1991.

3. 2.3% Ad Hoc Increase

Effective July 1, 1991, all members retired on or before June 30, 1990 shall receive a 2.3% permanent benefit increase in their June 30, 1991 base benefit.

4. Rule of 80

Effective July 1, 1992, the number of points (sum of member's age and years of service) required to be eligible for normal retirement shall be reduced from 82 to 80. (For continuation purposes, this legislation is not reflected until the 1993/94 fiscal year).

5. Pop-up Option

A pop-up option is added for retiring members who first participate in the Plan on or after December 31, 1991.

#### **D. Legislated Plan Changes Enacted by the 1992 Legislature of the State of Arizona**

1. 3.0% Tax Equity Allowance

Each member who retires between September 15, 1991 and September 14, 1992 shall receive a tax equity benefit allowance consisting of a permanent increase of 3.0% in his or her base benefit, retroactive to the date of retirement.

2. Minimum Retiree Benefit

Each retiree of the Arizona State Retirement Plan who is at least age 75 on December 31, 1992 and who had at least ten years of service upon retirement from the plan shall be eligible for a minimum benefit. If the eligible retiree had at least ten years of service but less than fifteen years, his minimum benefit is \$350 a month. If the eligible retiree had at least fifteen years of service but less than twenty, his minimum benefit is \$500. If the eligible retiree had at least twenty years of service, his minimum benefit is \$600. The minimum benefit shall be compared to the retiree's current benefit (including all ad hoc increases).

3. 5% Ad Hoc Increase

Effective November 1, 1992, all members retired on or before October 31, 1992 shall receive a 5% permanent benefit increase in their October 31, 1992 benefit.

4. Forfeited Service Repurchase

Any present active member who has previously forfeited service has until December 31, 1994 to repurchase the forfeited service by paying the Plan the member and employer contributions (accumulated with interest) that would have been contributed during the member's period of forfeited service.

5. Repurchase of Service Due to Reduction in Force

Any present active member who was terminated prior to December 31, 1992 as a result of a required reduction in force may purchase the credited service for the following period of unemployment if the member had five or more years of service at the time of termination and resumed employment with a participating employer within two years of termination. The cost of the repurchase is the total of the member and employer contribution (accumulated with interest) that would have been contributed during the member's period of unemployment.

6. Change in Section 38-781.05 Funding Method

Section 38-781.05 of the Plan was amended so that the funding period for the Plan would continue to be the period between valuation and June 30, 2003, as long as the Plan has a negative Unfunded Actuarial Accrued Liability. If the Plan were to have a positive UAAL, then the old funding mechanism would apply.

#### **E. Legislated Plan Changes Enacted by the 1993 Legislature of the State of Arizona**

1. No benefit changes were passed by the 1993 Legislature. However, the Legislature passed legislation to reduce the required contribution rate of 4.09% down to 3.14%.

## **F. Legislated Plan Changes Enacted by the 1994 Legislature of the State of Arizona**

### **1. Minimum LTD Benefit**

Each member on long-term disability will receive a minimum monthly benefit of \$50.

### **2. Minimum Retiree Benefit**

Each retiree of the Arizona State Retirement Plan who is at least age 75 and who had 20 or more years of service at retirement will receive a minimum monthly benefit of \$600.

### **3. Pop-up Benefit**

Members who retired prior to January 1, 1992 and who elected a Joint and Survivor option shall receive a "Pop-up" in their retirement income if their beneficiary pre-deceases them.

### **4. Excess Investment Earnings COLA**

Retirees at least age 55 who have been retired at least one year and members on long-term disability are eligible to receive a cost-of-living adjustment equal to one-half the increase in CPI for the prior calendar year. The COLA will be paid from a reserve of Excess Investment Earnings. If there are no Excess Investment Earnings in the reserve, no COLA will be granted.

### **5. Change in Section 38-737 Funding Period**

Section 38-737 was amended to change the funding period of the Plan to a rolling 30-year period. The change is to be phased-in over the next nineteen years. If the Plan ceases to have a surplus, the funding period would immediately go to 30 years.

## **G. Legislated Plan Changes Enacted by the 1995 Legislature of the State of Arizona**

### **1. Change in Maximum Increase Provided by Excess Investment Earnings COLA**

The maximum COLA payable from Excess Investment Earnings was increased from 50% to 100% of the increase in the CPI.

### **2. Removal of LTD Benefit from the Plan**

The Legislature established a new LTD program and removed the LTD benefit from the Plan. Liabilities for current LTD recipients will be transferred to the new LTD program effective October 1, 1995.

### **3. Creation of Separate Account for the Health Premium Supplement**

The Health Premium Supplement benefit is to be separated into a 401(h) account. The assets and liabilities associated with the Health Premium Supplement will be accounted for separately.

## **H. Legislated Plan Changes Enacted by the 1996 Legislature of the State of Arizona**

### **1. No material changes.**

**I. Legislated Plan Changes Enacted by the 1997 Legislature of the State of Arizona**

1. Creation of family Health Supplement. Allows unused portion of the Health Supplement of a member or dependent to be used to pay the other recipient's health insurance premium.
2. The calculation methodology for the Excess Investment Earnings COLA was modified.
3. The contribution rate will be determined on a biennial cycle beginning with the 2000 fiscal year.

**J. Legislated Plan Changes Enacted by the 1998 Legislature of the State of Arizona**

1. No material changes.

**K. Legislated Plan Changes Enacted by the 1999 Legislature of the State of Arizona**

1. Enhanced Refund Option

Members who terminate prior to eligibility for retirement may elect to receive a refund of their member contributions with interest. If the member has at least five years of service, the member is also entitled to a share of the employer contributions with interest. The share is 50% with five years of service and increases 10% for each additional year of service to a maximum of 100% for ten or more years of service.

2. Benefit Multiplier Increased to 2.1%

The benefit multiplier increased from 2.0% to 2.1% effective July 1, 2000.

3. 5% Ad Hoc Increase

A 5% retiree ad hoc increase for retirees and beneficiaries effective July 1, 2000.

4. Increase in Maximum Service While on LTD

Increase in the maximum amount of service that may be accrued while on LTD from 25 to 30 years.

5. Changes in Permanent Benefit Increase COLA

- a. The maximum aggregate COLA was increased from 3% to 4%.
- b. The threshold for determining "Excess Earnings" was lowered from 9% to 8%.
- c. The limitation of the COLA to the increase in the CPI was removed.

**L. Legislated Plan Changes Enacted by the 2000 Legislature of the State of Arizona**

1. The age restriction on the Permanent Benefit Increase was eliminated.

## **M. Legislated Plan Changes Enacted by the 2001 Legislature of the State of Arizona**

### **1. Health Insurance Premium Benefit Increase**

Increases the health insurance premium benefit for eligible members as follows:

- Benefit for Medicare eligible member with member only coverage increased from \$65 to \$100
- Benefit for non-Medicare eligible member with member only coverage increased from \$95 to \$150
- Benefit for family coverage where member and dependent are non-Medicare eligible increased from \$175 to \$260
- Benefit for family coverage where member and dependent are Medicare eligible increased from \$115 to \$170
- Benefit for family coverage where member is Medicare eligible and dependent is non-Medicare eligible increased from \$145 to \$215
- Benefit for family coverage where member is non-Medicare eligible and dependent is Medicare eligible increased from \$145 to \$215

### **2. Graded Multiplier**

Provides a graded multiplier in the retirement benefit formula increasing with years of service according to the following:

- 0.00 to 19.99 Years of Service: 2.10%
- 20.00 to 24.99 Years of Service: 2.15%
- 25.00 to 29.99 Years of Service: 2.20%
- 30.00 or More Years of Service: 2.30%

### **3. Employer Option Service Purchase Incentive**

Permits an employer to offer a member who is eligible to retire under the Rule of 80 a contract to work and additional three years of employment. No contributions are made to ASRS during the contract. If the member completes the contract, then they receive an additional three years of service with the option to purchase three more years of service.

4. Permanent Benefit Increase Enhancement

Provides that interest at a rate of 8% be credited on the funds held in reserve for the permanent benefit increase (PBI). This interest will then be used to fund an additional increase for retirees who have at least ten years of service and who have been retired at least five years. The increase is incremental for each five years of retirement.

5. Temporary Rural Health Insurance Premium Benefit

In addition to the premium benefit paid to ASRS retired and disabled members, the Legislature granted a temporary benefit for retired and disabled members who live in areas of the state not served by a managed care program (HMO) and who have ten years of credited service in the following amounts:

- Benefit for Medicare eligible member with member only coverage of \$170 per month
- Benefit for non-Medicare eligible member with member only coverage of \$300 per month
- Benefit for Medicare eligible members with Medicare eligible dependent with family coverage of \$350 per month
- Benefit for non-Medicare eligible members with non-Medicare eligible dependent with family coverage of \$600 per month
- Benefit for Medicare eligible members with non-Medicare eligible dependent with family coverage of \$470 per month
- Benefit for non-Medicare eligible members with Medicare eligible dependent with family coverage of \$470 per month

6. Partial Lump Sum Option

Allows a retiring member to receive a portion of his benefit in a lump sum payment. The lump sum is limited to a maximum of 36 monthly payments. The member's monthly annuity is actuarially reduced to reflect the lump sum payment.

7. Maximum Benefit

Members who are hired after the date the graded multiplier became law have a maximum benefit equal to 80% of the member's 36-month final average earnings.

**N. Legislated Plan Changes Enacted by the 2002 Legislature of the State of Arizona**

1. No material changes.

**O. Legislated Plan Changes Enacted by the 2003 Legislature of the State of Arizona**

1. Temporary Rural Health Insurance Premium Benefit

The Legislature extended the temporary Rural Health Insurance Subsidy for the next two years from July 1, 2003, to June 30, 2005. The benefit is provided to retired and disabled members who live in areas of the state not served by a Health Maintenance Organization (HMO) and who have ten years of credited service. The Rural Health Insurance Subsidy now requires “minimum out-of-pocket” payments ranging from \$100 to \$425 per month depending on the plan and coverage selected.

	Insurance Coverage Without Medicare Parts A & B		Insurance Coverage With Medicare Parts A & B	
	Single	Family	Single	Family
Required Minimum Out-of-Pocket Payment	\$125	\$425	\$100	\$200
Rural Health Insurance Subsidy (Maximums)	Up to \$300	Up to \$600	Up to \$170	Up to \$350

Combination plans that include Medicare eligible and non-Medicare eligible retiree and dependent coverage require a \$400 monthly out-of-pocket payment.

**P. Legislated Plan Changes Enacted by the 2004 Legislature of the State of Arizona**

1. Service Purchase Program

The Arizona Legislature revised the method of calculating the cost of service purchases so that future purchases would be made at true actuarial present value.

2. Early Retirement Incentive Programs

The Arizona Legislature provided that employers that participate in ASRS and offer early retirement incentives to their members must notify ASRS of the incentives. ASRS will determine the cost of the incentives and the employers will pay the cost.

**Q. Legislated Plan Changes Enacted by the 2005 Legislature of the State of Arizona**

1. Temporary Rural Health Insurance Premium Benefit

The Legislature extended the temporary Rural Health Insurance Subsidy for the next two years from July 1, 2005, to June 30, 2007. The benefit is provided to Medicare-eligible retirees and disabled members who live in Arizona counties with no Health Maintenance Organization (HMO) service area and who have ten years of credited service.

2. Contribution Rates

The contribution rates for fiscal 2006 and 2007 are 6.90% and 8.60%, respectively.

## **R. Legislated Plan Changes Enacted by the 2006 Legislature of the State of Arizona**

### **1. Elections After Retirement**

Legislature limited the ability of ASRS retirees to rescind their elections after retirement. Specifically, members who have chosen a form with a death benefit can "pop up" once to the single life form but are then not allowed to "pop down" to a death benefit form.

### **2. Conformance with Certain Federal Regulations**

State statutes were modified to conform to federal regulations regarding military service purchases, optional forms of retirement benefits, and minimum required distributions.

### **3. Repeal of Deferred Retirement Option Plan**

The legislature repealed the modified Deferred Retirement Option Plan (DROP).

### **4. Early Termination Incentive Programs**

The change made in the 2004 legislature to early retirement incentive programs was extended to early termination programs.

## **S. Legislated Plan Changes Enacted by the 2007 Legislature of the State of Arizona**

### **1. Social Security Offsets and Pre-Existing Condition Period**

Offset percentages for Social Security disability benefits were increased from 64% to 85% and for Social Security retirement benefits from 83% to 85% for members who become disabled on or after July 1, 2008. The pre-existing condition period is increased from three months to six months for members hired on or after July 1, 2008. ASRS is required to recover overpayments by reducing future benefits to a member, beneficiary, or alternate payee.

