



STATE OF WISCONSIN
Department of Employee Trust Funds
 Robert J. Conlin
 SECRETARY

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CORRESPONDENCE MEMORANDUM

DATE: June 10, 2015
TO: Employee Trust Funds Board
FROM: Robert C. Willett, CPA
 Chief Trust Finance Officer
SUBJECT: WRS Active Lives Valuation & Gain / Loss Analysis

Staff requests the Employee Trust Funds Board (Board) approve the Thirty-Fourth Annual Actuarial Valuation and Gain/Loss Analysis as of December 31, 2014.

Gabriel Roeder Smith & Company (GRS) has completed its actuarial valuation of non-retired members of the Wisconsin Retirement System. The results are summarized below (millions \$):

	December 31,	
	2014	2013
Actuarial Accrued Liability	\$ 89,392.1	\$85,328.7
Actuarial Value of Assets	89,360.4	85,276.1
Unfunded Actuarial Accrued Liability	31.7	52.6
Funded Ratio	99.96%	99.94%

GRS is recommending the following adjustments to contribution rates for 2016.

	General Participants		Executives & Elected Officials		Protective Occupations			
					With Social Security		Without Social Security	
	2016	2015	2016	2015	2016	2015	2016	2015
Employer Normal Cost	6.60%	6.80%	7.80%	7.70%	9.40%	9.50%	13.2%	13.1%
Participant Normal Cost	6.60%	6.80%	7.80%	7.70%	6.60%	6.80%	6.60%	6.80%
Total Normal Cost	13.2%	13.6%	15.6%	15.4%	16.0%	16.3%	19.8%	19.9%

Reviewed and approved by Robert J. Conlin, Secretary

Board	Mtg Date	Item #
JM	6.25.15	3B
ETF	6.25.15	4A

WRS Active Lives Valuation & Gain / Loss Analysis

June 10, 2015

Page 2

The Executive and Elected Officials category rate may change, depending on a pending provision that was added to the 2015-2017 state budget, which is typically effective July 1.

Mark Buis and Jim Anderson from GRS will be at the Board meeting to present their report and to answer any questions.

Attachment: 34th Annual Actuarial Valuation and Gain/Loss Analysis

WISCONSIN RETIREMENT SYSTEM

**THIRTY-FOURTH ANNUAL ACTUARIAL VALUATION AND
GAIN/LOSS ANALYSIS**

DECEMBER 31, 2014

OUTLINE OF CONTENTS

Section	Pages	Items
		Introduction
Section A	1-3	Executive Summary Executive Summary
Section B	1-7	Funding Results Valuation Results
Section C	1-2 3 4	Fund Assets Financial Data Market Recognition Account Reconciliation of Reserve Accounts
Section D	1 2 3-4 5 6-9 10	Gain/Loss Active Member Gain/Loss Analysis Population Development Comments Actual vs. Expected Changes in EAR Gains and Losses During 2014 Gain (Loss) from Investment Income
Section E	1-9	Census Data Non-Retired Participant Data
Section F	1 2-3 4 5	Financial Reporting Summary of Assumptions and Methods Statement of Net Plan Assets Schedule of Funding Progress & Accrued Liabilities Solvency and Contributions
Section G	1 2 3-9	Methods and Assumptions Actuarial Valuation Method Asset Valuation Method Summary of Assumptions
Section H	1-4	Plan Provisions Benefit Provisions
Appendix 1		Glossary
Appendix 2		Valuation Process
Appendix 3		Gain/Loss Exhibits



June 9, 2015

Employee Trust Funds Board
Wisconsin Department of Employee
Trust Funds
801 West Badger Road
Madison, Wisconsin 53713

Ladies and Gentlemen:

The results of the **December 31, 2014 annual actuarial valuations of non-retired members covered by the Wisconsin Retirement System** are presented in this report. The valuations establish contribution rates for the 2016 calendar year in conformance with Chapter 40 of the Wisconsin Statutes. This report should not be relied upon for any other purpose. The change in the normal cost rates from last year are shown below:

<u>General</u>	<u>Executive</u>	<u>Protective with SS</u>	<u>Protective without SS</u>
(0.4)%	0.2%	(0.3)%	(0.1)%

The valuations are based upon our understanding of the main plan provisions related to General, Executive and Elected, and Protective Occupation employment with and without Social Security coverage. The plan provisions evaluated are summarized in Section H of this report. Please advise us of any material misstatements in the summary and do not rely on this report until such are resolved.

The individual member statistical data required for the valuations was furnished by the Department of Employee Trust Funds (DETF), together with pertinent data on financial operations. The cooperation of DETF staff in furnishing these materials is acknowledged with appreciation.

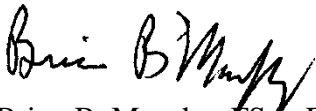
Actuarial valuations are based upon assumptions regarding future activity in specific risk areas including the rates of investment return and payroll growth, eligibility for the various classes of benefits, and longevity among retired lives. The Board adopts these assumptions after considering the advice of the actuary and other professionals. Each actuarial valuation takes into account all prior differences between actual and assumed experience in each risk area and adjusts the contribution rates as needed. The December 31, 2014 valuations were based upon assumptions that were recommended in connection with a study of experience during 2009-2011 and benefit provisions in effect on December 31, 2014.

Future actuarial measurements may differ significantly from those presented in this report due to such factors as experience differing from that anticipated by actuarial assumptions, changes in plan provisions, actuarial assumptions/methods or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements.

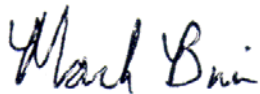
To the best of our knowledge, this report is complete and accurate and was made in accordance with generally recognized actuarial methods. Brian B. Murphy, Mark Buis, and James D. Anderson are Members of the American Academy of Actuaries (MAAA), and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions contained herein. The signing actuaries are independent of the plan sponsor.

The valuations were completed by qualified actuaries in accordance with accepted actuarial procedures as prescribed by the Actuarial Standards Board. It is our opinion that the Wisconsin Retirement System is operating in accordance with actuarial principles of level percent-of-payroll financing.

Respectfully submitted,



Brian B. Murphy, FSA, EA, MAAA



Mark Buis, FSA, EA, MAAA



James D. Anderson, FSA, EA, MAAA

BBM/MB/JDA:sc

SECTION A

EXECUTIVE SUMMARY

EXECUTIVE SUMMARY

1. Required Employer Contributions to Support Retirement Benefits

	General Participants		Executives & Elected Officials		Protective Occupation			
					With Soc. Sec.		Without Soc. Sec.	
	2016	2015	2016	2015	2016	2015	2016	2015
Employer Normal Cost	6.60%	6.80%	7.80%	7.70%	9.40%	9.50%	13.20%	13.10%
Participant Normal Cost	6.60%	6.80%	7.80%	7.70%	6.60%	6.80%	6.60%	6.80%
Total Normal Cost	13.2%	13.6%	15.6%	15.4%	16.0%	16.3%	19.8%	19.9%
Unfunded Actuarial Accrued Liability (UAAL)	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.2%	0.3%
WRS Average Total	13.2%	13.6%	15.6%	15.4%	16.0%	16.3%	20.0%	20.2%

Under Section 40.05 of the Wisconsin statutes updated for Act 10 and 32 of 2011, contribution rates are split evenly between the employer normal cost and the participant normal cost for both General Participants and Executive and Elected Officials. For protective occupations, the participant normal cost is set equal to the participant normal cost for General Participants. Act 10 of 2011 eliminated the benefit adjustment contribution.

Rates shown for UAAL are weighted averages of rates that vary by employer units. Contributions to support the Section 40.65 Duty Disability Program and the Accumulated Sick Leave Conversion Credit Program are in addition to the WRS rates shown above.

EXECUTIVE SUMMARY

2. Reasons for Change

There are three general reasons why contribution rates change from one valuation to the next. The first is a change in the benefits or eligibility conditions of the plan. The second is a change in the valuation assumptions used to predict future occurrences. The third is the difference during the year between the plan's actual experience and what the assumptions predicted.

There were no benefit changes reported to the actuary for the year ended December 31, 2014. However, now that the member contribution rate is set equal to half of the total contribution rate, any increase in the member rate will result in an increased benefit amount (and vice-versa). This is due to the fact that when the member rate increases, the money purchase benefit will also increase (and vice-versa). There were no assumption changes for the year ended December 31, 2014.

In total, changes in the contribution rate are illustrated on the following chart. Additional detail on gains and losses can be found in Section D of this report.

	General	Executive & Elected	Protective with Soc. Sec.	Protective without Soc. Sec.
2014 Normal Cost Rate	13.60%	15.40%	16.30%	20.20%
Effect of Asset Performance	(0.15)%	(0.10)%	(0.20)%	(0.30)%
Effect of Assumption Change	0.00%	0.00%	0.00%	0.00%
Effect of Salary Experience	(0.05)%	0.10%	(0.10)%	0.10%
Demographic and Other Experience	(0.15)%	0.20%	0.00%	0.00%
Member Rate Effect	(0.05)%	0.00%	0.00%	0.00%
2015 Normal Cost Rate	13.20%	15.60%	16.00%	20.00%

Please note that although the investment income is allocated proportionately for each group, the effect on the contribution rate will be different because the ratio of assets to payroll is different for each group.

EXECUTIVE SUMMARY

3. General Comments

Based upon this valuation, normal cost contribution rates decreased for most groups mostly due to favorable investment performance from prior years flowing through the Market Recognition Account (MRA).

In total, during 2014, investment return was below the assumed 2014 level of 7.2% on a market value basis. Under the asset valuation method (using the MRA), gains and losses are phased-in over a five year period, resulting in a 8.4% return on an Actuarial Value of Assets basis in the Core Fund. The Market Value of Assets exceeds the Actuarial Value of Assets by approximately 3% as of the valuation date. The statutory asset valuation method will recognize all of the differences between actuarial value and market value of \$2.5 billion over four future years.

This valuation includes liabilities for future claims under the Long Term Disability Insurance (LTDI) program that became operational late in 1992. Inter-fund transfers between WRS and the LTDI program to support claims currently payable are addressed in a separate report to the Group Insurance and Employee Trust Funds Boards.

Conclusion. Based upon the results of the December 31, 2014 regular annual actuarial valuation, it is our opinion that *the Wisconsin Retirement System continues to operate in accordance with actuarial principles of level percent-of-payroll financing.*

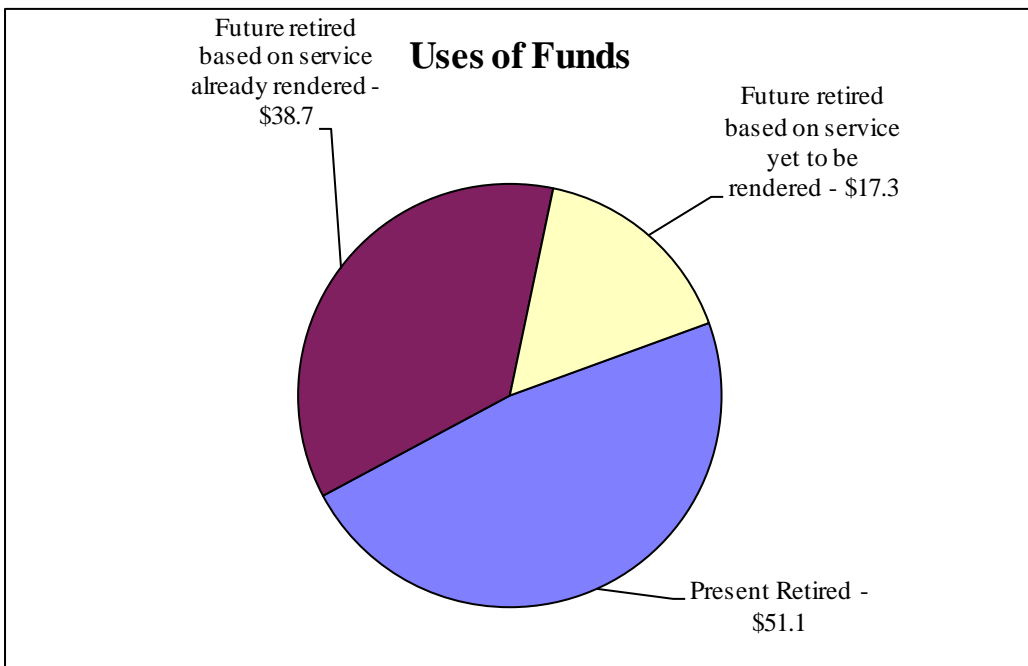
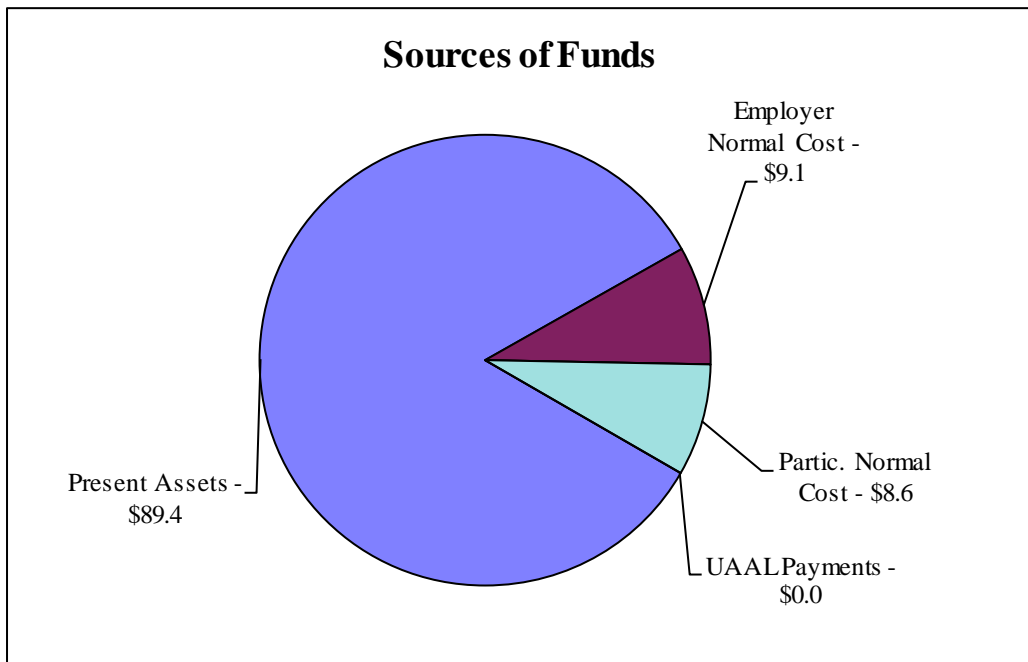
SECTION B

FUNDING RESULTS

**DEVELOPMENT OF CONTRIBUTION RATES
FOR CALENDAR YEAR 2016**

	General	Executive & Elected Officials	Protective Occupation		Average/ Total
			With Soc. Sec	Without Soc. Sec.	
\$ Millions					
Total Reported Earnings	\$ 11,573.7	\$ 109.3	\$ 1,150.8	\$ 203.6	\$ 13,037.4
Present Value of Future Earnings	114,228.4	789.4	12,009.4	2,028.9	129,056.1
Present Value of Future Benefits	48,364.9	396.0	5,851.0	1,342.1	55,954.0
Non-Retired Assets	33,104.9	242.5	3,924.2	941.7	38,213.3
Unfunded Liability	23.6	0.5	2.6	5.0	31.7
Present Value of Future Normal Costs					
Future Service Portion	14,879.7	99.0	1,916.1	412.3	17,307.1
Exp. Amort. Res. Portion	356.7	54.0	8.1	(16.9)	401.9
Total	15,236.4	153.0	1,924.2	395.4	17,709.0
Normal Cost Amortization Years					
Future Service Portion	12.6	8.6	13.6	12.8	12.7
Exp. Amort. Res. Portion	25.0	25.0	25.0	25.0	
Unfunded Liability Amortization Years	14.0	14.0	14.0	14.0	14.0
% 's of Active Member Payroll					
Normal Cost					
Future Service Portion	13.0 %	12.5 %	16.0 %	20.3 %	13.4 %
Exp. Amort. Res. Portion	0.2 %	3.1 %	0.0 %	(0.5)%	0.2 %
Total	13.2 %	15.6 %	16.0 %	19.8 %	13.6 %
2016 Normal Cost Rates					
Employer Normal Cost	6.60 %	7.80 %	9.40 %	13.20 %	7.00 %
Participant Normal Cost	6.60 %	7.80 %	6.60 %	6.60 %	6.60 %
Total Normal Cost	13.20 %	15.60 %	16.00 %	19.80 %	13.60 %
Average Unfunded Liability Amortization	0.0 %	0.0 %	0.0 %	0.2 %	0.0 %
Average Total Rate	13.2 %	15.6 %	16.0 %	20.0 %	13.6 %

**FINANCING \$107.1 BILLION* OF BENEFIT PROMISES
FOR PRESENT ACTIVE AND RETIRED PARTICIPANTS
DECEMBER 31, 2014**



* Present value of future benefits; all divisions combined.

DEVELOPMENT OF ACTUARIAL PRESENT VALUES
DECEMBER 31, 2014
(\$ MILLIONS)

Present Value of Future Benefits for	General	Executives & Elected Officials	Protectives		Total
			With Soc. Sec.	Without Soc. Sec.	
Active Participants					
Service Retirement	\$39,254.5	\$315.2	\$5,071.3	\$ 1,227.6	\$ 45,868.6
Withdrawal	2,333.4	14.4	211.4	21.5	2,580.7
Death-in-Service	539.8	6.9	60.5	12.1	619.3
Disability	761.5	1.7	64.2	27.5	854.9
Total Active	42,889.2	338.2	5,407.4	1,288.7	49,923.5
Inactive Participants	5,052.2	61.2	399.7	45.3	5,558.4
Variable Adjustment	423.4	3.6	43.9	8.2	479.1
Active and Inactive	48,364.8	403.0	5,851.0	1,342.2	55,961.0
Additional Contributions					16.0
Present Retired					51,131.1
Actuarial Present Value of Future Benefits					\$107,108.1

Computing the actuarial present value of future benefits is the first step in the actuarial valuation process. If the WRS had assets equal to that value, and if future experience were exactly in accordance with assumptions, then the present assets together with future investment income on those assets would be sufficient to pay promised benefits to all present participants, retirees and beneficiaries. *There is no need for the Retirement System to have \$107,108.1 million immediately. What is needed, however, is a plan for obtaining the money in an orderly fashion. That is the purpose of the remainder of the actuarial valuation.*

EXPERIENCE AMORTIZATION RESERVE (EAR)

Actuarial gains or losses arising from the difference between actual and assumed experience are reflected in the determination of the normal cost. The computed normal cost is made up of two parts: (i) the pure entry-age normal cost (EANC) determined without regard to past gains or losses, and (ii) an experience amortization component. Section 40.04(1) of the Wisconsin Statutes provides authority to maintain accounts and reserves determined to be “useful in achieving the funds’ purposes...” A fundamental WRS objective is stable contribution rates. Accordingly, the experience portion of the normal cost is separately calculated each year and the amortization period is varied upward or downward in order to minimize short-term rate fluctuations. A positive EAR indicates amortization of gains. A negative EAR indicates amortization of losses.

