



**West Virginia
Department of Public Safety
Death, Disability and Retirement Fund
(Plan A)**

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

Prepared by:

buckconsultants

A Xerox Company

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

January 2011

January 19, 2011

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

**Re: West Virginia Department of Public Safety Death, Disability and Retirement Fund
(Plan A) Actuarial Valuation as of July 1, 2010**

Retirement Board Members:

We respectfully present our report on the actuarial valuation of the West Virginia Department of Public Safety Death, Disability and Retirement Fund (Plan A) as of July 1, 2010. This valuation presents the annual cost and related liabilities of the plan as of the valuation date.

Some key highlights are:

- The valuation was prepared based on an assumed interest rate of 7.50%.
- The State contribution is determined as the State normal cost plus a level-dollar amortization amount that will fund the unfunded actuarial liability by June 30, 2025. The required state contribution for Fiscal Year 2012 is \$22,051,000.

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 Department of Public Safety Plan A 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 Plan A experience and represent our best estimate of anticipated experience under Plan A. We are prepared to certify the results of this report as required at any time.

Retirement Board Members
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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 Academy 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 its contents.

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 Department of Public Safety Death, Disability, and Retirement Fund (Plan A). The development of the results, including for comparison purposes the previous valuation'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 method, factors and assumptions, and supplementary membership tables used in the valuation are also included.

Valuation Results

The West Virginia Department of Public Safety (Plan A) is a defined benefit plan providing benefits to State Troopers who were hired prior to March 12, 1994. Plan A provides unreduced monthly benefits to members upon retirement at age 50 after completing 20 years of contributory service, or at any age after completing 25 years of service including credited military service. The plan also provides 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 state contributions of 15% of gross payroll and member contributions of 9% of gross payroll. In addition, the State also contributes revenue from arrest fees and related services, as well as a calculated amount such that the existing unfunded liability will be amortized by June 30, 2025, as a level dollar amount. The June 30, 2025, date represents a 30-year funding period from June 30, 1995, established under an informal agreement among the interested parties. This policy is not memorialized in statute or rules.

The major purpose of the valuation is to calculate the projected contribution actuarially required to meet the 30-year funding objective.

The valuation indicates that State level-dollar contribution of \$19,954,000 plus each future year's normal cost will be sufficient to fund the future benefit accruals and the existing unfunded liability of \$186,285,000 by June 30, 2025.

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 unfunded liability as of July 1, 2010 is \$186,285,000.

Table 2 presents a projection of the unfunded actuarial accrued liability to June 30, 2025. The unfunded actuarial accrued liability at the valuation date is \$186,285,000. This table illustrates the expected pattern of change in the unfunded liability over the remaining 14-year period. Under the funding target, it is expected that the unfunded liability will decrease each year until it is zero at the end of the 14-year period.

Table 3 presents a cash flow projection of the expected asset balances, contributions, disbursements, and earnings over the next 20 years.

Funding Progress

Information required under Governmental Accounting Standards Board Statement Numbers 25 and 27 (GASB 25 and GASB 27) is presented in Table 4.

Plan asset information is presented in Table 5 and Table 6.

Plan Membership

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

Group	July 1, 2010	July 1, 2009
Actives	147	163
Retirees & Beneficiaries	684	669
Terminated Vested	3	5
Terminated Nonvested	2	2
Total recognized in the valuation	836	839

Table 7 presents a reconciliation of plan membership over the year.

Table 8 shows the number and average compensation rate for active participants by five-year age and service groupings as of July 1, 2010. Table 9 shows the number and monthly benefits of retirees and beneficiaries included in the valuation distributed by fifth age groups. Table 10 shows a similar distribution for terminated participants entitled to deferred benefits.