### **2. Temporary Rural Health Insurance Premium Benefit**

The Legislature extended the temporary Rural Health Insurance Subsidy for two years from July 1, 2007, to June 30, 2009. The benefit is provided to Medicare-eligible retirees and disabled members who live in Apache, Gila, Mohave, or Navajo counties if they have ten years of credited service.

### **3. Exemption of Post-Doctoral Scholars**

Effective September 19, 2007, post-doctoral scholars are exempted from ASRS membership.

#### 4. Expanded Eligibility for Active Military Service Credit

Effective July 1, 2007, the term “presidential” call-up is changed to “military” call-up. Applies death and disability benefits to those that occur during active military service rather than just to those that are a result of active service. Allows member who becomes disabled during or as a result of active service to receive service credit (paid by the employer) from the date active service began through one year after the member’s date of disability if the member cannot return to work. The disability provision expires June 30, 2009.

### **T. Legislated Plan Changes Enacted by the 2008 Legislature of the State of Arizona**

#### 1. Unclaimed Property Exemption and Procedures

Legislation exempted ASRS from unclaimed property statutes. ASRS members will forfeit their benefits if they do not claim them by the time they reach age 73½. If such a member later claims his benefit, his benefit will be restored with interest if applicable. ASRS will send notices to members beginning at age 65½, and will make efforts to find lost members.

#### 2. Divestment from Companies Investing in Iran or Doing Business in Sudan

ASRS must engage with and potentially divest from companies that have invested, since August 5, 1996, \$20 million or more in any year in Iran’s petroleum energy sector or that meet specific Sudan-related business operations criteria. Additionally, ASRS must divest from companies that violate paragraph 6(j) of the Export Administration Act.

#### 3. Transfer Procedures

For voluntary transfers, the legislation allowed retired or disabled members to elect whether to remain with ASRS or to transfer to another system and specified how a transfer will affect payroll deduction agreements. For a transfer that is mandated by either statute or an employer, the legislation required retired or disabled members to remain with ASRS and specified how a transfer will affect payroll deduction agreements.

#### 4. Transfer Out Bills

These bills expanded the ASRS credited service that a dispatcher may transfer to CORP and extended the timeframe for ASRS to transfer assets from 60 to 90 days. They expanded the definition of designated position to include State detention officers and provided that all prior ASRS service will transfer to CORP unless the employee irrevocably elects to remain with ASRS. They allowed the local board of the judiciary to designate certain positions within the Administrative Office of the Courts for membership in CORP.

#### 5. Plan Administration

This bill modified one of the salary calculations used for service purchases to be the average of the three pay periods (out of the last five) that remain after the pay periods with the highest and lowest pay are removed. It clarified that the salary calculations used for other public service purchases are also used for leave of absence purchases. It granted the ASRS Board rulemaking authority over the Plan, LTD program, and transfers. It clarified that a member who purchases

forfeited service credit is subject to the benefit structure in place when the person again becomes a member. Finally, it required ASRS to recover overpayments by reducing benefits owed to a member, beneficiary, or alternate payee.

6. Federal Conforming Changes

The legislature made changes to comply with federal laws and IRS regulations, most notably the Economic Growth and Tax Relief Reconciliation Act of 2001

**U. Legislated Plan Changes Enacted by the 2009 Legislature of the State of Arizona**

1. Service Purchase

Effective July 1, 2010, members will be required to have five years of service credit in ASRS before initiating a service purchase.

2. 80% Cap on Benefits

Effective September 30, 2009, the maximum limit on ASRS pensions of 80% of 36-month final average earnings is eliminated.

3. Return to Work

Retired members who return to work with a suspension of benefits and work for at least 60 consecutive months will be permitted to choose a new optional form of benefit when they again retire.

Retired members are allowed to return to work without suspension if the member returns to a different position that does not require participation and the member participates in another program.

4. Administration

ASRS is exempt from State Personnel Management and Personnel Board provisions and the State classification and compensation statute.

5. Early Termination Incentives

The scope of the early termination incentive statute is broadened and exceptions are limited.

6. Dual Employment

Contributions from a second employer will count, beginning January 1, 2010, only if member meets 20/20 membership criteria with respect to the second employer, with certain exceptions.

## **V. Legislated Plan Changes Enacted by the 2010 Legislature of the State of Arizona**

### **1. Average Monthly Compensation**

The Average Monthly Compensation used in the retiring member's retirement benefit calculation is changed from the average of the highest consecutive 36 months in the last 120 months to the average of the highest consecutive 60 months in the last 120 months for a member whose membership commences on or after July 1, 2011.

### **2. Normal Retirement Date**

The Normal Retirement Date definition is changed from 80 to 85 points (age + years of service) for a member whose membership commences on or after July 1, 2011.

### **3. Early Retirement Reductions**

The Early Retirement reductions were also modified to conform to the 85 point normal retirement for a member whose membership commences on or after July 1, 2011 by adjusting the period over which the reduction is calculated.

### **4. Employer Contribution Refunds**

Employer contribution refunds are eliminated for a member hired on or after July 1, 2011 except for a member who was terminated due to an Employer Reduction in Force or position elimination, in which case the member will receive the current refund vesting schedule.

### **5. Long-Term Disability Plan Appeals**

A person appealing an ASRS decision under the LTD Program (usually a decision of an Administrative Law Judge) may request that the ASRS Board hear the appeal in Executive Session, rather than in a Public Hearing. The request for Executive Session must be made at least 48 hours in advance and the Board shall then conduct the hearing in Executive Session. The Board is required to follow existing Executive Session procedures established in the Open Meeting Law statutes. Minutes of and discussions held at an Executive Session are confidential except from the appellant for use in the appellant's further appeal to the Superior Court.

### **6. Health Insurance**

A retiree may no longer elect to purchase individual health care coverage and receive the Health Benefit Supplement (HBS). [NOTE: this provision will not eliminate the HBS or ASRS insurance enrollees or retirees enrolled in their former Employer's insurance.] ASRS may continue to pay the HBS to a retiree who is receiving the payment under the current statutory provisions (one retiree).

### **7. Compensation**

I.R.C. 415 Compensation Regulations and military differential wage payments from the Heroes Earnings Assistance and Relief Tax Act of 2008 (HEART Act) have been updated as required by the Internal Revenue Service.

## **W. Legislated Plan Changes Enacted by the 2011 Legislature of the State of Arizona**

### **1. Eligibility for New State Employees**

State employees hired after July 20, 2011, will not be eligible for the ASRS Plan or LTD program before their 27th week of employment, unless they are already members of ASRS.

### **2. Normal Retirement Age**

For members whose membership commenced on or after July 1, 2011, the 85-point requirement is removed and replaced by two rules: age 60 and 25 years of credited service or age 55 and 30 years of credited service. Early retirement reductions are adjusted to reflect these new rules.

### **3. Service Purchase Rules**

Purchases of Other Public Service, Leave of Absence Service, and Military Service (except USERRA or Heart Act purchases) are limited to 60 months for each type of purchase, and a member is required to have ten years of credited service before initiating a request to purchase such service.

### **4. Return-to-Work Rules**

Employers are required to pay an Alternate Contribution Rate (ACR) for retired members who return to work on or after July 1, 2012, in any capacity and in a position ordinarily filled by an employee of the employer. The ACR is the greater of 2% or the contribution rate to fund the deficits of the Plan and LTD program, but not greater than the employer's portion of the total contribution rate for the Plan and LTD program.

### **5. Split of Contributions**

Retroactive to July 1, 2011, responsibility for making contributions to the ASRS Plan and LTD programs is changed from 50% employees and 50% employers to 53% employees and 47% employers. Pre-retirement survivor benefits are based on the sum of employee and employer balances, rather than twice the employee balance.

## **X. Legislated Plan Changes Enacted by the 2012 Legislature of the State of Arizona**

### **1. Forms of Pension**

Partial lump-sum payments are to be based on single-life annuity form of payment. Level Income Alternative option is eliminated for new retirements after July 1, 2013.

### **2. Service Purchase Rules**

This provision reduces the credited service requirement to purchase Other Public Service, Leave of Absence time, or Military Service to five years.

### 3. Health Benefit Supplements

For new retirees and disabilities after August 1, 2012, this provision eliminates health supplements for retirees and disabled members who are covered under an active employee plan, either as an insured or as a dependent, except that if the member is a dependent and the ASRS employer is not subsidizing the premium that the retiree or disabled member must pay, the member is entitled to a single coverage subsidy.

### 4. Long-Term Disability Plan

This provision caps total income at 100% of member's pre-disability pay for new disabilities after August 1, 2012. It also requires objective medical evidence to support claims.

### 5. Split of Contributions

This provision revises the split of contributions between members and employers to be a 50%/50% split, and provides for the return to members of the contribution amounts in excess of 50% that members had previously contributed.

### 6. Employers that Cease Participation in ASRS

This provision requires ASRS to charge employers for their share of the unfunded actuarial liabilities in the Plan and LTD programs if the employers cease to participate because of privatization, bankruptcy, or a change from public to private status. It is effective for cessations that occur on or after January 2, 2013.

### 7. Opt-out of ASRS for Members First Hired before July 1, 2015

Members who first become employees of an ASRS employer on or after Age 65 and before July 1, 2015, can irrevocably elect not to participate in ASRS. ASRS must report on this provision by December 31, 2014.

### 8. Spousal Consent

Married members must select their spouses as their beneficiaries and must select an option with at least 50% continuation to their spouses, unless spouses waive these requirements in writing. This provision applies to retirements, beneficiary designations, or beneficiary changes that occur on or after July 1, 2013.

## **Y. Legislated Plan Changes Enacted by the 2013 Legislature of the State of Arizona**

### 1. Amortization

The legislation allows the ASRS Board to determine the periods over which to amortize deficits or surpluses.

## 2. Benefits

The legislation removed the requirement that a survivor's benefit must exceed \$5,000 to qualify for an annuity election. It limits the annuity option for the survivor to the single-life option, provided the annuity amount is greater than an amount selected by the ASRS Board (presently \$100 per month).

The legislation eliminated the present value calculation that was available upon the death of a member who had reached early retirement eligibility or had 15 years of service.

## 3. Permanent Benefit Increases

The legislation eliminates Permanent Benefit Increases for members hired after September 13, 2013.

## 4. Health Insurance Program

The legislation permits the ASRS Board to establish a self-insured health insurance program and an account to administer such a program, provided the self-insured program offers all the benefits required by Title 20.

## **Z. Legislated Plan Changes Enacted by the 2014 Legislature of the State of Arizona**

### 1. Charter Schools

The legislation allows charter schools that obtain their charters through a university to become members of the ASRS retroactive to July 1, 2011.

### 2. Section 218 Agreements

The legislation eliminates the requirement that employees of ASRS employers must be covered by the state's Section 218 agreement with the Social Security Administration. It also repeals the ASRS defined contribution plan established by Laws 013, Chapter 216.

### 3. Elected Officials

Retroactive to January 1, 2014, a state elected official who was elected or appointed before December 31, 2013, and who is a member of ASRS because he previously elected not to participate in the Elected Officials' Retirement Plan (EORP) is no longer required to elect to continue or resume participation in ASRS in writing and is a member of ASRS without election.

### 4. Applicable Interest Rate

The legislation confirms the ASRS practice of using a "stability period" to set and maintain the "applicable interest rate" for a year. The look-back month that is used to determine the applicable interest rate is the third full calendar month preceding the first day of the stability period.

## 5. Compensation for LTD Benefit Determinations

The legislation changes the definition of “monthly compensation” to be the median of the last six pay periods of compensation, excluding the highest two and lowest two such pay periods. If the member was employed for fewer than six pay periods, “monthly compensation” is the median monthly compensation based on the pay periods that the member worked.

## 6. Background Checks

The legislation allows ASRS to perform background and credit checks on current and prospective employees.

### **AA. Legislated Plan Changes Enacted by the 2015 Legislature of the State of Arizona.**

#### 1. Actuarial Valuation Methods

The legislation gives the Arizona State Retirement System Board of Trustees authority to change the actuarial valuation method of the Plan beginning June 30, 2016. Prior to the passage of this legislation the ASRS was required by statute to use the Projected Unit Credit method.

