



**Minnesota Legislative Commission
on Pensions and Retirement**

**Replication of the Actuarial Valuation of the
Minnesota State Retirement System
Correctional Employees Retirement Fund
as of July 1, 2013**

Prepared by:

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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 Correctional Employees 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.

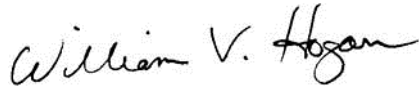
We, William V. Hogan, FSA, and Timothy J. Herman, FSA, are actuaries for Milliman, Inc. We are members of the American Academy of Actuaries and Fellows of the Society of Actuaries, and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion contained herein.

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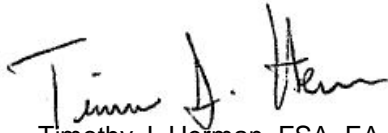
We look forward to making a personal presentation of our findings in briefings to the Minnesota Legislative Commission on Pensions and Retirement and to relevant staff members.

Respectfully submitted,

Milliman, Inc.



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Principal and Consulting Actuary



Timothy J. Herman, FSA, EA, MAAA
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Opinion Letter

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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 25 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.

Executive Summary

(continued)

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. As noted below, we encountered some variations on specific decrements or groups. Where we saw differences, we attempted to identify the reasons. In terms of total values, 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.

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 1.1% on the present value of future benefits and within 2.5% on the actuarial liabilities. We are about 0.43 percentage points lower on the Normal Cost rate. These values track very well to the Fund Actuary's 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:** The annual Cost of Living Adjustment (COLA) applied to the pensions of retired Members is 2.0%. If the Accrued Liability Funded Ratio (on a market value of assets basis) reaches 90%, the COLA will revert to 2.5%. The valuation by the Fund Actuary assumes that the lower 2.0% 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 90% within 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)
<u>Contributions</u> (% of Payroll)		
Normal Cost Rate	15.60%	15.17%
UAAL Amortization Payment	10.18%	11.04%
Expenses	0.33%	0.33%
Total Required Contributions (Chapter 356)	26.11%	26.54%
Statutory Contributions (Chapter 352)	20.70%	20.70%
Contribution (Deficiency)/Sufficiency	(5.41)%	(5.84)%
<u>Unfunded Actuarial Accrued Liability</u> (dollars in thousands)		
Based upon AVA	\$325,007	\$351,058
Based upon MVA	278,941	304,992
<u>Funding Ratios</u> (dollars in thousands)		
Accrued Benefit Funding Ratio		
Current Assets (AVA)	\$701,091	\$701,091
Current Benefit Obligations	977,652	995,752
Funding Ratio	71.71%	70.41%
Accrued Liability Funding Ratio		
Current Assets (AVA)	\$701,091	\$701,091
Current Assets (MVA)	747,157	747,157
Actuarial Accrued Liability	1,026,098	1,052,149
Funding Ratio (AVA)	68.33%	66.63%
Funding Ratio (MVA)	72.82%	71.01%
Projected Benefit Funding Ratio		
Current and Expected Future Assets	\$1,083,641	\$1,084,976
Current and Expected Future Benefit Obligations	1,256,425	1,270,628
Funding Ratio	86.25%	85.39%
<u>Participant Data</u>		
Active Members		
Number	4,384	4,384
Projected Annual Earnings (dollars in thousands)	\$212,972	\$212,281
Average Projected Annual Earnings	48,579	48,422
Average Age	41.5	41.5
Average Service	8.8	8.8
Service Retirements	1,920	1,920
Survivors	258	258
Disability Retirements	196	196
Deferred Retirements	1,196	1,196
Terminated Other Non-vested	413	413
TOTAL	8,367	8,367

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	\$ 20,772	\$ 20,772
Fixed Income	171,241	171,241
Equity	554,719	554,719
Other*	<u>72,738</u>	<u>72,738</u>
Total Cash, Investments, and Other Assets	\$819,470	\$819,470
Amounts Receivable	<u>1,346</u>	<u>1,346</u>
Total Assets	\$820,816	\$820,816
Amounts Payable*	<u>(73,659)</u>	<u>(73,659)</u>
Net Assets Held in Trust for Pension Benefits	\$747,157	\$747,157

