

**PUBLIC EMPLOYEES'
RETIREMENT SYSTEM
of the
STATE OF MONTANA**

**ACTUARIAL VALUATION
as of June 30, 2008**

Prepared by

Mark O. Johnson, FSA, MAAA
Consulting Actuary

and

Patricia Ann Kahle, FSA, MAAA, EA
Consulting Actuary



111 SW Fifth Avenue
Suite 3700
Portland, OR 97204
USA

Tel +1 503 227 0634
Fax +1 503 227 7956

milliman.com

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Retirement Board
Public Employees' Retirement Administration
State of Montana

Dear Members of the Board:

At your request, we have performed an actuarial valuation of the Montana Public Employees' Retirement System as of June 30, 2008. Details about the actuarial valuation are contained in the following report. This report reflects the benefit provisions and contribution rates in effect on the valuation date.

Actuarial computations presented in this report are for purposes of analyzing the sufficiency of future contributions. Actuarial computations under GASB Statement No. 25 are for purposes of fulfilling financial accounting requirements. The computations in this report have been made on a basis consistent with our understanding of the Retirement Board's funding policies and GASB Statement No. 25. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, different determinations may be needed for other purposes.

Milliman's work product was prepared exclusively for MPERA for a specific and limited purpose. It is a complex, technical analysis that assumes a high level of knowledge concerning MPERA's operations, and uses MPERA's data, which Milliman has not audited. It is not for the use or benefit of any third party for any purpose. Any third party recipient of Milliman's work product who desires professional guidance should not rely upon Milliman's work product, but should engage qualified professionals for advice appropriate to its own specific needs.

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Respectfully submitted,

Mark O. Johnson, FSA, MAAA
Consulting Actuary

Patricia Ann Kahle, FSA, MAAA, EA
Consulting Actuary

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**MONTANA PUBLIC EMPLOYEES' RETIREMENT SYSTEM
ACTUARIAL VALUATION AS OF JUNE 30, 2008**

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**MONTANA PUBLIC EMPLOYEES' RETIREMENT SYSTEM
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**SECTION 1
SCOPE OF THE REPORT**

This report presents the results of our actuarial valuation of the System as of June 30, 2008. Actuarial computations presented in this report are for purposes of analyzing the sufficiency of future contributions.

In reading the Actuarial Certification in Section 2, please pay particular attention to the guidelines employed in the preparation of this report. We also comment on the sources and reliability of both the data and the actuarial assumptions upon which our findings depend. Those comments are the basis for our certification that this report is complete and accurate to the best of our knowledge and belief.

A summary of the findings resulting from this valuation is presented in Section 3 of the report and the underlying calculations are summarized in more detail in Section 4.

All of the calculations of the valuation were carried out using certain assumptions as to the future experience of the System in matters affecting the actuarial cost. Appendix A summarizes the most important of these assumptions and describes the actuarial methods used to calculate costs.

Appendix B outlines the benefit provisions of the System.

The membership data which were supplied to us are summarized in Appendix C.

MONTANA PUBLIC EMPLOYEES' RETIREMENT SYSTEM
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SECTION 2
ACTUARIAL CERTIFICATION

To the best of our knowledge and belief, this report is complete and accurate and contains sufficient information to fully and fairly disclose the funded condition of the Public Employees' Retirement System as of June 30, 2008.

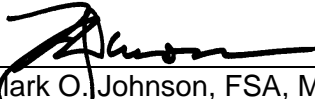
In preparing the valuation, we relied upon the financial information, membership data, and benefit provisions furnished by the System. Although we did not audit this data, we compared the data for this and the prior valuation and tested for reasonableness. Based on these tests, we believe the data to be sufficiently accurate for the purposes of our calculations. It should be noted that if any data or other information is inaccurate or incomplete, our calculations may need to be revised.

The Retirement Board has sole authority to determine the actuarial assumptions and methods used for the valuation of the System. The Board adopted all of the actuarial methods and assumptions used in the 2008 valuation.

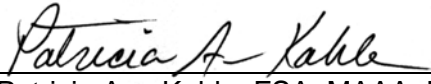
The findings have been determined according to actuarial assumptions and methods that were chosen on the basis of recent experience of the System and of current expectations concerning future economic conditions. In our opinion, the assumptions used in the actuarial valuation are appropriate for purposes of the valuation, are internally consistent, and reflect reasonable expectations. The assumptions represent our best estimate of future conditions affecting the System. Nevertheless, the emerging costs of the System will vary from those presented in this report to the extent that actual experience differs from that projected by the assumptions.

The actuarial valuation was prepared in accordance with generally recognized and accepted actuarial principles and practices which are consistent with the applicable Standards of Practice adopted by the Actuarial Standards Board of the American Academy of Actuaries. In addition, the assumptions and methods used meet the parameters set for disclosures by Governmental Accounting Standards Board Statement No. 25.

The undersigned are independent actuaries, Fellows of the Society of Actuaries, Members of the American Academy of Actuaries, and experienced in performing valuations for large public employee retirement systems.



Mark O. Johnson, FSA, MAAA
Consulting Actuary



Patricia Ann Kahle, FSA, MAAA, EA
Consulting Actuary

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**SECTION 3
SUMMARY OF FINDINGS AND ANALYSIS OF THE FUNDING LEVEL**

The costs of a retirement system are not determined by the actuary. The ultimate costs of a system are determined by adding all of the benefits and expenses that are paid, and subtracting all investment earnings. These costs cannot be determined exactly until the last member or beneficiary has received the final benefit payment due.

The purpose of an actuarial valuation is to provide a timely best estimate of the ultimate costs in order to allocate them to the appropriate generation of members and taxpayers. The ideal goal is for contributions to remain essentially a constant percentage of covered payroll as long as the assumptions and methods reflect the emerging experience of the system and its members with reasonable accuracy.

Membership Data

We have developed the following comparisons between the membership in this and the prior actuarial valuations:

	<u>June 30, 2008</u>	<u>June 30, 2007</u>
Number of Members		
Retirees and Beneficiaries	16,627	16,137
Vested Terminated	2,579	2,576
Non-vested Terminated*	6,268	6,401
Active	<u>28,293</u>	<u>27,977</u>
Total Membership	53,767	53,091

* Includes 3 members with a zero account balance in 2007 and 3 members with a zero account balance in 2008.

More detailed membership statistics are shown in Appendix C.

Determination of Normal Cost

The **Normal Cost** represents the cost assigned to a member for a given year such that it would meet the continuing costs of that particular benefit, if contributed each year starting with the date of membership. The Entry Age Actuarial Cost Method is designed to produce a Normal Cost that remains a level percentage of salaries, so it is best expressed as a rate.

The following chart shows the Normal Cost from the 2007 valuation compared to the Normal Cost in this valuation. **TABLE 1** provides more details on the Normal Cost.

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	2008 Actuarial Valuation	2007 Actuarial Valuation
Normal Cost Rate		
Service Retirement	9.15%	9.21%
Disability Retirement	0.31	0.32
Death	0.53	0.54
Withdrawal	2.14	2.15
Total Normal Cost Rate	12.13%	12.22%

The Normal Cost Rate for this group of active members is expected to remain fairly stable as long as the benefits are not amended, experience emerges as assumed, and the actuarial assumptions are not changed. The Normal Cost Rate for members eligible after July 1, 2008 is expected to be 11.02% of payroll. The average Normal Cost Rate is expected to decline over the next generation of active members.

Determination of the Actuarial Liability

The next step in the actuarial valuation process is to project all future benefit payments from the System for current members and retirees. The level of benefits currently being paid is known, but assumptions are needed to estimate how long they will be paid, and the amount and timing of the payment of future benefits for active and inactive members who are not currently receiving payments.

The summation of the discounted values of all of the projected benefit payments for all current members, at the assumed rate of return, is called the **Actuarial Present Value of Projected Benefits**. Details are shown in **TABLE 2** and summarized below.

