Minnesota Legislative Commission on Pensions and Retirement

Replication of the Actuarial Valuation of the Minnesota State Retirement System State Patrol Retirement Fund as of July 1, 2013

Prepared by:

Milliman, Inc.

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January 31, 2014

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January 31, 2014

Minnesota Legislative Commission
on Pensions and Retirement
State Office Building, Room 55
100 Rev. Dr. Martin Luther King Jr. Boulevard
St. Paul, Minnesota 55155

Attention: Mr. Lawrence A. Martin, Executive Director

Ladies and Gentlemen:

The enclosed report presents the findings and comments resulting from a review and replication of the July 1, 2013 actuarial valuation of the State Patrol Retirement Fund (Fund) administered by the Minnesota State Retirement System (MSRS). An overview of our major findings is included in the Executive Summary section of the report. More detailed commentary and information is provided in the sections that follow.

We pursued this analysis and review with a constructive mindset. We looked to identify any possible suggestions that might improve understanding of or confidence in the actuarial services being provided. Naturally, some of the comments may be viewed as personal preference or nit-picky in nature. While we are not trying to impose our own preferences or biases on the Fund or the retained actuary, neither did we hesitate to make such comments if we believed that some change, however minor, would improve the actuarial functions.

This report has been prepared for use by the Minnesota Legislative Commission on Pensions and Retirement (LCPR) in their oversight role with regard to the Fund. It has been prepared using Milliman valuation systems in a manner that would be used by Milliman to prepare a full actuarial valuation of the Fund. We recognize that there are hundreds of thousands of complex calculations performed by the actuarial valuation system. For this reason, even the smallest differences between valuation systems can produce noticeable differences in the valuation results between two different actuaries.

In preparing this report, we have relied without audit on the employee data, plan provisions, value of the plan assets and other plan financial information as provided by various involved entities including your office, MSRS, Fund actuary and others. We have reviewed this data for reasonableness and for consistency with previously supplied information. If any of this information as summarized in this report is inaccurate or incomplete, the results shown could be materially affected and this report may need to be revised.

Actuarial assumptions, including discount rates, mortality tables, and others identified in this report, and actuarial cost methods are those used by the Fund Actuary and as prescribed by statute or adopted by the applicable Board and approved by the LCPR. These parties are responsible for selecting the plan's funding policy, actuarial valuation methods, asset valuation methods, and assumptions. The policies, methods, and assumptions used in this valuation are those that have been so prescribed and are described in the Actuarial Basis of this report.

This valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While the valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct. Determining results using alternative assumptions is outside the scope of our engagement.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: plan experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the plan's funded status); and changes in plan provisions or applicable law. Due to the limited scope of our assignment, we did not perform an analysis of the potential range of future measurements.

On the basis of the foregoing we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices which are consistent with the principles prescribed by the Actuarial Standards Board (ASB) and the Code of Professional Conduct and Qualification Standards for Public Statements of Actuarial Opinion of the American Academy of Actuaries.

Milliman's work is prepared solely for the use and benefit of the LCPR. To the extent that Milliman's work is not subject to disclosure under applicable public records laws, Milliman's work may not be provided to third parties without Milliman's prior written consent unless allowed under the Legislative Commission on Pensions and Retirement Contract for Actuarial Review and Auditing Consulting Services dated July 18, 2013. Milliman does not intend to benefit or create a legal duty to any third party recipient of its work product. No third party recipient of Milliman's work product should rely upon Milliman's work product. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

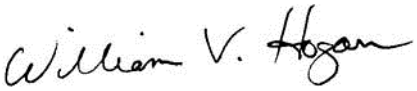
Any distribution of the enclosed report must be in its entirety including this cover letter, unless prior written consent is obtained from Milliman, Inc. This report has been prepared in accordance with the terms and provisions of the Legislative Commission on Pensions and Retirement Contract for Actuarial Review and Auditing Consulting Services effective July 18, 2013.

We, William V. Hogan, FSA, and Timothy J. Herman, FSA, are actuaries for Milliman, Inc. We are members of the American Academy of Actuaries and Fellows of the Society of Actuaries, and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion contained herein.

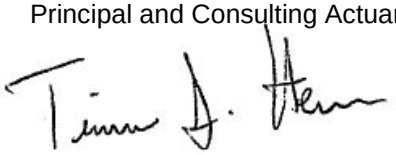
We look forward to making a personal presentation of our findings in briefings to the Minnesota Legislative Commission on Pensions and Retirement and to relevant staff members.

Respectfully submitted,

Milliman, Inc.



William V. Hogan, FSA, EA, MAAA
Principal and Consulting Actuary



Timothy J. Herman, FSA, EA, MAAA
Principal and Consulting Actuary

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Executive Summary

Purpose and Scope of the Actuarial Replication Audit

In accordance with Minnesota Statutes, Section 356.214, Subdivision 4, the LCPR has engaged Milliman, Inc. to perform a replication of the July 1, 2013 actuarial valuation of the Fund administered by MSRS.

In performing the replication of the actuarial valuation, we follow several well defined steps. These steps involve a review and cleansing of the data used in the actuarial valuation, an assessment of the plan provisions to be valued, an analysis of the actuarial assumptions to be applied, a review of the reported value of plan assets as of the valuation date, and preparation of the actuarial calculations using appropriate computer programming and summarizing the results. All of the above steps are to be applied in accordance with the requirements of Minnesota statutes and the Actuarial Standards For Actuarial Work adopted by the LCPR.

In conducting our work, we initially prepared the above steps independently from the work of the Fund Actuary. After completing that work, we conducted a review of some individual benefit trace information in order to identify any key differences in programming or technique. We then prepared a summary of the key valuation results, showing a comparative of our results to those of the Fund Actuary.

It is important to recognize that the actuarial valuation process, while very sophisticated in its calculation methodology, is still an estimate of the financial value of benefits payable on contingent events, most of which occur many years into the future. As such, a considerable amount of uncertainty and variability surrounds those estimates. As actuaries we recognize this fact and are comfortable that small differences (in percentages) in the results do not change the overall financial results portrayed in the valuation. Furthermore, the actuarial software used by different firms has implicit differences that create differences in the valuation numbers. For this reason, we believe the comparison of valuation results should be evaluated in terms of percentage differences. To provide some context to our comments, in a replication audit, where the differences that are identified can also be quantified, we generally expect to be within 1%-2% on the calculation of the present value of future benefits and within 4%-5% on the calculation of the actuarial accrued liability and normal cost. The wider range on the latter items is because there tends to be more variability in how different actuarial software programs allocate the total liability (present value of future benefits) to past and future years of service.

