



**Cavanaugh Macdonald**  
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**PERS**  
*of MISSISSIPPI*

**Report on the Annual Valuation of the  
Public Employees' Retirement System of  
Mississippi**

**Prepared as of June 30, 2014**





# Cavanaugh Macdonald

CONSULTING, LLC

*The experience and dedication you deserve*

October 21, 2014

Board of Trustees  
Public Employees' Retirement System of Mississippi  
429 Mississippi Street  
Jackson, MS 39201-1005

Ladies and Gentlemen:

Presented in this report are the results of the annual actuarial valuation of the Public Employees' Retirement System of Mississippi. The purpose of the valuation was to measure the System's funding progress and to determine the unfunded accrued liability amortization period beginning July 1, 2014. The results may not be applicable for other purposes.

The date of the valuation was June 30, 2014.

The valuation was based upon data, furnished by the Executive Director and the PERS staff, concerning active, inactive and retired members along with pertinent financial information. While not verifying data at the source, the actuary performed tests for consistency and reasonableness. The complete cooperation of the PERS staff in furnishing materials requested is hereby acknowledged with appreciation.

Your attention is directed particularly to the presentation of contribution rates on page 1 and the comments on page 8.

To the best of our knowledge, this report is complete and accurate. The valuation was performed by, and under the supervision of, independent actuaries who are members of the American Academy of Actuaries with experience in performing valuations for public retirement systems. The undersigned meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion contained herein.

The valuation was prepared in accordance with the principles of practice prescribed by the Actuarial Standards Board. We have reviewed the actuarial methods, including the asset valuation method, and continue to believe they are appropriate for the purpose of determining employer contribution levels.

Future actuarial results may differ significantly from the current results presented in this report due to such factors as the following: plan experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the plan's funded status); and changes in plan provisions or applicable law. Since the potential impact of such factors is outside the scope of a normal annual actuarial valuation, an analysis of the range of results is not presented herein.

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Board of Trustees  
October 21, 2014  
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The actuarial calculations were performed by qualified actuaries according to generally accepted actuarial procedures and methods. The calculations are based on the current provisions of the system, and on actuarial assumptions that are, in the aggregate, internally consistent and reasonably based on the actual experience of the system.

Respectfully submitted,

A handwritten signature in blue ink, appearing to read 'Thomas J. Cavanaugh'.

Thomas J. Cavanaugh, FSA, FCA, EA, MAAA  
Chief Executive Officer

A handwritten signature in blue ink, appearing to read 'Edward A. Macdonald'.

Edward A. Macdonald, ASA, FCA, MAAA  
President

A handwritten signature in blue ink, appearing to read 'Edward J. Koebel'.

Edward J. Koebel, FCA, EA, MAAA  
Principal and Consulting Actuary

A handwritten signature in blue ink, appearing to read 'Jonathan T. Craven'.

Jonathan T. Craven, ASA, EA, FCA, MAAA  
Senior Actuary

TJC/EAM/EJK/JTC:mjn



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**REPORT ON THE ANNUAL VALUATION OF THE  
PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF MISSISSIPPI  
PREPARED AS OF JUNE 30, 2014**

**SECTION I – SUMMARY OF PRINCIPAL RESULTS**

1. This report, prepared as of June 30, 2014, presents the results of the annual actuarial valuation of the System. For convenience of reference, the principal results of the valuation and a comparison with the preceding year's results are summarized below. The current valuation and reported benefit amounts reflect any benefit increases granted to retirees as of July 1, 2014. Based on the funding policy adopted by the Board in 2012, the employer contribution rate is to be set at 15.75% of annual compensation and the amortization period calculated on an open basis.

**SUMMARY OF PRINCIPAL RESULTS**

VALUATION DATE	June 30, 2014	June 30, 2013
Active members included in valuation		
Number	161,360	161,744
Annual compensation	\$ 5,834,686,655	\$ 5,823,577,978
Retirees		
Number	93,504	90,214
Annual allowances	\$ 1,998,322,954	\$ 1,874,720,385
Assets		
Market related actuarial value	\$ 22,569,940,000	\$ 20,490,555,000
Market value	\$ 24,877,119,000	\$ 21,686,911,000
Unfunded accrued liability	\$ 14,445,347,760	\$ 15,052,293,126
Funded Ratio	61.0%	57.7%
<b>Fiscal Year End</b>	<b>June 30, 2016</b>	<b>June 30, 2015</b>
Employer contribution rate		
Normal Cost*	1.92%	2.07%
Accrued liability	<u>13.83</u>	<u>13.68</u>
Total	15.75%	15.75%
Anticipated accrued liability payment period	29.2 years	32.2 years
Unfunded accrued liability based on market value of assets	\$ 12,138,168,760	\$ 13,855,937,126
Funded Ratio	67.2%	61.0%
Payment Period	22.5 years	26.1 years

\* Includes load for administrative expenses. See page 10 for more contribution rate detail.



2. The valuation balance sheet showing the results of the valuation is given in Section III.
3. Comments on the valuation results are given in Section IV, comments on the experience and actuarial gains and losses during the valuation year are given in Section V and the rates of contribution payable by employers are given in Section VI.
4. There were no changes in actuarial assumptions or methods since the last valuation.
5. There were no changes in the plan provisions since the last valuation.
6. Schedule A of this report presents the development of the actuarial value of assets. Schedule B details the actuarial assumptions and methods employed. Schedule C gives a summary of the benefit and contribution provisions of the plan.
7. The table on the following page provides a ten-year history of some pertinent figures.
8. The Governmental Accounting Standards Board issued Statement No. 67 (GASB 67) in June 2012. The effective date is for plan years beginning after June 15, 2013, which is the year ending June 30, 2014 for the Retirement System. GASB 67 replaces GASB 25 for plans and a separate GASB 67 report will be prepared for the Board. However, GASB 27 is still in effect for employers and should any of your employers need this information, we have provided some supplemental disclosure information and tables in Section VIII.



**Public Employees' Retirement System of Mississippi  
Comparative Schedule**

Valuation Date June 30	Active Members			Retired Lives			Valuation Results (\$ millions)				
	Number	Payroll (\$ millions)	Average Salary	% increase from previous year	Number	Active/ Retired Ratio	Annual Benefits (\$ millions)	Benefits as % of Payroll	Accrued Liability	Valuation Assets	UAAL
2005	157,101	4,786	30,466	3.2	63,939	2.5	1,022.0	21.4	23,727	17,181	6,546
2006	158,091	4,972	31,450	3.2	66,757	2.4	1,117.2	22.5	24,928	18,321	6,607
2007	162,804	5,196	31,917	1.5	70,756	2.3	1,214.4	23.4	26,863	19,792	7,071
2008	165,733	5,545	33,456	4.8	73,540	2.3	1,305.9	23.6	28,535	20,815	7,720
2009	167,122	5,832	34,896	4.3	76,143	2.2	1,395.9	23.9	30,595	20,598	9,997
2010	164,896	5,764	34,953	0.2	79,168	2.1	1,498.7	26.0	31,400	20,143	11,257
2011	161,676	5,685	35,161	0.6	83,115	1.9	1,627.8	28.6	32,654	20,315	12,339
2012	162,311	5,858	36,090	2.6	86,829	1.9	1,752.6	29.9	34,493	19,993	14,500
2013	161,744	5,824	36,005	(0.2)	90,214	1.8	1,874.7	32.2	35,543	20,491	15,052
2014	161,360	5,835	36,159	0.4	93,504	1.7	1,998.3	34.2	37,015	22,570	14,445



**SECTION II – MEMBERSHIP DATA**

Data regarding the membership of the System for use as a basis for the valuation were furnished by the System's office. The following tables summarize the membership of the system as of June 30, 2014 upon which the valuation was based. Detailed tabulations of the data are given in Schedule D.

**Active Members**

Employers	Number of Employers	Number	Payroll	Group Averages		
				Salary	Age	Service
State Agencies	112	32,288	\$1,100,393,122	\$34,081	44.2	10.5
State Universities	9	18,309	917,826,885	50,130	43.4	9.7
Public Schools	149	64,064	2,173,388,716	33,925	44.1	10.5
Community/Junior Colleges	15	6,222	290,065,961	46,619	47.1	11.9
Counties	82	13,894	449,055,561	32,320	47.1	9.6
Municipalities	241	17,066	559,174,715	32,765	44.1	10.0
Other Political Subdivisions	263	9,517	344,781,695	36,228	43.8	8.3
<b>Total in PERS</b>	<b>871</b>	<b>161,360</b>	<b>\$5,834,686,655</b>	<b>\$36,159</b>	<b>44.4</b>	<b>10.2</b>

The total number of active members includes 89,256 vested members (31,148 State employees and 58,108 employees of other entities), and 72,104 non-vested members (25,671 State and 46,433 others).

**Retired Lives**

Type of Benefit Payment	No.	Annual Benefits	Group Averages	
			Benefit	Age
Retirement	76,665	\$1,730,708,021	\$22,575	70.2
Disability	6,229	108,224,292	17,374	61.5
Survivor	10,610	159,390,641	15,023	66.1
<b>Total in PERS</b>	<b>93,504</b>	<b>\$1,998,322,954</b>	<b>\$21,372</b>	<b>69.1</b>

The total retired lives include 33,281 from State employment and 60,223 from other employment.