(\$000)	2008 Actuarial Valuation	2007 Actuarial Valuation
Actuarial Present Value of Projected Benefits		
Retired Members	\$ 2,091,155	\$ 1,916,574
Inactive Members	140,993	134,533
Active Members	3,179,269	3,026,268
Total PVPB	\$ 5,411,417	\$ 5,077,375

The **Actuarial Present Value of Future Normal Costs** is the value of all remaining Normal Costs expected to be received over the future working lifetime of current active members. The Actuarial Present Value of Future Normal Costs is subtracted from the Actuarial Present Value of Projected Benefits to arrive at the **Actuarial Liability**, the assets that would exist if the current Normal Cost Rate had been paid for all members since entry into the System, and if all actuarial assumptions had been realized. The following is a summary from **TABLE 2**.

MONTANA PUBLIC EMPLOYEES' RETIREMENT SYSTEM
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(\$000)	2008 Actuarial Valuation	2007 Actuarial Valuation
Actuarial Present Value of:		
Projected Benefits	\$ 5,411,417	\$ 5,077,375
Future Normal Costs	906,674	876,124
Actuarial Liability	\$ 4,504,743	\$ 4,201,251

Development of Actuarial Value of Assets

The next step in the valuation process is to calculate the **Actuarial Value of Assets** that will be used to determine the funding status of the System. The market value of assets was reported to us as of June 30, 2008. Details from the System's financial statements are contained in **TABLE 3** and **TABLE 4**.

Because the underlying calculations in the actuarial valuation are long-term in nature, it is advantageous to smooth out short-term fluctuations in the market value of assets. The asset smoothing method projects an Expected Value of Assets using the assumed rate of investment return, then recognizes the difference between the Expected Value and the Market Value over a four-year period. The calculation of the Actuarial Value of Assets is shown in **TABLE 5** and summarized below.

(\$000)	Gain or (Loss)	Reserve Factor	Smoothing Reserve	Value of Assets
Market Value on June 30, 2008				\$ 3,852,532
2005-06	32,120	25%	8,030	
2006-07	347,249	50%	173,625	
2007-08	(525,906)	75%	(394,430)	
Smoothing Reserve			\$ (212,775)	212,775
Actuarial Value of Assets (Market Value less Smoothing Reserve)				\$ 4,065,307

Due to the asset smoothing method, there is \$212.8 million of net investment losses that have not yet been recognized (the difference between the Actuarial and Market Value of Assets). The current negative balance of the Smoothing Reserve will gradually be reflected in the Actuarial Value of Assets.

The Actuarial Value of Assets is greater than the Market Value of Assets by more than 5%. **TABLE 6** shows a brief history of the difference between the Actuarial and Market Values of Assets. The table also shows an estimated rate of return for the last eight years on both bases.

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Unfunded Actuarial Liability

The **Unfunded Actuarial Liability** is the excess of the Actuarial Liability over the Actuarial Value of Assets, which represents a liability that must be funded over time. Contributions in excess of the Normal Cost are used to amortize the Unfunded Actuarial Liability. An **Actuarial Surplus** exists if the Actuarial Value of Assets exceeds the Actuarial Liability. The calculation of the Unfunded Actuarial Liability or Actuarial Surplus is shown in **TABLE 7** and summarized below.

(\$000)	2008 Actuarial Valuation	2007 Actuarial Valuation
Actuarial Liability	\$ 4,504,743	\$ 4,201,251
Actuarial Value of Assets	4,065,307	3,825,234
Unfunded Actuarial Liability	\$ 439,436	\$ 376,017
Funded Ratio	90%	91%

The **Funded Ratio** is equal to the Actuarial Value of Assets divided by the Actuarial Liability. A Funded Ratio of 100% means the Actuarial Value of Assets equals the Actuarial Liability, and the System could be financed by contributions equal to the Normal Cost, if all future experience emerges as assumed.

Actuarial Gains and Losses

Comparing the Unfunded Actuarial Liability as of two valuation dates does not provide enough information to determine if there were actuarial gains or losses. The correct comparison is between the Unfunded Actuarial Liability on the valuation date and the Expected Unfunded Actuarial Liability projected from the prior valuation date using the actuarial assumptions in effect for the one-year period.

TABLE 8 shows the Actuarial Liability as of June 30, 2007, and the elements to project that figure forward to June 30, 2008: the Normal Cost, less benefits paid, plus a charge for interest at the assumed rate of 8% per year.

The same table shows the Actuarial Value of Assets as of June 30, 2007, and the elements to project that figure forward to June 30, 2008: the net cash flow (contributions less benefits), plus a credit for interest at the assumed rate of 8%.

The following is a summary of the actuarial gains or losses during the one-year period.

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	(\$000)
Unfunded Actuarial Liability	
Actual as of June 30, 2007	\$ 376,017
Expected as of June 30, 2008	\$ 378,264
Actual as of June 30, 2008	<u>439,436</u>
Actuarial (Gain) or Loss	\$ 61,172
 (Gain) or Loss by Source	
Investment (Gain) or Loss	\$ 14,160
Liability (Gain) or Loss	<u>47,012</u>
Net from All Sources	\$ 61,172

The sources of the liability loss include a \$27,574,000 loss due to salaries greater than expected, a \$6,620,000 loss due to new entrants, and \$12,818,000 in other losses.

Plan Choice Rate

The Plan Choice Rate is shown in **TABLE 9-B**. The Plan Choice Rate is updated in even numbered years' actuarial valuations.

The current employer contribution rate for members of the Defined Contribution Retirement Plan (DCRP) and the Optional Retirement Plan (ORP) who would have been in PERS is determined as follows:

(Percent of Salary)	<u>DCRP</u>	<u>ORP</u>
Member Account in DCRP or ORP	4.19%	4.49%
Long-term Disability Plan (DCRP only)	0.30	0.00
Education Fund	0.04	0.04
Plan Choice Rate to DBRP (PCR)	<u>2.37</u>	<u>2.37</u>
Additional PCR Contribution		
2007	0.135	0.135
2009 (if needed)	<u>0.135</u>	<u>0.135</u>
Total Contribution Rate	7.170%	7.170%

The Plan Choice Rate (PCR) is the percent of the employer contribution allocated to the Defined Benefit Retirement Plan for members who choose the Defined Contribution Retirement Plan or the Optional Retirement Plan. The PCR is required by statute and actuarially determined to maintain the financial stability of the Defined Benefit Retirement Plan (DBRP).

The Legislature did not want the cost of the DBRP to increase due to the elections of members to join the alternative programs. The enabling legislation appropriately established the PCR to provide a mechanism to prevent the costs of the DBRP from increasing solely due to the transfer of members to the other plans.

Without the PCR, there are two reasons the DBRP costs could potentially increase; one is the financing of the Unfunded Actuarial Liability (UAL) at the time of the transfers, and the other is the potential for an increase in the Normal Cost Rate.

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1. If there is an Unfunded Actuarial Liability in the DBRP at the time of the transfers, the simple fact that there will be fewer members in the DBRP to spread the amortization of the UAL will increase the rate of DBRP pay necessary to amortize the UAL. The PCR provides that the amortization of the DBRP UAL at the time of the transfer will be financed over the sum of payroll of the DBRP and DCRP members. This method ensures a continuation of the amortization schedule that was in place just prior to the transfers.

The legislation provided a starting point for this element of the PCR equal to 2.37% of the payroll of DCRP members and the ORP members who would have been in the DBRP.

2. Compared to the members who remain in the DBRP, if the transferring DCRP and ORP members are, on average, either younger at the time of hire, or have a shorter career, the DBRP Normal Cost Rate could increase. The DBRP membership will become, on average, more expensive because the average length of service at retirement will be longer or the career over which the benefit can be financed will be shorter. The dollar amount of the increase in the DBRP Normal Cost will be financed as a percentage of DCRP and ORP payroll. In other words, the DCRP and ORP members will be funding any increase in the Normal Cost of the DBRP due to their election not to participate in the DBRP.

