



West Virginia Teachers' Retirement System

Actuarial Valuation
As of July 1, 2010

Prepared by:

buckconsultants

A Xerox Company

for the
West Virginia Consolidated Public Retirement Board

January 2011

January 18, 2011

West Virginia Consolidated Public Retirement Board
4101 MacCorkle Avenue, SE
Charleston, WV 25304

Re: West Virginia Teachers' Retirement System: Actuarial Valuation as of July 1, 2010

Retirement Board Members:

We respectfully present our report on the actuarial valuation of the West Virginia Teachers' Retirement System (TRS) as of July 1, 2010. This valuation presents the liabilities of the plan as of the valuation date and the projected Employer contribution for fiscal year 2012.

Some key highlights are:

- The valuation was prepared based on an assumed interest rate of 7.5%.
- Based on the valuation results, the State contribution to TRS for fiscal year 2012 is \$471,027,000. The State appropriation needed for fiscal year 2012 for the Teachers' Retirement Plans (TRS and TDC) under the School Aid Formula is \$440,901,000.
- The funded percentage of plan assets to the actuarial accrued liability at the valuation date is 47%, compared to 41% for the prior year.

This report contains supporting data and background information pertaining to the development of costs and related liabilities of the plan. The valuation is based on:

- membership data as of June 30, 2010 maintained by the West Virginia Consolidated Public Retirement Board, and
- financial information received from the West Virginia Investment Management Board.

This report presents fairly the actuarial position of the West Virginia Teachers' Retirement System (TRS) as of July 1, 2010 in accordance with generally accepted actuarial principles applied on a basis consistent with that of the preceding valuation. In our opinion, the assumptions used in preparing the liabilities and costs are individually reasonable in respect to TRS experience and represent our best estimate of anticipated experience under TRS.

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I am a Fellow of the Society of Actuaries and a member of the American Academy of Actuaries. I meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions contained in this report. This report has been prepared in accordance with all applicable Actuarial Standards of Practice, and I am available to answer questions about it.

Respectfully submitted,

David L. Driscoll

David L. Driscoll, FSA, EA
Principal and Consulting Actuary

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This report presents the results of the July 1, 2010 actuarial valuation of the West Virginia Teachers' Retirement System and includes the projected employer contribution requirement for FY 2012. In addition, the report includes disclosure information under GASB 25 and GASB 27. A summary of the plan features, a summary of the method, factors and assumptions, and supplementary membership tables used in the valuation are also included.

Valuation Results

The West Virginia Teachers' Retirement System (TRS) is a defined benefit plan covering education employees hired prior to July 1, 1991, or hired on and after July 1, 2005, and prior Teachers' Defined Contribution Plan (TDC) members who elected to transfer from TDC to TRS effective July 1, 2008 or August 1, 2008. The plan provides unreduced monthly benefits to members upon retirement after 35 years of service, or at age 60 after completing 5 years of service. The plan also provides reduced early retirement benefits, benefits in the event of disability or death while active, and deferred benefits to members who terminate prior to retirement, providing plan eligibility conditions are met.

The plan is funded through member contributions of 6% of payroll and employer contributions sufficient to provide for any remaining normal cost (after member contributions are accounted for) and to amortize the unfunded liability as a level-dollar amount starting from FY 2009.

The major purpose of this valuation is to determine the amount of appropriation needed for FY 2012 for West Virginia's Teachers Retirement Plans under the School Aid Formula (SAF), which is determined to be \$440,901,000. Two components of the SAF determination are calculated in the valuation process: the contributions required from the State for TRS, and a projection of the State's contributions to TDC, both for the FY 2012.

The State's contribution to TRS is based on an actuarial valuation of the provisions of the State code and the participant data, in consideration of the assets held in trust for TRS. The details of the TRS contribution for FY 2012 are shown in Table 1.

The State's TRS contribution for FY 2012, assuming a mid-year payment, consists of three separate components:

- The State share of the normal cost,
- The amount needed to fund the unfunded actuarial accrued liability, net of the liability for recent benefit changes, over a 40-year period which began in 1994 (as required by Section 18-9A-6a of the State code), and
- The amount required to separately amortize the liability for recent benefit changes. For FY 2012, this includes the retiree improvements under H.B. 4846.

The total State TRS contribution on this basis is \$471,027,000.

Starting with FY 2009, the annual amortization payment toward the unfunded liability is determined as a level-dollar amount that is amortized over a 40-year period from July 1, 1994. In prior years, the amortization was determined as a level percentage of the projected total education payroll. The total amount contributed to the plan from FY 2009 forward will fund the normal cost plus interest and principal on the unfunded liability, fully amortizing the unfunded liability by the end of FY 2034.

For FY 2012, the annual amortization payment toward the unfunded liability for the retiree improvements under H.B. 4846 is \$583,000. This payment will complete the amortization of this portion of the Plan's unfunded liability.

Table 2 presents the development of the School Aid Formula, separately identifying the TRS contribution based on the original 40-year amortization, the special payments toward the additional unfunded due to recent plan improvements, and other specific components. Detailed projections of the balance of the 40-year funding program under the level-dollar amortization schedule, net of the separately funded improvements, are shown in Tables 3 and 4.

The projected TDC contribution for FY 2012 for the School Aid Formula is based on projected payroll for that participant population. The split of both the TRS and the TDC contributions is based on information provided by the state Education Department. The projected fire insurance premium tax shown in Table 2 was provided by the Department of Administration.

Comments on Valuation Results

Table 1 presents the development of the valuation results as of July 1, 2010 and, for comparison purposes, July 1, 2009. Based on the prior year's projections, the expected unfunded actuarial accrued liability as of July 1, 2010 was \$5.061 billion. The actual unfunded liability at the valuation date is \$4.761 billion, a decrease of \$0.300 billion.

The increase in the unfunded liability was primarily due to the following:

- The return on assets for the year ending June 30, 2010 was approximately 14.8%. This return was well above the prior year's valuation assumption of 7.50% and decreased the unfunded liability by approximately \$261 million.
- Contributions in excess of those expected decreased the unfunded liability by approximately \$42 million.
- The combined impact of turnover, mortality, and retirement experience increased the unfunded liability by approximately \$3 million.

Tables 3 and 4 present projections of the unfunded accrued liability, net of the separately funded liability, to June 30, 2034. Table 3 illustrates the expected pattern of change in the unfunded liability over the remaining 24-year period. The unfunded liability is expected to decrease steadily to zero at the end of the period. Table 4 presents the expected funding progress toward the unfunded actuarial accrued liability based on the funding policy. This table illustrates the expected dollar amount of change in this component of the unfunded liability from year to year.

Table 5 presents a cash flow projection of expected asset balances, contributions, disbursements, and earnings over the period to FY 2034.

The valuation results were determined using an interest rate of 7.5% with an underlying inflation assumption of 3.0%.

Funding Progress

The information used to report on the funding status of the Plan for both the State's and the Plan's financial statements is presented in Table 6. This table presents information required under Governmental Accounting Standards Board Statement Numbers 25 and 27 (GASB 25 and GASB 27).

Plan Membership

A summary of plan membership, with a comparison to the prior year, follows:

	<u>July 1, 2010</u>	<u>July 1, 2009</u>
Actives	35,670	35,701
Retirees & Beneficiaries	30,127	29,245
Terminated Vested	1,621	1,636
Terminated Non-Vested	<u>1,420</u>	<u>1,204</u>
Total	68,838	67,786

Table 9 presents a reconciliation of plan membership during the year. Table 10 presents detailed information on the categories of plan membership.

Tables 11(a) and 11(b) present the number and total annual compensation of actives, separately for Teachers and Non-Teachers (including State), by 5-year age and service groups as of July 1, 2010.

Table 12 presents the number and average monthly benefits of retirees and beneficiaries included in the valuation distributed by 5-year age groups. Table 13 shows a similar distribution for terminated vested participants entitled to deferred benefits.

Table 1

Development of Valuation Results
(000's omitted)

	Valuation Date	
	July 1, 2010	July 1, 2009
1. Present Value of Future Benefits		
a. Active	\$ 5,111,052	\$ 5,147,902
b. Inactive - Retirees	4,430,259	4,071,385
- Disabled Retirees	179,532	175,545
- Beneficiaries	169,314	162,306
- Vested Terminated	92,727	96,986
- Non-Vested Terminated	5,452	4,948
c. Total	<u>\$ 9,988,336</u>	<u>\$ 9,659,072</u>
2. Actuarial Accrued Liability	\$ 8,904,312	\$ 8,607,869
3. Assets (Market Value)	<u>4,143,540</u>	<u>3,554,771</u>
4. Unfunded Actuarial Accrued Liability (UAL)	\$ 4,760,772	\$ 5,053,098
5. Annual Normal Cost Rate: Type 1 (Pre 7/1/1991 Group)		
a. Present Value of Future Normal Costs	\$ 266,145	\$ 273,523
b. Present Value of Future Pay	\$ 2,929,035	\$ 3,059,146
c. Normal Cost Rate as a % of Payroll	9.09%	8.94%
d. Employee share	6.00%	6.00%
e. Employer share	3.09%	2.94%
f. TRS FY 2011 (2010) Normal Cost Payroll	\$ 609,383	\$ 644,307
g. Employer FY 2011 (2010) Normal Cost (BOY)	\$ 18,830	\$ 18,943
h. TRS FY 2012 (2011) Normal Cost Payroll	\$ 550,413	\$ 584,837
i. Employer FY 2012 (2011) Normal Cost (BOY)	\$ 17,008	\$ 17,194
6. Annual Normal Cost Rate: Type 3 (Post 6/30/2005 Group)		
a. Present Value of Future Normal Costs	\$ 817,880	\$ 777,680
b. Present Value of Future Pay	\$ 8,534,762	\$ 8,230,269
c. Normal Cost Rate as a % of Payroll	9.58%	9.45%
d. Employee share	6.00%	6.00%
e. Employer share	3.58%	3.45%
f. TRS FY 2011 (2010) Normal Cost Payroll	\$ 891,378	\$ 854,925
g. Employer FY 2011 (2010) Normal Cost (BOY)	\$ 31,911	\$ 29,495
h. TRS FY 2012 (2011) Normal Cost Payroll	\$ 1,004,016	\$ 968,343
i. Employer FY 2012 (2011) Normal Cost (BOY)	\$ 35,944	\$ 33,408

