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**Report on the Annual Basic Benefits Valuation of the
School Employees' Retirement System of Ohio**

Prepared as of June 30, 2013



Cavanaugh Macdonald

CONSULTING, LLC

The experience and dedication you deserve

November 5, 2013

Board of Trustees
School Employees Retirement System
Of Ohio
300 East Broad Street
Suite 100
Columbus, OH 43215-3746

Dear Members of the Board:

Presented in this report are the results of the annual actuarial valuation of the basic benefits provided under the School Employees Retirement System of Ohio (SERS). The purpose of the valuation was to measure the System's funding progress and to determine the required employer contribution rates for the fiscal year beginning July 1, 2013.

The date of the valuation was June 30, 2013.

The valuation was based upon data, furnished by the Executive Director and the SERS staff, concerning active, inactive and retired members along with pertinent financial information. The complete cooperation of the SERS staff in furnishing materials requested is hereby acknowledged with appreciation.

Your attention is directed particularly to the summary of results on page 1 and the comments on page 6.

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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The undersigned are members of the American Academy of Actuaries and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion contained herein.

Respectfully submitted,

A handwritten signature in blue ink that reads 'Thomas J. Cavanaugh'.

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

A handwritten signature in blue ink that reads 'John J. Garrett'.

John J. Garrett, ASA, FCA, MAAA
Principal and Consulting Actuary

A handwritten signature in blue ink that reads 'Todd B. Green'.

Todd B. Green, ASA, FCA, MAAA
Principal and Consulting Actuary

TJC/JJG:kc

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**REPORT ON THE ANNUAL VALUATION OF THE
SCHOOL EMPLOYEES RETIREMENT SYSTEM OF OHIO**

PREPARED AS OF JUNE 30, 2013

SECTION I – SUMMARY OF PRINCIPAL RESULTS

1. This report, prepared as of June 30, 2013, presents the results of the annual actuarial valuation of the basic benefits provided under the System, including pension, Medicare Part B reimbursement and post-retirement death benefits. For convenience of reference, the principal results of the valuation and a comparison with the preceding year's results are summarized in the following table.

SUMMARY OF PRINCIPAL RESULTS

	June 30, 2013	June 30, 2012
Active members included in valuation		
Number	121,642	121,811
Annual Compensation	\$2,746,827,535	\$2,788,153,585
Retirees		
Number	70,771	69,038
Annual allowances	\$898,267,601	\$838,076,567
Deferred Vesteds		
Number	7,246	12,610
Annual deferred allowances	\$29,094,575	\$43,439,531
Assets (net of Health Care Assets)		
Market related actuarial value	\$11,125,960,356	\$10,396,912,847
Market value	\$11,300,482,029	\$10,331,658,392
Unfunded Accrued Liability	\$6,121,200,722	\$6,357,653,176
Funded Ratio (MVA/AAL)		
Basic Benefits	65.30%	62.83%
Medicare Part B	30.64%	29.48%
Post-retirement Death Benefits	55.88%	52.94%
Employer Contribution Rate		
Normal	1.30%	1.23%
Accrued liability	<u>12.56</u>	<u>12.61</u>
Total	13.86%	13.84%
Accrued liability amortization period (years)	29	30



2. The board has set a total contribution rate of 24% of payroll; 14% from employers and 10% from employees. Employer contributions in excess of those required to support the basic benefits are allocated to retiree health care funding.
3. There was a decrease in the deferred vested participant population reported on the member data file furnished by the SERS staff as compared to the prior year's deferred vested headcount. The reduction in deferred vested members as compared to the vested deferred members as of June 30, 2012 was due to the enactment of SB 341. We have determined the change in the vested member population results in a \$27.8 million reduction to liabilities as shown on page 8.
4. The valuation balance sheet showing the results of the valuation is given in Schedule A.
5. Comments on the valuation results are given in Section IV, comments on the experience and the sources of 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.
6. Schedule B of this report presents the development of the actuarial value of assets. Schedule C details the actuarial assumptions and methods employed. Schedule D gives a summary of the benefit and contribution provisions of the plan.
7. All information in this report for years prior to the year ended June 30, 2008 were provided by the System's previous actuary and the accuracy of that information is the responsibility of that actuary.



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 staff. The following tables summarize the membership of the system as of June 30, 2013 upon which the valuation was based. Detailed tabulations of the data are given in Schedule E.

Active Members

Number	Payroll	Group Averages		
		Salary	Age	Service
121,642	\$2,746,827,535	\$22,581	48.6	10.0

The total number of active members includes 58,818 vested members and 62,824 non-vested members. The vesting requirement is five years for members who retire prior to August 1, 2017 and ten years for those who retire on and after August 1, 2017.

The following table shows a six-year schedule of active member valuation data.

SCHEDULE OF SERS ACTIVE MEMBER VALUATION DATA

Valuation Date	Number	Annual Payroll	Annual Average Pay	% Increase in Average Pay
6/30/2008	124,370	\$2,651,800,981	\$21,322	0.8%
6/30/2009	125,465	2,787,390,954	22,216	4.2
6/30/2010	126,015	2,842,660,159	22,558	1.5
6/30/2011	125,337	2,852,378,614	22,758	0.9
6/30/2012	121,811	2,788,153,585	22,889	0.6
6/30/2013	121,642	2,746,827,535	22,581	(1.3)



The following table shows the number and annual retirement allowances payable to retired members and their beneficiaries on the roll of the Retirement System as of the valuation date as well as certain group averages.

Retired Lives

Type of Benefit Payment	Number	Annual Benefits	Group Averages	
			Benefit	Age
Retirees and Beneficiaries	60,944	\$779,902,298	\$12,797	74.9
Disability	5,438	84,452,874	15,530	64.9
Survivors	4,389	33,912,429	7,727	71.5
Total in SERS	70,771	\$898,267,601	\$12,693	73.9

This valuation also includes 106,019 inactive members eligible for a contribution refund only (including 54,156 members reported separately who had completed one or more years of service before terminating). Their contributions totaled \$212,983,848 as of June 30, 2013. There were also 7,246 terminated vested members with annual deferred pension benefits of \$29,094,575. Included in the "Retiree" numbers in the above table are 9,117 re-employed retirees with account balances of \$70,594,639 (including employer contributions and interest), 396 re-retirees receiving only an annuity from their contributions and their employers' matching contributions, and 445 re-retirees receiving such annuities in addition to their regular pension benefits. The sum of the annuity payments attributable to these re-retirees is \$3,118,368.



SECTION III – ASSETS

1. As of June 30, 2013 the total market value of assets amounted to \$11,679,663,055. All figures include the combined Pension Trust Fund, Medicare B Fund, Death Benefit Fund and Health Care Fund but exclude the QEBA Fund.

Asset Summary Based on Market Value		
(1)	Assets at June 30, 2012	\$ 10,686,768,799
(2)	Contributions and Misc. Revenue	854,005,112
(3)	Investment Gain (Loss)	1,308,025,940
(4)	Benefit Payments	(1,169,136,796)
(5)	Assets at June 30, 2013 (1) + (2) + (3) + (4)	\$ 11,679,663,055
(6)	Annualized Rate of Return*	12.4 %

2. The four-year smoothed market related actuarial value of assets used for the current valuation was \$11,125,960,356. Schedule B shows the development of the actuarial value of assets as of June 30, 2013. Again all figures include the combined Pension Trust Fund, Medicare B Fund, Death Benefit Fund and Health Care Fund but exclude the QEBA Fund.

Asset Summary Based on Actuarial Value		
(1)	Assets at June 30, 2012	\$ 10,752,023,254
(2)	Contributions and Misc. Revenue	854,005,112
(3)	Investment Gain (Loss)	1,068,249,812
(4)	Benefit Payments	(1,169,136,796)
(5)	Assets at June 30, 2013 Before Application of Corridor (1) + (2) + (3) + (4)	\$ 11,505,141,382
(6)	Annualized Rate of Return*	10.1 %

*Based on the approximation formula: $I/[0.5 \times (A + B - I)]$, where

- I = Investment Gain (Loss)
- A = Beginning of year asset value
- B = End of year asset value



SECTION IV - COMMENTS ON VALUATION

Schedule A of this report contains the valuation balance sheet which shows the present and prospective assets and liabilities of the System as of June 30, 2013.