* Includes \$72,738 in Securities Lending Collateral as of 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 Year Ending	Market Value	
	Fund Actuary	Milliman
1. Fund Balance at Market Value at Beginning of Year	\$ 659,523	\$ 659,523
2. Contributions		
a. Member	\$ 17,561	\$ 17,561
b. Employer	24,632	24,632
c. Other Sources	<u>0</u>	<u>0</u>
d. Total Contributions	42,193	42,193
3. Investment Income		
a. Investment Income/(Loss)	\$ 94,414	\$ 94,414
b. Investment Expenses	<u>(1,022)</u>	<u>(1,022)</u>
c. Net Investment Income/(Loss)	93,392	93,392
4. Other	<u>0</u>	<u>0</u>
5. Total Income: (2.d) + (3.c.) + (4.)	\$ 135,585	\$ 135,585
6. Benefits Paid		
a. Annuity Benefits	\$ (46,226)	\$ (46,226)
b. Refunds	<u>(1,032)</u>	<u>(1,032)</u>
c. Total Benefits Paid	(47,258)	(47,258)
7. Expenses		
a. Other	(1)	(1)
b. Administrative	<u>(692)</u>	<u>(692)</u>
c. Total Expenses	(693)	(693)
8. Total Disbursements: (6.c.) + (7.c.)	(47,951)	(47,951)
9. Fund Balance at Market Value at End of Year (1.) + (5.) + (8.)	\$747,157	\$747,157
10. Approximate Return on Market Value of Assets	14.1%	14.1%

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.

	<u>June 30, 2013</u>		
1. Market Value of Assets Available for Benefits	\$747,157		
2. Determination of Average Balance			
a. Total Assets Available at Beginning of Year	659,523		
b. Total Assets Available at End of Year	747,157		
c. Net Investment Income for Fiscal Year	93,392		
d. Average Balance <i>[a. + b. - c.]/2</i>	656,644		
3. Expected Return* <i>[8.0% * 2.d.]</i>	52,532		
4. Actual Return	93,392		
5. Current Year Asset Gain/(Loss) <i>[4. - 3.]</i>	40,860		
6. Unrecognized Asset Returns			
	<u>Original Amount</u>	<u>Unrecognized Amount</u>	
		<u>%</u>	<u>Dollar</u>
a. Year Ended June 30, 2013	\$ 40,860	80%	\$ 32,688
b. Year Ended June 30, 2012	(38,907)	60	(23,344)
c. Year Ended June 30, 2011	76,770	40	30,708
d. Year Ended June 30, 2010	30,070	20	<u>6,014</u>
e. Unrecognized Return Adjustment			46,066
7. Actuarial Value at End of Year <i>(1. - 6.e.)</i>	\$701,091		
8. Approximate Return on Actuarial Value of Assets During Fiscal Year	6.4%		
9. Ratio of Actuarial Value of Assets to Market Value of Assets	0.94		

* The expected return is 8.5% prior to fiscal year 2013; beginning with fiscal year 2013, the expected return is 8.0%.

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	\$ 701,091	\$ 701,091
B. Expected Future Assets		
1. Present Value of Expected Future Statutory Supplemental Contributions	152,223	165,406
2. Present Value of Future Normal Cost Contributions	230,327	218,479
3. Total Expected Future Assets (1. + 2.)	<u>382,550</u>	<u>383,885</u>
C. Total Current and Expected Future Assets	\$ 1,083,641	\$ 1,084,976
D. Current Benefit Obligations		
1. Benefit Recipients		
a. Service Retirements	418,891	422,678
b. Disability	53,120	53,248
c. Survivors	26,707	27,477
2. Deferred Retirement with Augmentation	96,189	98,492
3. Former Members without Vested Rights	865	1,678
4. Active Members	381,880	392,179
5. Total Current Benefit Obligations	977,652	995,752
E. Expected Future Benefit Obligations	278,773	274,876
F. Total Current and Expected Future Benefit Obligations	1,256,425	1,270,628
G. Unfunded Current Benefit Obligations (D.5. – A.)	276,561	294,661
H. Unfunded Current and Future Benefit Obligations (F. – C.)	172,784	185,652

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.