Table 1 (continued)

Development of Valuation Results
(000's omitted)

	Valuation Date	
	July 1, 2010	July 1, 2009
7. Employer Contribution for FY 2011 and FY 2012, (FY 2010 and FY 2011), assumes mid-year contribution:		
a. FY 2011 (2010)	FY 2011	FY 2010
i. TRS and TDC Payroll	\$ 1,650,283	\$ 1,649,905
ii. FY 2011 (2010) TRS Contribution		
A. Normal Cost	52,609	50,222
B. Amortization components:		
- Original UAL over 40 years as a level-dollar amount	417,979	437,081
- H.B. 4846	583	583
C. Total	\$ 471,171	\$ 487,886
iii. FY 2011 (2010) Contribution as a % of Payroll	28.55%	29.57%
b. FY 2012 (2011)	FY 2012	FY 2011
i. TRS and TDC Payroll	\$ 1,703,092	\$ 1,702,702
ii. FY 2012 (2011) TRS Contribution		
A. Normal Cost	54,902	52,465
B. Amortization components:		
- Original UAL over 40 years as a level-dollar amount	415,542	444,314
- H.B. 4846	583	583
C. Total	\$ 471,027	\$ 497,362
iii. FY 2012 (2011) Contribution as a % of Payroll	27.66%	29.21%
iv. FY 2012 (2011) SAF appropriation ¹	\$ 440,901	\$ 470,759
v. FY 2012 (2011) SAF appropriation as a % of Payroll	25.89%	27.65%

¹ The School Aid Formula retirement allocation includes the amount that the State appropriates for the Teachers Defined Contribution Plan and required payments toward the TRS Unfunded Actuarial Accrued Liabilities. It does NOT include amounts contributed to TRS by nonstate groups or the fire premium tax.

Table 2

Development of School Aid Formula Appropriation for Fiscal Year 2012
(000's omitted)

TRRS Contribution for FY 2012	\$ 470,444
+ 7.50% x School Aid Formula (TDC only) ¹	8,594
- 15.0% x County Portion of the Old Group TRRS payroll ²	(19,543)
- 7.5% x County Portion of the New Group TRRS payroll ³	(17,817)
- Fire Tax Per Code Section 33-3-14(d)	(2,557)
+ State payment equal to TDC forfeitures ⁴	1,197
Subtotal of Standard SAF Appropriation	\$ 440,318
Special Payments for Benefit Improvements under H.B. 4846	583
Total FY 2012 SAF Appropriation	\$ 440,901

¹ School Aid Formula for TDC only is 75.88% of FY 2012 TDC pay for County employees plus FY 2012 TDC pay for State employees = $75.88\% \times \$141,282 + \$7,381 = 114,586$.

² County portion of the Old Group TRRS payroll is 24.12% of FY 2012 TRRS pay for County employees = $24.12\% \times \$540,172 = \$130,289$.

³ County portion of the New Group TRRS payroll is 24.12% of FY 2012 TRRS pay for County employees = $24.12\% \times \$984,915 = \$237,561$.

⁴ Actual amount to be released from the TDC suspense account at 6/30/2010 per Code Section 18-7A-18a(b).

Table 3
Projection of Unfunded Accrued Liability and Annual Contributions
(000's omitted)

FY Ending 6/30	Unfunded AAL BOY ¹	Employer Normal Cost (MOY) ²		Projected Payroll			Total Type 1 Employer Contribution (MOY) ³		Total Type 3 Employer Contribution (MOY)	
		Type 1	Type 3	Type 1 TRS	Type 3 TRS	TRS+TDC	% of Payroll	Amount	% of Payroll	Amount
2011	\$ 4,759,685	\$ 17,827	\$ 34,638	\$ 609,383	\$ 891,378	\$ 1,650,283	28.00%	\$ 462,141	2.10%	\$ 34,638
2012	4,655,987	17,634	37,268	550,413	1,004,016	1,703,092	25.43%	433,176	2.19%	37,268
2013	4,574,343	15,880	41,366	495,662	1,114,434	1,757,591	24.55%	431,422	2.35%	41,366
2014	4,486,576	14,111	45,562	440,444	1,227,491	1,813,834	23.69%	429,653	2.51%	45,562
2015	4,392,226	12,435	49,716	388,122	1,339,390	1,871,877	22.86%	427,977	2.66%	49,716
2016	4,290,800	10,858	53,840	338,907	1,450,507	1,931,777	22.07%	426,400	2.79%	53,840
2017	4,181,767	9,408	57,909	293,646	1,560,117	1,993,594	21.32%	424,950	2.90%	57,909
2018	4,064,556	8,066	61,944	251,766	1,668,837	2,057,389	20.59%	423,608	3.01%	61,944
2019	3,938,555	6,824	65,955	212,998	1,776,913	2,123,225	19.89%	422,366	3.11%	65,955
2020	3,803,104	5,724	69,889	178,657	1,882,874	2,191,168	19.23%	421,266	3.19%	69,889
2021	3,657,494	4,756	73,777	148,439	1,987,625	2,261,286	18.59%	420,298	3.26%	73,777
2022	3,500,963	3,933	77,592	122,761	2,090,383	2,333,647	17.98%	419,475	3.32%	77,592
2023	3,332,692	3,236	81,364	100,991	2,192,000	2,408,324	17.39%	418,778	3.38%	81,364
2024	3,151,801	2,651	85,102	82,756	2,292,732	2,485,390	16.83%	418,193	3.42%	85,102
2025	2,957,343	2,179	88,818	68,032	2,392,859	2,564,922	16.29%	417,721	3.46%	88,818
2026	2,748,301	1,801	92,531	56,203	2,492,880	2,647,000	15.77%	417,343	3.50%	92,531
2027	2,523,580	1,496	96,268	46,697	2,593,543	2,731,704	15.27%	417,038	3.52%	96,268
2028	2,282,005	1,252	100,025	39,109	2,694,763	2,819,119	14.78%	416,794	3.55%	100,025
2029	2,022,312	1,063	103,836	33,175	2,797,430	2,909,330	14.32%	416,605	3.57%	103,836
2030	1,743,142	909	107,714	28,376	2,901,926	3,002,429	13.87%	416,451	3.59%	107,714
2031	1,443,035	791	111,674	24,693	3,008,612	3,098,507	13.44%	416,333	3.60%	111,674
2032	1,120,420	696	115,719	21,731	3,117,557	3,197,659	13.02%	416,238	3.62%	115,719
2033	773,608	618	119,866	19,293	3,229,304	3,299,984	12.61%	416,160	3.63%	119,866
2034	400,785	554	124,118	17,283	3,343,856	3,405,583	12.22%	416,096	3.64%	124,118

¹ Net of the separately funded liability for recent benefit increases.

² Net of member contributions.

³ Net of the amortization amounts for separately funded benefit increases.

Table 4

**Funding Progress of Unfunded Actuarial Accrued Liability
Under Current Funding Policy
(000's omitted)**

FY Ending 6/30	Unfunded AAL BOY ¹	Interest on Unfunded at 7.50%	MOY Contribution Toward Unfunded ²	Unfunded Funding Progress ³
2011	\$ 4,759,685	\$ 356,976	\$ 444,314	\$ 103,699
2012	4,655,987	349,199	415,542	81,644
2013	4,574,343	343,076	415,542	87,767
2014	4,486,576	336,493	415,542	94,350
2015	4,392,226	329,417	415,542	101,426
2016	4,290,800	321,810	415,542	109,033
2017	4,181,767	313,633	415,542	117,210
2018	4,064,556	304,842	415,542	126,001
2019	3,938,555	295,392	415,542	135,451
2020	3,803,104	285,233	415,542	145,610
2021	3,657,494	274,312	415,542	156,531
2022	3,500,963	262,572	415,542	168,271
2023	3,332,692	249,952	415,542	180,891
2024	3,151,801	236,385	415,542	194,458
2025	2,957,343	221,801	415,542	209,042
2026	2,748,301	206,123	415,542	224,720
2027	2,523,580	189,269	415,542	241,574
2028	2,282,005	171,150	415,542	259,693
2029	2,022,312	151,673	415,542	279,170
2030	1,743,142	130,736	415,542	300,107
2031	1,443,035	108,228	415,542	322,615
2032	1,120,420	84,032	415,542	346,811
2033	773,608	58,021	415,542	372,822
2034	400,785	30,059	415,542	400,784

¹ Net of the separately funded liability for recent benefit increases.