Table 1
Development of Valuation Results

	<u>July 1, 2010</u>	<u>July 1, 2009</u>
Membership		
Active	147	163
Inactive	689	676
Total	<u>836</u>	<u>839</u>
1. Present Value of Future Benefits		
a. Active	120,407,000	128,687,000
b. Inactive - Retirees	352,312,000	333,387,000
- Disabled Retirees	95,900,000	95,126,000
- Beneficiaries	36,218,000	32,075,000
- Vested Terminated	276,000	979,000
- Non-Vested Terminated	81,000	78,000
c. Total	<u>605,194,000</u>	<u>590,332,000</u>
2. Actuarial Accrued Liability	590,729,000	573,579,000
3. Assets (Market Value)	404,444,000	362,927,000
4. Unfunded Actuarial Accrued Liability 7/10 (7/09): (2) - (3)	<u>186,285,000</u>	<u>210,652,000</u>
5. Employer Normal Cost Rate		
a. Present Value of Future Normal Cost: (1c) - (2)	14,465,000	16,753,000
b. Present Value of Future Payroll	44,461,000	53,404,000
c. Total Normal Cost as a % of Payroll: (5a) / (5b)	32.53%	31.37%
d. Member Share	9.00%	9.00%
e. State Share: (5c) - (5d)	23.53%	22.37%
f. Total Payroll for FY 2011 (2010) for Plan A	8,960,000	10,215,000
g. Payroll for FY 2012 (2011) for Plan A	8,594,000	10,068,000
h. State Share: (5e) x (5f) x 1.036822	2,186,000	2,369,000
i. State Normal Cost for FY 2012 (2011): (5e) x (5g) x 1.036822	2,097,000	2,335,000
6. Total State Contribution		
a. Total FY 2011 (2010) Payroll for All DPS	35,276,000	35,284,000
b. Required Contribution Rate for FY 2011 (2010)	73.53%	35.18%
c. State FY 2011 (2010) Contribution (MOY)	25,940,000	12,416,000
d. Amortization Payment (MOY)	19,954,000	23,605,000
e. State FY 2012 (2011) Contribution (MOY): (5i) + (6d)	22,051,000	25,940,000

Table 2
Projection of Unfunded Accrued Liability and Annual Contributions

Fiscal Year Ending 6/30	Unfunded Liability at Beg. of Year	State Normal Cost	Amortization of Unfunded	Total State Contributions
2011	\$ 186,285,000	\$ 2,186,000	\$ 23,754,000	\$ 25,940,000
2012	175,628,000	2,097,000	19,954,000	22,051,000
2013	168,111,000	1,857,000	19,954,000	21,811,000
2014	160,031,000	1,764,000	19,954,000	21,718,000
2015	151,345,000	1,453,000	19,954,000	21,407,000
2016	142,007,000	1,338,000	19,954,000	21,292,000
2017	131,969,000	1,038,000	19,954,000	20,992,000
2018	121,178,000	939,000	19,954,000	20,893,000
2019	109,578,000	664,000	19,954,000	20,618,000
2020	97,108,000	520,000	19,954,000	20,474,000
2021	83,702,000	288,000	19,954,000	20,242,000
2022	69,291,000	213,000	19,954,000	20,167,000
2023	53,799,000	150,000	19,954,000	20,104,000
2024	37,145,000	107,000	19,954,000	20,061,000
2025	19,242,000	70,000	19,954,000	20,024,000