1. The total valuation balance sheet on account of retirement benefits shows that the System has total prospective retirement benefit liabilities of \$19,898,450,245, of which \$9,498,497,493 is for the prospective benefits payable on account of present retired members and beneficiaries of deceased members, \$578,661,862 is for the prospective benefits payable on account of present inactive members, and \$9,821,290,890 is for the prospective benefits payable on account of present active members. Against these retirement benefit liabilities the System has a total present actuarial value of assets of \$11,125,960,356 as of June 30, 2013. The difference of \$8,772,489,889 between the total liabilities and the total present actuarial value of assets represents the present value of contributions to be made in the future on account of retirement benefits. Of this amount, \$2,408,904,452 is the present value of future contributions expected to be made by members, and the balance of \$6,363,585,437 represents the present value of future contributions payable by the employers.
2. The employers' contributions to the System on account of retirement benefits consist of normal contributions, accrued liability contributions and contributions for administrative expenses. The valuation indicates that employer normal contributions at the rate of 1.07% of payroll for basic pension benefits, 0.02% of payroll for post-retirement death benefits, and 0.21% of payroll for Medicare Part B benefits are required to provide the benefits of the System for the average member of SERS. Prospective employer normal contributions on account of retirement benefits at the above rates have a present value of \$242,384,715.
3. For pension benefits, it is recommended that the unfunded accrued liability contribution rate payable by the employers on account of retirement benefits be set at 11.98% of payroll. For post-retirement death benefits, it is recommended that the unfunded accrued liability contribution rate payable by the employers on account of retirement benefits be set at 0.03% of payroll. Finally for Medicare Part B benefits, it is recommended that the unfunded accrued liability contribution rate payable by the employers on account of retirement benefits be set at 0.55% of payroll. These rates are sufficient to amortize the unfunded accrued liability of \$6,121,200,722 over 29 years based on the assumption that the aggregate payroll for SERS members will increase by 4.00% each year.
4. The present value of the total future contributions to be made by the employers for basic benefits is the sum of the future employer normal contributions and the unfunded accrued liability contributions and equals \$6,363,585,437.



SECTION V – DERIVATION OF EXPERIENCE GAINS AND LOSSES

Actual experience will never (except by coincidence) match 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, 2013 is shown below (\$ millions).

Experience Gain/(Loss)

(1)	UAAL as of 6/30/12	\$ 6,357.7
(2)	Normal cost from last valuation	311.9
(3)	Contributions	695.1
(4)	Interest accrual: [(1) + (2) - (3)*.5] x .0775	490.0
(5)	Expected UAAL before changes: (1) + (2) - (3) + (4)	\$ 6,464.5
(6)	Change due to plan amendments	(27.8)
(7)	Change due to new actuarial assumption or methods	0.0
(8)	Expected UAAL after changes: (5) + (6) + (7)	\$ 6,436.7
(9)	Actual UAAL as of 6/30/13	\$ 6,121.2
(10)	Gain/(loss): (8) - (9)	\$ 315.5
(11)	Accrued liabilities as of 6/30/13	\$ 17,247.2
(12)	Gain/(loss) as percent of actuarial accrued liabilities at start of year	1.8%



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 6/30/13
Age & Service Retirements. If members retire at older ages, there is a gain. If younger ages, a loss.	\$ (121.9)
Disability Retirements. If disability claims are less than assumed, there is a gain. If more claims, a loss.	(53.6)
Death-in Service Benefits. If survivor claims are less than assumed, there is a gain. If more claims, there is a loss.	0.0
Withdrawal From Employment. If more liabilities are released by withdrawals than assumed, there is a gain. If smaller releases, a loss.	61.1
Pay Increases. If there are smaller pay increases than assumed, there is a gain. If greater increases, a loss.	219.2
New Members. Additional accrued liability attributable to members who entered the plan since the last valuation.	(35.1)
Investment Income. If there is a greater investment income than assumed, there is a gain. If less income, a loss.	241.0
Death After Retirement. If retired members live longer than assumed, there is a loss. If not as long, a gain.	2.9
Other. Miscellaneous gains and losses resulting from changes in valuation software, data adjustments, timing of financial transactions, etc.	<u>1.9</u>
Gain (or Loss) During Year From Financial Experience	\$ 315.5
Non-Recurring Items. Adjustments for plan amendments, assumption changes and method changes	<u>27.8</u>
Composite Gain (or Loss) During Year	\$ 343.3



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 tables show the rates of contribution payable by employers.

Required Contribution Rates

Contribution for	Benefits	Retirement Death Benefits	Medicare Part B	Total
A. Normal Cost:				
(1) Service retirement benefits	6.70%			
(2) Disability benefits	0.77			
(3) Survivor benefits	0.16			
(4) Refunds	<u>3.44</u>			
(5) Total	11.07%	0.02%	0.21%	11.30%
B. Member Contributions	10.00%	0.00%	0.00%	10.00%
C. Employer Normal Cost: [A(5) - B]	1.07%	0.02%	0.21%	1.30%
D. Unfunded Actuarial Accrued Liability Contributions	11.98%	0.03%	0.55%	12.56%
E. Total Recommended Employer Contribution Rate:[C+D]	13.05%	0.05%	0.76%	13.86%



SECTION VII - ACCOUNTING INFORMATION

Governmental Accounting Standards Board Statements 25 and 27 set forth certain items of required supplementary 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 MEMBERS
AS OF JUNE 30, 2013**

GROUP	Total
Retirees and beneficiaries currently receiving benefits	70,771
Terminated employees entitled to benefits but not yet receiving benefits	7,246
Active Members	<u>121,642</u>
Total	199,659

Another such item is the Schedule of Funding Progress for pension, post-retirement death and Medicare Part B benefits separately as shown in the following table.



SCHEDULE OF FUNDING PROGRESS
(\$ In Millions)

Actuarial Valuation Date	Value of Plan Assets (a)	Actuarial Accrued Liability (AAL) Entry Age (b)	Unfunded AAL (UAAL) (b - a)	Funded Ratio (a / b)	Covered Payroll (c)	UAAL as a Percentage of Covered Payroll (b - a) / (c)
Basic Benefits						
6/30/2008	\$ 11,218	\$ 13,674	\$ 2,456	82.0%	\$ 2,873	85.5%
6/30/2009	9,704	14,190	4,486	68.4	2,787	161.0
6/30/2010	10,766	14,823	4,057	72.6	2,843	142.7
6/30/2011	10,378	15,910	5,532	65.2	2,852	194.0
6/30/2012	10,266	16,338	6,072	62.8	2,788	217.8
6/30/2013	10,988	16,826	5,838	65.3	2,747	212.5
Medicare Part B						
6/30/2008	\$ 131	\$ 358	\$ 227	36.7%	\$ 2,873	7.9%
6/30/2009	113	361	248	31.3	2,787	8.9
6/30/2010	122	367	244	33.3	2,843	8.6
6/30/2011	116	382	266	30.3	2,852	9.3
6/30/2012	113	383	270	29.5	2,788	9.7
6/30/2013	119	387	268	30.6	2,747	9.8
Post-Retirement Death Benefits						
6/30/2008	\$ 23	\$ 30	\$ 7	76.7%	\$ 2,873	0.2%
6/30/2009	19	31	12	61.3	2,787	0.4
6/30/2010	21	32	11	65.6	2,843	0.4
6/30/2011	19	33	14	57.6	2,852	0.5
6/30/2012	18	34	16	52.9	2,788	0.6
6/30/2013	19	34	15	55.9	2,747	0.5



The information presented in the required supplementary schedules was determined as part of the actuarial valuation at June 30, 2013. Additional information as of the latest actuarial valuation follows.