### Deferred Vested/Inactive Lives

Type of Member	No.	Deferred Benefits	Outstanding Refunds
Deferred Vested - Benefit Provided	16,034	\$ 83,654,772	N/A
Deferred Vested – Missing Benefit	2,030	N/A	\$ 98,791,371
Inactive	114,489	N/A	149,035,989
<b>Total in PERS</b>	<b>132,553</b>	<b>\$ 83,654,772</b>	<b>\$ 247,827,360</b>

The total deferred vested and inactive lives include 43,365 from State employment and 89,188 from other employment.

### SECTION III – VALUATION BALANCE SHEET

The following valuation balance sheet shows the assets and liabilities of the retirement system as of the current valuation date of June 30, 2014 and, for comparison purposes, as of the immediately preceding valuation date of June 30, 2013. The items shown in the balance sheet are present values actuarially determined as of the relevant valuation date. The development of the actuarial value of assets is presented in Schedule A.



**VALUATION BALANCE SHEET  
SHOWING THE ASSETS AND LIABILITIES OF THE  
PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF MISSISSIPPI**

	JUNE 30, 2014	June 30, 2013
<b>ASSETS</b>		
Current actuarial value of assets:		
Annuity Savings Account	\$ 5,277,944,192	\$ 5,053,887,699
Annuity Reserve	4,503,913,118	4,166,242,970
Employers' Accumulation Account	<u>12,788,082,690</u>	<u>11,270,424,331</u>
Total current assets	\$ 22,569,940,000	\$ 20,490,555,000
 Future member contributions to Annuity Savings Account	 \$ 3,974,506,069	 \$ 3,974,114,020
 Prospective contributions to Employer's Accumulation Account		
Normal contributions	\$ 746,323,917	\$ 812,485,533
Unfunded accrued liability contributions	<u>14,445,347,760</u>	<u>15,052,293,126</u>
Total prospective contributions	\$ 15,191,671,677	\$ 15,864,778,659
Total assets	<u>\$ 41,736,117,746</u>	<u>\$ 40,329,447,679</u>
<b>LIABILITIES</b>		
Present value of benefits payable on account of present retired members and beneficiaries	\$ 22,033,588,306	\$ 20,789,550,808
 Present value of benefits payable on account of active members	 18,465,110,813	 18,487,380,031
 Present value of benefits payable on account of inactive members for service rendered before the valuation date	 <u>1,237,418,627</u>	 <u>1,052,516,840</u>
Total liabilities	\$ 41,736,117,746	\$ 40,329,447,679



**BREAKDOWN OF TOTAL AND ACCRUED LIABILITIES  
AS OF JUNE 30, 2014**

	Total Liability	Accrued Liability
Active Members		
Retirement	\$ 15,604,663,326	\$ 12,799,561,834
Death	143,849,780	88,237,146
Disability	457,224,042	251,542,167
Termination	2,259,373,665	604,939,680
Total	\$ 18,465,110,813	\$ 13,744,280,827
Retirees		
Retirement	\$ 19,503,260,603	\$ 19,503,260,603
Survivor	1,442,978,821	1,442,978,821
Disability	1,087,348,882	1,087,348,882
Total	\$ 22,033,588,306	\$ 22,033,588,306
Deferred Vested Members	939,346,647	939,346,647
Inactive Members	298,071,980	298,071,980
Total Actuarial Values	\$ 41,736,117,746	\$ 37,015,287,760
Actuarial Value of Assets		22,569,940,000
Unfunded Actuarial Accrued Liability		\$ 14,445,347,760



#### **SECTION IV – COMMENTS ON VALUATION**

The valuation balance sheet gives the following information with respect to the funds of the System as of June 30, 2014.

##### Total Assets

The Annuity Savings Account is the fund to which are credited contributions made by members together with interest thereon. When a member retires, the amount of his or her accumulated contributions is transferred from the Annuity Savings Account to the Annuity Reserve. The Employer's Accumulation Account is the fund to which are credited employer contributions and investment income, and from which are paid all employer-provided benefits under the plan. The assets credited to the Annuity Savings Account as of the valuation date, which represent the accumulated contributions of members to that date, amounted to \$5,277,944,192. The assets credited to the Annuity Reserve were \$4,503,913,118 and the assets credited to the Employer's Accumulation Account totaled \$12,788,082,690. Current actuarial assets as of the valuation date equaled the sum of these three funds, \$22,569,940,000. Future member contributions to the Annuity Savings Account were valued to be \$3,974,506,069. Prospective contributions to the Employer's Accumulation Account were calculated to be \$15,191,671,677 of which \$746,323,917 is attributable to service rendered after the valuation date (normal contributions) and \$14,445,347,760 is attributable to service rendered before the valuation date (unfunded accrued liability contributions).

Therefore, the balance sheet shows the present value of current and future assets of the System to be \$41,736,117,746 as of June 30, 2014.

##### Total Liabilities

The present value of benefits payable on account of presently retired members and beneficiaries totaled \$22,033,588,306 as of the valuation date. The present value of future benefit payments on behalf of active members amounted to \$18,465,110,813. In addition, the present value of benefits for inactive members, due to service rendered before the valuation date, was calculated to be \$1,237,418,627.

Therefore, the balance sheet shows the present value for all prospective benefit payments under the System to be \$41,736,117,746 as of June 30, 2014.

Section 25-11-123(a)(1) of State law requires that active members contribute 9.00% of annual compensation to the System.

Section 25-11-123(c) requires that the State contribute a certain percentage of the annual compensation of members to cover the normal contributions and a certain percentage to cover the accrued liability contributions of the System. These individual contribution percentages are established in accordance with an actuarial valuation. Based on the funding policy adopted by the Board in October, 2012, the employer rate is set at 15.75% of annual compensation and the amortization period calculated on an open basis. Therefore, the amortization period for the June 30, 2014 valuation is 29.2 years, compared to 32.2 years for the last valuation.

The primary reason for the decrease in the amortization period is the recognition of investment gains in four out of the last five fiscal years in the actuarial value of assets. This was offset by payroll growth less than expected, causing upward pressure on the amortization period attributed to the unfunded accrued liability.



**SECTION V – DERIVATION OF EXPERIENCE GAINS AND LOSSES**

Actual experience will never (except by coincidence) coincide exactly with assumed experience. It is assumed that gains and losses will be in balance over a period of years, but sizable year to year fluctuations are common.

Detail on the derivation of the experience gain/(loss) for the year ended June 30, 2014 is shown below.

		<u>\$ millions</u>
(1)	UAAL* as of June 30, 2013	\$ 15,052.3
(2)	Total Normal cost from last valuation	631.3
(3)	Total Employee and Employer Contributions	1,519.2
(4)	Interest accrual: $[(1) + (2)] \times .08 - [(3) \times .04]$	<u>1,193.9</u>
(5)	Expected UAAL before changes: (1) + (2) – (3) + (4)	15,358.3
(6)	Change due to plan amendments	0.0
(7)	Change due to new actuarial assumptions or methods	<u>0.0</u>
(8)	Expected UAAL after changes: (5) + (6) + (7)	\$ 15,358.3
(9)	Actual UAAL as of June 30, 2014	\$ 14,445.3
(10)	Gain/(loss): (8) – (9)	\$ 913.0
(11)	Gain/(loss) as percent of actuarial accrued liabilities at start of year (\$35,542.8)	2.6%

\*Unfunded actuarial accrued liability.

Valuation Date June 30	Actuarial Gain/(Loss) as a % of Beginning Accrued Liabilities
2009	(6.4)%
2010	(3.1)
2011	(3.4)
2012	(5.7)
2013	(1.2)
2014	2.6



### SECTION VI – REQUIRED CONTRIBUTION RATES

The valuation balance sheet gives the basis for determining the percentage rates for contributions to be made by employers to the Retirement System. The following table shows the rates of contribution payable by employers as determined from the present valuation for the 2015/2016 fiscal year and a comparison to the previous valuation results.

Contribution for	2015/2016 Fiscal Year	2014/2015 Fiscal Year
Normal Cost:		
Service retirement benefits	9.34%	9.51%
Disability benefits	0.43	0.43
Survivor benefits	<u>0.12</u>	<u>0.12</u>
Total	9.89%	10.06%
Member Contributions:	9.00%	9.00%
Less future refunds	<u>(0.80)</u>	<u>(0.78)</u>
Available for benefits	8.20%	8.22%
Employer Normal Cost	1.69%	1.84%
Administrative Expense Load	0.23%	0.23%
Unfunded Actuarial Accrued Liabilities (29.2 year level % of payroll amortization*)	13.83%	13.68%
Total Computed Employer Contribution Rate	15.75%	15.75%

\*Amortization period a year ago was 32.2 years.



The components of the change in the computed unfunded accrued liability amortization period from 32.2 years to 29.2 years are as follows:

Previously Reported Period	32.2 years
Change due to:	
Normal amortization	(1.0)
Actuarial experience	(3.1)
Assumption changes	0.0
Plan amendments	0.0
Method Change	0.0
Payroll Growth experience	1.1
Computed Period	29.2 years



## **SECTION VII – CASH FLOW PROJECTION**

Regular actuarial valuations measure the Retirement System's present financial position and contributions adequacy by calculating and financing the liabilities created by the present benefit program. This process involves discounting to present values the future benefit payments on behalf of present active and retired members and their survivors. However, valuations do not produce information regarding future changes in the makeup of the covered group or the amounts of benefits to be paid or investment income to be received – actuarial projections do.

Whereas valuations provide a snapshot of the retirement system as of a given date, projections provide a moving picture. Projected active and retired groups are developed from year to year by the application of assumptions regarding pre-retirement withdrawal from service, retirements, deaths, disabilities, and the addition of new members. Projected information regarding the retired life group leads to assumed future benefit payout. Combining future benefit payments with assumed contributions and expected investment earnings produces the net cash flow of the System each year, and thus end of year asset levels.

