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**Minnesota Legislative Commission  
on Pensions and Retirement**

**Replication of the Actuarial Valuation of the  
Public Employees Retirement Association of Minnesota  
General Employees Retirement Plan  
as of July 1, 2010**

Prepared by:

**Milliman, Inc.**

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Principal & Consulting Actuary

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Consulting Actuary

March 23, 2011

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March 23, 2011

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, 2010 actuarial valuation of the General Employees Retirement Plan (Fund) administered by the Public Employees Retirement Association of Minnesota (PERA). 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, PERA, 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.

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.

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 Consulting Services Agreement effective November 25, 2009.

March 23, 2011  
Page Two

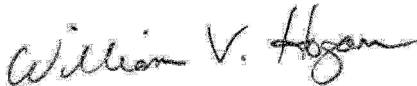
I, William V. Hogan, FSA, am an actuary for Milliman, Inc. I am a member of the American Academy of Actuaries and a Fellow of the Society of Actuaries, and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion contained herein.

I, Allan L. Bittner, FSA, am an actuary for Milliman, Inc. I am a member of the American Academy of Actuaries and a Fellow 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, MAAA  
Principal & Consulting Actuary



Allan L. Bittner, FSA, MAAA  
Consulting Actuary

WVH/ALB/cw

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### Opinion Letter

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## Executive Summary

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### **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, 2010 actuarial valuation of the Fund administered by PERA.

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. Please note that we have shown costs assuming beginning of the year decrements in order to match with the Fund actuary. We have also provided costs assuming mid-year decrements in accordance with the Actuarial Standards for Actuarial Work.

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.

### **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, 2010 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, actuarial liabilities and contribution requirements for the Fund.

## Executive Summary

(continued)

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

**Membership Data:** Our raw data counts matched up to within a few lives with the counts as summarized by PERA. After applying our own cleansing methods, our valuation data count was slightly different from the count as reported by the Fund actuary. Our active data count was within two lives while the inactive count, in total, was different by 102 lives out of approximately 240,000 lives (0.04% consisting mostly of nonvested terminated Members due a refund). While we have some slight discrepancies, our conclusion is that the Fund actuary is reasonably reflecting the data received from PERA to within a reasonable degree of tolerance with our own determinations.

**Plan Provisions:** We started with the summary of plan provisions for the Fund that Milliman reviewed last year and modified those provisions to reflect the changes enacted due to recent legislation. 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. One small technical exception that has no actuarial cost impact is the description of the retirement plan eligibility for Basic Plan Members hired after June 30, 2010. Legislative changes now require five years of vesting. Since new hires generally are Coordinated Members, this provision has no practical impact.

**Actuarial Assumptions and Methods:** In general, we believe that the assumptions and methods employed by the Fund actuary are reasonable and consistent with statutes and the Standards for Actuarial Work with one exception. We note that the valuation results prepared by the Fund actuary are based upon beginning of the year decrement timing. While we prefer mid-year decrement timing, we note that the Standards for Actuarial Work would allow for either mid-year or end of the year decrement timing for the 2010 actuarial valuations. Upon further discussion with the Fund actuary, it is our understanding that beginning of the year decrement timing is consistent with results published in prior years. Consequently, the use of this timing in the 2010 actuarial valuation should be consistent with prior year results.

**Actuarial Value of Assets:** We believe that the Fund actuary has fairly and correctly presented the actuarial value of assets with the exception of a \$1 rounding difference (in thousands).

**Valuation System Results:** Based upon our own valuation system results, we were able to match the Fund actuary valuation results within 1.0% on the present value of future benefits and within 1.3% on the actuarial liabilities. We are about 0.8% higher on the Normal Cost percentage when valued using beginning of the year assumption for the occurrence of decrements. All of these values track very well to the Fund actuary calculations. We have also run our actuarial valuation assuming a mid-year assumption for decrements. The result of this change is a modest decrease in Accrued Liability but an increase in normal costs compared to the beginning of the year calculations.

**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 some of the healthy pre-retirement mortality rates reported in the assumptions do not appear to be consistent with the table that is referenced. In particular, the mortality rates for ages under 30 and over 70 are slightly different than the values in the referenced tables. In our discussions with the fund actuary, we understand the fund actuary's firm-wide approach is to use a modification of the referenced table to extend the "white collar adjustment" included in the standard tables. We do not disagree with this approach. However, we recommend the fund actuary modify the description of the table to specify this adjustment. Because this comment only affects the description of the mortality assumption, there is no impact on the valuation results. Finally, we note that

## Executive Summary

(continued)

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the Fund actuary does not report the split between deferred annuity present value and refund present value for assumed termination decrement of active employees. We believe showing this detail should be included in future valuations.

COLA: As part of legislation enacted earlier in 2010, the annual Cost of Living Adjustment (COLA) applied to the pensions of retired Members was changed from 2.5% to 1.0%. However, if the Fund achieves a 90% funded ratio on the market value of assets to actuarial liability, the COLA will increase back to 2.5%. The valuation by the Fund actuary assumes that the lower 1.0% COLA will remain in place for all years. Based upon the current fund ratio and the current level of contributions, we believe this to be a reasonable assumption. This creates interesting questions for future valuations if the funded ratio improves and/or contribution levels are raised. Questions such as (1) when is it appropriate to assume the return to a 2.5% COLA for valuation purposes and (2) how to handle the situation when the COLA achieves a 90% funded ratio when 1.0% is applied but is less than 90% when 2.5% is applied? We believe that these questions should be addressed in the near future.

## Principal Valuation Results

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This section provides a summary of the key measurements from the July 1, 2010 Actuarial Valuation. In this section, we have provided two columns of numbers from Milliman. The middle column reflects a valuation basis which assumes all decrements (death, retirement, disability, turnover, etc.) occur at the beginning of the year. The far right column provides our calculations assuming that decrements occur during the middle of the valuation year. We have provided the middle column for comparative purposes to the Fund actuary numbers. We have provided the midyear column for information regarding the impact from assuming beginning of the year decrements to middle of the year decrements.

In general, our beginning of the year calculations provide slightly lower funding ratios and slightly higher required contributions. By moving the assumed decrements to midyear, the present value of benefits becomes lower. As a result, the funding ratios improve and the required contributions decrease. 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**  
(continued)

	<u>Actuarial Valuation as of</u>		<u>July 1, 2010</u> <u>(Milliman Midyear)</u>
	<u>July 1, 2010</u> <u>(Fund Actuary)</u>	<u>July 1, 2010</u> <u>(Milliman)</u>	
<b><u>Contributions</u></b> (% of Payroll)			
Statutory – Chapter 353	13.25%	13.25%	13.25%
Required – Chapter 356	12.46%	12.89%	12.52%
Sufficiency/(Deficiency)	0.79%	0.36%	0.73%
Required – Chapter 356 (market assets)	15.01%	15.47%	15.09%
Sufficiency/(Deficiency) – market assets	(1.76)%	(2.22)%	(1.84)%
<b><u>Unfunded Actuarial Accrued Liability</u></b>			
Based upon AVA	\$ 4,053,963	\$4,282,890	\$3,951,601
Based upon MVA	5,842,374	6,071,302	5,740,013
<b><u>Funding Ratios</u></b> (dollars in thousands)			
Accrued Benefit Funding Ratio			
Current assets (AVA)	\$13,126,993	\$13,126,994	\$13,126,994
Current benefit obligations	16,345,475	16,449,364	16,319,109
Funding ratio	80.31%	79.80%	80.44%
Accrued Liability Funding Ratio			
Current assets (AVA)	\$13,126,993	\$13,126,994	\$13,126,994
Current assets (MVA)	11,338,582	11,338,582	11,338,582
Actuarial accrued liability	17,180,956	17,409,884	17,078,595
Funding ratio (AVA)	76.40%	75.40%	76.86%
Funding ratio (MVA)	66.00%	65.13%	66.39%
Projected Benefit Funding Ratio			
Current and expected future assets	\$20,080,426	\$19,976,358	\$20,043,470
Current and expected future benefit obligations	19,525,234	19,729,482	19,534,780
Funding ratio	102.84%	101.25%	102.60%
<b><u>Participant Data</u></b>			
Active Members			
Number	140,389	140,391	140,391
Projected annual earnings (000s)	\$ 5,160,545	\$ 5,094,418	\$ 5,094,418
Average projected annual earnings	36,761	36,287	36,287
Average age	47.2	47.2	47.2
Average service	11.0	11.1	11.1
Service Retirements	59,159	59,318	59,318
Survivors	7,120	7,107	7,107
Disability Retirements	2,215	2,037	2,037
Deferred Retirements	45,151	45,152	45,152
Terminated Other Non-vested	126,027	125,956	125,956
TOTAL	380,061	379,961	379,961

## Plan Assets

### Statement of Plan Net Assets for Year Ended June 30, 2010

(dollars in thousands)

We received asset information from PERA which provided assets by class as of June 30, 2010. 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
<b>Assets in Trust</b>		
Cash, equivalents, short term securities	\$ 272,906	\$ 272,906
Fixed income	2,780,864	2,780,864
Equity	6,514,794	6,514,794
SBI Alternative	1,763,333	1,763,333
Other	9,383	9,383
Total Assets in Trust	<b>11,341,280</b>	<b>\$11,341,280</b>
Assets Receivable	14,225	14,225
<b>Total Assets</b>	<b>11,355,505</b>	<b>11,355,505</b>
Amounts Payable	(16,923)	(16,923)
<b>Net Assets Held in Trust for Pension Benefits</b>	<b>\$11,338,582</b>	<b>\$11,338,582</b>

## 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 PERA for the Plan's Fiscal year July 1, 2009 to June 30, 2010.

We received this information directly from PERA and summarized it below. Our summary matches the summary provided by the Fund actuary. One item to note is that the information we received indicates that line item 4., "Other," consists of non-investment income amounts such as transfers in, etc. It is our understanding that this item was considered investment income in prior years.

