

# Arizona State Retirement System

## Actuarial Report on the Valuation of the LTD Program

As of June 30, 2015



©2015 Xerox Corporation and Buck Consultants, LLC. All rights reserved. Xerox® and Xerox and Design® are trademarks of Xerox Corporation in the United States and/or other countries. Buck Consultants® is a trademark of Buck Consultants, LLC in the United States and/or other countries.

Other company trademarks are also acknowledged.

Document Version: 1.0 (July 2014).



**David J. Kershner**  
*Principal, Retirement  
Wealth Practice*  
David.Kershner@xerox.com  
602.864.3507

**Troy Jaros**  
*Senior Consultant, Retirement  
Wealth Practice*  
Troy.Jaros@xerox.com  
952.806.6107

**Barry J. Goldberg**  
*Principal, Retirement  
Wealth Practice*  
Barry.Goldberg@xerox.com  
201-902-2958

Buck Consultants, LLC.  
3200 North Central Avenue  
Suite 2200  
Phoenix, AZ 85012  
Fax: 602.864.3535

March 4, 2016

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

**Re: Valuation of the ASRS Long Term Disability Program 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) Long Term Disability Program (LTD Program) as of June 30, 2015.

Valuations are performed annually as of June 30, which is the last day of both the LTD Program'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 LTD Program, 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 over a closed 15-year period. Contribution rates are set annually, based on the valuation of the preceding year. The rate calculated in this report (0.28% of payroll) will apply in the fiscal year beginning July 1, 2016.

### **Actuarial Assumptions and Methods**

Most of the assumptions for the LTD Program are the same as the assumptions used for the ASRS defined benefit plan (the Plan). 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.

In our opinion, the actuarial assumptions used are reasonable, taking into account the experience of the LTD Program and reasonable expectations, and represent our best estimate of anticipated experience. The assumptions and methods are summarized in Sections 7 and 8 of this report. There have been no changes in actuarial assumptions or methods since the last valuation.

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 LTD Program provisions or applicable law. An analysis of the potential range of such differences is beyond the scope of this valuation.

### **Plan Provisions**

The provisions of the LTD Program valued in the report reflect our understanding of the long term disability provisions specified in Section 38-797 of the Arizona Revised Statutes. The terms of the LTD Program are summarized in Section 9 of this report. There is no provision for LTD benefits to increase for cost-of-living adjustments. There have been no changes in benefit provisions since the last valuation.

### **Data and Assets Used**

ASRS staff and Sedgwick (the administrator of the LTD Program) 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 the prior year's data. ASRS staff also supplied asset information. The results of the valuation are dependent 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 and Governmental Accounting Standards Board Statement No. 43. 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 Income Security Act of 1974 (ERISA), and the Statements of the Governmental Accounting Standards Board. The undersigned actuaries are independent. Two of them are Fellows and one is an Associate of the Society of Actuaries, two of them are Enrolled Actuaries, and they are all 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.

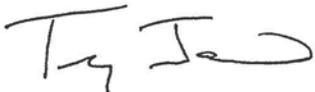
ASRS prepared all trend data schedules in the financial section of ASRS' Comprehensive Annual Financial Report (CAFR). ASRS also prepared all supporting schedules in the actuarial section of the CAFR.

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

Sincerely,



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



Troy Jaros, FSA, EA, MAAA, FCA  
Senior Consultant, Retirement Actuary



Barry J. Goldberg, ASA, MAAA, FCA  
Principal and Consulting Actuary

# Table of Contents

Section 1	Summary of Valuation Results.....	1
Section 2	Experience Analysis .....	2
Section 3	Schedule of Funding Progress.....	6
Section 4	Schedule of Benefit Recipients Added to and Removed from Rolls .....	7
Section 5	Solvency Test .....	8
Section 6	Analysis of Financial Experience .....	9
Section 7	Summary of Actuarial Methods.....	10
Section 8	Summary of Actuarial Assumptions .....	11
Section 9	Summary of LTD Program Terms .....	13
Section 10	Data.....	16
Section 11	Offsets Summary.....	17
Section 12	Summary of Counts and Payments by Duration and Age.....	18

# Section 1 – Summary of Valuation Results

The following table summarizes the key results of the June 30, 2015 actuarial valuation of the Arizona State Retirement System (ASRS) Long Term Disability Program. Comparable results are also shown for the last valuation.