Projections are used for many purposes. Among them are (i) developing cash flow patterns for investment policy and asset mix consideration, (ii) exploring the effect of alternative assumptions about future experience, (iii) analyzing the impact on system funding progress of changes in the workforce, and (iv) examining the potential effect of changes in benefits on system financial activity.

Projection results are useful in demonstrating changing relationships among key elements affecting system financial activity. For example: how benefits payable and system assets will grow in future decades. Projections are not predictions of specific future events and do not provide numeric precision in absolute terms. For instance, cash flow projected to occur 10 years in the future will not be exact (except by coincidence), but understanding the changed relationship between future benefit payout and future investment income can be very useful.

The following projections assume an 8.00% investment return and salary increases of 4.25% each year in the future. Due to the funding policy all future contribution rates are assumed to remain at 15.75% of payroll.





## Public Employees' Retirement System of Mississippi Twenty-five Year Cash Flow Projection

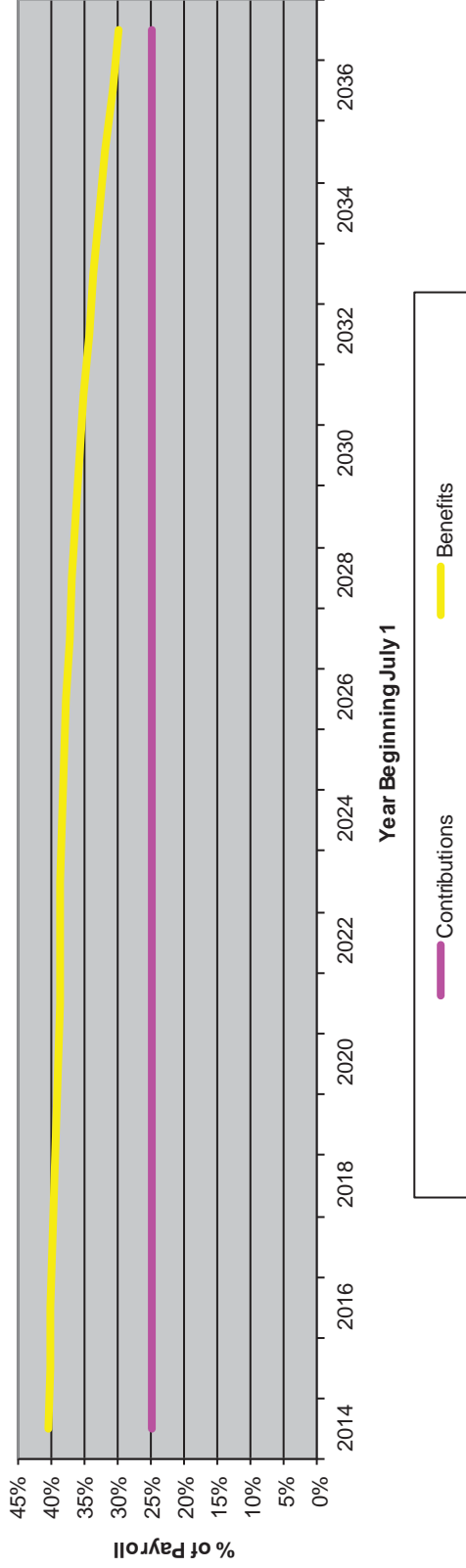
Year Beginning July 1	Valuation Payroll	Market Value of Assets Balance July 1	Contributions	Projected Benefit Payments*	Expected Investment Return	Cash Flow	Market Value of Assets Balance June 30	Year Ending June 30
2014	5,834,686,655	24,877,119,000	1,444,084,947	2,345,514,510	1,954,806,001	1,053,376,439	25,930,495,439	2015
2015	6,082,660,838	25,930,495,439	1,505,458,557	2,441,919,092	2,037,701,835	1,101,241,300	27,031,736,738	2016
2016	6,341,173,924	27,031,736,738	1,569,440,546	2,544,720,778	2,124,278,223	1,148,997,991	28,180,734,729	2017
2017	6,610,673,816	28,180,734,729	1,636,141,769	2,635,819,537	2,215,240,935	1,215,563,167	29,396,297,896	2018
2018	6,891,627,453	29,396,297,896	1,705,677,795	2,728,494,914	2,311,578,221	1,288,761,102	30,685,058,998	2019
2019	7,184,521,620	30,685,058,998	1,778,169,101	2,811,860,501	2,414,252,505	1,380,561,105	32,065,620,103	2020
2020	7,489,863,789	32,065,620,103	1,853,741,288	2,912,773,421	2,523,703,265	1,464,671,132	33,530,291,235	2021
2021	7,808,183,000	33,530,291,235	1,932,525,293	3,014,661,598	2,639,970,567	1,557,834,262	35,088,125,497	2022
2022	8,140,030,778	35,088,125,497	2,014,657,618	3,139,471,534	2,762,923,045	1,638,109,129	36,726,234,626	2023
2023	8,485,982,086	36,726,234,626	2,100,280,566	3,263,114,720	2,892,480,223	1,729,646,069	38,455,880,695	2024
2024	8,846,636,325	38,455,880,695	2,189,542,490	3,385,316,183	3,029,559,674	1,833,785,981	40,289,666,676	2025
2025	9,222,618,369	40,289,666,676	2,282,598,046	3,504,243,104	3,175,247,607	1,953,602,549	42,243,269,224	2026
2026	9,614,579,650	42,243,269,224	2,379,608,463	3,620,057,608	3,330,798,117	2,090,348,972	44,333,618,196	2027
2027	10,023,199,285	44,333,618,196	2,480,741,823	3,732,230,439	3,497,592,951	2,246,104,335	46,579,722,531	2028
2028	10,449,185,255	46,579,722,531	2,586,173,351	3,840,131,664	3,677,184,410	2,423,226,097	49,002,948,629	2029
2029	10,893,275,628	49,002,948,629	2,696,085,718	3,944,887,219	3,871,244,802	2,622,443,301	51,625,391,930	2030
2030	11,356,239,842	51,625,391,930	2,810,669,361	4,044,800,764	4,081,615,781	2,847,484,378	54,472,876,308	2031
2031	11,838,880,035	54,472,876,308	2,930,122,809	4,138,385,909	4,310,429,358	3,102,166,258	57,575,042,566	2032
2032	12,342,032,436	57,575,042,566	3,054,653,028	4,225,432,051	4,560,073,177	3,389,294,154	60,964,336,720	2033
2033	12,866,568,815	60,964,336,720	3,184,475,782	4,305,496,914	4,833,168,735	3,712,147,603	64,676,484,324	2034
2034	13,413,397,990	64,676,484,324	3,319,816,003	4,377,309,447	5,132,632,766	4,075,139,322	68,751,623,645	2035
2035	13,983,467,405	68,751,623,645	3,460,908,183	4,439,622,517	5,461,734,454	4,483,020,120	73,234,643,765	2036
2036	14,577,764,770	73,234,643,765	3,607,996,781	4,491,540,739	5,824,109,644	4,940,565,686	78,175,209,451	2037
2037	15,197,319,773	78,175,209,451	3,761,336,644	4,530,042,506	6,223,860,053	5,455,154,191	83,630,363,642	2038
2038	15,843,205,863	83,630,363,642	3,921,193,451	4,551,631,522	6,665,696,700	6,035,258,629	89,665,622,271	2039

\* Includes expected administrative expenses.

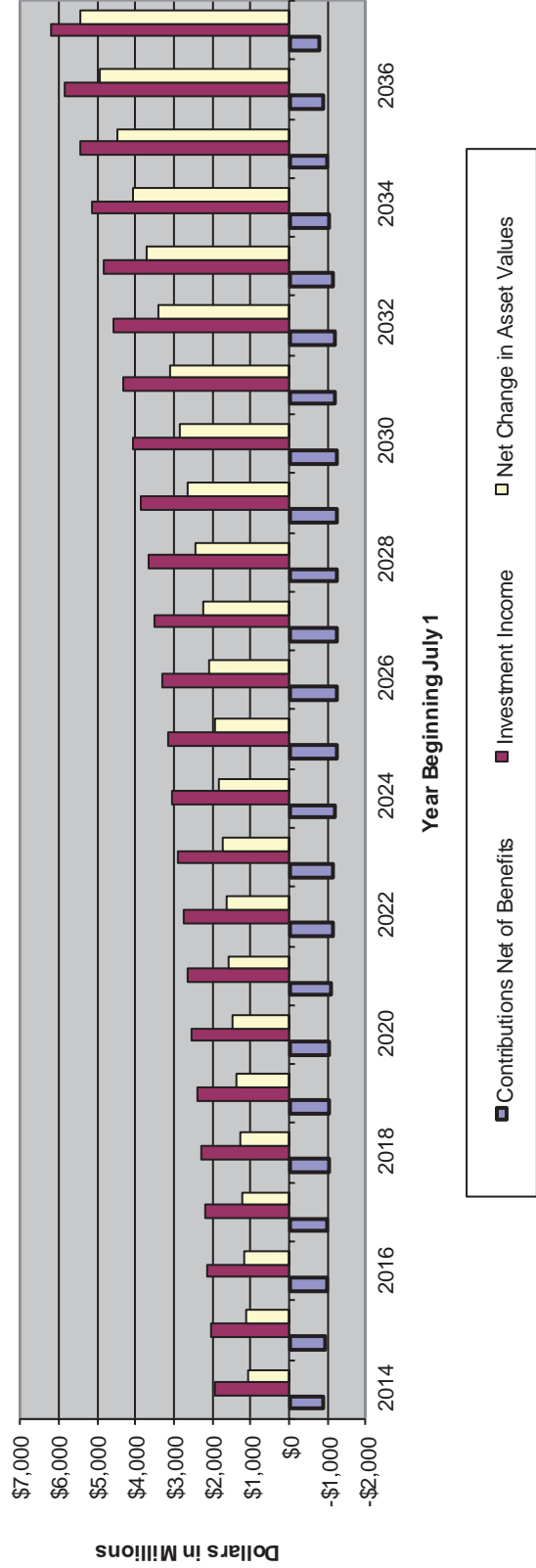


# Public Employees' Retirement System of Mississippi 25 Year Cash Flow Projection Based on Valuation Assumptions

Projected Contributions and Benefits Expressed  
as Percents of Active Member Payroll