	Market Value	
	Fund Actuary	Milliman
<b>1. Fund Balance at Market Value at July 1, 2009</b>	<b>\$10,116,852</b>	<b>\$10,116,852</b>
2. Contributions		
a. Member	303,571	303,571
b. Employer	342,678	342,678
c. Other sources	<u>0</u>	<u>0</u>
d. Total contributions	646,249	646,249
3. Investment Income		
a. Investment income/(loss)	1,535,925	1,535,925
b. Investment expenses	<u>(16,139)</u>	<u>(16,139)</u>
c. Total investment income/(loss)	1,519,786	1,519,786
4. Other	<u>241</u>	<u>241</u>
<b>5. Total Income (2.d. + 3.c. + 4.)</b>	<b>\$ 2,166,276</b>	<b>\$ 2,166,276</b>
6. Benefits Paid		
a. Annuity benefits	(906,300)	(906,300)
b. Refunds	<u>(28,770)</u>	<u>(28,770)</u>
c. Total benefits paid	(935,070)	(935,070)
7. Expenses		
a. Other	0	0
b. Administrative	<u>(9,476)</u>	<u>(9,476)</u>
c. Total expenses	(9,476)	(9,476)
<b>8. Total Disbursements (6.c. + 7.c.)</b>	<b>(944,546)</b>	<b>(944,546)</b>
<b>9. Fund Balance at Market Value at June 30, 2010 (1. + 5. + 8.)</b>	<b>\$11,338,582</b>	<b>\$11,338,582</b>

## Plan Assets

### Actuarial Asset Value

(dollars in thousands)

Based upon the assets reported to us by PERA and prior year actuarial valuation information regarding unrecognized asset returns, we have constructed the Actuarial Value of Assets for the July 1, 2010 Actuarial Valuation. Our calculation matches the Fund actuary except for small rounding of the Expected Return. One other item to note is that the actual return reported for determining asset gains and losses in the smoothing method does not include "Other Income" this year as it was determined that this amount did not consist of investment income as stated on the previous page. Based upon that information, we believe this change is reasonable; however, we note that it does reflect a change in the treatment of this item for purposes of determining asset smoothing gains and losses. If that amount \$241 had been included as part of asset gains for smoothing purposes, the Actuarial Value of Assets would be lower by approximately \$201.

### FUND ACTUARY

**June 30, 2010**

1. Market Value of Assets Available for Benefits			\$11,338,582
2. Determination of Average Balance			
a. Total assets available at July 1, 2009			10,116,852
b. Total assets available at June 30, 2010			11,338,582
c. Net investment income for fiscal year ending June 30, 2010			1,519,786
d. Average balance [a.+ b. – c.] / 2			9,967,824
3. Expected Return [8.5% x 2.d.]			847,264
4. Actual Return			1,519,786
5. Current Year Asset Gain/(Loss) [4. – 3.]			672,522
6. Unrecognized Asset Returns*			
	<b><u>Original</u></b>	<b><u>% Not</u></b>	
	<b><u>Amount</u></b>	<b><u>Recognized</u></b>	
a. Year ended June 30, 2010	\$ 672,522	80%	\$ 538,018
b. Year ended June 30, 2009	(3,451,678)	60	(2,071,007)
c. Year ended June 30, 2008	(941,039)	40	(376,416)
d. Year ended June 30, 2007	604,970	20	<u>120,994</u>
e. Total unrecognized return			(1,788,411)
7. Actuarial Value at June 30, 2010 (1. – 6.e.)			\$13,126,993

\*Prior to the year ending June 30, 2009, unrecognized asset returns do not include MPRIF gains or losses.

## Plan Assets

### Actuarial Asset Value (dollars in thousands)

#### MILLIMAN

**June 30, 2010**

1. Market Value of Assets Available for Benefits			\$11,338,582
2. Determination of Average Balance			
a. Total assets available at July 1, 2009			10,116,852
b. Total assets available at June 30, 2010			11,338,582
c. Net investment income for fiscal year ending June 30, 2010			1,519,786
d. Average balance [a.+ b. – c.] / 2			9,967,824
3. Expected Return [8.5% x 2.d.]			847,265
4. Actual Return			1,519,786
5. Current Year Asset Gain/(Loss) [4. – 3.]			672,521
6. Unrecognized Asset Returns*			
	<b>Original Amount</b>	<b>% Not Recognized</b>	
a. Year ended June 30, 2010	\$ 672,521	80%	538,017
b. Year ended June 30, 2009	(3,451,678)	60	(2,071,007)
c. Year ended June 30, 2008	(941,039)	40	(376,416)
d. Year ended June 30, 2007	604,970	20	<u>120,994</u>
e. Total unrecognized return			\$(1,788,412)
7. Actuarial Value at June 30, 2010 (1. – 6.e.)			\$13,126,994

\*Prior to the year ending June 30, 2009, unrecognized asset returns do not include MPRIF gains or losses.

**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.

	<b>June 30, 2010 (Fund Actuary)</b>	<b>June 30, 2010 (Milliman)</b>	<b>June 30, 2010 (Milliman Midyear)</b>
A. Actuarial Value of Assets	\$13,126,993	\$13,126,994	\$13,126,994
B. Expected Future Assets			
1. Present value of expected future statutory supplemental contributions	4,609,155	4,529,766	4,460,291
2. Present value of future normal cost contributions	<u>2,344,278</u>	<u>2,319,598</u>	<u>2,456,185</u>
3. Total expected future assets (1. + 2.)	6,953,433	6,849,364	6,916,476
C. Total Current and Expected Future Costs	\$20,080,426*	\$19,976,358*	\$20,043,470*
D. Current Benefit Obligations			
1. Benefit recipients			
a. Service retirements	6,893,513	6,992,856	6,992,836
b. Disability	229,950	213,582	213,582
c. Survivors	776,557	688,579	688,579
2. Deferred retirement with augmentation	1,726,753	1,774,744	1,774,744
3. Former members without vested rights**	86,404	86,247	86,247
4. Active members	<u>6,632,298</u>	<u>6,693,376</u>	<u>6,563,121</u>
5. Total current benefit obligations	16,345,475	16,449,364	16,319,109
E. Expected Future Benefit Obligations	3,179,759	3,280,118	3,215,671
F. Total Current and Expected Future Benefit Obligations	19,525,234	19,729,482	19,534,780
G. Unfunded Current Benefit Obligations (D.5. – A.)	3,218,482	3,322,370	3,192,115
H. Unfunded Current and Future Benefit Obligations (F. – C.)	(555,192)	(246,876)	(508,690)

\*Does not reflect deferred investment losses due to the asset smoothing method. Total expected future assets on a market value basis are \$18,292,015 for Fund actuary, \$18,212,738 for Milliman, and \$18,272,485 for Milliman Midyear.

\*\*Former members with less than three years of service in this plan that have not collected a refund of member contributions as of the valuation date.

## 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 Deferred Members who are slightly outside the range at 2.8%. It is our intent to review this component further in an effort to identify any other differences we may have compared to the Fund actuary. The following comments show, as a percentage, the ratio of each column to the reported numbers by the Fund actuary:

	<b>Actuarial Present Value of Projected Benefits</b>		
	<b>Fund</b>		
	<b>Actuary</b>	<b>Milliman</b>	<b>Milliman Midyear</b>
Active Members	100.0%	101.6%	99.7%
Deferred Members	100.0	102.8	102.8
Former Members Without Vested Rights	100.0	99.8	99.8
Benefit Recipients	<u>100.0</u>	<u>99.9</u>	<u>99.9</u>
Total	100.0%	101.0%	100.0%

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 following amounts show, as a percentage, the ratio of each column to the reported numbers by the Fund actuary.

	<b>Actuarial Accrued Liability</b>		
	<b>Fund</b>		
	<b>Actuary</b>	<b>Milliman</b>	<b>Milliman Midyear</b>
Active Members	100.0%	102.5%	98.1%
Deferred Members	100.0	102.8	102.8
Former Members Without Vested Rights	100.0	99.8	99.8
Benefit Recipients	<u>100.0</u>	<u>99.9</u>	<u>99.9</u>
Total	100.0%	101.3%	99.4%

## Development of Costs

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

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Once the Actuarial Accrued Liability is determined, it is compared to the Actuarial Value of Assets to determine the funded amount. The difference between these numbers is then amortized to the statutory amortization date 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 1.3% higher than the Fund actuary but our supplemental contribution percentage rate is 6.6% higher than the Fund actuary.