Table 3
Cash Flow Projection for Fiscal Year 2011 through Fiscal Year 2030

FY Ending 6/30	(1) Assets Beg. of Year	(2) Expected Contributions	(3) Benefits	(4) Earnings	(5) Net Income	(6) Assets End of Year
2011	\$ 404,444,000	\$ 26,746,000	\$ 31,065,000	\$ 30,171,000	\$ 25,852,000	\$ 430,296,000
2012	430,296,000	22,824,000	32,582,000	31,906,000	22,148,000	452,444,000
2013	452,444,000	22,496,000	34,186,000	33,495,000	21,805,000	474,249,000
2014	474,249,000	22,369,000	35,954,000	35,059,000	21,474,000	495,723,000
2015	495,723,000	21,943,000	37,761,000	36,586,000	20,768,000	516,491,000
2016	516,491,000	21,785,000	39,554,000	38,070,000	20,301,000	536,792,000
2017	536,792,000	21,375,000	41,407,000	39,508,000	19,476,000	556,268,000
2018	556,268,000	21,239,000	43,144,000	40,899,000	18,994,000	575,262,000
2019	575,262,000	20,863,000	44,976,000	42,240,000	18,127,000	593,389,000
2020	593,389,000	20,666,000	46,752,000	43,526,000	17,440,000	610,829,000
2021	610,829,000	20,348,000	48,319,000	44,763,000	16,792,000	627,621,000
2022	627,621,000	20,246,000	49,570,000	45,972,000	16,648,000	644,269,000
2023	644,269,000	20,159,000	50,697,000	47,175,000	16,637,000	660,906,000
2024	660,906,000	20,101,000	51,774,000	48,380,000	16,707,000	677,613,000
2025	677,613,000	20,050,000	52,874,000	49,590,000	16,766,000	694,379,000
2026	694,379,000	43,000	53,872,000	50,060,000	(3,769,000)	690,610,000
2027	690,610,000	19,000	54,875,000	49,739,000	(5,117,000)	685,493,000
2028	685,493,000	-	55,661,000	49,325,000	(6,336,000)	679,157,000
2029	679,157,000	-	56,365,000	48,823,000	(7,542,000)	671,615,000
2030	671,615,000	-	56,984,000	48,234,000	(8,750,000)	662,865,000

Assumed interest rate: 7.50%

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

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	684	669
Terminated employees entitled to benefits, but not yet receiving benefits	3	5
Terminated employees entitled to a return of employee contributions	2	2
Active Plan members		
Vested	147	163
Non-Vested	0	0
<u>Total</u>	<u>836</u>	<u>839</u>

2. Schedule of Funding Progress

<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>
6/30/99	\$ 74,230,000	\$ 343,290,000	\$ 269,060,000	21.6%	\$ 16,478,000	1,632.8%
6/30/00	84,922,000	361,026,000	276,104,000	23.5%	16,319,000	1,691.9%
6/30/01	89,229,000	388,909,000	299,680,000	22.9%	15,611,000	1,919.7%
6/30/02	91,095,000	416,938,000	325,843,000	21.9%	14,314,000	2,276.4%
6/30/03	99,409,000	447,869,000	348,460,000	22.2%	13,496,000	2,581.9%
6/30/04	118,080,000	462,119,000	344,039,000	25.6%	12,273,000	2,803.2%
6/30/05	361,390,000	485,429,000	124,039,000	74.4%	11,252,000	1,102.4%
6/30/06	452,794,000	506,828,000	54,034,000	89.3%	11,128,000	485.6%
6/30/07	513,009,000	527,393,000	14,384,000	97.3%	10,997,000	130.8%
6/30/08	459,182,000	547,623,000	88,441,000	83.9%	10,400,000	850.4%
6/30/09	362,927,000	573,579,000	210,652,000	63.3%	10,215,000	2,062.2%
6/30/10	404,444,000	590,729,000	186,285,000	68.5%	8,960,000	2,079.1%

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	14 years
Asset valuation method	Market value
Actuarial assumptions:	
Investment rate of return	7.50%
Projected salary increases	6.50% per year for the first 2 years of service, 6.00% for the first 3 years of service, 5.50% for the next 5 years, and 4.75% thereafter
Inflation Rate	3.00%

Table 5
Valuation Assets as of June 30, 2010

	<u>June 30, 2010</u>	<u>June 30, 2009</u>
Assets		
Investments at Fair Value	\$ 404,445,000	\$ 362,924,000
Cash with State Treasurer	2,000	3,000
Contributions Receivable	-	-
Participant Loans Receivable	-	-
Miscellaneous Revenue Receivable	-	-
Total Assets	<u>404,447,000</u>	<u>362,927,000</u>
Liabilities		
Accrued Expenses and Other Payables	<u>(3,000)</u>	<u>-</u>
Net Assets for Pension Benefits	\$ 404,444,000	\$ 362,927,000
Post Audit Adjustment	<u>-</u>	<u>-</u>
Net Assets after Audit Adjustment	\$ 404,444,000	\$ 362,927,000

Table 6
Statement of Changes in Net Assets for Benefits
for Year Ended June 30, 2010