² Net of employer contribution toward normal cost and separately funded benefit increases.

³ Equals (MOY Contribution) x 1.03682 - (Interest on Unfunded)

Table 5

Cash Flow Projection FY 2011 Through FY 2034
(000's omitted)

FY Ending 6/30	Assets Beg. of Year	Expected Contributions	Benefits	Earnings	Net Income	Assets End of Year
2011	\$ 4,143,540	\$ 587,408	\$ 561,080	\$ 311,735	\$ 338,063	\$ 4,481,603
2012	4,481,603	564,293	596,797	334,923	302,419	4,784,022
2013	4,784,022	569,394	633,340	356,447	292,501	5,076,523
2014	5,076,523	575,291	668,659	377,301	283,933	5,360,456
2015	5,360,456	581,344	702,048	397,590	276,886	5,637,342
2016	5,637,342	587,605	733,682	417,422	271,345	5,908,687
2017	5,908,687	594,085	763,165	436,926	267,846	6,176,533
2018	6,176,533	600,788	790,937	456,238	266,089	6,442,622
2019	6,442,622	607,716	815,316	475,552	267,952	6,710,574
2020	6,710,574	614,847	836,113	495,146	273,880	6,984,454
2021	6,984,454	622,239	853,340	515,324	284,223	7,268,677
2022	7,268,677	629,856	866,962	536,420	299,314	7,567,991
2023	7,567,991	637,721	876,815	558,795	319,701	7,887,692
2024	7,887,692	645,824	882,983	582,844	345,685	8,233,377
2025	8,233,377	654,192	885,453	608,988	377,727	8,611,104
2026	8,611,104	662,819	885,072	637,649	415,396	9,026,500
2027	9,026,500	671,720	882,273	669,235	458,682	9,485,182
2028	9,485,182	680,851	877,106	704,162	507,907	9,993,089
2029	9,993,089	690,277	870,260	742,854	562,871	10,555,960
2030	10,555,960	699,983	861,633	785,745	624,095	11,180,055
2031	11,180,055	710,005	852,148	833,270	691,127	11,871,182
2032	11,871,182	720,314	842,078	885,855	764,091	12,635,273
2033	12,635,273	730,942	831,242	943,952	843,652	13,478,925
2034	13,478,925	741,882	819,051	1,008,078	930,909	14,409,834

Table 6

GASB 25 and GASB 27 Supplementary Disclosure Information as of June 30, 2010

Government Accounting Standards Board Statements 25 and 27 set forth certain items of required supplementary information to be disclosed in the financial statement of the System and the employer. The following information is intended to be used for this purpose in conjunction with other information prepared by the auditor.

1. Number of Members as of June 30, 2010 and June 30, 2009

Group	June 30, 2010	June 30, 2009
Retirees, disabled retirees, and beneficiaries currently receiving benefits	30,127	29,245
Terminated employees entitled to benefits, but not yet receiving benefits	1,621	1,636
Terminated employees entitled to a return of employee contributions	1,420	1,204
Active Plan members:		
Vested	25,491	25,430
Non-Vested	10,179	10,271
Total	68,838	67,786

2. Schedule of Funding Progress (000's omitted)

Actuarial Valuation Date	Actuarial Value of Assets (a)	Actuarial Accrued Liability (Entry Age) (b)	Unfunded Accrued Liability (UAL) (b - a)	Funded Ratio (a / b)	Covered Payroll (c)	UAL as a Percentage of Covered Payroll (b - a) / (c)
6/30/99	\$ 932,501	\$ 4,629,276	\$ 3,696,775	20.1%	\$ 891,165	414.8%
6/30/00	1,046,840	4,883,064	3,836,224	21.4%	874,166	438.8%
6/30/01	1,090,663	5,188,826	4,098,163	21.0%	867,018	472.7%
6/30/02	1,098,441	5,709,001	4,610,560	19.2%	841,627	547.8%
6/30/03*	1,191,238	6,243,834	5,052,596	19.1%	832,919	606.6%
6/30/04	1,427,475	6,440,738	5,013,263	22.2%	784,415	639.1%
6/30/05	1,627,355	6,617,708	4,990,353	24.6%	735,614	678.4%
6/30/06	2,174,464	6,877,872	4,703,408	31.6%	759,206	619.5%
6/30/07	3,665,993	7,142,711	3,476,718	51.3%	828,939	419.4%
6/30/08	4,133,883	8,268,578	4,134,695	50.0%	1,409,437	293.4%
6/30/09	3,554,771	8,607,869	5,053,098	41.3%	1,499,232	337.0%
6/30/10	4,143,540	8,904,312	4,760,772	46.5%	1,500,761	317.2%

* The 6/30/03 assets have been changed to reflect the final audited financial statements which were unavailable at the issuance of the July 1, 2003 valuation report.

Table 6 (continued)

GASB 25 and GASB 27 Supplementary Disclosure Information as of June 30, 2010

3. The information presented in the required supplementary schedules was determined as part of the actuarial valuation at July 1, 2010. Additional information follows.

Valuation date	July 1, 2010
Actuarial cost method	Entry age
Amortization method	Level-dollar amount
Remaining amortization period	24 years
Asset valuation method	Market value
Actuarial assumptions:	
Investment rate of return	7.50%
Projected salary increases:	
Teachers	3.50% - 5.00%
Non-Teachers	3.60% - 5.50%
Inflation rate	3.00%

Table 7

Valuation Assets as of June 30, 2010
(000's omitted)

	<u>June 30, 2010</u>	<u>June 30, 2009</u>
Assets		
Cash with State Treasurer	\$ 5	\$ 2,283
Investments at Fair Value	4,099,694	3,513,007
Contributions Receivable	32,672	30,763
Participant Loans Receivable	11,295	8,198
Miscellaneous Revenue Receivable	1	628
Total Assets	<u>\$ 4,143,667</u>	<u>\$ 3,554,879</u>
Liabilities		
Accrued Expenses and Other Payables	<u>127</u>	<u>108</u>
Net Assets for Pension Benefits	\$ 4,143,540	\$ 3,554,771
Post Audit Adjustments		
Accrued Make up Contributions	\$ -	\$ -
TDC to TRS Asset Transfer 7/1/2008	-	-
Net Assets with TDC to TRS Accruals	<u>\$ 4,143,540</u>	<u>\$ 3,554,771</u>

Table 8

Statement of Changes in Net Assets for Benefits
For Year ended June 30, 2010
(000's omitted)

Net Assets for Pension Benefits - Beginning of Year	\$ 3,554,771
Post Valuation Adjustment	2
Net Assets for Pension Benefits - After Adjustment	\$ 3,554,773
Additions:	
Contributions:	
Member Type 1	\$ 38,833
Member Type 3	52,371
Employer Type 1	24,537
Employer Type 3	16,271
School Aid Formula	376,595
Make Up Contributions	18,284
Special Appropriations	28,604
Voluntary Special Contribution Members	2,813
Special Contribution Required Employers	58
Contribution Delinquency Fees	4
§33-3-14(d) Fees	2,557
Subtotal	<u>\$ 560,927</u>
Investment Income:	
Net Appreciation in Fair Value ¹	532,552
Interest	895
Subtotal	<u>\$ 533,447</u>
Other Income	-
Total	<u>\$ 1,094,374</u>
Deductions and Transfers:	
Benefit Expense	\$ 494,230
Refunds of Contributions	7,248
Administrative Expenses	4,067
TDC to TRS Accounts for Transfers	-
Transfers (to)/from plans	62
Total	<u>\$ 505,607</u>
Net Increase	\$ 588,767
Net Assets for Pension Benefits - End of Year	\$ 4,143,540
Investment Return for Year:	
Valuation purposes (assumes mid-year transactions and offsets investment income by investment and administrative expenses)	14.77%
Per Investment Management Board (time-weighted, excluding administrative expense)	15.20%

¹ Net of Investment Expense

Table 9

Reconciliation of Plan Participants

	Active	Non-Vested Terms	Vested Terms	Service Retirees	Disabled Retirees	Beneficiaries	Total
Census as of July 1, 2009	35,701	1,204	1,636	24,846	2,118	2,281	67,786
New Entrants	2,278	98	-	-	-	169	2,545
TDC Transfers	-	-	-	-	-	-	-
Returned to Active Status	176	(157)	(19)	-	-	-	-
Terminated Non-Vested	(420)	420	-	-	-	-	-
Terminated Vested	(207)	-	207	-	-	-	-
Withdrew Contributions	(190)	(64)	(57)	-	-	-	(311)
Retired	(1,572)	(3)	(112)	1,687	-	-	-
Disabled	(86)	(1)	(9)	-	96	-	-
Deceased	(8)	-	-	(860)	(65)	(134)	(1,067)
Certain Period Expired	-	-	-	-	-	(9)	(9)
Adjustments	(2)	(77)	(25)	-	-	(2)	(106)
Census as of July 1, 2010	35,670	1,420	1,621	25,673	2,149	2,305	68,838

Table 10
Summary of Membership

	<u>July 1, 2010 Valuation</u>	<u>July 1, 2009 Valuation</u>
Active Members:		
Teachers	21,461	21,577
Non-Teachers (including State)	<u>14,209</u>	<u>14,124</u>
Total	35,670	35,701
Inactive Members:		
Service Retirees	25,673	24,846
Disabled Retirees	2,149	2,118
Beneficiaries	2,305	2,281
Vested Terminated	1,621	1,636
Non-Vested Terminated	<u>1,420</u>	<u>1,204</u>
Total	33,168	32,085
Total Members	68,838	67,786