## Development of Costs

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

	<b>Actuarial Present Value of Projected Benefits</b>		
	<b>Fund Actuary</b>	<b>Milliman</b>	<b>Milliman Midyear</b>
1. Active members			
a. Retirement annuities	\$ 8,798,046	\$ 8,908,607	\$ 8,716,536
b. Disability benefits	336,652	337,955	330,395
c. Survivor's benefits	173,883	204,536	200,871
d. Deferred retirements	503,476	202,125	184,566
e. Refunds	<u>N/A</u>	<u>320,271</u>	<u>346,424</u>
f. Total	9,812,057	9,973,494	9,778,792
2. Deferred retirements with future augmentation	1,726,753	1,774,744	1,774,744
3. Former members without vested rights	86,404	86,247	86,247
4. Benefit recipients	<u>7,900,020</u>	<u>7,894,997</u>	<u>7,894,997</u>
5. Total	\$19,525,234	\$19,729,482	\$19,534,780

	<b>Actuarial Present Value of Future Normal Costs</b>		
	<b>Fund Actuary</b>	<b>Milliman</b>	<b>Milliman Midyear</b>
1. Active members			
a. Retirement annuities	\$ 1,706,637	\$ 1,638,126	\$ 1,664,674
b. Disability benefits	112,265	108,216	110,471
c. Survivor's benefits	51,627	60,455	63,038
d. Deferred retirements	473,749	124,321	119,249
e. Refunds	<u>N/A</u>	<u>388,480</u>	<u>498,753</u>
f. Total	2,344,278	2,319,598	2,456,185
2. Deferred retirements with future augmentation	0	0	0
3. Former members without vested rights	0	0	0
4. Benefit recipients	<u>0</u>	<u>0</u>	<u>0</u>
5. Total	\$ 2,344,078	\$ 2,319,598	\$ 2,456,185

## Development of Costs

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

	Actuarial Accrued Liability		
	Fund Actuary	Milliman	Milliman Midyear
<b>A. Determination of Actuarial Accrued Liability (AAL)</b>			
1. Active members			
a. Retirement annuities	\$ 7,091,409	\$ 7,270,481	\$ 7,051,862
b. Disability benefits	224,387	229,739	219,924
c. Survivor's benefits	122,256	144,081	137,833
d. Deferred retirements	29,727	77,804	65,317
e. Refunds	N/A	<u>(68,209)</u>	<u>(152,329)</u>
f. Total	7,467,779	7,653,896	7,322,607
2. Deferred retirements with future augmentation	1,726,753	1,774,744	1,774,744
3. Former members without vested rights	86,404	86,247	86,247
4. Benefit recipients	<u>7,900,020</u>	<u>7,894,997</u>	<u>7,894,997</u>
5. Total	17,180,956	17,409,884	17,078,595
<b>B. Determination of Unfunded Actuarial Accrued Liability (UAAL)</b>			
1. Actuarial accrued liability	\$17,180,956	\$17,409,884	\$17,078,595
2. Current assets (AVA)	<u>13,126,993</u>	<u>13,126,994</u>	<u>13,126,994</u>
3. Unfunded actuarial accrued liability	4,053,963	4,282,890	3,951,601
<b>C. Determination of Supplemental Contribution Rate*</b>			
1. Present value of future payrolls through the amortization date of July 1, 2040	70,154,569	69,474,937	69,474,937
2. Supplemental contribution rate (B.3. / C.1.)	5.78%	6.16%	5.69%

\*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)

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In this section, we compare the statutory contributions provided under Chapter 353 of Minnesota statutes (353 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 353 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 0.8% higher than the Fund actuary. We do 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. In this case, our supplemental contribution percentage is higher by 6.6% but this is based upon an Actuarial Accrued Liability that is higher by 1.3%.

Similar to the 353 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 sufficiency of 0.36%. This compares to a sufficiency reported by the Fund actuary of 0.79%. The difference of 0.43% is primarily the result of the supplemental contribution difference. When viewing our midyear results, the contribution sufficiency increases even further. The overall conclusion from these results is that a contribution sufficiency exists and that it is at least 0.36% and may be closer to 0.73% if midyear decrement timing is applied.

## Development of Costs

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

	<u>Fund Actuary</u> <u>July 1, 2010</u>		<u>Milliman</u> <u>July 1, 2010</u>		<u>Milliman Midyear</u> <u>July 1, 2010</u>	
	<u>Percent of Payroll</u>	<u>Dollar Amount</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	6.125%	\$316,120	6.125%	\$312,033	6.125%	\$312,033
2. Employer contributions	<u>7.125</u>	<u>367,746</u>	<u>7.125</u>	<u>362,977</u>	<u>7.125</u>	<u>362,977</u>
3. Total	13.250	683,866	13.250%	675,010	13.250%	675,010
B. Required Contributions – Chapter 356						
1. Normal cost						
a. Retirement benefits	4.90	252,963	4.78	243,427	4.67	237,824
b. Disability benefits	0.29	15,250	0.29	14,807	0.28	14,523
c. Survivors	0.15	7,518	0.17	8,486	0.17	8,477
d. Deferred retirement benefits	1.16	59,795	0.39	19,761	0.37	18,605
e. Refunds	<u>N/A</u>	<u>N/A</u>	<u>0.92</u>	<u>46,883</u>	<u>1.16</u>	<u>59,242</u>
f. Total	6.50	335,526	6.55	333,364	6.65	338,672
2. Supplemental contribution amortization by July 1, 2040 of unfunded actuarial accrued liability	5.78	298,280	6.16	313,816	5.69	289,872
3. Allowance for expenses	0.18	9,289	0.18	9,170	0.18	9,170
4. Total	12.46	643,095	12.89	656,350	12.52	637,714
C. Contribution Sufficiency/(Deficiency) (A.3. – B.4.)	0.79%	\$ 40,771	0.36%	18,660	0.73%	37,296

Note: Projected annual payroll for fiscal year beginning on the valuation date:  
\$5,160,545 for Fund actuary and \$5,094,418 for Milliman.

## Actuarial Basis

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### 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 discount rate assumptions used in this calculation are 8.5% pre-retirement and 7.5% post-retirement, as described in the Summary of Actuarial Assumptions.

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

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### 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.

The Minnesota Post Retirement Investment Fund (MPRIF) was dissolved on June 30, 2009. For the purpose of determining the actuarial value of assets, the MPRIF asset loss for the fiscal year ending June 30, 2009 is recognized incrementally over five years at 20% per year, similar to the smoothing described above. Prior to June 30, 2009, MPRIF asset gains and losses were not smoothed.

## Actuarial Basis

### 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 Trustees and reflect the recently adopted changes during the summer of 2010.

<b>Investment Return</b>	7.50% compounded annually post-retirement (6.0% adjusted for COLA plan provisions change). 8.50% compounded annually pre-retirement.												
<b>Benefit Increases After Retirement</b>	The post-retirement investment return changed from 6.0% to 7.5% to reflect the change in post-retirement benefit increases from 2.5% to 1.0%.												
<b>Payroll Growth</b>	4.00% per year compounded annually												
<b>Salary Increases</b>	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.												
<b>Mortality</b>													
<i>Healthy Pre-retirement</i>	RP 2000 non-annuitant generational mortality, white collar adjustment, set forward five years for males and set back three years for females.												
<i>Healthy Post-retirement</i>	RP 2000 annuitant generational mortality, white collar adjustment, with no setback for males and set back two years for females.												
<i>Disabled</i>	RP 2000 disabled mortality, set back four years for males and set forward seven years for females.												
<b>Retirement</b>	Members retiring from active status are assumed to retire according to the age related rates as shown in rate table. Members who have attained the highest assumed retirement age will retire in one year.												
<b>Withdrawal</b>	Select and ultimate rates based on actual plan experience. Ultimate rates after the third year are shown in the rate table. Select rates are as follows: <table border="1" style="margin-left: 40px;"> <thead> <tr> <th></th> <th>First Year</th> <th>Second Year</th> <th>Third Year</th> </tr> </thead> <tbody> <tr> <td>Male</td> <td>0.40</td> <td>0.15</td> <td>0.10</td> </tr> <tr> <td>Female</td> <td>0.40</td> <td>0.15</td> <td>0.10</td> </tr> </tbody> </table>		First Year	Second Year	Third Year	Male	0.40	0.15	0.10	Female	0.40	0.15	0.10
	First Year	Second Year	Third Year										
Male	0.40	0.15	0.10										
Female	0.40	0.15	0.10										
<b>Disability</b>	Age-related rates based on actual experience; see table of sample rates.												
<b>Allowance for Combined Service Annuity</b>	Liabilities for active members are increased by 0.80% and liabilities for former members are increased by 60.00% to account for the effect of some members having eligibility for a Combined Service Annuity.												
<b>Administrative Expenses</b>	Prior year administrative expenses expressed as percentage of prior year payroll.												
<b>Return of Contributions</b>	All employees withdrawing after becoming eligible for a deferred benefit are assumed to take the larger of their contributions accumulated with interest or the value of their deferred benefit.												
<b>Commencement of Deferred Benefits</b>	Members receiving deferred annuities (including current terminated deferred members) are assumed to begin receiving benefits at age 65 or the earliest age at which unreduced benefits may commence if earlier.												
<b>Percentage Married</b>	75% of active male members are assumed to be married and 70% of active female members are assumed to be married. Actual marital status is provided for members in payment status.												
<b>Age of Spouse</b>	Male members are assumed to have a beneficiary three years younger and female members are assumed to have a beneficiary two years older.												