Net Assets for Pension Benefits - Beginning of Year	\$ 362,927,000
Additions	
Contributions	
Member	909,000
Employer	1,642,000
Special Appropriation	9,876,000
Other Income	652,000
Subtotal	<u>13,079,000</u>
Investment Income	
Net Appreciation in Fair Value ¹	57,836,000
Loan Interest	0
Subtotal	<u>57,836,000</u>
Other Income	<u>0</u>
Total	<u>70,915,000</u>
Deductions and Transfers	
Benefit Expense	29,347,000
Refunds of Contributions	0
Scholarships	0
Administrative Expenses	51,000
Transfers (to)/from plans	0
Total	<u>29,398,000</u>
Net Increase	41,517,000
Net Assets for Pension Benefits - End of Year	\$ 404,444,000
Investment Return for Year:	
Valuation purposes (assumes mid-year transactions and offsets investment income by investment and administrative expense)	16.29%
Per Investment Management Board (time-weighted, excluding administrative expense)	16.06%

¹ Net of Investment Expense

Table 7

Reconciliation of Plan Participants

	Active	Non-Vested Terms	Vested Terms	Service Retirees	Disabled Retirees	Beneficiaries	Total
Census as of July 1, 2009	163	2	5	445	105	119	839
New Entrants	0	0	0	0	0	0	0
Returned to Active Status	0	0	0	0	0	0	0
Retired	(15)	0	(2)	17	0	0	0
Disabled	(1)	0	0	0	1	0	0
Died	0	0	0	(9)	(2)	(4)	(15)
Terminated							
- Vested	0	0	0	0	0	0	0
- Non Vested	0	0	0	0	0	0	0
- Withdrew Contributions	0	0	0	0	0	0	0
New Beneficiaries	0	0	0	0	0	11	11
Adjustments	0	0	0	0	0	1	1
Census as of July 1, 2010	147	2	3	453	104	127	836

Table 8
 Distribution of the Number and Total Annual Compensation
 of Full-Time Active Participants as of July 1, 2010

Attained Age	Years of Credited Service										Total Count / Total Comp	
	Under 10	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	-	-	-	-	-	-	-	-	-	-	-	-
25 - 29	-	-	-	-	-	-	-	-	-	-	-	-
30 - 34	-	-	-	-	-	-	-	-	-	-	-	-
35 - 39	-	-	15 960,105	-	-	-	-	-	-	-	-	15 960,105
40 - 44	-	-	33 2,076,006	40 2,644,140	-	-	-	-	-	-	-	73 4,720,146
45 - 49	-	1 57,471	8 533,301	38 2,603,190	6 396,003	-	-	-	-	-	-	53 3,589,965
50 - 54	-	-	-	4 282,703	1 69,415	1 77,338	-	-	-	-	-	6 429,456
55 - 59	-	-	-	-	-	-	-	-	-	-	-	-
60 - 64	-	-	-	-	-	-	-	-	-	-	-	-
65 - 69	-	-	-	-	-	-	-	-	-	-	-	-
70 & over	-	-	-	-	-	-	-	-	-	-	-	-
Total	-	1 57,471	56 3,569,412	82 5,530,033	7 465,418	1 77,338	-	-	-	-	-	147 9,699,672

