



**West Virginia  
Public Employees' Retirement System**

**Actuarial Valuation  
As of July 1, 2010**

**Prepared by:**

**buck**consultants

A Xerox Company

**for the  
West Virginia Consolidated Public Retirement Board**

**January 2011**

January 10, 2011

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

**Re: West Virginia Public Employees' 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 Public Employees' Retirement System (PERS) as of July 1, 2010. This valuation presents the annual cost and related liabilities of the Plan as of the valuation date.

The valuation assumptions for healthy mortality, withdrawal rates, disability rates, retirement rates, salary scale, and non-contributory service loads were changed to reflect the most recent experience study.

The valuation indicates that the expected state contributions of 12.5% of payroll plus the member contributions of 4.5% of payroll are not sufficient to meet the annual funding requirement of the plan.

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
- financial information received from the West Virginia Investment Management Board.

This report presents fairly the actuarial position of the West Virginia Public Employees' Retirement System 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 PERS experience and represent our best estimate of anticipated experience under PERS.

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, 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 Public Employees' Retirement System (PERS). The development of the results, including for comparison purposes the previous year's results as of July 1, 2009, is presented in Table 1. The report includes disclosure information under Statements 25 and 27 of the Governmental Accounting Standards Board (GASB). A summary of the plan features, a summary of the methods, factors and assumptions and supplementary membership tables used in the valuation are also included.

### **Valuation Results**

The West Virginia Public Employees' Retirement System is a defined benefit plan providing unreduced monthly benefits to members upon retirement at age 60 after completing 5 years of service, or retirement on or after age 55 and meeting the "Rule of 80." 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 employer contributions, currently at 12.5% of payroll, and member contributions of 4.5% of payroll. The major purpose of the valuation is to determine the adequacy of the expected contributions with respect to funding expected Plan liabilities.

The valuation indicates that current contribution levels are less than the calculated cost to fund the benefits accruing during the year (the normal cost) plus the amount required to amortize at a level dollar amount the Plan's primary unfunded liability originally established as of July 1, 2005 over a 25-year period (30 years from July 1, 2005), the amount required to amortize the liability for benefit improvements to actives under SB173 over a 6-year period (10 years from July 1, 2006), and the amount required to amortize the liability for retiree improvements under HB4846 over a 2-year period (6 years from July 1, 2006).

**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. The calculated Employer cost is determined as the Employer's share of the normal cost (the cost to fund benefits accruing during the year), plus amortization of the unfunded actuarial liability segments over the specified periods.

Effective July 1, 2010, the valuation assumptions for healthy mortality, withdrawal rates, disability rates, retirement rates, salary scale, and non-contributory service loads were changed to reflect the most recent experience study. These assumption changes increased the unfunded liability by \$148 million.

Table 2a presents a projection of the primary unfunded actuarial accrued liability to June 30, 2035. The primary unfunded actuarial accrued liability at the valuation date is approximately \$1,351 million. This table illustrates the expected pattern of change in the unfunded liability over the remaining 25-year period. Table 2b presents a projection of the unfunded liability for benefit improvements to actives under SB173 to June 30, 2016. Table 2c presents a projection of the unfunded liability for retiree improvements under HB4846 to June 30, 2012.

Table 3 presents a cash flow projection of expected asset balances, contributions, disbursements and earnings over the period to FY 2036.

**Funding Progress**

The measures of funding status used by accountants for both the State's and the Plan's financial statements are presented in Table 4, which contains information required under Governmental Accounting Standards Board Statement Numbers 25 and 27 (GASB 25 and GASB 27).

Table 5a presents the market value and actuarial value of assets for the fiscal year ending June 30, 2010 and, for comparison purposes, the fiscal year ending June 30, 2009. Table 5b presents the four-year smoothing of deferred gains and losses used in the calculation of the actuarial value

of assets. Table 6 presents the change in market value of assets for the fiscal year ending June 30, 2010.

### Plan Membership

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

<u>Group</u>	<u>July 1, 2010</u>	<u>July 1, 2009</u>
Actives	35,977	35,717
Retirees & Beneficiaries	22,040	21,499
Terminated Vested	3,883	3,884
<u>Terminated Non-Vested</u>	<u>11,481</u>	<u>11,239</u>
Total recognized in the valuation	73,381	72,339

Table 7 presents a reconciliation of plan membership over the year and Table 8 presents supplemental information on plan membership.

Tables 9a and 9b show the number and total compensation for State and Nonstate active participants by five-year age and service groupings as of July 1, 2010.

Table 10 shows the number and average monthly benefits of retirees and beneficiaries included in the valuation distributed by fifth age group. Table 11 shows a similar distribution for terminated participants entitled to deferred benefits.

**Table 1**  
**Development of Valuation Results**  
**(000's omitted)**

	<u>July 1, 2010</u>	<u>July 1, 2009</u>
Membership		
Active	35,977	35,717
Inactive	37,404	36,622
Total	<u>73,381</u>	<u>72,339</u>
1. Present Value of Future Benefits		
a. Active	\$ 3,696,029	\$ 3,537,610
b. Inactive - Retirees	2,033,472	1,850,459
- Disabled Retirees	181,291	174,560
- Beneficiaries	233,641	219,138
- Vested Terminated	135,765	85,407
- Non-Vested Terminated	<u>9,780</u>	<u>9,307</u>
c. Total	\$ 6,289,978	\$ 5,876,481
2. Actuarial Accrued Liability	\$ 5,325,830	\$ 4,930,158
3. Assets at Actuarial Value	\$ 3,974,609	\$ 3,930,701
4. Unfunded Actuarial Accrued Liability (2) - (3)	\$ 1,351,221	\$ 999,457
a. Primary Unfunded	1,350,922	999,054
b. Improvements for actives per SB 173	95	108
c. Retirement increase per HB 4846	204	295
5. Annual Normal Cost Rate		
a. Present Value of Future Normal Cost (1c) - (2)	\$ 964,148	\$ 946,323
b. Present Value of Future Payroll	\$ 9,600,155	\$ 9,487,473
c. Normal Cost Rate as a % of Payroll (5a) / (5b)	10.04%	9.97%
d. Employee Contribution Rate	4.50%	4.50%
e. Employer Share of Normal Cost	5.54%	5.47%
f. Valuation Compensation FY 2011 (2010)	\$ 1,315,441	\$ 1,274,485
6. Calculated Employer Cost FY 2011 (2010)		
a. Amortization Payment on UAAL MOY <sup>1</sup>	\$ 116,888	\$ 85,919
b. Amortization Payment on SB 173 MOY <sup>2</sup>	20	20
c. Amortization Payment on HB 4846 MOY <sup>3</sup>	110	109
d. Employer Normal Cost MOY	<u>75,559</u>	<u>72,281</u>
e. Total Employer Cost MOY	\$ 192,577	\$ 158,329
f. Employer Cost as Percentage of Compensation	14.64%	12.42%
7. Expected Employer Contributions FY 2011 (2010)		
a. Employer Contribution Rate	12.50%	11.00%
b. Employer Contribution	\$ 164,430	\$ 140,193

<sup>1</sup> FY 2011 amortization payment is over 25 years (30 years from July 1, 2005).

<sup>2</sup> FY 2011 amortization payment is over 6 years (10 years from July 1, 2006).

<sup>3</sup> FY 2011 amortization payment is over 2 years (6 years from July 1, 2006).