## Net Change in Asset Values





**SECTION VIII – SUPPLEMENTAL DISCLOSURE INFORMATION**

1. Statement No. 25 and 27 of the Governmental Accounting Standards Board (GASB) set forth certain items of information to be disclosed in the financial statements of the System and the employer. One such item is a distribution of the number of employees by type of membership, as follows:

**NUMBER OF ACTIVE AND RETIRED PARTICIPANTS  
AS OF JUNE 30, 2014**

GROUP	NUMBER
Retired participants and beneficiaries currently receiving benefits	93,504
Terminated participants and beneficiaries entitled to benefits but not yet receiving benefits	132,553
Active Participants	<u>161,360</u>
Total	387,417



2. Another such item is the schedule of funding progress as shown below.

**SCHEDULE OF FUNDING PROGRESS**  
**(\$ Thousands)**

Plan Year Ended	(1) Actuarial Value of Assets	(2) Actuarial Accrued Liability (AAL) Entry Age	(3) Percent Funded (1)/(2)	(4) Unfunded AAL (2) – (1)	(5) Annual Covered Payroll	(6) Unfunded AAL as a Percentage of Covered Payroll (4)/(5)
06/30/05#	17,180,705	23,727,098	72.4	6,546,393	4,786,280	136.8
06/30/06	18,321,063	24,928,464	73.5	6,607,401	4,971,974	132.9
06/30/07#	19,791,564	26,862,636	73.7	7,071,072	5,196,295	136.1
06/30/08*	20,814,720	28,534,694	72.9	7,719,974	5,544,705	139.2
06/30/09*#	20,597,581	30,594,546	67.3	9,996,965	5,831,864	171.4
06/30/10*	20,143,426	31,399,988	64.2	11,256,562	5,763,556	195.3
06/30/11#	20,315,165	32,654,465	62.2	12,339,300	5,684,624	217.1
06/30/12	19,992,797	34,492,873	58.0	14,500,076	5,857,789	247.5
06/30/13#	20,490,555	35,542,848	57.7	15,052,293	5,823,578	258.5
06/30/14	22,569,940	37,015,288	61.0	14,445,348	5,834,687	247.6

\* After change in benefit provisions.

# After change in actuarial assumptions.

As can be seen from the table above, the steady decline in the funded ratio caused by the smoothing of the large asset losses of 2007/2008 and 2008/2009 has ended. The first increase in the funded ratio in seven years was primarily because the recognition of those losses has been completed. In addition, estimated projection results using a fixed employer contribution rate of 15.75% of payroll shows improving funded ratios.

3. The annual required contribution (ARC) of the employer as a percentage of payroll determined in accordance with the parameters of GASB 25/27, is shown below. The accrued liability rate is based on amortization of the unfunded actuarial accrued liability of \$14,445,347,760 over a 29.2 year period from the valuation date.

Annual Required Contribution (ARC)		
Valuation Date June 30	2014	2013
For Fiscal Year	2015/2016	2014/2015
Employer contribution rate		
Normal Cost*	1.92%	2.07%
Accrued liability	<u>13.83</u>	<u>14.22</u>
Total	15.75%	16.29%
Anticipated accrued liability payment period	29.2 years	30.0 years

\*Estimated budgeted administrative expenses are included in the normal cost rate.



4. Additional information as of June 30, 2014 as follows.

Valuation date	6/30/2014
Actuarial cost method	Entry age
Amortization method	Level percent open
Remaining amortization period	29.2 years
Asset valuation method	5-year smoothed market
Actuarial assumptions:	
Investment rate of return*	8.00%
Projected salary increases#	4.25% – 19.5%
*Includes price inflation at	3.50%
#Includes wage inflation at	4.25%
Cost of living adjustments	3.00%

#### Schedule of Employer Contributions

Fiscal Year Ending June 30	Valuation date June 30	Annual Required Contribution	Percentage Contributed
2006	2004	514,525,143	100
2007	2005	621,496,708	90
2008	2006	636,546,125	97
2009	2007	657,047,535	100
2010	2008	699,823,624	100
2011	2009	687,015,898	100
2012	2010	735,021,911	100
2013	2011	835,320,765	100
2014	2012	921,872,394	100
2015	2013	950,470,456	



**Solvency Tests  
(\$ in Thousands)**

Actuarial Accrued Liabilities for							
Valuation Date	(1) Accumulated Employee Contributions Including Allocated Investment Earnings	(2) Retirees and Beneficiaries Currently Receiving Benefits	(3) Active and Inactive Members Employer Financed Portion	Net Assets Available for Benefits	(1)	(2)	(3)
						Portions of Accrued Liabilities Covered by Assets	
6/30/05	\$3,819,498	\$11,260,642	\$8,646,958	\$17,180,705	100.0%	100.0%	24.3%
6/30/06	3,955,066	12,228,330	8,745,068	18,321,063	100.0	100.0	24.4
6/30/07	3,788,781	13,342,531	9,731,324	19,791,564	100.0	100.0	27.3
6/30/08	3,991,804	14,306,528	10,236,362	20,814,720	100.0	100.0	24.6
6/30/09	4,235,466	15,665,712	10,693,368	20,597,581	100.0	100.0	6.5
6/30/10	4,266,621	16,763,455	10,369,912	20,143,426	100.0	94.7	0.0
6/30/11	4,356,556	18,001,718	10,296,191	20,315,165	100.0	88.7	0.0
6/30/12	4,463,252	19,547,367	10,482,254	19,992,797	100.0	79.4	0.0
6/30/13	5,053,888	20,789,551	9,699,409	20,490,555	100.0	74.3	0.0
6/30/14	5,277,944	22,033,588	9,703,756	22,569,940	100.0	78.5	0.0



**Schedule of Active Member Valuation Data**

Valuation Date	Number of Employers	Active Members			
		Number	Annual Payroll	Annual Average Pay	% Increase in Average Pay
2005	861	157,101	\$4,786,280,398	\$30,466	3.2%
2006	861	158,091	4,971,973,661	31,450	3.2
2007	861	162,804	5,196,294,899	31,917	1.5
2008	863	165,733	5,544,704,937	33,456	4.8
2009	866	167,122	5,831,863,534	34,896	4.3
2010	868	164,896	5,763,556,195	34,953	0.2
2011	872	161,676	5,684,624,214	35,161	0.6
2012	870	162,311	5,857,789,376	36,090	2.6
2013	873	161,744	5,823,577,978	36,005	(0.2)
2014	871	161,360	5,834,686,655	36,159	0.4

**Schedule of Retirants Added to and Removed From Rolls  
Last Ten Fiscal Years**

Item	Fiscal Year Ended June 30									
	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Beginning of Year	62,407	63,939	66,757	70,756	73,540	76,143	79,168	83,115	86,829	90,214
Added	4,610	5,360	6,218	5,335	4,965	5,747	6,566	6,569	6,276	6,159
Removed	(3,078)	(2,542)	(2,219)	(2,551)	(2,362)	(2,722)	(2,619)	(2,855)	(2,891)	(2,869)
End of Year	63,939	66,757	70,756	73,540	76,143	79,168	83,115	86,829	90,214	93,504



**Schedule of Annual Benefit Payments Added to and Removed From Rolls  
Last Seven Fiscal Years**

Year Ending	2008	2009	2010	2011	2012	2013	2014
Beginning of Year	\$1,214,384,863	\$1,305,908,320	\$1,395,939,879	\$1,498,662,976	\$1,627,813,430	\$1,752,606,759	\$1,874,720,385
Added	93,694,780	87,403,913	103,950,841	127,035,815	125,378,708	120,592,399	120,190,296
Removed	(35,621,113)	(33,633,667)	(40,358,965)	(39,518,227)	(45,787,704)	(47,237,330)	(48,955,768)
Benefit increase due to annual COLA	33,449,790	36,261,313	39,131,221	41,632,866	45,202,325	48,758,557	52,368,041
Benefit increase due to plan amendments	0	0	0	0	0	0	0
End of Year	\$1,305,908,320	\$1,395,939,879	\$1,498,662,976	\$1,627,813,430	\$1,752,606,759	\$1,874,720,385	\$1,998,322,954