Table 9
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 Monthly Benefit	Count	Avg Age	Avg Monthly Benefit	Count	Avg Age	Avg Monthly Benefit	Count	Avg Age	Avg Monthly Benefit
Under 30	-	-	-	-	-	-	3	20	682	3	20	682
30 - 34	-	-	-	-	-	-	-	-	-	-	-	-
35 - 39	-	-	-	1	39	4,848	1	39	888	2	39	2,868
40 - 44	-	-	-	21	42	5,184	1	44	1,706	22	42	5,026
45 - 49	19	48	5,403	15	47	5,097	2	47	1,589	36	47	5,064
50 - 54	62	52	4,604	11	52	5,575	11	52	2,753	84	52	4,489
55 - 59	99	57	4,384	18	57	4,804	12	57	2,538	129	57	4,271
60 - 64	100	62	4,024	16	62	4,355	10	62	2,058	126	62	3,910
65 - 69	65	67	4,067	9	66	2,977	17	67	2,789	91	67	3,721
70 - 74	39	72	4,136	8	71	3,568	15	72	1,856	62	72	3,511
75 - 79	36	77	3,226	3	77	2,899	19	77	2,079	58	77	2,833
80 - 84	30	82	2,405	-	-	-	19	82	1,612	49	82	2,098
85 - 89	1	86	1,192	2	86	1,363	4	87	1,207	7	86	1,249
90 - 94	2	91	1,490	-	-	-	9	92	979	11	92	1,072
95 & over	-	-	-	-	-	-	4	98	891	4	98	891
Total	453	63	4,068	104	56	4,562	127	70	1,982	684	63	3,755
Total Annual Benefits			22,111,053			5,692,970			3,020,800			30,824,823

Table 10

**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 Monthly Benefit</u>
Under 30	-	-	-
30 - 34	-	-	-
35 - 39	-	-	-
40 - 44	1	41	1,605
45 - 49	1	46	3,024
50 - 54	1	52	2,099
55 - 59	-	-	-
60 - 64	-	-	-
Total	3	46	2,242
Total Annual Benefits			80,729

A. Definitions

1. **Plan Name:** The West Virginia Public Safety Death, Disability and Retirement Fund.
2. **Plan Membership:** West Virginia state police officers hired before March 12, 1994 participate in this plan.
3. **Compensation:**
 - **Base Salary:** A trooper's compensation from the Department (exclusive of overtime) in the 12 months preceding his death or disability. An annualized amount is used for members with less than 12 months.
 - **Gross Salary:** A trooper's compensation from the Department, including any overtime received.
 - **Career Pay:** Total gross compensation paid a member during his period of service as a state trooper. This also includes any imputed compensation for periods of unused sick or annual leave and credited military service.
4. **Service:**
 - **Contributory Service:** A member's period of service in the Department during which he makes contributions to this retirement system.
 - **Military Service:** Members can receive up to 5 years of credited service for a period equal to his active military service prior to or during his employment with the Department. Military service is used to increase benefits, but is not used to establish eligibility for benefits until a member has 20 actual years with the Department. Military service which occurs during active status is credited the same as active employment.
 - **Unused Sick or Annual Leave:** A retiring member may at his option convert unused sick and/or annual leave to pension service credit at the rate of two days of service credited per day of unused leave. After doubling, 260 unused leave days are counted as one year of credited service. Such service counts for the purpose of

increasing the member's benefit, but it does not count for determining eligibility for benefits.

B. Contributions

1. **Member Contributions:** Through June 30, 1994, members of this system contributed 6.0% of their gross salary to the retirement fund. During Fiscal 1995, they contributed 7.5% of gross salary, and have been contributing 9.0% since July 1, 1995.
2. **Employer Contributions:** The State contributes 15% of members' compensation from the State Police agency budget and the remainder of the actuarially required contribution above 15% from West Virginia general revenues.

C. Normal Retirement Benefit

1. **Eligibility:** A member who has attained age 50 and has earned 20 or more years of contributory service, or is any age and has earned 25 or more years of contributory and military service, is eligible for a normal retirement benefit.
2. **Benefit Amount:** The annual normal retirement benefit, payable in monthly installments, is equal to 5.5% of the member's Career Pay, subject to a minimum annual benefit of \$6,000.
3. **Normal Form of Benefit:** The normal form of the retirement benefit is a life annuity with 75% of the amount payable continuing to the member's surviving spouse after the death of the member, for the spouse's remaining lifetime.

D. Deferred Vested Benefit

1. **Eligibility:** A terminating member who has completed 10 years of contributory 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 annual pension, payable in monthly installments, is equal to 5.5% of the member's Career Pay, subject to a minimum annual benefit of \$6,000. It is payable in the same normal form as the normal retirement benefit would be or alternatively, the member may elect to receive an actuarially adjusted joint and survivor annuity with 50% of the amount payable while both are alive continuing to the surviving spouse during the spouse's remaining lifetime.