	June 30 2014	June 30 2015
Normal Cost	\$ 15,747,526	\$ 16,188,442
Interest to Middle of Year	\$ 629,901	\$ 647,538
Total Normal Cost	\$ 16,377,427	\$ 16,835,980
Actuarial Accrued Liability	\$ 328,928,280	\$ 320,623,536
Valuation Assets	\$ 279,560,267	\$ 253,469,660
Funded Status on Valuation Assets	84.99%	79.06%
Market Value of Assets	\$ 285,516,213	\$ 247,273,447
Funded Status on Market Value of Assets	86.80%	77.12%
Unfunded Actuarial Accrued Liability (UAAL)	\$ 49,368,013	\$ 67,153,876
Base Amortization of UAAL	\$ 5,529,966	\$ 7,672,791
Expected Alternate Contribution at Beginning of Year	\$ (178,275)	\$ (167,614)
Interest to Middle of Year	\$ 214,068	\$ 300,207
Total Amortization of UAAL	\$ 5,565,759	\$ 7,805,384
Annual Required Contribution (ARC)	\$ 21,943,186	\$ 24,641,364
Payroll	\$ 8,908,620,792	\$ 9,072,376,682
Total ARC as % of Payroll	0.24%	0.28%
- Employee ARC as a % of Payroll	0.12%	0.14%
- Employer ARC as a % of Payroll	0.12%	0.14%
UAAL as % of Payroll	0.55%	0.74%
Normal Cost as % of Payroll	0.18%	0.19%
UAAL Amortization as % of Payroll	0.06%	0.09%

## Reconciliation of the Contribution Rate

	Rate	Change
Total Contribution Rate at June 30, 2014	0.24%	-
Expected Experience	0.25%	+0.01%
Contribution Timing (Gain)/Loss	0.25%	+0.00%
Liability Experience	0.28%	+0.03%
Asset Experience	0.28%	+0.00%

## Flow of Lives

LTD Members as of June 30, 2014	4,206
Recovered	(214)
Retired	(457)
Deceased	(55)
Total decreases during the year	(726)
LTD Members remaining as of June 30, 2015	3,480
Active Members who became disabled during Fiscal 2015	522
LTD Members as of June 30, 2015	4,002

## Section 2 – Experience Analysis

The increase in the reserves for payments not yet due on disabled lives may be summarized as follows:

1. Change in Open Claims Reserves		
	Lives	Reserves
a. Open Claims Reserve Liability on June 30, 2014	4,206	\$197,563,866
b. Change in reserve on 3,480 Continuing Disabled Lives	N/A	(22,620,718)
c. Reserves Released on Terminated Lives	(726)	(14,852,493)
d. Reserves Added on New Lives	522	27,881,845
e. Open Claims Reserve Liability on June 30, 2015 (a) + (b) + (c) + (d)	4,002	\$187,972,500

For historical relationships, please see LTD Open Claims Statistics in Section 10.

2. Development of Liability Gain/(Loss)	
a. Actuarial Accrued Liability as of June 30, 2014	\$328,928,280
b. Normal Cost	16,377,427
c. Benefit Payments	61,044,734
d. Administrative Expenses	2,287,319
e. Expected Actuarial Accrued Liability on June 30, 2015 = (a) x 1.08 + (b) x 1.04 – (c) x (1 + .08 x 13/24) – (d)	306,297,741
f. Change in Plan Terms	N/A
g. Change in Assumptions	N/A
h. Liability Gain/(Loss)	(14,325,795)
i. Actual Actuarial Accrued Liability on June 30, 2015 (e) + (f) + (g) – (h)	\$320,623,536

3. Sources of Liability Gain/(Loss)	
a. Offset Gain/(Loss)	\$ (162,377)
b. Gain/(Loss) for Members Who Were Not Active in Last Year's Valuation	2,094,664
c. More/(Fewer) Terminations than Expected	433,084
d. (More)/Fewer LTD Retirees than Expected	1,458,517
e. Salary Gain/(Loss) on Continuing Actives	(960,192)
f. New Active Entrants	(3,522,362)
g. Continuing Disabled Lives Gain/(Loss)	(1,557,698)
h. New Disabled Lives Gain/(Loss)	(2,593,252)
i. Expenses	(540,697)
j. Benefit Payments	(5,144,711)
k. Other Gain/(Loss)	(3,830,771)
l. Liability Gain/(Loss) (a) + (b) + (c) + (d) + (e) + (f) + (g) + (h) + (i) + (j) + (k)	\$(14,325,795)