The legislature did not provide a starting point for this element of the PCR because it depends on the demographics of those who elect the alternative programs.

Unfunded Actuarial Liability: TABLE 9-A shows the development of the Unfunded Actuarial Liability of the DBRP that is allocated to the members of the alternative programs. The Unfunded Actuarial Liability as of June 30, 2007 was brought forward to June 30, 2008.

	(\$000)
Unfunded Actuarial Liability	
PCR-UAL as of June 30, 2007	\$ 18,336
Adjustments as of June 30, 2008	
Assumed Earnings at 8%	1,467
PCR Contributions with 8% Earnings	(2,303)
Recognition of Prior Investment Losses	0
PCR-UAL as of June 30, 2008	\$ 17,500

Normal Cost Rate: The statute calls for the members of the alternative programs who could have been in the DBRP to finance the increase in the Normal Cost Rate associated with their transfer. TABLE 9-B shows that the Normal Cost Rate for the DBRP would have been 12.14% had the alternative program options not existed. The Normal Cost Rate in this valuation for the DBRP members is 12.13% of salaries. Since the Normal Cost Rate for the DBRP is less than the Normal Cost Rate that the DBRP would have had if the alternative programs did not exist as of June 30, 2008, the Normal Cost Rate assigned to the Plan Choice Rate as of June 30, 2008, the PCT-NCR, is -0.12% of payroll for the alternative programs. This leaves 2.625% of payroll for the DCRP and ORP members available for amortization of the PCR-UAL.

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Amortization Test: The current PCR, less the PCR-NCR, will be available to amortize the remaining PCR-UAL. The initial amortization period was set at 12.75 years as of June 30, 1998. The amortization period will decline by one year each biennium, but the PCR will not change unless the amortization period is more than 10 years different than the scheduled amortization period.

	Amortization of PCR-UAL		
	Baseline	Acceptable Range	
1998 Valuation	12.75	2.75	22.75
2000 Valuation	11.75	1.75	21.75
2002 Valuation	10.75	0.75	20.75
2004 Valuation	9.75	n/a *	19.75
2006 Valuation	8.75	n/a *	18.75
2008 Valuation	7.75	n/a *	17.75

* Assumes immediate amortization of PCR UAL.
 Lower end only applies after 2002 if the PCR UAL is fully amortized.

Calculation of the PCR: For this display, we have used the acceptable range for the 2008 Valuation. The PCR, after being reduced for the PCR Normal Cost Rate, must be sufficient to amortize the PCR Unfunded Actuarial Liability over 17.75 years. If not, the PCR is increased such that the amortization period is reduced to 17.75 years. If the PCR will amortize the PCR-UAL over less than 17.75 years, it is not adjusted.

The following table shows that the PCR contributions available will amortize the PCR-UAL over a period of 8.81 years. This is inside the statutory corridor, so the PCR will not need to be increased.

PCR – UAL as of June 30, 2008 (\$000)	\$	17,500
PCR Available for Amortization		
Current PCR Amortization Rate		2.505%
Less, PCR – Normal Cost Rate		(0.120)%
PCR Available for Amortization –		2.625%
2008		2.760%
	– 2009	
Years to Amortize PCR – UAL from June 30, 2008		8.81 Years*
Maximum Years to Amortize PCR – UAL		17.75 Years

* This does not reflect the sunset provisions of HB 131. Without the additional contributions under HB 131 the amortization period for the PCR-UAL would be 9.88 years

Current PCR is Sufficient

MONTANA PUBLIC EMPLOYEES' RETIREMENT SYSTEM
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Calculation of Contribution Rate

The statutory funding rate is tested in the valuation to determine if it is sufficient to cover the Normal Cost Rate plus an amortization payment for the Unfunded Actuarial Liability, if any, over no more than 30 years. The calculations are shown in **TABLE 10** and summarized below.

	2008 Actuarial Valuation	2007 Actuarial Valuation
Statutory Funding Rate	13.935%	13.935%
Transfer to Education Fund	(0.040)	(0.040)
Normal Cost Rate	(12.130)	(12.220)
Available for Amortization –	1.765%	1.675%
2008	1.900%	1.810%
– 2009		
Unfunded Actuarial Liability of DBRP	\$ 439,436	\$ 376,017
Less, Funded by PCR	17,500	18,336
Net UAL for DBRP Funding	\$ 421,936	\$ 357,681
Years to Amortize	24.8	21.9

The amortization period shown above does not reflect the sunset provisions for the additional contributions under HB 131. Without the additional contributions effective July 1, 2007 and July 1, 2009, the amortization period for the Unfunded Actuarial Liability would be 29.0 years. If, as of any actuarial valuation date, the amortization period calculated without any of the additional contributions effective July 1, 2007 or July 1, 2009 is less than 25 years, the additional contributions will cease effective on July 1 immediately following the actuarial valuation.

The projected amortization of the Unfunded Actuarial Liability without the additional contributions under HB 131 is shown on a year-by-year basis in **TABLE 11**. The average Normal Cost Rate is expected to decline as new members join the System due to the fact the GABA will be lower for them. Therefore, the amount of the available amortization is expected to increase over time.

Disclosure Information - GASB No. 25

The disclosure of the Schedule of Funding Progress and the Solvency Test calculated in accordance with Statement No. 25 of the Governmental Accounting Standards Board are shown in **TABLES 12 and 13**.

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Calculations Based on the Market Value of Assets

MCA 19-2-407 as amended by HB No. 771 requires this report to show how market performance is affecting the actuarial funding of the Retirement System. The June 30, 2008 market value of assets is \$212.8 million less than the actuarial value of assets due to a negative 4.9% market return in the year ended June 30, 2008. If the market value of assets was used, the amortization period would be 50.2 years with the additional employer contributions effective July 1, 2007 and July 1, 2009. If the market value was used, the amortization period would be 68.3 years without the additional employer contributions effective July 1, 2007 and July 1, 2009. An increase in the employer contribution rate to 14.88% of payroll as of July 1, 2008 would result in a 30-year amortization period for the system's unfunded actuarial liabilities based on the market value of assets.

MONTANA PUBLIC EMPLOYEES' RETIREMENT SYSTEM
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Summary of Key Valuation Results

	2008 Valuation	2007 Valuation	Percentage Change
1. Total Membership			
A. Active Members	28,293	27,977	1.1%
B. Vested Terminated Members	2,579	2,576	-0.1%
C. Non-vested Terminated Members	6,268	6,401	-2.1%
D. Retired Members and Beneficiaries	<u>16,627</u>	<u>16,137</u>	3.0%
E. Total Membership	53,767	53,091	1.3%
2. Annual Salaries			
A. Annual Total (\$Thousands)	\$ 994,314	\$ 943,286	5.4%
B. Annual Average per Active Member	\$ 35,143	\$ 33,716	4.2%
3. Average Annual Allowance Payable			
A. Service Retirement	\$ 11,695	\$ 11,058	5.8%
B. Disability Retirement	\$ 7,901	\$ 7,654	3.2%
C. Survivors & Beneficiaries	\$ 8,583	\$ 8,235	4.2%
D. All Payees	\$ 11,135	\$ 10,547	5.6%
4. Actuarial Liability (\$Thousands)			
A. Active Members	\$ 2,272,595	\$ 2,150,144	5.7%
B. Inactive Members	140,993	134,533	4.8%
C. Retired Members and Beneficiaries	<u>2,091,155</u>	<u>1,916,574</u>	9.1%
D. Total	\$ 4,504,743	\$ 4,201,251	7.2%
5. Value of System Assets (\$Thousands)			
A. Fair Value	\$ 3,852,532	\$ 4,102,060	-6.1%
B. Smoothing Reserve	<u>212,775</u>	<u>(276,826)</u>	
C. Actuarial Value	\$ 4,065,307	\$ 3,825,234	6.3%
D. Ratio of Actuarial Value to Fair Value	106%	93%	
6. Funded Status			
A. Unfunded Actuarial Liability (\$Thousands)	\$ 439,436	\$ 376,017	16.9%
B. Less, PCR-UAL	<u>\$ 17,500</u>	<u>\$ 18,336</u>	-4.6%
C. Net Unfunded Actuarial Liability	\$ 421,936	\$ 357,681	18.0%
D. Funded Ratio (5C ÷ 4D)	90%	91%	
E. Net Funded Ratio (5C ÷ (4D-6B))	91%	91%	
7. Contribution Rates (percent of salaries)			
A. Statutory Funding Rate	13.935%	13.935%	0.0%
B. Less, Transfer to DB Ed Fund	0.040%	0.040%	0.0%
C. Net Statutory Contribution Rate	13.895%	13.895%	0.0%
D. Normal Cost Rate	<u>12.130%</u> ⁽¹⁾	<u>12.220%</u>	-0.7%
E. Available for Amortization of UAL (7C - 7D)	1.765%	1.675%	5.4%
F. Available 2009, if needed	1.900%	1.810%	
G. Period to Amortize	24.8 ⁽²⁾	21.9	
H. Projected 30-Year Level Funding Rate	13.750%	13.540%	1.6%
I. Projected Shortfall (Surplus) (7H - 7C)	(0.145)	(0.355)	-59.2%