**Table 2a**  
**Projection of Unfunded Accrued Liability and Annual Contributions**  
**Primary Unfunded Liability Established July 1, 2005**

<b>Fiscal Year Ending 6/30</b>	<b>Unfunded Liability at Beg. of Year</b>	<b>Projected Total Payroll</b>	<b>Employer Contributions</b>	
			<b>% of Payroll</b>	<b>Amount</b>
2011	\$ 1,350,922,000	\$ 1,315,441,000	8.89%	\$ 116,888,000
2012	1,331,049,000	1,381,213,000	8.46%	116,888,000
2013	1,309,686,000	1,450,274,000	8.06%	116,888,000
2014	1,286,720,000	1,522,787,000	7.68%	116,888,000
2015	1,262,032,000	1,598,927,000	7.31%	116,888,000
2016	1,235,492,000	1,678,873,000	6.96%	116,888,000
2017	1,206,962,000	1,762,817,000	6.63%	116,888,000
2018	1,176,292,000	1,850,958,000	6.32%	116,888,000
2019	1,143,322,000	1,943,505,000	6.01%	116,888,000
2020	1,107,879,000	2,040,681,000	5.73%	116,888,000
2021	1,069,778,000	2,142,715,000	5.46%	116,888,000
2022	1,028,820,000	2,249,851,000	5.20%	116,888,000
2023	984,789,000	2,362,343,000	4.95%	116,888,000
2024	937,456,000	2,480,460,000	4.71%	116,888,000
2025	886,573,000	2,604,483,000	4.49%	116,888,000
2026	831,874,000	2,734,707,000	4.27%	116,888,000
2027	773,073,000	2,871,443,000	4.07%	116,888,000
2028	709,861,000	3,015,015,000	3.88%	116,888,000
2029	641,909,000	3,165,766,000	3.69%	116,888,000
2030	568,860,000	3,324,054,000	3.52%	116,888,000
2031	490,332,000	3,490,257,000	3.35%	116,888,000
2032	405,915,000	3,664,769,000	3.19%	116,888,000
2033	315,166,000	3,848,008,000	3.04%	116,888,000
2034	217,612,000	4,040,408,000	2.89%	116,888,000
2035	112,741,000	4,242,429,000	2.76%	116,888,000



**Table 2b**  
**Projection of Unfunded Accrued Liability and Annual Contributions**  
**Liability for Improvements for Actives per SB 173 Established July 1, 2006**

<b>Fiscal Year Ending 6/30</b>	<b>Unfunded Liability at Beg. of Year</b>	<b>Projected Total Payroll</b>	<b>Employer Contributions</b>	
			<b>% of Payroll</b>	<b>Amount</b>
2011	\$ 95,000	\$ 1,315,441,000	0.00%	\$ 20,000
2012	81,000	1,381,213,000	0.00%	20,000
2013	67,000	1,450,274,000	0.00%	20,000
2014	51,000	1,522,787,000	0.00%	20,000
2015	34,000	1,598,927,000	0.00%	20,000
2016	16,000	1,678,873,000	0.00%	20,000

**Table 2c**  
**Projection of Unfunded Accrued Liability and Annual Contributions**  
**Liability for Retirement Increase per HB 4846 Established July 1, 2006**

<b>Fiscal Year Ending 6/30</b>	<b>Unfunded Liability at Beg. of Year</b>	<b>Projected Total Payroll</b>	<b>Employer Contributions</b>	
			<b>% of Payroll</b>	<b>Amount</b>
2011	\$ 204,000	\$ 1,315,441,000	0.01%	\$ 110,000
2012	105,000	1,381,213,000	0.01%	110,000

**Table 3**  
**Cash Flow Projection FY 2011 through FY 2036**

FY	(1)	(2)	(3)	(4)	(5)	(6)
Ending 6/30	Assets Beg. of Year	Expected Contributions	Benefits	Earnings	Net Income	Assets End of Year
2011	\$ 3,686,588,000	\$ 223,625,000	\$ 305,327,000	\$ 273,430,000	\$ 191,728,000	\$ 3,878,316,000
2012	3,878,316,000	234,806,000	314,468,000	287,886,000	208,224,000	4,086,540,000
2013	4,086,540,000	246,546,000	332,871,000	303,253,000	216,928,000	4,303,468,000
2014	4,303,468,000	258,873,000	352,365,000	319,254,000	225,762,000	4,529,230,000
2015	4,529,230,000	271,817,000	372,643,000	335,911,000	235,085,000	4,764,315,000
2016	4,764,315,000	285,408,000	393,494,000	353,270,000	245,184,000	5,009,499,000
2017	5,009,499,000	299,678,000	415,197,000	371,380,000	255,861,000	5,265,360,000
2018	5,265,360,000	314,662,000	436,697,000	390,326,000	268,291,000	5,533,651,000
2019	5,533,651,000	330,395,000	457,804,000	410,246,000	282,837,000	5,816,488,000
2020	5,816,488,000	346,915,000	478,706,000	431,294,000	299,503,000	6,115,991,000
2021	6,115,991,000	364,261,000	498,869,000	453,652,000	319,044,000	6,435,035,000
2022	6,435,035,000	382,474,000	517,720,000	477,556,000	342,310,000	6,777,345,000
2023	6,777,345,000	401,598,000	535,748,000	503,270,000	369,120,000	7,146,465,000
2024	7,146,465,000	421,678,000	552,836,000	531,066,000	399,908,000	7,546,373,000
2025	7,546,373,000	442,762,000	568,557,000	561,261,000	435,466,000	7,981,839,000
2026	7,981,839,000	464,900,000	583,301,000	594,198,000	475,797,000	8,457,636,000
2027	8,457,636,000	488,145,000	597,495,000	630,222,000	520,872,000	8,978,508,000
2028	8,978,508,000	512,552,000	609,993,000	669,734,000	572,293,000	9,550,801,000
2029	9,550,801,000	538,180,000	620,906,000	713,208,000	630,482,000	10,181,283,000
2030	10,181,283,000	565,089,000	630,549,000	761,141,000	695,681,000	10,876,964,000
2031	10,876,964,000	593,343,000	638,719,000	814,071,000	768,695,000	11,645,659,000
2032	11,645,659,000	623,010,000	645,507,000	872,581,000	850,084,000	12,495,743,000
2033	12,495,743,000	654,161,000	650,777,000	937,308,000	940,692,000	13,436,435,000
2034	13,436,435,000	686,869,000	653,858,000	1,008,971,000	1,041,982,000	14,478,417,000
2035	14,478,417,000	721,212,000	654,795,000	1,088,372,000	1,154,789,000	15,633,206,000
2036	15,633,206,000	757,273,000	652,729,000	1,176,411,000	1,280,955,000	16,914,161,000

**Assumed interest rate: 7.50%**

**Earnings:** [(1) + (2) - (3)]/2 x interest rate

**Notes:**

1. The fund balance as of July 1, 2010 is the market value of the fund.
2. The contribution for FY 2011 is determined as 17.0% of anticipated FY 2011 base pay (4.5% Member contributions and 12.5% State contributions). Thereafter, the contribution is assumed to increase at 5.0% per year to reflect the salary increase assumption. No new entrants are assumed in this projection.
3. The projection of future benefit payments is based on all participants included in the valuation, including active and terminated vested participants who are not yet receiving benefits.