#### 4. Development of Actuarial Value of Assets

a. Excess (Shortfall) of Investment Income:		Year Ending June 30, 2014	Year Ending June 30, 2015
(i)	Current Year	\$ 24,669,551	\$ (17,595,438)
(ii)	Current Year – 1	9,913,473	24,669,551
(iii)	Current Year – 2	(18,922,274)	9,913,473
(iv)	Current Year – 3	36,999,159	(18,922,274)
(v)	Current Year – 4	10,543,678	36,999,159
(vi)	Current Year – 5	(68,696,736)	10,543,678
(vii)	Current Year – 6	(44,661,134)	(68,696,736)
(viii)	Current Year – 7	11,421,699	(44,661,134)
(ix)	Current Year – 8	1,895,241	11,421,699
b. Deferral of Excess (Shortfall):			
(i)	Current Year (90% Deferral)	22,202,596	(15,835,894)
(ii)	Current Year – 1 (80% Deferral)	7,930,778	19,735,641
(iii)	Current Year – 2 (70% Deferral)	(13,245,592)	6,939,431
(iv)	Current Year – 3 (60% Deferral)	22,199,495	(11,353,364)
(v)	Current Year – 4 (50% Deferral)	5,271,839	18,499,580
(vi)	Current Year – 5 (40% Deferral)	(27,478,694)	4,217,471
(vii)	Current Year – 6 (30% Deferral)	(13,398,340)	(20,609,021)
(viii)	Current Year – 7 (20% Deferral)	2,284,340	(8,932,227)
(ix)	Current Year – 8 (10% Deferral)	<u>189,524</u>	<u>1,142,170</u>
(x)	Total Deferred for the Year	\$ 5,955,946	\$ (6,196,213)
c. Market Value of Assets		285,516,213	247,273,447
d. Actuarial Value of Assets (c) – (b)(x)		\$ 279,560,267	\$ 253,469,660

### 5. History of Asset Values and Ratios

Year Ending June 30	Actuarial Value of Assets (AVA)	Market Value of Assets (MVA)	AVA/MVA Ratio
2015	\$ 253,469,660	\$ 247,273,447	102.5%
2014	279,560,267	285,516,213	97.9%
2013	285,018,061	262,620,722	108.5%
2012	295,785,765	257,324,263	114.9%
2011	307,536,890	280,855,626	109.5%
2010	319,308,050	250,377,817	127.5%
2009	311,231,629	222,807,994	139.7%
2008	274,902,088	245,171,095	112.1%
2007	231,685,240	243,480,962	95.2%
2006	194,296,619	196,002,336	99.1%

### 6. Development of Actuarial Asset Gain/(Loss)

a. Actuarial Value of Assets as of June 30, 2014	\$	279,560,267
b. Contributions		21,623,750
c. Benefit Payments		61,044,734
d. Administrative Expenses		2,287,319
e. Expected Investment Income at 8% Return ((a) x .08) + ((b) x .08 x 1/2) - ((c) x .08 x 13/24)		<u>20,584,500</u>
f. Expected Actuarial Assets as of June 30, 2015 (a) + (b) - (c) - (d) + (e)	\$	258,436,464
g. Gain/(Loss) on Actuarial Assets		<u>(4,966,804)</u>
h. Actuarial Assets as of June 30, 2015 (f) + (g)	\$	253,469,660

The asset loss occurred because investment earnings on actuarial assets were less than expected. The actual net return on actuarial assets was 6.07%, compared to the assumption of 8.00%. The actual net return on market value of assets was 1.32%, compared to the assumption of 8.00%.

## 7. Analysis of Offsets

7. Analysis of Offsets			
As of June 30, 2015 Description of Offset from Sedgwick	Total Amount of Monthly Offsets	Number of Offsets	Average Amount of Monthly Offsets
Social Security Disability	\$ 2,631,139	2,829	\$ 930
Social Security Retirement	70,729	73	969
Other	<u>496,489</u>	<u>841</u>	<u>590</u>
Total	\$ 3,198,357	3,743	\$ 854
As of June 30, 2014 Description of Offset from Sedgwick	Total Amount of Monthly Offsets	Number of Offsets	Average Amount of Monthly Offsets
Social Security Disability	\$ 2,745,937	3,057	\$ 898
Social Security Retirement	79,854	82	974
Other	<u>467,116</u>	<u>939</u>	<u>497</u>
Total	\$ 3,292,907	4,078	\$ 807

## Section 3 – Schedule of Funding Progress

(Dollar Amounts in Thousands)