## Actuarial Basis

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### Summary of Actuarial Assumptions (continued)

<b>Form of Payment</b>	<p>Married members retiring from active status are assumed to elect form of annuity as follows:</p> <p>Males:           40% elect Straight Life                       5% elect 25% J&amp;S option                       15% elect 50% J&amp;S option                       10% elect 75% J&amp;S option                       30% elect 100% J&amp;S option</p> <p>Females:          70% elect Straight Life                       5% elect 25% J&amp;S option                       5% elect 50% J&amp;S option                       5% elect 75% J&amp;S option                       15% elect 100% J&amp;S option</p> <p>Members receiving deferred annuities (including current terminated deferred members) are assumed to elect forms based upon the same percentages above.</p>
<b>Changes in Actuarial Assumptions</b>	<p>Healthy pre-retirement mortality was changed from 1983 Group Annuity Mortality set back eight years for males and set back seven years for females to RP 2000 non-annuitant generational mortality, white collar adjustment, set forward five years for males and set back three years for females.</p> <p>Healthy post-retirement mortality was changed from 1983 Group Annuity Mortality set back one year for males and set back one year for females to RP 2000 annuitant generational mortality, white collar adjustment, with no age set back for males and set back two years for females.</p> <p>Disabled retired mortality was changed to RP 2000 disabled retiree mortality set back four years for males and set forward seven years for females. The previous table was based on 1965 Railroad Retirement Board (RRB) rates through age 54; graded rates for ages 55 to 65, and for ages 65 and later, the healthy postretirement mortality table.</p> <p>The marital status assumption was changed from 85% to 75% for males and from 65% to 70% for females when valuing active Members.</p> <p>The beneficiary age difference was changed from four years younger to three years younger for active males and from four years older to two years older for active females.</p> <p>The form of benefit assumption for active male members was changed from 10% electing a 25% J&amp;S form to 5% and from 20% electing the 50% J&amp;S form to 15%.</p> <p>The post-retirement investment return changed from 6.0% to 7.5% to reflect the change in post-retirement benefit increases from 2.5% to 1.0%.</p> <p>Both Rule of 90 and non-Rule of 90 retirement rates were changed at several ages to more closely reflect actual retirement experience.</p>



## Actuarial Basis

### Summary of Actuarial Assumptions (continued)

#### Summary of Rates

Age	Mortality Rates (%)					
	Healthy Pre-Decrement *		Healthy Post-Decrement**		Disabled	
	Male	Female	Male	Female	Male	Female
20	0.0340%	0.0160%	0.0086%	0.0252%	2.2571%	0.7450%
25	0.0336	0.0163	0.1029	0.0258	2.2571	0.7450
30	0.0562	0.0198	0.1016	0.0321	2.2571	0.7450
35	0.0821	0.0335	0.1700	0.0565	2.2571	0.7450
40	0.1178	0.0463	0.2485	0.0751	2.2571	0.8959
45	0.1649	0.0656	0.3563	0.1108	2.2571	1.3456
50	0.2268	0.1025	0.4989	0.1725	2.3847	1.8654
55	0.3628	0.1618	0.4484	0.2568	3.0268	2.4080
60	0.5841	0.2694	0.5622	0.4456	3.6732	3.1325
65	0.8445	0.4318	1.0104	0.7057	4.3474	4.2851
70	3.2859	0.6674	1.6571	1.1788	5.2213	5.9545
75	5.8213	1.9458	2.9211	1.9485	6.5841	8.2298

\* Rates shown are RP 2000 non-annuitant mortality, projected to 2010, white collar adjustment, set forward five years for males and set back three years for females.

\*\* Rates shown are RP 2000 annuitant mortality, projected to 2010, white collar adjustment, with no age adjustment for males and set back two years for females.

Age	Ultimate Withdrawal		Disability	
	Male	Female	Male	Female
20	8.40%	8.40%	0.010%	0.010%
25	6.90	6.90	0.010	0.010
30	5.40	5.40	0.020	0.020
35	3.90	4.20	0.050	0.040
40	3.00	3.50	0.090	0.060
45	2.50	3.00	0.140	0.090
50	2.00	2.50	0.230	0.160
55	0.00	0.00	0.490	0.260
60	0.00	0.00	0.820	0.460
65	0.00	0.00	0.000	0.000
70	0.00	0.00	0.000	0.000

## Actuarial Basis

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### Summary of Actuarial Assumptions (continued)

#### Summary of Rates

Age	Retirement	
	Rule of 90 Eligible	All Others
55	20%	6%
56	20	6
57	20	6
58	20	7
59	20	8
60	20	8
61	25	12
62	35	20
63	25	16
64	25	18
65	35	35
66	25	25
67	20	20
68	20	20
69	20	20
70	20	20
71+	100	100

## Actuarial Basis

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### Summary of Actuarial Assumptions (continued)

#### Summary of Rates

Salary Scale			
Baseline Assumption		Alternative Assumption	
Service	Salary Increase	Service	Salary Increase
1	12.03%	1	12.25%
2	8.90	2	9.15
3	7.46	3	7.75
4	6.58	4	6.85
5	5.97	5	6.25
6	5.52	6	5.75
7	5.16	7	5.45
8	4.87	8	5.15
9	4.63	9	4.85
10	4.42	10	4.65
11	4.24	11	4.45
12	4.08	12	4.35
13	3.94	13	4.15
14	3.82	14	4.05
15	3.70	15	3.95
16	3.60	16	3.85
17	3.51	17	3.75
18+	3.50	18+	3.75

## Actuarial Basis

### Summary of Plan Provisions - Basic

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.

<b>Plan Year</b>	July 1 through June 30
<b>Eligibility</b>	A public employee who is not covered under the Social Security Act. General exceptions are employees covered by other public funds, certain part-time employees and full-time students under age 23.
<b>Contributions</b>	Shown as a percent of salary: Member: 9.10% of salary; Employer: 11.78% of salary.  Member contributions are "picked up" according to the provisions of Internal Revenue Code 414(h).
<b>Allowable Service</b>	Service during which member contributions were made. May also include certain leaves of absence and military service.
<b>Average Salary</b>	Average of the five highest successive years of annual salary. Average salary is based on all Allowable Service if less than five years.
<b>Salary</b>	Includes amounts deducted for deferred compensation or supplemental retirement plans, net income from fees and sick leave payments funded by the employer. Excludes unused annual leaves and sick leave payments, severance payments, Workers' Compensation benefits and employer-paid flexible spending accounts, cafeteria plans, healthcare expense accounts, day-care expenses, fringe benefits and the cost of insurance coverage.
<b>Retirement</b>	
<u>Normal Retirement Benefit</u>	
<i>Age/Service Requirements</i>	Age 65 and three years of Allowable Service (5 years if hired after June 30, 2010). Proportionate retirement annuity is available at age 65 and one year of allowable Service.
<i>Amount</i>	2.70% of Average Salary for each year of Allowable Service.
<u>Early Retirement</u>	
<i>Age/Service Requirements</i>	Age 55 and three years of Allowable Service (5 years if hired after June 30, 2010). Any age with 30 years of Allowable Service. Rule of 90: Age plus Allowable Service totals 90.
<i>Amount</i>	The greater of (a) or (b): (a) 2.20% of Average Salary for each of the first ten years of Allowable Service and 2.70% of Average Salary for each subsequent year with reduction of 0.25% for each month if the Member is under age 65 at time of retirement and has less than 30 years of Allowable Service or if the Member is under age 62 and has 30 or more years of Allowable Service. No reduction if age plus years of Allowable Service totals 90. (b) 2.70% of Average Salary for each year of Allowable Service assuming augmentation to age 65 at 3.00% per year and actuarial reduction for each month the member is under age 65.

## Actuarial Basis

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### Summary of Plan Provisions - Basic (continued)

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#### **Retirement** (continued)

##### *Form of Payment*

Life annuity with return on death of any balance of contributions over aggregate monthly payments. Actuarially equivalent options are:

25%, 50%, 75% or 100% Joint and Survivor with bounce back feature without additional reduction (option canceled if Member is pre-deceased by beneficiary).

##### *Benefit Increases*

Benefit recipients receive a future annual 1.0% cost-of-living adjustment (COLA) beginning January 1, 2011. 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 18 full months as of December 31 will receive a full increase. Members receiving benefits for at least six full months but less than 18 full months will receive a pro rata increase.

Members retired under laws in effect before July 1, 1973 receive an additional lump sum payment each year. In 1989, this lump sum payment is the greater of \$25 times each full year of Allowable Service or the difference between \$400 times each full year of Allowable Service and the sum of benefits paid from any Minnesota public pension plan plus cash payments from the Social Security Administration for the preceding fiscal year July 1, 1988 through June 30, 1989. In each following year, the lump sum payment will increase by the same percentage increase that is applied to regular annuities paid from the fund. Effective January 1, 2002, annual lump sum payment is divided by 12 and paid as a monthly life annuity in the annuity form elected.

## Actuarial Basis

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### Summary of Plan Provisions - Basic (continued)

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#### **Disability**

##### Disability Benefit

##### *Age/Service Requirement*

Total and permanent disability before normal retirement age with three years of Allowable Service.

##### *Amount*

Normal Retirement benefit based on Allowable Service and Average Salary at disability without reduction for commencement before Normal Retirement Age. Supplemental benefit of \$25 per month payable to the later of the normal retirement age or the five-year anniversary of commencement of disability. The disability benefit is reduced to that amount which, when added to Workers' Compensation, does not exceed the salary the disabled Member received as of the date of the disability or the salary currently payable for the same employment position substantially similar to the one the person held as of the date of the disability, whichever is greater.

If a member becomes disabled prior to July 1, 1997 but did not commence their benefit before July 1, 1997, the benefit payable is calculated under the laws in effect at the time the Member became disabled and an actuarial increase shall be made for the change in the post-retirement interest rates from 5.00% to 6.00%.

Payments stop earlier if disability ceases. If death occurs prior to age 65, or within five years of disability, the surviving spouse can receive a refund or a survivor benefit. Dependent children are entitled to dependent child benefits subject to the 70.00% family maximum. Payments revert to a retirement annuity at normal retirement age. Benefits may be reduced on resumption of partial employment.

##### Form of Payment

Same as for retirement.

##### Benefit Increases

Same as for retirement.

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##### Retirement After Disability

##### *Age/Service Requirement*

Normal retirement age.

##### *Amount*

Any optional annuity continues. Otherwise, the larger of the disability benefit paid before normal retirement age or the normal retirement benefit available at normal retirement age, or an actuarially equivalent optional annuity.

##### Benefit Increases

Same as for retirement.

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## Actuarial Basis

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### Summary of Plan Provisions - Basic (continued)

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#### Death

##### Surviving Spouse Benefit

###### *Age/Service Requirement*

Active Member with 18 months of Allowable Service or while Member is receiving a disability benefit.

###### *Amount*

50.00% of salary averaged over last six months. Family benefit is maximum of 70.00% and minimum of 50.00% of average salary. Benefit paid until spouse's death but no payments while spouse is remarried prior to July 1, 1991.