Table 4

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

Governmental 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

<u>Group</u>	<u>June 30, 2010</u>	<u>June 30, 2009</u>
Retirees, disabled retirees and beneficiaries currently receiving benefits	22,040	21,499
Terminated employees entitled to benefits, but not yet receiving benefits	3,883	3,884
Terminated employees entitled to a return of employee contributions	11,481	11,239
Active Plan members:		
Vested	23,436	23,367
Non-Vested	12,541	12,350
<u>Total</u>	<u>73,381</u>	<u>72,339</u>

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

<u>Actuarial Valuation Date</u>	<u>Actuarial Value of Assets (a)</u>	<u>Actuarial Accrued Liability - Entry Age (b)</u>	<u>Unfunded Accrued Liability (UAL) (b - a)</u>	<u>Funded Ratio (a / b)</u>	<u>Covered Payroll (c)</u>	<u>UAL as a Percentage of Covered Payroll (b - a) / (c)</u>
6/30/98	\$ 2,371,359	\$ 2,524,214	\$ 152,855	93.9%	\$ 836,541	18.3%
6/30/99	2,504,001	2,681,756	177,755	93.4%	854,883	20.8%
6/30/00	2,700,356	2,932,484	232,128	92.1%	930,331	25.0%
6/30/01	2,681,395	3,178,037	496,642	84.4%	972,711	51.1%
6/30/02	2,588,777	3,432,467	843,690	75.4%	1,040,269	81.1%
6/30/03	2,699,941	3,691,001	991,060	73.1%	1,109,272	89.3%
6/30/04	3,095,660	3,870,201	774,541	80.0%	1,134,111	68.3%
6/30/05	3,404,651	4,074,385	669,734	83.6%	1,162,098	57.6%
6/30/06	3,700,186	4,264,700	564,514	86.8%	1,159,715	48.7%
6/30/07	4,293,296	4,426,051	132,755	97.0%	1,191,130	11.1%
6/30/08	3,939,059	4,677,027	737,968	84.2%	1,219,388	60.5%
6/30/09	3,930,701	4,930,158	999,457	79.7%	1,274,485	78.4%
6/30/10	3,974,609	5,325,830	1,351,221	74.6%	1,315,441	102.7%

## Table 4 (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 normal
Amortization method	Level-dollar amount
Remaining amortization period	25 years
Asset valuation method	Four-year 25% level smoothing of actuarial gain or loss on investment return, prospectively implemented on July 1, 2009.
Actuarial assumptions:	
Investment rate of return	7.50%
Projected salary increases	4.25% - 6.00%
Inflation rate	3.00%

**Table 5a**  
**Actuarial Value of Assets as of June 30, 2010**  
(000's omitted)

	<u>June 30, 2010</u>	<u>June 30, 2009</u>
<b>Assets</b>		
Cash with State Treasurer	\$ 183	\$ 24
Investments at Fair Value	3,682,115	3,243,754
Contributions Receivable	4,484	4,678
Participant Loans Receivable	-	-
Total Assets	<u>3,686,782</u>	<u>3,248,456</u>
<b>Liabilities</b>		
Accrued Expenses and Other Payables	<u>194</u>	<u>186</u>
Market Value of Assets	\$ 3,686,588	\$ 3,248,270
Smoothing of Deferred Gains / (Losses)	<u>(288,021)</u>	<u>(682,431)</u>
Actuarial Value of Assets	\$ 3,974,609	\$ 3,930,701

**Table 5b**  
**Four-Year Asset Smoothing as of June 30, 2010**  
(000's omitted)

<u>Fiscal Year</u> <u>Ending</u> <u>6/30</u>	<u>Total Asset</u> <u>Gain / (Loss)</u> <u>for Fiscal Year</u>	<u>Percent</u> <u>Deferred</u>	<u>Gain / (Loss)</u> <u>Deferred</u> <u>for Fiscal Year</u>	<u>Gain / (Loss)</u> <u>First Recognized</u> <u>for Fiscal Year</u>
2010	\$ 222,577	75%	\$ 166,933	\$ 55,644
2009	(909,908)	50%	(454,954)	(227,477)
2008	-	25%	-	-
2007	-	0%	-	-
Total for July 1, 2010 Valuation			\$ (288,021)	\$ (171,833)

**Table 6**  
**Statement of Changes in Market Value of Assets**  
**for Year Ended June 30, 2010**  
**(000's omitted)**

Market Value of Assets - Beginning of Year	\$ 3,248,270
Additions:	
Contributions:	
Member	56,974
Employer	139,284
Special Appropriation	-
Subtotal	<u>\$ 196,258</u>
Investment Income:	
Net Appreciation <sup>1</sup> and Interest	518,862
Other Return in Investments	-
Subtotal	<u>\$ 518,862</u>
Other Income	1,128
Total	<u>\$ 716,248</u>
Deductions and Transfers:	
Benefit Expense	265,264
Refunds of Contributions	8,514
Administrative Expenses	4,340
Transfers (to) / from Other Plans	(188)
Total	<u>\$ 277,930</u>
Net Increase	438,318
Market Value of Assets - End of Year	\$ 3,686,588
Investment Return for Year on Market Value:	
Valuation Purposes (assumes mid-year transactions and offsets investment income by investment and administrative expense)	16.03%
Per Investment Management Board (time-weighted, excluding administrative expense)	16.03%

<sup>1</sup> Net of investment expense

**Table 7**  
**Reconciliation of Plan Participants**

	<u>Active</u>	<u>Non- Vested Terms</u>	<u>Vested Terms</u>	<u>Service Retirees</u>	<u>Disabled Retirees</u>	<u>Beneficiaries</u>	<u>Total</u>
<b>Census as of July 1, 2009</b>	35,717	11,239	3,884	15,494	2,129	3,876	72,339
New Entrants	2,980	579	3	3	1	-	3,566
Returned to Active Status	538	(398)	(134)	(6)	-	-	-
Terminated Non-Vested	(757)	757	-	-	-	-	-
Terminated Vested	(509)	-	509	-	-	-	-
Withdrew Contributions	(879)	(578)	(122)	-	-	-	(1,579)
Transfer to Teachers	-	(6)	(4)	-	-	-	(10)
Transfer to Judges	-	-	-	-	-	-	-
Transfer to DSRS	(1)	-	-	-	-	-	(1)
Transfer to EMSRS	-	-	-	-	-	-	-
Retired	(942)	(12)	(169)	1,123	-	-	-
Disabled	(86)	(3)	(42)	-	131	-	-
Deceased	(84)	(82)	(26)	(609)	(87)	(185)	(1,073)
New Beneficiaries	-	-	-	-	-	162	162
New QDRO's	-	-	-	-	-	18	18
Adjustments	-	(15)	(16)	(1)	(4)	(5)	(41)
<b>Census as of July 1, 2010</b>	35,977	11,481	3,883	16,004	2,170	3,866	73,381



**Table 8**  
**Summary of Membership and Payroll**

	<u>July 1, 2010</u> <u>Valuation</u>	<u>July 1, 2009</u> <u>Valuation</u>
<b>Active Members</b>		
State Employees	23,758	23,463
Nonstate Employees	12,219	12,254
Total	<u>35,977</u>	<u>35,717</u>
Average Age	46.63	46.50
Average Service	11.04	11.04
<b>Inactive Members</b>		
Service Retirees	16,004	15,494
Disabled Retirees	2,170	2,129
Beneficiaries	3,866	3,876
Vested Terminated	3,883	3,884
Non-Vested Terminated	11,481	11,239
Total	<u>37,404</u>	<u>36,622</u>
<b>Payroll For Normal Cost</b>		
State Employees	\$ 902,846,000	\$ 875,879,000
Nonstate Employees	412,595,000	398,606,000
Total	<u>\$ 1,315,441,000</u>	<u>\$ 1,274,485,000</u>
<b>PV of Future Payroll</b>	\$ 9,600,155,000	\$ 9,487,473,000
<b>PV Member Contributions</b>	\$ 432,007,000	\$ 426,936,000