Valuation as of June 30	Actuarial Value of Assets (a)	Actuarial Accrued Liability (AAL) (b)	Unfunded AAL (UAAL) (b – a)	Funded Ratio (a / b)	Covered Payroll (c)	UAAL as % of Covered Payroll ((b – a) / c)
2004*	\$ 137,861	\$ 544,205	\$ 406,344	25.33%	\$ 7,458,590	5.4%
2005	\$ 164,834	\$ 577,405	\$ 412,572	28.55%	\$ 8,032,458	5.1%
2006	\$ 194,297	\$ 574,701	\$ 380,404	33.81%	\$ 8,311,870	4.6%
2007	\$ 231,685	\$ 604,486	\$ 372,800	38.33%	\$ 9,161,804	4.1%
2008	\$ 274,902	\$ 553,185	\$ 278,283	49.69%	\$ 9,708,353	2.9%
2009	\$ 311,232	\$ 476,276	\$ 165,044	65.35%	\$ 9,834,810	1.7%
2010	\$ 319,308	\$ 477,266	\$ 157,958	66.90%	\$ 9,419,952	1.7%
2011	\$ 307,537	\$ 455,695	\$ 148,158	67.49%	\$ 9,060,631	1.6%
2012	\$ 295,786	\$ 439,706	\$ 143,920	62.27%	\$ 8,868,678	1.6%
2013	\$ 285,018	\$ 332,597	\$ 47,579	85.69%	\$ 8,572,783	0.5%
2014	\$ 279,650	\$ 328,928	\$ 49,368	84.99%	\$ 8,908,621	0.6%
2015	\$ 253,470	\$ 320,624	\$ 67,154	79.06%	\$ 9,072,377	0.7%

\* The 2004 valuation results are from a study of the effects of adopting GASB #43. The formal 2004 valuation report did not use the GASB methodology.

## Section 4 – Schedule of Benefit Recipients Added to and Removed from Rolls

Valuation as of June 30	Added to Rolls		Removed from Rolls		Rolls – End of Year		Percent Increase in Annual Allowances	Average Annual Allowances
	Number	Annual* Allowances	Number	Annual** Allowances	Number	Annual* Allowances		
2002	N/A	N/A	N/A	N/A	4,290	\$ 55,341,168	N/A	\$ 12,900
2003	1,001	\$ 13,286,461	730	\$ 12,430,021	4,561	\$ 56,197,608	1.5%	\$ 12,321
2004	865	\$ 14,403,292	742	\$ 9,301,684	4,684	\$ 61,299,216	9.1%	\$ 13,087
2005	926	\$ 15,285,111	671	\$ 11,000,763	4,939	\$ 65,583,564	7.0%	\$ 13,279
2006	840	\$ 16,021,268	761	\$ 12,191,399	5,018	\$ 69,413,433	5.8%	\$ 13,833
2007	800	\$ 15,958,305	747	\$ 13,060,111	5,071	\$ 72,311,627	4.2%	\$ 14,260
2008	640	\$ 12,610,021	829	\$ 16,270,484	4,882	\$ 68,651,164	(5.1%)	\$ 14,062
2009	723	\$ 15,966,067	893	\$ 13,502,776	4,712	\$ 71,114,455	3.6%	\$ 15,092
2010	789	\$ 17,200,407	777	\$ 15,066,829	4,724	\$ 73,248,033	3.0%	\$ 15,506
2011	752	\$ 15,000,150	867	\$ 18,071,429	4,609	\$ 70,176,754	(4.2%)	\$ 15,226
2012	709	\$ 14,394,030	878	\$ 16,419,214	4,440	\$ 68,151,570	(2.9%)	\$ 15,349
2013	735	\$ 15,094,316	868	\$ 17,168,470	4,307	\$ 66,077,416	(3.0%)	\$ 15,342
2014	658	\$ 13,947,128	759	\$ 14,675,124	4,206	\$ 65,349,420	(1.1%)	\$ 15,537
2015	522	\$ 10,914,070	726	\$ 13,155,382	4,002	\$ 63,108,108	(3.4%)	\$ 15,769

\* Reflects actual, but not assumed, benefit offsets. Does not include overpayment offsets.

\*\* Includes changes in benefit amounts.