#### 2. Service Purchase

The legislation modifies service purchase laws so that they are consistent with Arizona case law whereby the right to purchase service was defined as a benefit by the Arizona Court of Appeals. As a result, legislation delineated service purchase rights that individuals hired on or after July 20, 2011 could purchase no more than 60 months of credited service and individuals hired on or after July 1, 2010 must have at least 5 years of service to initiate a service purchase request.

#### 3. Participation Opt-out

Legislation passed in 2012 allowed individuals 65 years of age or older and with no prior ASRS membership to opt-out of participation in the Plan. The ability to opt-out was to expire on July 1, 2015. The legislation removed the July 1, 2015 sunset on the election, thereby permitting the opt-out provision in perpetuity.

## Section 12 – Member Data

**Exhibit 12.1 – ASRS Members Missing Date of Birth and Gender 2011 - 2015**

Date of Birth					
	6/30/2011	6/30/2012	6/30/2013	6/30/2014	6/30/2015
Active	3,627	4,442	2,982	2,698	4,408
New	2,845	2,867	1,720	1,887	3,295
Continuing	782	1,575	1,262	811	1,113
Inactive	38,065	29,075	28,444	27,256	27,424
New	457	478	387	422	1,455
Continuing	37,608	28,597	28,057	26,834	25,969
Retired	0	0	0	0	0
New	0	0	0	0	0
Continuing	0	0	0	0	0
Total	41,692	33,517	31,426	29,954	31,832
Total New	3,302	3,345	2,107	2,309	4,750
Total Continuing	38,390	30,172	29,319	27,645	27,082
Actives Average Svc	1.1	1.2	1.4	1.2	1.1
Inactives Average Svc	0.7	0.7	0.7	0.7	0.7
Gender					
	6/30/2011	6/30/2012	6/30/2013	6/30/2014	6/30/2015
Active	3,734	4,515	2,978	2,604	4,337
New	2,930	2,903	1,730	1,871	3,251
Continuing	804	1,612	1,248	733	1,086
Inactive	36,821	36,286	35,485	3,520	4,745
New	480	510	419	422	1,427
Continuing	36,341	35,776	35,066	3,098	3,318
Retired	0	0	0	0	0
New	0	0	0	0	0
Continuing	0	0	0	0	0
Total	40,555	40,801	38,463	6,124	9,082
Total New	3,410	3,413	2,149	2,293	4,678
Total Continuing	37,145	37,388	36,314	3,831	4,404
Actives Average Svc	1.0	1.2	1.4	1.2	1.1
Inactives Average Svc	0.6	0.6	0.6	0.7	0.7

Missing dates of birth and gender are populated based on the averages of the remaining population grouped by age, gender and employer group. Date of birth and gender were the only data fields with at least 1,000 records missing data.

**Exhibit 12.2 - Distribution of Active Members by Member Group and by Average Age, Average Years of Service, and Average Annual Salary Active Plan Members**

Member Group	Number of Active Plan Members		Average Age		Average Years of Service		Average Annual Salary	
	As of June 30, 2014	As of June 30, 2015	As of June 30, 2014	As of June 30, 2015	As of June 30, 2014	As of June 30, 2015	As of June 30, 2014	As of June 30, 2015
<b>Higher Education Members:</b>								
Male	9,434	9,446	46.9	46.7	10.0	10.0	\$ 57,386	\$ 59,101
Female	14,045	13,978	46.5	46.5	10.0	10.1	50,019	51,816
Total	23,479	23,424	46.7	46.6	10.0	10.0	\$ 52,979	\$ 54,754
<b>Other Education Members:</b>								
Male	27,739	27,638	45.5	45.7	9.1	9.1	\$ 41,330	\$ 41,838
Female	82,407	82,704	44.6	44.7	9.4	9.4	36,468	36,824
Total	110,146	110,342	44.8	44.9	9.3	9.3	\$ 37,692	\$ 38,080
<b>City Members:</b>								
Male	9,546	9,711	46.3	46.4	10.2	10.1	\$ 58,328	\$ 59,099
Female	6,922	7,004	45.5	45.6	10.6	10.7	52,010	53,211
Total	16,468	16,715	46.0	46.0	10.4	10.3	\$ 55,672	\$ 56,632
<b>County Members:</b>								
Male	8,133	8,173	48.0	48.0	9.9	9.8	\$ 53,702	\$ 54,979
Female	12,789	12,819	46.4	46.2	9.9	9.9	44,172	45,324
Total	20,922	20,992	47.0	46.9	9.9	9.8	\$ 47,877	\$ 49,083
<b>State Members:</b>								
Male	9,338	9,361	48.1	48.0	9.8	9.6	\$ 53,352	\$ 54,368
Female	16,654	16,744	46.5	46.4	10.1	9.9	43,777	44,645
Total	25,992	26,105	47.1	47.0	10.0	9.8	\$ 47,217	\$ 48,132
<b>Political Subdivision Members:</b>								
Male	2,374	2,274	46.4	46.5	8.3	8.6	\$ 66,671	\$ 69,179
Female	3,820	3,400	45.5	45.3	7.4	7.7	54,713	58,035
Total	6,194	5,674	45.8	45.8	7.7	8.1	\$ 59,296	\$ 62,501
<b>All Active Plan Members:</b>								
Male	66,564	66,603	46.5	46.6	9.5	9.5	\$ 50,145	\$ 51,110
Female	136,637	136,649	45.3	45.3	9.6	9.6	40,771	41,481
Total	203,201	203,252	45.7	45.7	9.6	9.6	\$ 43,841	\$ 44,636

## Exhibit 12.3 – Summary of Retired Membership

	June 30, 2014	June 30, 2015
<b>Higher Education Members</b>		
Number	14,765	15,388
Total Monthly Allowance	\$ 27,147,031	\$ 28,379,334
Average Monthly Allowance	\$ 1,839	\$ 1,844
Average Age	71.3	71.5
Average Years of Service	19.3	19.3
<b>Other Education Members</b>		
Number	67,264	69,750
Total Monthly Allowance	\$ 114,250,804	\$ 118,437,312
Average Monthly Allowance	\$ 1,699	\$ 1,698
Average Age	70.0	70.3
Average Years of Service	20.2	20.2
<b>City Members</b>		
Number	8,291	8,776
Total Monthly Allowance	\$ 15,346,564	\$ 16,451,229
Average Monthly Allowance	\$ 1,851	\$ 1,875
Average Age	68.1	68.3
Average Years of Service	19.2	19.3
<b>County Members</b>		
Number	13,622	14,277
Total Monthly Allowance	\$ 18,281,169	\$ 19,448,950
Average Monthly Allowance	\$ 1,342	\$ 1,362
Average Age	70.4	70.6
Average Years of Service	17.1	17.2
<b>State Members</b>		
Number	20,539	21,364
Total Monthly Allowance	\$ 28,930,373	\$ 30,482,417
Average Monthly Allowance	\$ 1,409	\$ 1,427
Average Age	70.4	70.6
Average Years of Service	18.5	18.6
<b>Political Subdivision Members</b>		
Number	1,774	1,981
Total Monthly Allowance	\$ 2,919,715	\$ 3,403,340
Average Monthly Allowance	\$ 1,646	\$ 1,718
Average Age	68.4	68.3
Average Years of Service	16.4	16.4
<b>Total</b>		
Number <sup>1, 2</sup>	126,255	131,536
Total Monthly Allowance	\$ 206,875,656	\$ 216,602,581
Average Monthly Allowance	\$ 1,639	\$ 1,647
Average Age	70.1	70.4
Average Years of Service	19.4	19.4

<sup>1</sup> Excludes other-than-plan retirees from the System receiving benefit increases from the Plan.

<sup>2</sup> For 2015, total number includes 118,934 service retirees, 4,228 members who retired from disabled status, 7,106 beneficiaries and 1,268 QDROs.

## Exhibit 12.4 – Summary of Inactive Membership

	June 30, 2014	June 30, 2015
<b>Higher Education Members</b>		
Number	26,688	27,396
<b>Other Education Members</b>		
Number	117,358	120,845
<b>City Members</b>		
Number	11,857	12,097
<b>County Members</b>		
Number	24,772	24,728
<b>State Members</b>		
Number	30,277	30,146
<b>Political Subdivision Members</b>		
Number	<u>4,373</u>	<u>4,134</u>
<b>Total</b>		
Number	215,325	219,346

**Exhibit 12.5a**

**Distribution of Active Members by Age and Years of Service**

**Higher Education Members**

**Count and Average Salary**

**as of June 30, 2015**

Current Age	Years of Service									Total
	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35 & Over		
Below 19	10	0	0	0	0	0	0	0	0	10
	\$ 9,648	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 9,648
20-24	622	9	0	0	0	0	0	0	0	631
	\$ 23,992	\$ 30,499	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 24,085
25-29	1,484	349	12	0	0	0	0	0	0	1,845
	\$ 33,469	\$ 42,149	\$ 43,895	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 35,179
30-34	1,310	806	249	9	0	0	0	0	0	2,374
	\$ 41,699	\$ 47,180	\$ 50,478	\$ 59,461	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 44,548
35-39	1,103	758	573	168	2	0	0	0	0	2,604
	\$ 46,806	\$ 56,787	\$ 59,876	\$ 63,205	\$ 52,199	\$ 0	\$ 0	\$ 0	\$ 0	\$ 53,650
40-44	941	713	654	436	95	4	0	0	0	2,843
	\$ 43,351	\$ 56,510	\$ 63,958	\$ 67,908	\$ 67,583	\$ 74,293	\$ 0	\$ 0	\$ 0	\$ 56,011
45-49	870	676	561	504	298	126	3	0	0	3,038
	\$ 43,817	\$ 58,509	\$ 63,188	\$ 65,819	\$ 69,326	\$ 70,339	\$ 77,007	\$ 0	\$ 0	\$ 57,948
50-54	837	670	601	528	391	309	72	3	3	3,411
	\$ 45,528	\$ 55,267	\$ 61,382	\$ 66,385	\$ 73,406	\$ 73,075	\$ 71,543	\$ 68,634	\$ 59,723	\$ 59,723
55-59	706	530	573	529	416	317	156	50	50	3,277
	\$ 44,620	\$ 58,491	\$ 58,848	\$ 62,329	\$ 68,761	\$ 78,696	\$ 77,122	\$ 72,701	\$ 60,547	\$ 60,547
60-64	377	434	378	413	267	245	121	93	93	2,328
	\$ 45,687	\$ 56,963	\$ 61,452	\$ 65,903	\$ 68,227	\$ 79,394	\$ 85,542	\$ 87,758	\$ 63,820	\$ 63,820
65-69	129	141	167	143	92	77	36	56	56	841
	\$ 39,054	\$ 66,494	\$ 62,125	\$ 62,476	\$ 68,858	\$ 82,326	\$ 96,253	\$ 97,477	\$ 65,779	\$ 65,779
70 & Over	29	35	38	29	26	21	12	32	32	222
	\$ 23,816	\$ 70,589	\$ 60,094	\$ 68,682	\$ 72,272	\$ 90,364	\$ 96,124	\$ 100,370	\$ 70,174	\$ 70,174
<b>Total</b>	8,418	5,121	3,806	2,759	1,587	1,099	400	234	234	23,424
	\$ 40,677	\$ 54,774	\$ 60,741	\$ 65,278	\$ 69,893	\$ 76,774	\$ 80,956	\$ 88,346	\$ 54,754	\$ 54,754