**Table 9a**  
**Distribution of the Number and Total Annual Compensation**  
**of Active Participants as of July 1, 2010**

State

Attained Age	Years of Credited Service														Total			
	0 - 4		5 - 9		10 - 14		15 - 19		20 - 24		25 - 29		30 - 34		35 - 39		40 & up	
	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	Count / Total Comp	Count / Total Comp	Count / Total Comp	Count / Total Comp	Count / Total Comp	Count / Total Comp
Under 25	652 / 18,011,768	4 / 163,782	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	656 / 18,175,550
25 - 29	1,408 / 42,788,446	230 / 7,830,596	4 / 109,505	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	1,642 / 50,728,547
30 - 34	1,170 / 35,971,892	715 / 26,274,615	212 / 8,004,047	7 / 261,163	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	2,104 / 70,511,717
35 - 39	1,089 / 33,774,569	735 / 26,424,514	709 / 29,539,393	211 / 9,782,955	10 / 456,127	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	2,754 / 99,977,558
40 - 44	997 / 30,531,254	681 / 23,806,625	615 / 24,812,714	498 / 23,189,461	177 / 8,152,975	14 / 573,109	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	2,982 / 111,066,138
45 - 49	900 / 27,062,322	652 / 23,091,385	561 / 21,970,769	476 / 21,433,221	447 / 21,060,448	223 / 10,298,080	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	3,329 / 128,136,584
50 - 54	824 / 25,647,605	653 / 23,140,102	595 / 22,743,997	471 / 20,528,588	500 / 23,021,021	391 / 18,860,320	61 / 2,760,825	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	4,056 / 162,613,995
55 - 59	660 / 21,505,586	567 / 20,449,094	554 / 21,035,919	475 / 20,211,074	481 / 21,689,425	288 / 13,864,087	247 / 12,150,127	11 / 571,275	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	3,700 / 152,538,557
60 - 64	302 / 10,646,306	328 / 11,747,908	293 / 12,149,290	278 / 11,686,139	233 / 10,393,559	159 / 7,415,555	143 / 8,104,747	62 / 3,285,993	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	1,934 / 82,498,895
65 - 69	59 / 2,366,088	67 / 2,631,940	71 / 2,911,939	64 / 2,977,063	46 / 2,338,242	36 / 1,767,717	18 / 859,916	23 / 1,425,091	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	410 / 18,415,536
70 & up	18 / 790,221	23 / 759,018	22 / 806,281	29 / 1,109,144	28 / 1,406,640	22 / 1,015,030	12 / 575,888	17 / 893,265	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	191 / 8,183,000
Total	8,079 / 249,096,057	4,655 / 166,319,579	3,636 / 144,083,854	2,509 / 111,178,808	1,922 / 88,518,437	1,133 / 53,793,898	481 / 24,451,503	113 / 6,175,624	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	23,758 / 902,846,077

**Table 9b**  
**Distribution of the Number and Total Annual Compensation**  
**of Active Participants as of July 1, 2010**

Nonstate

Attained Age	Years of Credited Service												Total						
	0 - 4		5 - 9		10 - 14		15 - 19		20 - 24		25 - 29			30 - 34		35 - 39		40 & up	
	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		Count / Total Comp	Count / Total Comp	Count / Total Comp	Count / Total Comp	Count / Total Comp	Count / Total Comp
Under 25	394 9,296,288	10 287,549	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	404 9,583,837
25 - 29	665 17,907,861	149 4,816,916	3 120,653	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	817 22,845,430
30 - 34	595 17,280,014	344 12,441,907	113 4,145,566	6 209,699	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	1,058 34,077,186
35 - 39	576 16,262,953	370 12,959,207	236 8,573,780	110 4,406,655	10 428,843	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	1,302 42,631,438
40 - 44	550 15,456,517	380 13,347,373	286 11,088,153	209 8,329,173	105 4,260,077	3 75,782	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	1,533 52,557,075
45 - 49	532 14,937,832	399 13,041,243	292 10,807,040	211 8,253,252	189 7,808,778	137 6,036,955	23 1,000,190	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	1,783 61,885,290
50 - 54	515 14,720,976	372 12,538,624	307 10,420,873	273 10,696,258	254 10,797,246	172 7,545,446	147 6,066,782	12 647,036	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	2,052 73,433,241
55 - 59	317 8,655,542	347 11,548,460	268 9,249,786	244 8,969,329	209 8,187,155	143 6,196,590	101 4,801,037	61 2,668,109	4 199,390	- -	- -	- -	- -	- -	- -	- -	- -	- -	1,694 60,475,398
60 - 64	210 5,963,097	191 6,362,710	185 6,481,646	162 5,363,313	131 5,021,371	86 3,845,909	61 2,406,943	38 1,773,679	15 775,524	- -	- -	- -	- -	- -	- -	- -	- -	- -	1,079 37,994,192
65 - 69	67 2,031,223	53 1,927,387	51 1,523,291	37 1,364,410	31 1,313,508	21 911,129	19 874,163	3 124,946	12 671,969	- -	- -	- -	- -	- -	- -	- -	- -	- -	294 10,742,026
70 & up	41 984,885	35 975,008	30 952,263	30 928,178	24 754,424	18 590,883	8 345,460	5 248,509	12 589,803	- -	- -	- -	- -	- -	- -	- -	- -	- -	203 6,369,413
Total	4,462 123,497,188	2,650 90,246,384	1,771 63,363,051	1,282 48,520,267	953 38,571,402	580 25,202,694	359 15,494,575	119 5,462,279	43 2,236,686	- -	- -	- -	- -	- -	- -	- -	- -	- -	12,219 412,594,526

Table 10  
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 30	-	-	-	-	-	-	13	25	706	13	25	706
30 - 34	-	-	-	1	30	1,265	10	32	655	11	32	710
35 - 39	-	-	-	10	38	1,073	10	37	768	20	38	921
40 - 44	-	-	-	28	42	1,173	21	43	643	49	42	946
45 - 49	-	-	-	103	48	1,057	77	47	909	180	48	994
50 - 54	5	53	1,075	252	53	1,139	158	52	800	415	53	1,009
55 - 59	1,177	57	1,958	453	57	1,121	279	57	870	1,909	57	1,600
60 - 64	3,152	62	1,576	556	62	1,040	378	62	790	4,086	62	1,430
65 - 69	3,366	67	1,264	331	67	608	447	67	730	4,144	67	1,154
70 - 74	2,853	72	1,026	211	72	458	525	72	651	3,589	72	938
75 - 79	2,250	77	827	111	76	455	578	77	563	2,939	77	761
80 - 84	1,767	82	722	59	82	434	646	82	525	2,472	82	664
85 - 89	1,005	87	598	44	86	360	438	87	464	1,487	87	551
90 - 94	338	92	528	9	92	387	206	92	359	553	92	463
95 & over	91	97	449	2	97	233	80	97	353	173	97	402
Total	16,004	71	1,151	2,170	63	885	3,866	73	624	22,040	71	1,032
<b>Total Annual Benefits</b>			221,010,012			23,043,840			28,958,472			273,012,324

**Table 11**  
**Distribution of the Number and Average Monthly Benefits**  
**of Participants Entitled to Deferred Benefits as of July 1, 2010**