Valuation date	6/30/2013
Actuarial cost method	Entry Age
Amortization	Level Percent Closed
Remaining amortization period	29 years
Asset valuation method	4 Year Smoothed Market
Actuarial assumptions	
Investment rate of return*	7.75%
* Includes price inflation at	3.25%
Projected salary increases^	4.00% - 22.00%
^ Includes wage inflation at	4.00%
Cost-of-living adjustment	3.00%



Schedule of Employer Contributions

Year Ended	Annual Required Contribution	Percentage Contributed
Basic Benefits		
June 30, 2008	242,314,851	100.0%
June 30, 2009	268,645,839	100.0
June 30, 2010	378,201,685	100.0
June 30, 2011	355,959,304	100.0
June 30, 2012	376,816,938	100.0
June 30, 2013	380,083,642	100.0
Medicare Part B		
June 30, 2008	17,519,556	100.0%
June 30, 2009	21,688,294	100.0
June 30, 2010	22,619,935	100.0
June 30, 2011	22,172,922	100.0
June 30, 2012	21,450,368	100.0
June 30, 2013	20,672,040	100.0
Post-Retirement Death Benefits		
June 30, 2008	\$ 835,348	100.0
June 30, 2009	734,970	100.0
June 30, 2010	1,225,772	100.0
June 30, 2011	1,166,996	100.0
June 30, 2012	1,454,763	100.0
June 30, 2013	1,398,442	100.0



SCHEDULE A

Valuation Balance Sheet and Solvency Test

The following valuation balance sheet shows the assets and liabilities of the retirement system as of the current valuation date of June 30, 2013 and, for comparison purposes, as of the immediately preceding valuation date of June 30, 2012. The items shown in the balance sheet are present values actuarially determined as of the relevant valuation date.

VALUATION BALANCE SHEETS SHOWING THE ASSETS AND LIABILITIES OF THE SCHOOL EMPLOYEES RETIREMENT SYSTEM OF OHIO

	June 30, 2013	June 30, 2012
ASSETS		
Current actuarial value of assets	\$ 11,125,960,356	\$ 10,396,912,847
Prospective contributions		
Member contributions	\$ 2,408,904,452	\$ 2,454,180,160
Employer normal contributions	242,384,715	235,800,553
Unfunded accrued liability contributions	<u>6,121,200,722</u>	<u>6,357,653,176</u>
Total prospective contributions	<u>\$ 8,772,489,889</u>	<u>\$ 9,047,633,889</u>
Total assets	<u>\$ 19,898,450,245</u>	<u>\$ 19,444,546,736</u>
LIABILITIES		
Present value of benefits payable on account of present retired members and beneficiaries	\$ 9,498,497,493	\$ 8,874,437,367
Present value of benefits payable on account of active members	9,821,290,890	9,977,458,785
Present value of benefits payable on account of inactive and deferred vested members	<u>578,661,862</u>	<u>592,650,584</u>
Total liabilities	<u>\$ 19,898,450,245</u>	<u>\$ 19,444,546,736</u>



The following tables provide the solvency test for SERS members.

Solvency Test¹
(\$ in Millions)

Valuation Date	Aggregate Accrued Liabilities For				Portion of Accrued Liabilities Covered by Reported Asset		
	(1) Active Member Contributions	(2) Retired Members & Beneficiaries	(3) Active Members (Employer Financed Portion)	Actuarial Value of Assets	(1)	(2)	(3)
Basic Benefits							
6/30/2008	\$ 2,291	\$ 7,079	\$ 4,334	\$ 11,241	100.0%	100.0%	43.2%
6/30/2009	2,470	7,496	4,224	9,704	100.0	96.5	0.0
6/30/2010	2,569	7,850	4,404	10,766	100.0	100.0	7.9
6/30/2011	2,749	8,525	4,636	10,378	100.0	89.5	0.0
6/30/2012	2,826	9,190	4,322	10,266	100.0	81.0	0.0
6/30/2013	2,860	9,796	4,196	10,988	100.0	83.0	0.0
Medicare Part-B							
6/30/2009	\$ 0	\$ 239	\$ 121	\$ 113	100.0%	47.1%	0.0%
6/30/2010	0	239	128	122	100.0	51.1	0.0
6/30/2011	0	245	138	116	100.0	47.3	0.0
6/30/2012	0	251	132	113	100.0	45.1	0.0
6/30/2013	0	255	132	119	100.0	46.5	0.0
Post-Retirement Death Benefits							
6/30/2009	\$ 0	\$ 24	\$ 7	\$ 19	100.0%	79.2%	0.0%
6/30/2010	0	25	7	21	100.0	84.0	0.0
6/30/2011	0	26	7	19	100.0	74.0	0.0
6/30/2012	0	26	8	18	100.0	69.7	0.0
6/30/2013	0	27	7	19	100.0	72.6	0.0

¹Solvency Test combined for Pension, Death After Retirement Benefits and Medicare Part B Benefits for valuations performed prior to 6/30/2009

SCHEDULE B

Development of Actuarial Value of Assets



Valuation date June 30:	2012	2013	2014	2015	2016
A. Actuarial Value Beginning of Year	\$ 10,868,822,602	\$ 10,752,023,254			
B. Market Value End of Year	10,686,768,799	11,679,663,055			
C. Market Value Beginning of Year	10,974,881,045	10,686,768,799			
D. Cash Flow					
D1. Contributions	\$ 753,172,445	\$ 740,601,623			
D2. Other Revenue	154,832,793	135,705,046			
D3. Benefit Payments	(1,131,594,174)	(1,169,136,796)			
D4. Net Transfers	<u>(4,976,841)</u>	<u>(22,301,557)</u>			
D5. Net	\$ (228,565,777)	\$ (315,131,684)			
E. Investment Income					
E1. Market Total: B.-C.-D5.	\$ (59,546,469)	\$ 1,308,025,940			
E2. Assumed Rate (Net of Expenses)	7.75%	7.75%			
E3. Amount for Immediate Recognition	841,696,357	816,013,229			
E4. Amount for Phased-In Recognition	(901,242,826)	492,012,711			
F. Phased-In Recognition of Investment Income					
F1. Current Year: 0.25 * E4.	\$ (225,310,707)	\$ 123,003,178	\$ 0	\$ 0	\$ 0
F2. First Prior Year	256,133,554	(225,310,707)	123,003,178	0	0
F3. Second Prior Year	98,410,558	256,133,554	(225,310,707)	123,003,178	0
F4. Third Prior Year	<u>(859,163,333)</u>	<u>98,410,558</u>	<u>256,133,554</u>	<u>(225,310,707)</u>	<u>123,003,177</u>
F5. Total Recognized Investment Gain/(Loss)	\$ (729,929,928)	\$ 252,236,583	\$ 153,826,025	\$ (102,307,529)	\$ 123,003,177
G. Preliminary Actuarial Value End of Year:					
A.+D5.+E3.+F5.	\$ 10,752,023,254	\$ 11,505,141,382			
H. Corridor					
H1. 80% of Market Value	\$ 8,549,415,039	\$ 9,343,730,444			
H2. 120% of Market Value	\$ 12,824,122,559	\$ 14,015,595,666			
I. Actuarial Value End of Year:					
G. Not Less than H1. or Not Greater than H2	\$ 10,752,023,254	\$ 11,505,141,382			
J. Difference Between Market & Actuarial Values	\$ (65,254,455)	\$ 174,521,673	\$ 20,695,648	\$ 123,003,177	\$ 0
K. Health Care Valuation Assets	\$ 355,110,407	\$ 379,181,026			
L. Basic Benefits Valuation Assets	\$ 10,396,912,847	\$ 11,125,960,356			

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 4 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.