⁽¹⁾ Projected to be 11.02% of payroll for members eligible after July 1, 2008. The average Normal Cost Rate is expected to decline over the next generation of active members.

⁽²⁾ Does not reflect sunset provisions of additional contributions under HB 131. Without the additional contributions under HB 131 the amortization period would be 29.0 years.

MONTANA PUBLIC EMPLOYEES' RETIREMENT SYSTEM
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SECTION 4
ACTUARIAL VALUATION RESULTS

The following tables document the findings of the actuarial valuation.

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**TABLE 1
NORMAL COSTS**

	2008 Actuarial Valuation	2007 Actuarial Valuation
Normal Cost Rate		
Service Retirement	9.15%	9.21%
Disability Retirement	0.31	0.32
Death	0.53	0.54
Withdrawal	2.14	2.15
Total Normal Cost Rate*	12.13%	12.22%
Annual Normal Cost (\$000)	\$ 123,232	\$ 117,707
Present Value of Future Normal Costs (\$000)	\$ 906,674	\$ 876,124

*Projected to be 11.02% of payroll for members eligible after July 1, 2008. The average Normal Cost Rate is expected to decline over the next generation of active members.

MONTANA PUBLIC EMPLOYEES' RETIREMENT SYSTEM
ACTUARIAL VALUATION AS OF JUNE 30, 2008

TABLE 2
SUMMARY OF ACTUARIAL REQUIREMENTS

(\$000)	2008 Actuarial Valuation	2007 Actuarial Valuation
Retired Members		
Service Retirement	\$ 1,867,508	\$ 1,703,559
Disability Retirement	66,698	64,806
Beneficiaries	156,949	148,209
Retired Member Total	2,091,155	1,916,574
Inactive Members	140,993	134,533
Active Members		
Service Retirement	2,814,704	2,672,694
Disability Retirement	62,492	61,389
Pre-retirement Death	136,994	131,048
Withdrawal	165,079	161,137
Active Member Total	3,179,269	3,026,268
Present Value of Future Projected Benefits	\$ 5,411,417	\$ 5,077,375
Present Value of Future Normal Costs	906,674	876,124
Actuarial Liability	\$ 4,504,743	\$ 4,201,251

**MONTANA PUBLIC EMPLOYEES' RETIREMENT SYSTEM
ACTUARIAL VALUATION AS OF JUNE 30, 2008**

**TABLE 3
STATEMENT OF SYSTEM ASSETS**

(\$000)	2008	2007
Current Assets		
Cash	\$ 47,314	\$ 110,919
Accounts Receivable	1,243	1,147
Interest Receivable	9,440	7,988
Other Receivable	421	581
Total Current Assets	58,418	120,635
Investments, at Fair value		
Mortgages and Commercial Loans	31,837	36,861
Investment Pools	3,754,073	3,936,420
Other Investments	8,931	8,816
Total Investments	3,794,841	3,982,097
Securities Lending Collateral	234,449	202,100
Other Assets:	281	213
Total Assets	\$ 4,087,989	\$ 4,305,045
Liabilities		
Accounts Payable	\$ 437	\$ 388
Securities Lending Liability	234,449	202,100
Compensated Absences	240	220
Other	331	277
Total Liabilities	\$ 235,457	\$ 202,985
Net System Assets	\$ 3,852,532	\$ 4,102,060

MONTANA PUBLIC EMPLOYEES' RETIREMENT SYSTEM
ACTUARIAL VALUATION AS OF JUNE 30, 2008

TABLE 4
STATEMENT OF CHANGES IN SYSTEM ASSETS

(\$000)	2008
Contributions	
Employer	\$ 71,851
Plan Member	72,680
Other	<u>599</u>
Total Contributions	145,130
Investments Income	
Net Appreciation/(Depreciation) In fair value of investments	(291,945)
Investment Earnings	<u>112,588</u>
Total Investment Income	(179,357)
Less Investment Expense	<u>19,987</u>
Net Investment Income	(199,344)
Securities Lending Income	12,312
Less, Securities Lending Expense	<u>10,062</u>
Net Securities Lending Income	2,250
Total Net Investment Income after SLI	(197,094)
Total Additions	\$ (51,964)
Benefits and Expenses	
Benefit Payments	\$ 180,815
Refunds to Members	12,123
Refunds to Other Plans	660
Transfers to DCRP	1,077
Transfers to ORP	250
OPEB Expense	66
Administrative Expense	<u>2,578</u>
Total Deductions	197,569
Accounting Adjustments	5
Net Increase in System Assets	\$ (249,528)
Net System Assets	
Beginning of the Year	\$ 4,102,060
End of the Year	\$ 3,852,532

**MONTANA PUBLIC EMPLOYEES' RETIREMENT SYSTEM
ACTUARIAL VALUATION AS OF JUNE 30, 2008**

**TABLE 5
ACTUARIAL VALUE OF ASSETS**

(\$000)				
<u>Fiscal Year</u>	<u>Cash Flow</u>	<u>Expected Value</u>	<u>Gain or (Loss)</u>	<u>Market Value</u>
2004-05				\$ 3,242,429
2005-06	\$ (13,585)	3,487,695	32,120	3,519,815
2006-07	(44,798)	3,754,811	347,249	4,102,060
2007-08	(49,794)	4,378,438	(525,906)	3,852,532
<u>Fiscal Year</u>	<u>Gain or (Loss)</u>	<u>Reserve Factor</u>	<u>Smoothing Reserve</u>	
2005-06	32,120	25%	\$ 8,030	
2006-07	347,249	50%	173,625	
2007-08	(525,906)	75%	<u>\$ (394,430)</u>	
			\$ (212,775)	
Fair Market Value on June 30, 2008			\$ 3,852,532	
Less, Asset Smoothing Reserve			<u>(212,775)</u>	
Actuarial Value of Assets on June 30, 2008			\$ 4,065,307	

**MONTANA PUBLIC EMPLOYEES' RETIREMENT SYSTEM
ACTUARIAL VALUATION AS OF JUNE 30, 2008**

**TABLE 6
HISTORY OF ACTUARIAL VALUE OF ASSETS**

(\$000) June 30	Market Value		Actuarial Value ⁽¹⁾		Ratio of Actuarial to Market
	(\$000)	<i>Estimated Return</i> ⁽²⁾	(\$000)	<i>Estimated Return</i> ⁽²⁾	
2000	\$ 2,935,779		\$ 2,843,347		97%
2001	2,777,338	(5.1)%	3,043,751	7.3%	110%
2002	2,564,498	(7.3)%	3,076,781	1.4%	120%
2003	2,695,824	6.5%	3,033,210	(0.3)%	113%
2004	3,029,910	13.4%	3,047,287	1.3%	101%
2005	3,242,429	8.0%	3,179,010	5.3%	98%
2006	3,519,815	9.0%	3,459,084	9.3%	98%
2007	4,102,060	17.9%	3,825,234	12.0%	93%
2008	3,852,532	(4.9)%	4,065,307	7.6%	106%