<b>Current Age</b>	<b>Deferred Vested</b>		
	<b>Count</b>	<b>Avg. Age</b>	<b>Avg. Mo. Benefit</b>
Under 30	39	28	296
30 - 34	178	32	353
35 - 39	380	37	485
40 - 44	492	42	552
45 - 49	617	47	618
50 - 54	778	52	754
55 - 59	847	57	628
60 - 64	467	61	490
65 - 69	67	66	306
70 - 74	10	71	413
75 - 79	7	77	583
80 - 84	-	-	-
85 - 89	-	-	-
90 - 94	1	90	15
95 & over	-	-	-
<b>Total</b>	<b>3,883</b>	<b>50</b>	<b>589</b>

**Total Annual Benefits**

**27,459,888**

**A. Definitions**

1. **Plan Name:** The West Virginia Public Employees' Retirement System
2. **Effective Date:** The West Virginia Public Employees' Retirement Act was originally enacted March 11, 1961 to be effective July 1, 1961.
3. **Plan Membership:** All employees of the State of West Virginia or of any participating political subdivisions are required (with certain exceptions) to become plan members. Among those employees not eligible for plan membership are members (and retirees) of other State retirement systems, except for retirees from the Department of Public Safety or from municipal police or fire departments. Members of the State legislature and of local legislative bodies may elect plan membership regardless of the above exclusions.
4. **Annual Compensation:** Annual compensation is the total salary paid to a member by a participating employer, including overtime pay and non-cash payments.
5. **Final Average Salary:** Final average salary is the average of the member's annual compensation during the 3 consecutive years of his credited service (during the 10 years preceding the termination of his employment) that produces the highest such average. If the member has less than 3 years of credited service, his final average salary is his average annual compensation during his period of credited service. Special rules apply to members of the legislature.

**B. Contributions**

1. **Member Contributions:** Members contribute 4.5% of their salary to the system. Member contributions earn interest at a rate of 4.0%, compounded annually (3.0% prior to July 1, 1968).

2. **Employer Contributions:** The State and its participating political subdivisions contribute 12.5% of members' compensation to the retirement system (11.0% from July 1, 2009 to July 1, 2010, and 10.5% prior to July 1, 2009).

### C. Service Credits

1. **Prior Service:** Prior service is the period of employment credited to a member who worked for a participating employer before July 1, 1961. To receive credit for prior service, the employee must have worked for a participating employer within the 30-year period prior to July 1, 1961, and the employee must become a member of the system within 15 years of July 1, 1961 (or within 15 years of his employer's participation in the system, if later).
2. **Contributing Service:** Contributing service is the member's period of employment commencing on his date of participation in the plan.
3. **Credited Service:** Credited service is the sum of the member's prior service and his contributing service. Under certain circumstances, credited service may also be granted for periods of military service and for credited service under the West Virginia Teachers' Retirement System.
4. **Reinstated Service:** A member who terminates service with a participating employer, who does not retire and who is not eligible for a deferred vested benefit, will forfeit his credited service. If the member subsequently reenters covered employment and remains employed for at least one year, then his forfeited credited service will be reinstated provided that he repays to the fund any member contributions (with interest) that he withdrew upon termination. Such repayment must commence no later than 2 years following his reemployment, and full repayment must be accomplished within 5 years following his reemployment.
5. **Applied Unused Leave:** A retiring member may have his unused sick or annual leave applied as credited service to increase the amount of his pension, but cannot apply it for

purposes of gaining eligibility for benefits. Credited service for this purpose is determined by first doubling the number of unused leave days so applied, and then each 240 days of (doubled) leave counts as one year of credited service in the benefit formula used to compute the amount of the member's pension.

#### **D. Normal Retirement Benefit**

- 1. Eligibility:** A member who has attained age 60 and has earned 5 or more years of contributing service is eligible for a normal retirement benefit.
- 2. Benefit Amount:** The annual normal retirement benefit, payable in monthly installments, is equal to 2% of the member's final average salary *times* the number of years of his credited service.
- 3. Normal Form of Benefit:** The normal form of the retirement benefit is a single life cash refund annuity. This means that the pension is payable only during the member's lifetime, but if he dies before receiving pension payments that total the amount of his accumulated contributions (with interest) at the time of his retirement, then the difference will be paid to his beneficiary.
- 4. Optional Forms of Benefit:** The retiring member may elect an actuarially reduced joint and survivor annuity with his or her spouse as beneficiary, with either 100% or 50% of the amount payable while both are alive continuing to the surviving spouse during the spouse's remaining lifetime. This is a contingent joint and survivor annuity, which reduces in amount only if the retiree dies first (and not upon the spouse's death).

#### **E. Early Retirement Benefit (Unreduced)**

- 1. Eligibility:** Rule of 80. A member who has completed at least 3 years of contributing service and who has attained age 55 with the sum of his age *plus* years of contributing service equal to or greater than 80, may retire at any age on or after age 55.



2. **Amount:** The early retirement benefit is equal to the member's normal retirement benefit based on final average salary and years of credited service as of early retirement date, without reduction for early commencement. The early retirement benefit is payable in monthly installments under the same normal or optional forms as the normal retirement benefit.

#### **F. Early Retirement Benefit (Reduced)**

1. **Eligibility:** A terminating member who has completed at least 3 years of contributing service and who either (i) has attained age 55 and completed 10 years of credited service, or (ii) has completed 20 years of credited service, may elect to have his deferred vested benefit commence on the first of any month following his 55th birthday. A terminating member with 30 years of credited service, at least 3 of which are contributing service, may retire early at any age.
2. **Amount:** The early retirement benefit is equal to the normal retirement benefit based on final average salary and years of credited service as of early retirement date actuarially reduced for the number of years by which the early retirement benefit commencement date precedes the retiring member's 62nd birthday. A member retiring after 30 years of service (who is not eligible for an unreduced benefit) receives a benefit actuarially reduced for the number of years by which his early retirement precedes age 60. The early retirement benefit is payable in monthly installments under the same normal or optional forms as the normal retirement benefit.

#### **G. Disability Benefit**

1. **Eligibility:** A member who has completed 10 years of credited service, including 3 years of contributing service, and who is found to be totally and permanently disabled, is eligible for a disability benefit. A member with less than 10 years of credited service (or less than 3 years of contributing service) who incurs a service-connected total and permanent disability and who is receiving workers' compensation on account of this disability is also eligible for a disability benefit.

2. **Amount:** The monthly disability benefit is 2% of the member's final average salary *times* his credited service when disabled. Prior to age 65, the disability benefit is not less than 50% of the member's final average salary. At age 65, the benefit is the greater of (i) 2% of the member's final average salary *times* his credited service at the time of disablement or (ii) 20% of the member's final average salary.

#### **H. Deferred Vested Benefit**

1. **Eligibility:** A terminating member who has completed 5 years of credited service, including at least 3 years of contributing service, and who does not withdraw his accumulated contributions, is entitled to a deferred vested benefit commencing at age 62.
2. **Amount:** The deferred vested pension is equal to 2% of the member's final average salary *times* his years of credited service. The deferred vested pension benefit is payable in monthly installments under the same normal or optional forms as the normal retirement benefit.