	<u>Actuarial Present Value of Projected Benefits</u>
Active Members	100.97%
Deferred Members	102.39
Former Members without Vested Rights	193.99
Benefit Recipients	<u>100.94</u>
Total	101.13%

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.

	<u>Actuarial Accrued Liability</u>
Active Members	104.24%
Deferred Members	102.39
Former Members without Vested Rights	193.99
Benefit Recipients	<u>100.94</u>
Total	102.54%

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, 2038 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 2.5% higher than the Fund Actuary but our supplemental contribution percentage rate is 8.4% 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	\$552,719	\$561,795
B. Disability Benefits	52,840	52,462
C. Survivor's Benefits	7,658	8,545
D. Deferred Retirements	45,405	36,401
E. Refunds	<u>2,031</u>	<u>7,852</u>
F. Total	660,653	667,055
2. Deferred Retirements with Future Augmentation	96,189	98,492
3. Former Members without Vested Rights	865	1,678
4. Benefit Recipients	<u>498,718</u>	<u>503,403</u>
5. Total	1,256,425	1,270,628

	Actuarial Present Value of Future Normal Costs	
	Fund Actuary	Milliman
1. Active Members		
A. Retirement Annuities	\$157,097	\$158,740
B. Disability Benefits	30,202	25,239
C. Survivor's Benefits	2,610	2,921
D. Deferred Retirements	32,490	25,041
E. Refunds	<u>7,928</u>	<u>6,538</u>
F. Total	230,327	218,479
2. Deferred Retirements with Future Augmentation	0	0
3. Former Members without Vested Rights	0	0
4. Benefit Recipients	<u>0</u>	<u>0</u>
5. Total	230,327	218,479

Development of Costs

Determination of Unfunded Actuarial Accrued Liability and Supplemental Contribution Rate (dollars in thousands)

	<u>Actuarial Accrued Liability</u>	
	<u>Fund Actuary</u>	<u>Milliman</u>
A. Determination of Actuarial Accrued Liability (AAL)		
1. Active Members		
A. Retirement Annuities	\$395,622	\$403,055
B. Disability Benefits	22,638	27,223
C. Survivor's Benefits	5,048	5,624
D. Deferred Retirements	12,915	11,360
E. Refunds	<u>(5,897)</u>	<u>1,314</u>
F. Total	430,326	448,576
2. Deferred Retirements with Future Augmentation	96,189	98,492
3. Former Members without Vested Rights	865	1,678
4. Benefit Recipients	<u>498,718</u>	<u>503,403</u>
5. Total	1,026,098	1,052,149
B. Determination of Unfunded Actuarial Accrued Liability (UAAL)		
1. Actuarial Accrued Liability	\$1,026,098	\$1,052,149
2. Current Assets (AVA)	701,091	701,091
3. Unfunded Actuarial Accrued Liability (AVA)	325,007	351,058
4. Current Assets (MVA)	747,157	747,157
5. Unfunded Actuarial Accrued Liability (MVA)	278,941	304,992
C. Determination of Supplemental Contribution Rate*		
1. Present value of future payrolls through the amortization date of June 30, 2038	3,191,249	3,180,894
2. Supplemental Contribution Rate (AVA) (B.3. / C.1.)	10.18%	11.04%
3. Supplemental Contribution Rate (MVA) (B.5. / C.1.)	8.74%	9.59%

*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 352 of Minnesota statutes (352 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 352 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 2.8% lower than the Fund Actuary. We further 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 8.4% but this is based upon an Actuarial Accrued Liability that is higher by 2.5% and a projected payroll that is 0.3% lower.

Similar to the 352 contributions, we arrive at the same expense allowance percentage but our dollar contribution is different due to payroll projection methodology.

As a result of the above, our calculation of the Contribution Sufficiency/Deficiency is a deficiency of (5.84)%. This compares to a deficiency reported by the Fund Actuary of (5.41)%. The difference of 0.43% is primarily the result of the supplemental contribution and Normal Cost difference.