Development of EAR as of December 31, 2014

	General	Executives & Elected Officials	Protective Occupation		Total
			With Soc. Sec	Without Soc. Sec.	
\$ Millions					
1. Present Value of Future Benefits for Non-Retired	\$48,364.8	\$403.0	\$5,851.0	\$1,342.2	\$55,961.0
2. Present Value of Future Entry Age Normal Costs	14,879.6	106.0	1,916.1	412.4	17,314.1
3. Entry Age Accrued Liability: (1)-(2)	33,485.2	297.0	3,934.9	929.8	38,646.9
4. Non-Retired Assets -WRS	33,121.7	242.9	3,928.7	942.5	38,235.8
-LTDI	(16.8)	(0.4)	(4.5)	(0.8)	(22.5)
-Total	33,104.9	242.5	3,924.2	941.7	38,213.3
5. Entry Age Unfunded Accrued Liability: (3)-(4)	380.3	54.5	10.7	(11.9)	433.6
6. WRS Frozen Unfunded Accrued Liability	23.6	0.5	2.6	5.0	31.7
7. EAR: (6)-(5)	\$ (356.7)	\$ (54.0)	\$ (8.1)	\$ 16.9	\$ (401.9)
8. Prior Year EAR	\$ (639.0)	\$ (48.6)	\$ (54.4)	\$ 15.8	\$ (726.2)

UNFUNDED ACTUARIAL ACCRUED LIABILITY (UAAL)
DECEMBER 31, 2014

	General	Executives & Elected Officials	Protective Occupation		Totals
			With Soc. Sec	Without Soc. Sec	
Balance January 1, 2014	\$40,500,453	\$ 482,440	\$4,450,577	\$ 7,171,055	\$52,604,525
Plus: New Employers	0	0	0	0	0
Less: Adjustments	0	0	0	0	0
Less: Payments	(18,487,053)	(48,178)	(1,982,380)	(2,469,512)	(22,987,123)
Plus: Interest	1,584,965	31,267	177,710	338,511	2,132,453
Balance December 31, 2014	\$23,598,365	\$ 465,529	\$2,645,907	\$ 5,040,054	\$31,749,855

The UAAL is affected year to year by new employers entering the Wisconsin Retirement System, amortization payments, interest assessments, and statutory changes in benefits provided by the Retirement System. The UAAL is being amortized as a level percent of payroll. Since the payroll is assumed to increase with inflation, UAAL payments will also increase. During the first several years of such an amortization program, the payments are less than the interest assessment and the UAAL balance, expressed in terms of nominal dollars, increases from year to year. However, it increases at a lower rate than the payroll. After several years the payments exceed the interest assessment and the outstanding dollar balance will begin to decline.

COMPARATIVE STATEMENT OF COMPUTED CONTRIBUTION RATES

Valuation 12/31	Rate Effective 1/1	General				Executive and Elected			
		Participant	Benefit Adj. Contr.	Employer ¹	Total	Participant	Benefit Adj. Contr.	Employer ¹	Total
1990	1992	5.0 %	1.2 %	6.2 %	12.4 %	5.5 %	0.1 %	12.0 %	17.6 %
1991	1993	5.0 %	1.2 %	6.2 %	12.4 %	5.5 %	0.1 %	12.0 %	17.6 %
1992	1994	5.0 %	1.2 %	6.1 %	12.3 %	5.5 %	0.1 %	12.0 %	17.6 %
1993	1995	5.0 %	1.2 %	6.1 %	12.3 %	5.5 %	0.1 %	12.0 %	17.6 %
1994	1996	5.0 %	1.5 %	6.4 %	12.9 %	4.6 %	0.0 %	11.1 %	15.7 %
1995	1997	5.0 %	1.4 %	6.3 %	12.7 %	4.7 %	0.0 %	11.2 %	15.9 %
1996	1998	5.0 %	1.2 %	6.1 %	12.3 %	4.7 %	0.0 %	11.2 %	15.9 %
1997	1999	5.0 %	0.8 %	5.8 %	11.6 %	4.3 %	0.0 %	10.8 %	15.1 %
1998	2000	5.0 %	0.5 %	5.5 %	11.0 %	4.1 %	0.0 %	10.6 %	14.7 %
1999	2001	5.0 %	0.2 %	5.1 %	10.3 %	3.9 %	0.0 %	10.4 %	14.3 %
2000	2002	5.0 %	0.2 %	5.1 %	10.3 %	3.1 %	0.0 %	9.6 %	12.7 %
2001 ²	2003	5.0 %	0.4 %	5.2 %	10.6 %	2.6 %	0.0 %	9.1 %	11.7 %
2002	2004	5.0 %	0.6 %	5.2 %	10.8 %	2.6 %	0.0 %	8.9 %	11.5 %
2003	2005	5.0 %	0.8 %	4.7 %	10.5 %	2.8 %	0.0 %	8.4 %	11.2 %
2004	2006	5.0 %	0.9 %	4.7 %	10.6 %	2.9 %	0.0 %	8.5 %	11.4 %
2005	2007	5.0 %	1.0 %	4.8 %	10.8 %	3.0 %	0.0 %	8.6 %	11.6 %
2006	2008	5.0 %	1.0 %	4.8 %	10.8 %	3.0 %	0.0 %	8.6 %	11.6 %
2007	2009	5.0 %	0.9 %	4.7 %	10.6 %	3.0 %	0.0 %	8.5 %	11.5 %
2008	2010	5.0 %	1.2 %	5.0 %	11.2 %	3.2 %	0.0 %	8.7 %	11.9 %
2009	2011	5.0 %	1.5 %	5.2 %	11.7 %	3.9 %	0.0 %	9.4 %	13.3 %
2010	2012	5.0 %	1.6 %	5.3 %	11.9 %	4.3 %	0.0 %	9.8 %	14.1 %
2011 ³	2013	6.7 %	N/A	6.8 %	13.4 %	7.0 %	N/A	7.0 %	14.0 %
2012	2014	7.0 %	N/A	7.0 %	14.0 %	7.8 %	N/A	7.8 %	15.5 %
2013	2015	6.8 %	N/A	6.8 %	13.6 %	7.7 %	N/A	7.7 %	15.4 %
2014	2016	6.6 %	N/A	6.6 %	13.2 %	7.8 %	N/A	7.8 %	15.6 %

¹ Employer normal cost plus weighted average of unfunded actuarial accrued liability contribution rates.

² Act 11 of 1999 was implemented in 2001.

³ Act 10 and Act 32 were implemented in 2011.

COMPARATIVE STATEMENT OF COMPUTED CONTRIBUTION RATES

Valuation 12/31	Rate Effective 1/1	Protective With Social Security				Protective Without Social Security			
		Participant	Benefit Adj. Contr.	Employer ¹	Total	Participant	Benefit Adj. Contr.	Employer ¹	Total
1990	1992	6.0 %	0.7 %	10.9 %	17.6 %	7.5 %		16.4 %	23.9 %
1991	1993	6.0 %	0.6 %	10.7 %	17.3 %	7.5 %		16.4 %	23.9 %
1992	1994	6.0 %	0.6 %	10.7 %	17.3 %	7.5 %		16.3 %	23.8 %
1993	1995	6.0 %	0.5 %	10.6 %	17.1 %	7.2 %		16.0 %	23.2 %
1994	1996	6.0 %	0.1 %	10.2 %	16.3 %	6.8 %		15.7 %	22.5 %
1995	1997	5.8 %	0.0 %	9.8 %	15.6 %	6.2 %		15.1 %	21.3 %
1996	1998	5.4 %	0.0 %	9.4 %	14.8 %	5.8 %		14.6 %	20.4 %
1997	1999	4.9 %	0.0 %	8.9 %	13.8 %	5.4 %		14.3 %	19.7 %
1998	2000	4.1 %	0.0 %	8.0 %	12.1 %	4.4 %		13.3 %	17.7 %
1999	2001	3.8 %	0.0 %	7.6 %	11.4 %	3.3 %		12.2 %	15.5 %
2000	2002	4.0 %	0.0 %	7.8 %	11.8 %	3.0 %		11.9 %	14.9 %
2001 ²	2003	4.0 %	0.0 %	7.7 %	11.7 %	2.4 %		11.3 %	13.7 %
2002	2004	4.5 %	0.0 %	8.0 %	12.5 %	3.2 %		11.8 %	15.0 %
2003	2005	4.9 %	0.0 %	8.1 %	13.0 %	3.3 %		11.3 %	14.6 %
2004	2006	5.0 %	0.0 %	8.2 %	13.2 %	3.3 %		11.1 %	14.4 %
2005	2007	5.1 %	0.0 %	8.3 %	13.4 %	3.4 %		11.2 %	14.6 %
2006	2008	5.1 %	0.0 %	8.3 %	13.4 %	3.4 %		11.2 %	14.6 %
2007	2009	5.0 %	0.0 %	8.2 %	13.2 %	3.2 %		10.9 %	14.1 %
2008	2010	5.5 %	0.0 %	8.6 %	14.1 %	3.9 %		11.6 %	15.5 %
2009	2011	5.8 %	0.0 %	8.9 %	14.7 %	4.8 %		12.5 %	17.3 %
2010	2012	5.9 %	0.0 %	9.0 %	14.9 %	4.9 %		12.6 %	17.5 %
2011 ³	2013	6.7 %	N/A	9.8 %	16.4 %	6.7 %		12.7 %	19.3 %
2012	2014	7.0 %	N/A	10.1 %	17.1 %	7.0 %		14.0 %	21.0 %
2013	2015	6.8 %	N/A	9.5 %	16.3 %	6.8 %		13.4 %	20.2 %
2014	2016	6.6 %	N/A	9.4 %	16.0 %	6.6 %		13.4 %	20.0 %

¹ Employer normal cost plus weighted average of unfunded actuarial accrued liability contribution rates.

² Act 11 of 1999 was implemented in 2001.

³ Act 10 and Act 32 were implemented in 2011.

SECTION C
FUND ASSETS

DEVELOPMENT OF PARTICIPANT AND EMPLOYER RESERVES DURING THE YEAR

	Participant Accumulation			Employer Accumulation			Grand Total
	Core	Variable	Total	Core	Variable	Total	
Ending Balance December 31, 2013	\$13,975,177,809	\$1,432,502,109	\$15,407,679,918	\$19,819,723,436	\$1,417,413,440	\$21,237,136,876	\$36,644,816,794
Closing Adjustments	52,606	20,896	73,502	(23,497,197)	15,109,567	(8,387,630)	(8,314,127)
Beginning Balance January 1, 2014	13,975,230,415	1,432,523,005	15,407,753,420	19,796,226,239	1,432,523,007	21,228,749,246	36,636,502,667
Revenues:							
Employer Contributions	-	-	-	899,086,847	104,071,581	1,003,158,428	1,003,158,428
Participant Contributions	827,785,392	104,772,228	932,557,620	-	-	-	932,557,620
Total Revenues	827,785,392	104,772,228	932,557,620	899,086,847	104,071,581	1,003,158,428	1,935,716,048
Expenses:							
Separations	32,096,152	2,400,090	34,496,242	-	-	-	34,496,242
Retirement Single Sums	20,973,956	628,804	21,602,760	22,455,175	1,086,147	23,541,322	45,144,082
Death Benefits	17,715,083	1,507,676	19,222,758	12,978,448	669,251	13,647,699	32,870,457
Disability Insurance	-	-	-	42,301,135	-	42,301,135	42,301,135
	70,785,190	4,536,570	75,321,761	77,734,758	1,755,397	79,490,155	154,811,916
Transfers:							
Earnings Allocation	1,127,705,534	92,354,001	1,220,059,535	1,679,128,948	94,045,672	1,773,174,620	2,993,234,155
Annuities Awarded	(1,157,786,719)	(78,578,638)	(1,236,365,357)	(1,846,293,603)	(87,258,009)	(1,933,551,612)	(3,169,916,969)
Intra-Fund Transfers	(5,487,860)	143,326	(5,344,534)	235,695	231,470	467,166	(4,877,369)
Inter-Fund Transfers	54,482,104	(54,482,104)	-	54,479,439	(54,479,439)	-	-
	18,913,059	(40,563,415)	(21,650,357)	(112,449,520)	(47,460,306)	(159,909,826)	(181,560,182)
Ending December 31, 2014	\$14,751,143,676	\$1,492,195,247	\$16,243,338,923	\$20,505,128,808	\$1,487,378,885	\$21,992,507,693	\$38,235,846,617
Internal Rate of Return	8.2%	6.5%	8.0%	8.7%	6.7%	8.6%	8.3%

**RESERVES FOR NON-RETIRED PARTICIPANTS
BALANCES BY VALUATION GROUP**

	Reserve for Year Ended			
	December 31, 2014			December 31, 2013
	Participant	Employer	Total *	(Total in \$ Millions)
General	\$14,615,269,729	\$18,506,401,284	\$33,121,671,013	\$31,786.5
Executives & Elected	58,367,385	184,523,266	242,890,651	230.9
Protective with Soc. Sec.	1,287,686,913	2,641,061,833	3,928,748,746	3,719.3
Protective w/o Soc. Sec.	282,014,896	660,521,311	942,536,207	908.1
Total	\$16,243,338,923	\$21,992,507,694	\$38,235,846,617	\$36,644.8

* Totals differ slightly from page C-1 due to rounding.

The above schedule shows the distribution of Participant and Employer reserves among the valuation groups according to WRS accounting records. This separation of assets is needed because the valuation groups are separately experience rated. The assets are pooled for investment purposes.

CORE INVESTMENT TRUST: MARKET RECOGNITION ACCOUNT

	For the Year Ended December 31						
	2012	2013	2014	2015	2016	2017	2018
Beginning of year							
a. Funding value	\$76,984,779,225	\$76,023,146,068	\$81,635,165,224	\$86,109,303,264	\$86,677,170,933	\$88,181,123,998	\$88,891,808,576
b. Market value	71,644,332,757	78,474,591,615	86,355,982,436	88,649,071,976	88,649,071,976	88,649,071,976	88,649,071,976
End of year							
c. Market value	78,474,591,615	86,355,982,436	88,649,071,976				
d. Non-investment cash flow (contributions minus benefits)	(2,585,895,448)	(2,277,395,348)	(2,288,570,809)				
e. Investment income							
e1. Total investment income	9,416,154,306	10,158,786,169	4,581,660,350				
e2. Assumed rate	7.2%	7.2%	7.2%				
e3. Amount for immediate recognition	5,449,811,868	5,391,680,284	5,795,343,347	-	-	-	-
e4. Amount for phased-in recognition: e1-e3	3,966,342,438	4,767,105,884	(1,213,682,997)	-	-	-	-
f. Phased-in recognition of investment income							
f1. Current year: 0.2 x e4	793,268,488	953,421,177	(242,736,599)	-	-	-	-
f2. First prior year	(936,085,396)	793,268,488	953,421,177	(242,736,599)	-	-	-
f3. Second prior year	399,497,833	(936,085,396)	793,268,488	953,421,177	(242,736,599)	-	-
f4. Third prior year	1,287,632,117	399,497,833	(936,085,396)	793,268,488	953,421,177	(242,736,599)	-
f5. Fourth prior year	(5,369,862,619)	1,287,632,117	399,497,833	(936,085,396)	793,268,488	953,421,177	(242,736,599)
f6. Total MRA recognition	(3,825,549,577)	2,497,734,219	967,365,503	567,867,669	1,503,953,065	710,684,577	(242,736,599)
f7. Amount for MRA recognition	-	-	-	-	-	-	-
f8. Total recognized gain (loss)	(3,825,549,577)	2,497,734,219	967,365,503	567,867,669	1,503,953,065	710,684,577	(242,736,599)
g. Total recognized investment income: e3 + f8	1,624,262,291	7,889,414,504	6,762,708,850	567,867,669	1,503,953,065	710,684,577	(242,736,599)
h. Funding value end of year: a + d + e3 + f8	76,023,146,068	81,635,165,224	86,109,303,264	86,677,170,933	88,181,123,998	88,891,808,576	88,649,071,976
i. Difference between market and funding values	2,451,445,547	4,720,817,212	2,539,768,712	1,971,901,043	467,947,978	(242,736,599)	-
j. Recognized rate of return	2.1%	10.5%	8.4%				
k. Market rate of return	13.4%	13.1%	5.4%				

RECONCILIATION OF RESERVE ACCOUNTS

The following table reconciles the Market Recognition Account Assets shown on page C-3.

	Reserve for Year Ended		
	December 31, 2013		
	Core	Variable	Total
Non-Retired	\$35,256,272,484	\$2,979,574,132	\$38,235,846,616
Retired	47,135,720,256	3,995,569,324	51,131,289,580
Sick Leave	2,354,072,748		2,354,072,748
Other:			
Duty Disability	594,253,309		594,253,309
Health Insurance	141,682,453		141,682,453
LTDI	231,066,095		231,066,095
ICI	85,836,227		85,836,227
Milwaukee Retirement	165,786,636	21,058,395	186,845,031
WRS Additional Accounts	144,613,057		144,613,057
Other			
Reserves at Funding Value	86,109,303,264	6,996,201,851	93,105,505,115
Deferred Market Gains (MRA)	2,539,768,712		2,539,768,712
Reserves at Fair Value	\$88,649,071,976	\$6,996,201,851	\$95,645,273,827

The following table reconciles the Net Assets at Fair Value for the WRS shown on Page F-2.

	Reserve for Year Ended		
	December 31, 2013		
	Core	Variable	Total
Non-Retired	\$35,256,272,484	\$2,979,574,132	\$38,235,846,616
Retired	47,135,720,256	3,995,569,324	51,131,289,580
WRS Additional Accounts	144,613,057		144,613,057
Deferred Market Gains (MRA)	2,451,366,215		2,451,366,215
Prior Service Receivables	33,238,603		33,238,603
Capital Assets			3,365,097
Administration Reserves			7,857,264
Other			(175,867,082)
Net Assets Held in Trust	\$85,021,210,615	\$6,975,143,456	\$91,831,709,349

SECTION D
GAIN/LOSS

ACTIVE MEMBER GAIN/LOSS ANALYSIS

Purpose of Gain/Loss Analysis. Regular actuarial valuations provide information about the composite change in computed contribution rates and total liabilities -- whether or not the rates and related liabilities are increasing or decreasing, and by how much. However, valuations do not show the portion of the change attributable to each risk area within the Retirement System financial mechanism: the rate of recognized investment income on plan assets; the rates of withdrawal of active participants who leave covered employment; the rates of mortality; the rates of disability; the rates of salary increases; and the assumed ages at actual retirement. In an actuarial valuation, assumptions are made as to what these rates will be for the next year and for decades in the future.

The objective of a gain and loss analysis is to determine the portion of the change that is attributable to each risk area.

The fact that actual experience differs from assumed experience should be expected. The future cannot be predicted with complete precision. Further, year-to-year statistical fluctuations occur, even in very large groups. This year's report reflects just a single year's experience. Changes in the valuation assumed experience for a risk area should be made only when the differences between assumed and actual experience have been observed to be sizable and persistent. One year's gain and loss analysis may or may not be indicative of *long-term trends, which are the basis of actuarial assumptions*. However, a persistent series of gains and losses can indicate a need for an assumption change or a method change, even if on a demographic basis, the assumptions appear to model reality well. In the Wisconsin Retirement System, longer term trends are reviewed in connection with the regular 3-year investigation of experience (the most recent 3-year investigation covered the period January 1, 2009 to December 31, 2011). It is the results of the 3-year investigation that lead to recommendations for changes in the actuarial assumptions.

Overall Experience

Overall experience resulted in a net actuarial gain of \$223 million for the 2014 calendar year. The gain was primarily attributable to favorable investment performance. The net result was a decrease in the overall 2016 contribution rate of 0.4% of payroll.