E. Disability Benefits – Duty-Related

1. **Eligibility:** A member disabled in the line of duty and rendered unable to perform his duties is eligible for a duty-related disability retirement. If he can hold other employment, then he is partially disabled. If he is unable to work, then he is totally disabled.
2. **Amount for partial disability:** An annual annuity (payable monthly) equal to 5.5% of the aggregate salary the member would have received had he remained in employment for 25 years (based on average earnings with the department), or the member's actual Career Pay, including non contributory service credit, if greater.
3. **Amount for full disability:** An annual annuity (payable monthly) equal to 8.5% of the aggregate salary the member would have received had he remained in employment for 25 years of service, but not less than \$15,000, or the member's actual Career Pay, including non-contributory service credit, if greater.

F. Disability Benefit – Nonduty-Related

1. **Eligibility:** A member who is disabled other than in the line of duty and rendered unable to perform his duties as a member of the Department is also eligible for disability retirement.
2. **Amount:** The annual benefit (payable monthly) for a member with 20 or more years of service is equal to 5.5% of the member's aggregate salary.

The annual benefit (payable monthly) for a member with less than 20 years of service is equal to 5.5% of the aggregate salary the member would have received had he remained in employment for 25 years. This benefit is payable for a period equal to half of the member's actual service. Thereafter, the benefit is payable under the disability provisions enacted in 1994 and is equal to 50% of the member's base salary for the remainder of the member's lifetime, or until recovery.

G. Pre-Retirement Death Benefits

1. **Eligibility:** The surviving spouse of a member who dies from duty-related causes, or in some cases surviving children or dependent parents, is eligible for a survivor's pension. If death is unrelated to his duties as a state trooper, the surviving family is eligible for a nonduty-related pension. In the nonduty case, the benefits payable depend on whether or not the deceased trooper had 20 years of service.

2. **Amount**

- **Duty-Related Death**

- **To the surviving spouse:** An annual annuity (payable monthly) equal to 5.5% of the aggregate salary the member would have received had he remained in employment for 25 years (based on average earnings of the department), or 70% of member's base salary, including non-contributory service credit, if greater.

- *To surviving dependent children:* If no spouse survives, each surviving child receives 25% of what would have been a surviving spouse's entitlement. Each child is also eligible for an academic scholarship to West Virginia schools, paying up to \$7,500.
 - *To surviving dependent parents:* If there is no surviving spouse or children, then each surviving dependent parent of the deceased member will receive one-half of what would have been a surviving spouse's entitlement.
- *Nonduty-Related Death before Completing 20 Years of Service*
- *To the surviving spouse:* An annual annuity (payable monthly) equal to 2.75% of the aggregate salary the member would have received had he remained in employment for 25 years (based on average earnings with the department), or 50% of member's base salary, if greater.
 - *To surviving dependent children:* If there is no surviving spouse, or the spouse remarries, each surviving child receives 25% of what would have been the spouse's entitlement. Such children are not eligible for scholarships from the retirement fund.
 - *To surviving dependent parents:* If there is no surviving spouse or children, then each surviving dependent parent of the deceased member will receive 50% of what would have been a surviving spouse's entitlement.
- *Nonduty-Related Death after Completing 20 Years of Service*
- *To the surviving spouse:* A monthly life annuity equal to 75% of the member's Normal Retirement Benefit, but not less than \$5,000 annually. The spouse also receives \$100 monthly for each dependent child. These benefits cease when the spouse remarries.
 - *To surviving dependent children:* If there is no surviving spouse, or the spouse remarries, each surviving child receives 25% of what would have been the spouse's entitlement. Such children are not eligible for scholarships from the retirement fund.

- *To surviving dependent parents:* If there is no surviving spouse or children, then each surviving dependent parent of the deceased member will receive one-half of what would have been a surviving spouse's entitlement.

H. Post-Retirement Death Benefits

Other than the death benefit inherent in the cash refund feature of the survivor's annuity, no post-retirement death benefits are payable under this retirement plan.