Schedule of Average Benefit Payments

	Years of Credited Service								
	0-4	5-9	10-14	15-19	20-24	25	26-29	30	31+
July 1, 2013 to June 30, 2014									
Average Monthly Benefit	\$582.94	\$448.56	\$712.04	\$998.80	\$1,383.89	\$1,871.16	\$1,992.51	\$2,283.20	\$2,954.14
Average Final Salary	\$31,286	\$31,009	\$35,356	\$37,962	\$40,947	\$47,490	\$48,732	\$51,456	\$57,022
Number of Active Retirants	94	657	945	815	663	505	1,146	232	1,102
July 1, 2012 to June 30, 2013									
Average Monthly Benefit	\$430.24	\$443.74	\$694.71	\$963.61	\$1,421.74	\$1,924.91	\$2,016.94	\$2,187.80	\$2,931.36
Average Final Salary	\$28,954	\$30,707	\$34,404	\$36,876	\$41,550	\$47,768	\$48,862	\$49,470	\$56,341
Number of Active Retirants	115	800	901	740	758	496	1,121	224	1,121
July 1, 2011 to June 30, 2012									
Average Monthly Benefit	\$503.45	\$425.55	\$655.76	\$984.40	\$1,325.25	\$1,823.47	\$1,956.67	\$2,283.30	\$2,938.26
Average Final Salary	\$27,325	\$29,424	\$32,872	\$37,561	\$40,246	\$46,050	\$47,965	\$51,720	\$56,263
Number of Active Retirants	146	861	867	779	736	501	1,138	260	1,281
July 1, 2010 to June 30, 2011									
Average Monthly Benefit	\$490.21	\$444.82	\$637.24	\$974.84	\$1,347.49	\$1,791.74	\$1,996.32	\$2,176.08	\$2,910.64
Average Final Salary	\$26,297	\$29,798	\$31,063	\$36,095	\$39,613	\$45,296	\$48,620	\$49,084	\$55,608
Number of Active Retirants	247	837	808	741	743	456	1,050	245	1,439
July 1, 2009 to June 30, 2010									
Average Monthly Benefit	\$320.17	\$386.23	\$620.46	\$905.46	\$1,239.55	\$1,717.84	\$1,897.84	\$2,174.78	\$2,833.34
Average Final Salary	\$23,675	\$27,192	\$30,890	\$33,781	\$37,426	\$43,924	\$46,537	\$49,426	\$54,049
Number of Active Retirants	220	765	773	641	627	428	867	237	1,189



Schedule of Average Benefit Payments

	Years of Credited Service								
	0-4	5-9	10-14	15-19	20-24	25	26-29	30	31+
<b>July 1, 2008 to June 30, 2009</b>									
Average Monthly Benefit	\$395.82	\$373.84	\$581.94	\$874.55	\$1,314.05	\$1,672.61	\$1,865.25	\$2,115.68	\$2,821.82
Average Final Salary	\$26,414	\$26,280	\$29,481	\$32,707	\$37,865	\$42,352	\$45,058	\$47,003	\$53,867
Number of Active Retirants	192	703	669	572	535	378	732	223	961
<b>July 1, 2007 to June 30, 2008</b>									
Average Monthly Benefit	\$400.20	\$382.62	\$586.58	\$900.09	\$1,221.01	\$1,738.22	\$1,844.70	\$2,070.82	\$2,726.23
Average Final Salary	\$25,527	\$25,618	\$28,649	\$33,139	\$36,537	\$44,534	\$45,142	\$48,053	\$53,245
Number of Active Retirants	201	690	703	614	586	386	855	226	1,074
<b>July 1, 2006 to June 30, 2007</b>									
Average Monthly Benefit	\$411.52	\$369.97	\$536.43	\$817.54	\$1,113.79	\$1,671.02	\$1,761.30	\$2,127.34	\$2,615.87
Average Final Salary	\$22,554	\$24,146	\$27,269	\$30,518	\$34,644	\$42,366	\$43,541	\$47,398	\$51,466
Number of Active Retirants	340	986	827	747	684	381	917	251	1,085
<b>July 1, 2005 to June 30, 2006</b>									
Average Monthly Benefit	\$489.98	\$331.00	\$492.09	\$765.75	\$1,137.28	\$1,574.92	\$1,729.20	\$1,942.37	\$2,380.21
Average Final Salary	\$21,672	\$22,459	\$25,293	\$29,138	\$33,142	\$38,998	\$41,558	\$43,360	\$46,793
Number of Active Retirants	121	671	692	632	627	358	973	217	1,069
<b>July 1, 2004 to June 30, 2005</b>									
Average Monthly Benefit	\$478.93	\$354.32	\$556.04	\$872.26	\$1,239.41	\$1,569.12	\$1,683.54	\$1,878.27	\$2,382.38
Average Final Salary	\$22,862	\$22,656	\$24,775	\$29,619	\$34,563	\$38,437	\$40,090	\$41,687	\$46,505
Number of Active Retirants	108	543	666	516	421	296	853	223	984



**SCHEDULE A**

**Development of Actuarial Value of Assets  
(\$ thousands)**

Valuation Date June 30:	2013	2014	2015	2016	2017	2018
A. Actuarial Value Beginning of Year	\$19,992,797	\$20,490,555				
B. Market Value End of Year	21,686,911	24,877,119				
C. Market Value Beginning of Year	19,781,387	21,686,911				
D. Cash Flow						
D1. Contributions	1,429,639	1,519,202				
D2. Other Revenue	0	0				
D3. Benefit Payments	(2,074,025)	(2,221,375)				
D4. Administrative Expenses	(14,106)	(12,837)				
D5. Investment Expenses	<u>(49,140)</u>	<u>(81,720)</u>				
D6. Net	(707,632)	(796,730)				
E. Investment Income						
E1. Market Total: B.-C.-D6.	2,613,156	3,986,938				
E2. Assumed Rate	8.00%	8.00%				
E3. Amount for Immediate Recognition	1,605,311	1,788,072				
E4. Amount for Phased-In Recognition	1,007,845	2,198,866				
F. Phased-In Recognition of Investment Income						
F1. Current Year: 0.20*E4.	201,569	439,773				
F2. First Prior Year	(311,731)	201,569	439,773			
F3. Second Prior Year	566,840	(311,731)	201,569	439,773		
F4. Third Prior Year	191,592	566,840	(311,731)	201,569	439,773	
F5. Fourth Prior Year	<u>(1,048,191)</u>	<u>191,592</u>	<u>566,840</u>	<u>(311,731)</u>	<u>201,569</u>	<u>439,773</u>
F6. Total Recognized Investment Gain	(399,921)	1,088,043	896,451	329,611	641,342	439,773
G. Actuarial Value End of Year:						
A.+D6.+E3.+F6.	\$20,490,555	\$22,569,940				
H. Difference Between Market & Actuarial Values	<u>\$(1,196,356)</u>	<u>\$(2,307,179)</u>	<u>\$(1,410,728)</u>	<u>\$(1,081,117)</u>	<u>\$(439,773)</u>	<u>\$0</u>

The Actuarial Valuation of Assets recognizes assumed investment income (line E3) fully each year. Differences between actual and assumed investment income (line E4) are phased in over a closed 5 year period. During periods when investment performance exceeds the assumed rate, Actuarial Value of Assets will tend to be less than market value. During periods when investment performance is less than the assumed rate, Actuarial Value of Assets will tend to be greater than market value. If assumed rates are exactly realized for 4 consecutive years, actuarial value will become equal to market value.



Asset Summary June 30, 2014 (\$ in Thousands)			
	Market Value	Book Value	Actuarial Value
1. Assets at June 30, 2013	\$21,686,911	\$18,409,342	\$20,490,555
2. Contributions and Misc. Revenue	1,519,202	1,519,202	1,519,202
3. Investment Increment	3,986,938	1,816,328	2,876,115
4. Benefit Payments	(2,221,375)	(2,221,375)	(2,221,375)
5. Expenses	(94,557)	(94,557)	(94,557)
6. Assets at June 30, 2014 (1) + (2) + (3) + (4) + (5)	\$24,877,119	\$19,428,940	\$22,569,940
7. Investment Increment/Mean Assets*	18.73%	10.08%	14.31%

\*Based on the approximation formula:  $I/[.5 \times (A + B - I)]$ , where

- I = Investment increment
- A = Beginning of year asset value
- B = End of year asset value



**SCHEDULE B**

**STATEMENT OF ACTUARIAL ASSUMPTIONS AND METHODS**

INTEREST RATE: 8.00% per annum, compounded annually (net of investment expense only).

SEPARATIONS FROM ACTIVE SERVICE: Representative values of the assumed rates of separation from active service are as follows:

Age	Annual Rates of					
	Withdrawal and Vesting*		Death**		Disability**	
	Male	Female	Male	Female	Male	Female
20	22.0%	25.0%	.01%	.01%	.01%	.01%
25	15.0	15.5	.01	.01	.02	.01
30	10.0	10.5	.02	.01	.02	.02
35	7.5	8.0	.03	.02	.04	.02
40	6.0	6.0	.04	.02	.12	.09
45	5.5	5.0	.07	.04	.22	.15
50	5.5	5.0	.14	.05	.32	.23
55	5.5	5.0	.19	.05	.52	.40
60	5.5	5.0	.22	.08	.38	.32
65	5.5	5.0	.40	.10		
70	5.5	5.0	.40	.10		
74	5.5	5.0	.40	.10		

Age	Annual Rates of Service Retirements			
	Male		Female	
	Under 25 Years of Service***	25 Years of Service and Over***	Under 25 Years of Service***	25 Years of Service and Over***
45		18.0%		14.0%
50		13.0		11.0
55		17.0		18.0
60	10.0%	20.0	12.5%	22.0
62	19.0	33.0	18.0	36.0
65	22.0	30.0	27.0	42.0
70	19.0	25.0	21.0	22.0
75	100.0	100.0	100.0	100.0

\* For all ages, rates of 32% for 1<sup>st</sup> year of employment and 22% for 2<sup>nd</sup> year.