POPULATION DEVELOPMENT DURING CALENDAR YEAR 2014

	General	Executive & Elected	Protective		Total	Expected
			With S.S.	Without S.S.		
Beginning Census	231,973	1,397	19,290	2,736	255,396	
(-) Normal Retirement	3,110	25	405	70	3,610	3,910
(-) Early Retirement	3,560	2	64	6	3,632	3,883
(-) Death	159	0	11	0	170	280
(-) Disability Retirement						
-Total disabilities approved	132	0	9	3	144	246
-Less pending at beginning of year	44	0	2	1	47	
-Net new from active status	88	0	7	2	97	
(-) Other Separations	12,608	53	575	38	13,274	11,082
(-) Transfers Out	1,497	26	445	7	1,975	
(+) Transfers In	1,432	44	467	32	1,975	
(+) New Entrants	20,050	66	1,283	88	21,487	
Ending Census	232,433	1,401	19,533	2,733	256,100	

This schedule reconciles the active member populations reported in connection with the December 31, 2014 and the prior year valuations. Assumptions related to population development are a primary focus of the gain/loss analysis. They generally tend to be more stable than economic assumptions, and therefore, measurements have more meaning. Please note also that the table above represents changes in actual and expected counts of members. Beginning with the 2009 valuations, some of the actuarial assumptions (retirement, turnover, etc.) are based on liability weighted rates. Therefore, comparing actual to expected number counts alone may not form the basis for our conclusions.

COMMENTS

Population Results

Normal Retirements varied by group and gender. Overall, there were fewer normal retirements than expected. In general, fewer normal retirements than assumed often creates a gain. However, looking at counts alone is not always an accurate predictor of whether a gain or loss occurs. If there are fewer retirements in shorter service, lower paid groups and more retirements than expected in longer service, higher paid groups, there will be a net loss to the System even if the actual total counts might be equal to or less than expected. In order to account for this, retirement rates are now developed partially on a liability weighted methodology. The net result for this past year was a small loss.

Early Retirements were very lower than expected, overall producing a small loss.

Deaths among active participants were lower than expected. The net result for the past year was a small gain.

Disabilities were less than expected and produced a gain. This means that the reserves needed for the disability benefit were slightly smaller than the reserves that had been held for retirement benefits.

Other Separations varied by group, gender, and service but were overall higher than expected. The net result for the past year was a small gain.

In total, the population risk areas (retirement, death, disability, and other separations) produced gains and losses that almost entirely offset each other, producing a small net gain during 2014.

Economic Results

On a market value basis **investment return** was 5.4% and investment activity produced a gain for all groups due to continuous recognition of past activity in the MRA. The recognized investment gain of \$405 million was partially offset by a \$80 million gain in the combined value of variable excess benefits and money purchase benefits (as shown on page D-10), resulting in a net investment gain of about \$325 million.

Pay Increases were overall less than expected, producing a gain.

COMMENTS

Other Analysis

The schedule on page D-8 analyzes gains or losses due to sources other than the demographic and economic areas. The **Reserve difference** produced a loss of about \$79 million. This is primarily attributable to adjustments related to estimated annuities for which final computations have now been made. The **Re-established liability** represents the liability for new or rehired active members who were not active in the prior year. Typically, it is expected that a new hire will have very little liability. However, often new members appear with more than one year of service or with liability greater than contributions made on their behalf. Although this amount is difficult to determine accurately due to the timing of contribution amounts, we estimate the Re-established liability loss at about \$50 million.

**ACTUAL VS. EXPECTED CHANGES IN UNFUNDED ACTUARIAL ACCRUED LIABILITY (UAAL) -
CALENDAR YEAR DECEMBER 31, 2014
(\$ MILLIONS)**

	December 31, 2014				
	General	Executive & Elected	Protective		Total
			With S.S.	Without S.S.	
(1) Entry Age UAAL at start of year	\$ 624.7	\$ 49.7	\$ 52.4	\$ (8.0)	\$ 718.8
(2) Normal cost from last valuation (Total)	1,548.0	14.9	189.4	42.2	1,794.5
(3) Actual contributions	1,673.1	17.4	200.3	44.9	1,935.7
(4) Interest	40.5	3.5	3.4	(0.7)	46.7
(5) Expected UAAL before changes: (1) + (2) - (3) + (4)	540.1	50.7	44.9	(11.4)	624.3
(6) Change in actuarial assumptions	0.0	0.0	0.0	0.0	0.0
(7) Other changes	29.8	0.0	2.2	0.2	32.2
(8) Expected UAAL after changes: (5) + (6) + (7)	569.9	50.7	47.1	(11.2)	656.5
(9) Actual Entry Age UAAL at end of year	380.3	54.5	10.7	(11.9)	433.6
(10) Gain (loss): (8) - (9)	\$ 189.6	\$ (3.8)	\$ 36.4	\$ 0.7	\$ 222.9

The gain/loss analysis is intended to explain the financial effect of differences between actual and assumed experience in basic risk areas: Investment income, pay increases, retirement rates, turnover rates, etc. In order for the gain/loss analysis to proceed, the change in the Entry Age Unfunded Actuarial Accrued Liabilities from one year to the next is analyzed to remove the effect of expected changes. The table above develops this year's gain or loss (line 10) which is added to the Experience Amortization Reserve (EAR). When the EAR increases "unexpectedly," this is favorable experience and downward pressure is exerted on contribution rates. Similarly, an unexpected decrease in the EAR is unfavorable experience and upward pressure is exerted on contribution rates. In addition to the gain or loss described in line 10, non-recurring changes in lines 6 and 7 also may affect contribution rates.

By measuring gains and losses each year and, to the extent possible, determining the "responsible" assumptions, insight is gained into how well the actuarial assumptions estimate WRS liabilities. Such information aids in understanding financial effects of emerging trends and is particularly useful during preparation of the WRS experience study.

**GAIN/LOSS ANALYSIS
2014 EXPERIENCE
DIVISIONS COMBINED**



ACTUARIAL GAINS & LOSSES DURING CALENDAR YEAR 2014
(\$ MILLIONS)

Type of Activity	General	Executive & Elected	Protective		Total
			With S.S.	Without S.S.	
Decrement Risk Areas					
Normal Retirement	\$ (4.7)	\$ 1.2	\$ (6.5)	\$ (0.4)	\$ (10.4)
Early Retirement	(20.8)	0.6	0.4	0.1	(19.7)
Disability Retirement	18.1	0.1	1.5	0.6	20.3
Death with Benefit	(0.1)	0.0	0.4	(0.1)	0.2
Other Separations	24.6	(0.7)	(0.1)	(0.6)	23.2
Economic Risk Areas					
Salary Increases	14.5	(0.7)	13.0	(3.3)	23.5
Investment Return	269.0	2.1	42.6	11.8	325.5
Other Activity	(111.0)	(6.4)	(14.9)	(7.4)	(139.7)
Total Gain (Loss)	\$ 189.6	\$ (3.8)	\$ 36.4	\$ 0.7	\$ 222.9
-% of Accrued Liability	0.6%	(1.6)%	0.9%	0.1%	0.6%

ANALYSIS OF OTHER ACTIVITY
(\$ MILLIONS)

	General	Executive & Elected	Protective		Total
			With S.S.	Without S.S.	
Expected Reserve Transfers					
Normal Retirement	\$1,394	\$16	\$ 214	\$62	\$1,686
Early Retirement	980	0	36	5	1,021
Death	24	0	2	0	26
Disability Retirement	34	0	4	1	39
Deferred Retirement	284	3	21	11	319
Expected Total Reserve Transfers	2,716	19	277	79	3,091
Actual Reserve Transfer (From Retiree Report)	2,782	23	283	82	3,170
Reserve Difference	(66)	(4)	(6)	(3)	(79)
Expected Refunds	42	0	2	0	44
Actual Refunds	31	0	3	1	35
Refund Difference	11	0	(1)	(1)	9
Re-established Liability	(44)	(1)	(4)	(1)	(50)
Total Explained Difference	(99)	(5)	(11)	(5)	(120)
Unknown Difference	(12)	(1)	(3)	(2)	(20)
Total Other Activity	(111)	(6)	(14)	(7)	(140)
Other Activity as % of Liabilities	(0.34)%	(2.47)%	(0.36)%	(0.74)%	(0.37)%

This schedule analyzes reserve transfers and contribution refunds and shows the portion of “other” activity that can be explained by those sources. Amounts may not sum due to rounding.

**COMPARATIVE SCHEDULE OF EXPERIENCE
5-YEAR HISTORY OF GAINS AND LOSSES
(\$ MILLIONS)**

Year	Normal & Early Retmt.	Disability Retmt.	Other Separations*	Salary Increases	Investment Return	Other	Total
GENERAL							
2010	\$ 9.6	\$ 19.8	\$ (48.3)	\$ 628.8	\$ (739.1)	\$ (82.3)	\$ (210.5)
2011	(126.8)	16.9	(2.0)	270.1	(1,247.5)	(125.6)	(1,214.9)
2012	(35.6)	15.2	20.7	610.0	(1,058.3)	(82.8)	(530.8)
2013	(32.2)	16.8	27.2	250.8	624.2	(125.0)	761.8
2014	(25.5)	18.1	24.5	14.5	269.0	(111.0)	189.6
EXECUTIVE & ELECTED							
2010	\$ (0.5)	\$ 0.1	\$ (1.0)	\$ 6.7	\$ (8.3)	\$ (1.8)	\$ (4.8)
2011	(2.0)	0.1	1.4	5.2	(10.2)	(7.2)	(12.7)
2012	2.0	0.1	(1.9)	1.4	(13.0)	4.3	(7.1)
2013	(1.1)	0.1	-	1.6	2.1	(1.4)	1.3
2014	1.8	0.1	(0.7)	(0.7)	2.1	(6.4)	(3.8)
PROTECTIVE WITH SOCIAL SECURITY							
2010	\$ 6.3	\$ 1.5	\$ (7.2)	\$ 106.8	\$ (101.9)	\$ (11.0)	\$ (5.5)
2011	(21.7)	1.4	(3.5)	30.6	(183.5)	(20.4)	(197.1)
2012	(14.6)	1.5	(0.8)	100.8	(154.4)	(10.0)	(77.5)
2013	(8.6)	1.6	1.0	52.2	106.1	(7.5)	144.8
2014	(6.1)	1.5	0.3	13.0	42.6	(14.9)	36.4
PROTECTIVE WITHOUT SOCIAL SECURITY							
2010	\$ 3.4	\$ 0.6	\$ (0.5)	\$ 30.0	\$ (26.4)	\$ (3.7)	\$ 3.4
2011	1.0	0.6	(1.3)	7.9	(50.9)	(5.9)	(48.6)
2012	(0.6)	0.6	(1.3)	6.2	(40.3)	(3.7)	(39.1)
2013	(2.6)	0.6	(1.7)	3.6	31.5	(3.7)	27.7
2014	(0.3)	0.6	(0.7)	(3.3)	11.8	(7.4)	0.7

* Includes separation due to death.

GAIN (LOSS) FROM INVESTMENT INCOME DURING CALENDAR YEAR
(\$ MILLIONS)

	General	Executive & Elected	Protective		Total
			With SS	Without SS	
(1) Beginning of Year Active Participant Assets					
(a) Participant Accumulation Reserve	\$13,841.0	\$60.6	\$1,222.4	\$283.7	\$15,407.7
(b) PAR Closing Adjustment	0.1	0.0	0.0	0.0	0.1
(c) Employer Accumulation Reserve	17,945.6	170.2	2,497.0	624.4	21,237.2
(d) EAR Closing Adjustment	(6.6)	(0.2)	(1.3)	(0.4)	(8.5)
(e) Total	31,780.1	230.6	3,718.1	907.7	36,636.5
(2) End of Year Active Participant Assets					
(a) Participant Accumulation Reserve	14,615.3	58.4	1,287.7	282.0	16,243.4
(b) Employer Accumulation Reserve	18,506.4	184.5	2,641.1	660.5	21,992.5
(c) Total	33,121.7	242.9	3,928.8	942.5	38,235.9
(3) Investment Earnings Credited					
(a) Participant Accumulation Reserve	1,097.8	4.4	96.0	21.8	1,220.0
(b) Employer Accumulation Reserve	1,493.8	14.7	211.3	53.4	1,773.2
(c) Total	2,591.6	19.1	307.3	75.2	2,993.2
(4) Average Balance: $.5 \times \{(1e)+(2c)-(3c)\}$	31,155.1	227.2	3,669.8	887.5	35,939.6
(5) Expected Earnings: $.072 \times (4)$	2,243.2	16.4	264.2	63.9	2,587.7
(6) Gain (Loss) for Year from Investment Experience: $(3c)-(5)$	348.4	2.7	43.1	11.3	405.5
(7) Portion applied to Change in Variable Excess Reserve and Money Purchase Minimum Benefit	79.4	0.6	0.5	(0.5)	80.0
(8) Remaining Gain (Loss): (6)-(7)	\$ 269.0	\$ 2.1	\$ 42.6	\$ 11.8	\$ 325.5

SECTION E
CENSUS DATA

ACTIVE PARTICIPANTS INCLUDED IN VALUATIONS
DECEMBER 31, 2014

Active participants included in the valuations totaled 256,100 with an annual payroll totaling \$13,037.4 million, as follows:

Valuation Group	Number	Annual Earnings (\$Millions)	Group Averages			
			Earnings	Age	Years of Service	Contribs.
General	232,433	\$11,573.7	\$49,794	45.8	11.6	\$52,539
Executive Group & Elected Officials	1,401	109.3	77,998	55.2	13.8	98,497
Protective Occupation with Social Security	19,533	1,150.8	58,916	40.7	12.9	61,350
Protective Occupation without Social Security	2,733	203.6	74,487	41.4	14.4	77,665
Total Active Participants	256,100	\$13,037.4	\$50,907	45.5	11.7	\$53,731
Prior Year	255,396	\$12,694.6	\$49,706	45.6	11.8	\$51,082

Group averages are not used in the valuation, but are shown here for their general interest.

**INACTIVE PARTICIPANTS INCLUDED IN VALUATIONS
DECEMBER 31, 2014**

Inactive participants included in the valuations totaled 154,286 as follows:

Valuation Group	Number	Group Averages		
		Age	Service	Money Purchase Balance
General	148,327	47.4	3.1	\$13,348
Executive Group & Elected Officials	621	54.4	4.4	27,902
Protective Occupation with Social Security	5,132	42.1	4.4	17,164
Protective Occupation without Social Security	206	42.7	7.0	36,063
Total Inactive Participants	154,286	47.2	3.2	\$13,564
Prior Year	151,648	47.0	3.0	\$12,872

The valuations also included 4,006 QDRO cases whose average age was 51.9 years. These accounts for divorced spouses of WRS participants have been established in accordance with Wisconsin Domestic Relations Law.

GENERAL PARTICIPANTS AS OF DECEMBER 31, 2014
BY ATTAINED AGE AND YEARS OF SERVICE

Attained Ages	Years of Service to Valuation Date							Totals	
	0-4	5-9	10-14	15-19	20-24	25-29	30 Plus	No.	Valuation Payroll
15-19	79							79	\$ 1,503,251
20-24	4,441	14						4,455	132,264,164
25-29	16,967	1,783	13					18,763	711,858,743
30-34	12,005	10,139	1,673	14				23,831	1,060,282,606
35-39	8,860	7,068	8,892	1,497	6			26,323	1,319,243,156
40-44	7,791	5,529	6,419	7,636	1,068	18		28,461	1,518,947,004
45-49	7,348	5,552	5,890	6,421	6,410	1,154	9	32,784	1,757,768,179
50-54	6,658	5,579	6,142	5,726	5,686	5,295	1,402	36,488	1,917,597,105
55	1,140	1,033	1,231	1,139	1,116	1,102	879	7,640	402,177,766
56	1,028	1,027	1,153	1,160	1,000	993	948	7,309	390,541,559
57	976	868	1,145	1,113	879	844	936	6,761	354,897,358
58	921	837	1,052	1,029	882	781	866	6,368	328,656,897
59	821	707	934	887	764	687	802	5,602	290,354,403
60	731	706	947	879	779	586	755	5,383	281,843,393
61	711	577	738	787	655	556	639	4,663	242,409,941
62	558	510	672	659	590	458	598	4,045	207,501,165
63	472	433	549	591	451	364	462	3,322	170,965,770
64	409	371	422	433	355	291	384	2,665	133,421,217
65	305	270	350	341	257	201	303	2,027	104,790,514
66	240	209	201	217	152	134	187	1,340	68,507,831
67	229	135	137	143	121	92	141	998	49,624,730
68	187	127	133	98	83	72	106	806	39,866,605
69	135	69	83	48	46	33	67	481	21,726,884
70	112	60	56	38	37	36	52	391	16,629,827
71	101	52	35	28	16	13	39	284	11,180,188
72	96	41	35	26	26	18	44	286	11,617,875
73	69	34	24	17	14	6	18	182	5,804,388
74	61	24	14	20	9	6	16	150	5,209,667
75 & Up	225	116	49	38	34	18	66	546	16,519,449
Totals	73,676	43,870	38,989	30,985	21,436	13,758	9,719	232,433	\$11,573,711,635

**EXECUTIVE GROUP AND ELECTED OFFICIALS
AS OF DECEMBER 31, 2014
BY ATTAINED AGE AND YEARS OF SERVICE**

Attained Ages	Years of Service to Valuation Date							Totals	
	0-4	5-9	10-14	15-19	20-24	25-29	30 Plus	No.	Valuation Payroll
20-24									
25-29	12	2						14	\$ 813,068
30-34	26	4						30	1,672,082
35-39	31	15	10	4				60	3,927,399
40-44	41	25	32	22	5			125	10,025,689
45-49	59	24	30	26	24	1		164	12,480,112
50-54	69	28	28	32	37	23	12	229	18,337,210
55	14	2	11	7	3	12	6	55	4,170,229
56	12	6	6	9	6	9	8	56	4,722,274
57	16	6	9	9	5	5	11	61	4,903,939
58	10	4	5	1	7	6	13	46	3,394,617
59	11	4	3	8	8	8	9	51	4,890,850
60	14	6	3	5	6	2	12	48	3,184,636
61	16	9	7	9	7	7	14	69	5,552,211
62	8	5	4	5	8	6	3	39	3,877,723
63	16	3	7	9	3	9	15	62	5,738,025
64	4	7	2	7	8	9	9	46	3,955,773
65	12	4	5	6	2	9	3	41	3,156,729
66	10	5	4	3		3	6	31	3,041,982
67	9	7	4	1	1	2	6	30	2,660,444
68	3	6	4	4	4	2	5	28	2,375,991
69	9	1	1	1	2	2	3	19	1,398,542
70	6	3		1	1		2	13	1,101,072
71	2	4	1	2	4		2	15	1,178,515
72	6	4	2	2	1	1	1	17	880,417
73	2	1		1	1			5	216,229
74	7	3		1	1		2	14	488,747
75 & Up	16	9		1	3		4	33	1,130,108
Totals	441	197	178	176	147	116	146	1,401	\$109,274,613