Note:

- (1) Asset Method adopted for 2000 valuation with retroactive calculation to June 30, 1997
- (2) Estimated returns are net of all investment and administrative expenses paid by the System and assuming uniform cash flow throughout the year

**MONTANA PUBLIC EMPLOYEES' RETIREMENT SYSTEM
ACTUARIAL VALUATION AS OF JUNE 30, 2008**

**TABLE 7
FUNDED STATUS**

(\$000)	<u>2008 Actuarial Valuation</u>	<u>2007 Actuarial Valuation</u>
Actuarial Value of Assets		
Actuarial Liability	\$ 4,504,743	\$ 4,201,251
Actuarial Value of Assets	<u>4,065,307</u>	<u>3,825,234</u>
Unfunded Actuarial Liability	\$ 439,436	\$ 376,017
Funded Ratio (AVA)	90%	91%
Market Value of Assets		
Actuarial Liability	\$ 4,504,743	\$ 4,201,251
Market Value of Assets	<u>3,852,532</u>	<u>4,102,060</u>
Unfunded Actuarial Liability	\$ 652,211	\$ 99,191
Funded Ratio (MVA)	86%	98%

**MONTANA PUBLIC EMPLOYEES' RETIREMENT SYSTEM
ACTUARIAL VALUATION AS OF JUNE 30, 2008**

**TABLE 8
ACTUARIAL GAINS AND LOSSES**

(\$000)	<u>Expected</u>	<u>Actual</u>	<u>(Gain) or Loss</u>
2007 Actuarial Liability	\$ 4,201,251		
Normal Costs	117,707		
Benefits Paid	(194,265)		
Expected Earnings at 8%	<u>333,038</u>		
Actuarial Liability at June 30, 2008	\$ 4,457,731	\$ 4,504,743	\$ 47,012
2007 Actuarial Value of Assets	\$ 3,825,234		
Net Cash Flow	(49,794)		
Expected Earnings at 8%	<u>304,027</u>		
Actuarial Value of Assets	\$ 4,079,467	4,065,307	14,160
Unfunded Actuarial Liability as of June 30, 2008	\$ 378,264	\$ 439,436	\$ 61,172
Summary Actuarial (Gain) or Loss by Source			
Investment (Gain) or Loss			\$ 14,160
Liability (Gain) or Loss			
Salary (Gain) or Loss		27,574	
New Participant (Gain) or Loss		6,620	
Other (Gain) or Loss		<u>12,818</u>	
Total Liability (Gain) or Loss			<u>47,012</u>
Total Actuarial (Gain) or Loss			\$ 61,172

**MONTANA PUBLIC EMPLOYEES' RETIREMENT SYSTEM
ACTUARIAL VALUATION AS OF JUNE 30, 2008**

**TABLE 9-A
PLAN CHOICE RATE UNFUNDED ACTUARIAL LIABILITY – JUNE 30, 2008**

(\$000)

PCR – UAL Calculations for 2007-08

PCR – UAL as of June 30, 2007	\$	18,336
Assumed Interest at 8% per year		1,467
Less, PCR Contributions to DBRP during 2007-08, reduced by normal cost		2,214
Less, Interest at 8% on PCR Contributions to DBRP during 2007-08		89
Recognition of Prior Investment (Gain) or Loss		
2000-01 Balance	\$	0
2001-02 Balance	\$	0
2002-03 Balance	\$	0
		<u>0</u>

PCR - Unfunded Actuarial Liability at June 30, 2008 **\$ 17,500**

**MONTANA PUBLIC EMPLOYEES' RETIREMENT SYSTEM
ACTUARIAL VALUATION AS OF JUNE 30, 2008**

**TABLE 9-B
PLAN CHOICE RATE**

(\$000)

PCR - Normal Cost Rate

Normal Cost Rate			
DBRP Members Only			12.13%
Including DCRP and ORP Members			<u>12.14%</u>
Difference	(A)		-0.01%
Payroll as of June 30, 2008 (\$000)			
DBRP Members Only	(B)	\$	1,022,248
DCRP and ORP Members	(C)	\$	84,277
PCR – Normal Cost Rate	(A) x (B) ÷ (C)		-0.12%

PCR – UAL Amortization

PCR – UAL as of June 30, 2008 (Table 9-A)		\$	17,500
PCR Available for Amortization			
Current PCR Amortization Rate			2.505%
Less, PCR – Normal Cost Rate			<u>(0.120)%</u>
PCR Available for Amortization – 2008			2.625%
– 2009 (if needed)			2.760%
Years to Amortize PCR – UAL from June 30, 2008			8.81 Years*
Maximum Years to Amortize PCR – UAL from June 30, 2008			17.75 Years

* This does not reflect the sunset provisions of HB 131. Without the additional contributions under HB 131 the amortization period for the PCR-UAL would be 9.88 years

Current PCR is Sufficient

**MONTANA PUBLIC EMPLOYEES' RETIREMENT SYSTEM
ACTUARIAL VALUATION AS OF JUNE 30, 2008**

**TABLE 10
CALCULATION OF CONTRIBUTION RATE**

	2008 Actuarial Valuation	2007 Actuarial Valuation
Statutory Funding Rate		
Members	6.900%	6.900%
Employers	6.935%	6.935%
State	<u>0.100%</u>	<u>0.100%</u>
Total	13.935%	13.935%
Transfer to Education Fund	<u>(0.040)%</u>	<u>(0.040)%</u>
Net Contribution to DBRP	13.895%	13.895%
Addition from Employers in 2009 if needed	0.135%	0.135%
Normal Cost Rate	12.13% ⁽¹⁾	12.22%
Funding Rate Available for Amortization – 2008	1.765%	1.675%
– 2009 (if needed)	1.900%	1.810%
(\$000)		
Unfunded Actuarial Liability		
DBRP (Table 7)	\$ 439,436	\$ 376,017
Less, PCR-UAL Funded by DCRP & ORP (Table 9-A)	<u>17,500</u>	<u>18,336</u>
Funded by DBRP	\$ 421,936	\$ 357,681
Years to Amortize	24.8 years ⁽²⁾	21.9 years
Calculated Contribution Rate		
Normal Cost Rate	12.13%	12.22%
Educational Fund	0.04%	0.04%
Amortization Payment		
Available	1.58%	1.28%
Additional Contribution for 30-year Amortization	<u>0.00%</u>	<u>0.00%</u>
Total Amortization	1.58%	1.28%
Total Calculated Rate	13.75%	13.54%

⁽¹⁾ Projected to be 11.02% of payroll for members eligible after July 1, 2008. The average Normal Cost Rate is expected to decline over the next generation of active members.

⁽²⁾ Does not reflect sunset provisions of additional contributions under HB 131. Without the additional contributions under HB 131 the amortization period would be 29.0 years.

The numbers shown above are based on the actuarial value of assets. Based on market assets, the amortization period at July 1, 2008 would be 50.2 years including the additional employer contributions effective July 1, 2007 and July 1, 2009. Based on market assets, without the additional employer contributions the amortization period would be 68.3 years. An increase in the employer contribution rate to 14.88% of payroll as of July 1, 2008 would result in a 30-year amortization period for the system's unfunded actuarial liabilities based on market assets. The information in this footnote is provided in accordance with MCA 19-2-407, to show how market performance is affecting the actuarial funding of the retirement system.