Development of Costs

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

	<u>Fund Actuary</u>		<u>Milliman</u>	
	<u>July 1, 2013</u>		<u>July 1, 2013</u>	
	<u>Percent of Payroll</u>	<u>Dollar Amount</u>	<u>Percent of Payroll</u>	<u>Dollar Amount</u>
A. Statutory Contributions – Chapter 352				
1. Employee Contributions	8.60%	\$18,316	8.60%	\$18,256
2. Employer Contributions	<u>12.10</u>	<u>25,770</u>	<u>12.10</u>	<u>25,686</u>
3. Total	20.70	44,086	20.70	43,942
B. Required Contributions – Chapter 356				
1. Normal Cost				
A. Retirement Benefits	10.87	23,150	11.34	24,072
B. Disability Benefits	2.19	4,664	1.78	3,779
C. Survivor Benefits	0.18	383	0.21	446
D. Deferred Retirement Benefits	1.85	3,940	1.48	3,142
E. Refunds	0.51	1,086	0.36	764
F. Total	15.60	33,223	15.17	32,203
2. Supplemental Contribution Amortization by June 30, 2038 of Unfunded Actuarial Accrued Liability	10.18	21,681	11.04	23,436
3. Allowance for Expenses	0.33	703	0.33	701
4. Total	26.11	55,607	26.54	56,340
C. Contribution Sufficiency/(Deficiency) (A.4. – B.4.)	(5.41)%	\$(11,521)	(5.84)%	\$(12,398)

Note: Projected annual payroll for fiscal year beginning on the valuation date:
\$212,972 for Fund actuary and \$212,281 for Milliman.

Actuarial Basis

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

Actuarial Basis

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.

Actuarial Basis

Summary of Actuarial Assumptions

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

Investment Return	Select and Ultimate Rates: July 1, 2013 to June 30, 2017 6.00% per annum post-retirement 8.00% per annum pre-retirement July 1, 2017 and later 6.50% per annum post-retirement 8.50% per annum pre-retirement								
Benefit Increases After Retirement	Payment of 2.00% annual benefit increases after retirement are accounted for by using the 6.50% post-retirement assumption (6.00% during 4-year select period), as required by Minnesota Statute.								
Salary Increases	Reported salary at valuation date increased according to the rate table, to current fiscal year and annually for each future year. Prior fiscal year salary is annualized for members with less than one year of service.								
Payroll Growth	3.75% per year								
Inflation	3.00% per year								
Mortality									
<i>Healthy Pre-retirement</i>	RP-2000 non-annuitant generational mortality table projected with mortality improvement scale AA, white collar adjustment.								
<i>Healthy Post-retirement</i>	RP-2000 annuitant generational mortality table projected with mortality improvement scale AA, white collar adjustment, set forward one year for males and set back one year for females.								
<i>Disabled</i>	RP-2000 disabled mortality table.								
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: <table style="margin-left: 40px; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left; border-bottom: 1px solid black;">Year</th> <th style="text-align: left; border-bottom: 1px solid black;">Select Withdrawal Rates</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>20%</td> </tr> <tr> <td>2</td> <td>15%</td> </tr> <tr> <td>3</td> <td>8%</td> </tr> </tbody> </table>	Year	Select Withdrawal Rates	1	20%	2	15%	3	8%
Year	Select Withdrawal Rates								
1	20%								
2	15%								
3	8%								
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.								

Actuarial Basis

Summary of Actuarial Assumptions (continued)

Return of Contributions	The liability for former members without vesting rights is the account balance at the valuation date. 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.												
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 three years younger than their male spouses.												
Form of Payment	<p>Married members retiring from active status are assumed to elect subsidized joint and survivor form of annuity as follows:</p> <table style="margin-left: 40px;"> <tr> <td style="padding-right: 20px;">Males:</td> <td>10% elect 50% Joint & Survivor option</td> </tr> <tr> <td></td> <td>10% elect 75% Joint & Survivor option</td> </tr> <tr> <td></td> <td>40% elect 100% Joint & Survivor option</td> </tr> <tr> <td style="padding-top: 10px;">Females:</td> <td>10% elect 50% Joint & Survivor option</td> </tr> <tr> <td></td> <td>10% elect 75% Joint & Survivor option</td> </tr> <tr> <td></td> <td>30% elect 100% Joint & Survivor option</td> </tr> </table> <p>Remaining married members and unmarried members are assumed to elect the Straight Life option.</p> <p>Members receiving deferred annuities (including current terminated deferred members) are assumed to elect a straight life annuity, except that current terminated deferred members who terminated prior to July 1, 1997 are assumed to receive the Level Social Security option to age 62.</p>	Males:	10% elect 50% Joint & Survivor option		10% elect 75% Joint & Survivor option		40% elect 100% Joint & Survivor option	Females:	10% elect 50% Joint & Survivor option		10% elect 75% Joint & Survivor option		30% elect 100% Joint & Survivor option
Males:	10% elect 50% Joint & Survivor option												
	10% elect 75% Joint & Survivor option												
	40% elect 100% Joint & Survivor option												
Females:	10% elect 50% Joint & Survivor option												
	10% elect 75% Joint & Survivor option												
	30% elect 100% Joint & Survivor 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.												