**PROTECTIVE OCCUPATION PARTICIPANTS WITH SOCIAL SECURITY
AS OF DECEMBER 31, 2014
BY ATTAINED AGE AND YEARS OF SERVICE**

Attained Ages	Years of Service to Valuation Date							Totals	
	0-4	5-9	10-14	15-19	20-24	25-29	30 Plus	No.	Valuation Payroll
15-19	2							2	\$ 56,683
20-24	703	2						705	26,818,200
25-29	1,742	585	6					2,333	111,967,962
30-34	873	1,492	544	11				2,920	160,176,271
35-39	404	646	1,372	585				3,007	176,699,349
40-44	254	364	807	1,546	377	4		3,352	209,529,374
45-49	161	222	456	881	1,191	307	4	3,222	210,149,552
50	22	28	88	84	171	157	4	554	37,081,064
51	22	30	60	84	142	152	14	504	33,330,825
52	29	24	59	73	119	167	35	506	34,154,165
53	27	28	56	54	100	126	46	437	28,911,113
54	16	30	47	51	84	79	63	370	24,538,960
55	11	13	47	41	68	56	48	284	18,610,808
56	9	23	49	37	42	33	50	243	15,721,852
57	9	23	43	24	42	29	33	203	12,740,839
58	12	16	36	30	27	21	42	184	10,950,581
59	14	16	31	29	26	26	27	169	9,660,732
60	12	12	28	24	23	14	33	146	8,554,426
61	6	7	21	14	18	13	10	89	4,879,197
62	7	6	19	18	10	9	15	84	4,686,609
63	4	4	13	9	11	12	15	68	3,827,878
64	2	6	14	9	10	2	13	56	3,114,041
65	3	4	6	3	5		6	27	1,426,333
66	3	2	7	5	3	4	3	27	1,444,966
67	3		3		1		4	11	540,943
68	2	1	2			2	1	8	412,089
69		1		2			1	4	243,614
70 & Up	7	3	3	4		1		18	577,726
Totals	4,359	3,588	3,817	3,618	2,470	1,214	467	19,533	\$1,150,806,152

**PROTECTIVE OCCUPATION PARTICIPANTS WITHOUT SOCIAL SECURITY
AS OF DECEMBER 31, 2014
BY ATTAINED AGE AND YEARS OF SERVICE**

Attained Ages	Years of Service to Valuation Date							Totals	
	0-4	5-9	10-14	15-19	20-24	25-29	30 Plus	No.	Valuation Payroll
20-24	49	2						51	\$ 2,342,492
25-29	200	84						284	17,082,359
30-34	146	198	63					407	26,786,781
35-39	44	122	175	69				410	29,543,126
40-44	17	44	130	239	58	1		489	37,657,397
45-49	6	17	72	167	169	55		486	39,196,738
50			8	18	31	29	2	88	7,091,010
51	2		5	11	29	44	5	96	7,789,685
52	5	1	3	12	26	30	10	87	7,252,458
53		2	5	12	15	39	11	84	7,497,595
54	1	1	1	7	15	22	13	60	5,194,760
55		1	1	11	18	17	10	58	4,964,417
56	1	1	2	4	13	8	8	37	3,129,147
57			1	2	5	10	5	23	1,912,540
58	3			2	9	8	3	25	2,116,054
59					3	5		8	677,454
60				1	5	8	3	17	1,404,560
61		1	1		6	3	3	14	1,213,053
62	2					2	1	5	354,016
63					1		1	2	186,516
64							2	2	180,913
Totals	476	474	467	555	403	281	77	2,733	\$203,573,071

**ACTIVE PARTICIPANTS
AS OF DECEMBER 31, 2014
BY YEARS OF SERVICE AND GENDER**

Completed Years of Service	Males	Females	Totals	Valuation Payroll	
				Total	Average
0	6,954	13,496	20,450	\$ 582,476,447	\$28,483
1	6,674	12,479	19,153	689,008,393	35,974
2	5,869	9,967	15,836	619,229,282	39,103
3	4,714	8,316	13,030	537,591,272	41,258
4	3,694	6,789	10,483	447,635,156	42,701
5	3,088	6,297	9,385	408,533,438	43,530
6	3,670	6,859	10,529	484,825,434	46,047
7	3,678	6,506	10,184	491,966,506	48,308
8	3,327	6,022	9,349	460,259,212	49,231
9	2,977	5,705	8,682	433,089,281	49,884
10	2,926	5,473	8,399	433,340,570	51,594
11	2,723	5,137	7,860	410,615,335	52,241
12	2,927	5,562	8,489	459,324,075	54,108
13	3,685	5,694	9,379	523,404,995	55,806
14	3,747	5,577	9,324	535,356,677	57,417
15 & Up	36,361	49,207	85,568	5,520,709,399	64,518
Totals	97,014	159,086	256,100	\$13,037,365,472	\$50,907

Average			
Age	45.5	45.4	45.5
Service	12.5	11.2	11.7

COMPARATIVE STATEMENT OF ACTIVE PARTICIPANTS IN VALUATIONS

Valuation 12/31	General				Executive and Elected			
	No.	Earnings			No.	Earnings		
		\$ Millions	Average	% Incr.		\$ Millions	Average	% Incr.
1990	196,101	\$ 4,948	\$ 25,234	3.6%	1,502	63	35,193	5.2 %
1991	202,048	5,357	26,517	5.1%	1,496	56	37,535	6.7 %
1992	207,882	5,747	27,643	4.2%	1,463	58	39,598	5.5 %
1993	210,627	6,084	28,886	4.5%	1,452	60	41,476	4.7 %
1994	214,280	6,342	29,595	2.5%	1,450	63	43,528	4.9 %
1995	216,434	6,597	30,479	3.0%	1,475	67	45,135	3.7 %
1996	219,265	6,832	31,160	2.2%	1,459	67	45,967	1.8 %
1997	222,888	7,128	31,980	2.6%	1,455	71	48,881	6.3 %
1998	227,017	7,457	32,847	2.7%	1,450	73	50,664	3.6 %
1999*	229,657	7,704	34,445	4.9%	1,468	77	53,263	5.1 %
2000	234,076	8,335	35,610	3.4%	1,486	83	55,582	4.4 %
2001	238,944	8,746	36,605	2.8%	1,486	85	57,060	2.7 %
2002	240,990	9,007	37,377	2.1%	1,476	87	58,865	3.2 %
2003	239,696	9,273	38,686	3.5%	1,468	86	58,336	(0.9)%
2004	238,943	9,501	39,764	2.8%	1,469	89	60,379	3.5 %
2005	237,501	9,661	40,678	2.3%	1,452	90	61,788	2.3 %
2006	236,877	9,933	41,935	3.1%	1,436	93	64,480	4.4 %
2007	237,124	10,278	43,344	3.4%	1,427	95	66,320	2.9 %
2008**	238,994	10,806	45,216	4.3%	1,430	101	70,316	6.0 %
2009	240,401	11,098	46,165	2.1%	1,427	101	70,786	0.7 %
2010	239,959	11,195	46,655	1.1%	1,418	101	71,394	0.9 %
2011	232,518	10,947	47,080	0.9%	1,393	99	70,802	(0.8)%
2012	231,765	11,041	47,639	1.2%	1,408	104	73,968	4.5 %
2013	231,973	11,270	48,584	2.0%	1,397	106	76,125	2.9 %
2014	232,433	11,574	49,794	2.5%	1,401	109	77,998	2.5 %

* After change in method of calculating average pay.

** Some groups had a 27 period payroll during 2008.

COMPARATIVE STATEMENT OF ACTIVE PARTICIPANTS IN VALUATIONS

Valuation 12/31	Protective with Social Security				Protective without Social Security			
	No.	Earnings			No.	Earnings		
		\$ Millions	Average	% Incr.		\$ Millions	Average	% Incr.
1990	11,167	\$ 332	\$ 29,738	4.7%	2,603	88	33,806	4.8 %
1991	11,666	357	30,606	2.9%	2,585	92	35,650	5.5 %
1992	12,160	390	32,049	4.7%	2,622	100	38,007	6.6 %
1993	12,388	408	32,928	2.7%	2,611	103	39,371	3.6 %
1994	12,825	436	34,005	3.3%	2,612	106	40,633	3.2 %
1995	13,434	467	34,747	2.2%	2,630	112	42,478	4.5 %
1996	13,820	495	35,807	3.1%	2,625	116	44,063	3.7 %
1997	14,232	536	37,625	5.1%	2,654	121	45,568	3.4 %
1998	14,810	570	38,509	2.3%	2,658	127	47,733	4.8 %
1999*	16,483	649	39,864	3.5%	2,691	131	48,947	2.5 %
2000	16,970	717	42,263	6.0%	2,685	135	50,423	3.0 %
2001	17,981	772	42,914	1.5%	2,715	142	52,339	3.8 %
2002	18,325	804	43,871	2.2%	2,709	148	54,603	4.3 %
2003	18,660	856	45,891	4.6%	2,714	154	56,673	3.8 %
2004	18,964	896	47,266	3.0%	2,709	159	58,546	3.3 %
2005	19,036	920	48,330	2.3%	2,689	162	60,241	2.9 %
2006	19,297	977	50,622	4.7%	2,692	167	62,153	3.2 %
2007	19,757	1,036	52,419	3.5%	2,695	174	64,449	3.7 %
2008**	20,038	1,099	54,859	4.7%	2,724	181	66,502	3.2 %
2009	20,205	1,124	55,636	1.4%	2,733	189	69,149	4.0 %
2010	20,019	1,125	56,184	1.0%	2,754	189	68,559	(0.9)%
2011	19,610	1,119	57,065	1.6%	2,711	189	69,898	2.0 %
2012	19,353	1,105	57,104	0.1%	2,727	193	70,949	1.5 %
2013	19,290	1,121	58,127	1.8%	2,736	197	71,960	1.4 %
2014	19,533	1,151	58,916	1.4%	2,733	204	74,487	3.5 %

* After change in method of calculating average pay.

** Some groups had a 27 period payroll during 2008.

SECTION F

FINANCIAL REPORTING

SUMMARY OF ACTUARIAL ASSUMPTIONS AND METHODS

Valuation Date	December 31, 2014
Actuarial Cost Method	Frozen Entry Age
Amortization Method	Level Percent -- Closed Period
Amortization Period	30-Year closed from date of participation in WRS
Asset Valuation Method	5-Year Smoothed Market (Closed)
Actuarial Assumptions	
Net Investment Rate of Return	5.5%
Weighted based on assumed rate for:	
Retired participants	5.0%
Post-retirement active participants	5.0%
Pre-retirement active participants	7.2%
Projected Salary Increases*	3.3% to 8.8%
Payroll Growth Rate	3.2%
Population Growth Rate	0.0%

* Includes merit and seniority increases that vary by service plus wage inflation of 3.2%/year.

STATEMENT OF NET PLAN ASSETS (\$ THOUSANDS)

	2014	2013
Assets		
Cash and Cash Equivalents	\$ 3,587,517	\$ 3,860,112
Securities Lending Collateral	833,501	1,002,722
Prepaid Expenses	27,576	26,362
Total Short Term Assets	4,448,594	4,889,196
Receivables		
Contributions	164,368	133,554
Prior Service Contributions	33,239	62,516
Benefits Overpayment	2,504	2,969
Due from other Trust Funds	343,463	221,136
Miscellaneous	3,514	1,935
Interest and Dividends	233,061	236,577
Investment Sales	527,889	773,650
Total Receivables	1,308,038	1,432,337
Investments at Fair Value		
Fixed Income	27,139,271	26,372,170
Financial Futures Contracts	(326)	48,785
Preferred Securities	221,385	231,255
Convertible Securities	3,779	52,398
Stocks	50,705,264	48,960,585
Options	(1,616)	5,070
Limited Partnerships	10,554,585	10,381,478
Real Estate	1,017,433	739,443
Foreign Currency Contracts	(10,916)	(12,130)
Multi Asset Investments	3,906,834	3,544,183
Investment In Core Fund	20,442	0
Investment in External Pool	(28)	291
Total Investments	93,556,107	90,323,528
Capital Assets	2,411	3,365
Total Assets	99,315,150	96,648,426
Liabilities:		
Fixed Investment Due Other Programs	3,911,981	3,617,847
Variable Investment Due Other Programs	21,664	21,664
Obligation Under Reverse Repo Agreement	820,516	862,948
Short Sell Obligations	453,479	136,915
Securities Lending Collateral Liability	833,501	1,002,722
Collateral Due to Counterparty	0	1,180
Benefits Payable	353,377	288,183
Unearned Revenue	115	146
Due To Other Trust Funds	332,895	165,232
Miscellaneous Payables	446,804	109,777
Investment Payables	309,109	517,065
Total Liabilities	7,483,441	6,723,679
Net Assets in Trust for Pension Benefits	\$91,831,709	\$89,924,747

STATEMENT OF CHANGES IN ASSETS (\$ THOUSANDS)

	Activity During Year	
	2014	2013
Additions:		
Contributions:		
Employer Contributions	\$ 987,793	\$ 914,698
Employee Contributions	941,903	871,260
Total Contributions	1,929,696	1,785,958
Investment Income:		
Net Appreciation (Depreciation) in Fair Value of Investments	2,960,577	10,135,139
Interest	665,878	645,745
Dividends	1,354,765	1,125,694
Securities Lending Income	28,453	26,091
Other	221,680	209,243
Less		
Current Income Distributed	(294,134)	(434,429)
SWIB Investment Expense	(356,811)	(362,011)
Investment Income Distributed to Securities Lending Rebates and Fees	(2,407)	(2,241)
Net Investment Income	4,578,001	11,343,231
Interest on Prior Service Receivable	2,133	3,533
Miscellaneous Income	296	532
Total Additions	6,510,126	13,133,254
Deductions:		
Benefits and Refunds:		
Retirement, Disability, and Beneficiary	4,497,616	4,224,700
Separation Benefits	34,401	33,271
Total Benefits and Refunds	4,532,017	4,257,971
ETF Administrative Expenses	28,841	22,858
Other Expenses	42,303	0
Total Deductions	4,603,161	4,280,829
Net Increase (Decrease)	1,906,965	8,852,425
Net Assets Held in Trust:		
Beginning of Year	\$89,924,747	\$81,072,322
End of Year	\$91,831,709	\$89,924,747

SCHEDULE OF FUNDING PROGRESS & ACCRUED LIABILITIES
\$ MILLIONS

Valuation Date Dec. 31	Actuarial Value of Assets (a)	Actuarial Accrued Liability (AAL) Frozen Entry Age (b)	Unfunded AAL (UAAL) (b) - (a)	Funded Ratio** (a)/(b)	Covered Payroll (c)	UAAL as a Percent of Covered Payroll [(b) - (a)] / (c)
2002	\$ 57,861.9	\$ 59,618.8	\$ 1,756.9	97.1 %	\$ 10,126.6	17.4 %
2003*	62,685.3	63,211.7	526.4	99.2 %	10,502.4	5.0 %
2004	66,209.4	66,622.3	412.9	99.4 %	10,897.6	3.8 %
2005	68,615.1	68,987.5	372.5	99.5 %	10,973.4	3.4 %
2006	73,415.3	73,735.8	320.5	99.6 %	11,308.2	2.8 %
2007	79,791.9	80,079.7	287.8	99.6 %	11,720.2	2.5 %
2008	77,159.4	77,412.0	252.6	99.7 %	12,289.6	2.1 %
2009	78,911.3	79,104.6	193.3	99.8 %	12,622.2	1.5 %
2010	80,626.9	80,758.8	131.9	99.8 %	12,744.0	1.0 %
2011	78,940.0	79,039.3	99.3	99.9 %	12,855.6	0.8 %
2012	78,613.0	78,682.7	69.7	99.9 %	12,627.6	0.6 %
2013	85,276.1	85,328.7	52.6	99.9 %	12,884.8	0.4 %
2014	89,360.4	89,392.1	31.7	100.0 %	13,219.5	0.2 %

* Affected by prepayment of UAAL in connection with Pension Obligation Bond issued by the state and various local government employers.

** The funded ratios shown above are based on the statutory Frozen Initial Liability Valuation Method and are not suitable for comparison with Plans using other valuation methods.

SOLVENCY TEST (\$MILLIONS)

Valuation Date Dec. 31	Valuation Assets	Accrued Liability for				Percent Funded for			
		Annuitants and Beneficiaries	Member Contribs.	Active & Inactive Members	Total	Annuitants and Beneficiaries	Participant Contributions	Active & Inactive Members	Total
2001	\$58,024.3	\$25,881.5	\$14,275.3	\$19,977.9	\$60,134.7	100.0%	100.0%	89.4%	96.5%
2002	57,861.9	26,041.7	14,022.9	19,554.2	59,618.8	100.0%	100.0%	91.0%	97.1%
2003	62,685.3	28,707.8	14,503.1	20,000.8	63,211.7	100.0%	100.0%	97.4%	99.2%
2004	66,209.4	30,829.9	15,050.3	20,742.1	66,622.3	100.0%	100.0%	98.0%	99.4%
2005	68,615.1	32,668.0	15,155.3	21,164.2	68,987.5	100.0%	100.0%	98.2%	99.5%
2006	73,415.3	35,774.7	15,902.4	22,058.7	73,735.8	100.0%	100.0%	98.5%	99.6%
2007	79,791.9	39,675.1	16,795.4	23,609.2	80,079.7	100.0%	100.0%	98.8%	99.6%
2008	77,159.4	38,372.6	16,045.3	22,994.1	77,412.0	100.0%	100.0%	98.9%	99.7%
2009	78,911.3	39,734.2	16,156.6	23,213.8	79,104.6	100.0%	100.0%	99.2%	99.8%
2010	80,626.9	41,139.0	16,253.6	23,366.2	80,758.8	100.0%	100.0%	99.4%	99.8%
2011	78,940.0	43,609.4	14,434.4	20,995.5	79,039.3	100.0%	100.0%	99.5%	99.9%
2012	78,613.0	44,055.5	14,401.1	20,226.1	78,682.7	100.0%	100.0%	99.7%	99.9%
2013	85,276.1	48,460.5	15,559.2	21,309.0	85,328.7	100.0%	100.0%	99.8%	99.9%
2014	89,360.4	51,131.1	16,259.3	22,001.7	89,392.1	100.0%	100.0%	99.9%	100.0%

CONTRIBUTIONS REQUIRED AND CONTRIBUTIONS MADE

Year Ended December 31	Annual Required Contribution	Percent Contributed *
2001	\$412.9	99.6%
2002	426.9	99.8%
2003	462.7	334.0%
2004	497.6	121.0%
2005	535.6	108.0%
2006	569.0	104.0%
2007	614.0	105.0%
2008	644.8	105.0%
2009	699.3	108.0%
2010	686.7	108.0%
2011	784.1	104.0%
2012	826.1	100.0%
2013	912.4	100.0%
2014	977.1	100.0%

* Includes additional UAAL payments when amount is greater than 100%.

Employers did not make the full actuarially required contribution for 2000 through 2002. In lieu of the full contribution, employers were allowed to recognize a credit due to a distribution from the TAA in accordance with the provisions of Act 11 of 1999.

SECTION G

METHODS AND ASSUMPTIONS

ACTUARIAL VALUATION METHOD

The actuarial funding method prescribed in the statute for WRS is the **Frozen Initial Liability Method**. Under this method, the amount of remaining unfunded actuarial accrued liabilities at any valuation date is affected only by the monthly amortization payments, compound interest, the added liability created by new employer units, and any added liabilities caused by changes in benefit provisions.

Actuarial gains or losses arising from the difference between actual and assumed experience are reflected in the determination of the normal cost. In this manner, experience gains or losses in any year are amortized (spread) over the average future working lifetime of the active participant group - a period of approximately 20 years. Hence, the computed normal cost is made up of two parts:

- The pure entry-age normal cost (EANC) determined without regard to past gains or losses, and;
- an experience amortization component.

Section 40.04(1) of the Wisconsin Statutes provides authority to maintain accounts and reserves determined to be “useful in achieving the funds’ purposes - - -”. A fundamental WRS objective is stable contribution rates. Accordingly, based on the authority granted under Section 40.04, the experience portion of the normal cost is separately calculated each year and the amortization period is varied upward or downward in order to minimize short-term rate fluctuations. The policy regarding the EAR amortization period is described below:

- The standard period is set 20 years.
- The standard period is reconsidered as part of each triennial experience study (no changes were made with the most recent experience study).
- Temporary interim changes in the period are made only when there are large, but mostly offsetting market gains and losses known to be flowing through the MRA that would otherwise result in contribution rate volatility. Large changes would be defined as those which, over a 2-year period, were expected to result in contribution rate changes of at least 0.4% of payroll.
- The minimum and maximum EAR amortization periods are 10 years and 30 years respectively.
- The amortization policy will be applied in the same manner to market gains and losses flowing through the MRA.
- For 2012 through 2014, a 25-year period was used.