If a member becomes deceased prior to July 1, 1997 and the beneficiary was not eligible to commence their survivor benefit as of July 1, 1997, the benefit payable is calculated under the laws in effect before July 1, 1997, and an actuarial increase shall be made for the change in the post-retirement interest rates from 5.00% to 6.00%.

Surviving spouse optional annuity may be elected in lieu of this benefit.

###### *Benefit Increases*

Same as for retirement.

##### Surviving Dependent Children's Benefit

###### *Age/Service Requirement*

Active Member with 18 months of Allowable Service or while Member is receiving a disability benefit.

###### *Amount*

10.00% of salary averaged over last six months for each child. Family benefit minimum (including spouse's benefit) of 50.00% of salary and maximum of 70.00% of average salary. Benefits paid until child marries, dies, or attains age 18 (age 22 if full-time student).

If a member becomes deceased prior to July 1, 1997 and the beneficiary was not eligible to commence their survivor benefit before July 1, 1997, the benefit payable is calculated under the laws in effect before July 1, 1997, and an actuarial increase shall be made for the change in the post-retirement interest rates from 5.00% to 6.00%.

###### *Benefit Increases*

Same as for retirement.

##### Surviving Spouse Optional Annuity

###### *Age/Service Requirement*

Member or former Member who dies before retirement benefits commence and other survivor annuity is waived by spouse.

###### *Amount*

Survivor's payment of the 100% joint and survivor benefit the Member could have elected if terminated or an actuarial equivalent term certain annuity. If commencement is prior to age 65 (age 62 if 30 years of service), the benefit is reduced the same as early retirement with half the applicable reduction factor used from age 55 to the actual commencement age. If no surviving spouse, then an actuarial equivalent dependent child benefit is paid to age 20 or for five years if longer.

If a member becomes deceased prior to July 1, 1997 and the beneficiary was not eligible to commence their survivor benefit as of July 1, 1997, the benefit payable is calculated under the laws in effect before July 1, 1997, and an actuarial increase shall be made for the change in the post-retirement interest rates from 5.00% to 6.00%.

###### *Benefit Increases*

Same as for retirement.

## Actuarial Basis

### Summary of Plan Provisions - Basic (continued)

#### **Death** (continued)

##### Refund of Contributions with Interest

<i>Age/Service Requirement</i>	Member dies before receiving any retirement benefits and survivor benefits are not payable.
<i>Amount</i>	The excess of the member's contributions with 6.00% interest until June 30, 2011; 4.00% interest thereafter over any disability or survivor benefits paid.

#### **Termination**

##### Refund of Contributions

<i>Age/Service Requirements</i>	Termination of public service.
<i>Amount</i>	Member's contributions credited with 5% interest compounded annually if termination occurred before May 16, 1989 and 6% interest if termination occurred on or after May 16, 1989. The interest rate was changed to 4% for all crediting on or after July 1, 2011.  A deferred annuity may be elected in lieu of a refund if three or more years of Allowable Service.

##### Deferred Benefit

<i>Age/Service Requirements</i>	Three years of Allowable Service if hired before July 1, 2010. Five years of Allowable Service if hired after June 30, 2010.
<i>Amount</i>	Benefit computed under law in effect at termination and increased by the following "augmentation" percentage compounded annually for terminations prior to 2012:  0.00% before July 1, 1971; 5.00% from July 1, 1971 to January 1, 1981; 3.00% thereafter until the earlier of January 1 of the year following attainment of age 55 and January 1, 2012; 5.00% thereafter until the earlier of the date the annuity begins and January 1, 2012; and 1.00% from January 1, 2012 thereafter.  Members who terminate after 2011 will receive no future augmentation. Members active with a public employer the day prior to the privatization of the employer become vested immediately and receive enhanced augmentation. Amount is payable at a normal or early retirement. Augmentation occurs at the rate of 4.0% compounded annually through the year the Member turns age 55 and 6.0% thereafter until the annuity begins. If privatization occurred prior to January 1, 2007 (or January 1, 2008 for Hutchinson Area Health Care), augmentation occurs at the rate of 5.5% compounded annually through the year the Member turns age 55 and 7.5% thereafter until the annuity begins.  If a member terminated employment prior to July 1, 1997 but was not eligible to commence their pension before July 1, 1997, the benefit payable is calculated under the laws in effect before July 1, 1997 and an actuarial increase shall be made for the change in the post-retirement interest rates from 5.00% to 6.00%. Same as for retirement.
<i>Form of Payment</i>	Same as for retirement.



## Actuarial Basis

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### Summary of Plan Provisions - Basic (continued)

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#### **Termination** (continued)

##### Combined Service Annuity

Members are eligible for combined service benefits if they:

Meet minimum retirement age for each plan participated in and total public service meets the vesting requirements of each plan; or  
Have three or more years of service under PERA and the covered fund(s) (if hired prior to July 1, 2010).

Other requirements for combined service include:

- (a) Member must have at least six months of allowable service credit in each plan worked under.
- (b) Member may not be in receipt of a benefit from another plan.

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**

Post-retirement benefit increases change from 2.5% to 1.0% beginning January 1, 2011. If the accrued liability funding ratio of the plan reaches 90% (on a Market Value of Assets basis), the benefit increase reverts to 2.5%. The requirement for benefit recipients to receive a full increase in benefits changed from 12 full months receiving as of December 31 to 18 full months and the requirement to receive a partial increase in benefits changed from 0 months receiving as of December 31 to 6 months.

The interest credited on member contributions will change from 6% to 4% beginning July 1, 2011.

For vested terminations prior to January 1, 2012, augmentation was changed to 1.0% annually effective January 1, 2012. No augmentation for terminations occurring on or after January 1, 2012.

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## Actuarial Basis

### Summary of Plan Provisions - Coordinated

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.

<b>Plan Year</b>	July 1 through June 30									
<b>Eligibility</b>	A public employee who is covered under the Social Security Act. General exceptions are employees covered by other public funds, certain part-time employees and full-time students under age 23. City managers and persons holding certain elective office positions may choose to become Members.									
<b>Contributions</b>	<p>Shown as a percent of salary:</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;">Date of Increase</th> <th style="text-align: center;">Member</th> <th style="text-align: center;">Employer</th> </tr> </thead> <tbody> <tr> <td>Current</td> <td style="text-align: center;">6.00%</td> <td style="text-align: center;">7.00%</td> </tr> <tr> <td>January 2011</td> <td style="text-align: center;">6.25%</td> <td style="text-align: center;">7.25%</td> </tr> </tbody> </table> <p>Member contributions are "picked up" according to the provisions of Internal Revenue Code 414(h).</p>	Date of Increase	Member	Employer	Current	6.00%	7.00%	January 2011	6.25%	7.25%
Date of Increase	Member	Employer								
Current	6.00%	7.00%								
January 2011	6.25%	7.25%								
<b>Allowable Service</b>	Service during which member contributions are deducted. May also include certain leaves of absence and military service.									
<b>Average Salary</b>	Average of the five highest successive years of annual salary. Average salary is based on all Allowable Service if less than five years.									
<b>Salary</b>	Includes amounts deducted for deferred compensation or supplemental retirement plans, net income from fees and sick leave payments funded by the employer. Excludes unused annual leave and sick leave payments, severance payments, Workers' Compensation benefits and employer-paid flexible spending accounts, cafeteria plans, healthcare expense accounts, day-care expenses, fringe benefits and the cost of insurance coverage.									
<b>Retirement</b>										
<u>Normal Retirement Benefit</u>										
<i>Age/Service Requirements</i>	<p>First hired before July 1, 1989:</p> <p>(a) Age 65 and vested.</p> <p>(b) Proportionate retirement annuity is available at age 65 and one year of Allowable Service.</p>									
<i>Amount</i>	1.70% of Average Salary for each year of Allowable Service.									
<i>Age/Service Requirements</i>	<p>First hired after June 30, 1989:</p> <p>(a) Greater of age 65 or the age eligible for full Social Security retirement benefits but no later than age 66 and vested.</p> <p>(b) Proportionate retirement annuity is available at normal retirement age and one year of Allowable Service.</p>									
<i>Amount</i>	1.70% of Average Salary for each year of Allowable Service.									

## Actuarial Basis

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### Summary of Plan Provisions – Coordinated (continued)

#### Retirement (continued)

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##### Early Retirement

<i>Age/Service Requirements</i>	<p>First hired before July 1, 1989: (a) Age 55 and vested. Any age with 30 years of Allowable Service. Rule of 90: Age plus Allowable Service totals 90.</p> <p>First hired after June 30, 1989: (a) Age 55 and vested.</p>
<i>Amount</i>	<p>First hired before July 1, 1989: The greater of (a) or (b): (a) 1.20% of Average Salary for each of the first ten years of Allowable Service and 1.70% of Average Salary for each subsequent year with reduction of 0.25% for each month if the Member is under age 65 at time of retirement or under 62 if 30 years of Allowable Service. No reduction if age plus years of Allowable Service totals 90. (b) 1.70% of Average Salary for each year of Allowable Service assuming augmentation to age 65 at 3.00% per year and actuarial reduction for each month the member if under age 65.</p> <p>First hired after June 30, 1989: (a) 1.70% of Average Salary for each year of Allowable Service assuming augmentation to normal retirement age at 3.00% per year (2.50% if hired after June 30, 2006) and actuarial reduction for each month the Member is under normal retirement age.</p>
<i>Form of Payment</i>	<p>Life annuity with return on death of any balance of contributions over aggregate monthly payments. Actuarially equivalent options are: 25%, 50%, 75% or 100% Joint and Survivor with bounce back feature without additional reduction (option canceled if Member is pre-deceased by beneficiary).</p>
<i>Benefit Increases</i>	<p>Benefit recipients receive a future annual 1.0% cost-of-living adjustment (COLA) beginning January 1, 2011. If the accrued liability funding ratio reaches 90% (on a Market Value of Assets basis), the benefit increase will revert to 2.5%.</p> <p>A benefit recipient who has been receiving a benefit for at least 18 full months as of December 31 will receive a full increase. Members receiving benefits for at least six full months but less than 18 full months will receive a pro rata increase.</p> <p>Members retired under laws in effect before July 1, 1973 receive an additional lump sum payment each year. In 1989, this lump sum payment is \$25 times each full year of Allowable Service. In each following year, the lump sum payment will increase by the same percentage increase that is applied to regular annuities paid from the fund.</p>

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## Actuarial Basis

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### Summary of Plan Provisions - Coordinated (continued)

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#### Disability

##### Disability Benefit

##### *Age/Service Requirement*

Total and permanent disability before normal retirement age if vested.