Actuarial Basis

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 five members reported with zero or invalid salary. We used a \$50,000 salary (five members). There were zero members reported with missing service.

Data for terminated members:

There were 112 members reported without a benefit. If available, we calculated benefits for these members using the reported Average Salary, Credited Service and Termination Date. If Average Salary was also not reported (98 members), we assumed a value of \$30,000. If termination date was not reported (six members), we assumed the member terminated at age 40 (or current age, if younger than age 40). There were no members reported without credited service.

There were 59 members who terminated after June 30, 1997 and who were reported with a benefit in the Accelerated to Age 62 option. We adjusted benefits for these members to reflect the assumed life annuity election.

Data for members receiving benefits:

There were no members reported without a benefit.

There were no survivors reported with an expired benefit.

There were 42 retirees reported with a bounceback annuity but were not reported with a reasonable reduction factor. A factor of 0.80, 0.85 and 0.90 was assumed for the 100%, 75% and 50% joint and survivor annuity, respectively.

Changes in Actuarial Assumptions

None.

Actuarial Basis

Summary of Actuarial Assumptions (continued)

Summary of Rates

Age	Rate (%)					
	Healthy Post-Retirement Mortality*		Healthy Pre-Retirement Mortality*		Disability Mortality	
	Male	Female	Male	Female	Male	Female
20	0.03%	0.02%	0.11%	0.03%	2.26%	0.75%
25	0.04	0.02	0.11	0.03	2.26	0.75
30	0.04	0.03	0.12	0.04	2.26	0.75
35	0.06	0.05	0.20	0.07	2.26	0.75
40	0.09	0.06	0.29	0.09	2.26	0.75
45	0.13	0.10	0.44	0.14	2.26	0.75
50	0.20	0.16	0.60	0.23	2.90	1.15
55	0.33	0.26	0.54	0.32	3.54	1.65
60	0.56	0.47	0.73	0.51	4.20	2.18
65	1.11	0.87	1.30	0.82	5.02	2.80
70	1.93	1.52	2.14	1.37	6.26	3.76

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

Age	Withdrawal Rates After Third Year		Disability Retirement	
	Male	Female	Male	Female
20	13.20%	8.80%	0.05%	0.05%
25	8.10	7.80	0.08	0.08
30	5.00	7.45	0.11	0.11
35	3.45	7.10	0.15	0.15
40	2.55	5.70	0.24	0.24
45	1.95	3.50	0.39	0.39
50	0.00	0.00	0.67	0.67
55	0.00	0.00	1.17	1.17
60	0.00	0.00	1.88	1.88
65	0.00	0.00	0.00	0.00

Actuarial Basis

Summary of Actuarial Assumptions (concluded)

Summary of Rates

Age	Percent Retiring	Salary Scale	
		Year	Increase
50	5%	1	6.00%
51	3	2	5.85
52	3	3	5.70
53	3	4	5.55
54	5	5	5.40
55	55	6	5.25
56	12	7	5.10
57	12	8	4.95
58	10	9	4.80
59	10	10	4.65
60	10	11	4.55
61	10	12	4.45
62	30	13	4.35
63	30	14	4.25
64	30	15	4.15
65	50	16	4.05
66	50	17	3.95
67	50	18	3.85
68	50	19+	3.75
69	50		
70+	100		

Actuarial Basis

Summary of Plan Provisions (continued)

Retirement

Normal Retirement Benefit

Age/Service Requirement

Age 55 and vested. Proportionate Retirement Annuity is available at age 65 and one year of Allowable Service.