ASSET VALUATION METHOD

An essential step in the valuation process is comparing valuation assets with computed liabilities. Computed liabilities result from actuarial calculations involving the covered population, the benefits, and actuarial assumptions. Valuation assets are those assets that are recognized and available to fund the System's liabilities. WRS assets are invested in the Core Investment Trust, and in the Variable Investment Trust, both of which are managed by the State of Wisconsin Investment Board (SWIB). Assets in the Variable Investment Trust are marked to market each year. Assets in the Core Investment Trust (most of the assets) are valued (or recognized) using an "asset valuation method."

Asset valuation methods are distinguished by the timing of the recognition of investment return. Total investment return is the sum of ordinary income and capital value changes. Under a book value approach, ordinary income is recognized immediately and capital gains (or losses) are recognized only when securities are sold. Book value investment return is directly affected by the timing of sales activity and underlying experience may be distorted. Under a pure market value approach, ordinary investment income and all capital value changes are recognized immediately. Because of market volatility, use of pure market values in retirement funding can result in volatile contribution rates and unstable financial ratios, contrary to WRS objectives.

The asset valuation method used for WRS valuations is statutory, and is referred to as the "Market Recognition Account" or MRA. Act 11 of 1999 closed the former Transaction Amortization Account (TAA) and created the Market Recognition Account (MRA). The MRA recognizes assumed returns fully each year. Differences between actual and assumed returns are phased in over a closed 5-year period. The objective is to give recognition to long-term changes in asset values while minimizing the effect of short-term fluctuations in the capital markets. In accordance with its smoothing objective, the MRA will tend to exceed the market value when the markets are doing poorly, and will fall short of the market value when markets are doing well. Some retirement systems set limits on the amount by which the recognized value of assets can differ from the market value.

**SUMMARY OF ASSUMPTIONS
USED FOR ANNUAL ACTUARIAL VALUATIONS
ASSUMPTIONS ADOPTED BY ETF BOARD AFTER
CONSULTING WITH ACTUARY**

ECONOMIC ASSUMPTIONS

For determining plan liabilities, the discount rate is 5.0% for retired participants, 5.0% for active and inactive participants following retirement, and 7.2% for active participants prior to their retirement. A valuation performed assuming 5.5% discount rate for all participants at all stages of life, reproduces the results of an actuarial valuation using the 5% post-retirement and 7.2% pre-retirement assumptions. Thus, it can be said that **the net discount rate assumed in the valuations was 5.5% per year, compounded annually (net after administrative expenses).**

The **Wage Inflation Rate** assumed in this valuation was 3.20% per year. The wage inflation rate is defined to be the portion of total pay increases for an individual that are due to macro economic forces including productivity, price inflation, and labor market conditions. The wage inflation rate does not include pay changes rated to individual merit and seniority effects.

No specific **Price Inflation** assumption is required to perform this valuation, since there are no benefits that are linked to price increases. However, a price inflation assumption on the order of 2.0% to 2.7% would be consistent with the other economic assumptions.

The assumed **Real Rate of Return** over wage inflation is defined to be the portion of total investment return that is more than the assumed total wage growth rate. Considering other economic assumptions, the 7.2% pre-retirement investment return rate translates to an assumed real rate of return over wage inflation of 4.0%. The assumed real rate of return over price inflation would be higher – on the order of 4.5% to 5.2%, considering both an inflation assumption and an average expense provision.

Pay increase assumptions for individual active members are shown for sample services below. Part of the assumption for each age is for merit and/or seniority increase, and the other 3.2% recognizes wage inflation, including price inflation, productivity increases, and other macro economic forces.

% Merit and Longevity Increase Next Year						
Service	Gen.	University Teachers	Public School Teachers	Protective		Exec. & Elec.
				With S.S.	W/O S.S.	
1	3.5 %	3.2 %	5.8 %	4.8 %	5.5 %	2.0 %
2	3.5 %	3.2 %	5.8 %	4.8 %	5.5 %	2.0 %
3	3.1 %	3.1 %	5.4 %	4.1 %	4.7 %	2.0 %
4	2.8 %	3.0 %	5.1 %	3.5 %	3.8 %	1.9 %
5	2.5 %	2.9 %	4.7 %	2.8 %	3.0 %	1.9 %
10	1.5 %	2.4 %	3.2 %	1.1 %	0.9 %	1.6 %
15	1.1 %	1.7 %	1.8 %	0.8 %	0.5 %	1.2 %
20	0.9 %	1.1 %	0.8 %	0.7 %	0.4 %	0.7 %
25	0.6 %	0.8 %	0.4 %	0.6 %	0.3 %	0.4 %
30	0.4 %	0.6 %	0.2 %	0.5 %	0.2 %	0.3 %

DECREMENT PROBABILITIES

The Active Member Population is assumed to remain constant. For purposes of financing the unfunded liabilities and amortizing the EAR, total payroll is assumed to grow at the wage inflation rate – 3.20% per year.

The mortality table used to measure mortality for retired participants was the Wisconsin 2012 Mortality Table, as adopted by the Board in connection with the 2009-2011 Experience Study. The rates in this table were based on actual WRS experience projected to 2017 with scale BB to allow for future improvements (margin) in mortality. Sample retirement values from this table are shown below. This assumption is used to measure the probabilities of participants dying before retirement and the probabilities of each benefit payment being made after retirement.

Single Life Retirement Values Wisconsin 2012 Mortality Table with 5% Interest

Sample Attained Ages	Present Value of \$1 Monthly for Life		Future Life Expectancy (years)	
	Males	Females	Males	Females
40	\$209.20	\$214.70	42.9	46.1
45	200.43	207.06	38.1	41.3
50	189.60	197.69	33.3	36.5
55	176.75	186.37	28.7	31.8
60	162.35	172.92	24.4	27.2
65	145.13	156.75	20.1	22.7
70	125.71	137.76	16.1	18.4
75	104.34	116.43	12.4	14.3
80	82.05	93.57	9.0	10.7
85	61.28	70.89	6.3	7.6

The values shown above are for non-disabled participants. For disabled participants, the following table was used:

Sample Attained Ages	Present Value of \$1 Monthly for Life		Future Life Expectancy (years)	
	Males	Females	Males	Females
40	\$195.27	\$204.53	35.7	39.9
45	183.23	194.56	30.9	35.1
50	169.52	182.61	26.4	30.4
55	153.66	168.39	22.1	25.8
60	135.14	151.44	18.0	21.4
65	114.76	131.73	14.1	17.2
70	92.83	109.91	10.6	13.2
75	71.03	86.92	7.6	9.7
80	52.06	64.92	5.2	6.8
85	36.73	47.23	3.5	4.7

ACTIVE PARTICIPANT MORTALITY RATES

Sample Attained Ages	Mortality Rates	
	Males	Females
20	0.000155	0.000089
25	0.000184	0.000097
30	0.000229	0.000129
35	0.000398	0.000230
40	0.000540	0.000329
45	0.000717	0.000519
50	0.000966	0.000765
55	0.002228	0.001345
60	0.003147	0.001935
65	0.004814	0.002974
70	0.007979	0.005057
75	0.013576	0.009155
80	0.024949	0.017103

This assumption is used to measure the probability of participants dying while in service.

RATES OF RETIREMENT FOR THOSE ELIGIBLE TO RETIRE

Normal Retirement

Age	General		Public School		University		Protective*		Exec. & Elected
	Male	Female	Male	Female	Male	Female	With S.S.	W/O S.S.	
50							6%	4%	
51							7%	4%	
52							8%	5%	
53							23%	17%	
54							18%	25%	
55							17%	21%	
56							16%	27%	
57	20%	17%	40%	27%	13%	14%	16%	30%	15%
58	20%	17%	35%	27%	13%	14%	16%	30%	15%
59	20%	17%	25%	27%	13%	13%	16%	30%	15%
60	20%	20%	28%	27%	13%	13%	18%	26%	10%
61	20%	20%	25%	27%	13%	19%	18%	15%	13%
62	27%	27%	36%	34%	15%	19%	22%	20%	13%
63	32%	28%	32%	27%	15%	19%	29%	40%	12%
64	24%	25%	24%	23%	15%	18%	16%	40%	12%
65	24%	25%	24%	28%	15%	22%	30%	40%	12%
66	30%	29%	25%	30%	20%	23%	20%	40%	20%
67	24%	20%	24%	28%	18%	17%	15%	40%	17%
68	17%	18%	24%	26%	18%	17%	25%	40%	15%
69	17%	18%	24%	20%	18%	17%	20%	40%	15%
70	17%	18%	20%	20%	20%	20%	100%	100%	13%
71	17%	18%	20%	20%	20%	20%	100%	100%	13%
72	17%	15%	20%	20%	15%	20%	100%	100%	25%
73	17%	15%	20%	20%	15%	20%	100%	100%	10%
74	17%	15%	20%	20%	15%	20%	100%	100%	10%
75	100%	100%	100%	100%	100%	100%	100%	100%	100%

* Includes early retirements.

Early Retirement

Age	% Retiring Next Year							Exec. & Elected
	General		Public School		University			
	Male	Female	Male	Female	Male	Female		
55	8.0%	6.1%	12.0%	11.0%	4.8%	5.5%	4.5%	
56	8.0%	6.4%	12.0%	11.0%	3.0%	5.5%	4.5%	
57	4.3%	4.2%	12.0%	11.0%	2.0%	4.0%	4.5%	
58	5.3%	5.5%	12.0%	11.0%	2.5%	4.0%	4.5%	
59	5.5%	5.3%	12.0%	11.0%	4.0%	6.5%	4.5%	
60	7.5%	8.1%	12.0%	15.0%	4.0%	6.5%	4.5%	
61	8.0%	7.0%	12.0%	15.0%	7.5%	7.5%	4.5%	
62	14.0%	15.0%	20.0%	20.0%	7.0%	10.0%		
63	16.0%	15.0%	20.0%	20.0%	7.5%	10.0%		
64	17.0%	15.0%	20.0%	20.0%	8.0%	13.0%		

The assumed rates of separation from employment prior to service retirement due to disability and other causes are shown below for sample ages. For other terminations it was assumed that a percentage depending on age of participants terminating after age 35 with 5 or more years service will leave their contributions on deposit and be paid a benefit at normal retirement age and that the remaining participants would take a separation benefit. The percentage taking a separation benefit is 25% at age 35, grading downward to 0% at retirement eligibility. All participants terminating prior to normal retirement age with less than 5 years of service were assumed to take a separation benefit.

**Assumed Termination Rates
by Attained Age and Years of Service**

Age	Service	% of Active Participants Terminating								
		Protective		Public Schools		University		Exec. & Elected	General	
		With Soc. Sec.	Without Soc. Sec.	Males	Females	Males	Females		Males	Females
	0	15.0%	4.0%	17.7%	15.0%	18.3%	22.0%	20.0%	17.5%	19.5%
	1	7.0%	3.5%	11.4%	10.5%	15.0%	15.0%	14.0%	13.0%	13.5%
	2	4.3%	2.1%	7.3%	7.1%	11.3%	12.5%	14.0%	8.5%	10.0%
	3	3.8%	1.3%	5.2%	5.5%	9.6%	10.0%	10.0%	6.8%	8.0%
	4	3.4%	1.2%	3.9%	4.6%	8.5%	9.5%	10.0%	6.0%	7.4%
	5	2.6%	1.1%	3.0%	4.0%	7.5%	8.0%	9.0%	4.5%	6.0%
	6	2.5%	1.0%	2.8%	3.5%	7.0%	7.0%	8.5%	4.0%	5.0%
	7	2.3%	0.9%	2.5%	3.0%	5.5%	6.0%	8.0%	3.5%	4.5%
	8	2.0%	0.8%	2.0%	2.5%	4.3%	5.0%	7.5%	3.0%	4.0%
	9	1.7%	0.7%	1.8%	2.3%	3.2%	4.0%	7.0%	2.5%	3.8%
25	10 & Over	1.7%	0.7%	1.8%	2.2%	3.2%	5.0%	6.0%	2.5%	3.8%
30		1.6%	0.7%	1.4%	1.9%	3.2%	4.5%	5.1%	2.5%	3.3%
35		1.4%	0.7%	1.2%	1.4%	3.1%	4.0%	4.2%	2.1%	2.8%
40		1.2%	0.6%	1.1%	1.1%	2.7%	3.4%	3.7%	1.6%	2.2%
45		1.1%	0.6%	1.0%	0.9%	2.1%	2.6%	3.3%	1.3%	1.8%
50		1.0%	0.5%	1.0%	0.9%	1.6%	1.8%	3.1%	1.1%	1.6%
55		1.0%	0.5%	1.0%	0.9%	1.4%	1.5%	3.0%	1.1%	1.5%
60		1.0%	0.5%	1.0%	0.9%	1.4%	1.5%	3.0%	1.1%	1.5%

Disability Rates

Age	% of Active Participants Becoming Disabled									
	Protective		Public Schools		University		Exec. & Elected		General	
	With SS	W/O SS	Males	Females	Males	Females	Males	Females	Males	Females
20	0.01%	0.04%	0.01%	0.01%	0.01%	0.01%	0.00%	0.00%	0.01%	0.01%
25	0.01%	0.04%	0.01%	0.01%	0.01%	0.01%	0.00%	0.00%	0.01%	0.01%
30	0.01%	0.04%	0.01%	0.01%	0.01%	0.01%	0.00%	0.00%	0.01%	0.03%
35	0.02%	0.04%	0.01%	0.01%	0.01%	0.03%	0.01%	0.01%	0.01%	0.04%
40	0.03%	0.07%	0.02%	0.02%	0.01%	0.04%	0.01%	0.01%	0.04%	0.05%
45	0.05%	0.13%	0.04%	0.06%	0.02%	0.04%	0.01%	0.01%	0.07%	0.07%
50	0.08%	0.74%	0.11%	0.12%	0.04%	0.07%	0.02%	0.02%	0.15%	0.11%
55	1.21%	0.54%	0.21%	0.17%	0.11%	0.10%	0.09%	0.09%	0.29%	0.20%
60	2.04%	0.16%	0.34%	0.25%	0.14%	0.15%	0.11%	0.11%	0.51%	0.29%

MISCELLANEOUS AND TECHNICAL ASSUMPTIONS

Expenses:	Assumed investment return is net of administrative and investment expenses.
Marriage Assumption:	80% of males and 70% of females are assumed to be married for purposes of death-in-service benefits. Male spouses are assumed to be three years older than female spouses.
Pay Increase Timing:	Beginning of (calendar) year for most people. Middle of calendar year for teachers.
Pay Annualization:	Reported pay for members with less than twelve contributing months was annualized by the ratio of 12 to the number of contributing months in the year.
Final Average Salary:	For present value of future benefit purposes, final average salary was calculated in accordance with pay increase assumptions, but was not permitted to fall below the final average salary reported in the data.
Decrement Timing:	Decrements of all types are assumed to occur mid-year.
Decrement Operation:	Disability and Turnover operate during the retirement pattern.
Decrement Relativity:	Decrement rates are used directly from the experience study, without adjustment for multiple decrement table effects.
Eligibility Testing:	Eligibility for benefits is determined based upon the age nearest birthday and total service (in all benefit groups) nearest whole year on the date the decrement is assumed to occur.
Benefit Service:	Exact fractional service on the decrement date is used to determine the amount of benefit payable.
Non-Benefit Service:	Liabilities for service in divisions other than the division in which the individual is currently active are calculated as indexed deferred vested benefits. Benefits are indexed in accordance with the salary adjustment factors for the division where the member was formerly employed. People are assumed to retire at the earliest age that full benefits will become available. The liabilities are assigned to the division in which the service was rendered.
Service Credit Accruals:	It is assumed that members accrue one year of service credit per year.

MISCELLANEOUS AND TECHNICAL ASSUMPTIONS (CONCLUDED)

Incidence of Contributions:	Contributions are assumed to be received continuously throughout the year based upon the computed percent of payroll shown in this report, and the actual payroll payable at the time contributions are made.
Assumed Retirement for Deferred Members:	Members with a deferred vested benefit were assumed to retire at age 65 for General members, age 54 for Protective members and age 62 for Executive and Elected members.
Normal Form of Benefit:	The assumed normal form of benefit is a straight life benefit, except where otherwise noted.
Disability Valuation:	<p>The Post-10/15/92 Disability benefit consists of one benefit payable to age 65 (10% of FAE) plus another benefit payable on and after age 65 (WRS benefit accrued to date of disability plus 7% of FAE during disability). For valuation purposes, the 7% of FAE portion of the post 65 benefit was added to the 40% of FAE benefit prior to age 65.</p> <p>Additionally, there are certain cases in which the disability benefit at the member's normal retirement age is larger than the member's benefit under the normal retirement benefit formula. To account for this, an adjustment is made to the member's normal retirement benefit present value calculation which is equal to 15% of the difference between the present values of the LTDI benefit and the normal retirement benefit.</p>
Variable Excess Benefits:	These benefits are valued by increasing the otherwise calculated liabilities by an amount equal to twice the value of the variable excess. (The variable excess is the difference between the variable account and the variable at core account, summed over all participants.)
Liability Adjustments:	Final Average Salaries were increased 2.5% (3.0% for Executive and Elected and 3.5% for Protectives) to account for additional contingencies in actual benefit amount calculated at the time of retirement.
Amortization Payoff Reserve:	Additional reserves in the amount of \$40,860,834 (discounted from the year 2029 to the current valuation date) were added to general group liabilities to account for the possibility that some non-state employers may never be able to pay off their unfunded actuarial accrued liability.

SECTION H
PLAN PROVISIONS

**SUMMARY OF BENEFIT PROVISIONS EVALUATED
DECEMBER 31, 2014 ACTUARIAL VALUATION**

Normal Retirement Eligibility

The age a participant becomes eligible for an unreduced age and service annuity is:

General		Protective		Executive & Elected	
Age	Service	Age	Service	Age	Service
65	Any*	54	Any*	62	Any*
57	30	53	25	57	30

* Participants first employed after 1989 and terminated before April 24, 1998 must have creditable service in 5 calendar years.

Normal Retirement Annuity

The age and service annuity payable at Normal Retirement Age is based on Final Average Earnings (FAE) and Creditable Service (CS) as follows:

Multiplier for Service Rendered			Group
Before 2000	Between 2000 and 2011	After 2011	
2.165%	2.0%	1.6%	Executive group and elected officials
2.165%	2.0%	2.0%	Protective occupation participants covered by Social Security
2.665%	2.5%	2.5%	Protective occupation participants not covered by Social Security
1.765%	1.6%	1.6%	All other participants

FAE is generally the average of the 3 highest years of earnings (July 1 - June 30 for teachers, educational support staff, and judges; calendar year for others) preceding retirement. These years do not have to be consecutive. For legislators and state constitutional officers who are ineligible to receive pay increases during their term, FAE is the statutory rate of earnings at termination.

Maximum formula annuity is 85% of FAE for protective occupation participants not covered by Social Security, 65% of FAE for protectives covered by Social Security, and 70% for all other participants. If greater than the formula amount, an annuity equal to the actuarial equivalent of two times the required accumulated contributions is paid in lieu of the formula amount.

Early Retirement. Any participant who has attained age 55 and any Protective occupation participant who has attained age 50 may apply for an early retirement annuity. The benefit is reduced 0.4% for each month that the annuity effective date precedes the Normal Retirement Age. For Non-Protective participants terminating after 6/30/90, the 0.4% is reduced for months after the attainment of age 57 and before the annuity effective date by .001111% for each month of creditable service.