##### *Amount*

Normal Retirement benefit based on Allowable Service and Average Salary at disability without reduction for commencement before normal retirement age. The disability benefit is reduced to that amount which, when added to Workers' Compensation, does not exceed the salary the disabled Member received as of the date of the disability or the salary currently payable for the same employment position substantially similar to the one the person held as of the date of the disability, whichever is greater.

If a Member becomes disabled prior to July 1, 1997 but did not commence their benefit before July 1, 1997, the benefit payable is calculated under the laws in effect before July 1, 1997, and an actuarial increase shall be made for the change in the post-retirement interest rates from 5.00% to 6.00%.

Payments stop if disability ceases or death occurs. Payments change to a retirement annuity at normal retirement age. Benefits may be reduced on resumption of partial employment.

##### *Form of Payment*

Same as for retirement.

##### *Benefit Increases*

Same as for retirement.

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#### Retirement After Disability

##### *Age/Service Requirement*

Normal retirement age.

##### *Amount*

Any optional annuity continues. Otherwise, the larger of the disability benefit paid before normal retirement age or the normal retirement benefit available at normal retirement age, or an actuarially equivalent optional annuity.

##### *Benefit Increases*

Same as for retirement.

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#### Death

##### Surviving Spouse Optional Annuity

##### *Age/Service Requirement*

Member or former Member who dies before retirement or disability benefits commence.

##### *Amount*

Survivor's payment of the 100% joint and survivor benefit the Member could have elected if terminated or an actuarial equivalent term certain annuity. If commencement is prior to age 65 (age 62 if 30 years of service), the benefit is reduced the same as early retirement with half the applicable reduction factor used from age 55 to the actual commencement age. If no surviving spouse, then an actuarial equivalent dependent child benefit is paid to age 20 or for five years if longer.

If a member becomes deceased prior to July 1, 1997 and the beneficiary was not eligible to commence their survivor benefit before July 1, 1997, the benefit payable is calculated under the laws in effect before July 1, 1997, and an actuarial increase shall be made for the change in the post-retirement interest rates from 5.00% to 6.00%.

##### *Benefit Increases*

Same as for retirement.

## Actuarial Basis

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### Summary of Plan Provisions - Coordinated (continued)

#### Refund of Contributions

##### *Age/Service Requirement*

Member dies before receiving any retirement benefits and survivor benefits are not payable.

##### *Amount*

The excess of the Member's contributions with 6.00% interest until June 30, 2011; 4.00% interest thereafter over any disability or survivor benefits paid.

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### Termination

#### Refund of Contributions

##### *Age/Service Requirements*

Termination of public service.

##### *Amount*

Member's contributions credited with 5% interest compounded annually if termination occurred before May 16, 1989 and 6% interest if termination occurred on or after May 16, 1989. The interest rate was changed to 4% for all crediting on or after July 1, 2011.

A deferred annuity may be elected in lieu of a refund if vested.

#### Deferred Benefit

##### *Age/Service Requirements*

Fully vested.

##### *Amount*

Benefit computed under law in effect at termination and increased by the following percentage compounded annually for terminations prior to 2012:

0.00% before July 1, 1971;

5.00% from July 1, 1971 to January 1, 1981;

3.00% (2.50% if hired after June 30, 2006) thereafter until the earlier of January 1 of the year following attainment of age 55 and January 1, 2012;

5.00% (2.50% if hired after June 30, 2006) thereafter until the earlier of the date the annuity begins and January 1, 2012; and 1.00% from January 1, 2012 thereafter.

Members who terminate after 2011 will receive no future augmentation. Members active with a public employer the day prior to the privatization of the employer become vested immediately and receive enhanced augmentation. Amount is payable at a normal or early retirement. Augmentation occurs at the rate of 4.0% compounded annually through the year the Member turns age 55 and 6.0% thereafter until the annuity begins. If privatization occurred prior to January 1, 2007 (or January 1, 2008 for Hutchinson Area Health Care), augmentation occurs at the rate of 5.5% compounded annually through the year the Member turns age 55 and 7.5% thereafter until the annuity begins.

If a member terminated employment prior to July 1, 1997 but was not eligible to commence their pension before July 1, 1997, the benefit payable is calculated under the laws in effect before July 1, 1997 and an actuarial increase shall be made for the change in the post-retirement interest rates from 5.00% to 6.00%. Same as for retirement.

##### *Form of Payment*

Same as for retirement.

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## Actuarial Basis

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### Summary of Plan Provisions - Coordinated (continued)

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#### Combined Service Annuity

Members are eligible for combined service benefits if they:

Meet minimum retirement age for each plan participated in and total public service meets the vesting requirements of each plan; or  
Have three or more years of service under PERA and the covered fund(s) (if hired prior to July 1, 2010).

Other requirements for combined service include:

- (a) Member must have at least six months of allowable service credit in each plan worked under.
- (b) Member may not be in receipt of a benefit from another plan.

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.

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#### **Changes in Plan Provisions**

Post-retirement benefit increases change from 2.5% to 1.0% beginning January 1, 2011. If the accrued liability funding ratio of the plan reaches 90% (on a Market Value of Assets basis), the benefit increase reverts to 2.5%. The requirement for benefit recipients to receive a full increase in benefits changed from 12 full months receiving as of December 31 to 18 full months and the requirement to receive a partial increase in benefits changed from 0 months receiving as of December 31 to 6 months.

Vesting for Members hired after June 30, 2010 was increased to five years from three years.

The interest credited on Member contributions will change from 6% to 4% beginning July 1, 2011.

For vested terminations prior to January 1, 2012, augmentation was changed to 1.0% annually effective January 1, 2012. No augmentation will be granted for terminations occurring on or after January 1, 2012.

The Member contribution will increase from 6.00% of salary to 6.25% effective January 1, 2011.

The employer contribution will increase from 7.0% of salary to 7.25% effective January 1, 2011.

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## Summary of All Changes

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The following changes in amortization period, plan provisions and actuarial assumptions were recognized as of July 1, 2010:

### Plan Changes

Post-retirement benefit increases change from 2.5% to 1.0% beginning January 1, 2011 unless the accrued liability funding ratio of the plan reaches 90% (on a Market Value of Assets basis).

Vesting was changed from three years to five years for employees hired after June 30, 2010.

The increase on deferred benefits changes from 3% (5% if 55 or older and hired before July 1, 2006 or 2.5% if hired after June 30, 2006) to 1% after December 31, 2011 for all current deferred annuitants and 0% after December 31, 2011 for new deferred annuitants.

The interest earned on member contributions changes from 6.0% to 4.0% effective as of July 1, 2011.

Effective July 1, 2010, Member contributions rates are increased from 6.00% to 6.125% of salary.

Effective July 1, 2010, Employer contribution rates are increased from 7.00% to 7.125% of salary.

### Assumption Changes

Healthy pre-retirement mortality was changed from 1983 Group Annuity Mortality set back eight years for males and set back seven years for females to RP 2000 non-annuitant generational mortality, white collar adjustment, set forward five years for males and set back three years for females. Healthy post-retirement mortality was changed from 1983 Group Annuity mortality set back one year for males and set back one year for females to RP 2000 annuitant generational mortality, white collar adjustment, with no age set backs for males and set back two years for females.

Disabled retired mortality was changed from a table based on 1965 Railroad Retirement Board (RRB) rates to RP 2000 disabled retiree mortality with setback four years for males and set forward five years for females.

The marital status assumption changed for active males from 85% to 75% and for active females from 65% to 70%. The beneficiary age difference was changed from four years younger to three years younger for active males and from four years older to two years older for active females. The form of benefit assumption for active male members was changed from 30% electing the 50% J&S form to 15% and from 10% electing the 25% J&S form to 5%.

Retirement rates were changed at several ages to more closely reflect actual retirement experience.

Future salary growth assumption changed from an age based table to a service based table.

The payroll growth assumption changed from 4.5% to 4.0%.

## Summary of All Changes

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### Financial Impact Reported by Fund Actuary

The information in the table below was prepared by Fund actuary, the Fund actuary, as part of the regular actuarial valuation report. We have provided this for informational purposes only.

	Before Plan and Assumption Changes	Reflecting Plan Changes	Reflecting Plan and Assumption Changes
Normal Cost Rate, % of Pay	7.6%	6.6%	6.5%
Amortization of Unfunded Accrued Liability (% of Pay)	9.0	5.2	5.8
Expenses (% of Pay)	0.2	0.2	0.2
Total Required Contribution (% of Pay)	16.8	12.0	12.5
Accrued Funding Ratio	66.6	77.5	76.4
Projected Benefit Funding Ratio	87.4	104.9	102.8
Unfunded Accrued Liability (in billions)	\$6.6	\$3.8	\$4.1

### COLA Discussion

A very important assumption affecting the valuation results is the expectation of future post-retirement benefit increases. The plan's funded ratio (on a market value of assets basis and assuming 1.0% benefit increases) is currently 66.0%. If the actuarial funded ratio of the plan reaches 90% (on a market value of asset basis) in the future, post-retirement increases will revert to the 2.5% level.