Please note, the actuarially required contribution rate includes a component for the amortization of the unfunded actuarial liability (UAL). For a given level of UAL, annual amortization payments are calculated as increasing by 3.75% per year (“level percent amortization”). If future experience follows the actuarial assumptions, this should result in amortization payments that keep pace with the assumed growth in overall compensation. Please note that with the current amortization period of 24 years, amortization payments in the short term will not be large enough to cover interest on the UAL, which means that as a dollar amount the UAL is expected to grow for several years. This situation is sometimes referred to as “negative amortization”. The negative amortization will continue until the amortization period becomes short enough, and the amortization payments become large enough, such that the amortization payments will be enough to cover both interest and principal, and from that point forward the UAL as a dollar amount will start to decline progressively until ultimately reaching zero by the end of the amortization period.

Statement of Findings

In general, we found the actuarial calculations by the Fund Actuary to be reasonably consistent with our own separate calculations to within a reasonable degree of tolerance. Where we saw differences, we attempted to identify the reasons. Overall, we are satisfied that the July 1, 2013 actuarial valuation results for the Fund as prepared by the Fund Actuary present a fair and reasonable representation of the present value of future benefits. We note some differences in the individual components of the actuarial liabilities and contribution requirements for the Fund.

The following commentary provides our main conclusions on the various areas of our review:

- Plan Provisions: We started with the summary of plan provisions for the Fund that Milliman reviewed last year. We then applied any adjustments to these provisions as a result of legislative changes that were identified in the LCPR summaries. After reviewing the actuarial report prepared by the Fund Actuary, we believe that their summary of plan provisions is consistent with our understanding of the current plan provisions.

- Membership Data: Our raw data counts match exactly with the counts as summarized by MSRS. After applying our own cleansing methods, our valuation data count was the same as the count as reported by the Fund Actuary.

  Our conclusion is that the Fund Actuary is reasonably reflecting the data received from MSRS to within a reasonable degree of tolerance with our own determinations.

- Actuarial Assumptions and Methods: In general, we believe that the assumptions and methods employed by the Fund Actuary are consistent with statutes and the Standards for Actuarial Work.

- Actuarial Value of Assets: We believe that the Fund Actuary has fairly and correctly presented the actuarial value of assets.

- Valuation System Results: Based upon our own valuation system results, we were able to match the Fund Actuary valuation results within 0.1% on the present value of future benefits and within 0.7% on the actuarial liabilities. We are about 0.24 percentage points lower on the Normal Cost rate. These values track very well to the Fund Actuary calculations in total. However, we note some differences in how those totals are split by decrement and group.

- Valuation Report: We believe the actuarial valuation report prepared by the Fund Actuary provides all of the information required by the Standards for Actuarial Work. Overall, the work by the Fund Actuary is comprehensive and thorough. We note that the Actuarial Standards call for identification of the Actuarial Gain or Loss related to mortality. The report provides this information for current benefit recipients.

- COLA: As part of legislation enacted in 2013, the annual Cost of Living Adjustment (COLA) applied to the pensions of retired Members was changed from 1.5% to 1.0% per year if the Accrued Liability Funded Ratio is less than 85%. However, if the Fund achieves at least 85%, but less than 90% funded ratio on the market value of assets to actuarial liability, the COLA will increase to 1.5%. If the Fund achieves a 90% or higher funded ratio on the market value of assets to actuarial liability, the COLA will increase to 2.5%. The valuation by the Fund Actuary assumes that the lower 1.0% COLA will remain in place for all years. As stated in the Fund Actuary's report, this assumption is based on the projections that indicate the Fund is not expected to reach an 85% funded ratio in the next 15 years. We believe this assumption is reasonable.

Principal Valuation Results

This section provides a summary of the key measurements from the July 1, 2013 Actuarial Valuation. As the numbers show, we were able to reasonably match the primary data totals with those shown by the Fund Actuary in almost all cases.

Principal Valuation Results

	Actuarial Valuation as of	
	July 1, 2013 (Fund Actuary)	July 1, 2013 (Milliman)
Contributions (% of Payroll)		
Normal Cost Rate	20.78%	20.54%
UAAL Amortization Payment	20.17%	20.71%
Expenses	0.29%	0.29%
Total Required Contributions (Chapter 356)	41.24%	41.54%
Statutory Contributions (Chapter 352B)	32.56%	32.56%
Contribution (Deficiency)/Sufficiency	(8.68)%	(8.98)%
Unfunded Actuarial Accrued Liability (dollars in thousands)		
Based upon AVA	$189,531	194,611
Based upon MVA	148,649	153,729
Funding Ratios (dollars in thousands)		
Accrued Benefit Funding Ratio		
Current Assets (AVA)	$552,319	552,319
Current Benefit Obligations	722,827	727,470
Funding Ratio	76.41%	75.92%
Accrued Liability Funding Ratio		
Current Assets (AVA)	$552,319	552,319
Current Assets (MVA)	593,201	593,201
Actuarial Accrued Liability	741,850	746,930
Funding Ratio (AVA)	74.45%	73.95%
Funding Ratio (MVA)	79.96%	79.42%
Projected Benefit Funding Ratio		
Current and Expected Future Assets	$772,336	770,645
Current and Expected Future Benefit Obligations	853,902	855,049
Funding Ratio	90.45%	90.13%
Participant Data		
Active Members		
Number	845	845
Projected Annual Earnings (dollars in thousands)	$64,136	$64,128
Average Projected Annual Earnings	75,901	75,891
Average Age	41.9	41.9
Average Service	12.6	12.5
Service Retirements	748	748
Survivors	50	50
Disability Retirements	185	185
Deferred Retirements	41	41
Terminated Other Non-vested	18	18
TOTAL	1,887	1,887

Plan Assets

Statement of Plan Net Assets for Year Ended June 30, 2013
(dollars in thousands)

We received asset information from MSRS which provided assets by class as of June 30, 2013. We have reviewed these assets and summarized them below. Our summary exactly matches the summary provided by the Fund actuary in their Actuarial Valuation Report.

	Market Value	
	Fund Actuary	**Milliman**
Assets Held in Trust		
Cash, Equivalents, Short-term Securities	$ 15,451	$ 15,451
Fixed Income	136,228	136,228
Equity	441,300	441,300
Other*	57,861	57,861
Total Cash, Investments, and Other Assets	**$650,840**	**$650,840**
Amounts Receivable	590	590
Total Assets	**$651,430**	**$651,430**
Amounts Payable*	(58,229)	(58,229)
Net Assets Held in Trust for Pension Benefits	**$593,201**	**$593,201**

* Includes $57,861 in Securities Lending Collateral for fiscal year ending June 30, 2013.