Voluntary Termination Before Immediate Benefit Eligibility. Participant may either (i) receive a refund of accumulated contributions, or (ii) leave contributions on deposit and apply for a retirement annuity on or after the minimum retirement age based upon age and accrued service at time of termination.

Post-Retirement Adjustments. Annuities are increased annually if the investment income credited to retired life funds is in excess of the assumed benefit rate (presently 5%), other plan experiences are within projected ranges, and the resulting adjustment would be at least 0.5% (2.0% for the variable fund).

Disability Annuity. Eligibility: generally total and permanent incapacity to engage in gainful employment. Participant must have completed at least 6 months of creditable service (in at least 5 out of the last 7 calendar years) preceding application for disability. Service requirement is waived if disability is from service-related causes.

For protective occupations, eligibility also can be met if a member has 15 years of service, is between the ages of 50 and 55 and unable to safely and efficiently perform one's duties.

Disability Amounts. Amounts payable in case of disability depend upon the plan from which payment is made and are described below.

	Pre-10/16/1992 WRS Plan	Post-10/15/1992 LTDI Plan
Participants covered	Participants hired before 10/16/1992 who do not elect LTDI coverage.	Participants entering after 10/15/1992 and participants on 10/15/1992 who elect LTDI coverage.
Benefit to age 65*	WRS formula benefit based on service projected to normal retirement age.	40% of FAE for participants covered by Social Security; 50% of FAE for non-covered participants who cannot qualify for Social Security disability benefits.
Benefit at age 65*	Continuation of pre-65 amount.	WRS benefit accrued to date of disability plus 7% of FAE money purchase benefit during disability period, both of which are adjusted in accordance with dividend rate.

* Conversion age is later for participants becoming disabled after age 61.

Death-in-Service.

- (a) Prior to age 50 for Protective participants, age 55 for others, the benefit is the equivalent of twice the accumulated employee contributions required and all additional contributions and employer amounts contributed prior to 1974 for teachers, or 1966 for others.
- (b) After age 50 for Protective participants, age 55 for others, the benefit is the amount that would have been paid if participant had retired and elected 100% survivor option. Benefit is payable to any natural living person.

Interest Credits. For years after 1999, and for people with some active service after 1999, participant core accounts (including the variable at core accounts) are credited with interest at the full (core) effective rate. For others, accounts are credited with interest as follows:

Date of Participation	Rate Credited For Purpose of	
	Money Purchase	Refunds
	Minimum	
Prior to 1982	Actual	Actual
January 1, 1982 & Later	5%	3%

Participant variable accounts are credited with interest based on the earnings in the variable portfolio.

Contribution Rates. The financial objective of WRS is to establish and receive contributions that will remain level from year to year and decade to decade.

Statutory required participant contributions prior to July 1, 2011 were as follows:

General	5.0%
Executives & Elected Officials	5.5
Protectives	
- With Social Security	6.0
- Without Social Security	8.0

Statutory required participant contributions after July 1, 2011 are set equal to one-half of the actuarially determined rate for General participants and Executive and Elected Officials. Participant contributions for Protective participants are set equal to the participant contribution for General members.

Normal Form of Benefit. The normal form of benefit is a straight life annuity with no death benefits. Optional forms of benefit which are actuarially reduced are listed below:

- A life annuity with 60 or 180 monthly payments guaranteed.
- A joint survivorship annuity with 75% continued to beneficiary.
- A joint survivorship annuity with 100% continued to beneficiary.
- A joint survivorship annuity reduced 25% upon either your death or your beneficiary's death.
- A joint survivorship annuity with 100% continued to beneficiary combined with 180 monthly payments guaranteed.

For formula benefit calculations, optional forms are calculated at the lower of the current age or age 62 (Normal Retirement Age for Protective occupations).

Vesting. Participants hired prior to July 1, 2011 vest immediately. After July 1, 2011, participants vest after 5 years of service.

APPENDIX 1

GLOSSARY

GLOSSARY

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

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

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

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

Actuarial Equivalent. A series of payments is called an actuarial equivalent of another series of payments if the two series have the same actuarial present value.

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

Amortization. Paying off an interest-bearing liability by means of periodic payments of interest and principal, as opposed to paying it off with a lump sum payment.

Experience Gain (Loss). A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions during the period between two actuarial valuation dates, in accordance with the actuarial cost method being used.

GLOSSARY (CONCLUDED)

Normal Cost. The annual cost assumed, under the actuarial funding method, for current and subsequent plan years. Sometimes referred to as “current service cost.” Any payment toward the unfunded actuarial accrued liability is not part of the normal cost.

Plan Termination Liability. The actuarial present value of future plan benefits based on the assumption that there will be no future accruals for future service and salary. The termination liability will generally be less than the liabilities computed on a “going-concern” basis and is not normally determined in a routine actuarial valuation.

Reserve Account. An account used to indicate that funds have been set aside for a specific purpose and are not generally available for other uses.

Unfunded Actuarial Accrued Liability. The difference between the actuarial accrued liability and valuation assets. Sometimes referred to as “unfunded accrued liability.”

Valuation Assets. The value of current plan assets recognized for valuation purposes. Generally based on book value plus a portion of unrealized appreciation or depreciation.

APPENDIX 2

VALUATION PROCESS

FINANCIAL PRINCIPLES & OPERATIONAL TECHNIQUES OF THE WISCONSIN RETIREMENT SYSTEM

Benefit Promises Made Which Must be Paid For. A retirement program is an orderly means of handing out, keeping track of, and financing contingent retirement promises. As each participant of the Retirement System acquires a unit of service credit he is, in effect, handed an “IOU” which reads: “The Wisconsin Retirement System promises to pay you one unit of annuity benefits, payments in cash commencing when you retire.”

The principal related financial question is: *When shall the money required to cover the “IOU” be contributed?* This year, when the benefit of the participant’s unit of service is received? Or, some future year, when the “IOU” becomes a cash demand?

The law governing the Wisconsin Retirement System financing intends that the money to cover an “IOU” is contributed in the year the “IOU” is handed out. In this way contribution rates expressed as percents of participant payroll can be determined so as to remain approximately level from year to year and decade to decade as long as the basic experience and make-up of the group of participants does not change significantly. This means that for equivalent benefits each generation of Wisconsin taxpayers will contribute at approximately the same payroll rates.

Translated into actuarial terminology, the level percent-of-payroll contribution objective means that the contribution rate must total at least:

Normal Cost (the current discounted value of benefits likely to be paid on account of participants’ service rendered in the current year)

... plus ...

Interest on Unfunded Actuarial Accrued Liabilities (unfunded actuarial accrued liabilities are the difference between (i) the present value of future benefits and (ii) the present value of future normal costs, and reduced by the assets on hand at the valuation date).

If contributions to the system are less than the preceding amount, the difference, **plus investment earnings not realized thereon**, will have to be contributed at some later time, or benefits will have to be reduced, to satisfy the fundamental equation under which all retirement programs must operate; that is:

$$\mathbf{B = C + I - E}$$

Benefit payments to any group of participants and their beneficiaries cannot exceed

Contributions received on behalf of the group
... plus ...
Ivestment earnings on those contributions
... minus ...
Expenses incurred in operating the program.

There are retirement programs (Social Security is an example) designed to defer the bulk of contributions far into the future. The present contribution rate for such systems is artificially low, but is destined to increase relentlessly to a level which may be greatly in excess of the level percent-of-payroll rate.

A by-product of a level percent-of-payroll contribution objective is the accumulation of invested assets for varying periods of time. Investment income becomes the third and largest contributor to the retirement system and the amount is directly related to the amount of contributions and investment performance.

Computing Contribution Rates To Finance Benefits. From a given schedule of benefits and from the data furnished, the actuary calculates the contribution rates **by means of an actuarial valuation** - the technique of assigning monetary values to the risks assumed in operating a retirement program.

ACTUARIAL METHOD AND ASSUMPTIONS USED IN VALUATIONS

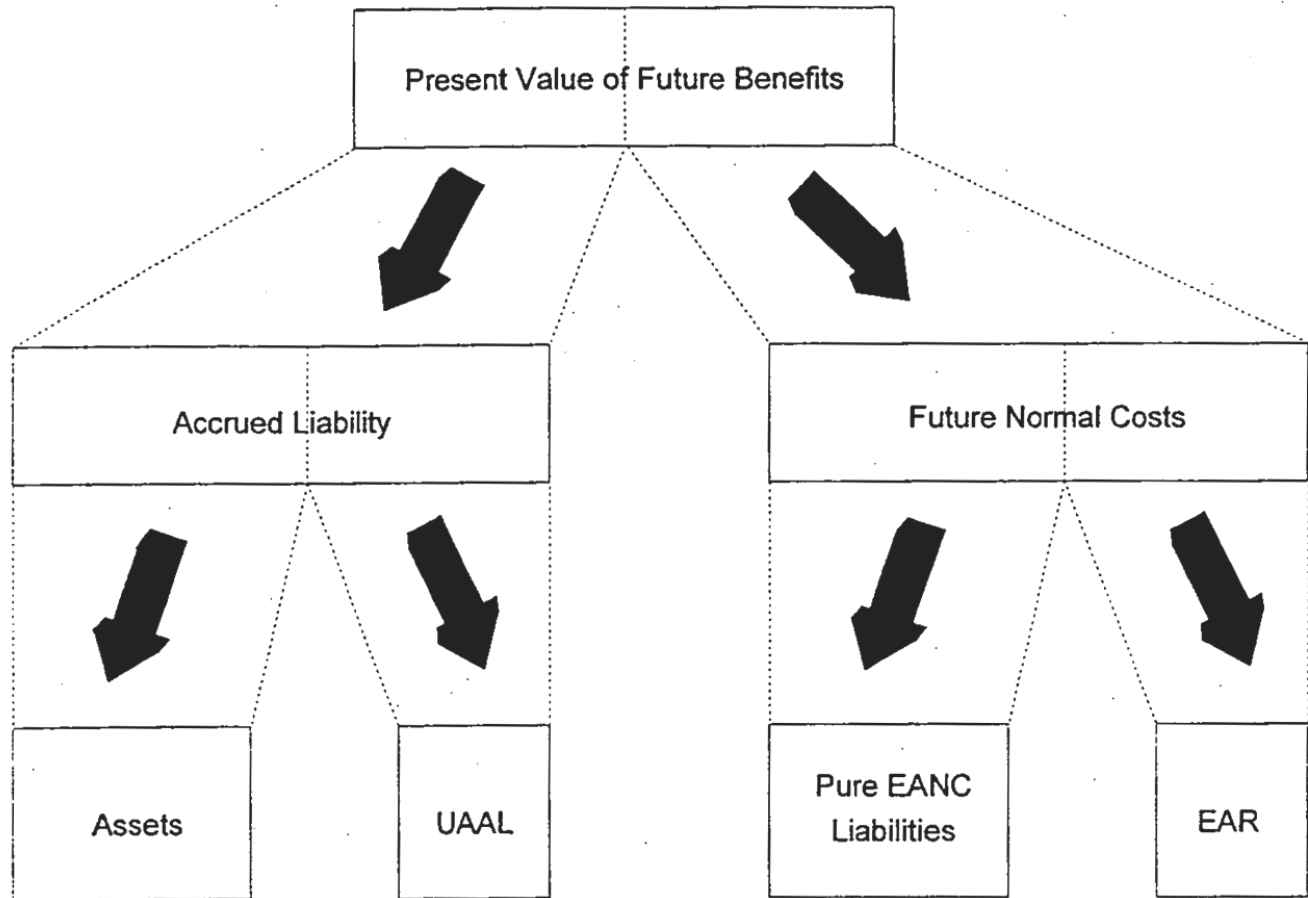
The principal areas of risk assumption are:

- long-term *rates of investment income* likely to be generated by system assets
- *rates of mortality* among participants, retirants and beneficiaries
- *rates of withdrawal* of active participants
- *rates of disability* among participants
- *patterns of salary increases* to be experienced by participants
- the age and service *distribution of actual retirements*

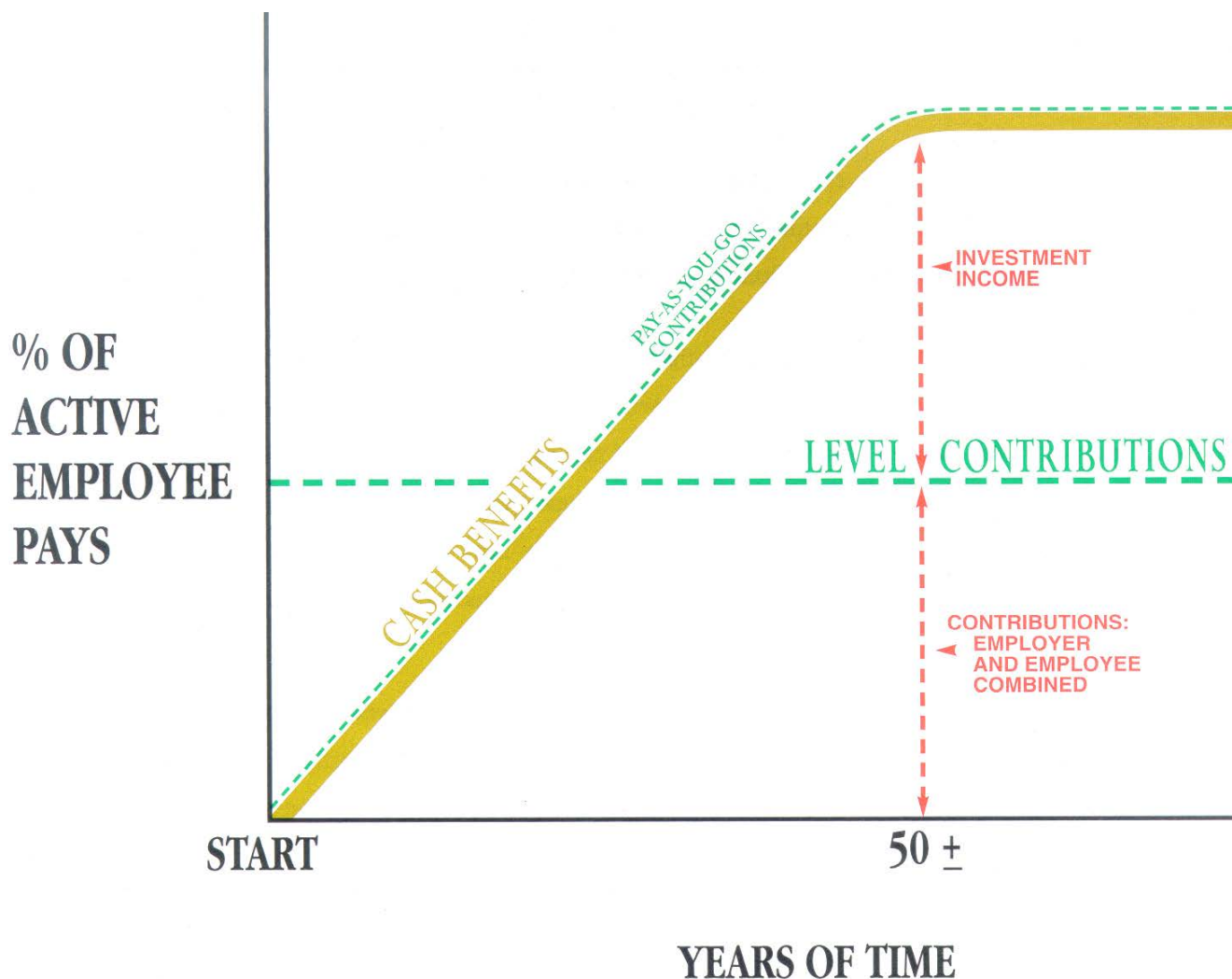
In an actuarial valuation, the actuary projects the monetary effect of each risk assumption for each distinct experience group, for the next year and for each year over the next half-century or longer.

Once actual risk experience has occurred and been observed, it will not coincide exactly with assumed risk experience, regardless of the skill of the actuary, the completeness of the data, and the precision of the calculations. Each valuation provides a complete recalculation of assumed future risk experience and takes into account all past differences between assumed and actual risk experience. The result is a continual series of small adjustments to the computed contribution rate. From time to time it becomes necessary to adjust the package of risk measurements to reflect basic experience trends -- but not random year-to-year fluctuations.

The Actuarial Valuation Process



- UAAL: Unfunded actuarial accrued liabilities are amortized over a fixed period of years.
- Pure EANC: Entry age normal cost liabilities are financed over the working lifetimes of WRS participants.
- EAR: The Experience Amortization Reserve portion of future normal costs is financed over varying periods which are selected to optimize contribution rate stability.



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

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

Economic Risk Areas

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

Non-Economic Risk Areas

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

APPENDIX 3

GAIN/LOSS EXHIBITS

**GENERAL MALES
WITHDRAWAL EXPERIENCE
DURING CALENDAR YEAR 2014**

Male Service-Based Withdrawals

Service Index	Withdrawals	Exposure	Crude Rates	Current Rates	Expected Withdrawals
1	373	2,176	0.1714	0.1750	381
2	514	3,921	0.1311	0.1300	510
3	333	3,379	0.0985	0.0850	287
4	223	2,393	0.0932	0.0680	163
5	166	1,783	0.0931	0.0600	107
6	116	1,783	0.0651	0.0450	80
7	119	2,012	0.0591	0.0400	80
8	94	1,736	0.0541	0.0350	61
9	78	1,484	0.0526	0.0300	45
10	61	1,426	0.0428	0.0250	36
Totals	2,077	22,093	0.0940	0.0792	1,750

Male Age-Based Withdrawals

Age	Withdrawals	Exposure	Crude Rates	Current Rates	Expected Withdrawals
25-29	-	5	0.0000	0.0250	-
30-34	11	336	0.0327	0.0250	8
35-39	37	1,326	0.0279	0.0180	24
40-44	74	2,391	0.0309	0.0150	36
45-49	89	3,668	0.0243	0.0120	44
50-54	131	5,538	0.0237	0.0110	61
Over 54	130	11,304	0.0115		130
Totals	472	24,568	0.0192	0.0123	303

**GENERAL FEMALES
WITHDRAWAL EXPERIENCE
DURING CALENDAR YEAR 2014**

Female Service-Based Withdrawals

Service Index	Withdrawals	Exposure	Crude Rates	Current Rates	Expected Withdrawals
1	875	4,708	0.1859	0.1950	918
2	1,269	8,522	0.1489	0.1350	1,150
3	809	6,622	0.1222	0.1000	662
4	486	4,894	0.0993	0.0800	392
5	409	4,166	0.0982	0.0740	308
6	365	4,218	0.0865	0.0600	253
7	286	3,983	0.0718	0.0500	199
8	215	3,682	0.0584	0.0450	166
9	184	3,330	0.0553	0.0400	133
10	164	3,123	0.0525	0.0375	117
Totals	5,062	47,248	0.1071	0.0910	4,298

Female Age-Based Withdrawals

Age	Withdrawals	Exposure	Crude Rates	Current Rates	Expected Withdrawals
25-29	1	18	0.0556	0.0375	1
30-34	29	547	0.0530	0.0300	16
35-39	86	2,117	0.0406	0.0260	55
40-44	106	3,384	0.0313	0.0200	68
45-49	162	5,291	0.0306	0.0170	90
50-54	240	8,675	0.0277	0.0150	130
Over 54	283	19,189	0.0147		283
Totals	907	39,221	0.0231	0.0164	643