Table 11(a)
Distribution of the Number and Total Annual Compensation of
Active Teachers as of July 1, 2010

Attained Age	Years of Credited Service													Total	
	0 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 34	35 - 39	40 & over						
	Count / Total Comp	Count / Total Comp	Count / Total Comp	Count / Total Comp	Count / Total Comp	Count / Total Comp	Count / Total Comp	Count / Total Comp	Count / Total Comp	Count / Total Comp	Count / Total Comp	Count / Total Comp			
Under 25	385 14,161,071	1 50,273													386 14,211,343
25 - 29	1,899 71,163,883	275 11,201,315													2,174 82,365,199
30 - 34	1,210 47,507,838	952 41,294,653	47 2,223,214												2,209 91,025,704
35 - 39	958 37,526,576	830 37,140,147	366 17,642,972	30 1,578,990											2,184 93,888,686
40 - 44	664 27,146,295	576 25,944,749	507 25,002,275	256 13,331,737	144 7,684,317										2,147 99,109,373
45 - 49	425 17,695,898	470 21,367,533	289 14,609,387	324 17,645,374	709 39,556,685	406 23,733,815									2,623 134,608,693
50 - 54	349 15,044,041	369 17,430,489	307 15,727,442	241 12,894,348	474 26,362,644	1,019 59,728,794	954 58,805,169								3,713 205,992,927
55 - 59	227 10,609,282	321 15,270,933	320 16,226,192	265 13,937,082	566 31,880,197	611 36,175,678	1,114 70,311,405	707 46,800,161							4,131 241,210,930
60 - 64	113 5,252,595	147 7,205,716	126 6,445,710	117 6,437,893	254 14,479,881	197 11,912,509	214 13,701,029	376 25,734,217	96 6,952,102						1,640 98,121,653
65 - 69	23 1,082,498	21 1,088,116	19 1,016,032	15 855,483	26 1,568,744	26 1,490,798	22 1,449,454	20 1,338,788	30 2,132,085						202 12,021,998
70 & over	5 229,514	9 483,016	2 131,348	- -	4 205,809	6 343,542	1 92,714	8 541,409	17 1,146,819						52 3,174,171
Total	6,258 247,419,491	3,971 178,476,941	1,983 99,024,571	1,248 66,680,906	2,177 121,738,277	2,265 133,385,137	2,305 144,359,771	1,111 74,414,576	143 10,231,006						21,461 1,075,730,677

Table 11(b)
 Distribution of the Number and Total Annual Compensation of
 Active Nonteachers (including State Employees) as of July 1, 2010

Attained Age	Years of Credited Service													Total Count / Total Comp	
	0 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 34	35 - 39	40 & over						
Under 25	Count / Total Comp 64 1,451,720														64 1,451,720
25 - 29	238 6,082,471	26 703,534													264 6,786,005
30 - 34	441 10,872,292	144 4,231,290	13 430,038	1 28,461											599 15,562,081
35 - 39	830 18,724,513	305 8,335,277	65 2,095,464	7 258,774	2 72,906										1,209 29,486,932
40 - 44	816 18,759,633	519 13,574,589	185 5,794,864	57 2,127,388	70 2,663,117	6 275,519									1,653 43,195,111
45 - 49	808 18,529,650	676 17,465,221	358 10,576,246	107 3,793,482	206 8,040,103	192 8,314,677	50 2,095,963								2,397 68,815,341
50 - 54	645 14,883,028	667 16,974,085	507 14,640,717	185 6,375,677	307 11,372,516	327 13,996,261	314 14,195,151	31 1,359,798							2,983 93,797,232
55 - 59	463 11,148,953	458 11,937,143	445 12,788,112	226 7,130,862	475 16,883,862	383 15,493,306	275 12,878,633	128 6,225,094	6 250,038						2,859 94,736,004
60 - 64	226 5,080,866	236 5,805,500	271 7,846,515	144 4,552,697	288 10,211,715	187 7,583,140	148 6,304,500	85 4,615,752	23 851,208						1,608 52,851,894
65 - 69	59 1,325,645	78 1,917,798	63 1,616,907	39 1,065,248	66 2,384,151	36 1,478,981	47 2,374,427	22 912,512	14 692,317						424 13,767,986
70 & over	13 226,155	15 323,977	21 479,044	9 213,437	28 888,534	8 246,911	19 674,667	11 425,671	25 1,101,525						149 4,579,921
Total	4,603 107,084,926	3,124 81,268,414	1,928 56,267,906	775 25,546,026	1,442 52,516,903	1,139 47,388,794	853 38,523,341	277 13,538,828	68 2,895,089						14,209 425,030,227

Table 12
Distribution of the Number and Average Monthly Benefits
of Retired Participants as of July 1, 2010

Current Age	Service Retirees			Disabled Retirees			Beneficiaries			Total		
	Count	Avg. Age	Avg. Mo. Benefit	Count	Avg. Age	Avg. Mo. Benefit	Count	Avg. Age	Avg. Mo. Benefit	Count	Avg. Age	Avg. Mo. Benefit
under 35	-	-	-	-	-	-	18	26	764	18	26	764
35 - 39	-	-	-	1	37	449	7	37	214	8	37	243
40 - 44	-	-	-	6	44	453	31	42	859	37	42	793
45 - 49	1	48	1,616	49	47	841	37	47	744	87	47	809
50 - 54	48	54	1,924	182	52	918	73	52	889	303	53	1,071
55 - 59	2,180	58	2,616	446	57	1,059	144	57	1,165	2,770	58	2,290
60 - 64	5,459	62	2,200	608	62	960	202	62	1,139	6,269	62	2,045
65 - 69	4,903	67	1,749	462	67	782	271	67	996	5,636	67	1,634
70 - 74	4,089	72	1,335	218	72	576	283	72	841	4,590	72	1,269
75 - 79	3,508	77	1,097	77	77	477	323	77	830	3,908	77	1,063
80 - 84	2,803	82	950	56	82	412	405	82	744	3,264	82	915
85 - 89	1,633	87	825	28	87	381	288	87	639	1,949	87	792
90 - 94	763	92	666	15	91	332	157	92	540	935	92	639
95 & over	286	97	586	1	95	164	66	97	505	353	97	570
Total	25,673	71	1,573	2,149	63	851	2,305	74	829	30,127	71	1,464
Total Annual Benefits			484,510,283			21,953,182			22,937,411			529,400,876

Table 13

**Distribution of the Number and Average Monthly Benefits
of Participants Entitled to Deferred Benefits as of July 1, 2010**

<u>Current Age</u>	<u>Deferred Vested</u>		
	<u>Count</u>	<u>Avg. Age</u>	<u>Avg. Mo. Benefit</u>
under 35	18	32	156
35 - 39	21	37	240
40 - 44	51	43	451
45 - 49	284	47	498
50 - 54	406	52	702
55 - 59	549	57	866
60 - 64	231	61	601
65 - 69	50	66	505
70 - 74	10	72	369
75 - 79	1	77	1,019
80 & over	-	-	-
Total	1,621	54	680
Total Annual Benefits			13,217,945

- A. **Plan Name:** The State Teachers' Retirement System (TRS)

- B. **Effective Date:** Originally enacted effective July 1, 1941.

- C. **Member:** Membership includes any employee hired before July 1991, or on or after July 1, 2005, in the public schools, state institutions of higher education, certain state departments, and the Board of Regents, and members of the Teachers' Defined Contribution Plan (TDC) who elected to transfer at July 1 or August 1, 2008. Other members of TDC or TIAA-CREF are not eligible for TRS.

- D. **Final Average Salary:** Final Average Salary is the average of the Member's 5 highest fiscal years of total earnings from covered employment during the Member's last 15 years of service.

- E. **Credited Service:** Credited Service is granted for each day the Member performs work and contributes to the System. At most one year of Credited Service may be earned in any one school year. Credited Service may be granted under certain guidelines for other State employment, for military service, and for out-of-state teaching service.
 - 1. **Contributory Service:** Service credited for years in which a Member contributes to the retirement system. Contributory service is counted for both eligibility and benefit determination.

 - 2. **Military Service:** Active service in the U.S. military up to 25% of the amount of a Member's Contributory Service (but not more than 10 years) will be counted for both eligibility and benefit determination under the retirement system.

 - 3. **Purchased Service:** Service in parochial school or with other states' teacher retirement systems may count for benefits (but not eligibility), provided that the Member pays TRS double the amount contributed during the first year of

employment times the number of years credited plus interest, and cashes out his/her rights to any future benefits under his prior retirement system.

4. **Unused Leave:** A retiring member may choose to receive pension credited service for days of sick or annual leave unused at the time of retirement. Credited Service is granted at the rate of twice the actual number of unused days.