**Exhibit 12.5b**

**Distribution of Active Members by Age and Years of Service**

**Other Education Members**

**Count and Average Salary**

**as of June 30, 2015**

Current Age	Years Of Service									Total
	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35 & Over		
Below 19	394	0	0	0	0	0	0	0	0	394
	\$ 11,256	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 11,256
20-24	4,851	90	0	0	0	0	0	0	0	4,941
	\$ 25,035	\$ 23,914	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 25,015
25-29	7,780	2,037	61	0	0	0	0	0	0	9,878
	\$ 34,137	\$ 37,657	\$ 30,819	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 34,842
30-34	4,920	4,719	1,784	45	0	0	0	0	0	11,468
	\$ 31,277	\$ 43,452	\$ 45,963	\$ 40,033	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 38,606
35-39	4,506	3,228	3,767	1,073	11	0	0	0	0	12,585
	\$ 28,655	\$ 40,328	\$ 49,962	\$ 53,045	\$ 51,013	\$ 0	\$ 0	\$ 0	\$ 0	\$ 40,126
40-44	4,663	3,348	2,998	2,934	644	16	0	0	0	14,603
	\$ 27,300	\$ 36,372	\$ 46,550	\$ 56,607	\$ 61,054	\$ 50,355	\$ 0	\$ 0	\$ 0	\$ 40,734
45-49	4,083	3,336	2,833	2,429	1,912	482	11	0	0	15,086
	\$ 26,140	\$ 33,666	\$ 41,325	\$ 51,481	\$ 62,609	\$ 65,140	\$ 51,441	\$ 0	\$ 0	\$ 40,623
50-54	3,461	3,079	3,055	2,590	1,749	1,462	223	5	5	15,624
	\$ 25,564	\$ 31,782	\$ 37,843	\$ 44,821	\$ 55,809	\$ 66,175	\$ 67,023	\$ 53,082	\$ 40,169	\$ 40,169
55-59	2,921	2,331	2,744	2,539	1,793	947	348	78	78	13,701
	\$ 24,997	\$ 31,351	\$ 37,762	\$ 41,133	\$ 49,933	\$ 59,477	\$ 66,076	\$ 61,727	\$ 38,524	\$ 38,524
60-64	1,833	1,582	1,629	1,483	902	607	195	119	119	8,350
	\$ 23,107	\$ 30,620	\$ 37,824	\$ 42,350	\$ 46,955	\$ 55,191	\$ 61,997	\$ 65,528	\$ 37,240	\$ 37,240
65-69	799	627	495	294	216	118	56	41	41	2,646
	\$ 19,706	\$ 27,130	\$ 35,924	\$ 41,092	\$ 47,178	\$ 52,929	\$ 63,975	\$ 57,728	\$ 32,126	\$ 32,126
70 & Over	386	310	205	94	34	21	9	7	7	1,066
	\$ 14,203	\$ 20,141	\$ 25,374	\$ 33,430	\$ 31,474	\$ 37,452	\$ 48,513	\$ 62,800	\$ 21,391	\$ 21,391
<b>Total</b>	40,597	24,687	19,571	13,481	7,261	3,653	842	250	110,342	110,342
	\$ 27,923	\$ 36,084	\$ 42,540	\$ 48,098	\$ 55,136	\$ 61,815	\$ 64,863	\$ 62,738	\$ 38,080	\$ 38,080

**Exhibit 12.5c**  
**Distribution of Active Members by Age and Years of Service**  
**City Members**  
**Count and Average Salary**  
**as of June 30, 2015**

Current Age	Years Of Service									Total
	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35 & Over		
Below 19	58	0	0	0	0	0	0	0	0	58
	\$ 16,712	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 16,712
20-24	570	12	0	0	0	0	0	0	0	582
	\$ 26,274	\$ 32,205	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 26,396
25-29	823	282	24	0	0	0	0	0	0	1,129
	\$ 37,918	\$ 41,743	\$ 45,331	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 39,031
30-34	727	556	263	23	0	0	0	0	0	1,569
	\$ 43,035	\$ 50,409	\$ 51,561	\$ 54,134	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 47,240
35-39	648	540	425	223	9	0	0	0	0	1,845
	\$ 48,692	\$ 57,462	\$ 61,017	\$ 58,522	\$ 62,834	\$ 0	\$ 0	\$ 0	\$ 0	\$ 55,355
40-44	634	559	512	408	108	4	0	0	0	2,225
	\$ 49,336	\$ 57,256	\$ 63,916	\$ 69,824	\$ 66,012	\$ 75,308	\$ 0	\$ 0	\$ 0	\$ 59,294
45-49	562	528	507	443	237	118	18	0	0	2,413
	\$ 51,213	\$ 57,328	\$ 62,046	\$ 70,402	\$ 74,561	\$ 70,660	\$ 81,155	\$ 0	\$ 0	\$ 61,818
50-54	521	543	489	501	362	263	73	1	0	2,753
	\$ 50,754	\$ 56,379	\$ 59,961	\$ 69,020	\$ 74,209	\$ 78,785	\$ 75,267	\$ 57,382	\$ 0	\$ 63,237
55-59	453	439	433	451	279	196	68	14	0	2,333
	\$ 50,520	\$ 59,592	\$ 61,567	\$ 63,914	\$ 72,901	\$ 79,363	\$ 74,680	\$ 93,518	\$ 0	\$ 62,929
60-64	232	286	272	227	156	105	45	21	0	1,344
	\$ 44,779	\$ 55,610	\$ 61,911	\$ 67,271	\$ 71,664	\$ 77,229	\$ 74,386	\$ 69,243	\$ 0	\$ 61,379
65-69	67	96	82	69	27	16	10	5	0	372
	\$ 30,190	\$ 55,893	\$ 65,629	\$ 63,360	\$ 71,050	\$ 94,124	\$ 82,583	\$ 82,736	\$ 0	\$ 58,618
70 & Over	25	27	18	13	5	4	0	0	0	92
	\$ 27,764	\$ 33,892	\$ 53,145	\$ 37,385	\$ 53,401	\$ 84,288	\$ 0	\$ 0	\$ 0	\$ 39,739
<b>Total</b>	5,320	3,868	3,025	2,358	1,183	706	214	41	0	16,715
	\$ 43,700	\$ 54,925	\$ 60,800	\$ 66,796	\$ 72,641	\$ 77,715	\$ 75,732	\$ 78,888	\$ 0	\$ 56,632

**Exhibit 12.5d**  
**Distribution of Active Members by Age and Years of Service**  
**County Members**  
**Count and Average Salary**  
**as of June 30, 2015**

Current Age	Years Of Service								Total	
	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35 & Over		
Below 19	25	0	0	0	0	0	0	0	0	25
	\$ 22,689	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 22,689
20-24	629	8	0	0	0	0	0	0	0	637
	\$ 30,075	\$ 33,778	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 30,122
25-29	1,319	227	20	0	0	0	0	0	0	1,566
	\$ 36,579	\$ 36,385	\$ 37,373	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 36,561
30-34	1,136	643	231	14	0	0	0	0	0	2,024
	\$ 40,836	\$ 46,796	\$ 42,018	\$ 44,799	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 42,892
35-39	942	624	444	162	4	0	0	0	0	2,176
	\$ 41,691	\$ 48,676	\$ 53,456	\$ 47,398	\$ 50,356	\$ 0	\$ 0	\$ 0	\$ 0	\$ 46,535
40-44	888	579	517	390	102	3	0	0	0	2,479
	\$ 42,019	\$ 49,359	\$ 55,416	\$ 57,471	\$ 57,877	\$ 51,581	\$ 0	\$ 0	\$ 0	\$ 49,622
45-49	803	596	539	447	270	134	10	0	0	2,799
	\$ 44,729	\$ 47,149	\$ 54,618	\$ 59,343	\$ 60,576	\$ 58,217	\$ 70,071	\$ 0	\$ 0	\$ 51,747
50-54	744	601	549	422	355	266	56	4	4	2,997
	\$ 44,877	\$ 46,003	\$ 52,013	\$ 58,037	\$ 61,696	\$ 64,770	\$ 61,319	\$ 52,158	\$ 52,338	\$ 52,338
55-59	689	608	600	505	359	276	128	43	43	3,208
	\$ 46,020	\$ 47,913	\$ 51,385	\$ 55,375	\$ 63,940	\$ 69,637	\$ 67,250	\$ 66,513	\$ 66,513	\$ 54,014
60-64	428	465	408	409	234	179	72	47	47	2,242
	\$ 45,008	\$ 47,370	\$ 52,431	\$ 58,995	\$ 64,874	\$ 64,888	\$ 67,716	\$ 69,069	\$ 69,069	\$ 54,295
65-69	121	148	143	87	74	49	14	20	20	656
	\$ 38,326	\$ 51,828	\$ 56,344	\$ 61,659	\$ 58,851	\$ 76,470	\$ 73,366	\$ 95,180	\$ 95,180	\$ 56,040
70 & Over	33	46	46	22	18	11	5	2	2	183
	\$ 46,855	\$ 40,827	\$ 43,683	\$ 63,166	\$ 46,861	\$ 59,558	\$ 65,132	\$ 66,822	\$ 66,822	\$ 47,985
<b>Total</b>	7,757	4,545	3,497	2,458	1,416	918	285	116	20,992	20,992
	\$ 40,888	\$ 47,091	\$ 52,365	\$ 57,195	\$ 61,932	\$ 65,819	\$ 66,565	\$ 72,002	\$ 72,002	\$ 49,083

**Exhibit 12.5e**  
**Distribution of Active Members by Age and Years of Service**  
**State Members**  
**Count and Average Salary**  
**as of June 30, 2015**

Current Age	Years Of Service									Total
	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35 & Over		
Below 19	10	0	0	0	0	0	0	0	0	10
	\$ 24,272	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 24,272
20-24	638	10	0	0	0	0	0	0	0	648
	\$ 32,798	\$ 36,806	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 32,860
25-29	1,689	255	13	0	0	0	0	0	0	1,957
	\$ 39,354	\$ 40,743	\$ 36,321	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 39,515
30-34	1,601	739	288	15	0	0	0	0	0	2,643
	\$ 42,255	\$ 48,671	\$ 46,187	\$ 49,199	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 44,517
35-39	1,311	653	523	182	3	0	0	0	0	2,672
	\$ 44,288	\$ 52,316	\$ 51,837	\$ 50,727	\$ 47,409	\$ 0	\$ 0	\$ 0	\$ 0	\$ 48,170
40-44	1,247	685	610	416	133	6	0	0	0	3,097
	\$ 43,369	\$ 51,005	\$ 51,989	\$ 53,567	\$ 53,751	\$ 54,769	\$ 0	\$ 0	\$ 0	\$ 48,594
45-49	1,186	593	577	588	367	129	8	0	0	3,448
	\$ 44,003	\$ 50,598	\$ 51,958	\$ 51,029	\$ 58,578	\$ 56,722	\$ 48,354	\$ 0	\$ 0	\$ 49,704
50-54	1,133	630	633	603	484	373	96	8	8	3,960
	\$ 44,789	\$ 49,283	\$ 50,077	\$ 49,131	\$ 56,453	\$ 60,450	\$ 57,958	\$ 51,047	\$ 51,047	\$ 50,243
55-59	920	624	651	661	469	351	143	55	55	3,874
	\$ 43,441	\$ 50,510	\$ 48,924	\$ 51,065	\$ 53,952	\$ 56,831	\$ 61,559	\$ 54,598	\$ 54,598	\$ 50,115
60-64	542	473	499	429	318	220	106	81	81	2,668
	\$ 45,981	\$ 49,154	\$ 51,380	\$ 50,944	\$ 54,771	\$ 57,556	\$ 56,661	\$ 58,768	\$ 58,768	\$ 51,166
65-69	136	148	181	123	101	78	42	35	35	844
	\$ 46,856	\$ 52,665	\$ 50,957	\$ 56,235	\$ 52,620	\$ 59,034	\$ 58,657	\$ 64,911	\$ 64,911	\$ 53,272
70 & Over	53	39	48	47	40	25	10	22	22	284
	\$ 45,809	\$ 62,387	\$ 57,027	\$ 44,523	\$ 45,844	\$ 49,361	\$ 59,488	\$ 65,444	\$ 65,444	\$ 52,089
<b>Total</b>	10,466	4,849	4,023	3,064	1,915	1,182	405	201	201	26,105
	\$ 42,428	\$ 49,881	\$ 50,640	\$ 51,078	\$ 55,343	\$ 58,073	\$ 58,811	\$ 59,120	\$ 59,120	\$ 48,132

**Exhibit 12.5f**  
**Distribution of Active Members by Age and Years of Service**  
**Political Subdivision Members**  
**Count and Average Salary**  
**as of June 30, 2015**