Plan Assets

Reconciliation of Plan Assets
(dollars in thousands)

The following exhibit shows the revenue, expenses and resulting assets of the Fund as reported by MSRS for the Plan's Fiscal year July 1, 2012 to June 30, 2013.

We received this information directly from MSRS and summarized it below. Our summary matches the summary provided by the Fund actuary.

Change in Assets	**Market Value**	
Year Ending	**Fund Actuary**	**Milliman**
1. Fund Balance at Market Value at Beginning of Year	$ 549,956	$ 549,956
2. Contributions		
a. Member	$ 7,703	$ 7,703
b. Employer	11,482	11,482
c. Other Sources	0	0
d. Total Contributions	19,185	19,185
3. Investment Income		
a. Investment Income/(Loss)	$ 77,129	$ 77,129
b. Investment Expenses	(814)	(814)
c. Net Investment Income/(Loss)	76,315	76,315
4. Other	0	0
5. Total Income: *(2.d) + (3.c.) + (4.)*	**$ 95,500**	**$ 95,500**
6. Benefits Paid		
a. Annuity Benefits	$ (52,057)	$ (52,057)
b. Refunds	(7)	(7)
c. Total Benefits Paid	(52,064)	(52,064)
7. Expenses		
a. Other	(1)	(1)
b. Administrative	(190)	(190)
c. Total Expenses	(191)	(191)
8. Total Disbursements: *(6.c.) + (7.c.)*	**(52,255)**	**(52,255)**
9. Fund Balance at Market Value at End of Year (1.) + (5.) + (8.)	**$593,201**	**$593,201**
10. Approximate Return on Market Value of Assets	14.3%	14.3%

Plan Assets

Actuarial Asset Value
(dollars in thousands)

Based upon the assets reported to us by MSRS and prior year actuarial valuation information regarding unrecognized asset returns, we have constructed the Actuarial Value of Assets for the July 1, 2013 Actuarial Valuation. Our calculation matches the Fund actuary.

		June 30, 2013
1.	Market Value of Assets Available for Benefits	$593,201
2.	Determination of Average Balance	
a.	Total Assets Available at Beginning of Year	549,956
b.	Total Assets Available at End of Year	593,201
c.	Net Investment Income for Fiscal Year	76,315
d.	Average Balance *[a. + b. – c.]/2*	533,421
3.	Expected Return *[8.0% * 2.d.]*	42,674
4.	Actual Return	76,315
5.	Current Year Asset Gain/(Loss) *[4. – 3.]*	33,641

6. Unrecognized Asset Returns

		Original Amount	Unrecognized Amount
a.	Year Ended June 30, 2013	$ 33,641	$ 26,913
b.	Year Ended June 30, 2012	(34,239)	(20,543)
c.	Year Ended June 30, 2011	70,693	28,277
d.	Year Ended June 30, 2010	31,175	6,235
e.	Unrecognized Return Adjustment		40,882

7.	**Actuarial Value at End of Year** *(1. – 6.e.)*	**$552,319**
8.	Approximate Return on Actuarial Value of Assets During Fiscal Year	5.8%
9.	Ratio of Actuarial Value of Assets to Market Value of Assets	0.93

Development of Costs

Actuarial Valuation Balance Sheet
(dollars in thousands)

The actuarial balance sheet is based on the fundamental equation that at any given time the present value of benefits to be paid in the future must be equal to the assets on hand plus the present value of future contributions to be received. The total rate of contribution is determined as the amount which will make the total present and potential assets balance with the total present value of future benefits. The members' rate of contribution is fixed at the current schedule. The employer's rate of contribution is the balance required to cover the total rate of contribution.

The contributions made in excess of amounts required for current benefit payments are accumulated as a reserve to help meet benefit payments in later years. It is this reserve system which permits the establishment of a level rate of contribution each year.

		June 30, 2013 (Fund Actuary)	June 30, 2013 (Milliman)
A.	Actuarial Value of Assets	$ 552,319	$ 552,319
B.	Expected Future Assets		
	1. Present Value of Expected Future Statutory Supplemental Contributions	107,965	110,206
	2. Present Value of Future Normal Cost Contributions	112,052	108,120
	3. Total Expected Future Assets (1. + 2.)	220,017	218,326
C.	Total Current and Expected Future Assets	$ 772,336	$ 770,645
D.	Current Benefit Obligations		
	1. Benefit Recipients		
	a. Service Retirements	439,129	439,076
	b. Disability	24,210	24,202
	c. Survivors	43,666	43,963
	2. Deferred Retirement with Augmentation	6,711	6,675
	3. Former Members without Vested Rights	60	96
	4. Active Members	209,051	213,458
	5. Total Current Benefit Obligations	722,827	727,470
E.	Expected Future Benefit Obligations	131,075	127,579
F.	Total Current and Expected Future Benefit Obligations	853,902	855,049
G.	Unfunded Current Benefit Obligations (D.5. – A.)	170,508	175,151
H.	Unfunded Current and Future Benefit Obligations (F. – C.)	81,566	84,404

Development of Costs

Determination of Unfunded Actuarial Accrued Liability and Supplemental Contribution Rate

(dollars in thousands)

In the tables that follow the Commentary in this section, we provide the calculations which ultimately determine the required supplemental contribution rate. From these tables, a critical calculation is the Actuarial Present Value of Projected Benefits. This calculation reflects the actuary's estimate of the total present value cost of all benefits yet to be paid by the Fund to the current members (active and inactive). In replication audits, we typically strive to be within 2% of the actuary's calculation. If that level cannot be achieved, then it is important to identify the differences in more detail. In general, our calculations are within the 2% threshold with the exception of Former Members without vesting rights. The table below shows, as a percentage, the ratio of the numbers calculated by Milliman to the numbers reported by the Fund Actuary.