F. Contributions

1. **Member Contributions:** Members contribute 6.0% of their pay to the retirement system.
2. **Employer Contributions:** The State of West Virginia and its counties contribute directly to TRS at the following rates:
 - The State contributes:
 - (1) 15.0% of the payroll of State-employed Members,
 - (2) 15.0% of School Aid Formula (SAF) covered payroll of county-employed Members,
 - (3) 7.5% of SAF-covered payroll of members of the TDC Plan,
 - (4) a certain percentage of fire insurance premiums paid by state residents, and
 - (5) under Code Section 18-9-A-6a, beginning in fiscal year 1996, an amount determined by the State Actuary as being needed to eliminate the TRS Unfunded Liability within 40 years of June 30, 1994.
 - Counties contribute 15.0% of the payroll of TRS Members hired before July 1, 1991 and 7.5% of the payroll for TRS Members hired on or after July 1, 2005, and prior TDC members who transferred into TRS at July 1, 2008 or August 1, 2008, who are employed by county boards of education, which is not covered under the School Aid Formula.

G. Service Retirement

1. **Eligibility:** A Member may retire with an unreduced pension (1) at any age with 35 years of Credited Service, or (2) at age 60 with 5 years of Credited Service. A member may retire with 30 years of Credited Service at any age, with the pension reduced actuarially if the Member retires before age 55.
2. **Benefit:** The normal form of benefit is a single life annuity paid monthly, in an amount equal to 2% of Final Average Salary times years of Credited Service. Other forms of benefit may be elected, subject to actuarial reduction, including a Cash Refund Annuity, 50% or 100% Joint and Survivor Annuities, and a 10-Year Certain and Life Annuity.

H. Disability Retirement

1. **Eligibility:** A Member may be eligible to receive a disability retirement benefit after completing 10 years of Credited Service, if the Member is disabled for 6 months, unable to perform his or her regular occupation and the Retirement Board expects the disability to be permanent.
2. **Benefit:** An annual disability benefit amount, payable monthly as a Cash Refund Annuity, is equal to 2% of the Member's Final Average Salary times the total years of Credited Service to date of disability.

I. Pre-Retirement Death Benefits

1. **Eligibility:** The surviving spouse of a deceased Member who had attained age 50 and completed 25 years of Credited Service is eligible for the Surviving Spouse Benefit. If a member dies prior to attaining age 50 or completing 25 years of Credited Service a Lump Sum Death Benefit is payable to the beneficiary.

2. Benefit:

- **Surviving Spouse Benefit:** The surviving spouse receives an annuity payable as if the Member had retired on the date of death with a 100% Joint and Survivor pension.
- **Lump Sum Death Benefit:** The sum of the accumulated Member contributions with interest and accumulated Member contributions without interest is paid to the Member's beneficiary (or estate).

J. Refund of Contributions

1. **Eligibility:** A Member who leaves employment and is not eligible for any other benefit will receive a refund of his or her contributions to the retirement system.
2. **Benefit:** A lump sum of the Member's accumulated contributions, with compound interest computed on any contributed amount from the end of the fiscal year in which contributed to the date of distribution of the lump sum (but in no case beyond 5 years after the end of the fiscal year during which the Member left service). For purposes of this benefit, interest is computed at a 4% annual rate.

K. Deferred Vested Benefit

1. **Eligibility:** A Member leaving employment with 5 years of Contributory Service may elect to receive either a refund of contributions or a deferred pension commencing at age 62. If a Member has 20 years of Contributory Service, the deferral age is age 60.
2. **Benefit:** An annuity defined as described under "Service Retirement."

L. Post-Retirement Cost-of-Living Adjustments

Ad hoc cost-of-living increases in pensions are periodically granted by the State Legislature. However, the retirement system makes no automatic provision for such increases.

Effective July 1, 2001 retirees age 65 and over who were retired for at least 5 years received a percentage increase in benefits as follows:

- Eligible retirees age 65 to age 70 received a 5% increase, and
- Eligible retirees over age 70 received a 10% increase.

However, if the retiree originally retired under an early retirement window the percentage increase was limited to 3%.

Effective July 1, 2006, retirees age 70 and over who were retired for at least 5 years received a 3% increase in retirement benefits.

Effective July 1, 2008, all retirees and applicable beneficiaries thereof who retired with 20 or more years of service and are receiving a primary retiree pension of \$600 or less per month received a thirteenth check single payment of \$600.

A. Valuation Date

July 1, 2010

B. Funding Method

The valuation is prepared under the Entry Age Cost Method with individually computed accrued liabilities. The Normal Cost is computed in aggregate. Entry is based on adjusted date of hire (i.e. valuation date minus known past service).

C. Interest Rate and Expenses

The valuation interest assumption is 7.5 % per annum, with no loading for plan expenses.

D. Mortality

Mortality rates are shown in the Appendix and are based on the results of the 2002-2006 experience study. The mortality tables are as follows:

Healthy males: 1983 GAM male

Healthy females: 1983 GAM female set forward 1 year

Disabled males: Revenue ruling 96-7 disabled male table set back 3 years

Disabled females: Revenue ruling 96-7 disabled female table set back 3 years

E. Withdrawal from Service

Withdrawal rates are shown in the Appendix and are based on the 2002-2006 experience study. Withdrawal rates are assumed to cease upon eligibility for retirement. All withdrawal is assumed to result in refund of contributions if non-vested or a deferred annuity if vested.

F. Disablement Rates

Disablement rates are shown in the Appendix and are based on the 2002-2006 experience study.

G. Retirement Rates

Retirement rates are shown in the Appendix and are based on the 2002-2006 experience study.

H. Salary Scales

Salary scales are shown in the Appendix and are based on the 2002-2006 experience study. Projected salary increases are in the following ranges by group, with an underlying inflation rate of 3.0%:

<u>Group</u>	<u>Range of Projected Salary Increases</u>
Teachers	3.5% - 5.0%
Non-Teachers	3.6% - 5.5%

I. Accrual of Future Service

Future service accrual factors are based on the 2002-2006 experience study. Active members will accrue the following service for each future year of employment:

<u>Group</u>	<u>Male</u>	<u>Female</u>
Teachers	0.990	0.985
Non-Teachers	0.990	0.990

J. Non-Contributory Service Loadings

The load factor assumptions for non-contributory service (military, parochial or out-of-state teaching, transferred PERS service, and unused sick leave) are based on the 2002-2006 experience study and are as follows:

<u>Group</u>	<u>Male</u>	<u>Female</u>
Teachers	1.0950	1.0375
Non-Teachers	1.0775	1.0300

K. Family Composition

It is assumed that 85% of males and 80% of females are married, with husbands 3 years older than wives. Remarriage rates are not used.

L. Asset Valuation Method

Assets for valuation purposes are included at Market Value.

M. Plan Contribution

Plan Contributions, both employee and employer, are assumed to be paid in the middle of the year.

Pre & Post-Retirement Healthy Mortality

1983 Group Annuity Mortality Male
1983 Group Annuity Mortality Female set forward 1 year

Age	Male	Female	Age	Male	Female
19	0.00037	0.00019	65	0.01559	0.00782
20	0.00038	0.00020	66	0.01758	0.00868
21	0.00039	0.00021	67	0.01980	0.00970
22	0.00041	0.00023	68	0.02223	0.01092
23	0.00042	0.00024	69	0.02482	0.01239
24	0.00044	0.00025	70	0.02753	0.01413
25	0.00046	0.00027	71	0.03035	0.01616
26	0.00049	0.00028	72	0.03337	0.01848
27	0.00051	0.00030	73	0.03668	0.02109
28	0.00054	0.00032	74	0.04039	0.02399
29	0.00057	0.00034	75	0.04460	0.02719
30	0.00061	0.00036	76	0.04939	0.03067
31	0.00065	0.00039	77	0.05476	0.03446
32	0.00069	0.00041	78	0.06068	0.03855
33	0.00073	0.00044	79	0.06713	0.04295
34	0.00079	0.00048	80	0.07407	0.04766
35	0.00086	0.00050	81	0.08148	0.05269
36	0.00091	0.00054	82	0.08932	0.05807
37	0.00097	0.00057	83	0.09753	0.06381
38	0.00104	0.00062	84	0.10605	0.06992
39	0.00113	0.00067	85	0.11484	0.07657
40	0.00124	0.00072	86	0.12417	0.08387
41	0.00137	0.00078	87	0.13387	0.09194
42	0.00153	0.00084	88	0.14407	0.10135
43	0.00172	0.00092	89	0.15486	0.11175
44	0.00193	0.00101	90	0.16631	0.12308
45	0.00218	0.00112	91	0.17821	0.13563
46	0.00247	0.00124	92	0.19046	0.14958
47	0.00279	0.00137	93	0.20301	0.16510
48	0.00314	0.00151	94	0.21790	0.18242
49	0.00351	0.00165	95	0.23409	0.20176
50	0.00391	0.00179	96	0.24844	0.22204
51	0.00432	0.00195	97	0.26395	0.24390
52	0.00476	0.00212	98	0.28080	0.26819
53	0.00520	0.00232	99	0.29915	0.29519
54	0.00566	0.00254	100	0.31919	0.32523
55	0.00613	0.00280	101	0.34109	0.35890
56	0.00662	0.00310	102	0.36505	0.39584
57	0.00714	0.00344	103	0.39310	0.43836
58	0.00772	0.00382	104	0.42726	0.48782
59	0.00838	0.00424	105	0.46953	0.54589
60	0.00916	0.00470	106	0.52195	0.61431
61	0.01006	0.00521	107	0.58652	0.69489
62	0.01113	0.00577	108	0.66527	0.78947
63	0.01239	0.00639	109	0.76022	1.00000
64	0.01387	0.00706	110	1.00000	1.00000