I. Annual Annuity Adjustment

An annual annuity adjustment of 3.75% is made to service retirees age 55 and older, all disabled retirees, and all beneficiaries. Deferred retirements do not receive an annual annuity adjustment. Service retirees receive the adjustment beginning the July 1 following their 55th birthday. Disabled retirees and beneficiaries receive the adjustment beginning the first July 1 after they begin to receive benefits. The annual increase is made each July 1, with a partial initial year's annuity receiving a prorata adjustment.

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 fund. After receiving a refund of contributions, a member has no further right to benefits under the retirement fund.
2. *Amount:* A lump sum of the member's accumulated contributions, with compound interest based on an annual interest rate of 4.00%.

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 date of hire.

C. Interest Rate and Expenses

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

D. Mortality

The male and female RP-2000 Mortality Tables for Healthy Annuitants and Employees. Mortality for non-disabled retirees is projected 10 years using Scale AA. Mortality for active members in service is projected 5 years with Scale AA in recognition of increased duty-related accidental deaths. Mortality for disabled retirees is assumed to follow the unadjusted RP-2000 Mortality Tables for Disabled Retirees. It is assumed that 70% of deaths of members in service are duty-related.

E. Salary Scales

Compensation is assumed to increase 6.50% per year for the first 2 years of service, 6.00% for the next 3 years, 5.50% for the next 5 years, and 4.75% per year thereafter. The inflation rate is 3.00%.

F. Withdrawal from Service

Withdrawal rates are shown in the Appendix. Withdrawal rates cease once an employee is eligible for normal retirement.

G. Disablement Rates

Disablement rates and the probability of each type of disability are shown in the Appendix. Disablement rates cease once an employee is eligible for normal retirement.

H. Family Composition

90% of members are assumed to be married, with husbands 3 years older than their wives. Re-marriage rates are not used.

I. Accrual of Future Service

Active members are assumed to accrue 1 year of service for each future year of employment.

J. Non-Contributory Service

A 13.3% load is applied to the retirement liability for active members to represent additional benefit service credit at retirement as a result of the conversion of annual leave, sick leave, and additional credit for military service.

K. Retirement Rates

70% of members are assumed to retire when first eligible for unreduced benefits at the earlier of age 50 and 20 years of service or any age and 25 years of service. An active member who has already attained eligibility for normal retirement has a 20% probability of retiring each year thereafter with 100% retiring on or after attainment of age 55.

L. Asset Valuation Method

Assets for valuation purposes are included at Market Value.

M. Plan Contributions

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

<u>Age</u>	<u>Rate of Withdrawal</u>	<u>Rate of Disablement</u>
20	0.0800	0.0005
21	0.0777	0.0005
22	0.0754	0.0005
23	0.0731	0.0005
24	0.0709	0.0005
25	0.0686	0.0005
26	0.0663	0.0008
27	0.0640	0.0011
28	0.0617	0.0014
29	0.0594	0.0017
30	0.0571	0.0020
31	0.0549	0.0024
32	0.0526	0.0028
33	0.0503	0.0032
34	0.0480	0.0036
35	0.0457	0.0040
36	0.0434	0.0044
37	0.0411	0.0048
38	0.0389	0.0052
39	0.0366	0.0056
40	0.0343	0.0060
41	0.0320	0.0060
42	0.0297	0.0060
43	0.0274	0.0060
44	0.0251	0.0060
45	0.0229	0.0060
46	0.0206	0.0056
47	0.0183	0.0052
48	0.0160	0.0048
49	0.0137	0.0044
50	0.0114	0.0040
51	0.0091	0.0040
52	0.0069	0.0040
53	0.0046	0.0040
54	0.0023	0.0040
55	0.0000	0.0040
56	0.0000	0.0040
57	0.0000	0.0040
58	0.0000	0.0040
59	0.0000	0.0040
60	0.0000	0.0040

<u>Type of Disability</u>	<u>Probability</u>
Duty-Related Full	0.25
Duty-Related Partial	0.50
Nonduty-Related Full	0.20
Nonduty-Related Partial	0.05

Withdrawal and disablement rates cease once an employee is eligible for normal retirement.