	Actuarial Present Value of Projected Benefits
Active Members	100.27%
Deferred Members	99.46
Former Members without Vested Rights	160.00
Benefit Recipients	100.05
Total	100.13%

The tables that follow the Actuarial Present Value of Projected Benefits are designed to determine how much of the Actuarial Present Value of Projected Benefits is to be funded by the future "normal cost" contributions (Actuarial Present Value of Future Normal Cost) versus how much belongs to past contributions (Actuarial Accrued Liability). This allocation does not change the total costs determined in the Actuarial Present Value of Projected Benefits. It simply allocates cost to past versus future based upon the Entry Age Normal Actuarial Cost Method. In replication audits, we typically look to be within 5% of the actuary's calculations for active member Actuarial Accrued Liability. The larger range recognizes that different valuation systems have different ways of rounding service and ages. In addition, the Entry Age Method requires projection of theoretical past amounts which can be handled somewhat differently between actuarial valuation systems. The table below shows, as a percentage, the ratio of the numbers calculated by Milliman to the numbers reported by the Fund Actuary.

	Actuarial Accrued Liability
Active Members	102.12%
Deferred Members	99.46
Former Members without Vested Rights	160.00
Benefit Recipients	100.05
Total	100.68%

Development of Costs

Determination of Unfunded Actuarial Accrued Liability and Supplemental Contribution Rate

(dollars in thousands)

Once the Actuarial Accrued Liability is determined, it is compared to the Actuarial Value of Assets to determine the unfunded liability. The difference between these numbers is then amortized to the statutory amortization date of June 30, 2037 based upon the present value of future payrolls. Because this calculation is based upon the difference of two relatively close numbers, any change in one of the numbers can have a large impact when viewed as a percentage.

For example, if the Actuarial Accrued Liability is $1,000 and the Actuarial Value of Assets is $900, then unfunded liability is $100. If the Actuarial Accrued Liability is reduced by $25, the unfunded liability becomes $75. In this example, the reduction in the Actuarial Accrued Liability of 2.5% generates a reduction of 25% in both the unfunded liability and the supplemental contribution rate.

Based upon the above, it should be expected that small deviations in the amount of Actuarial Accrued Liability will have a larger impact on the supplemental contribution rate. It is evidenced here where our calculation of the Actuarial Accrued Liability is 0.7% higher than the Fund Actuary but our supplemental contribution percentage rate is 2.7% higher than the Fund Actuary.

Development of Costs

Determination of Unfunded Actuarial Accrued Liability and Supplemental Contribution Rate

(dollars in thousands)

		Actuarial Present Value of Projected Benefits	
		Fund Actuary	**Milliman**
1.	Active Members		
	A. Retirement Annuities	$ 315,759	$ 314,703
	B. Disability Benefits	16,487	15,983
	C. Survivor's Benefits	4,133	4,412
	D. Deferred Retirements	3,485	5,521
	E. Refunds	262	418
	F. Total	340,126	341,037
2.	Deferred Retirements with Future Augmentation	6,711	6,675
3.	Former Members without Vested Rights	60	96
4.	Benefit Recipients	507,005	507,241
5.	Total	853,902	855,049

		Actuarial Present Value of Future Normal Costs	
		Fund Actuary	**Milliman**
1.	Active Members		
	A. Retirement Annuities	$ 96,978	$ 93,568
	B. Disability Benefits	8,839	8,406
	C. Survivor's Benefits	2,760	2,537
	D. Deferred Retirements	2,871	3,226
	E. Refunds	604	383
	F. Total	112,052	108,120
2.	Deferred Retirements with Future Augmentation	0	0
3.	Former Members without Vested Rights	0	0
4.	Benefit Recipients	0	0
5.	Total	112,052	108,120

Development of Costs

Determination of Unfunded Actuarial Accrued Liability and Supplemental Contribution Rate

(dollars in thousands)

	Actuarial Accrued Liability	
	Fund Actuary	**Milliman**
A. Determination of Actuarial Accrued Liability (AAL)		
1. Active Members		
A. Retirement Annuities	$ 218,781	$ 221,135
B. Disability Benefits	7,648	7,577
C. Survivor's Benefits	1,373	1,875
D. Deferred Retirements	614	2,295
E. Refunds	(342)	36
F. Total	228,074	232,918
2. Deferred Retirements with Future Augmentation	6,711	6,675
3. Former Members without Vested Rights	60	96
4. Benefit Recipients	507,005	507,241
5. Total	741,850	746,930
B. Determination of Unfunded Actuarial Accrued Liability (UAAL)		
1. Actuarial Accrued Liability	$ 741,850	$ 746,930
2. Current Assets (AVA)	552,319	552,319
3. Unfunded Actuarial Accrued Liability (AVA)	189,531	194,611
4. Current Assets (MVA)	593,201	593,201
5. Unfunded Actuarial Accrued Liability (MVA)	148,649	153,729
C. Determination of Supplemental Contribution Rate*		
1. Present value of future payrolls through the amortization date of June 30, 2037	939,640	939,522
2. Supplemental Contribution Rate (AVA) (B.3. / C.1.)	20.17%	20.71%
3. Supplemental Contribution Rate (MVA) (B.5. / C.1.)	15.82%	16.36%

*The amortization of the unfunded actuarial accrued liability (UAAL) using the current amortization method results in initial payments less than the "interest only" payment on the UAAL. Payments less than the interest only amount will result in the UAAL increasing for an initial period of time.

Development of Costs

Determination of Contribution Sufficiency/(Deficiency)

(dollars in thousands)

In this section, we compare the statutory contributions provided under Chapter 352B of Minnesota statutes (352B contributions) to the required contributions under Chapter 356 of Minnesota statutes (356 contributions). The difference between these amounts results in a reported contribution sufficiency or deficiency.

With respect to the 352B contributions, the percentage is set by statute and we agree with the percentages reported by the Fund Actuary. The dollar amount is determined by applying the statutory percentage to the member compensation provided in the data file and projected (and annualized where necessary) with expected pay increases for the upcoming year. While reasonably close, our projection methodology was slightly different from the Fund Actuary resulting in a small dollar difference.

With respect to the 356 contributions, the total is equal to the sum of the Normal Cost (Entry Age Normal method) plus the supplemental contribution calculated earlier in this report plus an allowance for expected administrative expenses. Typically, in a replication audit, it is desirable to be within 5% of the actuary's Normal Cost. In this case, our Normal Cost percentage is 1.2% lower than the Fund Actuary. We note that our components of Normal Cost are somewhat different from the Fund Actuary. This is not an uncommon result as the treatment of where to categorize certain costs on an "entry age" basis between actuarial valuation systems quite often results in these differences.

As mentioned earlier, the supplemental contributions are highly leveraged to the value of the Actuarial Accrued Liability and on the projected payroll. In this case, our supplemental contribution percentage is higher by 2.7% but this is based upon an Actuarial Accrued Liability that is higher by 0.7% and a projected payroll that matches the Fund Actuary very closely.