SCHEDULE C

STATEMENT OF ACTUARIAL ASSUMPTIONS AND METHODS

The actuarial assumptions used in the valuation were adopted by the Board in April, 2011.

INTEREST RATE: 7.75% per annum, compounded annually (net after all System expenses).

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

Service	Annual Rates of Withdrawal
0	45.00%
1	31.00
2	23.00
3	17.00
4	13.00
5	9.00
10	4.00
15	2.00
20	2.00
25	1.50

Age	Annual Rates of			
	Death		Disability	
	Male	Female	Male	Female
20	.013%	.007%	.020%	.020%
25	.017	.007	.038	.020
30	.020	.009	.068	.026
35	.021	.012	.122	.054
40	.027	.018	.210	.100
45	.040	.024	.310	.168
50	.065	.036	.410	.260
55	.111	.057	.510	.360
60	.199	.111	.550	.400
65	.363	.216	.550	.400
70	.593	.343	.550	.400
74	.851	.510	.550	.400



Annual Rates of Normal Retirements		
Age	Male	Female
50	28.0%	25.0%
55	20.0	21.0
60	18.0	17.0
62	20.0	20.0
65	25.0	25.0
70	14.0	14.0
75	100.0	100.0

For members who are not eligible to retire prior to August 1, 2017, the assumed rates of retirement in the first year of eligibility for a normal retirement and upon completing 30 years of service are 28%. The assumed rates of early retirement for members who retire prior to August 1, 2017 are 14% for males and 13% for females aged 55 to 59 and 8.5% for males and 9.5% for females aged 60 to 64.

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	18.00%	4.00%	22.00%
1	8.00	4.00	12.00
2	5.50	4.00	9.50
3	4.00	4.00	8.00
4	3.00	4.00	7.00
5	2.00	4.00	6.00
6	1.25	4.00	5.25
7	1.00	4.00	5.00
8	0.50	4.00	4.50
9	0.25	4.00	4.25
10-14	0.00	4.00	4.00
15 & over	0.00	4.00	4.00

PAYROLL GROWTH: 4.00% per annum, compounded annually.

PRICE INFLATION: 3.25% per annum, compounded annually.

DEATH AFTER RETIREMENT: The mortality table, for post-retirement mortality, used in evaluating allowances to be paid is the 1994 Group Annuity Mortality Table, set back one year for both men and women. Special tables are used for the period after disability retirement. This assumption is used to measure the probabilities of each benefit payment being made after retirement. There is sufficient margin



in the current mortality tables for possible future improvement in mortality rates and that margin will be reviewed again when the next experience investigation is conducted.

MARRIAGE ASSUMPTION: 80% married with the husband three years older than his wife.

VALUATION METHOD: Entry age normal cost method. Entry age is established on an individual basis.

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 25% of the difference between market value and expected market value. The actuarial value of assets cannot be less than 80% or more than 120% of market value.



SCHEDULE D

SCHOOL EMPLOYEES RETIREMENT SYSTEM OF OHIO Summary of Benefit and Contribution Provisions

Contributions for Basic Benefits	Members contribute 10% of pay and employers contribute 14% of pay. Employer contributions not required to finance basic benefits are allocated to the health care program.
Final Average Salary	Average annual salary over the member's three highest years of service.
Normal Retirement	
Condition for Retirement	
<i>Retire before August 1, 2017 or have 25 years of service or more on or before August 1, 2017</i>	Attainment of age 65 with at least five years of creditable service, or completion of 30 years of creditable service, regardless of age.
<i>Members attaining 25 years of service after August 1, 2017</i>	Attainment of age 67 with at least ten years of creditable service, or attainment of age 57 with at least 30 years of creditable service. Buy-up option available.
Amount of Allowance	The annual retirement allowance payable shall not be greater than 100% of final average salary, and is the greater of: 1. Money Purchase - the greater of: The sum of: a. An annuity based on the value of the member's accumulated contributions at retirement b. A pension equal to the annuity c. For members who have 10 or more years of service credit prior to 10/1/1956, an annual benefit of \$180. 2. Defined Benefit - the greater of: The sum of: a. 2.2% of final average salary multiplied by the member's years of service up to 30, b. 2.5% of final average salary multiplied by the member's years of service in excess of 30, or: c. \$86 multiplied by the years of service.



Early Retirement

Condition for Early Retirement

Retire before August 1, 2017 or have 25 years of service or more on or before August 1, 2017

Not eligible for unreduced service retirement but has attained age 55 with at least 25 years of service, or age 60 with five years of service.

Members attaining 25 years of service after August 1, 2017

Attainment of age 62 with at least ten years of creditable service, or attainment of age 60 with at least 25 years of creditable service.

Amount of Allowance

Retire before August 1, 2017 or have 25 years of service or more on or before August 1, 2017

Normal retirement allowance accrued to the date of early retirement. The Defined Benefit amount determined above is adjusted by the following percentages based on attained age or years of service:

<u>Attained Age</u>	<u>Years of Ohio Service Credit</u>	<u>Percentage</u>
58	25	75%
59	26	80
60	27	85
61		88
	28	90
62		91
63		94
	29	95
64		97

Members attaining 25 years of service after August 1, 2017

Actuarial equivalent of the normal retirement allowance accrued to the date of early retirement. The Defined Benefit amount determined above is actuarially adjusted for the years before age 65 (age 67 if after August 1, 2017) or 30 years of service, whichever is shorter, but in no event is the adjusted benefit less than the following percentages of the Defined Benefit amount based on years of service:

<u>Years of Ohio Service Credit</u>	<u>Percentage</u>
25	75%
26	80
27	85
28	90
29	95

Disability Retirement

Condition for Retirement

An allowance is paid upon becoming permanently disabled after completion of at least 5 years of total service credit.

Amount of Allowance

1. For those who were active members prior to July 29, 1992 and did not elect the benefit structure outlined below, an allowance based on service to date of



disablement, plus, if the age at disablement is less than 60, continuous service to age 60. The allowance is computed in the same manner as the defined benefit service retirement allowance, subject to a minimum of 30% of FAS and a maximum of 75% of FAS. It is payable for life, unless terminated.

2. For those who became active members after July 28, 1992, and for those who were active members prior to July 29, 1992 who so elected, an allowance equal to the greater of (i) 45% of FAS, or (ii) the lesser of 60% of FAS, or the allowance computed in the same manner as the defined benefit service retirement allowance. The allowance will continue until:
 - a. The date the member is granted a service retirement benefit, or
 - b. The date the allowance is terminated, or
 - c. The later of the date the member attains age 65 or the date the disability allowance has been paid for the minimum duration in accordance with the following schedule:

<u>Age at Disability</u>	<u>Minimum Duration In Months</u>
60 and earlier	60
61	60
62	48
63	48
64	36
65	36
66	24
67	24
68	24
69 and older	12

Death Benefits Prior to Retirement

Death While Eligible to Retire

If a member dies in service after becoming eligible to retire with a service allowance and leaves a surviving spouse or other sole dependent beneficiary, the survivor may elect to receive the same amount that would have been paid had the member retired the last day of the month of death and elected the 100% joint and survivor form of payment.

Survivor (Death-in-Service) Allowances

Condition for Benefit

Upon the death of a member with at least 1½ years of Ohio service credit and with at least ¼ year of Ohio contributing service credit within 2½ years prior to the date of death, the survivor allowances are payable as follows:

1. **Qualified Spouse:** A monthly allowance commencing at age 62, except that the benefit is payable immediately if: (1) the qualified deceased member had 10 or more years of Ohio service credit; or (2) is caring for a surviving child, or (3) is incompetent.
2. **Qualified Child:** For allowances that commenced before January 7 2013, an allowance is payable to the qualified



child of a deceased member who has never been married and is under age 18, under age 22 and in school, or adjudged incompetent prior to the member's death and the child attaining age 18 or age 22 if attending school. For allowances that commence on or after January 7, 2013 an allowance is payable to the qualified child of a deceased member who has never been married and is under age 19, or adjudged incompetent prior to the member's death and prior to the child attaining age 19.