# Section 5 – Solvency Test

(Dollar Amounts in Thousands)

Valuation as of June 30	Aggregate Actuarial Accrued Liability for:			Net Assets Available for Benefits	Portion of Actuarial Accrued Liability Covered by Net Assets Available for Benefits		
	Active Member Contributions (1)	Disabled Claimants and Beneficiaries (2)	Active Members (Employer-Financed Portion) (3)		(1)	(2)	(3)
2004 *	0	\$ 243,713	\$ 300,492	\$ 137,861	100%	57%	0%
2005	0	\$ 258,735	\$ 318,670	\$ 164,834	100%	64%	0%
2006	0	\$ 247,577	\$ 327,124	\$ 194,297	100%	78%	0%
2007	0	\$ 274,947	\$ 329,539	\$ 231,685	100%	84%	0%
2008	0	\$ 233,871	\$ 319,315	\$ 274,902	100%	100%	13%
2009	0	\$ 235,921	\$ 240,355	\$ 311,232	100%	100%	31%
2010	0	\$ 242,098	\$ 235,168	\$ 319,308	100%	100%	33%
2011	0	\$ 234,155	\$ 221,540	\$ 307,537	100%	100%	33%
2012	0	\$ 224,090	\$ 215,616	\$ 295,786	100%	100%	33%
2013	0	\$ 207,331	\$ 125,265	\$ 285,018	100%	100%	62%
2014	0	\$ 202,999	\$ 125,929	\$ 279,560	100%	100%	61%
2015	0	\$ 193,129	\$ 127,495	\$ 253,470	100%	100%	47%

\* The 2004 valuation results are from a study of the effects of adopting GASB No. 43. The formal 2004 valuation report did not use the GASB methodology.

## Section 6 – Analysis of Financial Experience

(Dollar Amounts in Thousands)

Valuation as of June 30	Unfunded Actuarial Liability (UAAL) Prior Year	Normal Cost for the Year <sup>1</sup>	Contributions for the Year	Interest at 8% on UAAL	Interest at 8% on Normal Cost	Interest at 8% on Contributions	Total Interest	Expected UAAL	Actual UAAL	Gain (Loss) for the Year <sup>2</sup>
2005	\$ 406,344	\$ 41,395	\$ (77,963)	\$ 32,508	\$ 3,312	\$ (3,119)	\$ 32,701	\$ 402,477	\$ 412,572	\$ (10,095)
2006	\$ 412,572	\$ 44,870	\$ (82,377)	\$ 33,006	\$ 3,590	\$ (3,295)	\$ 33,301	\$ 408,366	\$ 380,404	\$ 27,962
2007	\$ 380,404	\$ 45,907	\$ (89,037)	\$ 30,432	\$ 3,673	\$ (3,561)	\$ 30,544	\$ 367,818	\$ 372,800	\$ (4,982)
2008	\$ 372,800	\$ 47,774	\$ (94,342)	\$ 29,824	\$ 3,822	\$ (3,774)	\$ 29,872	\$ 356,104	\$ 278,283	\$ 77,821
2009	\$ 278,283	\$ 46,424	\$ (94,425)	\$ 22,263	\$ 3,714	\$ (3,777)	\$ 22,200	\$ 252,482	\$ 165,044	\$ 87,438
2010	\$ 165,044	\$ 33,520	\$ (71,877)	\$ 13,204	\$ 2,682	\$ (2,875)	\$ 13,011	\$ 139,698	\$ 157,958	\$ (18,260)
2011	\$ 157,958	\$ 30,456	\$ (43,379)	\$ 12,637	\$ 2,437	\$ (1,735)	\$ 13,339	\$ 158,374	\$ 148,158	\$ 10,216
2012	\$ 148,158	\$ 28,165	\$ (41,997)	\$ 11,853	\$ 2,253	\$ (1,680)	\$ 12,426	\$ 146,752	\$ 143,920	\$ 2,832
2013	\$ 143,920	\$ 25,723	\$ (42,217)	\$ 11,514	\$ 2,058	\$ (1,689)	\$ 11,883	\$ 139,309	\$ 47,579	\$ 91,730
2014	\$ 47,579	\$ 15,925	\$ (42,779)	\$ 3,806	\$ 637	\$ (1,711)	\$ 2,732	\$ 23,457	\$ 49,368	\$ (25,911)
2015	\$ 49,368	\$ 16,377	\$ (21,624)	\$ 3,950	\$ 655	\$ (865)	\$ 3,740	\$ 47,861	\$ 67,154	\$ (19,293)

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

<sup>2</sup> Includes plan or assumption changes as well as the gain/(loss) due to the difference between the expected and actual benefit payments. The cumulative net gain since July 1, 2004 is \$219,458,000. This gain/(loss) calculation does not include administrative expenses.