Amount

2.40% (2.20% if first hired after June 30, 2010) of Average Salary for each year of Allowable Service, pro-rata for completed months.

Early Retirement Benefit

Age/Service Requirement

Age 50 and vested.

Amount

Normal Retirement Benefit based on Allowable Service and Average Salary at retirement date reduced by 2/10% (5/12% if first hired after June 30, 2010 or if hired before July 1, 2010 and retire after June 30, 2015) per month for each month that the member is under age 55.

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 2.0% benefit increases. If the accrued liability funding ratio reaches 90% (on a Market Value of Assets basis), the benefit increase will revert to 2.5%. 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.

Actuarial Basis

Summary of Plan Provisions (continued)

Disability

Duty Disability

Age/Service Requirement

Physically or mentally unable to perform normal job duties as a direct result of a disability relating to an incident while performing the duties of the job which present inherent dangers to the employee. Members who become disabled after June 30, 2009 will have disability benefits converted to retirement benefits at age 55 instead of age 65.

Amount

50.00% of Average Salary plus 2.40% (2.20% if first hired after June 30, 2010) of Average Salary for each year in excess of 20 years and 10 months of Allowable Service (pro rata for completed months).

Payment begins at disability and ends at age 55 (age 65 if disabled prior to July 1, 2009) or the five-year anniversary of the effective date of the disability benefit, whichever is later. Payments stop 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.

Member is reclassified from disabled to retired at age 55 (age 65 if disabled prior to July 1, 2009). Optional amount continues. Otherwise, normal retirement benefit equal to the disability benefit paid, or an actuarially equivalent option.

Regular Disability

Age/Service Requirement

At least one year of covered Correctional service for employees hired before July 1, 2009, or a vested Correctional employee hired after June 30, 2009, and the employee is determined to have a regular disability not related to an incident while performing the duties of the job.

Amount

Normal retirement benefit based on covered Correctional Service (minimum of 15 years if hired prior to July 1, 2009) and Average Salary at disability.

Payment begins at disability and ends at age 55 (age 65 if disabled prior to July 1, 2009) or the five-year anniversary of the effective date of the disability benefit, whichever is later. Payments stop 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. Member is reclassified from disabled to retired at age 55 (age 65 if disabled prior to July 1, 2009). Optional amount continues. Otherwise, normal retirement benefit equal to the disability benefit paid, or an actuarially equivalent option.

Benefit Increases

Same as for retirement.

Actuarial Basis

Summary of Plan Provisions (continued)

Death

Surviving Spouse Benefit

Age/Service Requirement

Member at any age or former member age 50 or older who dies before retirement or disability benefit commences and was vested. If a former member dies before age 55 and has less than 30 years of Allowable Service, benefits commence when the former member would have been age 55. If an active member dies, benefits may commence immediately, regardless of age.

Amount

Surviving spouse receives the 100% joint and survivor benefits using the Normal Retirement formula above. If commencement is prior to age 55, the appropriate early retirement formula described above applies except that one-half the monthly reduction factor is used from age 50 to the commencement age and the Rule of 90 does not apply. In lieu of this benefit, the surviving spouse may elect a refund of member contributions with interest or an actuarially equivalent term certain annuity (lump sum payable to estate at death).

Benefit Increases

Same as for retirement.

Surviving Dependent Children's Benefit

Age/Service Requirement

If no surviving spouse, all dependent children (biological or adopted) below age 20 who are dependent for more than half of their support on deceased member.

Amount

Actuarially equivalent to surviving spouse 100% joint and survivor annuity payable to the later of age 20 or five years. The amount is to be proportionally divided among surviving children.

Benefit Increases

Same as for retirement.

Refund of Contributions with Interest

Age/Service Requirement

Active employee dies and survivor benefits are not payable or a former employee dies before annuity begins. If accumulated member contributions with interest exceed total payments to the surviving spouse and children, then the remainder is paid out.

Amount

Member's contributions with 6.00% interest compounded daily until July 1, 2011 and 4.00% thereafter.

Actuarial Basis

Summary of Plan Provisions (continued)

Termination

Refund of Contributions

Age/Service Requirement

Termination of state service.