Fund actuary performed a projection of liabilities and assets, using the 2010 valuation results as a baseline (including a 1.0% benefit increase assumption) and assuming future experience follows the valuation assumptions. The projection indicates that, without contribution increases, changes in benefits or assumptions, or favorable experience, the funded status of this plan is not expected to reach 90%. We concur with that analysis and agree with its conclusion.

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**Public Employees Retirement Association of Minnesota  
Active Members as of June 30, 2010**

**Years of Service**

<u>Age</u>	<u>&lt;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>	<u>ALL</u>
<25	0	0	0	0	0	0	0	0	0
25-29	0	0	0	0	0	0	0	0	0
30-34	0	0	0	0	0	0	0	0	0
35-39	0	0	0	0	0	0	0	0	0
40-44	0	0	0	0	0	0	0	0	0
45-49	0	0	0	0	0	0	0	0	0
50-54	0	0	0	0	0	0	0	0	0
55-59	0	0	0	0	0	0	0	0	0
60-64	0	0	0	0	0	0	0	7	7
65+	0	0	0	0	0	0	0	16	16
ALL	0	0	0	0	0	0	0	23	23

**Average Annual Earnings**

**Years of Service**

<u>Age</u>	<u>&lt;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>	<u>ALL</u>
<25	0	0	0	0	0	0	0	0	0
25-29	0	0	0	0	0	0	0	0	0
30-34	0	0	0	0	0	0	0	0	0
35-39	0	0	0	0	0	0	0	0	0
40-44	0	0	0	0	0	0	0	0	0
45-49	0	0	0	0	0	0	0	0	0
50-54	0	0	0	0	0	0	0	0	0
55-59	0	0	0	0	0	0	0	0	0
60-64	0	0	0	0	0	0	0	43808	43808
65+	0	0	0	0	0	0	0	55246	55246
ALL	0	0	0	0	0	0	0	51765	51764

**Public Employees Retirement Association of Minnesota  
Active Members as of June 30, 2010**

**Years of Service**

<u>Age</u>	<u>&lt;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>	<u>ALL</u>
<25	2116	2083	45	3	0	0	0	0	4247
25-29	2078	6101	1340	33	0	0	0	0	9552
30-34	1237	4809	3356	927	11	0	0	0	10340
35-39	1095	4423	3250	2510	479	12	0	0	11769
40-44	1263	5276	4075	3086	1847	686	23	0	16256
45-49	1293	5308	5171	4159	2614	2202	938	64	21749
50-54	902	4003	4757	4893	3666	2932	1956	1474	24583
55-59	579	2743	3427	3667	3773	3300	2101	2946	22536
60-64	348	1693	1979	1864	2146	2310	1431	1846	13617
65+	258	1266	1394	820	616	581	349	435	5719
ALL	11169	37705	28794	21962	15152	12023	6798	6765	140368

**Average Annual Earnings**

**Years of Service**

<u>Age</u>	<u>&lt;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>	<u>ALL</u>
<25	10095	18215	23531	21000	0	0	0	0	14228
25-29	14277	27391	33997	36042	0	0	0	0	25495
30-34	14789	30701	40672	43142	45697	0	0	0	33165
35-39	14117	27640	40949	48916	47185	46403	0	0	35409
40-44	13176	24692	34593	46104	52261	51233	48673	0	34630
45-49	12621	23404	30112	38553	48959	55530	53413	51239	34955
50-54	12747	24826	30430	34775	41220	52188	58271	54784	37613
55-59	13987	25619	30763	34740	38074	46396	55163	59635	39915
60-64	10636	21329	29389	34837	37587	43286	50665	60330	38733
65+	7297	11911	17251	25468	30895	38067	40990	49211	24262
ALL	12796	25203	32828	38704	42375	48757	54119	58018	34745

**Public Employees Retirement Association of Minnesota  
Active Members as of June 30, 2010**

**Years of Service**

<u>Age</u>	<u>&lt;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>	<u>ALL</u>
<25	2,116	2,083	45	3	0	0	0	0	4,247
25-29	2,078	6,101	1,340	33	0	0	0	0	9,552
30-34	1,237	4,809	3,356	927	11	0	0	0	10,340
35-39	1,095	4,423	3,250	2,510	479	12	0	0	11,769
40-44	1,263	5,276	4,075	3,086	1,847	686	23	0	16,256
45-49	1,293	5,308	5,171	4,159	2,614	2,202	938	64	21,749
50-54	902	4,003	4,757	4,893	3,666	2,932	1,956	1,474	24,583
55-59	579	2,743	3,427	3,667	3,773	3,300	2,101	2,946	22,536
60-64	348	1,693	1,979	1,864	2,146	2,310	1,431	1,853	13,624
65+	258	1,266	1,394	820	616	581	349	451	5,735
ALL	11,169	37,705	28,794	21,962	15,152	12,023	6,798	6,788	140,391

**Average Annual Earnings**

**Years of Service**

<u>Age</u>	<u>&lt;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>	<u>ALL</u>
<25	10,095	18,215	23,531	21,000	0	0	0	0	14,228
25-29	14,277	27,391	33,997	36,042	0	0	0	0	25,495
30-34	14,789	30,701	40,672	43,142	45,697	0	0	0	33,165
35-39	14,117	27,640	40,949	48,916	47,185	46,403	0	0	35,409
40-44	13,176	24,692	34,593	46,104	52,261	51,233	48,673	0	34,630
45-49	12,621	23,404	30,112	38,553	48,959	55,530	53,413	51,239	34,955
50-54	12,747	24,826	30,430	34,775	41,220	52,188	58,271	54,784	37,613
55-59	13,987	25,619	30,763	34,740	38,074	46,396	55,163	59,635	39,915
60-64	10,636	21,329	29,389	34,837	37,587	43,286	50,665	60,268	38,735
65+	7,297	11,911	17,251	25,468	30,895	38,067	40,990	49,425	24,348
ALL	12,796	25,203	32,828	38,704	42,375	48,757	54,119	57,997	34,749

## Public Employees Retirement Association of Minnesota

## Service Retirements

Retired as of June 30, 2010

Age	Years In Thousands							ALL
	<1	1-4	5-9	10-14	15-19	20-24	25+	
<50	0	0	0	0	0	0	0	0
50-54	0	0	0	0	0	0	0	0
55-59	0	0	0	1	0	0	0	1
60-64	1	15	94	11	1	0	0	122
65-69	11	56	188	337	3	1	0	596
70-74	3	18	145	532	349	14	0	1061
75-79	0	4	36	311	715	274	2	1342
80-84	0	0	6	64	568	672	229	1539
85+	0	0	2	9	110	669	1503	2293
ALL	15	93	471	1265	1746	1630	1734	6954

Average Annual Benefit

Age	Years In Thousands							ALL
	<1	1-4	5-9	10-14	15-19	20-24	25+	
<50	0	0	0	0	0	0	0	0
50-54	0	0	0	0	0	0	0	0
55-59	0	0	0	25083	0	0	0	25083
60-64	31904	28179	39625	24092	36311	0	0	36726
65-69	38388	32025	36719	40373	44333	23018	0	38390
70-74	21814	30961	29859	40342	45417	31454	0	40249
75-79	0	16447	31300	30056	43646	38186	42668	38968
80-84	0	0	32486	29573	34127	35606	47925	36630
85+	0	0	19172	30778	33373	29480	29376	29594
ALL	34640	30528	34644	37055	40253	33482	31840	35464

## Public Employees Retirement Association of Minnesota

## Survivors

Since Death as of June 30, 2010

Age	Years In Thousands							ALL
	<1	1-4	5-9	10-14	15-19	20-24	25+	
<50	0	0	2	1	4	1	1	9
50-54	0	1	2	1	1	1	0	6
55-59	1	3	3	3	2	4	2	18
60-64	0	9	10	6	7	7	1	40
65-69	3	31	21	12	22	10	18	117
70-74	10	54	54	41	32	19	36	246
75-79	26	69	94	73	56	42	49	409
80-84	33	103	129	120	105	80	96	666
85+	30	140	178	163	185	137	301	1134
ALL	103	410	493	420	414	301	504	2645

Average Annual Benefit

Age	Years In Thousands							ALL
	<1	1-4	5-9	10-14	15-19	20-24	25+	
<50	0	0	17314	4470	19670	31586	20805	18907
50-54	0	23387	7639	15170	8619	35066	0	16253
55-59	2662	11206	10226	14210	51719	31332	19728	20989
60-64	0	18910	28172	36577	35556	17168	24243	26617
65-69	27483	24163	28414	30514	27712	30853	21848	26545
70-74	22768	31984	30153	35475	29759	35647	25263	30799
75-79	28186	28628	30443	31000	30619	28542	23436	29082
80-84	26323	29921	32160	30485	28107	29256	20559	28562
85+	28512	23856	23083	24914	19789	22585	13611	20473
ALL	26889	27074	27801	28772	24947	26350	17075	25151

## Public Employees Retirement Association of Minnesota

**Disability Retirements**  
**Disabled as of June 30, 2010**

**Years In Thousands**

<u>Age</u>	<u>&lt;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>	<u>ALL</u>
<50	0	0	0	0	0	0	0	0
50-54	0	0	0	0	0	0	0	0
55-59	0	0	0	0	0	0	0	0
60-64	0	0	2	4	0	0	1	7
65-69	0	0	0	0	0	0	0	0
70-74	0	0	0	0	0	0	0	0
75-79	0	0	0	0	0	0	0	0
80-84	0	0	0	0	0	0	0	0
85+	0	0	0	0	0	0	0	0
ALL	0	0	2	4	0	0	1	7