3. **Qualified Parent's Allowance:** A monthly allowance is payable to a dependent parent age 65 or more.

Amount of Allowances

Except when survived by a qualified child(ren), upon the death of a member prior to retirement, the accumulated contributions of the member without interest is payable. Alternatively, the beneficiary may elect the following amounts, payable monthly while eligible:

<u>Number of Qualified Survivors</u>	<u>Annual Benefit as Percent of Member's FAS</u>	<u>Minimum Monthly Allowance</u>
1	25%	\$96
2	40	186
3	50	236
4	55	236
5 or more	60	236

If the deceased member had attained at least 20 years of service, the total benefits payable to all qualified survivors are not less than:

<u>Years of Service</u>	<u>Annual Benefit as Percent of Member's FAS</u>
20	29%
21	33
22	37
23	41
24	45
25	48
26	51
27	54
28	57
29 or more	60

Termination Benefits

Refund of Members' Accumulated Contributions

In the event a member leaves service before any monthly benefits are payable on his behalf, his accumulated contributions, without interest, may be refunded.

Deferred Benefits

Members who retire prior to August 1, 2017 must have at least 5 years of service credit and those members who retire on and after August 1, 2017 must have at least 10 years of service credit and are eligible to draw the benefit the first of the month following their 62nd birthday.



Normal Form of Benefit

Single Life Annuity

Optional Forms of Benefit

A member upon retirement may elect to receive his allowance in one of the following forms that are computed to be actuarially equivalent to the applicable retirement allowance:

Upon the death of a retiree, 50%, 100%, or some other percentage of his reduced retirement allowance shall be continued throughout the life of, and paid to, a designated beneficiary.

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

A member can select a partial lump-sum option at retirement. Under this option, the partial lump-sum shall not be less than 6 times and not more than 36 times the unreduced monthly benefit, and the monthly benefit will be actuarially reduced. In addition, the monthly benefit payable cannot be less than 50% of the unreduced amount.

Post-Retirement Death Benefit

Regardless of the form of benefit selected, a lump sum benefit of \$1,000 is paid at the death of the retiree.

Post-Retirement Increases

On each anniversary of the initial date of retirement, the allowances of all retirees and survivors are increased by 3% of the base benefit.

Medicare Part B

Each recipient of a service retirement benefit, a disability benefit or a survivor benefit who was credited with at least 10 years of service and is covered under Medicare Part B and has chosen the health care option, is reimbursed \$45.50 per month for premiums for that coverage.

Re-Employed Retirants

Eligibility Effective

July 1, 1991, service retirees of SERS, or service or disability retirees of one of the other four Ohio retirement systems who are employed in a SERS covered position are required to contribute to a money purchase annuity, a type of defined contribution plan.

Amount of Allowance

Upon termination of employment, a re-employed retirant who has attained age 65 is eligible to receive an annuity based on the amount of his/her accumulated contributions, and an equal amount of employer contributions, plus interest to the effective date of retirement. Effective July 1, 2006 the amount of employer contributions will be determined by the Board. Interest is granted on the reemployed retirant's prior fiscal year account balance, calculated using a rate determined by the SERS Board, compounded annually. The benefit is payable as a lump sum or as an annuity if the amount of such annuity is at least \$25. Upon termination of employment, a re-employed retirant who has not attained age 65 may request a lump sum



refund of his/her own contributions; there is no payment of employer contributions or interest.

Benefits Payable Upon Death

If a re-employed retirant dies while employed, a lump sum payment of the monthly annuity, discounted to the present value using the current actuarial assumption rate of interest, will be paid to his beneficiary.

If a re-employed retirant dies while receiving a monthly annuity, a lump sum payment will be made to a beneficiary in an amount equal to the excess, if any, of the lump sum payment the re-employed retirant would have received at the effective date of retirement over the sum of the annuity payments received by the re-employed retirant to the date of death.

Member Contributions

Each re-employed retirant is required to contribute 10% of his pay by payroll deductions.

Employer Contributions

Employer contributions are expressed as percents of member covered payroll. Employers are required to contribute 14% of payroll.

Other Benefits

Re-employed retirants of SERS are not eligible to receive any of the other benefits provided to SERS members.

Member Contributions

10% of salary.



SCHEDULE E

DETAILED TABULATIONS OF THE DATA

**Schedule of Retired Members Added to and Removed From Rolls
Last Six Fiscal Years**

Year Ending June 30	2008	2009	2010	2011	2012	2013
			<u>Number</u>			
Beginning of Year	63,529	64,818	65,757	66,127	67,221	69,038
Added	3,448	3,103	2,694	3,472	4,137	4,197
Removed	2,159	2,164	2,324	2,378	2,320	2,464
End of Year	64,818	65,757	66,127	67,221	69,038	70,771
			<u>Annual Retirement Allowances</u>			
Beginning of Year	\$ 607,386,140	\$ 652,373,571	\$ 693,838,994	\$ 729,859,717	\$ 777,910,918	\$ 838,076,567
Added	46,243,749	41,970,065	37,351,889	49,577,810	61,519,329	62,841,820
Removed	1,256,318	504,642	1,331,166	1,526,603	1,353,680	2,650,786
End of Year	\$ 652,373,571	\$ 693,838,994	\$ 729,859,717	\$ 777,910,918	\$ 838,076,567	\$ 898,267,601
% Increase in Allowances	7.41%	6.36%	5.19%	6.58%	7.73%	7.18%
Average Annual Allowance	\$ 10,065	\$ 10,552	\$ 11,037	\$ 11,572	\$ 12,139	\$ 12,693



**Annuity and Pension Reserve Fund
Retired Information June 30, 2013
Retired Members By Type of Benefit**

Amount of Monthly Benefit		Total	Service	Disability	Survivor
\$ 1 - \$	250	11,633	10,513	108	1,012
251 -	500	11,824	9,944	602	1,278
501 -	750	10,525	8,838	845	842
751 -	1,000	8,368	6,992	856	520
1,001 -	1,500	11,570	9,853	1,304	413
1,501 -	2,000	6,621	5,644	810	167
Over	2,000	<u>9,834</u>	<u>8,764</u>	<u>913</u>	<u>157</u>
		70,375	60,548	5,438	4,389

Average Monthly Benefit
Average Age

\$ 1,072 \$ 1,294 \$ 644
74.4 64.9 71.5



**Annuity and Pension Reserve Fund
Retired Information June 30, 2013
Tabulated by Attained Ages**

Attained Age	Retirement		Disability Retirement		Total	
	No.	Annual Benefits	No.	Annual Benefits	No.	Annual Benefits
Under 45	0	\$ -	96	\$ 1,425,727	96	\$ 1,425,727
45-49	41	\$ 1,535,635	198	\$ 3,350,120	239	\$ 4,885,755
50-54	522	\$ 17,697,699	551	\$ 10,644,241	1,073	\$ 28,341,940
55-59	1,751	\$ 53,011,385	982	\$ 18,703,435	2,733	\$ 71,714,820
60-64	6,399	\$ 108,136,815	1217	\$ 21,281,607	7,616	\$ 129,418,422
65-69	10,598	\$ 154,261,469	818	\$ 12,755,978	11,416	\$ 167,017,447
70-74	11,058	\$ 147,364,254	606	\$ 7,878,758	11,664	\$ 155,243,012
75-79	9,813	\$ 118,621,311	448	\$ 4,575,273	10,261	\$ 123,196,584
80-84	7,457	\$ 77,123,820	315	\$ 2,621,091	7,772	\$ 79,744,911
85-89	5,081	\$ 42,662,974	150	\$ 956,868	5,231	\$ 43,619,842
90 & Over	3,054	\$ 19,978,425	57	\$ 259,779	3,111	\$ 20,238,204
Totals	55,774	\$ 740,393,787	5,438	\$ 84,452,877	61,212	\$ 824,846,664