Similar to the 352B contributions, we arrive at the same expense allowance percentage and dollar contribution.

As a result of the above, our calculation of the Contribution Sufficiency/Deficiency is a deficiency of (8.98)%. This compares to a deficiency reported by the Fund Actuary of (8.68)%. The difference of 0.30% is primarily the result of the supplemental contribution and Normal Cost difference.

Development of Costs

Determination of Contribution Sufficiency/(Deficiency)
(dollars in thousands)

	Fund Actuary July 1, 2013		Milliman July 1, 2013	
	Percent of Payroll	Dollar Amount	Percent of Payroll	Dollar Amount
A. Statutory Contributions – Chapter 352B				
1. Employee Contributions	12.40%	$ 7,953	12.40%	$7,952
2. Employer Contributions	18.60	11,929	18.60	11,928
3. Supplemental Contributions				
a. 1993 Legislation	1.56	1,000	1.56	1,000
4. Total	32.56	20,882	32.56	20,880
B. Required Contributions – Chapter 356				
1. Normal Cost				
A. Retirement Benefits	17.96	11,518	17.75%	11,382
B. Disability Benefits	1.69	1,084	1.64	1,052
C. Survivor Benefits	0.54	346	0.53	340
D. Deferred Retirement Benefits	0.48	308	0.58	372
E. Refunds	0.11	71	0.04	26
F. Total	20.78	13,327	20.54	13,172
2. Supplemental Contribution Amortization by June 30, 2037 of Unfunded Actuarial Accrued Liability	20.17	12,936	20.71	13,281
3. Allowance for Expenses	0.29	186	0.29	186
4. Total	41.24	26,449	41.54	26,639
C. Contribution Sufficiency/(Deficiency) (A.4. – B.4.)	(8.68)%	$ (5,567)	(8.98)%	$ (5,759)

Note: Projected annual payroll for fiscal year beginning on the valuation date:
$64,136 for Fund actuary and $64,128 for Milliman.

Actuarial Cost Method

Liabilities and contributions in this report are computed using the Individual Entry Age Normal Cost Method. This method is prescribed by Minnesota Statutes.

The objective under this method is to fund each member's benefits under the Plan as payments which are level as a percentage of salary, starting at original participation date (or employment date), and continuing until the assumed date of retirement, termination, disability or death. For valuation purposes, entry age for each member is determined as the age at valuation minus years of service as of the valuation date.

At any given date, a liability is calculated equal to the contributions which would have been accumulated if this method of funding had always been used, the current plan provisions had always been in place, and all assumptions had been precisely accurate. The difference between this liability and the assets (if any) which are held in the Fund is the unfunded liability. The unfunded liability is typically funded over a chosen period in accordance with the amortization schedule.

A detailed description of the calculation follows:

The normal cost for each active member under the assumed retirement age is determined by applying to earnings the level percentage of salary which, if contributed each year from date of entry into the Plan until the assumed retirement (termination, disability or death) date, is sufficient to provide the full value of the benefits expected to be payable.

- The present value of future normal costs is the total of the discounted values of all active members' normal cost, assuming these to be paid in each case from the valuation date until retirement (termination, disability or death) date.
- The present value of projected benefits is calculated as the value of all benefit payments expected to be paid to the Plan's current members, including active and retired members, beneficiaries, and terminated members with vested rights.
- The accrued liability is the excess of the present value of projected benefits over the present value of future normal costs.
- The unfunded liability is the excess of the accrued liability over the assets of the Fund, and represents that part of the accrued liability which has not been funded by accumulated past contributions.

Change in Actuarial Cost Method

None

Asset Valuation Method

The assets are valued based on a five-year moving average of expected and market values (five-year average actuarial value) determined as follows:

At the end of each plan year, an average asset value is calculated as the average of the market asset value at the beginning and end of the fiscal year net of investment income for the fiscal year;

The investment gain or (loss) is taken as the excess of actual investment income over the expected investment income based on the average asset value as calculated above;

The investment gain or (loss) so determined is recognized over five years at 20% per year;

The asset value is, the sum of the market asset value plus the scheduled recognition of investment gains or (losses) during the current and the preceding four fiscal years.

Summary of Actuarial Assumptions

The following assumptions were used in valuing the liabilities and benefits under the plan. All assumptions are prescribed by Statutes, the LCPR, or the Board of Directors.

Investment Return	Select and Ultimate Rates: July 1, 2013 to June 30, 2017 7.00% per annum post-retirement 8.00% per annum pre-retirement July 1, 2017 and later 7.50% per annum post-retirement 8.50% per annum pre-retirement
Benefit Increases After Retirement	Payment of 1.00% annual benefit increases after retirement are accounted for by using the 7.50% post-retirement assumption (7.00% during 4-year select period), as required by Minnesota Statute. This valuation does not reflect any potential additional benefit increases payable if the plan's funding ratio exceeds 85%.
Salary Increases	Reported salary for prior fiscal year, with new hires annualized, increased to current fiscal year and annually for each future year according to the ultimate rates in the rate table based upon service.
Inflation	3.00% per year
Payroll Growth	3.75% per year
Mortality	
Healthy Pre-retirement	RP-2000 non-annuitant generational mortality table projected with mortality improvement scale AA, white collar adjustment.
Healthy Post-retirement	RP-2000 annuitant generational mortality table projected with mortality improvement scale AA, white collar adjustment, set back two years for males and set forward one year for females.
Disabled	RP-2000 annuitant generational mortality table projected with mortality improvement scale AA, white collar adjustment, set back two years for males and set forward one year for females.
Retirement	Members retiring from active status are assumed to retire according to the age related rates shown in the rate table. Members who have attained the highest assumed retirement age are assumed to retire in one year.
Withdrawal	Select and Ultimate rates based on actual experience. Ultimate rates after the third year are shown in rate table. Select rates in the first three years are:

Year	Select Withdrawal Rates
1	5%
2	2%
3	2%

Summary of Actuarial Assumptions (continued)