**Average Annual Benefit**

**Years In Thousands**

<u>Age</u>	<u>&lt;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>	<u>ALL</u>
<50	0	0	0	0	0	0	0	0
50-54	0	0	0	0	0	0	0	0
55-59	0	0	0	0	0	0	0	0
60-64	0	0	34405	57942	0	0	12276	44693
65-69	0	0	0	0	0	0	0	0
70-74	0	0	0	0	0	0	0	0
75-79	0	0	0	0	0	0	0	0
80-84	0	0	0	0	0	0	0	0
85+	0	0	0	0	0	0	0	0
ALL	0	0	34405	57942	0	0	12276	44693

**COORDINATED**

**Public Employees Retirement Association of Minnesota**

**Service Retirements**  
**Retired as of June 30, 2010**

**Years In Thousands**

<u>Age</u>	<u>&lt;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>	<u>ALL</u>
<50	1	0	0	0	0	0	0	1
50-54	29	22	1	0	0	0	0	52
55-59	637	1717	62	2	0	0	0	2418
60-64	1381	4487	2667	24	0	0	0	8559
65-69	1062	5420	4660	2000	1	0	0	13143
70-74	178	1284	4813	3845	947	2	0	11069
75-79	81	367	1008	3950	2268	446	0	8120
80-84	15	148	335	796	2648	1270	86	5298
85+	7	37	115	187	622	1709	1027	3704
ALL	3391	13482	13661	10804	6486	3427	1113	52364

**Average Annual Benefit**

**Years In Thousands**

<u>Age</u>	<u>&lt;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>	<u>ALL</u>
<50	12104	0	0	0	0	0	0	12104
50-54	12181	8566	14449	0	0	0	0	10695
55-59	14173	10101	10443	14745	0	0	0	11186
60-64	14736	12217	9695	13607	0	0	0	11841
65-69	12258	9799	9978	6653	19001	0	0	9583
70-74	8544	8476	8428	8541	7857	21253	0	8428
75-79	5403	5041	6466	9437	10382	5726	0	8889
80-84	10083	4278	4130	7323	10939	9708	9884	9464
85+	3631	3546	4292	4092	8994	8697	9509	8541
ALL	13240	10306	8928	8364	10108	8692	9537	9589

**COORDINATED**

**Public Employees Retirement Association of Minnesota**

**Survivors**

**Since Death as of June 30, 2010**

<u>Age</u>	<u>Years In Thousands</u>							
	<u>&lt;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>	<u>ALL</u>
<50	33	96	54	35	15	10	0	243
50-54	12	68	41	19	10	4	0	154
55-59	32	141	100	35	17	5	2	332
60-64	49	174	127	51	15	9	1	426
65-69	36	175	143	81	42	16	3	496
70-74	53	138	169	113	66	29	3	571
75-79	46	155	176	136	85	56	4	658
80-84	57	163	194	135	112	80	23	764
85+	33	168	185	153	137	81	61	818
ALL	351	1278	1189	758	499	290	97	4462

**Average Annual Benefit**

<u>Age</u>	<u>Years In Thousands</u>							
	<u>&lt;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>	<u>ALL</u>
<50	8991	6447	6026	8253	5749	8795	0	7012
50-54	14035	8169	6925	7181	9161	3693	0	8121
55-59	10437	10107	10098	10030	12013	5812	19034	10214
60-64	8184	11247	8906	11588	13747	6907	6321	10222
65-69	7647	10085	8568	9867	8872	7942	5383	9234
70-74	9519	7504	8047	9417	9651	8123	7372	8509
75-79	8366	9865	9648	9877	9392	7838	6440	9450
80-84	7059	9678	9284	8932	9799	9851	6519	9191
85+	7364	8565	8947	7931	8595	8693	6880	8376
ALL	8575	9313	8822	9225	9361	8578	6990	9016



**COORDINATED**

**Public Employees Retirement Association of Minnesota**

**Disability Retirements**  
**Disabled as of June 30, 2010**

**Years In Thousands**

<u>Age</u>	<u>&lt;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>	<u>ALL</u>
<50	18	78	53	6	8	0	0	163
50-54	26	129	113	45	21	4	0	338
55-59	42	253	180	95	35	7	2	614
60-64	44	299	293	136	36	17	2	827
65-69	3	25	38	18	4	0	0	88
70-74	0	0	0	0	0	0	0	0
75-79	0	0	0	0	0	0	0	0
80-84	0	0	0	0	0	0	0	0
85+	0	0	0	0	0	0	0	0
ALL	133	784	677	300	104	28	4	2030

**Average Annual Benefit**

**Years In Thousands**

<u>Age</u>	<u>&lt;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>	<u>ALL</u>
<50	8850	7074	5847	4561	6096	0	0	6730
50-54	10457	9927	8804	5900	6411	6349	0	8795
55-59	13531	11874	10751	10755	9104	8924	4190	11268
60-64	11658	12592	11382	10576	10612	8829	6524	11603
65-69	6215	8593	10121	10626	4960	0	0	9422
70-74	0	0	0	0	0	0	0	0
75-79	0	0	0	0	0	0	0	0
80-84	0	0	0	0	0	0	0	0
85+	0	0	0	0	0	0	0	0
ALL	11511	11245	10279	9813	8691	8498	5357	10548

## Public Employees Retirement Association of Minnesota

## Service Retirements

Retired as of June 30, 2010

## Years In Thousands

Age	<1	1-4	5-9	10-14	15-19	20-24	25+	ALL
<50	1	0	0	0	0	0	0	1
50-54	29	22	1	0	0	0	0	52
55-59	637	1717	62	3	0	0	0	2419
60-64	1382	4502	2761	35	1	0	0	8681
65-69	1073	5476	4848	2337	4	1	0	13739
70-74	181	1302	4958	4377	1296	16	0	12130
75-79	81	371	1044	4261	2983	720	2	9462
80-84	15	148	341	860	3216	1942	315	6837
85+	7	37	117	196	732	2378	2530	5997
ALL	3406	13575	14132	12069	8232	5057	2847	59318

Average Annual Benefit

## Years In Thousands

Age	<1	1-4	5-9	10-14	15-19	20-24	25+	ALL
<50	12104	0	0	0	0	0	0	12104
50-54	12181	8566	14449	0	0	0	0	10695
55-59	14173	10101	10443	18191	0	0	0	11191
60-64	14748	12270	10713	16902	36311	0	0	12190
65-69	12525	10026	11014	11515	38000	23018	0	10832
70-74	8763	8786	9054	12406	17971	30178	0	11211
75-79	5403	5163	7322	10941	18355	18078	42668	13155
80-84	10083	4278	4628	8978	15034	18669	37539	15579
85+	3631	3546	4546	5317	12657	14543	21311	16590
ALL	13334	10444	9785	11371	16501	16682	23120	12622

## Public Employees Retirement Association of Minnesota

## Survivors

Since Death as of June 30, 2010

Age	Years In Thousands							ALL
	<1	1-4	5-9	10-14	15-19	20-24	25+	
<50	33	96	56	36	19	11	1	252
50-54	12	69	43	20	11	5	0	160
55-59	33	144	103	38	19	9	4	350
60-64	49	183	137	57	22	16	2	466
65-69	39	206	164	93	64	26	21	613
70-74	63	192	223	154	98	48	39	817
75-79	72	224	270	209	141	98	53	1067
80-84	90	266	323	255	217	160	119	1430
85+	63	308	363	316	322	218	362	1952
ALL	454	1688	1682	1178	913	591	601	7107

Average Annual Benefit

Age	Years In Thousands							ALL
	<1	1-4	5-9	10-14	15-19	20-24	25+	
<50	8991	6447	6429	8147	8679	10866	20805	7436
50-54	14035	8389	6958	7580	9111	9967	0	8425
55-59	10201	10129	10101	10360	16192	17154	19381	10768
60-64	8184	11623	10312	14218	20686	11396	15282	11629
65-69	9172	12203	11109	12531	15348	16753	19495	12538
70-74	11622	14389	13400	16354	16216	19017	23886	15220
75-79	15523	15644	16887	17254	17822	16711	22153	16975
80-84	14122	17516	18420	19074	18657	19553	17845	18212
85+	17434	15515	15878	16691	15026	17423	12476	15403
ALL	12729	13626	14384	16194	16428	17629	15447	15020

## Public Employees Retirement Association of Minnesota

**Disability Retirements**  
**Disabled as of June 30, 2010**

**Years In Thousands**

<u>Age</u>	<u>&lt;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>	<u>ALL</u>
<50	18	78	53	6	8	0	0	163
50-54	26	129	113	45	21	4	0	338
55-59	42	253	180	95	35	7	2	614
60-64	44	299	295	140	36	17	3	834
65-69	3	25	38	18	4	0	0	88
70-74	0	0	0	0	0	0	0	0
75-79	0	0	0	0	0	0	0	0
80-84	0	0	0	0	0	0	0	0
85+	0	0	0	0	0	0	0	0
ALL	133	784	679	304	104	28	5	2037

**Average Annual Benefit**

**Years In Thousands**

<u>Age</u>	<u>&lt;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>	<u>ALL</u>
<50	8850	7074	5847	4561	6096	0	0	6730
50-54	10457	9927	8804	5900	6411	6349	0	8795
55-59	13531	11874	10751	10755	9104	8924	4190	11268
60-64	11658	12592	11538	11929	10612	8829	8441	11880
65-69	6215	8593	10121	10626	4960	0	0	9422
70-74	0	0	0	0	0	0	0	0
75-79	0	0	0	0	0	0	0	0
80-84	0	0	0	0	0	0	0	0
85+	0	0	0	0	0	0	0	0
ALL	11511	11245	10350	10446	8691	8498	6740	10665