#### **I. Pre-Retirement Death Benefits**

1. **Eligibility:** A life annuity is paid to the surviving spouse or other designated beneficiary of an active member (or former member entitled to a deferred benefit) who dies after completing 10 years of credited service and before retiring. If a member has no spouse or designated beneficiary, his children (if any) receive annuities until they reach age 21 or marry, if earlier. If there is no spouse, child, or qualified beneficiary, or if the member dies with less than 10 years of credited service, then the member's accumulated contributions will be paid to his estate as a death benefit.
2. **Amount:** The spouse's or designated beneficiary's pension is calculated as if the member had retired on the day of his death and elected a 100% joint and survivor annuity with his spouse or designated beneficiary as co-annuitant. There is no reduction for early commencement of benefits.

The amount of a (non-designated beneficiary) surviving child's annuity is based upon the annuity reserve the member would have had if he had retired on his date of death. This annuity is payable until the child reaches age 21 or is married, if earlier. In no event is a surviving child paid more than \$250 monthly, and the total paid to all surviving children will not exceed 60% of the member's final average salary.

**J. Post-Retirement Death Benefits**

Other than the death benefit inherent in the cash refund feature of the normal form of benefit, or the survivor's annuity in the case of a joint and survivor pension, no post-retirement death benefits are payable under this retirement plan.

**K. Other Terminations**

A member who terminates employment other than by death and prior to becoming eligible for a normal retirement, early retirement, deferred vested or disability benefit, may upon his request receive a refund of his contributions. If the member has at least 2 years of service in the plan, the refund will include accrued interest on the member's contributions. After receiving a refund of contributions, a member has no further right to benefits under this retirement system.

**A. Valuation Date**

July 1, 2010.

**B. Funding Method**

The valuation is prepared under the Entry Age Normal Cost Method with individually computed accrued liabilities. The Normal Cost is computed in aggregate. Entry is based on date of hire.

**C. Interest Rate and Expenses**

The valuation interest assumption is 7.50% annually, with no loading for plan expenses.

**D. Salary Scales**

The salary scales are shown in the Appendix. Projected salary increases for State and Nonstate employees range from 4.25% to 6.0% per year.

**E. Mortality**

The mortality tables are as follows:

- Healthy males: 1983 GAM male
- Healthy females: 1971 GAM female, set back 1 year
- Disabled males: 1971 GAM male, set forward 8 years
- Disabled females: Revenue Ruling 96-7 disabled female table

**F. Withdrawal from Service**

Withdrawal rates are shown in the Appendix. All withdrawal is assumed to result in refund of contributions if non-vested or a deferred annuity if vested. The liability for a refund of contributions for nonactive non-vested members as of the valuation date is assumed to be 60% of the total employee contribution balance of such members.

**G. Disablement Rates**

Disablement rates are shown in the Appendix.

**H. Retirement Rates**

The retirement rates are shown in the Appendix.

**I. 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.

**J. Accrual of Future Service**

It is assumed that active members will accrue one year of service for each future year of employment.

**K. Noncontributory Service Loadings**

Noncontributory service for active members is estimated from member's contributory service by adjusting the present value of benefits projected from contributory service alone. A 10.8% load is used for male State employees and a 10.0% load is used for male Nonstate employees. A 2.4% load is used for female State and Nonstate employees.

**L. Asset Valuation Method**

Four-year 25% level smoothing of actuarial gain or (loss) on trust fund return:

- Implemented over four years, prospectively commencing July 1, 2009 for the experience for the trust year ending June 30, 2009.
- Actuarial gain or (loss) on assets is calculated as the difference between the expected return under valuation assumptions based on the smoothed Actuarial Value of Assets and the actual trust fund return.
- Actuarial gain or (loss) is recognized at 25% of the original amount each year until fully recognized in the fourth year.
- Total accumulated deferred gain or (loss) amounts are used to adjust the reported Market Value of Assets to determine the Actuarial Value of Assets.

**M. Plan Contributions**

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

## Salary Scales

<u>Age</u>	<u>State</u>	<u>Nonstate</u>	<u>Age</u>	<u>State</u>	<u>Nonstate</u>
19	1.06000	1.06000	45	1.04875	1.04875
20	1.06000	1.06000	46	1.04800	1.04850
21	1.05950	1.05950	47	1.04725	1.04825
22	1.05900	1.05900	48	1.04650	1.04800
23	1.05850	1.05850	49	1.04575	1.04775
24	1.05800	1.05800	50	1.04500	1.04750
25	1.05750	1.05750	51	1.04500	1.04700
26	1.05700	1.05700	52	1.04500	1.04650
27	1.05650	1.05650	53	1.04500	1.04600
28	1.05600	1.05600	54	1.04500	1.04550
29	1.05550	1.05550	55	1.04500	1.04500
30	1.05500	1.05500	56	1.04450	1.04450
31	1.05450	1.05450	57	1.04400	1.04400
32	1.05400	1.05400	58	1.04350	1.04350
33	1.05350	1.05350	59	1.04300	1.04300
34	1.05300	1.05300	60	1.04250	1.04250
35	1.05250	1.05250	61	1.04250	1.04250
36	1.05200	1.05200	62	1.04250	1.04250
37	1.05150	1.05150	63	1.04250	1.04250
38	1.05100	1.05100	64	1.04250	1.04250
39	1.05050	1.05050	65	1.04250	1.04250
40	1.05000	1.05000	66	1.04250	1.04250
41	1.04975	1.04975	67	1.04250	1.04250
42	1.04950	1.04950	68	1.04250	1.04250
43	1.04925	1.04925	69	1.04250	1.04250
44	1.04900	1.04900	70	1.04250	1.04250

**Withdrawal Rates  
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	0.26000	0.26000	33	0.20410	0.20540	47	0.16380	0.16380
20	0.26000	0.26000	34	0.20020	0.20020	48	0.16120	0.16120
21	0.25480	0.25480	35	0.19760	0.19500	49	0.15860	0.15860
22	0.25090	0.24960	36	0.19240	0.19240	50	0.15600	0.15600
23	0.24700	0.24440	37	0.18980	0.18980	51	0.15340	0.15340
24	0.24310	0.23920	38	0.18720	0.18720	52	0.15080	0.15080
25	0.23790	0.23400	39	0.18460	0.18460	53	0.14820	0.14820
26	0.23400	0.23140	40	0.18200	0.18200	54	0.14560	0.14560
27	0.23010	0.22880	41	0.17940	0.17940	55	0.14300	0.14300
28	0.22620	0.22620	42	0.17680	0.17680	56	0.14300	0.14300
29	0.22100	0.22360	43	0.17420	0.17420	57	0.14300	0.14300
30	0.21580	0.22100	44	0.17160	0.17160	58	0.14300	0.14300
31	0.21190	0.21580	45	0.16900	0.16900	59	0.14300	0.14300
32	0.20800	0.21060	46	0.16640	0.16640	60	0.14300	0.14300

**Withdrawal Rates  
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	0.26250	0.22500	33	0.18750	0.18500	47	0.13750	0.13250
20	0.26250	0.22500	34	0.18125	0.18000	48	0.13750	0.13000
21	0.25750	0.22250	35	0.17500	0.17500	49	0.13750	0.12750
22	0.25250	0.22000	36	0.17000	0.17000	50	0.13750	0.12500
23	0.24750	0.21750	37	0.16500	0.16500	51	0.13500	0.12250
24	0.24250	0.21500	38	0.16000	0.16000	52	0.13250	0.12000
25	0.23750	0.21250	39	0.15500	0.15500	53	0.13000	0.11750
26	0.23125	0.21000	40	0.15000	0.15000	54	0.12750	0.11500
27	0.22500	0.20750	41	0.14750	0.14750	55	0.12500	0.11250
28	0.21875	0.20500	42	0.14500	0.14500	56	0.12500	0.11250
29	0.21250	0.20250	43	0.14250	0.14250	57	0.12500	0.11250
30	0.20625	0.20000	44	0.14000	0.14000	58	0.12500	0.11250
31	0.20000	0.19500	45	0.13750	0.13750	59	0.12500	0.11250
32	0.19375	0.19000	46	0.13750	0.13500	60	0.12500	0.11250