Disability	Age-related rates based on experience; see table of sample rates. All incidences are assumed to be duty-related.
Allowance for Combined Service Annuity	Liabilities for former members are increased by 30.00% to account for the effect of some participants having eligibility for a Combined Service Annuity.
Administrative Expenses	Prior year administrative expenses expressed as percentage of prior year projected payroll.
Refund of Contributions	All employees withdrawing after becoming eligible for a deferred benefit take the larger of their contributions accumulated with interest or the value of their deferred benefit. The liability for former members without vesting rights is the account balance at the valuation date.
Commencement of Deferred Benefits	Members receiving deferred annuities (including current terminated deferred members) are assumed to begin receiving benefits at age 55.
Percentage Married	85% of active members are assumed to be married. Actual marital status is used for members in payment status.
Age of Spouse	Females are assumed to be two years younger than their male spouses.
Eligible Children	Each member may have two dependent children depending on member's age. Assumed first born child born at member's age 28 and second born child at member's age 31.
Form of Payment	Married members retiring from active status are assumed to elect subsidized joint and survivor form of annuity as follows: Males: 15% elect 50% Joint & Survivor option 25% elect 75% Joint & Survivor option 35% elect 100% Joint & Survivor option Females: 25% elect 50% Joint & Survivor option 30% elect 75% Joint & Survivor option 5% elect 100% Joint & Survivor option Remaining married members and unmarried members are assumed to elect the Straight Life option.
Eligibility Testing	Eligibility for benefits is determined based upon the age and service on the date the decrement is assumed to occur. Age is calculated as the age nearest birthday at the valuation date. Service at the valuation date is as reported by the fund. For mid-year decrements, 0.5 is added to each calculated age and service.
Decrement Operation	Withdrawal decrements do not operate during retirement eligibility.
Service Credit Accruals	It is assumed that members accrue one year of service credit per year.

Summary of Actuarial Assumptions (continued)

Unknown Data for Certain Members	There are no members reported with missing gender or birth dates. In cases where submitted data was missing or incomplete, the following assumptions were applied: Data for active members: There were no members reported with missing salary and no members reported with missing service. Data for terminated members: There were two members reported without a benefit. We calculated benefits for these members using the reported Average Salary, credited service and termination date. Data for members receiving benefits: There were no members reported without a benefit. There were no survivors reported with an expired benefit. There were no retirees reported with a bounce back annuity and an unreasonable reduction factor.
Changes in Actuarial Assumptions	The post-retirement investment return assumption was changed from 7.0% (6.5% for the select period ending June 30, 2017 to 7.5% (7.0% for the select period ending June 30, 2017) to reflect the post-retirement change from 1.5% to 1.0%.

Summary of Actuarial Assumptions (continued)

Summary of Rates

	Rate (%)					
	Healthy Post-Retirement Mortality*		Healthy Pre-Retirement Mortality*		Disability Mortality	
Age	Male	Female	Male	Female	Male	Female
20	0.03%	0.02%	0.10%	0.03%	0.10%	0.03%
25	0.04	0.02	0.11	0.03	0.11	0.03
30	0.04	0.03	0.12	0.05	0.12	0.05
35	0.06	0.05	0.15	0.08	0.15	0.08
40	0.09	0.06	0.23	0.11	0.23	0.11
45	0.13	0.10	0.34	0.17	0.34	0.17
50	0.20	0.16	0.52	0.25	0.52	0.25
55	0.33	0.26	0.57	0.39	0.57	0.39
60	0.56	0.47	0.57	0.61	0.57	0.61
65	1.11	0.87	0.92	1.01	0.92	1.01
70	1.93	1.52	1.58	1.69	1.58	1.69

* *The rates shown above are further adjusted in the valuation to apply generational mortality improvement using projection scale AA.*

	Withdrawal Rates After Third Year		Disability Retirement	
Age	Male	Female	Male	Female
20	1.47%	1.47%	0.03%	0.03%
25	1.13	1.13	0.05	0.05
30	0.80	0.80	0.06	0.06
35	0.47	0.47	0.09	0.09
40	0.40	0.40	0.14	0.14
45	0.40	0.40	0.23	0.23
50	0.00	0.00	0.40	0.40
55	0.00	0.00	0.70	0.70
60	0.00	0.00	1.13	1.13
65	0.00	0.00	0.00	0.00

Summary of Actuarial Assumptions (concluded)

Summary of Rates

Age	Retirement
50	7%
51	6
52	6
53	6
54	3
55	65
56	50
57	30
58	20
59	20
60+	100

Salary Scale	
Year	Increase
1	8.00%
2	7.50
3	7.00
4	6.75
5	6.50
6	6.25
7	6.00
8	5.85
9	5.70
10	5.55
11	5.40
12	5.25
13	5.10
14	4.95
15	4.80
16	4.65
17	4.50
18	4.35
19	4.20
20	4.05
21+	4.00

Summary of Plan Provisions

This summary of provisions reflects the interpretation of applicable Statutes for purposes of preparing this valuation. This interpretation is not intended to create or rescind any benefit rights in conflict with any Minnesota Statutes.

Plan Year	July 1 through June 30
Eligibility	State troopers, conservation officers, certain crime bureau and gambling enforcement officers, and certain other persons listed in Minnesota Statutes 352B.011 subdivision 10.
Contributions	Percent of Salary **Effective Date** / **Member** / **Employer** July 1, 2011 – June 30, 2014: 12.40% / 18.60% July 1, 2014 – June 30, 2016: 13.40% / 20.10% July 1, 2016 and later: 14.40% / 21.60% Member contributions are "picked up" according to the provisions of Internal Revenue Code 414(h).
State Contributions	$1 million paid annually on October 1 until both the Public Employees Retirement Association Police and Fire Plan and the State Patrol Plan become 90% funded (on a Market Value of Assets basis).
Allowable Service	Service during which member contributions were deducted. Includes period receiving temporary Worker's Compensation and reduced salary from employer. See Normal Retirement benefit definition below for information about service limits.
Salary	Salaries excluding lump sum payments at separation.
Average Salary	Average of the five highest years of Salary. Average Salary is based on all Allowable Service if less than five years. Average Salary is based on all years without regard to any service limits.