**MONTANA PUBLIC EMPLOYEES' RETIREMENT SYSTEM
ACTUARIAL VALUATION AS OF JUNE 30, 2008**

**TABLE 11
AMORTIZATION OF UNFUNDED ACTUARIAL LIABILITY**

Fiscal Year Ending June 30	\$ 000 UAL, Beginning of Year ⁽¹⁾	In dollars			as % of Payroll			Interest at 8%	UAL, End of Year
		Total Contribution	Normal Cost	Available Amortization	Total Contribution net of DBEd ⁽²⁾	Normal Cost	Available Amortization		
2009	421,936	140,661	123,681	16,980	13.760%	12.099%	1.661%	32,717	437,673
2010	437,673	146,639	127,993	18,646	13.760%	12.010%	1.750%	33,873	452,900
2011	452,900	152,872	132,561	20,311	13.760%	11.932%	1.828%	34,991	467,580
2012	467,580	159,369	137,350	22,019	13.760%	11.859%	1.901%	36,060	481,621
2013	481,621	166,142	142,352	23,790	13.760%	11.790%	1.970%	37,076	494,907
2014	494,907	173,203	147,573	25,630	13.760%	11.724%	2.036%	38,025	507,302
2015	507,302	180,564	153,018	27,546	13.760%	11.661%	2.099%	38,900	518,656
2016	518,656	188,238	158,710	29,528	13.760%	11.602%	2.158%	39,687	528,815
2017	528,815	196,238	164,664	31,574	13.760%	11.546%	2.214%	40,374	537,615
2018	537,615	204,578	170,896	33,682	13.760%	11.495%	2.265%	40,950	544,883
2019	544,883	213,273	177,424	35,849	13.760%	11.447%	2.313%	41,400	550,434
2020	550,434	222,337	184,261	38,076	13.760%	11.404%	2.356%	41,706	554,064
2021	554,064	231,786	191,419	40,367	13.760%	11.364%	2.396%	41,857	555,554
2022	555,554	241,637	198,904	42,733	13.760%	11.327%	2.433%	41,831	554,652
2023	554,652	251,907	206,740	45,167	13.760%	11.293%	2.467%	41,611	551,096
2024	551,096	262,613	214,950	47,663	13.760%	11.263%	2.497%	41,174	544,607
2025	544,607	273,774	223,544	50,230	13.760%	11.235%	2.525%	40,498	534,875
2026	534,875	285,409	232,535	52,874	13.760%	11.211%	2.549%	39,558	521,559
2027	521,559	297,539	241,942	55,597	13.760%	11.189%	2.571%	38,325	504,287
2028	504,287	310,184	251,782	58,402	13.760%	11.169%	2.591%	36,771	482,656
2029	482,656	323,367	262,069	61,298	13.760%	11.152%	2.608%	34,866	456,224
2030	456,224	337,110	272,816	64,294	13.760%	11.136%	2.624%	32,566	424,496
2031	424,496	351,438	284,043	67,395	13.760%	11.121%	2.639%	29,839	386,940
2032	386,940	366,374	295,768	70,606	13.760%	11.108%	2.652%	26,639	342,973
2033	342,973	381,944	308,007	73,937	13.760%	11.096%	2.664%	22,918	291,954
2034	291,954	398,177	320,783	77,394	13.760%	11.085%	2.675%	18,624	233,184
2035	233,184	415,100	334,120	80,980	13.760%	11.076%	2.684%	13,704	165,908
2036	165,908	432,741	348,050	84,691	13.760%	11.067%	2.693%	8,094	89,311
2037	89,311	451,133	362,581	88,552	13.760%	11.059%	2.701%	1,731	2,490
2038	2,490	470,306	377,740	92,566	13.760%	11.052%	2.708%	(5,460)	(95,536)

(1) Net of PCR-Ual, and based on the actuarial value of assets

(2) This does not reflect the additional contributions of 0.135% of payroll effective July 1, 2007 and 0.27% effective July 1, 2009

Amortization Period: 29.0 years

The amortization period with the additional contributions effective July 1, 2007 and July 1, 2009, without reflecting the sunset provisions of HB 131, would be 24.8 years

**MONTANA PUBLIC EMPLOYEES' RETIREMENT SYSTEM
ACTUARIAL VALUATION AS OF JUNE 30, 2008**

DISCLOSURE INFORMATION - GASB No. 25

TABLE 12

**SCHEDULE OF FUNDING PROGRESS
(DOLLARS IN THOUSANDS)**

Actuarial Valuation Date	Actuarial Value of Assets	Actuarial Accrued Liability (AAL)	Funded Ratio	Unfunded AAL (UAAL)	Covered Payroll	UAAL as a Percentage of Covered Payroll
June 30, 1996	\$1,629,707	\$1,826,207	89%	\$196,500	\$608,592	32%
June 30, 1998	2,113,314	2,298,702	92	185,388	660,579	28
June 30, 2000	2,843,347	2,273,407	125	(569,940)	725,692	(79)
June 30, 2002	3,076,781	3,077,764	100	983	808,747	0
June 30, 2004	3,047,287	3,514,085	87	466,798	832,847	56
June 30, 2005	3,179,010	3,719,998	85	540,988	847,431	64
June 30, 2006	3,459,084	3,919,313	88	460,229	880,708	52
June 30, 2007	3,825,234	4,201,251	91	376,017	907,424	41
June 30, 2008	4,065,307	4,504,743	90	439,436	955,113	46

TABLE 13

**SOLVENCY TEST
(DOLLARS IN THOUSANDS)**

Actuarial Valuation Date	(1) Active Member Accounts	(2) Inactive Actuarial Liability	(3) Employer Financed Active Liability	Actuarial Value of Assets	Coverage Ratios		
					(1)	(2)	(3)
June 30, 1996	\$307,369	\$768,950	\$749,888	\$1,629,706	100%	100%	74%
June 30, 1998	360,422	949,365	988,915	2,113,314	100	100	81
June 30, 2000	572,536 ⁽¹⁾	1,049,012	651,859	2,843,347	100	100	187
June 30, 2002	645,403	1,366,634	1,065,727	3,076,781	100	100	100
June 30, 2004	684,607	1,640,145	1,189,333	3,047,287	100	100	61
June 30, 2005	701,851	1,756,674	1,261,473	3,179,010	100	100	57
June 30, 2006	718,260	1,895,838	1,305,215	3,459,084	100	100	65
June 30, 2007	749,000	2,051,107	1,401,143	3,825,234	100	100	73
June 30, 2008	783,801	2,232,148	1,488,794	4,065,307	100	100	70

Note:

⁽¹⁾ Prior to 2000, "active member accounts" included Regular Contributions without interest for active and inactive members. Beginning in 2000, "active member accounts" includes Regular and Additional Contributions with interest, and excludes all accounts of inactive members.

MONTANA PUBLIC EMPLOYEES' RETIREMENT SYSTEM
ACTUARIAL VALUATION AS OF JUNE 30, 2008

Appendix A

Actuarial Methods and Assumptions

This section of the report describes the actuarial methods and assumptions used in this valuation. These methods and assumptions have been chosen by the Retirement Board based on our recommendations. The Retirement Board has the sole authority to select the methods and assumptions used in this actuarial valuation. The recommendations were formed on the basis of recent experience of the System and on current expectations as to future economic conditions.

The assumptions are intended to estimate the future experience of the System and the members of the System in areas which affect the projected benefit flow and anticipated investment earnings. Any variations in future experience from that expected from these assumptions will result in corresponding changes in the estimated costs of the System's benefits.

In our opinion, the current actuarial methods and assumptions are reasonable and appropriate for this System. The assumptions were developed in accordance with generally recognized and accepted actuarial principles and practices that are consistent with applicable Standards of Practice adopted by the American Academy of Actuaries.

Records and Data

The data used in the valuation consist of financial information and records of age, service, account balances, benefits in pay status and income of contributing members, former contributing members and their survivors. All of the data were supplied by the System and are accepted for valuation purposes without audit.

Actuarial Cost Method

A fundamental principle in financing the liabilities of a retirement program is that the cost of its benefits should be related to when they are earned, rather than when they are paid. There are a number of methods in use for making a determination.