# Section 7 – Summary of Actuarial Methods

## **Cost Method**

The actuarial cost method is the projected unit credit method. Benefits are attributed from hire to expected date of disability.

## **Asset Valuation Method**

Assets are valued at market less (or plus) an adjustment to reflect investment gains (or losses) over a 10-year period starting as of June 30, 2006.

## **Amortization Method**

The unfunded actuarial accrued liability is amortized over a closed 15-year period using a level dollar amortization method.

## Section 8 – Summary of Actuarial Assumptions

The assumptions used in our valuation are as follows:

**Discount Rate** 8% per annum net of investment expenses

**Rates of Termination of Claims in Payment due to Death or Recovery** 150% of the Rates in the 1987 Commissioners' Group Long Term Disability Valuation Table (1987 CGDT) applicable to plans with a six-month elimination period.

**Disability Incidence Rates for Active Members** Age-based unisex rates as developed for the Plan. Rates at representative ages are given below:

Age	Unisex
20	0.05%
30	0.07%
40	0.16%
50	0.36%
60	0.47%

**Offsets for Disabled Members** We are assuming that the amounts that Sedgwick reports as offsets (other than overpayment offsets) will continue to apply to each member's benefit until that benefit expires. For members within three years of receipt of LTD benefits, we have adjusted benefit amounts to reflect future offsets, assuming 90% of members will have offsets after 3 years.

We assume that these offsets reduce the gross benefits by 45%. We previously assumed offsets would reduce the gross benefits by 40%. We also assume that the weighted average months of overpayment is equal to 19 months.

These assumptions are reviewed annually.

**Offsets for Active Members** We assume that LTD Program benefits, after all applicable offsets are 55% of the benefits before the offsets. This is the percentage that applies for 90% of currently disabled members within 3 years of receipt of LTD benefits.

<b>Incurred But Not Reported (IBNR)</b>	The liability for new LTD recipients was loaded by 20% to reflect IBNR.
<b>Alternate Contribution Rate</b>	We have adjusted the past service contribution rate to consider alternate contribution rate payments.
<b>Mid-Year Timing</b>	We have adjusted the contribution rates to anticipate contributions being made throughout the year.
<b>Expenses</b>	We include expenses in the liabilities. The liability for actives was loaded by 2.8% and the liability for currently disabled members is increased by assumed expenses according to the Plan Provisions.

All other assumptions are the same as those used in the valuation of the Plan. Refer to Section 9 - Summary of Actuarial Methods and Assumptions of the Arizona State Retirement System Actuarial Report on the Valuation of the Plan as of June 30, 2015 for more information on the actuarial assumptions.

# Section 9 – Summary of LTD Program Terms

The Arizona State Retirement System (ASRS) Long Term Disability Program (LTD Program) began on July 1, 1995. The program covers ASRS LTD Program participants who become disabled on or after July 1, 1995. ASRS members who were receiving LTD benefits prior to July 1, 1995, were transferred to the program on October 1, 1995. Contributions began July 1, 1995, and are now paid 50% by employers and 50% by active members.

Below we have summarized the main provisions of the LTD Program.

<b>Effective Date</b>	The plan was established effective July 1, 1995.
<b>Participation</b>	To be eligible, members must be actively at work and engaged to work at least 20 weeks in a fiscal year and at least 20 hours each week. Coverage is contingent on payment of premiums.
<b>Contributions</b>	<p>Members are required to contribute to the LTD Program in accordance with the schedule ratified each year by the Board. The FY17 rate is 0.14% of payroll based on the results of the June 30, 2015 valuation.</p> <p>Employers have equal contributions and the Board allocates all contributions to the LTD Program's depository.</p>
<b>Qualifications for Benefit</b>	<p>Monthly benefits are not payable until a member has been totally disabled for a period of six consecutive months.</p> <p>Monthly benefits are not payable to a member whose disability is due to the following:</p> <ol style="list-style-type: none"><li>1. an intentionally self-inflicted injury;</li><li>2. war, whether declared or not;</li><li>3. an injury incurred while engaged in a felonious criminal act or enterprise;</li><li>4. for employees hired on or after July 1, 1988, any injury, sickness, or pregnancy for which you received medical treatment within three months prior to the effective date coverage began under the LTD Income Plan. Except for any employee who becomes an active contributing member on or after July 1, 2008 and receives medical treatment within six months prior to the date coverage begins under the LTD Income Plan. This exclusion does not apply to a disability commencing after a person has been an active contributing member of a participating employer for twelve continuous months.</li></ol> <p>Monthly benefits are not payable to a member who is receiving retirement benefits from ASRS.</p>

**Totally Disabled**

A member is considered totally disabled if:

1. during the first thirty months of a period of disability, the member is unable to perform all duties of the position held by the member when the member became totally disabled; and
2. for a member who has received monthly benefits for 24 or more total months, that a member is unable to perform any work for compensation or gain for which the member is reasonably qualified by education, training, or experience.