Summary of Plan Provisions (continued)

Retirement	
Normal Retirement Benefit	
Age/Service Requirement	Age 55 and three years (ten years if first hired after June 30, 2013) of Allowable Service.
Amount	3.00% of Average Salary for each year of Allowable Service up to 33 years. Members with at least 28 years of service as of July 1, 2013 are not subject to this service limit. Member contributions made after the service cap will be refunded at retirement.
Early Retirement Benefit	
Age/Service Requirement	Age 50 and three years (ten years if first hired after June 30, 2013) of Allowable Service.
Amount	Normal Retirement Benefit based on Allowable Service and Average Salary at retirement reduced by 1/10% for each month that the member is under age 55. If the effective date of retirement is after June 30, 2015, the reduction is 0.34% for each month that the member is under age 55 at the time of retirement.
Form of Payment	Life annuity. Actuarially equivalent options are: 50%, 75%, or 100% Joint and Survivor, or 15-year certain. If a Joint and Survivor benefit is elected and the beneficiary predeceases the annuitant, the annuitant's benefit increases to the Life Annuity amount. This "bounce back" is subsidized by the plan.
Benefit Increases	Benefit recipients receive future annual 1.0% benefit increases. When the funding ratio reaches 85%, the benefit increase will increase to 1.5%; the benefit will revert to 2.5% when the funding ratio reaches 90% (funding ratio is determined using Market Value of Assets). A benefit recipient who has been receiving a benefit for at least 12 full months as of June 30 will receive a full increase. Members receiving benefits for at least one month but less than 12 full months as of June 30 will receive a pro rata increase.

Summary of Plan Provisions (continued)

Disability	
Occupational Disability Benefit	
Age/Service Requirement	Member who cannot perform his duties as a direct result of a disability relating to an act of duty.
Amount	60% of Average Salary plus 3.00% of Average Salary for each year in excess of 20 years of Allowable Service (pro rata for completed months). Payments cease at age 65 or earlier if disability ceases or death occurs. Benefits may be paid upon re-employment but salary plus benefit cannot exceed current salary of position held at time of disability.
Non-Duty Disability Benefit	
Age/Service Requirement	At least one year of Allowable Service and disability not related to covered employment.
Amount	Normal Retirement Benefit based on Allowable Service (minimum of 15 years) and Average Salary at disability without reduction for commencement before age 55. Payments cease at age 65 or earlier if disability ceases or death occurs. Benefits may be paid upon re-employment but salary plus benefit cannot exceed current salary of position held at time of disability.
Retirement After Disability	
Age/Service Requirement	Age 65 with continued disability.
Amount	Optional annuity continues. Otherwise, normal retirement benefit equal to the disability benefit paid, or an actuarially equivalent option.
Form of Payment	Same as for retirement.
Benefit Increases	Same as for retirement.

Summary of Plan Provisions (continued)

Death	
Surviving Spouse Benefit	
Age/Service Requirement	Member who is active or receiving a disability benefit or former member.
Amount	50% of Average Salary if member was active or occupational disability and either had less than three years (five years if first hired after June 30, 2013) of Allowable Service or was under age 55. Annuity is paid for life. Surviving spouse receives the 100% joint and survivor benefit commencing on the member's 55th birthday if member was active or a disability with three years (five years if first hired after June 30, 2013) of Allowable Service. A spouse who had been receiving the 50% benefit shall be entitled to the greater benefit. The surviving spouse of a former member receives the 100% joint and survivor benefit commencing on the member's 55th birthday if former member had three years (five years if first hired after June 30, 2013) of Allowable Service.
Benefit Increases	Same as for retirement.
Surviving Dependent Children's Benefit	
Age/Service Requirement	Member who is active or receiving a disability benefit. Child must be unmarried, under age 18 (or 23 if full-time student) and dependent upon the member.
Amount	10% of Average Salary for each child and $20 per month prorated among all dependent children. Benefit must not be less than 50% nor exceed 70% of Average Salary.
Benefit Increases	Same as for retirement.
Refund of Contributions	
Age/Service Requirement	Member dies before receiving any retirement benefits and survivor benefits are not payable.
Amount	Member contributions with 6.00% interest compounded daily until June 30, 2011 and 4.00% thereafter.

Summary of Plan Provisions (continued)

Termination	
Refund of Contributions	
Age/Service Requirements	Termination of state service.
Amount	Member contributions with 6.00% interest compounded daily to June 30, 2011 and 4.00% thereafter. If a member is vested, a deferred annuity may be elected in lieu of a refund.
Deferred Benefit	
Age/Service Requirements	Three years (ten years if first hired after June 30, 2013) of Allowable Service.
Amount	Benefit is computed under law in effect at termination and increased by the following annual augmentation percentage: (a.) 0.00% before July 1, 1971; (b.) 5.00% from July 1, 1971 to January 1, 1981; (c.) 3.00% thereafter (2.50% if hired after June 30, 2006) until January 1, 2012; and (d.) 2.00% after December 31, 2011 until the annuity begins. Amount is payable at normal or early retirement. If a member terminated employment prior to July 1, 1997 but was not eligible to commence their pension before July 1, 1997, an actuarial increase shall be made for the change in the post-retirement interest rates from 5.00% to 6.00%.
Optional Form Conversion Factors	Actuarially equivalent factors based on RP-2000 for healthy annuitants, white collar adjustment, projected to 2027 using scale AA, set back two years for males and set forward one year for females, blended 95% males, and 7.0% interest.

Summary of Plan Provisions (concluded)

Combined Service Annuity	Members are eligible for combined service benefits if they: (a.) Have sufficient allowable service in total that equals or exceeds the applicable service credit vesting requirement of the retirement plan with the longest applicable service credit vesting requirement; and (b.) Have at least six months of allowable service credit in each plan worked under; and (c.) Are not in receipt of a benefit from another plan, or have applied for benefits with an effective date within one year. Members who meet the above requirements must have their benefit based on the following: (a.) Allowable service in all covered plans are combined in order to determine eligibility for early retirement. (b.) Average salary is based on the high five consecutive years during their entire service in all covered plans.
Changes in Plan Provisions	Member contributions as a percent of pay will increase from 12.4% to 13.4% beginning July 1, 2014 and to 14.4% beginning July 1, 2016. Employer contributions will increase from 18.6% to 20.1% beginning July 1, 2014 and to 21.6% beginning July 1, 2016. State contributions of $1 million will be made annually on October 1 beginning in 2013. Contributions continue until both PERA P&F and MSRS State Patrol reach 90% funding (on a Market Value of Assets basis). Vesting for retirement benefits is ten years for members hired after June 30, 2013 (was five years for members hired after June 30, 2010). Vesting for survivor benefits is five years for members hired after June 30, 2013 (was five years for members hired after June 30, 2010). Allowable service used to determine benefits is limited to 33 years, with a refund of employee contributions for excess years of service. Members with at least 28 years of service as of July 1, 2013 are not subject to this service limit. For retirements after June 30, 2015, reduction for early retirement is 0.34% for each month that the member is under age 55 at the time of retirement. Post-retirement increases were reduced from 1.5% per year to 1.0% per year until an 85% funding ratio is reached. Increases revert to 2.5% when a 90% funding ratio is reached (funding ratio calculated using Market Value of Assets).