**PUBLIC SCHOOLS MALES
WITHDRAWAL EXPERIENCE
DURING CALENDAR YEAR 2014**

Male Service-Based Withdrawals

Service Index	Withdrawals	Exposure	Crude Rates	Current Rates	Expected Withdrawals
1	71	614	0.1156	0.1770	109
2	110	1,134	0.0970	0.1140	129
3	81	1,058	0.0766	0.0730	77
4	69	877	0.0787	0.0520	46
5	45	679	0.0663	0.0390	26
6	31	677	0.0458	0.0300	20
7	34	747	0.0455	0.0280	21
8	19	719	0.0264	0.0250	18
9	32	735	0.0435	0.0200	15
10	30	758	0.0396	0.0180	14
Totals	522	7,998	0.0653	0.0594	475

Male Age-Based Withdrawals

Age	Withdrawals	Exposure	Crude Rates	Current Rates	Expected Withdrawals
25-29	-	-	N/A	0.0180	-
30-34	4	226	0.0177	0.0120	3
35-39	44	1,861	0.0236	0.0115	21
40-44	37	2,562	0.0144	0.0105	27
45-49	46	2,735	0.0168	0.0100	27
50-54	52	2,471	0.0210	0.0095	23
Over 54	33	3,039	0.0109		33
Totals	216	12,894	0.0168	0.0104	134

**PUBLIC SCHOOLS FEMALES
WITHDRAWAL EXPERIENCE
DURING CALENDAR YEAR 2014**

Female Service-Based Withdrawals

Service Index	Withdrawals	Exposure	Crude Rates	Current Rates	Expected Withdrawals
1	172	1,778	0.0967	0.1500	267
2	307	3,289	0.0933	0.1050	345
3	223	2,922	0.0763	0.0710	207
4	168	2,409	0.0697	0.0550	132
5	136	2,174	0.0626	0.0460	100
6	119	2,208	0.0539	0.0400	88
7	107	2,398	0.0446	0.0350	84
8	76	2,311	0.0329	0.0300	69
9	81	2,223	0.0364	0.0250	56
10	68	2,222	0.0306	0.0230	51
Totals	1,457	23,934	0.0609	0.0585	1,399

Female Age-Based Withdrawals

Age	Withdrawals	Exposure	Crude Rates	Current Rates	Expected Withdrawals
25-29	-	-	N/A	0.0220	-
30-34	21	693	0.0303	0.0170	12
35-39	107	4,679	0.0229	0.0120	56
40-44	108	6,112	0.0177	0.0095	58
45-49	102	6,750	0.0151	0.0092	62
50-54	130	6,385	0.0204	0.0090	57
Over 54	90	8,385	0.0107		90
Totals	558	33,004	0.0169	0.0102	335

**UNIVERSITY MALES
WITHDRAWAL EXPERIENCE
DURING CALENDAR YEAR 2014**

Male Service-Based Withdrawals

Service Index	Withdrawals	Exposure	Crude Rates	Current Rates	Expected Withdrawals
1	63	361	0.1745	0.1830	66
2	109	732	0.1489	0.1500	110
3	101	704	0.1435	0.1130	80
4	82	555	0.1477	0.0960	53
5	51	478	0.1067	0.0850	41
6	30	417	0.0719	0.0750	31
7	43	453	0.0949	0.0700	32
8	23	363	0.0634	0.0550	20
9	15	330	0.0455	0.0430	14
10	9	307	0.0293	0.0320	10
Totals	526	4,700	0.1119	0.0972	457

Male Age-Based Withdrawals

Age	Withdrawals	Exposure	Crude Rates	Current Rates	Expected Withdrawals
25-29	-	-	N/A	0.0320	-
30-34	-	22	0.0000	0.0320	1
35-39	9	178	0.0506	0.0310	6
40-44	17	481	0.0353	0.0250	12
45-49	19	764	0.0249	0.0180	14
50-54	27	891	0.0303	0.0140	12
Over 54	16	2,710	0.0059		16
Totals	88	5,046	0.0174	0.0121	61

**UNIVERSITY FEMALES
WITHDRAWAL EXPERIENCE
DURING CALENDAR YEAR 2014**

Female Service-Based Withdrawals

Service Index	Withdrawals	Exposure	Crude Rates	Current Rates	Expected Withdrawals
1	67	472	0.1419	0.2200	104
2	155	863	0.1796	0.1500	129
3	113	788	0.1434	0.1250	99
4	77	695	0.1108	0.1000	70
5	63	539	0.1169	0.0950	51
6	55	565	0.0973	0.0800	45
7	37	594	0.0623	0.0700	42
8	22	474	0.0464	0.0600	28
9	18	453	0.0397	0.0500	23
10	21	412	0.0510	0.0400	16
Totals	628	5,855	0.1073	0.1037	607

Female Age-Based Withdrawals

Age	Withdrawals	Exposure	Crude Rates	Current Rates	Expected Withdrawals
25-29	-	-	N/A	0.0500	-
30-34	4	51	0.0784	0.0420	2
35-39	15	301	0.0498	0.0390	12
40-44	17	530	0.0321	0.0310	16
45-49	21	762	0.0276	0.0230	18
50-54	24	920	0.0261	0.0150	14
Over 54	14	2,184	0.0064		14
Totals	95	4,748	0.0200	0.0160	76

**PROTECTIVE WITH SOCIAL SECURITY
WITHDRAWAL EXPERIENCE
DURING CALENDAR YEAR 2014**

Male and Female Service-Based Withdrawals

Service Index	Withdrawals	Exposure	Crude Rates	Current Rates	Expected Withdrawals
1	66	477	0.1384	0.1500	72
2	94	990	0.0949	0.0700	69
3	54	889	0.0607	0.0430	38
4	30	653	0.0459	0.0380	25
5	25	539	0.0464	0.0340	18
6	27	716	0.0377	0.0260	19
7	35	844	0.0415	0.0250	21
8	27	812	0.0333	0.0230	19
9	16	721	0.0222	0.0200	14
10	18	635	0.0283	0.0170	11
Totals	392	7,276	0.0539	0.0421	306

Male and Female Age-Based Withdrawals

Age	Withdrawals	Exposure	Crude Rates	Current Rates	Expected Withdrawals
25-29	-	11	0.0000	0.0170	-
30-34	13	602	0.0216	0.0150	9
35-39	39	2,005	0.0195	0.0130	26
40-44	44	2,851	0.0154	0.0110	31
45-49	50	2,858	0.0175	0.0105	30
50-54	24	2,201	0.0109	0.0100	22
Over 54	13	1,473	0.0088		13
Totals	183	12,001	0.0152	0.0109	131

**PROTECTIVE WITHOUT SOCIAL SECURITY
WITHDRAWAL EXPERIENCE
DURING CALENDAR YEAR 2014**

Male and Female Service-Based Withdrawals

Service Index	Withdrawals	Exposure	Crude Rates	Current Rates	Expected Withdrawals
1	2	37	0.0541	0.0400	1
2	2	110	0.0182	0.0350	4
3	1	94	0.0106	0.0210	2
4	1	88	0.0114	0.0130	1
5	2	99	0.0202	0.0120	1
6	3	95	0.0316	0.0110	1
7	-	103	0.0000	0.0100	1
8	2	88	0.0227	0.0090	1
9	1	108	0.0093	0.0080	1
10	4	68	0.0588	0.0070	-
Totals	18	890	0.0202	0.0146	13

Male and Female Age-Based Withdrawals

Age	Withdrawals	Exposure	Crude Rates	Current Rates	Expected Withdrawals
25-29	-	-	N/A	0.0070	-
30-34	1	56	0.0179	0.0070	-
35-39	2	265	0.0075	0.0065	2
40-44	5	440	0.0114	0.0060	3
45-49	3	458	0.0066	0.0055	3
50-54	5	436	0.0115	0.0050	2
Totals	16	1,655	0.0097	0.0060	10

**EXECUTIVE AND ELECTED MALES
WITHDRAWAL EXPERIENCE
DURING CALENDAR YEAR 2014**

Male and Female Service-Based Withdrawals

Service Index	Withdrawals	Exposure	Crude Rates	Current Rates	Expected Withdrawals
1	5	44	0.1136	0.2000	9
2	7	124	0.0565	0.1400	17
3	11	80	0.1375	0.1400	11
4	4	92	0.0435	0.1000	9
5	4	47	0.0851	0.1000	5
6	1	43	0.0233	0.0900	4
7	5	47	0.1064	0.0850	4
8	2	44	0.0455	0.0800	4
9	1	24	0.0417	0.0750	2
10	2	53	0.0377	0.0700	4
Totals	42	598	0.0702	0.1154	69

Male and Female Age-Based Withdrawals

Age	Withdrawals	Exposure	Crude Rates	Current Rates	Expected Withdrawals
25-29	-	-	N/A	0.0600	-
30-34	-	-	N/A	0.0450	-
35-39	1	17	0.0588	0.0400	1
40-44	2	53	0.0377	0.0350	2
45-49	1	86	0.0116	0.0320	3
50-54	2	133	0.0150	0.0300	4
Over 54	5	458	0.0109		5
Totals	11	747	0.0147	0.0201	15

**GENERAL
DISABILITY EXPERIENCE
DURING CALENDAR YEAR 2014**

Male Disability Experience

Age	Disabilities	Exposure	Crude Rates	Current Rates	Expected Disabilities
Under 20	-	-	N/A	0.0001	-
20-24	-	10	0.0000	0.0001	-
25-29	-	477	0.0000	0.0001	-
30-34	-	1,911	0.0000	0.0001	-
35-39	-	2,733	0.0000	0.0002	-
40-44	-	3,607	0.0000	0.0005	2
45-49	6	4,845	0.0012	0.0007	3
50-54	5	6,723	0.0007	0.0020	13
55-59	12	6,254	0.0019	0.0035	22
60-64	5	3,734	0.0013	0.0070	26
65-69	1	841	0.0012	0.0027	2
70-74	-	209	0.0000	0.0024	1
75 and over	-	-	N/A	0.0024	-
Totals	29	31,344	0.0009	0.0022	69

Female Disability Experience

Age	Disabilities	Exposure	Crude Rates	Current Rates	Expected Disabilities
Under 20	-	-	N/A	0.0001	-
20-24	-	34	0.0000	0.0001	-
25-29	-	979	0.0000	0.0001	-
30-34	-	3,120	0.0000	0.0003	1
35-39	-	4,544	0.0000	0.0004	2
40-44	-	5,732	0.0000	0.0006	3
45-49	1	8,347	0.0001	0.0008	6
50-54	11	12,402	0.0009	0.0013	16
55-59	16	12,169	0.0013	0.0025	31
60-64	9	7,327	0.0012	0.0032	23
65-69	1	1,653	0.0006	0.0025	4
70-74	-	347	0.0000	0.0021	1
75 and over	-	-	N/A	0.0021	-
Totals	38	56,654	0.0007	0.0015	87

The people shown on this page are cases involving \$40.63 disability benefits and includes those who were either active or inactive with pending benefits at the beginning of the year. The LTDI plan is described in a separate report.

**PUBLIC SCHOOLS
DISABILITY EXPERIENCE
DURING CALENDAR YEAR 2014**

Male Disability Experience

Age	Disabilities	Exposure	Crude Rates	Current Rates	Expected Disabilities
Under 20	-	-	N/A	0.0001	-
20-24	-	-	N/A	0.0001	-
25-29	-	259	0.0000	0.0001	-
30-34	-	1,788	0.0000	0.0001	-
35-39	-	2,714	0.0000	0.0001	-
40-44	-	3,032	0.0000	0.0002	1
45-49	-	3,062	0.0000	0.0005	1
50-54	2	2,685	0.0007	0.0018	5
55-59	3	1,789	0.0017	0.0023	4
60-64	-	687	0.0000	0.0041	3
65-69	-	148	0.0000	0.0058	1
70-74	-	25	0.0000	0.0060	-
75 and over	-	-	N/A	0.0060	-
Totals	5	16,189	0.0003	0.0009	15

Female Disability Experience

Age	Disabilities	Exposure	Crude Rates	Current Rates	Expected Disabilities
Under 20	-	-	N/A	0.0001	-
20-24	-	-	N/A	0.0001	-
25-29	-	980	0.0000	0.0001	-
30-34	-	5,671	0.0000	0.0001	1
35-39	-	6,843	0.0000	0.0001	1
40-44	-	7,432	0.0000	0.0003	2
45-49	-	7,912	0.0000	0.0010	8
50-54	5	7,272	0.0007	0.0014	10
55-59	8	5,209	0.0015	0.0021	11
60-64	1	2,344	0.0004	0.0029	7
65-69	-	356	0.0000	0.0016	1
70-74	-	53	0.0000	0.0014	-
75 and over	-	-	N/A	0.0014	-
Totals	14	44,072	0.0003	0.0009	41

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**UNIVERSITY
DISABILITY EXPERIENCE
DURING CALENDAR YEAR 2014**

Male Disability Experience

Age	Disabilities	Exposure	Crude Rates	Current Rates	Expected Disabilities
Under 20	-	-	N/A	0.0001	-
20-24	-	-	N/A	0.0001	-
25-29	-	43	0.0000	0.0001	-
30-34	-	237	0.0000	0.0001	-
35-39	-	623	0.0000	0.0001	-
40-44	-	974	0.0000	0.0001	-
45-49	-	1,096	0.0000	0.0003	-
50-54	-	1,120	0.0000	0.0005	1
55-59	1	1,159	0.0009	0.0015	2
60-64	-	829	0.0000	0.0014	1
65-69	-	235	0.0000	0.0017	-
70-74	-	42	0.0000	0.0015	-
75 and over	-	-	N/A	0.0015	-
Totals	1	6,358	0.0002	0.0006	4

Female Disability Experience

Age	Disabilities	Exposure	Crude Rates	Current Rates	Expected Disabilities
Under 20	-	-	N/A	0.0001	-
20-24	-	-	N/A	0.0001	-
25-29	-	89	0.0000	0.0001	-
30-34	-	523	0.0000	0.0001	-
35-39	-	891	0.0000	0.0004	-
40-44	-	1,071	0.0000	0.0005	-
45-49	-	1,159	0.0000	0.0004	-
50-54	-	1,227	0.0000	0.0009	1
55-59	1	1,099	0.0009	0.0012	1
60-64	-	780	0.0000	0.0018	1
65-69	-	180	0.0000	0.0012	-
70-74	-	31	0.0000	0.0010	-
75 and over	-	-	N/A	0.0010	-
Totals	1	7,050	0.0001	0.0004	3

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**PROTECTIVE WITH SOCIAL SECURITY
DISABILITY EXPERIENCE
DURING CALENDAR YEAR 2014**

Male and Female Disability Experience

Age	Disabilities	Exposure	Crude Rates	Current Rates	Expected Disabilities
Under 20	-	-	N/A	0.0001	-
20-24	-	8	0.0000	0.0001	-
25-29	-	782	0.0000	0.0001	-
30-34	-	2,196	0.0000	0.0001	-
35-39	-	2,717	0.0000	0.0003	1
40-44	-	3,250	0.0000	0.0004	1
45-49	2	3,108	0.0006	0.0006	2
50-54	4	1,935	0.0021	0.0009	2
55-59	1	585	0.0017	0.0196	11
60-64	-	254	0.0000	0.0210	5
65-69	-	42	0.0000	0.0014	-
70-74	-	-	N/A	0.0014	-
75 and over	-	-	N/A	0.0014	-
Totals	7	14,877	0.0005	0.0015	22

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**PROTECTIVE WITHOUT SOCIAL SECURITY
DISABILITY EXPERIENCE
DURING CALENDAR YEAR 2014**

Male and Female Disability Experience

Age	Disabilities	Exposure	Crude Rates	Current Rates	Expected Disabilities
Under 20	-	-	N/A	0.0004	-
20-24	-	4	0.0000	0.0004	-
25-29	-	100	0.0000	0.0004	-
30-34	-	278	0.0000	0.0004	-
35-39	-	387	0.0000	0.0005	-
40-44	-	487	0.0000	0.0008	-
45-49	-	476	0.0000	0.0016	1
50-54	2	336	0.0060	0.0112	4
55-59	-	32	0.0000	0.0016	-
60-64	-	9	0.0000	0.0016	-
65-69	-	-	N/A	0.0016	-
70-74	-	-	N/A	0.0016	-
75 and over	-	-	N/A	0.0016	-
Totals	2	2,109	0.0009	0.0024	5

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**EXECUTIVE AND ELECTED
DISABILITY EXPERIENCE
DURING CALENDAR YEAR 2014**

Male and Female Disability Experience

Age	Disabilities	Exposure	Crude Rates	Current Rates	Expected Disabilities
Under 20	-	-	N/A	0.0000	-
20-24	-	-	N/A	0.0000	-
25-29	-	2	0.0000	0.0000	-
30-34	-	7	0.0000	0.0000	-
35-39	-	33	0.0000	0.0001	-
40-44	-	86	0.0000	0.0001	-
45-49	-	112	0.0000	0.0002	-
50-54	-	170	0.0000	0.0003	-
55-59	-	160	0.0000	0.0012	-
60-64	-	128	0.0000	0.0011	-
65-69	-	63	0.0000	0.0009	-
70-74	-	30	0.0000	0.0009	-
75 and over	-	-	N/A	0.0009	-
Totals	-	791	N/A	N/A	-

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**GENERAL
PAY INCREASE ASSUMPTION
DURING CALENDAR YEAR 2014**

Service-Based Pay Increase Experience

Service Group		Total % Increase	
Beginning of Year	Number	Actual	Expected
1-5	36,694	10.70 %	7.45 %
6-10	24,635	4.32 %	5.90 %
11-15	20,672	3.38 %	5.25 %
16-20	14,766	3.06 %	5.00 %
21-25	10,615	2.90 %	4.75 %
26-30	6,816	2.69 %	4.50 %
31-35	3,628	2.39 %	4.30 %
36-40	1,545	2.50 %	4.20 %
Over 40	267	2.19 %	4.10 %
Total	119,638		

**PUBLIC SCHOOLS
PAY INCREASE ASSUMPTION
DURING CALENDAR YEAR 2014**

Service-Based Pay Increase Experience

Service Group		Total % Increase	
Beginning of Year	Number	Actual	Expected
1-5	15,475	12.57 %	9.75 %
6-10	14,301	4.27 %	8.00 %
11-15	14,676	2.71 %	6.70 %
16-20	12,436	2.10 %	5.25 %
21-25	8,716	1.68 %	4.55 %
26-30	4,940	1.53 %	4.25 %
31-35	1,850	1.72 %	4.20 %
36-40	415	1.28 %	4.10 %
Over 40	74	(0.11)%	4.05 %
Total	72,883		

**UNIVERSITY
PAY INCREASE ASSUMPTION
DURING CALENDAR YEAR 2014**

Service-Based Pay Increase Experience

Service Group		Total % Increase	
Beginning of Year	Number	Actual	Expected
1-5	5,241	15.81 %	7.15 %
6-10	4,002	5.03 %	6.75 %
11-15	3,351	4.47 %	6.10 %
16-20	2,270	4.02 %	5.50 %
21-25	1,581	3.48 %	4.90 %
26-30	1,089	3.63 %	4.75 %
31-35	579	3.58 %	4.50 %
36-40	224	2.80 %	4.35 %
Over 40	93	2.40 %	4.20 %
Total	18,430		

**PROTECTIVE WITH SOCIAL SECURITY
PAY INCREASE ASSUMPTION
DURING CALENDAR YEAR 2014**

Male and Female Service-Based Pay Increase Experience

Service Group		Total % Increase	
Beginning of Year	Number	Actual	Expected
1-5	3,166	14.17 %	8.75 %
6-10	3,495	3.72 %	5.50 %
11-15	3,837	2.61 %	4.90 %
16-20	3,472	2.50 %	4.80 %
21-25	2,350	2.76 %	4.70 %
26-30	1,091	2.60 %	4.60 %
31-35	280	2.65 %	4.50 %
36-40	83	2.00 %	4.40 %
Over 40	9	2.23 %	4.20 %
Total	17,783		