**Withdrawal Rates  
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	0.24700	0.20000	33	0.16640	0.16000	47	0.09460	0.10750
20	0.24700	0.20000	34	0.16120	0.15500	48	0.09240	0.10500
21	0.24180	0.19750	35	0.15600	0.15000	49	0.09020	0.10250
22	0.23660	0.19500	36	0.15080	0.14500	50	0.08800	0.10000
23	0.23140	0.19250	37	0.14560	0.14000	51	0.08580	0.09750
24	0.22620	0.19000	38	0.14040	0.13500	52	0.08360	0.09500
25	0.22100	0.18750	39	0.13520	0.13000	53	0.08140	0.09250
26	0.21320	0.18500	40	0.13000	0.12500	54	0.07920	0.09000
27	0.20540	0.18250	41	0.12740	0.12250	55	0.07700	0.08750
28	0.19760	0.18000	42	0.12480	0.12000	56	0.07480	0.08500
29	0.18980	0.17750	43	0.12220	0.11750	57	0.07260	0.08250
30	0.18200	0.17500	44	0.11960	0.11500	58	0.07040	0.08000
31	0.17680	0.17000	45	0.09900	0.11250	59	0.06820	0.07750
32	0.17160	0.16500	46	0.09680	0.11000	60	0.06600	0.07500

**Withdrawal Rates  
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	0.20800	0.16800	33	0.14040	0.12960	47	0.08580	0.08760
20	0.20800	0.16800	34	0.13520	0.12480	48	0.08320	0.08640
21	0.20280	0.16560	35	0.13000	0.12000	49	0.08060	0.08520
22	0.19760	0.16320	36	0.12480	0.11520	50	0.07800	0.08400
23	0.19240	0.16080	37	0.11960	0.11040	51	0.07540	0.08160
24	0.18720	0.15840	38	0.11440	0.10560	52	0.07280	0.07920
25	0.18200	0.15600	39	0.10920	0.10080	53	0.07020	0.07680
26	0.17680	0.15360	40	0.10400	0.09600	54	0.06760	0.07440
27	0.17160	0.15120	41	0.10140	0.09480	55	0.06500	0.07200
28	0.16640	0.14880	42	0.09880	0.09360	56	0.06240	0.06960
29	0.16120	0.14640	43	0.09620	0.09240	57	0.05980	0.06720
30	0.15600	0.14400	44	0.09360	0.09120	58	0.05720	0.06480
31	0.15080	0.13920	45	0.09100	0.09000	59	0.05460	0.06240
32	0.14560	0.13440	46	0.08840	0.08880	60	0.05200	0.06000



**Withdrawal Rates  
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	0.18200	0.13500	33	0.12320	0.10500	47	0.06440	0.07375
20	0.18200	0.13500	34	0.11760	0.10250	48	0.06160	0.07313
21	0.17640	0.13365	35	0.11200	0.10000	49	0.05880	0.07250
22	0.17080	0.13230	36	0.10640	0.09750	50	0.05600	0.07188
23	0.16520	0.13095	37	0.10080	0.09500	51	0.05320	0.07063
24	0.15960	0.12960	38	0.09520	0.09250	52	0.05040	0.06938
25	0.15400	0.12825	39	0.08960	0.09000	53	0.04760	0.06813
26	0.15120	0.12690	40	0.08400	0.08750	54	0.04480	0.06688
27	0.14840	0.12555	41	0.08120	0.08500	55	0.04200	0.06563
28	0.14560	0.12420	42	0.07840	0.08250	56	0.03920	0.06250
29	0.14280	0.12285	43	0.07560	0.08000	57	0.03640	0.05938
30	0.14000	0.11250	44	0.07280	0.07750	58	0.03360	0.05625
31	0.13440	0.11000	45	0.07000	0.07500	59	0.03080	0.05313
32	0.12880	0.10750	46	0.06720	0.07438	60	0.02800	0.05000

**Withdrawal Rates  
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	0.12000	0.12100	33	0.07320	0.07150	47	0.03120	0.03800
20	0.12000	0.12100	34	0.06960	0.06600	48	0.02880	0.03700
21	0.11520	0.11880	35	0.06600	0.05500	49	0.02640	0.03600
22	0.11040	0.11660	36	0.06240	0.05300	50	0.02400	0.03500
23	0.10560	0.11440	37	0.05880	0.05100	51	0.02160	0.03200
24	0.10080	0.11220	38	0.05520	0.04900	52	0.01920	0.02900
25	0.09600	0.11000	39	0.05160	0.04700	53	0.01680	0.02600
26	0.09360	0.10560	40	0.04800	0.04500	54	0.01440	0.02300
27	0.09120	0.10120	41	0.04560	0.04400	55	0.01200	0.02000
28	0.08880	0.09680	42	0.04320	0.04300	56	0.01200	0.01800
29	0.08640	0.09240	43	0.04080	0.04200	57	0.01200	0.01600
30	0.08400	0.08800	44	0.03840	0.04100	58	0.01200	0.01400
31	0.08040	0.08250	45	0.03600	0.04000	59	0.01200	0.01200
32	0.07680	0.07700	46	0.03360	0.03900	60	0.01200	0.01000

**Withdrawal Rates  
Nonstate (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	0.31200	0.28750	33	0.24960	0.24035	47	0.18240	0.19320
20	0.31200	0.28750	34	0.24480	0.23575	48	0.17760	0.18630
21	0.30720	0.28405	35	0.24000	0.23000	49	0.17280	0.17940
22	0.30240	0.28060	36	0.23520	0.22770	50	0.16800	0.17250
23	0.29760	0.27715	37	0.23040	0.22540	51	0.16320	0.16790
24	0.29280	0.27370	38	0.22560	0.22310	52	0.15840	0.16330
25	0.28800	0.26910	39	0.22080	0.22080	53	0.15360	0.15870
26	0.28320	0.26565	40	0.21600	0.21850	54	0.14880	0.15410
27	0.27840	0.26220	41	0.21120	0.21620	55	0.14400	0.14950
28	0.27360	0.25875	42	0.20640	0.21390	56	0.13920	0.14720
29	0.26880	0.25530	43	0.20160	0.21160	57	0.13440	0.14490
30	0.26400	0.25070	44	0.19680	0.20930	58	0.13200	0.14260
31	0.25920	0.24725	45	0.19200	0.20700	59	0.13200	0.14030
32	0.25440	0.24380	46	0.18720	0.20010	60	0.13200	0.13800