The funding method used in this valuation is the Entry Age Cost Method. Under this method the actuarial present value of projected benefits for each individual member included in the valuation is allocated on a level basis over the earnings of the individual between entry age and assumed exit ages. The portion of this actuarial present value allocated to a valuation year is called the Normal Cost. The portion of this actuarial present value not provided for at a valuation date by the actuarial present value of future Normal Costs is called the Actuarial Liability.

The excess of the Actuarial Liability over the Actuarial Value of Assets is called the Unfunded Actuarial Liability. If the Actuarial Value of Assets exceeds the Actuarial Liability, the difference is called the Actuarial Surplus.

MONTANA PUBLIC EMPLOYEES' RETIREMENT SYSTEM
ACTUARIAL VALUATION AS OF JUNE 30, 2008

Asset Valuation Method

Asset values were supplied by the System and were accepted without audit by us. The Actuarial Value of Assets is the market value, adjusted by a four-year recognition of gains and losses.

Amortization Method

The amount of the statutory contribution rate in excess of the Employer's normal cost is the level percentage of payroll available to amortize the unfunded actuarial liability. The amortization period is the resulting number of years necessary to fully amortize an unfunded actuarial liability with the available contributions. The calculation of the amortization period assumes future growth in payroll of 4.25% per year.

Investment Return

The future investment earnings of the assets of the plan are assumed to accrue at a net annual rate of 8.00%, net of all administrative and investment-related expenses.

Interest on Member Contributions

Interest on member contributions is assumed to accrue at a net annual rate of 5.00%.

Future Salaries

Estimates of future salaries are based on two types of assumptions. Rates of increase in the general wage level of the membership are directly related to inflation, while individual salary changes due to promotion and longevity, referred to as the merit scale, occur even in the absence of inflation. The assumed increase in future salaries due to general wage growth is 4.25% per year. The merit scale, assumed in addition to general wage growth, is shown in Table A-2.

Service Retirement

The assumed rates of retirement used in this valuation are shown in Table A-3.

All vested terminated members are assumed to retire when first eligible for an unreduced benefit.

Disablement

The assumed rates of disablement are illustrated in Table A-4 at specified ages. We also assume that all disabilities are permanent, and no disabled member will recover and return to work.

Mortality

The probabilities of mortality are based on the following published tables:

Healthy Retirees, Beneficiaries and Non-Retired Members	
Males	1994 Male Uninsured Pensioner Table (-1)
Females	1994 Female Uninsured Pensioner Table (-1)

**MONTANA PUBLIC EMPLOYEES' RETIREMENT SYSTEM
ACTUARIAL VALUATION AS OF JUNE 30, 2008**

Disabled Retirees

Males	IRS Revenue Ruling 96-7 Male Table (-3)
Females	IRS Revenue Ruling 96-7 Female Table (+1)

These rates are illustrated in Table A-5.

Other Terminations of Employment

The assumed rates of termination, other than for retirement, death, or disability, are shown in Table A-6.

Benefits for Terminating Members

The probability of a terminating member electing a refund of the member account balance is shown in Table A-7.

Probability of Marriage

100% of all non-retired members are assumed to be married. Male spouses are assumed to be three years older than female spouses.

Changes in Actuarial Assumptions Made for this Valuation

The following method and assumptions were revised since the last valuation:

Actuarial Methods

- ◆ None

Economic Assumptions

- ◆ None

Demographic Assumptions

- ◆ None

MONTANA PUBLIC EMPLOYEES' RETIREMENT SYSTEM
ACTUARIAL VALUATION AS OF JUNE 30, 2008

Table A-1

Summary of Valuation Assumptions
(June 30, 2008)

I. Economic assumptions		
A. General wage increases		4.25%
B. Investment return		8.00%
C. Interest on member accounts		5.00%
II. Demographic assumptions		
A. Individual salary increase due to promotion and longevity		Table A-2
B. Retirement		Table A-3
C. Disablement		Table A-4
D. Mortality among contributing members, service retired members, and beneficiaries		Table A-5
	1994 Uninsured Pensioner Mortality Table, with ages set back 1 year for males and ages set back 1 year for females	
E. Mortality among disabled members		Table A-5
	Based on the IRS Social Security Disabled Mortality Tables published in Revenue Ruling 96-7 for pre-1995 disabilities with ages set back 3 years for males and set forward 1 year for females.	
F. Other terminations of employment		Table A-6
G. Probability of retaining membership in the System upon vested termination		Table A-7

MONTANA PUBLIC EMPLOYEES' RETIREMENT SYSTEM
ACTUARIAL VALUATION AS OF JUNE 30, 2008

Table A-2

Merit Salary Increases

<u>Service</u>	<u>Annual Increase</u>
1	6.00%
2	4.90
3	3.90
4	3.10
5	2.40
6	1.80
7	1.40
8	1.00
9	0.70
10	0.50
11-15	0.30
16-20	0.10
21 & over	0.00

**MONTANA PUBLIC EMPLOYEES' RETIREMENT SYSTEM
ACTUARIAL VALUATION AS OF JUNE 30, 2008**

Table A-3

**Retirement
Annual Rates**

<u>Age</u>	<u>< 30 Yrs</u>	<u>w/ 30 Yrs</u>	<u>Age</u>	<u>< 30 Yrs</u>	<u>w/ 30 Yrs</u>
Under 50	-	10%	61	15%	15%
			62	25	25
50 - 54	3%	10	63	15	15
			64	15	15
55	3	15	65	30	30
56	4	15	66	30	30
57	5	15	67	25	25
58	5	15	68	25	25
59	6	15	69	25	25
60	8	15	70 & over	100	100

MONTANA PUBLIC EMPLOYEES' RETIREMENT SYSTEM
ACTUARIAL VALUATION AS OF JUNE 30, 2008

Table A-4

**Disablement
Annual Rates**

<u>Age</u>	<u>Male</u>	<u>Female</u>
22	-	-
27	0.01%	0.01%
32	0.01	0.01
37	0.06	0.03
42	0.09	0.15
47	0.17	0.15
52	0.36	0.30
57	0.62	0.36
62	0.00	0.00

**MONTANA PUBLIC EMPLOYEES' RETIREMENT SYSTEM
ACTUARIAL VALUATION AS OF JUNE 30, 2008**

Table A-5

**Mortality
Annual Rates**

Age	Healthy Members		Disabled Retirees	
	Male	Female	Male	Female
50	0.250%	0.141%	2.085%	1.697%
55	0.428	0.224	2.587	1.976
60	0.762	0.415	3.194	2.344
65	1.391	0.819	3.933	2.828
70	2.336	1.367	4.900	3.492
75	3.661	2.192	6.468	4.710
80	6.007	3.802	8.522	6.346
85	9.636	6.557	10.971	9.015
90	14.995	11.247	14.405	13.322
95	23.194	18.352	19.372	20.176

MONTANA PUBLIC EMPLOYEES' RETIREMENT SYSTEM
ACTUARIAL VALUATION AS OF JUNE 30, 2008

Table A-6

Other Terminations of Employment
Annual Rates

Service	Male Members			Female Members		
	Age <30	30-39	Age>40	Age <30	30-39	Age>40
0	30%	22%	15%	30%	22%	18%
1	25	15	12	25	16	13
2	16	12	10	16	14	10
3	14	10	8	14	11	9
4	10	8	6	10	8	8
5-9	6	6	5 *	5	5	5 *
10-14	3	3	3 *	4	4	3 *
15 & over	-	2	2 *	-	2	2 *

* No other terminations of employment are assumed after attainment of age 55 with 5 years of service.

**MONTANA PUBLIC EMPLOYEES' RETIREMENT SYSTEM
ACTUARIAL VALUATION AS OF JUNE 30, 2008**

Table A-7

**Probability of Electing a Refund
of Member Contributions Upon Termination**

<u>Age at Termination</u>	<u>Non-Vested</u>	<u>Vested</u>
Under 35	100%	50%
35 - 39	100	40
40 - 44	100	40
45 - 49	100	35
50 & over	100	30

**MONTANA PUBLIC EMPLOYEES' RETIREMENT SYSTEM
ACTUARIAL VALUATION AS OF JUNE 30, 2008**

Appendix B

Provisions of Governing Law

All of the calculations contained in this report are based on our understanding of the benefit and eligibility provisions of the system. The provisions used in this valuation are summarized below for reference purposes.