**Annuity and Pension Reserve Fund
Survivors of Annuitants Information June 30, 2013
Tabulated by Attained Ages**

Attained Age	Life Annuities		Periods Certain		Total	
	No.	Annual Benefits	No.	Annual Benefits	No.	Annual Benefits
Under 45	37	\$ 153,292	7	\$ 57,226	44	\$ 210,518
45-49	22	\$ 114,512	4	\$ 59,406	26	\$ 173,918
50-54	52	\$ 284,520	4	\$ 39,086	56	\$ 323,606
55-59	110	\$ 1,267,684	4	\$ 39,035	114	\$ 1,306,719
60-64	150	\$ 1,523,694	2	\$ 39,739	152	\$ 1,563,433
65-69	318	\$ 3,335,956	9	\$ 67,593	327	\$ 3,403,548
70-74	570	\$ 4,832,979	8	\$ 78,097	578	\$ 4,911,076
75-79	908	\$ 7,465,527	8	\$ 46,576	916	\$ 7,512,102
80-84	1,120	\$ 8,821,113	2	\$ 6,742	1,122	\$ 8,827,855
85-89	1,085	\$ 7,376,359	0	\$ -	1,085	\$ 7,376,359
90 & Over	750	\$ 3,899,372	0	\$ -	750	\$ 3,899,372
Totals	5,122	\$ 39,075,008	48	\$ 433,499	5,170	\$ 39,508,508



**All Benefit Recipients
Male and Female Demographic Breakdown
June 30, 2013**

Attained Age	Number of		Total Number
	Males	Females	
Under 20	26	23	49
20-24	7	19	26
25-29	4	4	8
30-34	6	11	17
35-39	15	19	34
40-44	42	76	118
45-49	141	219	360
50-54	591	703	1,294
55-59	1,321	1,809	3,130
60-64	2,349	5,862	8,211
65-69	3,231	9,196	12,427
70-74	3,310	9,611	12,921
75-79	3,067	8,797	11,864
80-84	2,304	7,161	9,465
85-89	1,446	5,292	6,738
90-94	590	2,649	3,239
95-99	119	660	779
100	6	33	39
101	4	22	26
102	1	10	11
103	0	6	6
104	1	2	3
105 & Over		6	6
Total	18,581	52,190	70,771



Survivor Benefit Fund
Survivors of Deceased Active Member Information June 30, 2013
Tabulated by Attained Ages

Attained Age	No.	Annual Benefits
Under 45	112	\$ 1,184,574
45-49	95	\$ 1,104,744
50-54	165	\$ 1,872,304
55-59	283	\$ 3,062,025
60-64	443	\$ 4,194,204
65-69	684	\$ 5,799,899
70-74	679	\$ 5,046,055
75-79	687	\$ 4,792,117
80-84	571	\$ 3,617,543
85-89	422	\$ 2,088,095
90 & Over	248	\$ 1,150,870
Totals	4,389	\$ 33,912,429



**Total Active Members as of June 30, 2013
Tabulated by Attained Ages and Years of Service**

Attained Age	Years of Service to Valuation Date							Totals
	0-4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30+	
Under 20	727							727
Avg Pay	\$5,577							\$4,054,759
20-24	5,231	106	1					5,338
Avg Pay	\$7,888	\$19,608	\$43,525					\$43,385,534
25-29	5,172	815	48					6,035
Avg Pay	\$12,313	\$26,664	\$36,422					\$87,163,155
30-34	4,577	1,652	584	53				6,866
Avg Pay	\$14,167	\$27,888	\$35,697	\$35,759				\$133,656,277
35-39	4,919	2,137	1,179	366	29			8,630
Avg Pay	\$13,234	\$25,089	\$35,651	\$38,206	\$42,811			\$175,969,331
40-44	6,255	3,663	2,400	964	295	33		13,610
Avg Pay	\$12,339	\$22,341	\$30,437	\$39,320	\$43,347	\$49,032		\$284,377,255
44-49	5,750	4,579	4,192	2,090	798	473	71	17,953
Avg Pay	\$12,954	\$21,294	\$26,910	\$33,014	\$41,967	\$44,346	\$45,914	\$411,525,145
50-54	4,671	4,373	5,379	4,086	1,845	1,111	443	21,908
Avg Pay	\$13,521	\$21,906	\$26,506	\$29,156	\$35,924	\$43,411	\$46,381	\$555,711,233
55-59	3,577	3,044	4,119	4,174	2,989	1,745	752	20,400
Avg Pay	\$14,133	\$22,519	\$27,330	\$28,524	\$31,625	\$36,799	\$44,306	\$542,793,552
60-64	2,028	1,816	2,084	2,035	2,136	1,862	737	12,698
Avg Pay	\$13,447	\$22,316	\$26,689	\$29,778	\$31,260	\$34,194	\$37,470	\$342,072,028
65-69	966	780	773	533	612	733	564	4,961
Avg Pay	\$9,699	\$18,885	\$25,606	\$29,133	\$30,736	\$31,068	\$31,428	\$118,729,335
70 & over	548	500	398	233	174	227	436	2,516
Avg Pay	\$8,455	\$12,828	\$19,504	\$24,058	\$25,930	\$26,568	\$28,513	\$47,389,931
Totals	44,421	23,465	21,157	14,534	8,878	6,184	3,003	121,642
Avg Pay	\$12,282	\$22,538	\$27,833	\$30,460	\$33,613	\$36,790	\$38,261	\$22,581

Averages:
Age: 48.6
Service: 10.0
Annual Pay: \$22,581



**Male Active Members as of June 30, 2013
Tabulated by Attained Ages and Years of Service**

Attained Age	Years of Service to Valuation Date							Totals
	0-4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30+	
Under 20	421							421
Avg Pay	\$5,845							\$2,460,796
20-24	2,555	48	1					2,604
Avg Pay	\$8,070	\$26,497	\$43,525					\$21,934,876
25-29	2,380	424	34					2,838
Avg Pay	\$12,257	\$29,806	\$40,657					\$43,190,565
30-34	1,897	698	284	22				2,901
Avg Pay	\$15,033	\$32,788	\$42,362	\$42,088				\$64,360,056
35-39	1,758	603	417	171	16			2,965
Avg Pay	\$14,011	\$32,506	\$46,769	\$44,592	\$45,084			\$72,081,085
40-44	1,965	768	515	348	137	14		3,747
Avg Pay	\$13,341	\$30,647	\$44,543	\$50,747	\$47,450	\$54,663		\$97,617,617
44-49	1,988	883	655	451	302	220	36	4,535
Avg Pay	\$13,565	\$29,981	\$40,312	\$48,388	\$51,771	\$49,262	\$48,425	\$129,883,969
50-54	1,750	997	836	551	390	447	227	5,198
Avg Pay	\$14,450	\$29,310	\$39,417	\$45,163	\$49,916	\$51,305	\$49,701	\$166,030,252
55-59	1,607	951	890	576	447	420	332	5,223
Avg Pay	\$15,463	\$28,171	\$37,667	\$42,134	\$45,406	\$47,694	\$49,794	\$166,291,582
60-64	1,036	753	607	387	338	326	190	3,637
Avg Pay	\$14,537	\$25,986	\$34,200	\$41,513	\$44,678	\$47,866	\$50,482	\$111,749,389
65-69	513	434	349	164	114	104	72	1,750
Avg Pay	\$11,367	\$21,663	\$30,054	\$37,603	\$41,007	\$41,461	\$43,113	\$43,979,910
70 & over	278	255	228	97	41	41	38	978
Avg Pay	\$10,120	\$15,792	\$22,335	\$30,319	\$32,118	\$35,705	\$43,001	\$19,288,426
Totals	18,148	6,814	4,816	2,767	1,785	1,572	895	36,797
Avg Pay	\$12,807	\$28,679	\$38,439	\$44,222	\$46,898	\$48,313	\$49,036	\$25,515