**PROTECTIVE WITHOUT SOCIAL SECURITY
PAY INCREASE ASSUMPTION
DURING CALENDAR YEAR 2014**

Male and Female Service-Based Pay Increase Experience

Service Group		Total % Increase	
Beginning of Year	Number	Actual	Expected
1-5	416	18.16 %	9.50 %
6-10	448	4.71 %	5.30 %
11-15	490	4.31 %	4.60 %
16-20	540	4.42 %	4.50 %
21-25	437	4.13 %	4.40 %
26-30	226	3.74 %	4.30 %
31-35	51	2.96 %	4.20 %
36-40	5	1.65 %	4.10 %
Over 40	-	N/A	4.05 %
Total	2,613		

**EXECUTIVE AND ELECTED
PAY INCREASE ASSUMPTION
DURING CALENDAR YEAR 2014**

Service-Based Pay Increase Experience

Service Group		Total % Increase	
Beginning of Year	Number	Actual	Expected
1-5	379	7.83 %	6.00 %
6-10	204	2.24 %	5.75 %
11-15	155	3.58 %	5.50 %
16-20	172	4.56 %	5.00 %
21-25	140	2.38 %	4.50 %
26-30	111	6.56 %	4.40 %
31-35	71	1.57 %	4.30 %
36-40	47	1.83 %	4.20 %
Over 40	12	1.25 %	4.10 %
Total	1,291		

**GENERAL MALES
NORMAL RETIREMENT EXPERIENCE
DURING CALENDAR YEAR 2014**

Male Age-Based Retirement Experience

Age	Retirements	Exposure	Crude Rates	Current Rates	Expected Retirements
57	58	297	0.1953	0.2000	59
58	51	293	0.1741	0.2000	59
59	32	265	0.1208	0.2000	53
60	57	292	0.1952	0.2000	58
61	38	245	0.1551	0.2000	49
62	56	253	0.2213	0.2700	68
63	52	179	0.2905	0.3200	57
64	35	134	0.2612	0.2400	32
65	134	561	0.2389	0.2400	135
66	120	452	0.2655	0.3000	136
67	67	336	0.1994	0.2400	81
68	26	226	0.1150	0.1700	38
69	28	149	0.1879	0.1700	25
70	19	131	0.1450	0.1700	22
71	12	108	0.1111	0.1700	18
72	5	87	0.0575	0.1700	15
73	6	81	0.0741	0.1700	14
74	6	52	0.1154	0.1700	9
Totals	802	4,141	0.1937	0.2241	928
75 & Over	26	259			259
Totals	828	4,400			1,187

**GENERAL MALES
EARLY RETIREMENT EXPERIENCE
DURING CALENDAR YEAR 2014**

Male Age-Based Early Retirement Experience

Age	Retirements	Exposure	Crude Rates	Current Rates	Expected Retirements
55	104	1,518	0.0685	0.0800	121
56	102	1,541	0.0662	0.0800	123
57	52	1,121	0.0464	0.0425	48
58	36	1,047	0.0344	0.0525	55
59	68	1,027	0.0662	0.0550	56
60	71	941	0.0755	0.0750	71
61	52	845	0.0615	0.0800	68
62	134	829	0.1616	0.1400	116
63	102	628	0.1624	0.1600	100
64	60	491	0.1222	0.1700	83
Totals	781	9,988	0.0782	0.0842	841

**GENERAL FEMALES
NORMAL RETIREMENT EXPERIENCE
DURING CALENDAR YEAR 2014**

Female Age-Based Retirement Experience

Age	Retirements	Exposure	Crude Rates	Current Rates	Expected Retirements
57	57	417	0.1367	0.1700	71
58	68	347	0.1960	0.1700	59
59	40	305	0.1311	0.1700	52
60	54	295	0.1831	0.2000	59
61	39	262	0.1489	0.2000	52
62	54	237	0.2278	0.2700	64
63	57	193	0.2953	0.2800	54
64	36	133	0.2707	0.2500	33
65	265	984	0.2693	0.2500	246
66	208	750	0.2773	0.2900	218
67	99	470	0.2106	0.2000	94
68	59	332	0.1777	0.1800	60
69	35	208	0.1683	0.1800	37
70	43	183	0.2350	0.1800	33
71	27	161	0.1677	0.1800	29
72	16	133	0.1203	0.1500	20
73	10	67	0.1493	0.1500	10
74	5	67	0.0746	0.1500	10
Totals	1,172	5,544	0.2114	0.2166	1,201
75 & Over	34	262			262
Totals	1,206	5,806			1,463

**GENERAL FEMALES
EARLY RETIREMENT EXPERIENCE
DURING CALENDAR YEAR 2014**

Female Age-Based Early Retirement Experience

Age	Retirements	Exposure	Crude Rates	Current Rates	Expected Retirements
55	123	2,886	0.0426	0.0610	176
56	107	2,738	0.0391	0.0640	175
57	99	2,342	0.0423	0.0420	98
58	94	2,130	0.0441	0.0550	117
59	127	2,073	0.0613	0.0530	110
60	133	1,929	0.0689	0.0810	156
61	160	1,721	0.0930	0.0700	120
62	252	1,507	0.1672	0.1500	226
63	155	1,206	0.1285	0.1500	181
64	139	964	0.1442	0.1500	145
Totals	1,389	19,496	0.0712	0.0771	1,504

**PUBLIC SCHOOL MALES
NORMAL RETIREMENT EXPERIENCE
DURING CALENDAR YEAR 2014**

Male Age-Based Retirement Experience

Age	Retirements	Exposure	Crude Rates	Current Rates	Expected Retirements
57	43	134	0.3209	0.4000	54
58	25	91	0.2747	0.3500	32
59	20	101	0.1980	0.2500	25
60	21	63	0.3333	0.2800	18
61	16	51	0.3137	0.2500	13
62	16	50	0.3200	0.3600	18
63	10	32	0.3125	0.3200	10
64	11	32	0.3438	0.2400	8
65	31	112	0.2768	0.2400	27
66	30	86	0.3488	0.2500	22
67	17	75	0.2267	0.2400	18
68	13	47	0.2766	0.2400	11
69	6	35	0.1714	0.2400	8
70	3	30	0.1000	0.2000	6
71	6	15	0.4000	0.2000	3
72	1	12	0.0833	0.2000	2
73	2	10	0.2000	0.2000	2
74	-	9	0.0000	0.2000	2
Totals	271	985	0.2751	0.2832	279
75 & Over	3	22			22
Totals	274	1,007			301

**PUBLIC SCHOOL MALES
EARLY RETIREMENT EXPERIENCE
DURING CALENDAR YEAR 2014**

Male Age-Based Early Retirement Experience

Age	Retirements	Exposure	Crude Rates	Current Rates	Expected Retirements
55	51	553	0.0922	0.1200	66
56	49	497	0.0986	0.1200	60
57	26	300	0.0867	0.1200	36
58	25	230	0.1087	0.1200	28
59	23	209	0.1100	0.1200	25
60	18	191	0.0942	0.1200	23
61	17	140	0.1214	0.1200	17
62	24	145	0.1655	0.2000	29
63	13	125	0.1040	0.2000	25
64	17	86	0.1977	0.2000	17
Totals	263	2,476	0.1062	0.1317	326

**PUBLIC SCHOOL FEMALES
NORMAL RETIREMENT EXPERIENCE
DURING CALENDAR YEAR 2014**

Female Age-Based Retirement Experience

Age	Retirements	Exposure	Crude Rates	Current Rates	Expected Retirements
57	83	283	0.2933	0.2700	76
58	53	206	0.2573	0.2700	56
59	35	192	0.1823	0.2700	52
60	55	180	0.3056	0.2700	49
61	32	110	0.2909	0.2700	30
62	25	103	0.2427	0.3400	35
63	20	59	0.3390	0.2700	16
64	18	59	0.3051	0.2300	14
65	82	280	0.2929	0.2800	78
66	52	169	0.3077	0.3000	51
67	35	132	0.2652	0.2800	37
68	21	75	0.2800	0.2600	20
69	10	47	0.2128	0.2000	9
70	8	35	0.2286	0.2000	7
71	3	24	0.1250	0.2000	5
72	2	20	0.1000	0.2000	4
73	3	16	0.1875	0.2000	3
74	1	14	0.0714	0.2000	3
Totals	538	2,004	0.2685	0.2720	545
75 & Over	3	46			46
Totals	541	2,050			591

**PUBLIC SCHOOL FEMALES
EARLY RETIREMENT EXPERIENCE
DURING CALENDAR YEAR 2014**

Female Age-Based Early Retirement Experience

Age	Retirements	Exposure	Crude Rates	Current Rates	Expected Retirements
55	119	1,564	0.0761	0.1100	172
56	109	1,293	0.0843	0.1100	142
57	78	880	0.0886	0.1100	97
58	71	819	0.0867	0.1100	90
59	71	653	0.1087	0.1100	72
60	85	630	0.1349	0.1500	95
61	95	545	0.1743	0.1500	82
62	117	514	0.2276	0.2000	103
63	88	375	0.2347	0.2000	75
64	70	280	0.2500	0.2000	56
Totals	903	7,553	0.1196	0.1303	984

**UNIVERSITY MALES
NORMAL RETIREMENT EXPERIENCE
DURING CALENDAR YEAR 2014**

Male Age-Based Retirement Experience

Age	Retirements	Exposure	Crude Rates	Current Rates	Expected Retirements
57	4	28	0.1429	0.1300	4
58	-	29	0.0000	0.1300	4
59	1	32	0.0313	0.1300	4
60	5	50	0.1000	0.1300	7
61	4	46	0.0870	0.1300	6
62	9	53	0.1698	0.1500	8
63	6	56	0.1071	0.1500	8
64	7	67	0.1045	0.1500	10
65	20	160	0.1250	0.1500	24
66	22	128	0.1719	0.2000	26
67	23	126	0.1825	0.1800	23
68	13	90	0.1444	0.1800	16
69	9	65	0.1385	0.1800	12
70	9	57	0.1579	0.2000	11
71	6	41	0.1463	0.2000	8
72	4	27	0.1481	0.1500	4
73	3	24	0.1250	0.1500	4
74	1	16	0.0625	0.1500	2
Totals	146	1,095	0.1333	0.1653	181
75 & Over	11	57			57
Totals	157	1,152			238

**UNIVERSITY MALES
EARLY RETIREMENT EXPERIENCE
DURING CALENDAR YEAR 2014**

Male Age-Based Early Retirement Experience

Age	Retirements	Exposure	Crude Rates	Current Rates	Expected Retirements
55	10	249	0.0402	0.0475	12
56	5	244	0.0205	0.0300	7
57	6	233	0.0258	0.0200	5
58	6	219	0.0274	0.0250	5
59	5	214	0.0234	0.0400	9
60	6	207	0.0290	0.0400	8
61	9	178	0.0506	0.0750	13
62	8	157	0.0510	0.0700	11
63	13	163	0.0798	0.0750	12
64	13	124	0.1048	0.0800	10
Totals	81	1,988	0.0407	0.0463	92

**UNIVERSITY FEMALES
NORMAL RETIREMENT EXPERIENCE
DURING CALENDAR YEAR 2014**

Female Age-Based Retirement Experience

Age	Retirements	Exposure	Crude Rates	Current Rates	Expected Retirements
57	3	18	0.1667	0.1400	3
58	2	29	0.0690	0.1400	4
59	1	29	0.0345	0.1300	4
60	7	37	0.1892	0.1300	5
61	6	34	0.1765	0.1900	6
62	5	45	0.1111	0.1900	9
63	9	45	0.2000	0.1900	9
64	1	26	0.0385	0.1800	5
65	13	117	0.1111	0.2200	26
66	17	90	0.1889	0.2300	21
67	10	68	0.1471	0.1700	12
68	6	36	0.1667	0.1700	6
69	5	43	0.1163	0.1700	7
70	4	21	0.1905	0.2000	4
71	6	19	0.3158	0.2000	4
72	3	12	0.2500	0.2000	2
73	2	12	0.1667	0.2000	2
74	1	8	0.1250	0.2000	2
Totals	101	689	0.1466	0.1901	131
75 & Over	3	18			18
Totals	104	707			149

**UNIVERSITY FEMALES
EARLY RETIREMENT EXPERIENCE
DURING CALENDAR YEAR 2014**

Female Age-Based Early Retirement Experience

Age	Retirements	Exposure	Crude Rates	Current Rates	Expected Retirements
55	14	282	0.0496	0.0550	16
56	9	212	0.0425	0.0550	12
57	11	222	0.0495	0.0400	9
58	10	203	0.0493	0.0400	8
59	10	180	0.0556	0.0650	12
60	21	221	0.0950	0.0650	14
61	11	173	0.0636	0.0750	13
62	22	139	0.1583	0.1000	14
63	24	145	0.1655	0.1000	15
64	11	102	0.1078	0.1300	13
Totals	143	1,879	0.0761	0.0671	126

**PROTECTIVE WITH SOCIAL SECURITY
NORMAL RETIREMENT EXPERIENCE
DURING CALENDAR YEAR 2014**

Male and Female Age-Based Retirement Experience

Age	Retirements	Exposure	Crude Rates	Current Rates	Expected Retirements
50	14	340	0.0412	0.0600	20
51	22	338	0.0651	0.0700	24
52	39	337	0.1157	0.0800	27
53	55	292	0.1884	0.2300	67
54	60	372	0.1613	0.1800	67
55	47	296	0.1588	0.1700	50
56	38	254	0.1496	0.1600	41
57	41	204	0.2010	0.1600	33
58	23	196	0.1173	0.1600	31
59	21	155	0.1355	0.1600	25
60	24	132	0.1818	0.1800	24
61	21	106	0.1981	0.1800	19
62	17	87	0.1954	0.2200	19
63	18	69	0.2609	0.2900	20
64	9	52	0.1731	0.1600	8
65	8	30	0.2667	0.3000	9
66	5	23	0.2174	0.2000	5
67	3	9	0.3333	0.1500	1
68	-	7	0.0000	0.2500	2
69	1	2	0.5000	0.2000	-
70	1	4	0.2500	1.0000	4
71	-	1	0.0000	1.0000	1
72	-	1	0.0000	1.0000	1
73	-	1	0.0000	1.0000	1
74	2	3	0.6667	1.0000	3
Totals	469	3,311	0.1416	0.1516	502
75 & Over	-	3			3
Totals	469	3,314			505

**PROTECTIVE WITHOUT SOCIAL SECURITY
NORMAL RETIREMENT EXPERIENCE
DURING CALENDAR YEAR 2014**

Male and Female Age-Based Retirement Experience

Age	Retirements	Exposure	Crude Rates	Current Rates	Expected Retirements
50	1	80	0.0125	0.0350	3
51	3	72	0.0417	0.0375	3
52	4	71	0.0563	0.0450	3
53	13	72	0.1806	0.1700	12
54	15	74	0.2027	0.2500	19
55	6	51	0.1176	0.2100	11
56	9	30	0.3000	0.2700	8
57	10	38	0.2632	0.3000	11
58	2	19	0.1053	0.3000	6
59	8	21	0.3810	0.3000	6
60	2	18	0.1111	0.2600	5
61	-	9	0.0000	0.1500	1
62	1	5	0.2000	0.2000	1
63	1	3	0.3333	0.4000	1
64	1	1	1.0000	0.4000	-
65	-	-	N/A	0.4000	-
66	-	-	N/A	0.4000	-
67	-	-	N/A	0.4000	-
68	-	-	N/A	0.4000	-
69	-	-	N/A	0.4000	-
70	-	-	N/A	1.0000	-
71	-	-	N/A	1.0000	-
72	-	-	N/A	1.0000	-
73	-	-	N/A	1.0000	-
74	-	-	N/A	1.0000	-
Totals	76	564	0.1348	0.1596	90
75 & Over	-	-	N/A		-
Totals	76	564			90

**EXECUTIVE AND ELECTED
NORMAL RETIREMENT EXPERIENCE
DURING CALENDAR YEAR 2014**

Male and Female Age-Based Retirement Experience

Age	Retirements	Exposure	Crude Rates	Current Rates	Expected Retirements
57	1	18	0.0556	0.1500	3
58	1	8	0.1250	0.1500	1
59	-	10	0.0000	0.1500	2
60	-	17	0.0000	0.1000	2
61	2	8	0.2500	0.1300	1
62	-	38	0.0000	0.1300	5
63	2	50	0.0400	0.1200	6
64	1	40	0.0250	0.1200	5
65	1	27	0.0370	0.1200	3
66	5	27	0.1852	0.2000	5
67	3	27	0.1111	0.1700	5
68	1	18	0.0556	0.1500	3
69	-	11	0.0000	0.1500	2
70	3	10	0.3000	0.1300	1
71	1	14	0.0714	0.1300	2
72	-	8	0.0000	0.2500	2
73	1	10	0.1000	0.1000	1
74	2	6	0.3333	0.1000	1
Totals	24	347	0.0692	0.1441	50
75 & Over	1	21			21
Totals	25	368			71

**EXECUTIVE AND ELECTED
EARLY RETIREMENT EXPERIENCE
DURING CALENDAR YEAR 2014**

Male and Female Age-Based Early Retirement Experience

Age	Retirements	Exposure	Crude Rates	Current Rates	Expected Retirements
55	-	31	0.0000	0.0450	1
56	1	49	0.0204	0.0450	2
57	-	27	0.0000	0.0450	1
58	-	32	0.0000	0.0450	1
59	-	21	0.0000	0.0450	1
60	1	39	0.0256	0.0450	2
61	-	27	0.0000	0.0450	1
62	-	16	0.0000	0.0450	1
63	-	8	0.0000	0.0450	-
64	-	4	0.0000	0.0450	-
Over 64	-	76	0.0000		
Totals	2	330			10

**DEATH-IN-SERVICE
DURING CALENDAR YEAR 2014**

Male

Age	Deaths	Exposure	Crude Rates	Current Rates	Expected Deaths
Under 20	-	8	0.0000	0.0001	-
20-24	-	1,396	0.0000	0.0002	-
25-29	-	7,032	0.0000	0.0002	1
30-34	2	10,078	0.0002	0.0003	3
35-39	5	11,284	0.0004	0.0005	5
40-44	8	12,876	0.0006	0.0006	8
45-49	8	13,859	0.0006	0.0008	11
50-54	17	14,693	0.0012	0.0014	20
55-59	14	13,067	0.0011	0.0027	35
60-64	15	8,476	0.0018	0.0035	30
65-69	5	2,827	0.0018	0.0060	17
70-74	4	746	0.0054	0.0097	7
75 and over	1	1	1.0000	0.0170	-
Totals	79	96,343	0.0008	0.0014	137

Female

Age	Deaths	Exposure	Crude Rates	Current Rates	Expected Deaths
Under 20	-	24	0.0000	0.0001	-
20-24	-	2,418	0.0000	0.0001	-
25-29	1	12,592	0.0001	0.0001	1
30-34	-	16,151	0.0000	0.0002	3
35-39	3	17,598	0.0002	0.0003	5
40-44	5	19,554	0.0003	0.0004	8
45-49	9	22,592	0.0004	0.0006	14
50-54	20	25,424	0.0008	0.0009	24
55-59	19	23,341	0.0008	0.0016	37
60-64	18	13,973	0.0013	0.0023	32
65-69	12	3,853	0.0031	0.0036	14
70-74	2	804	0.0025	0.0064	5
75 and over	2	-	N/A	0.0116	-
Totals	91	158,324	0.0006	0.0009	143