Post-Retirement Disabled Mortality

Revenue Ruling 96-7 Disabled Mortality Table set back 3 years

Age	Male	Female	Age	Male	Female
19	0.02250	0.00812	65	0.06023	0.04040
20	0.02300	0.00848	66	0.06130	0.04165
21	0.02352	0.00885	67	0.06243	0.04295
22	0.02404	0.00924	68	0.06367	0.04429
23	0.02458	0.00965	69	0.06508	0.04567
24	0.02513	0.01008	70	0.06672	0.04683
25	0.02570	0.01052	71	0.06864	0.04807
26	0.02627	0.01098	72	0.07083	0.04958
27	0.02686	0.01147	73	0.07328	0.05133
28	0.02746	0.01197	74	0.07598	0.05327
29	0.02807	0.01250	75	0.07890	0.05536
30	0.02870	0.01306	76	0.08207	0.05757
31	0.02935	0.01363	77	0.08561	0.05998
32	0.03000	0.01423	78	0.08892	0.06257
33	0.03066	0.01484	79	0.09221	0.06548
34	0.03133	0.01547	80	0.09563	0.06869
35	0.03201	0.01610	81	0.09922	0.07224
36	0.03269	0.01660	82	0.10303	0.07616
37	0.03341	0.01712	83	0.10711	0.08048
38	0.03418	0.01765	84	0.11152	0.08524
39	0.03498	0.01820	85	0.11628	0.09048
40	0.03580	0.01877	86	0.12146	0.09622
41	0.03663	0.01936	87	0.12711	0.10251
42	0.03749	0.01996	88	0.13326	0.10937
43	0.03837	0.02058	89	0.13997	0.11684
44	0.03927	0.02122	90	0.14729	0.12495
45	0.04019	0.02188	91	0.15527	0.13374
46	0.04112	0.02256	92	0.16394	0.14323
47	0.04207	0.02326	93	0.17336	0.15348
48	0.04303	0.02399	94	0.18359	0.16450
49	0.04401	0.02473	95	0.19465	0.17633
50	0.04499	0.02550	96	0.20662	0.18901
51	0.04599	0.02630	97	0.21952	0.20257
52	0.04699	0.02712	98	0.23409	0.21705
53	0.04800	0.02796	99	0.24844	0.23247
54	0.04902	0.02883	100	0.26395	0.24887
55	0.05004	0.02973	101	0.28080	0.26629
56	0.05107	0.03066	102	0.29915	0.28476
57	0.05209	0.03161	103	0.31919	0.30343
58	0.05312	0.03259	104	0.34109	0.32739
59	0.05414	0.03361	105	0.36505	0.35902
60	0.05509	0.03466	106	0.39310	0.39584
61	0.05607	0.03573	107	0.42726	0.43836
62	0.05708	0.03685	108	0.46953	0.48782
63	0.05812	0.03799	109	0.52195	0.54589
64	0.05917	0.03918	110	0.58652	0.61431

Withdrawal Rates
Teachers (less than 1 year)

Age	Male	Female	Age	Male	Female	Age	Male	Female
19	0.15000	0.15000	36	0.11800	0.11800	53	0.08400	0.08400
20	0.15000	0.15000	37	0.11600	0.11600	54	0.08200	0.08200
21	0.14800	0.14800	38	0.11400	0.11400	55	0.08000	0.08000
22	0.14600	0.14600	39	0.11200	0.11200	56	0.07800	0.07800
23	0.14400	0.14400	40	0.11000	0.11000	57	0.07600	0.07600
24	0.14200	0.14200	41	0.10800	0.10800	58	0.07400	0.07400
25	0.14000	0.14000	42	0.10600	0.10600	59	0.07200	0.07200
26	0.13800	0.13800	43	0.10400	0.10400	60	0.07000	0.07000
27	0.13600	0.13600	44	0.10200	0.10200	61	0.07000	0.07000
28	0.13400	0.13400	45	0.10000	0.10000	62	0.07000	0.07000
29	0.13200	0.13200	46	0.09800	0.09800	63	0.07000	0.07000
30	0.13000	0.13000	47	0.09600	0.09600	64	0.07000	0.07000
31	0.12800	0.12800	48	0.09400	0.09400	65	0.07000	0.07000
32	0.12600	0.12600	49	0.09200	0.09200	66	0.07000	0.07000
33	0.12400	0.12400	50	0.09000	0.09000	67	0.07000	0.07000
34	0.12200	0.12200	51	0.08800	0.08800	68	0.07000	0.07000
35	0.12000	0.12000	52	0.08600	0.08600	69	0.07000	0.07000

Withdrawal Rates
Teachers (1 to 2 years)

Age	Male	Female	Age	Male	Female	Age	Male	Female
19	0.13000	0.13000	36	0.09600	0.09600	53	0.06000	0.06000
20	0.13000	0.13000	37	0.09200	0.09200	54	0.06000	0.06000
21	0.12800	0.12800	38	0.08800	0.08800	55	0.06000	0.06000
22	0.12600	0.12600	39	0.08400	0.08400	56	0.05800	0.05800
23	0.12400	0.12400	40	0.08000	0.08000	57	0.05600	0.05600
24	0.12200	0.12200	41	0.07800	0.07800	58	0.05400	0.05400
25	0.12000	0.12000	42	0.07600	0.07600	59	0.05200	0.05200
26	0.11800	0.11800	43	0.07400	0.07400	60	0.05000	0.05000
27	0.11600	0.11600	44	0.07200	0.07200	61	0.05000	0.05000
28	0.11400	0.11400	45	0.07000	0.07000	62	0.05000	0.05000
29	0.11200	0.11200	46	0.06800	0.06800	63	0.05000	0.05000
30	0.11000	0.11000	47	0.06600	0.06600	64	0.05000	0.05000
31	0.10800	0.10800	48	0.06400	0.06400	65	0.05000	0.05000
32	0.10600	0.10600	49	0.06200	0.06200	66	0.05000	0.05000
33	0.10400	0.10400	50	0.06000	0.06000	67	0.05000	0.05000
34	0.10200	0.10200	51	0.06000	0.06000	68	0.05000	0.05000
35	0.10000	0.10000	52	0.06000	0.06000	69	0.05000	0.05000

**Withdrawal Rates
Teachers (2 to 3 years)**

<u>Age</u>	<u>Male</u>	<u>Female</u>	<u>Age</u>	<u>Male</u>	<u>Female</u>	<u>Age</u>	<u>Male</u>	<u>Female</u>
19	0.10000	0.10000	36	0.06700	0.06700	53	0.04000	0.04000
20	0.10000	0.10000	37	0.06400	0.06400	54	0.04000	0.04000
21	0.10000	0.10000	38	0.06100	0.06100	55	0.04000	0.04000
22	0.10000	0.10000	39	0.05800	0.05800	56	0.04000	0.04000
23	0.10000	0.10000	40	0.05500	0.05500	57	0.04000	0.04000
24	0.10000	0.10000	41	0.05200	0.05200	58	0.04000	0.04000
25	0.10000	0.10000	42	0.04900	0.04900	59	0.04000	0.04000
26	0.09700	0.09700	43	0.04600	0.04600	60	0.04000	0.04000
27	0.09400	0.09400	44	0.04300	0.04300	61	0.04000	0.04000
28	0.09100	0.09100	45	0.04000	0.04000	62	0.04000	0.04000
29	0.08800	0.08800	46	0.04000	0.04000	63	0.04000	0.04000
30	0.08500	0.08500	47	0.04000	0.04000	64	0.04000	0.04000
31	0.08200	0.08200	48	0.04000	0.04000	65	0.04000	0.04000
32	0.07900	0.07900	49	0.04000	0.04000	66	0.04000	0.04000
33	0.07600	0.07600	50	0.04000	0.04000	67	0.04000	0.04000
34	0.07300	0.07300	51	0.04000	0.04000	68	0.04000	0.04000
35	0.07000	0.07000	52	0.04000	0.04000	69	0.04000	0.04000

**Withdrawal Rates
Teachers (3 to 4 years)**

<u>Age</u>	<u>Male</u>	<u>Female</u>	<u>Age</u>	<u>Male</u>	<u>Female</u>	<u>Age</u>	<u>Male</u>	<u>Female</u>
19	0.08000	0.08000	36	0.05200	0.05200	53	0.03000	0.03000
20	0.08000	0.08000	37	0.04900	0.04900	54	0.03000	0.03000
21	0.08000	0.08000	38	0.04600	0.04600	55	0.03000	0.03000
22	0.08000	0.08000	39	0.04300	0.04300	56	0.03000	0.03000
23	0.08000	0.08000	40	0.04000	0.04000	57	0.03000	0.03000
24	0.08000	0.08000	41	0.03800	0.03800	58	0.03000	0.03000
25	0.08000	0.08000	42	0.03600	0.03600	59	0.03000	0.03000
26	0.07600	0.07600	43	0.03400	0.03400	60	0.03000	0.03000
27	0.07200	0.07200	44	0.03200	0.03200	61	0.03000	0.03000
28	0.06800	0.06800	45	0.03000	0.03000	62	0.03000	0.03000
29	0.06400	0.06400	46	0.03000	0.03000	63	0.03000	0.03000
30	0.06000	0.06000	47	0.03000	0.03000	64	0.03000	0.03000
31	0.05900	0.05900	48	0.03000	0.03000	65	0.03000	0.03000
32	0.05800	0.05800	49	0.03000	0.03000	66	0.03000	0.03000
33	0.05700	0.05700	50	0.03000	0.03000	67	0.03000	0.03000
34	0.05600	0.05600	51	0.03000	0.03000	68	0.03000	0.03000
35	0.05500	0.05500	52	0.03000	0.03000	69	0.03000	0.03000