**Benefit Amount**

Benefits payable from the plan equal two-thirds of a member's monthly compensation at the time of disability. Benefits are offset by:

1. 85% of Social Security disability benefits that the member or the member's dependents are eligible to receive;
2. 85% of Social Security retirement benefits that the member is eligible to receive;
3. all of any worker's compensation benefits;
4. all of any payments for a veteran's disability if both of the following apply:
  - a. the veteran's disability payment is for the same condition or a condition related to the condition currently causing the member's total disability;
  - b. the veteran's disability is due to service in the armed forces of the United States;
5. all of any other benefits by reason of employment that are financed partly or wholly by an employer including payments for sick leave; and
6. 50% of any salary, wages, commissions, or similar pay that the member receives or is entitled to receive from any gainful employment in which the member engages.

**Benefit Period**

Monthly benefits cease to be payable to a member at the earliest of the following:

1. the date the member ceases to be totally disabled;
2. the date the member ceases to be under the direct care of a doctor or refuses to undergo any medical examination requested by the company selected by the Board to administer the LTD Program;
3. the date the member withdraws employee contributions with interest from the Plan and ceases to be a member; and
4. the later of following:
  - a. the member's normal retirement date;
  - b. the month following 60 months of payments if disability occurs before age 65;
  - c. the month following attainment of age 70 if disability occurs at age 65 or after but before age 69;
  - d. the month following twelve-months of payments if disability occurs at or after age 69.

**Expenses**

Expenses associated with the operation of the LTD Program are payable by the LTD Program. The fee schedule is as follows:

Administrative:	\$13,000/month
New Claims Fee:	\$420/claim
Claims Management:	\$29/claim/month

**Change in LTD Terms  
since the Prior Valuation**

No changes have been made since the last valuation on June 30, 2014.

## Section 10 – Data

The June 30, 2015 Actuarial Valuation of the ASRS LTD Program was based on the following data. For comparison, we also show a summary of the June 30, 2014 data.

### Summary of LTD Open Claim Members

	June 30, 2014	June 30, 2015
Number	4,206	4,002
Average age	54.6	54.6
Average monthly benefit before Offset Assumption	\$ 1,295	\$ 1,314
Total monthly benefit before Offset Assumption	\$ 5,446,000	\$ 5,259,000
Average Offset Assumption	\$ 135	\$ 142
Total Offset Assumption	\$ 565,000	\$ 569,000
Average monthly benefit	\$ 1,160	\$ 1,172
Total monthly benefit	\$ 4,881,000	\$ 4,690,000

### LTD Open Claim Statistics

(1) Year Ended June 30	(2) Number of Open Claims	(3) Number of Active Members	(4) Disabled Ratio [(2)÷(3)]	(5) Open Claims Reserve Liability (\$ Millions)	(6) Active Payroll (\$ Millions)	(7) Ratio [(5)÷(6)]
2002	4,290	198,870	2.16%	\$208.8	\$6,989.3	2.99%
2003	4,561	202,398	2.25%	\$222.7	\$7,296.8	3.05%
2004	4,684	205,482	2.28%	\$237.7	\$7,485.6	3.18%
2005	4,939	212,202	2.33%	\$252.4	\$8,032.5	3.14%
2006	5,018	217,676	2.31%	\$241.3	\$8,311.9	2.90%
2007	5,071	224,001	2.26%	\$267.6	\$9,161.8	2.92%
2008	4,882	226,415	2.16%	\$226.9	\$9,708.4	2.34%
2009	4,712	222,515	2.12%	\$229.4	\$9,834.8	2.33%
2010	4,724	213,530	2.21%	\$235.5	\$9,420.0	2.50%
2011	4,609	208,939	2.21%	\$227.7	\$9,060.6	2.51%
2012	4,440	203,994	2.18%	\$217.9	\$8,868.7	2.46%
2013	4,307	202,693	2.12%	\$201.7	\$8,752.8	2.30%
2014	4,206	203,201	2.07%	\$197.6	\$8,908.6	2.22%
2015	4,002	203,252	1.97%	\$188.0	\$9,072.4	2.07%

### Summary of Active Members

The active member data used for the LTD program valuation is the same as the active member data used in the valuation of the Plan. There were 203,252 active members as of June 30, 2015 and their payroll was \$9,072,376,682. Refer to Section 12 – Member Data of the Arizona State Retirement System Actuarial Report on the Valuation of the Plan as of June 30, 2015 for more information on the active member data.