\*\* 94% are presumed to be non-duty related, and 6% are assumed to be duty related.

\*\*\* For Tier 4 members, 30 years of service.



SALARY INCREASES: Representative values of the assumed annual rates of salary increases are as follows:

Service	Merit & Seniority	Annual Rates of Base (Economy)	Increase Next Year
0	15.25%	4.25%	19.50%
1	5.25	4.25	9.50
2	2.75	4.25	7.00
3	1.75	4.25	6.00
4	1.25	4.25	5.50
5	0.75	4.25	5.00
10	0.25	4.25	4.50
15	0.25	4.25	4.50
20	0.25	4.25	4.50
25	0.25	4.25	4.50
30	0.00	4.25	4.25
35	0.00	4.25	4.25

PAYROLL GROWTH: 4.25% per annum, compounded annually.

PRICE INFLATION: 3.50% per annum, compounded annually.

ADMINISTRATIVE EXPENSES: 0.23% of payroll.

TIMING OF DECREMENTS AND PAY INCREASES: Middle of Year.

DEATH AFTER RETIREMENT: The mortality table, for post-retirement mortality, used in evaluating allowances to be paid is the RP-2000 Combined Mortality Table Projected with Scale AA to 2025 set forward two years for males. The RP-2000 Disabled Mortality Table (set back 3 years for males and set forward 2 years for females) was used for the period after disability retirement. This assumption is used to measure the probabilities of each benefit payment being made after retirement. Mortality improvement is anticipated under this assumption as recent mortality experience shows actual deaths 7% greater than expected under the selected table.

MARRIAGE ASSUMPTION: 85% married with the husband three years older than his wife.

UNUSED SICK LEAVE: 0.50 years at retirement.

MILITARY SERVICE: 0.25 years at retirement.

DEFERRED VESTEDS: 30% of vested participants will forfeit their accrued benefit and receive their employee contributions with interest.



VALUATION METHOD: The valuation is prepared on the projected benefit basis, which is used to determine the present value of each member's expected benefit payable at retirement, disability or death. The calculations are based on the member's age, years of service, sex, compensation, expected future salary increases, and an assumed future interest earnings rate (currently 8.00%). The calculations consider the probability of a member's death or termination of employment prior to becoming eligible for a benefit and the probability of the member terminating with a service, disability, or survivor's benefit. The present value of the expected benefits payable to active members is added to the present value of the expected future payments to current benefit recipients to obtain the present value of all expected benefits payable to the present group of members and survivors.

The employer contributions required to support the benefits of PERS are determined following a level funding approach, and consist of a normal contribution and an accrued liability contribution.

The normal contribution is determined using the "entry age normal" method. Under this method, a calculation is made for pension benefits to determine the uniform and constant percentage rate of employer contribution which, if applied to the compensation of the average new member during the entire period of his anticipated covered service, would be required in addition to the contributions of the member to meet the cost of all benefits payable on his behalf.

The unfunded accrued liability is determined by subtracting the current assets and the present value of prospective employer normal contributions and member contributions from the present value of expected benefits to be paid from the PERS. The accrued liability contribution amortizes the balance of the unfunded accrued liability over a period of years from the valuation date.

ASSET VALUATION METHOD: Actuarial value, as developed in Schedule A. The actuarial value of assets recognizes a portion of the difference between the market value of assets and the expected market value of assets, based on the assumed valuation rate of return. The amount recognized each year is 20% of the difference between market value and expected market value.



### **SCHEDULE C**

#### **SUMMARY OF MAIN BENEFIT AND CONTRIBUTION PROVISIONS**

The following summary presents the main benefit and contribution provisions of the System in effect July 1, 2014, as interpreted in preparing the actuarial valuation.

#### **DEFINITIONS**

<b>Average Compensation</b>	Average annual covered earnings of an employee during the four highest years of service.
<b>Covered Earnings</b>	Gross salary not in excess of the maximum amount on which contributions were required.
<b>Fiscal Year</b>	Year commencing on July 1 and ending June 30.
<b>Credited Service</b>	Service while a contributing member plus additional service as described below.
<b>Unused Sick and Vacation Leave</b>	Service credit is provided at no charge to members for unused sick and vacation time that has accrued at the time of retirement.
<b>Additional Service</b>	Additional service credit may be granted for service prior to February 1, 1953, active duty military service, out-of-state service, professional leave and non-covered and retroactive service





The maximum covered earnings for employers and employees over the years are as follows:

**EMPLOYER AND EMPLOYEE RATES OF CONTRIBUTION  
AND MAXIMUM COVERED EARNINGS**

Fiscal Date From	Fiscal Date To	Employer Rate	Maximum Covered Earnings	Employee Rate	Maximum Covered Earnings
2/1/53	6/30/58	2.50%	\$6,000	4.00%	\$4,800*
7/1/58	6/30/60	2.50	9,000	4.00	7,800*
7/1/60	6/30/66	2.50	15,000	4.00	13,800*
7/1/66	6/30/68	3.00	15,000	4.50	13,800*
7/1/68	3/31/71	4.50	15,000	4.50	15,000
4/1/71	6/30/73	4.50	35,000	4.50	35,000
7/1/73	6/30/76	5.85	35,000	5.00	35,000
7/1/76	6/30/77	7.00	35,000	5.00	35,000
7/1/77	6/30/78	7.50	35,000	5.50	35,000
7/1/78	6/30/80	8.00	35,000	5.50	35,000
7/1/80	6/30/81	8.00	53,000	5.50	53,000
7/1/81	12/31/83	8.75	53,000	6.00	53,000
1/1/84	6/30/88	8.75	63,000	6.00	63,000
7/1/88	6/30/89	8.75	75,600	6.00	75,600
7/1/89	12/31/89	8.75	75,600	6.50	75,600
1/1/90	6/30/91	9.75	75,600	6.50	75,600
7/1/91	6/30/92	9.75	75,600	7.25	75,600
7/1/92	6/30/02	9.75	125,000	7.25	125,000
7/1/02	6/30/05	9.75	150,000	7.25	150,000
7/1/05	6/30/06	10.75	150,000	7.25	150,000
7/1/06	6/30/07	11.30	150,000	7.25	150,000
7/1/07	6/30/08	11.85	150,000	7.25	150,000
7/1/08	6/30/09	11.85	230,000	7.25	230,000
7/1/09	6/30/10	12.00	245,000	7.25	245,000
7/1/10	6/30/11	12.00	245,000	9.00	245,000
7/1/11	12/31/11	12.00	245,000	9.00	245,000
1/1/12	6/30/12	12.93	245,000	9.00	245,000
7/1/12	6/30/13	14.26	250,000	9.00	250,000
7/1/13	6/30/14	15.75	255,000	9.00	255,000
7/1/14	6/30/15	15.75	260,000	9.00	260,000

\*From February 1, 1953 through June 30, 1968 the first \$100 in monthly earnings or \$1,200 in annual earnings were not covered earnings for the employee.



## BENEFITS

### Superannuation Retirement

#### Condition for Retirement

- (a) A retirement allowance is paid upon the request of any member who retires and has attained age 60 and completed at least eight years\* of membership service. A retirement allowance may also be paid upon the completion of 25 years of creditable service for members hired prior to July 1, 2011 or upon the completion of 30 years of creditable service for members hired on or after July 1, 2011.
- (b) Any member who withdraws from service prior to his or her attainment of age 60 and who has completed at least eight years\* of membership service is entitled to receive, in lieu of a refund of his or her accumulated contributions, a retirement allowance commencing at age 60.

#### Amount of Allowance

The annual retirement allowance payable to a member who retires under condition (a) above is equal to:

1. A member's annuity which is the actuarial equivalent of the member's accumulated contributions at the time of his or her retirement, plus
2. For a member hired prior to July 1, 2011, an employer's annuity which, together with the member's annuity, is equal to 2% of his or her average compensation for each of the first 25 years of creditable service plus 2-1/2% for each year of creditable service over 25 years.
3. For a member hired on or after July 1, 2011, an employer's annuity which, together with the member's annuity, is equal to 2% of his or her average compensation for each of the first 30 years of creditable service plus 2-1/2% for each year of creditable service over 30 years. There will be an actuarial reduction for each year of creditable service below 30 or for each year of age below age 65, whichever is less.

For members hired prior to July 1, 2011, the minimum allowance is \$120 for each year of creditable service.

### Disability Retirement

#### Condition for Retirement

A retirement allowance is paid to a member who is totally and permanently disabled, as determined by the Board of Trustees, and has accumulated eight or more years\* of membership service.

\* four years for those who entered the system before July 1, 2007



Amount of Allowance

For those who were active members prior to July 1, 1992, and did not elect the benefit structure outlined below, the annual disability retirement allowance payable is equal to a superannuation retirement allowance if the member has attained age 60, otherwise it is equal to a superannuation retirement allowance calculated as follows:

1. A member's annuity equal to the actuarial equivalent of his or her accumulated contributions at the time of retirement, plus
2. An employer's annuity equal to the amount that would have been payable had the member continued in service to age 60.