Averages:
Age: 46.7
Service: 8.1
Annual Pay: \$25,515

**Female Active Members as of June 30, 2013
Tabulated by Attained Ages and Years of Service**



Attained Age	Years of Service to Valuation Date							Totals
	0-4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30+	
Under 20	306							306
Avg Pay	\$5,209							\$1,593,963
20-24	2,676	58						2,734
Avg Pay	\$7,715	\$13,906						\$21,450,658
25-29	2,792	391	14					3,197
Avg Pay	\$12,362	\$23,256	\$26,138					\$43,972,591
30-34	2,680	954	300	31				3,965
Avg Pay	\$13,554	\$24,304	\$29,386	\$31,268				\$69,296,221
35-39	3,161	1,534	762	195	13			5,665
Avg Pay	\$12,801	\$22,174	\$29,567	\$32,607	\$40,013			\$103,888,246
40-44	4,290	2,895	1,885	616	158	19		9,863
Avg Pay	\$11,880	\$20,138	\$26,584	\$32,864	\$39,789	\$44,882		\$186,759,639
44-49	3,762	3,696	3,537	1,639	496	253	35	13,418
Avg Pay	\$12,632	\$19,218	\$24,429	\$28,783	\$35,998	\$40,072	\$43,332	\$281,641,175
50-54	2,921	3,376	4,543	3,535	1,455	664	216	16,710
Avg Pay	\$12,964	\$19,719	\$24,130	\$26,661	\$32,173	\$38,098	\$42,892	\$389,680,980
55-59	1,970	2,093	3,229	3,598	2,542	1,325	420	15,177
Avg Pay	\$13,048	\$19,951	\$24,481	\$26,346	\$29,201	\$33,346	\$39,967	\$376,501,970
60-64	992	1,063	1,477	1,648	1,798	1,536	547	9,061
Avg Pay	\$12,309	\$19,717	\$23,602	\$27,023	\$28,738	\$31,292	\$32,950	\$230,322,639
65-69	453	346	424	369	498	629	492	3,211
Avg Pay	\$7,809	\$15,401	\$21,944	\$25,369	\$28,384	\$29,350	\$29,718	\$74,749,425
70 & over	270	245	170	136	133	186	398	1,538
Avg Pay	\$6,740	\$9,743	\$15,708	\$19,593	\$24,022	\$24,554	\$27,130	\$28,101,505
Totals	26,273	16,651	16,341	11,767	7,093	4,612	2,108	84,845
Avg Pay	\$11,920	\$20,025	\$24,707	\$27,224	\$30,270	\$32,863	\$33,686	\$21,309

Averages:
Age: 49.5
Service: 10.9
Annual Pay: \$21,309

Active Members as of June 30, 2013



By Annual Pay

Annual Pay	Number of Active Members			Portion of Total Number	
	Men	Women	Totals	Group	Cumulative
Less than \$1,000	210	251	461	0.4%	0.4%
\$1,000 - 1,999	1,222	1,230	2,452	2.0%	2.4%
2,000 - 2,999	2,201	2,102	4,303	3.5%	5.9%
3,000 - 3,999	2,243	2,250	4,493	3.7%	9.6%
4,000 - 4,999	1,788	2,365	4,153	3.4%	13.0%
5,000 - 5,999	1,341	2,212	3,553	2.9%	16.0%
6,000 - 6,999	990	2,212	3,202	2.6%	18.6%
7,000 - 7,999	854	2,139	2,993	2.5%	21.1%
8,000 - 8,999	767	2,268	3,035	2.5%	23.5%
9,000 - 9,999	633	2,289	2,922	2.4%	26.0%
10,000 - 11,999	1,320	4,400	5,720	4.7%	30.7%
12,000 - 13,999	1,175	4,536	5,711	4.7%	35.3%
14,000 - 15,999	1,189	5,327	6,516	5.4%	40.7%
16,000 - 17,999	1,209	6,448	7,657	6.3%	47.0%
18,000 - 19,999	1,164	6,281	7,445	6.1%	53.1%
20,000 - 24,999	2,344	12,103	14,447	11.9%	65.0%
25,000 - 29,999	2,051	7,890	9,941	8.2%	73.2%
30,000 - 35,999	3,103	6,862	9,965	8.2%	81.4%
36,000 and over	10,993	11,680	22,673	18.6%	100.0%
Totals	36,797	84,845	121,642		



SCHEDULE F

GAIN/LOSS ANALYSIS DETAILS

COMMENTS

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 the amount of increases or decreases in unfunded actuarial accrued liabilities (UAAL) -- gain/loss analyses do.

The overall gain/loss to the Retirement System is the difference between the actual UAAL and the expected UAAL. A gain/loss analysis shows the breakdown of the overall system gain/loss by economic and non-economic risk areas. The economic risk areas are investment return and pay increases. The non-economic risk areas are service retirement, disability retirement, death in active service, termination (vested and non-vested), retiree mortality, and new members. Gains and losses resulting from data adjustments, timing of financial transactions, etc. are included separately as a miscellaneous item.

It is expected that actual experience will not coincide 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. Changes in actuarial assumptions should be made for risk areas when the differences between actual and expected experience are consistently sizable over a period of years. Differences over a relatively short period of time may or may not be indicative of long-term trends, which are the basis of actuarial assumptions.

The actuarial assumptions used in this analysis were adopted by the Board in April 2011.

Any historical information and data shown in the report with a valuation date prior to June 30, 2008 were obtained from the previous actuary's report.



School Employees Retirement System of Ohio
Experience Gains & Losses By Risk Area
Comparative Schedule
(\$ Millions)

Year Ending June 30	Gain (Loss) by Risk Area									\$	% of AAL
	Economic			Non-Economic							
	Pay Increases	Investment	Age & Service Retirement	Disability	Death In Service	Withdrawal	New Members	Retired Lives	Other ⁺		
2004*	\$ 83.6	\$ (763.8)	\$ (45.2)	\$ 0.0	\$ 0.5	\$ 56.6	\$ (48.6)	\$ 23.3	\$ (0.4)	(694.0)	(6.5)
2005*	101.6	(397.4)	(82.6)	2.1	(0.7)	52.7	(42.7)	12.4	(81.7)	(436.3)	(3.9)
2006*	76.4	44.7	37.9	1.2	0.2	(52.9)	(36.7)	15.8	(145.4)	(58.8)	(0.5)
2007*	121.0	504.3	13.4	0.9	(0.3)	(73.2)	(37.2)	(10.2)	(1.1)	517.6	4.1
2008	95.8	(6.6)	(96.1)	(3.5)	(0.6)	8.1	(51.3)	72.4	81.2	99.4	6.1
2009	107.5	(2,265.2)	(50.8)	(28.7)	(0.6)	(11.9)	(50.4)	51.8	200.1	(2,048.2)	(14.0)
2010	182.5	390.5	(40.6)	(23.4)	(0.5)	11.0	(38.1)	46.5	(29.6)	498.3	3.4
2011	198.4	(1,082.9)	(59.2)	(28.1)	(0.7)	15.4	(36.4)	(1.0)	(10.0)	(1,004.5)	(6.2)
2012	178.7	(692.0)	(154.8)	(47.7)	(0.2)	46.5	(29.8)	51.9	(6.2)	(653.6)	(3.9)
2013	219.2	241.0	(121.9)	(53.6)	0.0	61.1	(35.1)	2.9	1.9	315.5	1.8

* Reported by a prior actuary

⁺ Includes effect of changes in data, timing of financial transactions, etc.



The market related actuarial value of assets is based on a four-year average of adjusted market value returns. The difference between the actual returns at market value for the year and expected returns is determined. Twenty-five percent (25%) of that difference is added to the expected value along with corresponding amounts from each of the prior three years.

The actuarial value of assets for the basic benefits as of June 30, 2013 was \$11,125,960,356. The value for the previous year was \$10,396,912,847.