Current Age	Years Of Service									Total
	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35 & Over		
Below 19	6	0	0	0	0	0	0	0	0	6
	\$ 24,365	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 24,365
20-24	161	4	0	0	0	0	0	0	0	165
	\$ 30,597	\$ 45,460	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 30,957
25-29	409	58	3	0	0	0	0	0	0	470
	\$ 41,675	\$ 45,597	\$ 53,098	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 42,232
30-34	386	158	40	2	0	0	0	0	0	586
	\$ 51,211	\$ 57,733	\$ 63,674	\$ 48,166	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 53,810
35-39	377	214	96	22	1	0	0	0	0	710
	\$ 52,265	\$ 64,063	\$ 67,457	\$ 73,800	\$ 41,651	\$ 0	\$ 0	\$ 0	\$ 0	\$ 58,527
40-44	302	188	105	65	7	1	0	0	0	668
	\$ 55,542	\$ 71,189	\$ 67,101	\$ 77,121	\$ 72,859	\$ 67,268	\$ 0	\$ 0	\$ 0	\$ 64,061
45-49	284	202	112	85	43	12	0	0	0	738
	\$ 52,520	\$ 68,785	\$ 70,552	\$ 75,893	\$ 87,788	\$ 83,524	\$ 0	\$ 0	\$ 0	\$ 64,960
50-54	258	219	160	114	64	53	7	0	0	875
	\$ 58,149	\$ 66,547	\$ 70,356	\$ 74,570	\$ 80,984	\$ 92,303	\$100,840	\$ 0	\$ 0	\$ 68,703
55-59	194	201	139	116	60	48	20	8	0	786
	\$ 59,099	\$ 66,972	\$ 72,603	\$ 81,922	\$ 93,698	\$ 96,692	\$ 83,356	\$ 67,849	\$ 0	\$ 72,512
60-64	97	134	84	73	50	32	12	10	0	492
	\$ 56,791	\$ 71,416	\$ 74,074	\$ 70,357	\$ 82,589	\$ 91,578	\$ 77,587	\$102,536	\$ 0	\$ 72,059
65-69	32	39	34	26	5	10	5	2	0	153
	\$ 53,676	\$ 78,987	\$ 78,488	\$ 77,746	\$ 71,621	\$117,055	\$ 99,946	\$143,848	\$ 0	\$ 77,152
70 & Over	2	11	2	4	3	1	1	1	0	25
	\$ 31,119	\$ 62,616	\$ 28,573	\$ 48,487	\$ 45,307	\$ 44,975	\$121,195	\$ 38,708	\$ 0	\$ 53,716
<b>Total</b>	2,508	1,428	775	507	233	157	45	21	0	5,674
	\$ 50,652	\$ 66,043	\$ 70,227	\$ 76,014	\$ 84,785	\$ 93,942	\$ 87,222	\$ 90,217	\$ 0	\$ 62,501

**Exhibit 12.5g**  
**Distribution of Active Members by Age and Years of Service**  
**Total Active Members**  
**Count and Average Salary**  
**as of June 30, 2015**

Current Age	Years Of Service									Total
	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35 & Over		
Below 19	503	0	0	0	0	0	0	0	0	503
	\$ 12,837	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 12,837
20-24	7,471	133	0	0	0	0	0	0	0	7,604
	\$ 26,250	\$ 27,318	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 26,269
25-29	13,504	3,208	133	0	0	0	0	0	0	16,845
	\$ 35,414	\$ 38,803	\$ 36,643	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 36,069
30-34	10,080	7,621	2,855	108	0	0	0	0	0	20,664
	\$ 37,064	\$ 45,438	\$ 46,824	\$ 46,697	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 41,551
35-39	8,887	6,017	5,828	1,830	30	0	0	0	0	22,592
	\$ 37,058	\$ 46,950	\$ 52,466	\$ 54,165	\$ 53,878	\$ 0	\$ 0	\$ 0	\$ 0	\$ 45,075
40-44	8,675	6,072	5,396	4,649	1,089	34	0	0	0	25,915
	\$ 35,451	\$ 44,627	\$ 52,172	\$ 58,914	\$ 61,002	\$ 57,492	\$ 0	\$ 0	\$ 0	\$ 46,394
45-49	7,788	5,931	5,129	4,496	3,127	1,001	50	0	0	27,522
	\$ 35,523	\$ 42,848	\$ 48,996	\$ 56,136	\$ 63,853	\$ 64,654	\$ 66,904	\$ 0	\$ 0	\$ 47,315
50-54	6,954	5,742	5,487	4,758	3,405	2,726	527	21	0	29,620
	\$ 36,262	\$ 41,583	\$ 46,170	\$ 52,193	\$ 60,964	\$ 67,761	\$ 66,974	\$ 54,557	\$ 0	\$ 47,986
55-59	5,883	4,733	5,140	4,801	3,376	2,135	863	248	0	27,179
	\$ 35,788	\$ 43,176	\$ 46,064	\$ 49,460	\$ 56,977	\$ 65,871	\$ 68,577	\$ 65,181	\$ 0	\$ 47,737
60-64	3,509	3,374	3,270	3,034	1,927	1,388	551	371	0	17,424
	\$ 34,101	\$ 42,654	\$ 47,381	\$ 51,554	\$ 56,293	\$ 63,595	\$ 68,239	\$ 71,281	\$ 0	\$ 47,964
65-69	1,284	1,199	1,102	742	515	348	163	159	0	5,512
	\$ 27,674	\$ 41,949	\$ 48,537	\$ 53,490	\$ 55,284	\$ 67,853	\$ 72,785	\$ 79,889	\$ 0	\$ 46,382
70 & Over	528	468	357	209	126	83	37	64	0	1,872
	\$ 20,650	\$ 31,259	\$ 37,103	\$ 44,480	\$ 47,852	\$ 59,704	\$ 71,131	\$ 82,243	\$ 0	\$ 35,766
<b>Total</b>	75,066	44,498	34,697	24,627	13,595	7,715	2,191	863	0	203,252
	\$ 34,593	\$ 43,462	\$ 48,676	\$ 53,666	\$ 59,627	\$ 65,958	\$ 68,424	\$ 71,520	\$ 0	\$ 44,636

**Exhibit 12.6a**

**Distribution of Retired Members and Beneficiaries by Age and Years of Service**

**Higher Education Members**

**Count and Average Monthly Annuity**

**as of June 30, 2015**

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	3	24	34	34	36	62	59	3	0	0	255
	\$ 309	\$ 319	\$ 558	\$ 606	\$ 1,124	\$ 2,795	\$ 3,714	\$ 2,530	\$ 0	\$ 0	\$ 1,916
55-59	3	76	144	88	140	281	202	17	0	0	951
	\$ 180	\$ 355	\$ 704	\$ 906	\$ 1,619	\$ 2,626	\$ 3,704	\$ 5,314	\$ 0	\$ 0	\$ 2,115
60-64	5	278	388	315	483	397	421	80	8	0	2,375
	\$ 277	\$ 364	\$ 766	\$ 1,195	\$ 1,920	\$ 2,845	\$ 3,856	\$ 4,556	\$ 5,118	\$ 0	\$ 2,047
65-69	267	557	647	497	665	560	536	169	32	3	3,933
	\$ 177	\$ 433	\$ 801	\$ 1,320	\$ 2,001	\$ 2,804	\$ 3,956	\$ 5,302	\$ 7,128	\$ 4,430	\$ 1,938
70-74	241	489	544	419	485	385	328	129	50	4	3,074
	\$ 136	\$ 418	\$ 817	\$ 1,247	\$ 1,892	\$ 2,750	\$ 3,939	\$ 5,059	\$ 6,168	\$ 7,366	\$ 1,777
75-79	143	276	362	318	324	250	204	76	32	3	1,988
	\$ 118	\$ 395	\$ 794	\$ 1,258	\$ 1,893	\$ 2,704	\$ 3,855	\$ 4,676	\$ 5,921	\$ 9,961	\$ 1,742
80-84	99	236	284	226	198	187	120	34	13	2	1,399
	\$ 135	\$ 385	\$ 797	\$ 1,281	\$ 2,038	\$ 2,771	\$ 3,368	\$ 4,050	\$ 5,686	\$ 5,497	\$ 1,550
85-89	40	142	180	146	146	124	77	30	5	5	895
	\$ 183	\$ 411	\$ 848	\$ 1,332	\$ 2,118	\$ 2,731	\$ 3,572	\$ 3,873	\$ 6,903	\$ 7,346	\$ 1,702
90-94	19	52	101	83	70	46	29	11	2	1	414
	\$ 134	\$ 410	\$ 904	\$ 1,440	\$ 1,785	\$ 2,609	\$ 3,517	\$ 3,435	\$ 6,565	\$ 4,984	\$ 1,540
95 & Over	1	26	19	21	14	12	8	1	2	0	104
	\$ 88	\$ 403	\$ 869	\$ 1,152	\$ 1,771	\$ 2,652	\$ 2,594	\$ 3,883	\$ 3,464	\$ 0	\$ 1,341
<b>Total</b>	821	2,156	2,703	2,147	2,561	2,304	1,984	550	144	18	15,388
	\$ 150	\$ 404	\$ 797	\$ 1,250	\$ 1,921	\$ 2,758	\$ 3,826	\$ 4,840	\$ 6,218	\$ 6,964	\$ 1,844

**Exhibit 12.6b**

**Distribution of Retired Members and Beneficiaries by Age and Years of Service**

**Other Education Members**

**Count and Average Monthly Annuity**

**as of June 30, 2015**

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	9	71	136	100	100	408	414	5	2	0	1,245
	\$ 95	\$ 209	\$ 390	\$ 607	\$ 1,140	\$ 2,593	\$ 3,343	\$ 2,246	\$ 2,693	\$ 0	\$ 2,170
55-59	4	323	478	348	810	1,523	1,769	49	0	0	5,304
	\$ 77	\$ 222	\$ 498	\$ 727	\$ 1,651	\$ 2,635	\$ 3,669	\$ 3,913	\$ 0	\$ 0	\$ 2,375
60-64	5	1,232	1,581	1,535	2,567	2,507	3,222	304	29	1	12,983
	\$ 221	\$ 295	\$ 640	\$ 980	\$ 1,709	\$ 2,460	\$ 3,568	\$ 4,306	\$ 4,481	\$ 4,376	\$ 2,031
65-69	779	2,604	2,785	2,210	3,112	3,181	3,255	545	62	7	18,540
	\$ 140	\$ 309	\$ 660	\$ 1,077	\$ 1,650	\$ 2,459	\$ 3,399	\$ 4,190	\$ 4,776	\$ 5,214	\$ 1,714
70-74	997	2,002	2,019	1,715	2,299	2,094	1,520	439	66	7	13,158
	\$ 103	\$ 285	\$ 617	\$ 1,008	\$ 1,629	\$ 2,373	\$ 3,216	\$ 3,945	\$ 4,487	\$ 4,847	\$ 1,468
75-79	560	1,301	1,431	1,250	1,587	1,226	760	215	49	4	8,383
	\$ 90	\$ 274	\$ 635	\$ 1,065	\$ 1,645	\$ 2,381	\$ 3,066	\$ 3,671	\$ 4,265	\$ 4,405	\$ 1,375
80-84	296	837	940	875	957	823	582	110	9	6	5,435
	\$ 98	\$ 308	\$ 700	\$ 1,126	\$ 1,705	\$ 2,432	\$ 3,041	\$ 3,822	\$ 4,171	\$ 4,755	\$ 1,439
85-89	99	479	598	544	570	492	274	78	6	2	3,142
	\$ 112	\$ 310	\$ 738	\$ 1,171	\$ 1,645	\$ 2,303	\$ 2,915	\$ 3,369	\$ 3,550	\$ 4,994	\$ 1,401
90-94	43	165	256	256	275	166	77	22	5	0	1,265
	\$ 139	\$ 337	\$ 738	\$ 1,157	\$ 1,575	\$ 2,037	\$ 2,575	\$ 2,846	\$ 4,577	\$ 0	\$ 1,266
95 & Over	5	45	57	66	54	42	20	4	1	1	295
	\$ 166	\$ 353	\$ 781	\$ 1,125	\$ 1,430	\$ 1,686	\$ 2,059	\$ 1,893	\$ 2,203	\$ 6,675	\$ 1,156
<b>Total</b>	2,797	9,059	10,281	8,899	12,331	12,462	11,893	1,771	229	28	69,750
	\$ 111	\$ 294	\$ 645	\$ 1,040	\$ 1,655	\$ 2,447	\$ 3,402	\$ 3,992	\$ 4,456	\$ 4,915	\$ 1,698