Amount

Member's contributions with 6.00% interest through June 30, 2011 compounded daily. Beginning July 1, 2011 a member's contributions will increase at 4.00% interest compounded daily. If a member is vested, a deferred annuity may be elected in lieu of a refund.

Deferred Benefit

Age/Service Requirement

Partially or fully vested.

Amount

Benefit 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 of the year following attainment of age 55 or January 1, 2012, whichever is earlier; and
- (d.) 5.00% thereafter until the annuity begins (2.50% if hired after June 30, 2006), but before January 1, 2012;
- (e.) 2.00% from January 1, 2012 thereafter.

Amount is payable at normal or early retirement.

Optional Form Conversion Factors

Actuarially equivalent factors based on RP-2000 mortality for healthy annuitants, white collar adjustment, projected to 2027 using scale AA, set forward one year for males and set back one year for females, blended 70% males, and 6.5% interest.

Actuarial Basis

Summary of Plan Provisions (concluded)

Combined Service Annuity	<p>Members are eligible for combined service benefits if they:</p> <ul style="list-style-type: none">(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;(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. <p>Members who meet the above requirements must have their benefit based on the following:</p> <ul style="list-style-type: none">(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	None.

Member Data

Correctional Employees Retirement Fund

Active Members as of June 30, 2013

Age	<u>Years of Service</u>								<u>ALL</u>
	<u><1</u>	<u>1-4</u>	<u>5-9</u>	<u>10-14</u>	<u>15-19</u>	<u>20-24</u>	<u>25-29</u>	<u>30+</u>	
<25	71	35	1	0	0	0	0	0	107
25-29	122	310	109	0	0	0	0	0	541
30-34	69	231	382	39	0	0	0	0	721
35-39	46	122	267	143	20	0	0	0	598
40-44	34	89	194	134	119	8	0	0	578
45-49	30	109	154	122	137	82	15	1	650
50-54	28	85	177	113	113	102	75	14	707
55-59	13	45	120	66	59	19	6	19	347
60-64	2	17	39	25	20	5	1	3	112
65+	2	2	11	5	2	0	0	1	23
ALL	417	1,045	1,454	647	470	216	97	38	4,384

Average Annual Earnings

Age	<u>Years of Service</u>								<u>ALL</u>
	<u><1</u>	<u>1-4</u>	<u>5-9</u>	<u>10-14</u>	<u>15-19</u>	<u>20-24</u>	<u>25-29</u>	<u>30+</u>	
<25	25,434	31,805	32,010	0	0	0	0	0	27,579
25-29	27,548	37,313	40,967	0	0	0	0	0	35,847
30-34	28,347	39,349	42,927	48,329	0	0	0	0	40,677
35-39	32,404	41,171	44,319	50,919	58,481	0	0	0	44,812
40-44	32,176	39,859	46,000	50,296	58,147	61,628	0	0	47,954
45-49	28,164	41,455	46,828	50,663	57,153	60,591	64,916	71,450	50,153
50-54	34,305	43,323	51,100	53,566	57,143	59,726	64,351	61,943	53,724
55-59	40,781	49,862	53,705	54,783	54,237	58,773	70,400	64,259	54,161
60-64	31,257	51,168	50,213	63,355	53,268	62,372	54,569	41,905	53,857
65+	41,956	46,288	49,656	58,747	92,792	0	0	59,333	54,841
ALL	29,230	39,949	45,982	51,983	57,079	60,102	64,711	61,700	46,272

Member Data

Correctional Employees Retirement Fund

Service Retirements as of June 30, 2013

Age	Years Retired							ALL
	<1	1-4	5-9	10-14	15-19	20-24	25+	
<50	0	0	0	0	0	0	0	0
50-54	37	39	0	1	0	0	0	77
55-59	142	234	59	0	1	0	0	436
60-64	42	67	361	51	0	0	0	521
65-69	24	67	57	290	18	0	0	456
70-74	6	9	39	43	105	1	0	203
75-79	1	1	8	26	39	49	0	124
80-84	0	0	0	4	5	15	34	58
85+	0	0	0	0	0	4	41	45
ALL	252	417	524	415	168	69	75	1,920