**School Employees Retirement System of Ohio
Development of Gain (Loss) for Basic Benefits
From Investment Return
For the Year Ended June 30, 2013
(\$ millions)**

	<u>\$ Millions</u>
1. Actuarial value of assets as of June 30, 2012	\$ 10,396.9
2. Actuarial value of assets as of June 30, 2013	
a. Actual	11,126.0
b. If 7.75% assumed investment return was achieved for all phased-in years recognized in the asset method	10,885.0
3. Gain (Loss): 2a minus 2b	<u>\$ 241.0</u>



**Pay Increases During the 2012- 2013 Valuation Year
To Members Active at Beginning and End of Year**

Central Age Group Beginning of Year	Number	Pay Increases	
		Actual	Expected
Under 25	1,950	(0.33)%	17.69%
25	3,657	6.03	12.63
30	4,817	3.94	9.45
35	6,399	3.52	7.86
40	10,817	3.33	6.89
45	15,278	2.67	6.00
50	19,974	1.86	5.26
55	19,495	1.21	4.98
60	12,876	0.75	4.86
65 & Over	7,926	0.3	4.89
Total	103,189	1.96	5.94



**Members Who Became Age & Service Retirees During the 2012- 2013 Valuation Year
(Retirement With Allowance Beginning Immediately)**

Attained Age	Years of Service to Valuation Date							Total
	0-4	5-9	10-14	15-19	20-24	25-29	30 plus	
Under 50								0
50								0
51								0
52								0
53							1	1
54								0
55						56	191	247
56						28	29	57
57						23	37	60
58						25	18	43
59						45	26	71
60		30	58	44	71	38	39	280
61		23	37	36	38	47	31	212
62		37	58	38	46	74	36	289
63		22	35	25	35	55	47	219
64		23	38	34	55	61	39	250
65		25	64	50	81	93	69	382
66		33	37	26	51	55	32	234
67		17	30	23	26	34	34	164
68		16	21	17	13	20	19	106
69		9	14	12	18	11	22	86
70 & Over		58	86	49	56	66	126	441
Totals	0	293	478	354	490	731	796	3,142

Average Age: 63.7
Average Service: 22.6



**Members Who Died in 2012- 2013 Valuation Year
With a Death-in-Service Allowance Payable**

Central Age Group Beginning of Year	Number
Under 25	
25	0
30	0
35	0
40	0
45	2
50	8
55	16
60	10
65	8
70 & Over	10
Total	54

Average Age: 59.0
Average Service: 16.7



**Members Who Died in 2012- 2013 Valuation Year
and Received a Refund of Contributions**

Central Age Group Beginning of Year	Number
Under 25	
25	0
30	0
35	0
40	0
45	0
50	2
55	0
60	1
65	1
70 & Over	2
Total	6

Average Age: 64.1
Average Service: 3.2



**Members Who Became Disability Retirees
During the 2012- 2013 Valuation Year**

Central Age Group Beginning of Year	Number
Under 25	
25	
30	1
35	2
40	9
45	26
50	58
55	105
60	90
65	19
70 & Over	3
Total	313

Average Age: 54.6
Average Service: 16.3



**Members Receiving a Refund of Contributions
or Becoming Inactive Without a Refund in
the 2012- 2013 Valuation Year
(Non-vested Terminations)**

Central Age Group Beginning of Year	Number
Under 25	1,283
25	2,501
30	1,615
35	1,291
40	1,611
45	1,690
50	1,652
55	1,374
60	833
65	455
70 & Over	254
Total	14,559

Average Age: 39.8
Average Service: 3.0



**Members Who Became Inactive
in the 2012- 2013 Valuation Year
with a Deferred Allowance
(Vested Terminations)**

Central Age Group Beginning of Year	Number
Under 25	0
25	0
30	3
35	23
40	34
45	66
50	101
55	153
60	110
65	28
70 & Over	18
Total	536

Average Age: 53.0
Average Service: 12.6



SCHEDULE G

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.

Plan Termination Liability. The actuarial present value of future plan benefits based on the assumption that there will be no further 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 A

**ACTUARIAL ACCRUED LIABILITIES
AS OF JUNE 30, 2013**

Present Value of:	Basic Benefits	Medicare Part B	Death Benefit	Total
Future benefits to present retirees and survivors	\$ 9,229,737,359	\$ 243,514,633	\$ 25,245,501	\$ 9,498,497,493
Benefits and refunds to present inactive members	565,788,389	11,601,965	1,271,508	578,661,862
Allowances to present active members				
Service	6,870,957,976	118,070,627	7,092,944	6,996,121,547
Disability	270,826,372	4,608,543	404,800	275,839,715
Survivor benefits	93,779,397	1,678,810	-	95,458,207
Withdrawal	(204,729,947)	7,297,927	14,274	(197,417,746)
Total Active AAL	7,030,833,798	131,655,907	7,512,018	7,170,001,723
Total AAL	<u>\$ 16,826,359,546</u>	<u>\$ 386,772,505</u>	<u>\$ 34,029,027</u>	<u>\$ 17,247,161,078</u>



APPENDIX B

**BREAKDOWN OF TOTAL AND ACCRUED LIABILITIES
AS OF JUNE 30, 2013**

	Total Liability	Accrued Liability
Active Members		
Retirement	\$8,430,993,548	\$6,870,957,976
Death	130,364,615	93,779,397
Disability	456,508,087	270,826,372
Termination	619,099,338	(204,729,947)
Medicare Part B	172,886,151	131,655,907
Death after Retirement	<u>11,439,151</u>	<u>7,512,018</u>
Total	\$9,821,290,890	\$7,170,001,723
Retirees		
Retirement/Survivor/Disability	\$9,229,737,359	\$9,229,737,359
Medicare Part B	243,514,633	243,514,633
Death after Retirement	<u>25,245,501</u>	<u>25,245,501</u>
Total	\$9,498,497,493	\$9,498,497,493
Deferred Vested Members	294,512,074	294,512,074
Inactive Members	<u>284,149,788</u>	<u>284,149,788</u>
Total Actuarial Values	\$19,898,450,245	\$17,247,161,078
Actuarial Value of Assets		<u>11,125,960,356</u>
Unfunded Actuarial Accrued Liability		\$6,121,200,722



APPENDIX C

**COMPARATIVE SCHEDULE
AS OF JUNE 30, 2013**

Valuation Date June 30	Active Members				Retired Lives				Accrued Liability	Valuation Assets \$ Millions	UAAL
	Number	Payroll \$ Millions	Average Salary		Number		Annual Benefits				
			\$	% Increase	Retired	Active / Retired	\$ Millions	% of Payroll			
2004	123,139	2,394	19,442	3.3	60,569	2.0	491.6	20.5	11,251	8,667	2,584
2005	122,855	2,453	19,963	2.7	61,433	2.0	527.9	21.5	11,961	8,893	3,137 *
2006	123,266	2,553	20,714	3.8	62,521	2.0	566.8	22.2	12,627	9,542	3,155 *
2007	123,013	2,603	21,163	2.2	63,529	1.9	607.4	23.3	13,303	10,640	2,734 *
2008	124,370	2,652	21,322	0.8	64,818	1.9	652.4	24.6	14,062	11,372	2,689
2009	125,465	2,787	22,216	4.2	65,757	1.9	693.8	24.9	14,582	9,836	4,746
2010	126,015	2,843	22,558	1.5	66,127	1.9	729.9	25.7	15,222	10,909	4,312
2011	125,337	2,852	22,758	0.9	67,221	1.9	777.9	27.3	16,325	10,513	5,812
2012	121,811	2,788	22,889	0.6	69,038	1.8	838.1	30.1	16,755	10,397	6,358
2013	121,642	2,747	22,581	-1.3	70,771	1.7	898.3	32.7	17,247	11,126	6,121

* after the adjustment to reflect health care asset restatement