**Withdrawal Rates  
Nonstate (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	0.25200	0.24150	33	0.18960	0.21160	47	0.11600	0.14200
20	0.25200	0.24150	34	0.18480	0.20930	48	0.11400	0.13800
21	0.24960	0.23920	35	0.18000	0.20700	49	0.11200	0.13400
22	0.24720	0.23690	36	0.17520	0.20355	50	0.11000	0.13000
23	0.24480	0.23460	37	0.17040	0.20010	51	0.10800	0.12800
24	0.24240	0.23230	38	0.16560	0.19665	52	0.10600	0.12600
25	0.24000	0.23000	39	0.16080	0.19320	53	0.10400	0.12400
26	0.23280	0.22770	40	0.15600	0.18975	54	0.10200	0.12200
27	0.22560	0.22540	41	0.15360	0.18630	55	0.10000	0.12000
28	0.21840	0.22310	42	0.15120	0.18285	56	0.10000	0.11800
29	0.21120	0.22080	43	0.14880	0.17940	57	0.10000	0.11600
30	0.20400	0.21850	44	0.14640	0.17595	58	0.10000	0.11400
31	0.19920	0.21620	45	0.12000	0.15000	59	0.10000	0.11200
32	0.19440	0.21390	46	0.11800	0.14600	60	0.10000	0.11000

**Withdrawal Rates  
Nonstate (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	0.25000	0.20900	33	0.15620	0.18040	47	0.09900	0.12400
20	0.25000	0.20900	34	0.14960	0.17820	48	0.09600	0.12100
21	0.24625	0.20680	35	0.14300	0.17600	49	0.09300	0.11800
22	0.24250	0.20460	36	0.13970	0.17160	50	0.09000	0.11500
23	0.23875	0.20240	37	0.13640	0.16720	51	0.08900	0.11300
24	0.23500	0.20020	38	0.13310	0.16280	52	0.08800	0.11100
25	0.23125	0.19800	39	0.12980	0.15840	53	0.08700	0.10900
26	0.22500	0.19580	40	0.12650	0.14000	54	0.08600	0.10700
27	0.21875	0.19360	41	0.12430	0.13800	55	0.08500	0.10500
28	0.21250	0.19140	42	0.12210	0.13600	56	0.08400	0.10300
29	0.20625	0.18920	43	0.11990	0.13400	57	0.08300	0.10100
30	0.17600	0.18700	44	0.11770	0.13200	58	0.08200	0.09900
31	0.16940	0.18480	45	0.10500	0.13000	59	0.08100	0.09700
32	0.16280	0.18260	46	0.10200	0.12700	60	0.08000	0.09500

**Withdrawal Rates  
Nonstate (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	0.20900	0.18000	33	0.13420	0.14300	47	0.08600	0.10600
20	0.20900	0.18000	34	0.12760	0.13900	48	0.08400	0.10400
21	0.20460	0.17800	35	0.12100	0.13500	49	0.08200	0.10200
22	0.20020	0.17600	36	0.11880	0.13400	50	0.08000	0.10000
23	0.19580	0.17400	37	0.11660	0.13300	51	0.07800	0.09800
24	0.19140	0.17200	38	0.11440	0.13200	52	0.07600	0.09600
25	0.18700	0.17000	39	0.11220	0.13100	53	0.07400	0.09400
26	0.18040	0.16700	40	0.10000	0.13000	54	0.07200	0.09200
27	0.17380	0.16400	41	0.09800	0.12600	55	0.07000	0.09000
28	0.16720	0.16100	42	0.09600	0.12200	56	0.06800	0.08800
29	0.16060	0.15800	43	0.09400	0.11800	57	0.06600	0.08600
30	0.15400	0.15500	44	0.09200	0.11400	58	0.06400	0.08400
31	0.14740	0.15100	45	0.09000	0.11000	59	0.06200	0.08200
32	0.14080	0.14700	46	0.08800	0.10800	60	0.06000	0.08000

**Withdrawal Rates  
Nonstate (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	0.20400	0.20400	33	0.12840	0.13440	47	0.07320	0.09120
20	0.20400	0.20400	34	0.12120	0.12720	48	0.07080	0.08880
21	0.19800	0.19920	35	0.11400	0.12000	49	0.06840	0.08640
22	0.19200	0.19440	36	0.10920	0.11760	50	0.06600	0.08400
23	0.18600	0.18960	37	0.10440	0.11520	51	0.06360	0.08160
24	0.18000	0.18480	38	0.09960	0.11280	52	0.06120	0.07920
25	0.17400	0.18000	39	0.09480	0.11040	53	0.05880	0.07680
26	0.16920	0.17520	40	0.09000	0.10800	54	0.05640	0.07440
27	0.16440	0.17040	41	0.08760	0.10560	55	0.05400	0.07200
28	0.15960	0.16560	42	0.08520	0.10320	56	0.05160	0.06960
29	0.15480	0.16080	43	0.08280	0.10080	57	0.04920	0.06720
30	0.15000	0.15600	44	0.08040	0.09840	58	0.04680	0.06480
31	0.14280	0.14880	45	0.07800	0.09600	59	0.04440	0.06240
32	0.13560	0.14160	46	0.07560	0.09360	60	0.04200	0.06000

**Withdrawal Rates  
Nonstate (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	0.16500	0.16000	33	0.08910	0.08800	47	0.04600	0.04400
20	0.16500	0.16000	34	0.08580	0.08400	48	0.04400	0.04100
21	0.15840	0.15400	35	0.07500	0.08000	49	0.04200	0.03800
22	0.15180	0.14800	36	0.07200	0.07700	50	0.04000	0.03500
23	0.14520	0.14200	37	0.06900	0.07400	51	0.03800	0.03300
24	0.13860	0.13600	38	0.06600	0.07100	52	0.03600	0.03100
25	0.13200	0.13000	39	0.06300	0.06800	53	0.03400	0.02900
26	0.12540	0.12400	40	0.06000	0.06500	54	0.03200	0.02700
27	0.11880	0.11800	41	0.05800	0.06200	55	0.03000	0.02500
28	0.11220	0.11200	42	0.05600	0.05900	56	0.02800	0.02400
29	0.10560	0.10600	43	0.05400	0.05600	57	0.02600	0.02300
30	0.09900	0.10000	44	0.05200	0.05300	58	0.02400	0.02200
31	0.09570	0.09600	45	0.05000	0.05000	59	0.02200	0.02100
32	0.09240	0.09200	46	0.04800	0.04700	60	0.02000	0.02000

**Disability Rates  
State and Nonstate**

<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	0.00000	0.00000	33	0.00039	0.00069	47	0.00353	0.00180
20	0.00008	0.00008	34	0.00042	0.00072	48	0.00398	0.00195
21	0.00009	0.00014	35	0.00045	0.00075	49	0.00443	0.00210
22	0.00011	0.00020	36	0.00059	0.00083	50	0.00488	0.00225
23	0.00012	0.00026	37	0.00072	0.00090	51	0.00525	0.00285
24	0.00014	0.00032	38	0.00086	0.00098	52	0.00563	0.00345
25	0.00015	0.00038	39	0.00099	0.00105	53	0.00600	0.00405
26	0.00018	0.00042	40	0.00113	0.00113	54	0.00638	0.00465
27	0.00021	0.00047	41	0.00143	0.00120	55	0.00675	0.00525
28	0.00024	0.00051	42	0.00173	0.00128	56	0.00690	0.00563
29	0.00027	0.00056	43	0.00203	0.00135	57	0.00705	0.00600
30	0.00030	0.00060	44	0.00233	0.00143	58	0.00720	0.00638
31	0.00033	0.00063	45	0.00263	0.00150	59	0.00735	0.00675
32	0.00036	0.00066	46	0.00308	0.00165	60	0.00750	0.00750

**Retirement Rates  
State and Nonstate**

<u>Age</u>	<u>Rates</u>
55	0.25
56	0.15
57	0.15
58	0.15
59	0.15
60	0.15
61	0.15
62	0.30
63	0.18
64	0.18
65	0.25
66	0.20
67	0.20
68	0.20
69	0.20
70+	1.00