**Exhibit 12.6c**

**Distribution of Retired Members and Beneficiaries by Age and Years of Service**

**City Members**

**Count and Average Monthly Annuity**

**as of June 30, 2015**

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	29	30	21	27	92	139	4	0	0	344
\$	147	\$ 295	\$ 620	\$ 704	\$ 1,515	\$ 2,868	\$ 3,837	\$ 2,277	\$ 0	\$ 0	\$ 2,586
55-59	1	62	90	71	152	315	281	9	0	0	981
\$	45	\$ 382	\$ 707	\$ 1,077	\$ 2,169	\$ 3,192	\$ 3,828	\$ 3,528	\$ 0	\$ 0	\$ 2,657
60-64	2	201	279	238	371	411	368	46	3	0	1,919
\$	178	\$ 408	\$ 922	\$ 1,406	\$ 2,137	\$ 3,057	\$ 3,916	\$ 4,435	\$ 7,330	\$ 0	\$ 2,288
65-69	87	360	457	337	375	350	263	64	0	0	2,293
\$	205	\$ 490	\$ 966	\$ 1,432	\$ 2,053	\$ 2,824	\$ 3,783	\$ 4,685	\$ 0	\$ 0	\$ 1,819
70-74	102	273	321	225	268	185	107	37	7	1	1,526
\$	167	\$ 456	\$ 890	\$ 1,330	\$ 1,853	\$ 2,556	\$ 3,685	\$ 4,247	\$ 4,427	\$ 3,452	\$ 1,495
75-79	51	134	196	170	132	57	55	15	4	0	814
\$	123	\$ 420	\$ 871	\$ 1,319	\$ 1,849	\$ 2,529	\$ 3,244	\$ 3,407	\$ 4,339	\$ 0	\$ 1,342
80-84	30	112	162	101	67	41	19	3	0	0	535
\$	140	\$ 395	\$ 899	\$ 1,381	\$ 1,795	\$ 2,300	\$ 2,790	\$ 3,200	\$ 0	\$ 0	\$ 1,142
85-89	20	56	70	50	22	17	12	4	1	0	252
\$	154	\$ 439	\$ 879	\$ 1,296	\$ 1,680	\$ 2,317	\$ 2,780	\$ 2,970	\$ 12,686	\$ 0	\$ 1,144
90-94	2	21	26	24	10	3	5	2	1	0	94
\$	89	\$ 442	\$ 909	\$ 1,284	\$ 1,516	\$ 1,337	\$ 2,036	\$ 1,782	\$ 2,314	\$ 0	\$ 1,055
95 & Over	0	2	8	2	4	2	0	0	0	0	18
\$	0	\$ 557	\$ 933	\$ 1,368	\$ 1,605	\$ 1,346	\$ 0	\$ 0	\$ 0	\$ 0	\$ 1,135
<b>Total</b>	297	1,250	1,639	1,239	1,428	1,473	1,249	184	16	1	8,776
\$	166	\$ 441	\$ 900	\$ 1,348	\$ 1,998	\$ 2,900	\$ 3,774	\$ 4,228	\$ 5,333	\$ 3,452	\$ 1,875

**Exhibit 12.6d**

**Distribution of Retired Members and Beneficiaries by Age and Years of Service**

**County Members**

**Count and Average Monthly Annuity**

**as of June 30, 2015**

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	29	40	38	30	70	59	3	5	0	276
	\$ 211	\$ 234	\$ 489	\$ 626	\$ 997	\$ 2,324	\$ 3,196	\$ 1,504	\$ 978	\$ 0	\$ 1,598
55-59	5	112	141	80	193	236	165	21	0	0	953
	\$ 184	\$ 277	\$ 649	\$ 928	\$ 1,693	\$ 2,532	\$ 3,612	\$ 3,623	\$ 0	\$ 0	\$ 1,883
60-64	1	343	411	308	435	404	345	63	6	0	2,316
	\$ 147	\$ 368	\$ 821	\$ 1,145	\$ 1,680	\$ 2,570	\$ 3,386	\$ 3,948	\$ 4,440	\$ 0	\$ 1,740
65-69	259	737	796	556	627	474	362	90	15	1	3,917
	\$ 177	\$ 430	\$ 799	\$ 1,229	\$ 1,777	\$ 2,450	\$ 3,406	\$ 4,277	\$ 4,800	\$ 5,743	\$ 1,443
70-74	298	581	590	490	427	273	215	55	18	1	2,948
	\$ 146	\$ 378	\$ 752	\$ 1,146	\$ 1,638	\$ 2,211	\$ 3,040	\$ 3,613	\$ 3,383	\$ 6,939	\$ 1,184
75-79	167	361	459	328	262	136	74	27	8	3	1,825
	\$ 122	\$ 387	\$ 773	\$ 1,168	\$ 1,692	\$ 2,070	\$ 2,672	\$ 3,276	\$ 3,604	\$ 3,415	\$ 1,067
80-84	102	252	283	196	164	84	36	6	4	2	1,129
	\$ 137	\$ 389	\$ 781	\$ 1,230	\$ 1,728	\$ 2,238	\$ 2,604	\$ 3,579	\$ 3,614	\$ 3,164	\$ 1,046
85-89	40	146	176	109	82	34	22	8	0	0	617
	\$ 116	\$ 388	\$ 840	\$ 1,227	\$ 1,667	\$ 2,196	\$ 2,330	\$ 2,721	\$ 0	\$ 0	\$ 1,017
90-94	8	61	71	43	38	7	7	5	0	0	240
	\$ 156	\$ 402	\$ 855	\$ 1,191	\$ 1,572	\$ 2,005	\$ 2,607	\$ 2,042	\$ 0	\$ 0	\$ 1,000
95 & Over	2	25	16	4	2	4	3	0	0	0	56
	\$ 107	\$ 418	\$ 877	\$ 959	\$ 1,285	\$ 1,645	\$ 1,816	\$ 0	\$ 0	\$ 0	\$ 770
<b>Total</b>	884	2,647	2,983	2,152	2,260	1,722	1,288	278	56	7	14,277
	\$ 149	\$ 389	\$ 780	\$ 1,166	\$ 1,693	\$ 2,397	\$ 3,265	\$ 3,794	\$ 3,709	\$ 4,179	\$ 1,362

**Exhibit 12.6e**  
**Distribution of Retired Members and Beneficiaries by Age and Years of Service**  
**State Members**  
**Count and Average Monthly Annuity**  
**as of June 30, 2015**

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	4	42	57	59	65	128	95	5	1	0	456
	\$ 165	\$ 310	\$ 472	\$ 653	\$ 1,050	\$ 2,234	\$ 2,756	\$ 3,567	\$ 4,246	\$ 0	\$ 1,573
55-59	2	127	155	141	274	415	314	27	2	0	1,457
	\$ 212	\$ 322	\$ 594	\$ 851	\$ 1,581	\$ 2,342	\$ 3,191	\$ 3,990	\$ 4,746	\$ 0	\$ 1,906
60-64	4	398	550	469	744	636	615	71	11	0	3,498
	\$ 323	\$ 409	\$ 782	\$ 1,105	\$ 1,590	\$ 2,307	\$ 3,194	\$ 3,614	\$ 3,644	\$ 0	\$ 1,722
65-69	278	832	1,034	848	958	806	675	178	28	2	5,639
	\$ 208	\$ 426	\$ 796	\$ 1,121	\$ 1,617	\$ 2,256	\$ 3,067	\$ 3,612	\$ 4,565	\$ 4,876	\$ 1,490
70-74	273	682	954	751	745	451	374	133	44	7	4,414
	\$ 161	\$ 393	\$ 749	\$ 1,084	\$ 1,606	\$ 2,160	\$ 2,950	\$ 3,395	\$ 3,714	\$ 5,036	\$ 1,306
75-79	152	486	671	514	392	296	177	59	14	1	2,762
	\$ 136	\$ 408	\$ 750	\$ 1,133	\$ 1,596	\$ 2,126	\$ 2,736	\$ 3,264	\$ 3,820	\$ 3,911	\$ 1,193
80-84	93	379	436	289	247	137	91	33	2	0	1,707
	\$ 140	\$ 411	\$ 782	\$ 1,181	\$ 1,659	\$ 2,185	\$ 2,549	\$ 3,264	\$ 4,760	\$ 0	\$ 1,119
85-89	51	203	220	182	99	87	47	14	3	1	907
	\$ 166	\$ 428	\$ 882	\$ 1,236	\$ 1,727	\$ 1,999	\$ 2,363	\$ 2,689	\$ 4,027	\$ 3,509	\$ 1,128
90-94	10	86	118	79	57	37	16	14	0	0	417
	\$ 220	\$ 436	\$ 872	\$ 1,245	\$ 1,470	\$ 1,795	\$ 2,444	\$ 2,558	\$ 0	\$ 0	\$ 1,118
95 & Over	8	24	22	27	13	7	4	2	0	0	107
	\$ 176	\$ 472	\$ 881	\$ 1,095	\$ 1,618	\$ 1,433	\$ 1,683	\$ 1,456	\$ 0	\$ 0	\$ 957
<b>Total</b>	875	3,259	4,217	3,359	3,594	3,000	2,408	536	105	11	21,364
	\$ 171	\$ 408	\$ 770	\$ 1,107	\$ 1,597	\$ 2,232	\$ 3,021	\$ 3,458	\$ 4,001	\$ 4,766	\$ 1,427

**Exhibit 12.6f**  
**Distribution of Retired Members and Beneficiaries by Age and Years of Service**  
**Political Subdivision Members**  
**Count and Average Monthly Annuity**  
**as of June 30, 2015**

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	5	13	11	2	12	12	0	0	0	57
\$	196	\$ 309	\$ 517	\$ 632	\$ 1,221	\$ 4,707	\$ 5,157	\$ 0	\$ 0	\$ 0	\$ 2,393
55-59	0	27	27	19	32	33	49	5	0	0	192
\$	0	\$ 380	\$ 675	\$ 1,301	\$ 2,389	\$ 3,433	\$ 4,510	\$ 5,559	\$ 0	\$ 0	\$ 2,561
60-64	0	69	79	57	56	68	59	6	2	0	396
\$	0	\$ 589	\$ 929	\$ 1,464	\$ 2,811	\$ 3,692	\$ 4,795	\$ 4,133	\$ 5,392	\$ 0	\$ 2,334
65-69	55	134	163	86	93	54	39	15	1	0	640
\$	244	\$ 597	\$ 1,090	\$ 1,584	\$ 2,618	\$ 3,026	\$ 4,432	\$ 4,435	\$ 3,527	\$ 0	\$ 1,652
70-74	35	102	95	53	41	23	12	10	4	1	376
\$	145	\$ 420	\$ 938	\$ 1,575	\$ 1,932	\$ 2,686	\$ 4,791	\$ 4,644	\$ 3,409	\$ 4,319	\$ 1,286
75-79	24	39	44	28	14	4	4	2	1	0	160
\$	172	\$ 296	\$ 911	\$ 1,460	\$ 2,008	\$ 2,887	\$ 4,762	\$ 4,612	\$ 1,483	\$ 0	\$ 1,038
80-84	4	21	13	12	6	5	0	0	1	0	62
\$	116	\$ 440	\$ 591	\$ 1,369	\$ 1,723	\$ 1,862	\$ 0	\$ 0	\$ 7,020	\$ 0	\$ 976
85-89	4	13	9	6	4	4	3	0	0	0	43
\$	85	\$ 320	\$ 763	\$ 1,162	\$ 1,738	\$ 2,010	\$ 2,535	\$ 0	\$ 0	\$ 0	\$ 952
90-94	3	13	6	7	6	1	2	0	0	0	38
\$	236	\$ 382	\$ 739	\$ 996	\$ 1,081	\$ 1,236	\$ 1,716	\$ 0	\$ 0	\$ 0	\$ 743
95 & Over	0	5	7	1	3	1	0	0	0	0	17
\$	0	\$ 496	\$ 803	\$ 1,031	\$ 1,388	\$ 1,406	\$ 0	\$ 0	\$ 0	\$ 0	\$ 865
<b>Total</b>	127	428	456	280	257	205	180	38	9	1	1,981
\$	193	\$ 485	\$ 943	\$ 1,454	\$ 2,393	\$ 3,305	\$ 4,590	\$ 4,600	\$ 4,050	\$ 4,319	\$ 1,718

**Exhibit 12.6g**  
**Distribution of Retired Members and Beneficiaries by Age and Years of Service**  
**All Groups**  
**Count and Average Monthly Annuity**  
**as of June 30, 2015**