For those who become active members after June 30, 1992, and for those who were active members prior to July 1, 1992, who so elected, the following benefits are payable:

1. A temporary allowance equal to the greater of (a) 40% of average compensation plus 10% for each dependent child up to a maximum of 2, or (b) the member's accrued allowance. This temporary allowance is paid for a period of time based on the member's age at disability, as follows:

<u>Age at Disability</u>	<u>Duration</u>
60 and earlier	to age 65
61	to age 66
62	to age 66
63	to age 67
64	to age 67
65	to age 68
66	to age 68
67	to age 69
68	to age 70
69 and later	one year

For members hired prior to July 1, 2011, the minimum allowance is \$120 per year of creditable service.

2. A deferred allowance commencing when the temporary allowance ceases equal to the greater of (a) the allowance the member would have received based on service to the termination age of the temporary allowance, but not more than 40% of average compensation, or (b) the member's accrued allowance.

For members hired prior to July 1, 2011, the minimum allowance is \$120 per year of creditable service.

Effective July 1, 2004, a temporary benefit can be paid out of a member's accumulated contribution balance while the member is awaiting a determination for eligibility for disability benefits. Future disability payments, if any, would be offset by advanced payments made from the member's accumulated contributions.



### **Accidental Disability Retirement**

Condition for Retirement

A retirement allowance is paid to a member who is totally and permanently disabled in the line of performance of duty.

Amount of Allowance

The annual accidental disability retirement allowance is equal to the allowance payable on disability retirement but not less than 50% of average compensation. There is no minimum benefit.

### **Accidental Death Benefit**

Condition for Benefit

A retirement allowance is paid to a spouse and/or dependent children upon the death of an active member in the line of performance of duty.

Amount of Allowance

The annual retirement allowance is equal to 50% of average compensation payable to the spouse and 25% of average compensation payable to one dependent child or 50% to two or more children until age 19 (23 if a full time student). There is no minimum benefit.

### **Ordinary Death Benefit**

Condition for Benefit

Upon the death of a member who has completed at least eight years\* of membership service, a benefit is payable, in lieu of a refund of the member's accumulated contributions, to his or her spouse, if said spouse has been married to the member for not less than one year.

\*four years for those who entered the system before July 1, 2007.

Amount of Allowance

The annual retirement allowance payable to the lawful spouse of a vested member who dies is equal to the greater of (i) the allowance that would have been payable had the member retired and elected Option 2, reduced by an actuarially determined factor based on the number of years the member lacked in qualifying for unreduced retirement benefits, or (ii) a lifetime benefit equal to 20% of the deceased member's average compensation, but not less than \$50 per month.

In addition, a benefit is payable to dependent children until age 19 (23 if a full time student). The benefit is equal to the greater of 10% of average compensation or \$50 per month for each dependent child up to 3.

### **Return of Contributions**

Upon the withdrawal of a member without a retirement benefit, his or her contributions are returned to him or her, together with accumulated regular interest thereon.

Upon the death of a member before retirement, his or her contributions, together with the full accumulated regular interest thereon, are paid to his or her designated beneficiary, if any, otherwise, to his or her estate provided no other survivor benefits are payable.

Interest is currently credited to the member's account at 3.5% per annum.



## **Normal Form of Benefit**

The normal form of benefit (modified cash refund) is an allowance payable during the life of the member with the provision that upon his or her death the excess of his or her total contributions at the time of retirement over the total retirement annuity paid to him or her will be paid to his or her designated beneficiary.

## **Optional Benefits**

A member upon retirement may elect to receive his or her allowance in one of the following forms which are computed to be actuarially equivalent to the applicable retirement allowance.

Option 1. Reduced allowance with the provision that if the pensioner dies before he receives the value of the member's annuity as it was at the time of retirement, the balance shall be paid to his or her beneficiary.

Option 2. Upon his or her death, his or her reduced retirement allowance shall be continued throughout the life of, and paid to, his or her beneficiary.

Option 3. Upon his or her death, 50% of his or her reduced retirement allowance shall be continued throughout the life of, and paid to, a designated beneficiary and the other 50% of his or her reduced retirement allowance to some other designated beneficiary.

Option 4. Upon his or her death, 75% of his or her reduced retirement allowance shall be continued throughout the life of, and paid to, a designated beneficiary.

Option 4A. Upon his or her death, 50% of his or her reduced retirement allowance shall be continued throughout the life of, and paid to, a designated beneficiary.

Option 4B. A reduced retirement allowance shall be continued throughout the life of the pensioner, but with the further guarantee of payment to the pensioner or his or her beneficiary for a specified number of years certain.

Option 4C. A member may elect any option with the added provision that the member shall receive, so far as possible, the same total amount annually (considering both PERS and Social Security benefits) before and after the earliest age at which the member becomes eligible for a Social Security benefit. This option was only available to those who retired prior to July 1, 2004.

A member who elects Option 2, Option 4, or Option 4A at retirement may revert to the normal form of benefit if the designated beneficiary predeceases the retired member or if the retired member divorces the designated beneficiary. A member who elects the normal form of benefit or Option 1 at retirement may select Option 2, Option 4, or Option 4A to provide beneficiary protection to a new spouse if married after retirement.



A member hired prior to July 1, 2011 and who has at least 28 years of creditable service\* or a member hired on or after July 1, 2011 who has at least 33 years of creditable service can select a partial lump-sum option at retirement. Under this option, the retiree has the option of taking a partial lump-sum distribution equal to 12, 24, or 36 times the base maximum monthly benefit. With each lump-sum amount, the base maximum monthly benefit will be actuarially reduced. A member selecting the partial lump-sum option may also select any of the regular options except Option 1, the prorated single-life annuity, and Option 4-C, the Social Security leveling provision. The benefit is then calculated using the new reduced maximum benefit as a starting point in applying the appropriate option factors for the reduction.

\* or at least age 63 with four years of membership service for those who entered the system before July 1, 2007.

### **Post-Retirement Adjustments In Allowances**

The allowances of retired members are adjusted annually by an amount equal to (a) 3% of the annual retirement allowance for each full fiscal year of retirement prior to the year in which the member reaches age 55\*, plus (b) 3% compounded for each year thereafter beginning with the fiscal year in which the member turns age 55\*.

\*Age 60 for members hired on or after July 1, 2011

A prorated portion of the annual adjustment will be paid to the member, beneficiary, or estate of any member or beneficiary who is receiving the annual adjustment in a lump sum, but whose benefits are terminated between July 1 and December 1.



**SCHEDULE D**

**DETAILED TABULATIONS OF THE DATA**

**Retirants & Beneficiaries as of June 30, 2014  
Tabulated by Year of Retirement**

Year of Retirement	No.	Total Annual Benefits, excluding COLA	COLA	Total Annual Benefits	Average Monthly Total Benefit
2014	2,772	\$55,557,291	\$11,427	\$55,568,718	\$1,671
2013	5,934	116,054,589	449,863	116,504,452	1,636
2012	5,619	111,674,464	3,366,768	115,041,232	1,706
2011	5,553	107,489,161	6,352,143	113,841,304	1,708
2010	5,605	111,260,571	10,189,097	121,449,668	1,806
2009	4,477	79,439,562	9,704,039	89,143,601	1,659
2008	4,609	86,472,019	13,556,147	100,028,166	1,809
2007	4,209	75,794,010	14,296,508	90,090,518	1,784
2006	4,355	75,507,007	16,838,098	92,345,105	1,767
2005	4,112	68,621,995	17,757,163	86,379,158	1,751
2004	4,150	72,096,342	21,389,016	93,485,358	1,877
2003	3,740	61,852,791	20,580,012	82,432,803	1,837
2002	3,850	63,265,538	23,542,510	86,808,048	1,879
2001	3,752	59,097,665	24,501,122	83,598,787	1,857
2000	3,247	52,974,503	24,259,583	77,234,086	1,982
1999	2,553	38,261,656	19,201,783	57,463,439	1,876
1998	2,542	37,902,454	20,680,082	58,582,536	1,920
1997	2,472	33,315,330	19,801,122	53,116,452	1,791
1996	2,632	37,358,129	23,999,465	61,357,594	1,943
1995	2,084	26,775,981	18,485,910	45,261,891	1,810
1994	1,878	23,137,888	17,007,709	40,145,597	1,781
1993	1,799	21,110,556	16,647,015	37,757,571	1,749
1992	2,149	27,955,088	23,561,153	51,516,241	1,998
1991	1,673	19,923,574	17,885,194	37,808,768	1,883
1990	1,301	14,864,657	14,227,494	29,092,151	1,863
1989	999	9,581,188	9,690,555	19,271,743	1,608
1988	794	7,468,403	8,038,789	15,507,192	1,628
1987	689	6,090,408	6,891,120	12,981,528	1,570
1986	1,193	12,498,903	15,431,966	27,930,869	1,951
1985	504	4,531,116	5,715,216	10,246,332	1,694
1984	456	3,688,665	4,857,486	8,546,151	1,562
1983	320	2,244,668	3,096,746	5,341,414	1,391
1982	284	1,992,681	2,916,738	4,909,419	1,441
1981	282	1,760,293	2,666,610	4,426,903	1,308
1980	205	1,239,244	1,962,858	3,202,102	1,302
1979 & Prior	711	3,414,725	6,491,332	9,906,057	1,161
<b>Totals</b>	<b>93,504</b>	<b>\$1,532,273,115</b>	<b>\$466,049,839</b>	<b>\$1,998,322,954</b>	<b>\$1,781</b>