**Withdrawal Rates
Teachers (4 to 5 years)**

<u>Age</u>	<u>Male</u>	<u>Female</u>	<u>Age</u>	<u>Male</u>	<u>Female</u>	<u>Age</u>	<u>Male</u>	<u>Female</u>
19	0.06000	0.06000	36	0.03200	0.03200	53	0.01500	0.01500
20	0.06000	0.06000	37	0.02900	0.02900	54	0.01500	0.01500
21	0.06000	0.06000	38	0.02600	0.02600	55	0.01500	0.01500
22	0.06000	0.06000	39	0.02300	0.02300	56	0.01500	0.01500
23	0.06000	0.06000	40	0.02000	0.02000	57	0.01500	0.01500
24	0.06000	0.06000	41	0.02000	0.02000	58	0.01500	0.01500
25	0.06000	0.06000	42	0.02000	0.02000	59	0.01500	0.01500
26	0.05600	0.05600	43	0.02000	0.02000	60	0.01500	0.01500
27	0.05200	0.05200	44	0.02000	0.02000	61	0.01500	0.01500
28	0.04800	0.04800	45	0.02000	0.02000	62	0.01500	0.01500
29	0.04400	0.04400	46	0.01900	0.01900	63	0.01500	0.01500
30	0.04000	0.04000	47	0.01800	0.01800	64	0.01500	0.01500
31	0.03900	0.03900	48	0.01700	0.01700	65	0.01500	0.01500
32	0.03800	0.03800	49	0.01600	0.01600	66	0.01500	0.01500
33	0.03700	0.03700	50	0.01500	0.01500	67	0.01500	0.01500
34	0.03600	0.03600	51	0.01500	0.01500	68	0.01500	0.01500
35	0.03500	0.03500	52	0.01500	0.01500	69	0.01500	0.01500

**Withdrawal Rates
Teachers (greater than 5 years)**

<u>Age</u>	<u>Male</u>	<u>Female</u>	<u>Age</u>	<u>Male</u>	<u>Female</u>	<u>Age</u>	<u>Male</u>	<u>Female</u>
19	0.04000	0.04000	36	0.02676	0.02400	53	0.01800	0.01300
20	0.04000	0.04000	37	0.02602	0.02300	54	0.01900	0.01400
21	0.03900	0.03900	38	0.02528	0.02200	55	0.02000	0.01500
22	0.03800	0.03800	39	0.02454	0.02100	56	0.02000	0.01500
23	0.03700	0.03700	40	0.02380	0.02000	57	0.02000	0.01500
24	0.03600	0.03600	41	0.02304	0.01900	58	0.02000	0.01500
25	0.03500	0.03500	42	0.02228	0.01800	59	0.02000	0.01500
26	0.03400	0.03400	43	0.02152	0.01700	60	0.02000	0.01500
27	0.03300	0.03300	44	0.02076	0.01600	61	0.02000	0.01500
28	0.03200	0.03200	45	0.02000	0.01500	62	0.02000	0.01500
29	0.03100	0.03100	46	0.01900	0.01400	63	0.02000	0.01500
30	0.03000	0.03000	47	0.01800	0.01300	64	0.02000	0.01500
31	0.02950	0.02900	48	0.01700	0.01200	65	0.02000	0.01500
32	0.02900	0.02800	49	0.01600	0.01100	66	0.02000	0.01500
33	0.02850	0.02700	50	0.01500	0.01000	67	0.02000	0.01500
34	0.02800	0.02600	51	0.01600	0.01100	68	0.02000	0.01500
35	0.02750	0.02500	52	0.01700	0.01200	69	0.02000	0.01500

Withdrawal Rates
Non-Teachers and State (less than 1 year)

<u>Age</u>	<u>Male</u>	<u>Female</u>	<u>Age</u>	<u>Male</u>	<u>Female</u>	<u>Age</u>	<u>Male</u>	<u>Female</u>
19	0.15000	0.15000	36	0.11800	0.11800	53	0.08400	0.08400
20	0.15000	0.15000	37	0.11600	0.11600	54	0.08200	0.08200
21	0.14800	0.14800	38	0.11400	0.11400	55	0.08000	0.08000
22	0.14600	0.14600	39	0.11200	0.11200	56	0.07800	0.07800
23	0.14400	0.14400	40	0.11000	0.11000	57	0.07600	0.07600
24	0.14200	0.14200	41	0.10800	0.10800	58	0.07400	0.07400
25	0.14000	0.14000	42	0.10600	0.10600	59	0.07200	0.07200
26	0.13800	0.13800	43	0.10400	0.10400	60	0.07000	0.07000
27	0.13600	0.13600	44	0.10200	0.10200	61	0.07000	0.07000
28	0.13400	0.13400	45	0.10000	0.10000	62	0.07000	0.07000
29	0.13200	0.13200	46	0.09800	0.09800	63	0.07000	0.07000
30	0.13000	0.13000	47	0.09600	0.09600	64	0.07000	0.07000
31	0.12800	0.12800	48	0.09400	0.09400	65	0.07000	0.07000
32	0.12600	0.12600	49	0.09200	0.09200	66	0.07000	0.07000
33	0.12400	0.12400	50	0.09000	0.09000	67	0.07000	0.07000
34	0.12200	0.12200	51	0.08800	0.08800	68	0.07000	0.07000
35	0.12000	0.12000	52	0.08600	0.08600	69	0.07000	0.07000

Withdrawal Rates
Non-Teachers and State (1 to 2 years)

<u>Age</u>	<u>Male</u>	<u>Female</u>	<u>Age</u>	<u>Male</u>	<u>Female</u>	<u>Age</u>	<u>Male</u>	<u>Female</u>
19	0.13000	0.13000	36	0.09600	0.09600	53	0.06000	0.06000
20	0.13000	0.13000	37	0.09200	0.09200	54	0.06000	0.06000
21	0.12800	0.12800	38	0.08800	0.08800	55	0.06000	0.06000
22	0.12600	0.12600	39	0.08400	0.08400	56	0.05800	0.05800
23	0.12400	0.12400	40	0.08000	0.08000	57	0.05600	0.05600
24	0.12200	0.12200	41	0.07800	0.07800	58	0.05400	0.05400
25	0.12000	0.12000	42	0.07600	0.07600	59	0.05200	0.05200
26	0.11800	0.11800	43	0.07400	0.07400	60	0.05000	0.05000
27	0.11600	0.11600	44	0.07200	0.07200	61	0.05000	0.05000
28	0.11400	0.11400	45	0.07000	0.07000	62	0.05000	0.05000
29	0.11200	0.11200	46	0.06800	0.06800	63	0.05000	0.05000
30	0.11000	0.11000	47	0.06600	0.06600	64	0.05000	0.05000
31	0.10800	0.10800	48	0.06400	0.06400	65	0.05000	0.05000
32	0.10600	0.10600	49	0.06200	0.06200	66	0.05000	0.05000
33	0.10400	0.10400	50	0.06000	0.06000	67	0.05000	0.05000
34	0.10200	0.10200	51	0.06000	0.06000	68	0.05000	0.05000
35	0.10000	0.10000	52	0.06000	0.06000	69	0.05000	0.05000

**Withdrawal Rates
Non-Teachers and State (2 to 3 years)**

<u>Age</u>	<u>Male</u>	<u>Female</u>	<u>Age</u>	<u>Male</u>	<u>Female</u>	<u>Age</u>	<u>Male</u>	<u>Female</u>
19	0.10000	0.10000	36	0.06700	0.06700	53	0.04000	0.04000
20	0.10000	0.10000	37	0.06400	0.06400	54	0.04000	0.04000
21	0.10000	0.10000	38	0.06100	0.06100	55	0.04000	0.04000
22	0.10000	0.10000	39	0.05800	0.05800	56	0.04000	0.04000
23	0.10000	0.10000	40	0.05500	0.05500	57	0.04000	0.04000
24	0.10000	0.10000	41	0.05200	0.05200	58	0.04000	0.04000
25	0.10000	0.10000	42	0.04900	0.04900	59	0.04000	0.04000
26	0.09700	0.09700	43	0.04600	0.04600	60	0.04000	0.04000
27	0.09400	0.09400	44	0.04300	0.04300	61	0.04000	0.04000
28	0.09100	0.09100	45	0.04000	0.04000	62	0.04000	0.04000
29	0.08800	0.08800	46	0.04000	0.04000	63	0.04000	0.04000
30	0.08500	0.08500	47	0.04000	0.04000	64	0.04000	0.04000
31	0.08200	0.08200	48	0.04000	0.04000	65	0.04000	0.04000
32	0.07900	0.07900	49	0.04000	0.04000	66	0.04000	0.04000
33	0.07600	0.07600	50	0.04000	0.04000	67	0.04000	0.04000
34	0.07300	0.07300	51	0.04000	0.04000	68	0.04000	0.04000
35	0.07000	0.07000	52	0.04000	0.04000	69	0.04000	0.04000