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	22	200	310	263	260	772	778	20	8	0	2,633
	\$ 161	\$ 262	\$ 464	\$ 628	\$ 1,139	\$ 2,591	\$ 3,404	\$ 2,514	\$ 1,815	\$ 0	\$ 2,041
55-59	15	727	1,035	747	1,601	2,803	2,780	128	2	0	9,838
	\$ 149	\$ 282	\$ 585	\$ 841	\$ 1,705	\$ 2,654	\$ 3,645	\$ 4,105	\$ 4,746	\$ 0	\$ 2,264
60-64	17	2,521	3,288	2,922	4,656	4,423	5,030	570	59	1	23,487
	\$ 252	\$ 348	\$ 732	\$ 1,085	\$ 1,757	\$ 2,557	\$ 3,573	\$ 4,224	\$ 4,583	\$ 4,376	\$ 1,984
65-69	1,725	5,224	5,882	4,534	5,830	5,425	5,130	1,061	138	13	34,962
	\$ 169	\$ 378	\$ 754	\$ 1,166	\$ 1,740	\$ 2,493	\$ 3,442	\$ 4,311	\$ 5,272	\$ 5,022	\$ 1,678
70-74	1,946	4,129	4,523	3,653	4,265	3,411	2,556	803	189	21	25,496
	\$ 126	\$ 347	\$ 713	\$ 1,098	\$ 1,673	\$ 2,386	\$ 3,282	\$ 4,033	\$ 4,622	\$ 5,398	\$ 1,443
75-79	1,097	2,597	3,163	2,608	2,711	1,969	1,274	394	108	11	15,932
	\$ 108	\$ 335	\$ 716	\$ 1,135	\$ 1,684	\$ 2,367	\$ 3,137	\$ 3,772	\$ 4,626	\$ 5,605	\$ 1,348
80-84	624	1,837	2,118	1,699	1,639	1,277	848	186	29	10	10,267
	\$ 119	\$ 357	\$ 755	\$ 1,185	\$ 1,745	\$ 2,436	\$ 3,011	\$ 3,747	\$ 4,912	\$ 4,585	\$ 1,339
85-89	254	1,039	1,253	1,037	923	758	435	134	15	8	5,856
	\$ 138	\$ 365	\$ 801	\$ 1,217	\$ 1,732	\$ 2,332	\$ 2,936	\$ 3,360	\$ 5,372	\$ 6,278	\$ 1,350
90-94	85	398	578	492	456	260	136	54	8	1	2,468
	\$ 151	\$ 385	\$ 816	\$ 1,226	\$ 1,586	\$ 2,092	\$ 2,730	\$ 2,778	\$ 4,791	\$ 4,984	\$ 1,245
95 & Over	16	127	129	121	90	68	35	7	3	1	597
	\$ 159	\$ 407	\$ 834	\$ 1,120	\$ 1,513	\$ 1,814	\$ 2,118	\$ 2,052	\$ 3,044	\$ 6,675	\$ 1,107
<b>Total</b>	5,801	18,799	22,279	18,076	22,431	21,166	19,002	3,357	559	66	131,536*
	\$ 136	\$ 354	\$ 730	\$ 1,119	\$ 1,711	\$ 2,486	\$ 3,424	\$ 4,049	\$ 4,769	\$ 5,340	\$ 1,647

\* Includes 118,934 service retirees, 4,228 members who retired from disabled status, 7,106 beneficiaries and 1,268 QDROs.

**Exhibit 12.6h**

**Distribution of New Retired Members and Beneficiaries by Age and Average Years of Service**

**All Groups**

**Count and Average Monthly Annuity  
as of June 30, 2015**

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	5	56	72	63	71	297	276	6	1	0	847
	\$ 328	\$ 335	\$ 564	\$ 732	\$ 1,540	\$ 2,703	\$ 3,650	\$ 2,875	\$ 2,349	\$ 0	\$ 2,416
55-59	2	125	189	168	457	395	333	42	0	0	1,711
	\$ 194	\$ 346	\$ 791	\$ 1,010	\$ 1,767	\$ 2,707	\$ 3,776	\$ 4,347	\$ 0	\$ 0	\$ 2,151
60-64	5	448	679	658	503	320	246	67	20	1	2,947
	\$ 234	\$ 459	\$ 847	\$ 1,232	\$ 1,840	\$ 2,604	\$ 3,544	\$ 3,936	\$ 4,788	\$ 4,376	\$ 1,557
65-69	281	531	513	321	274	193	125	54	15	2	2,309
	\$ 226	\$ 483	\$ 891	\$ 1,235	\$ 1,834	\$ 2,528	\$ 3,396	\$ 3,702	\$ 5,586	\$ 4,712	\$ 1,248
70-74	28	118	131	81	51	36	26	16	7	3	497
	\$ 295	\$ 378	\$ 635	\$ 1,020	\$ 1,866	\$ 2,176	\$ 3,576	\$ 3,545	\$ 4,508	\$ 5,451	\$ 1,187
75-79	14	48	47	35	33	28	14	4	1	0	224
	\$ 146	\$ 327	\$ 451	\$ 1,010	\$ 1,398	\$ 2,142	\$ 2,892	\$ 2,608	\$ 5,836	\$ 0	\$ 1,059
80-84	4	25	14	16	13	12	5	3	0	1	93
	\$ 178	\$ 341	\$ 476	\$ 855	\$ 1,644	\$ 1,878	\$ 2,248	\$ 2,815	\$ 0	\$ 7,067	\$ 1,078
85-89	2	4	7	8	9	5	7	1	0	0	43
	\$ 266	\$ 428	\$ 613	\$ 827	\$ 1,375	\$ 1,777	\$ 2,701	\$ 2,299	\$ 0	\$ 0	\$ 1,293
90-94	0	1	3	5	5	4	4	1	0	0	23
	\$ 0	\$ 423	\$ 575	\$ 983	\$ 1,477	\$ 1,264	\$ 2,046	\$ 1,399	\$ 0	\$ 0	\$ 1,265
95 & Over	0	0	0	1	0	0	0	0	0	0	1
	\$ 0	\$ 0	\$ 0	\$ 743	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 743
<b>Total</b>	341	1,356	1,655	1,356	1,416	1,290	1,036	194	44	7	8,695
	\$ 229	\$ 439	\$ 809	\$ 1,155	\$ 1,785	\$ 2,611	\$ 3,603	\$ 3,829	\$ 4,984	\$ 5,317	\$ 1,634

**Exhibit 12.7**  
**Members in Active Service as of June 30, 2015, by Annual Salary**

Annual Salary	Number of Members	Percentage of All Members
Less than \$10,000	7,525	3.7%
\$10,000 - \$14,999	12,274	6.0%
\$15,000 - \$19,999	12,707	6.3%
\$20,000 - \$24,999	11,942	5.9%
\$25,000 - \$29,999	13,156	6.5%
\$30,000 - \$34,999	15,015	7.4%
\$35,000 - \$39,999	16,909	8.3%
\$40,000 - \$44,999	23,162	11.3%
\$45,000 - \$49,999	21,625	10.6%
\$50,000 - \$54,999	16,095	7.9%
\$55,000 - \$59,999	11,838	5.8%
\$60,000 - \$64,999	9,086	4.5%
\$65,000 - \$69,999	6,905	3.4%
\$70,000 - \$74,999	5,202	2.6%
\$75,000 - \$79,999	4,016	2.0%
\$80,000 - \$84,999	3,281	1.6%
\$85,000 - \$89,999	2,609	1.3%
\$90,000 and over	9,905	4.9%
Total	203,252	100.0%

**Exhibit 12.8****Retirement Benefits in Force on June 30, 2015, by Monthly Amount**

Monthly Amount	Number of Retirees	Percentage of All Retirees
Under \$300	16,948	12.9%
\$300 - \$499	12,792	9.7%
\$500 - \$999	25,860	19.7%
\$1,000 - \$1,499	18,734	14.2%
\$1,500 - \$1,999	14,157	10.8%
\$2,000 - \$2,499	11,825	9.0%
\$2,500 - \$2,999	9,551	7.3%
\$3,000 - \$3,499	7,738	5.9%
\$3,500 - \$3,999	5,189	3.9%
\$4,000 and over	8,742	6.6%
Total	131,536	100.0%

## Exhibit 12.9 - Number of Retirees by Benefit Option and Monthly Amount

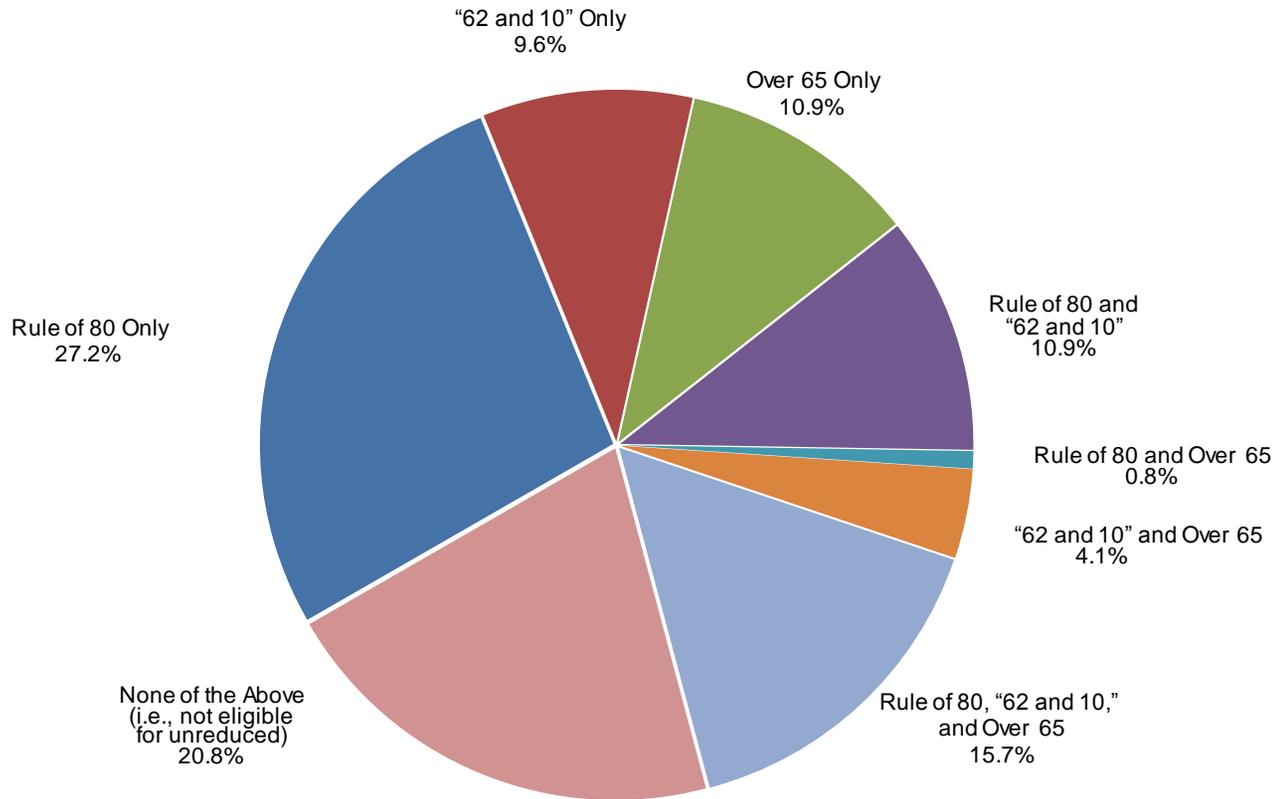
Amount of Monthly Benefit	Optional Form of Benefit							Total
	1	2	3	4	5	6	7	
Under \$300	11,707	212	321	760	2,982	270	696	16,948
\$300 - \$499	8,050	223	344	586	2,509	329	751	12,792
\$500 - \$999	15,910	478	830	1,093	4,814	904	1,831	25,860
\$1000 - \$1499	10,621	368	644	697	3,809	970	1,625	18,734
\$1500 - \$1999	7,578	234	435	510	3,095	936	1,369	14,157
\$2000 - \$2499	6,221	159	330	452	2,667	785	1,211	11,825
\$2500 - \$2999	4,966	130	298	388	2,208	605	956	9,551
\$3000 - \$3499	3,961	96	197	291	1,824	556	813	7,738
\$3500 - \$3999	2,643	45	105	218	1,238	390	550	5,189
\$4000 and over	4,438	57	181	300	2,038	762	966	8,742
<b>Total</b>	<b>76,095</b>	<b>2,002</b>	<b>3,685</b>	<b>5,295</b>	<b>27,184</b>	<b>6,507</b>	<b>10,768</b>	<b>131,536</b>