### Schedule of Retired Members by Type of Benefit

#### Benefits Payable June 30, 2014

Amount of Monthly Benefit**	Number of Rets.	Ret. Type 1*	Ret. Type 2*	Ret. Type 3*
\$1-\$100	2,324	1,852	10	462
101-200	5,391	4,063	105	1,223
201-300	5,561	4,028	256	1,277
301-400	5,158	3,682	358	1,118
401-500	4,840	3,488	392	960
501-600	4,226	3,070	421	735
601-700	3,854	2,791	432	631
701-800	3,699	2,732	448	519
801-900	3,628	2,742	425	461
901-1,000	3,521	2,701	402	418
Over 1,000	51,302	45,516	2,980	2,806
Totals	93,504	76,665	6,229	10,610

\*Type of Retirement

1 – Retirement for Age & Service

2 – Disability Retirement

3 – Survivor Payment

\*\*Reflects reduced benefit





**Schedule of Retired Members by Option**

**Benefits Payable June 30, 2014**

Amount of Monthly Benefit**	Number of Rets.	Life	Option 1	Option 2	Option 3	Option 4	Option 4A	Option 4B	Option 4C*	Option 5	PLSO 1 Year*	PLSO 2 Years*	PLSO 3 Years*
\$1-\$100	2,324	1,712	72	305	11	0	33	186	5	5	54	43	409
101-200	5,391	3,958	199	666	30	13	85	405	23	35	108	87	517
201-300	5,561	4,189	200	613	23	20	102	377	38	37	118	91	455
301-400	5,158	3,765	213	612	24	11	123	386	55	24	107	105	391
401-500	4,840	3,511	177	619	19	27	155	313	71	19	123	98	335
501-600	4,226	3,023	136	552	22	17	120	333	94	23	128	90	336
601-700	3,854	2,785	142	481	20	12	141	255	145	18	113	89	260
701-800	3,699	2,580	155	478	18	15	181	231	169	41	110	92	266
801-900	3,628	2,426	159	503	14	26	207	266	200	27	126	79	328
901-1,000	3,521	2,381	126	497	21	31	183	234	225	48	119	65	319
Over 1,000	51,302	31,188	1,709	8,713	318	482	4,519	4,100	1,818	273	2,549	2,230	9,427
Totals	93,504	61,518	3,288	14,039	520	654	5,849	7,086	2,843	550	3,655	3,069	13,043

Option Selected

Life	-	Return of Contributions
Opt. 1	-	Return of Member's Annuity
Opt. 2	-	100% Survivorship
Opt. 3	-	50%/50% Dual Survivorship
Opt. 4	-	75% Survivorship
Opt. 4A	-	50% Survivorship
Opt. 4B	-	Years Certain & Life
Opt. 4C	-	Social Security Leveling *
Opt. 5	-	Pop-Up
PLSO	-	Partial Lump Sum Option*

\*Included in other options

\*\* Reflects reduced benefit



**Public Employees' Retirement System of Mississippi**

**Retirant and Beneficiary Information June 30, 2014  
Tabulated by Attained Ages**

Attained Age	Service Retirement		Disability Retirement		Survivors and Beneficiaries		Total	
	No.	Annual Benefits	No.	Annual Benefits	No.	Annual Benefits	No.	Annual Benefits
Under 20					621	\$2,614,771	621	\$2,614,771
20 – 24					178	999,929	178	999,929
25 – 29			3	\$31,720	78	737,549	81	769,269
30 – 34			17	225,919	128	1,131,767	145	1,357,686
35 – 39			77	1,115,085	153	1,471,893	230	2,586,978
40 – 44	17	320,828	213	3,696,608	257	2,514,898	487	6,532,334
45 – 49	536	12,869,740	402	8,037,309	315	3,437,867	1,253	24,344,916
50 – 54	2,429	64,897,318	781	15,176,727	507	5,752,128	3,717	85,826,173
55 – 59	5,785	167,845,574	1,181	22,263,257	775	10,908,469	7,741	201,017,300
60 – 64	14,227	344,089,112	1,392	24,073,040	1,006	15,702,227	16,625	383,864,379
65 – 69	18,525	414,396,211	1,083	17,850,327	1,209	20,024,205	20,817	452,270,743
70 – 74	13,813	297,560,777	551	8,806,635	1,278	21,443,974	15,642	327,811,386
75 – 79	9,515	197,333,199	341	4,581,834	1,338	23,989,290	11,194	225,904,323
80 – 84	6,244	126,630,967	119	1,563,190	1,293	23,176,592	7,656	151,370,749
85 – 89	3,733	71,427,116	45	544,752	951	16,175,502	4,729	88,147,370
90 – 94	1,428	26,497,227	23	237,234	424	7,820,795	1,875	34,555,256
95	97	1,629,835			31	582,755	128	2,212,590
96	88	1,570,636			24	282,479	112	1,853,115
97	83	1,358,440	1	20,655	14	170,142	98	1,549,237
98	53	839,880			8	119,815	61	959,695
99	28	541,319			10	126,941	38	668,260
100 & Over	64	899,842			12	206,653	76	1,106,495
<b>Totals</b>	<b>76,665</b>	<b>\$1,730,708,021</b>	<b>6,229</b>	<b>\$108,224,292</b>	<b>10,610</b>	<b>\$159,390,641</b>	<b>93,504</b>	<b>\$1,998,322,954</b>

Average Age: 69.1 years

Average Age at Retirement: 59.2 years



**Public Employees' Retirement System of Mississippi**

**Total Active Members as of June 30, 2014  
Tabulated by Attained Ages and Years of Service**

Attained	Years of Service to Valuation Date							Totals	
	0 – 4	5 – 9	10 – 14	15 – 19	20 – 24	25 – 29	30+	No.	Valuation Payroll
Under 20	277	6						283	\$3,882,155
20 – 24	6,940	75						7,015	158,071,249
25 – 29	12,558	3,303	67					15,928	472,833,194
30 – 34	8,376	8,030	2,533	53				18,992	647,579,650
35 – 39	6,556	5,349	5,683	1,814	33			19,435	718,768,012
40 – 44	5,782	5,074	4,425	4,421	1,837	63		21,602	828,119,380
45 – 49	4,877	4,182	3,619	3,328	3,540	1,267	29	20,842	796,532,626
50 – 54	4,327	3,950	3,605	3,300	2,890	2,484	842	21,398	810,592,698
55 – 59	3,273	3,391	3,153	2,911	2,824	2,033	1,508	19,093	737,087,235
60	516	563	512	451	427	325	306	3,100	123,012,305
61	464	482	475	396	402	310	279	2,808	111,023,568
62	342	443	392	324	302	230	204	2,237	89,109,618
63	281	384	311	263	240	175	168	1,822	73,023,425
64	221	329	261	208	188	138	155	1,500	59,617,626
65	164	228	181	161	131	84	105	1,054	43,115,380
66	133	203	149	126	102	85	91	889	36,709,625
67	131	163	146	123	69	64	87	783	32,137,873
68	80	97	85	64	51	30	56	463	17,129,693
69	71	94	88	45	49	28	43	418	17,229,629
70 & Over	268	339	340	249	154	133	215	1,698	59,111,714
<b>Totals</b>	<b>55,637</b>	<b>36,685</b>	<b>26,025</b>	<b>18,237</b>	<b>13,239</b>	<b>7,449</b>	<b>4,088</b>	<b>161,360</b>	<b>\$5,834,686,655</b>

While not used in the financial computations, the following group averages are computed and shown because of their general interest.

Age: 44.4 years  
 Service: 10.2 years  
 Annual Pay: \$36,159



**SCHEDULE E**

**MISSISSIPPI PERS  
ANALYSIS OF FINANCIAL EXPERIENCE**

**Gains & Losses in Accrued Liabilities  
Resulting from Difference Between  
Assumed Experience & Actual Experience  
(\$ Millions)**

Type of Activity	\$ Gain (or Loss) For Year Ending 6/30/14	\$ Gain (or Loss) For Year Ending 6/30/13
<b>Age &amp; Service Retirements.</b> If members retire at older ages, there is a gain. If younger ages, a loss.	\$ (98.5)	\$ (90.8)
<b>Disability Retirements.</b> If disability claims are less than assumed, there is a gain. If more claims, a loss.	(24.5)	(26.0)
<b>Death-in Service Benefits.</b> If survivor claims are less than assumed, there is a gain. If more claims, there is a loss.	(5.7)	(0.1)
<b>Withdrawal From Employment.</b> If more liabilities are released by withdrawals than assumed, there is a gain. If smaller releases, a loss.	(99.3)	34.7
<b>Pay Increases.</b> If there are smaller pay increases than assumed, there is a gain. If greater increases, a loss.	251.8	349.6
<b>New Members.</b> Additional unfunded accrued liability will produce a loss.	(31.0)	(63.8)
<b>Investment Income.</b> If there is a greater investment income than assumed, there is a gain. If less income, a loss.	1,183.8	(416.8)
<b>Death After Retirement.</b> If retirants live longer than assumed, there is a loss. If not as long, a gain.	(35.8)	(32.7)
<b>Other.</b> Miscellaneous gains and losses resulting from changes in valuation software, data adjustments, timing of financial transactions, etc.	<u>(227.8)</u>	<u>(175.6)</u>
<b>Gain (or Loss) During Year From Financial Experience</b>	\$ 913.0	\$ (421.5)
<b>Non-Recurring Items.</b> Adjustments for plan amendments, assumption changes, or method	<u>0.0</u>	<u>226.1</u>
<b>Composite Gain (or Loss) During Year</b>	\$ 913.0	\$ (195.4)



## SCHEDULE F 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.

Normal Cost. The annual cost assigned, under the actuarial funding method, to 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.

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.