**Withdrawal Rates
Non-Teachers and State (3 to 4 years)**

<u>Age</u>	<u>Male</u>	<u>Female</u>	<u>Age</u>	<u>Male</u>	<u>Female</u>	<u>Age</u>	<u>Male</u>	<u>Female</u>
19	0.08000	0.08000	36	0.05200	0.05200	53	0.03000	0.03000
20	0.08000	0.08000	37	0.04900	0.04900	54	0.03000	0.03000
21	0.08000	0.08000	38	0.04600	0.04600	55	0.03000	0.03000
22	0.08000	0.08000	39	0.04300	0.04300	56	0.03000	0.03000
23	0.08000	0.08000	40	0.04000	0.04000	57	0.03000	0.03000
24	0.08000	0.08000	41	0.03800	0.03800	58	0.03000	0.03000
25	0.08000	0.08000	42	0.03600	0.03600	59	0.03000	0.03000
26	0.07600	0.07600	43	0.03400	0.03400	60	0.03000	0.03000
27	0.07200	0.07200	44	0.03200	0.03200	61	0.03000	0.03000
28	0.06800	0.06800	45	0.03000	0.03000	62	0.03000	0.03000
29	0.06400	0.06400	46	0.03000	0.03000	63	0.03000	0.03000
30	0.06000	0.06000	47	0.03000	0.03000	64	0.03000	0.03000
31	0.05900	0.05900	48	0.03000	0.03000	65	0.03000	0.03000
32	0.05800	0.05800	49	0.03000	0.03000	66	0.03000	0.03000
33	0.05700	0.05700	50	0.03000	0.03000	67	0.03000	0.03000
34	0.05600	0.05600	51	0.03000	0.03000	68	0.03000	0.03000
35	0.05500	0.05500	52	0.03000	0.03000	69	0.03000	0.03000

Withdrawal Rates
Non-Teachers and State (4 to 5 years)

<u>Age</u>	<u>Male</u>	<u>Female</u>	<u>Age</u>	<u>Male</u>	<u>Female</u>	<u>Age</u>	<u>Male</u>	<u>Female</u>
19	0.06000	0.06000	36	0.03800	0.03800	53	0.02000	0.02000
20	0.06000	0.06000	37	0.03600	0.03600	54	0.02000	0.02000
21	0.05800	0.05800	38	0.03400	0.03400	55	0.02000	0.02000
22	0.05600	0.05600	39	0.03200	0.03200	56	0.01900	0.01900
23	0.05400	0.05400	40	0.03000	0.03000	57	0.01800	0.01800
24	0.05200	0.05200	41	0.02900	0.02900	58	0.01700	0.01700
25	0.05000	0.05000	42	0.02800	0.02800	59	0.01600	0.01600
26	0.05000	0.05000	43	0.02700	0.02700	60	0.01500	0.01500
27	0.05000	0.05000	44	0.02600	0.02600	61	0.01500	0.01500
28	0.05000	0.05000	45	0.02500	0.02500	62	0.01500	0.01500
29	0.05000	0.05000	46	0.02400	0.02400	63	0.01500	0.01500
30	0.05000	0.05000	47	0.02300	0.02300	64	0.01500	0.01500
31	0.04800	0.04800	48	0.02200	0.02200	65	0.01500	0.01500
32	0.04600	0.04600	49	0.02100	0.02100	66	0.01500	0.01500
33	0.04400	0.04400	50	0.02000	0.02000	67	0.01500	0.01500
34	0.04200	0.04200	51	0.02000	0.02000	68	0.01500	0.01500
35	0.04000	0.04000	52	0.02000	0.02000	69	0.01500	0.01500

Withdrawal Rates
Non-Teachers and State (greater than 5 years)

<u>Age</u>	<u>Male</u>	<u>Female</u>	<u>Age</u>	<u>Male</u>	<u>Female</u>	<u>Age</u>	<u>Male</u>	<u>Female</u>
19	0.04000	0.04000	36	0.02150	0.03100	53	0.01400	0.01952
20	0.04000	0.04000	37	0.02050	0.02950	54	0.01450	0.01976
21	0.03900	0.03950	38	0.01950	0.02800	55	0.01500	0.02000
22	0.03800	0.03900	39	0.01850	0.02650	56	0.01500	0.02000
23	0.03700	0.03850	40	0.01750	0.02500	57	0.01500	0.02000
24	0.03600	0.03800	41	0.01700	0.02400	58	0.01500	0.02000
25	0.03500	0.03750	42	0.01650	0.02300	59	0.01500	0.02000
26	0.03400	0.03700	43	0.01600	0.02200	60	0.01500	0.02000
27	0.03300	0.03650	44	0.01550	0.02100	61	0.01500	0.02000
28	0.03200	0.03600	45	0.01500	0.02000	62	0.01500	0.02000
29	0.03100	0.03550	46	0.01450	0.01976	63	0.01500	0.02000
30	0.03000	0.03500	47	0.01400	0.01952	64	0.01500	0.02000
31	0.02850	0.03450	48	0.01350	0.01928	65	0.01500	0.02000
32	0.02700	0.03400	49	0.01300	0.01904	66	0.01500	0.02000
33	0.02550	0.03350	50	0.01250	0.01880	67	0.01500	0.02000
34	0.02400	0.03300	51	0.01300	0.01904	68	0.01500	0.02000
35	0.02250	0.03250	52	0.01350	0.01928	69	0.01500	0.02000

Disability Rates

<u>Age</u>	<u>Male</u>	<u>Female</u>	<u>Age</u>	<u>Male</u>	<u>Female</u>
19	0.00000	0.00000	40	0.00250	0.00250
20	0.00010	0.00010	41	0.00260	0.00260
21	0.00018	0.00018	42	0.00270	0.00270
22	0.00026	0.00026	43	0.00280	0.00280
23	0.00034	0.00034	44	0.00290	0.00290
24	0.00042	0.00042	45	0.00300	0.00300
25	0.00050	0.00050	46	0.00336	0.00334
26	0.00060	0.00060	47	0.00372	0.00368
27	0.00070	0.00070	48	0.00408	0.00402
28	0.00080	0.00080	49	0.00444	0.00436
29	0.00090	0.00090	50	0.00480	0.00470
30	0.00100	0.00100	51	0.00524	0.00516
31	0.00120	0.00120	52	0.00568	0.00562
32	0.00140	0.00140	53	0.00612	0.00608
33	0.00160	0.00160	54	0.00656	0.00654
34	0.00180	0.00180	55	0.00700	0.00700
35	0.00200	0.00200	56	0.00780	0.00780
36	0.00210	0.00210	57	0.00860	0.00860
37	0.00220	0.00220	58	0.00940	0.00940
38	0.00230	0.00230	59	0.01020	0.01020
39	0.00240	0.00240	60	0.01100	0.01100
			61+	0.00000	0.00000

Retirement Rates

Age	Teachers		Non-Teachers & State	
	Male	Female	Male	Female
54	0.000	0.000	0.000	0.000
55	0.250	0.225	0.200	0.200
56	0.150	0.175	0.150	0.150
57	0.150	0.175	0.150	0.150
58	0.150	0.175	0.150	0.150
59	0.150	0.175	0.150	0.150
60	0.300	0.250	0.150	0.250
61	0.350	0.200	0.150	0.275
62	0.400	0.250	0.400	0.300
63	0.250	0.200	0.200	0.200
64	0.250	0.250	0.200	0.200
65	0.400	0.300	0.400	0.300
66	0.300	0.300	0.200	0.200
67	0.300	0.300	0.200	0.200
68	0.300	0.300	0.200	0.200
69	0.300	0.300	0.200	0.200
70+	1.000	1.000	1.000	1.000

Salary Scales

<u>Age</u>	<u>Teachers</u>	<u>Non-Teachers and State</u>	<u>Age</u>	<u>Teachers</u>	<u>Non-Teachers and State</u>
19	1.05000	1.05500	45	1.03800	1.04720
20	1.05000	1.05500	46	1.03760	1.04664
21	1.04950	1.05475	47	1.03720	1.04608
22	1.04900	1.05450	48	1.03680	1.04552
23	1.04850	1.05425	49	1.03640	1.04496
24	1.04800	1.05400	50	1.03600	1.04400
25	1.04750	1.05375	51	1.03600	1.04384
26	1.04700	1.05350	52	1.03600	1.04328
27	1.04650	1.05325	53	1.03600	1.04272
28	1.04600	1.05300	54	1.03600	1.04216
29	1.04550	1.05275	55	1.03600	1.04160
30	1.04500	1.05250	56	1.03600	1.04104
31	1.04450	1.05225	57	1.03600	1.04048
32	1.04400	1.05200	58	1.03600	1.03992
33	1.04350	1.05175	59	1.03600	1.03936
34	1.04300	1.05150	60	1.03600	1.03880
35	1.04250	1.05125	61	1.03600	1.03824
36	1.04200	1.05100	62	1.03600	1.03768
37	1.04150	1.05075	63	1.03600	1.03712
38	1.04100	1.05050	64	1.03600	1.03656
39	1.04050	1.05025	65	1.03600	1.03600
40	1.04000	1.05000	66	1.03580	1.03600
41	1.03960	1.04944	67	1.03560	1.03600
42	1.03920	1.04888	68	1.03540	1.03600
43	1.03880	1.04832	69	1.03520	1.03600
44	1.03840	1.04776	70	1.03500	1.03600