## Section 11 – Offsets Summary

Data from Sedgwick details the offsets applied to the LTD benefits, as summarized below:

Description Of Offset From Sedgwick	Total Amount of Monthly Offsets	Number of Offsets
Social Security Disability	\$ 2,631,139	2,829
Social Security Dependent	154,739	370
Social Security Retirement	70,729	73
SSDIB-Estimated	7,356	8
Workers Compensation	140,181	132
Short Term Disability	-	-
State Disability	179	1
Salary Continuance	-	-
Veteran's Benefits	32,177	21
Pension	3,660	4
Overpayments	29,783	31
Post-Tax Overpayments	63,044	198
All Other	65,370	76
<b>Total Offsets from Sedgwick</b>	<b>\$ 3,198,357</b>	<b>3,743</b>
<b>Total Assumed Offsets</b>	<b>\$ 569,237</b>	
<b>Total Offsets</b>	<b>\$ 3,767,594</b>	

# Section 12 – Summary of Counts and Payments by Duration and Age

The following tables illustrate the counts and net monthly payment by duration and age as of June 30, 2015.

## Duration in Years

Age at Disability	0-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11
<30	2	11	7	6	3	7	7	8	10	5	4
	\$ 2,312	\$ 15,337	\$ 9,548	\$ 7,075	\$ 4,236	\$ 5,574	\$ 8,652	\$ 10,906	\$ 9,345	\$ 2,862	\$ 2,714
30-39	12	41	40	24	24	38	32	28	29	37	27
	\$ 21,666	\$ 71,187	\$ 69,198	\$ 32,685	\$ 28,018	\$ 50,374	\$ 41,248	\$ 37,566	\$ 38,870	\$ 37,771	\$ 28,156
40-49	45	108	136	114	116	95	107	73	83	85	79
	\$ 89,652	\$ 203,623	\$ 220,724	\$ 152,019	\$ 140,923	\$ 110,510	\$ 122,455	\$ 102,367	\$ 106,085	\$ 103,331	\$ 86,250
50-59	86	237	235	227	245	195	77	66	37	35	10
	\$ 165,046	\$ 390,544	\$ 397,835	\$ 291,279	\$ 288,783	\$ 243,461	\$ 89,699	\$ 85,147	\$ 50,164	\$ 35,392	\$ 16,752
>59	36	102	91	81	77	45	0	0	0	0	0
	\$ 70,291	\$ 136,315	\$ 131,704	\$ 105,542	\$ 108,067	\$ 47,365	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0
Total	181	499	509	452	465	380	223	175	159	162	120
	\$ 348,967	\$ 817,006	\$ 829,009	\$ 588,600	\$ 570,027	\$ 457,284	\$ 262,054	\$ 235,986	\$ 204,464	\$ 179,356	\$ 133,872
Age at Disability	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20+	Total
<30	7	4	3	6	4	4	6	2	4	24	134
	\$ 4,905	\$ 3,577	\$ 2,218	\$ 5,738	\$ 4,225	\$ 4,128	\$ 4,801	\$ 1,565	\$ 2,139	\$ 22,371	\$ 134,228
30-39	40	45	29	27	42	23	22	17	17	50	644
	\$ 43,821	\$ 45,365	\$ 28,540	\$ 24,336	\$ 36,291	\$ 16,502	\$ 16,907	\$ 16,002	\$ 10,684	\$ 51,165	\$ 746,352
40-49	87	72	44	27	48	6	10	5	0	0	1,340
	\$ 89,220	\$ 72,927	\$ 43,238	\$ 22,903	\$ 41,649	\$ 7,475	\$ 4,495	\$ 3,259	\$ 0	\$ 0	\$ 1,723,105
50-59	2	0	0	0	0	0	0	0	0	0	1,452
	\$ 1,938	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 2,056,040
>59	0	0	0	0	0	0	0	0	0	0	432
	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 599,284
Total	136	121	76	60	94	33	38	24	21	74	4,002
	\$ 139,884	\$ 121,869	\$ 73,996	\$ 52,977	\$ 82,165	\$ 28,105	\$ 26,203	\$ 20,826	\$ 12,823	\$ 73,536	\$ 5,259,009