Average Annual Benefit

Age	Years Retired							ALL
	<1	1-4	5-9	10-14	15-19	20-24	25+	
<50	0	0	0	0	0	0	0	0
50-54	21,104	21,736	0	3,630	0	0	0	21,197
55-59	24,979	24,274	25,563	0	25,668	0	0	24,681
60-64	13,876	16,277	22,506	19,560	0	0	0	20,720
65-69	8,683	9,419	8,864	18,185	25,977	0	0	15,539
70-74	7,675	12,180	10,601	14,395	25,585	28,655	0	19,227
75-79	11,680	42,445	21,681	19,190	19,982	29,214	0	23,687
80-84	0	0	0	5,399	15,750	22,518	25,521	22,514
85+	0	0	0	0	0	13,950	27,683	26,462
ALL	20,542	20,147	20,467	17,865	24,034	26,865	26,702	20,630

Member Data

Correctional Employees Retirement Fund

Survivors as of June 30, 2013

Age	Years Since Death							ALL
	<1	1-4	5-9	10-14	15-19	20-24	25+	
<50	11	8	5	1	0	0	0	25
50-54	4	4	6	2	1	0	0	17
55-59	5	16	10	6	2	0	0	39
60-64	2	2	11	10	2	1	0	28
65-69	3	9	11	6	4	0	0	33
70-74	1	4	4	4	2	1	1	17
75-79	0	2	6	4	3	0	0	15
80-84	3	2	1	1	1	1	2	11
85+	2	2	0	2	2	0	3	11
ALL	31	49	54	36	17	3	6	196

Average Annual Benefit

Age	Years Since Death							ALL
	<1	1-4	5-9	10-14	15-19	20-24	25+	
<50	8,515	4,935	8,098	16,188	0	0	0	7,592
50-54	17,506	7,625	9,951	7,339	15,058	0	0	11,174
55-59	9,213	14,905	15,781	10,051	6,683	0	0	13,231
60-64	12,430	8,096	12,277	12,474	2,801	9,241	0	11,274
65-69	19,308	14,263	14,887	12,127	13,477	0	0	14,446
70-74	22,412	17,838	16,721	23,602	19,705	9,551	6,523	18,267
75-79	0	14,186	27,085	17,882	9,035	0	0	19,301
80-84	28,377	9,820	6,883	12,592	8,310	13,247	13,738	15,752
85+	12,182	13,451	0	13,119	14,851	0	8,634	12,100
ALL	13,691	12,230	14,686	13,706	11,321	10,679	9,983	13,237

Member Data

Correctional Employees Retirement Fund

Disability Retirements as of June 30, 2013

Age	<u>Years Disabled</u>							<u>ALL</u>
	<u><1</u>	<u>1-4</u>	<u>5-9</u>	<u>10-14</u>	<u>15-19</u>	<u>20-24</u>	<u>25+</u>	
<50	13	16	20	19	2	0	0	70
50-54	5	12	11	13	5	1	0	47
55-59	5	17	15	13	7	1	0	58
60-64	2	7	13	19	5	2	0	48
65-69	2	3	3	12	6	0	0	26
70-74	0	0	3	1	1	1	0	6
75-79	0	0	0	1	0	1	1	3
80-84	0	0	0	0	0	0	0	0
85+	0	0	0	0	0	0	0	0
ALL	27	55	65	78	26	6	1	258

Average Annual Benefit

Age	<u>Years Disabled</u>							<u>ALL</u>
	<u><1</u>	<u>1-4</u>	<u>5-9</u>	<u>10-14</u>	<u>15-19</u>	<u>20-24</u>	<u>25+</u>	
<50	14,189	17,811	17,563	18,223	15,249	0	0	17,106
50-54	17,955	21,479	15,545	21,293	20,843	17,262	0	19,506
55-59	16,776	16,462	20,225	21,709	18,923	12,370	0	18,864
60-64	17,686	16,412	17,189	20,882	19,007	25,321	0	19,086
65-69	19,231	16,915	21,044	15,169	17,783	0	0	16,964
70-74	0	0	17,089	35,429	37,391	19,507	0	23,932
75-79	0	0	0	19,693	0	20,813	24,760	21,755
80-84	0	0	0	0	0	0	0	0
85+	0	0	0	0	0	0	0	0
ALL	15,998	17,967	17,899	19,732	19,473	20,099	24,760	18,505

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