### Optional form

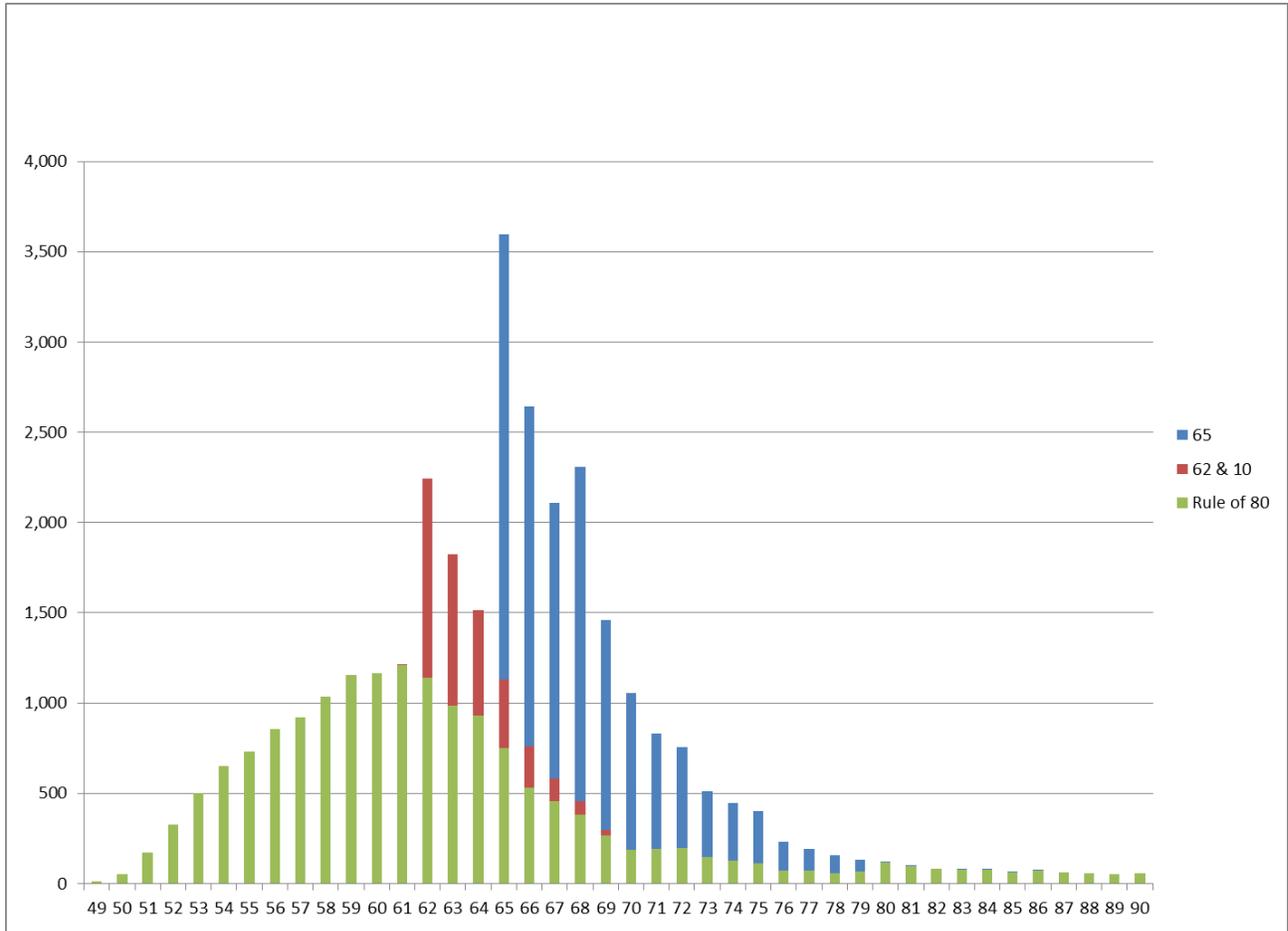
- 1 Life annuity
- 2 Life annuity - 5 years certain and life
- 3 Life annuity - 10 years certain and life
- 4 Life annuity - 15 years certain and life
- 5 Joint annuity - 100% to contingent survivor
- 6 Joint annuity - 66 2/3% to contingent survivor
- 7 Joint annuity - 50% to contingent survivor

Note: All optional forms had a social security leveling income option available prior to July 1, 2013

### Exhibit 12.10– New Retiree Eligibility



**Exhibit 12.11**  
**Total Active and Inactive Members Eligible for**  
**Normal Retirement by Age and Rule of Eligibility**



Eligibility Rule	65	62&10	Rule of 80	Total
Total Number of Active Members	3,015	2,928	15,156	21,099
Total Number of Inactive Members	9,359	446	1,505	11,310
Total Number of Active/Inactive Members	12,374	3,374	16,661	32,409

**Exhibit 12.12**  
**Health Insurance Benefit Counts**

Current HIB Benefit	Count	Monthly Premium Supplement	Average Monthly Premium Supplement
Single, Non-Medicare	12,707	\$ 1,678,990	\$ 132
Single, Medicare	31,785	2,540,742	80
Family, Both Non-Medicare	6,900	1,453,079	211
Family, One Medicare, One Non-Medicare	5,375	814,450	152
Family, Both Medicare	14,729	1,677,962	114
<b>Total</b>	<b>71,496</b>	<b>\$ 8,165,223</b>	<b>\$ 114</b>

\* Includes 595 System members receiving 401(h) benefits and 1,280 members receiving LTD benefits and 401(h) benefits.

## Exhibit 12.13

### Growth of Covered Payroll and Active Members

Year Ending June 30	Active Members		Covered Payroll		Average Salary	
	Number	Percent Increase	Amount in \$ Millions	Percent Increase	Amount	Percent Increase
1980	101,666	1.6%	\$ 1,373	9.7%	\$ 13,503	7.9%
1981	103,222	1.5%	1,567	14.1%	15,189	12.5%
1982	103,841	0.6%	1,734	10.7%	16,701	10.0%
1983	103,174	(0.6%)	1,841	6.2%	17,846	6.9%
1984	103,889	0.7%	1,906	3.5%	18,345	2.8%
1985	107,695	3.7%	2,120	11.2%	19,684	7.3%
1986	114,456	6.3%	2,361	11.4%	20,632	4.8%
1987	117,426	2.6%	2,478	5.0%	21,100	2.3%
1988	119,073	1.4%	2,818	13.7%	23,664	12.2%
1989	124,436	4.5%	2,994	6.2%	24,057	1.7%
1990	129,701	4.2%	3,212	7.3%	24,762	2.9%
1991	134,751	3.9%	3,453	7.5%	25,625	3.5%
1992	139,633	3.6%	3,616	4.7%	25,896	1.1%
1993	144,477	3.5%	3,748	3.7%	25,943	0.2%
1994	154,901	7.2%	4,126 <sup>1</sup>	3.2% <sup>2</sup>	26,635	2.7%
1995	155,444	0.4%	4,432	7.4%	28,513	7.1%
1996	159,572	2.7%	4,632	4.5%	29,029	1.8%
1997	164,390	3.0%	4,836	4.4%	29,420	1.3%
1998	170,864	3.9%	5,164	6.8%	30,224	2.7%
1999	176,368	3.2%	5,488	6.3%	31,116	3.0%
2000	183,924	4.3%	5,894	7.4%	32,045	3.0%
2001	191,252	4.0%	6,357	7.9%	33,237	3.7%
2002	198,870	4.0%	6,989	9.9%	35,145	5.7%
2003	202,398	1.8%	7,297	4.4%	36,052	2.6%
2004	205,482	1.5%	7,486	2.6%	36,429	1.0%
2005	212,202	3.3%	8,032	7.3%	37,853	3.9%
2006	217,676	2.6%	8,312	3.5%	38,185	0.9%
2007	224,001	2.9%	9,162	10.2%	40,901	7.1%
2008	226,415	1.1%	9,708	6.0%	42,879	4.8%
2009	222,515	(1.7%)	9,835	1.3%	44,198	3.1%
2010	213,530	(4.0%)	9,420	(4.2%)	44,115	(0.2%)
2011	208,939	(2.2%)	9,061	(3.8%)	43,365	(1.7%)
2012	203,994	(2.4%)	8,869	(2.1%)	43,475	0.3%
2013	202,693	(0.6%)	8,753	(1.3%)	43,182	(0.7%)
2014	203,201	0.3%	8,909	1.8%	43,841	1.5%
2015	203,252	0.0%	9,072	1.8%	44,636	1.8%

<sup>1</sup> Covered payroll amount has been changed to show anticipated payroll for the fiscal year following the valuation date.

<sup>2</sup> Compared to previous year's amount described in <sup>1</sup>

**Exhibit 12.14**  
**Growth of Retired Members**

Year Ending June 30,	New Retirees		New Disabled Members on LTD Program		All Retirees		All Disabled Members on LTD Program	
	Number	Average Monthly Benefit	Number	Average Monthly Benefit <sup>1</sup>	Number	Average Monthly Benefit	Number	Average Monthly Benefit <sup>1</sup>
1984	4,743	\$ 684	—	—	23,166	\$ 410	—	—
1985	802	304	—	—	23,686	447	—	—
1986	1,952	541	—	—	25,213	469	—	—
1987	1,677	707	—	—	26,577	505	—	—
1988	1,938	792	—	—	28,575	535	—	—
1989	3,405	1,105	—	—	31,396	603	—	—
1990	2,117	859	346	\$ 986	33,385	659	346	\$ 986
1991	2,209	825	215	941	34,907	687	699	957
1992	2,303	861	517	958	36,490	703	1,104	973
1993	3,954	1,173	519	865	39,684	812	1,455	919
1994	2,280	934	503	860	41,044	852	1,780	892
1995	3,223	1,008	617	951	43,378	878	2,130	878
1996	3,845	1,121	704	928	45,975	920	2,507	929
1997	3,578	1,097	599	1,036	49,743	945	2,746	954
1998	3,353	1,062	669	1,150	51,917	982	3,063	983
1999	4,380	1,326	819	1,141	55,104	1,024	3,680	1,023
2000	4,822	1,490	547	1,425	58,038	1,125	3,595	1,070
2001	4,224	1,465	632	1,455	58,920	1,211	3,904	1,151
2002	3,954	1,677	626	1,281	60,346	1,371	4,485	1,077
2003	5,955	1,578	1,001	1,106	64,697	1,401	4,561	1,027
2004	6,430	1,565	865	1,388	68,931	1,487	4,684	1,091
2005	7,005	1,597	926	1,426	73,853	1,508	4,939	1,107
2006	7,143	1,578	840	1,589	78,498	1,566	5,018	1,068
2007	7,393	1,629	800	1,662	83,594	1,584	5,071	1,091
2008	7,784	1,594	640	1,642	88,956	1,596	4,882	1,079
2009	7,958	1,604	723	1,840	94,424	1,613	4,712	1,258
2010	9,360	1,571	789	1,817	101,307	1,619	4,724	1,292
2011	9,287 <sup>2</sup>	1,606	752	1,662	107,996	1,627	4,609	1,269
2012	9,227	1,553	709	1,692	114,431	1,630	4,440	1,279
2013	9,489	1,545	735	1,711	120,875	1,632	4,307	1,278
2014	8,385	1,595	658	1,766	126,255	1,639	4,206	1,295
2015	8,695	1,634	522	1,742	131,536	1,647	4,002	1,314

<sup>1</sup> In 2009 and beyond, the LTD average monthly benefit reflects actual, but not assumed, benefit offsets.

<sup>2</sup> Total is 1 less than total members added to rolls because 1 member changed from beneficiary to QDRO, so was removed from beneficiary roll and added to retiree roll, but was not included in this count.

**Exhibit 12.15**  
**Data Reconciliation**

	Active Members	Inactive, Non-Retired Members	Retirees & Beneficiaries	Total
Total at June 30, 2014	203,201	215,325	126,255	544,781
Terminations	(15,612)	15,612	0	0
Refund	(6,335)	(5,904)	0	(12,239)
Transfer Out	(7)	(25)	0	(32)
Disabled	(404)	(116)	0	(520)
Retirements	(6,159)	(1,226)	7,385	0
Returned from LTD	42	139	457	638
New QDRO	0	0	125	125
New Beneficiary	0	0	682	682
Deaths	(135)	(449)	(3,124)	(3,708)
Benefit Expiration	0	0	(159)	(159)
Data Adjustments	(25)	(2,061)	38	(2,048)
New Entrants Terminated with Account Balance	0	2,974	0	2,974
Rehires	5,046	(4,923)	(123)	0
New Entrants	23,640	0	0	23,640
Net Change	51	4,021	5,281	9,353
Total at June 30, 2015	203,252	219,346	131,536	554,134

The inactive population includes 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.

This exhibit excludes the 4,002 members receiving LTD benefits, 154 other-than-Plan (System) members who are receiving benefits from the 401(a) plan only, 504 other-than-Plan (System) members who are receiving benefits from the 401(h) plan only, and 91 other-than-Plan (System) members who are receiving benefits from both the 401(a) and 401(h) plan.