State Patrol Retirement Fund

Active Members as of June 30, 2013

	Years of Service								
Age	<1	1-4	5-9	10-14	15-19	20-24	25-29	30+	ALL
<25	11	0	0	0	0	0	0	0	11
25-29	23	41	7	0	0	0	0	0	71
30-34	11	37	40	7	0	0	0	0	95
35-39	6	17	66	52	12	0	0	0	153
40-44	2	10	55	63	48	2	0	0	180
45-49	1	3	13	35	41	43	11	0	147
50-54	1	3	14	13	33	24	43	9	140
55-59	0	2	11	6	6	7	6	9	47
60-64	0	0	0	0	0	0	0	1	1
65+	0	0	0	0	0	0	0	0	0
ALL	55	113	206	176	140	76	60	19	845

Average Annual Earnings

	Years of Service								
Age	<1	1-4	5-9	10-14	15-19	20-24	25-29	30+	ALL
<25	19,999	0	0	0	0	0	0	0	19,999
25-29	25,705	58,937	66,278	0	0	0	0	0	48,895
30-34	28,453	58,513	71,042	74,302	0	0	0	0	61,471
35-39	31,984	60,868	72,420	77,669	82,451	0	0	0	72,121
40-44	55,505	64,535	75,521	76,566	78,936	84,289	0	0	76,062
45-49	51,087	58,988	75,455	74,870	78,409	81,213	82,122	0	77,820
50-54	46,559	68,928	80,467	79,069	78,805	81,835	84,305	83,865	81,087
55-59	0	85,282	77,424	81,904	76,590	84,361	84,606	87,574	82,117
60-64	0	0	0	0	0	0	0	75,806	75,806
65+	0	0	0	0	0	0	0	0	0
ALL	27,722	60,316	73,777	76,831	78,951	81,780	83,934	85,197	72,170

State Patrol Retirement Fund

Service Retirements as of June 30, 2013

	Years Retired							
Age	<1	1-4	5-9	10-14	15-19	20-24	25+	ALL
<50	0	0	0	0	0	0	0	0
50-54	12	11	0	0	0	0	0	23
55-59	32	62	29	0	0	0	0	123
60-64	4	12	99	25	0	0	0	140
65-69	0	0	15	121	15	0	0	151
70-74	0	0	2	13	103	2	0	120
75-79	0	0	0	2	19	51	0	72
80-84	0	0	0	0	1	14	46	61
85+	0	0	0	0	0	2	56	58
ALL	48	85	145	161	138	69	102	748

Average Annual Benefit

	Years Retired							
Age	<1	1-4	5-9	10-14	15-19	20-24	25+	ALL
<50	0	0	0	0	0	0	0	0
50-54	48,089	44,615	0	0	0	0	0	46,427
55-59	60,902	61,238	46,310	0	0	0	0	57,630
60-64	23,562	60,700	54,796	51,280	0	0	0	53,781
65-69	0	0	46,330	56,291	57,994	0	0	55,470
70-74	0	0	48,494	50,386	65,051	60,196	0	63,105
75-79	0	0	0	55,031	74,167	67,591	0	68,977
80-84	0	0	0	0	80,203	74,753	65,006	67,492
85+	0	0	0	0	0	67,089	65,596	65,647
ALL	54,587	59,010	52,136	55,020	65,648	68,815	65,329	59,525

State Patrol Retirement Fund

Survivors as of June 30, 2013

Years Since Death

Age	<1	1-4	5-9	10-14	15-19	20-24	25+	ALL
<50	6	2	4	2	0	0	0	14
50-54	0	3	1	1	1	0	0	6
55-59	4	2	3	2	0	0	0	11
60-64	0	2	8	1	2	0	1	14
65-69	4	0	10	7	3	0	1	25
70-74	2	2	7	3	5	0	0	19
75-79	3	2	1	2	1	5	1	15
80-84	2	3	9	8	1	3	7	33
85+	0	7	12	10	4	8	7	48
ALL	21	23	55	36	17	16	17	185

Average Annual Benefit

Years Since Death

Age	<1	1-4	5-9	10-14	15-19	20-24	25+	ALL
<50	7,489	8,658	21,213	30,397	0	0	0	14,849
50-54	0	9,098	15,758	13,844	60,517	0	0	19,568
55-59	24,640	16,077	43,944	26,877	0	0	0	28,754
60-64	0	26,052	22,115	26,389	50,400	0	12,412	26,330
65-69	32,779	0	24,314	34,837	27,076	0	31,796	29,245
70-74	44,451	24,551	44,527	48,252	39,245	0	0	41,614
75-79	33,891	61,786	16,937	27,697	64,648	18,018	40,283	32,839
80-84	37,782	32,504	40,322	42,033	33,763	21,207	33,174	36,419
85+	0	29,431	34,706	35,083	33,892	33,158	50,252	35,956
ALL	25,749	26,307	32,009	35,719	39,573	26,185	39,321	32,174

State Patrol Retirement Fund

Disability Retirements as of June 30, 2013

	Years Disabled							
Age	<1	1-4	5-9	10-14	15-19	20-24	25+	ALL
<50	1	1	6	1	0	0	0	9
50-54	2	3	2	0	0	0	0	7
55-59	1	1	1	2	3	0	0	8
60-64	0	0	2	4	1	1	0	8
65-69	0	0	1	6	1	1	0	9
70-74	0	0	0	0	0	2	2	4
75-79	0	0	0	0	0	2	0	2
80-84	0	0	0	0	0	0	2	2
85+	0	0	0	0	0	0	1	1
ALL	4	5	12	13	5	6	5	50

Average Annual Benefit

	Years Disabled							
Age	<1	1-4	5-9	10-14	15-19	20-24	25+	ALL
<50	38,160	40,726	40,571	30,054	0	0	0	39,151
50-54	61,410	49,745	50,563	0	0	0	0	53,311
55-59	40,141	52,033	62,322	34,754	30,409	0	0	39,403
60-64	0	0	44,868	33,418	46,801	41,938	0	39,018
65-69	0	0	47,532	39,130	60,583	51,335	0	43,803
70-74	0	0	0	0	0	45,518	43,868	44,693
75-79	0	0	0	0	0	61,996	0	61,996
80-84	0	0	0	0	0	0	44,866	44,866
85+	0	0	0	0	0	0	50,598	50,598
ALL	50,280	48,398	45,345	36,001	39,722	51,383	45,613	43,804

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