Normal Retirement	Eligibility:	Age 65 regardless of membership service, or Age 60 and 5 years of membership service, or 30 years of membership service regardless of age.
	Benefit:	Years of service credit, multiplied by highest average compensation (highest 36 consecutive months), multiplied by $1/56^{\text{th}}$ if membership service at retirement is less than 25 years, or multiplied by $1/50^{\text{th}}$ if membership service at retirement is at least 25 years.
	Normal Form:	Monthly benefit for the life of the member, with a death benefit equal to the remaining balance of the member's accumulated contribution account.
Early Retirement	Eligibility:	Age 50 and 5 years of membership service, or 25 years of membership service regardless of age.
	Benefit:	Actuarial equivalent of the accrued benefit based on retirement at age 60 or 30 years of membership service.
Disability Retirement	Eligibility:	5 years of membership service
	Benefit:	If hired on or before February 24, 1991, the greater of (a) and (b) below: (a) Years of service credit, multiplied by highest average compensation, multiplied by 90% of $1/56^{\text{th}}$ ($1/50^{\text{th}}$ if 25 or more years of membership service) , or (b) Highest average compensation multiplied by 25%.
		If hired after February 24, 1991: (a) Years of service credit, multiplied by highest average compensation, multiplied by $1/56^{\text{th}}$ ($1/50^{\text{th}}$ if 25 or more years of membership service).

MONTANA PUBLIC EMPLOYEES' RETIREMENT SYSTEM
ACTUARIAL VALUATION AS OF JUNE 30, 2008

Death before Retirement	Eligibility:	Prior to 5 years of membership service
	Benefit:	The sum of (a) and (b) below: (a) Return of member's accumulated contributions, (b) Lump sum payment of one month's salary multiplied by years of service credit, up to a maximum of six months' salary.
	Eligibility:	5 years of membership service
	Benefit:	Either the sum of (a) and (b), or (c) below: (a) Return of member's accumulated contributions, and (b) Lump sum payment of one month's salary multiplied by years of service credit, up to a maximum of six months' salary, or (c) Actuarial equivalent of the accrued benefit at the time of death of the member.
Termination Benefit	Eligibility:	Prior to 5 years of membership service
	Benefit:	Return of member's accumulated contributions.
	Eligibility:	5 years of membership service
	Benefit:	Either (a) or (b) below: (a) Return of member's accumulated contributions, or (b) Actuarial equivalent of the accrued benefit based on a retirement age of 60.
Benefit Adjustments	Eligibility:	Retired members and beneficiaries.
	Benefit:	If hired before July 1, 2007, an annual adjustment (GABA) of 3.0% commencing January 1 st , one year after retirement. An annual adjustment (GABA) of 1.5% for members hired on or after July 1, 2007, commencing January 1 st , one year after retirement.

MONTANA PUBLIC EMPLOYEES' RETIREMENT SYSTEM
ACTUARIAL VALUATION AS OF JUNE 30, 2008

Contributions

Members: 6.90% of member's compensation

Employers: 6.90% of members' compensation (offset by 0.10% of members' compensation paid by the State for local government and school district employers).

Effective July 1, 2007, 7.035% of member's compensation (offset by 0.10% of member's compensation paid by the State for local government employers and 0.235% for school district employers).

Effective July 1, 2009 7.17% of member's compensation (offset by 0.10% of member's compensation paid by the State for local government employers and 0.37% for school district employers).

The additional employer contributions effective July 1, 2007, and July 1, 2009, will terminate if an actuarial valuation shows that the amortization period for the system's unfunded actuarial liabilities is less than 25 years and terminating those additional contributions would not cause that amortization period to exceed 25 years.

**MONTANA PUBLIC EMPLOYEES' RETIREMENT SYSTEM
ACTUARIAL VALUATION AS OF JUNE 30, 2008**

Appendix C

Valuation Data

This valuation is based upon the membership of the System as of June 30, 2008. Membership data were supplied by the System and accepted for valuation purposes without audit. However, tests were performed to ensure that the data are sufficiently accurate for valuation purposes.

Table C-1 contains summaries of the data for contributing members. Values shown in the tables are the numbers of members and their total and average annual salaries.

Active Members	Annual Salaries in Millions	Average Annual Salary
28,293	\$994.3	\$35,143

Table C-2 presents distributions of the following:

- Members receiving service retirement benefits.
- Members receiving disability retirement benefits.
- Survivors of deceased members receiving benefits.
- Terminated vested members.

Type of Annuitant	Number	Annual Benefits in Thousands	Average Annual Benefits
Service Retirement	13,813	\$ 161,543	\$ 11,695
Disability Retirement	793	6,265	7,901
Survivors of Deceased Members	2,021	17,347	8,583
Total Annuitants	16,627	\$ 185,155	\$ 11,136

Terminated Members	Number
Vested Terminated Members	2,579
Non-Vested Terminated Members	6,268
Total Terminated Members	8,847

**MONTANA PUBLIC EMPLOYEES' RETIREMENT SYSTEM
ACTUARIAL VALUATION AS OF JUNE 30, 2008**

Table C-1

**Active Members Distribution of
Members and Salaries**

as of June 30, 2008

Number of Members – By Age Group – DBRP Members

Age	Completed Years of Service												Totals
	<u>0</u>	<u>1</u>	<u>2</u>	<u>3 to 4</u>	<u>5 to 9</u>	<u>10 to 14</u>	<u>15 to 19</u>	<u>20 to 24</u>	<u>25 to 29</u>	<u>30 to 34</u>	<u>35 to 39</u>	<u>40+</u>	
Under 25	317	121	40	32	5	-	-	-	-	-	-	-	515
25 to 29	465	249	190	255	129	-	-	-	-	-	-	-	1,288
30 to 34	425	275	220	323	457	68	-	-	-	-	-	-	1,768
35 to 39	1,045	290	209	305	553	317	79	2	-	-	-	-	2,800
40 to 44	440	295	234	348	664	449	342	88	1	-	-	-	2,861
45 to 49	460	323	321	465	994	680	619	395	203	4	-	-	4,464
50 to 54	473	317	299	503	1,045	834	738	559	443	189	2	-	5,402
55 to 59	330	283	224	389	893	819	787	591	490	320	54	1	5,181
60 to 64	179	136	122	209	569	414	415	347	241	163	85	8	2,888
65 to 69	70	46	51	67	185	117	130	76	59	29	12	6	848
70 & Over	35	16	24	33	62	35	28	15	18	3	5	4	278
Totals	4,239	2,351	1,934	2,929	5,556	3,733	3,138	2,073	1,455	708	158	19	28,293

**MONTANA PUBLIC EMPLOYEES' RETIREMENT SYSTEM
ACTUARIAL VALUATION AS OF JUNE 30, 2008**

Table C-1

**Active Members Distribution of
Members and Salaries**

as of June 30, 2008

Annual Salaries in Thousands – By Age Group – DBRP Members

Age	Completed Years of Service												Totals
	<u>0</u>	<u>1</u>	<u>2</u>	<u>3 to 4</u>	<u>5 to 9</u>	<u>10 to 14</u>	<u>15 to 19</u>	<u>20 to 24</u>	<u>25 to 29</u>	<u>30 to 34</u>	<u>35 to 39</u>	<u>40+</u>	
Under 25	7,315	3,077	1,022	892	138	-	-	-	-	-	-	-	12,444
25 to 29	12,851	6,934	5,779	8,087	4,508	-	-	-	-	-	-	-	38,159
30 to 34	11,731	7,990	7,133	11,216	17,341	2,720	-	-	-	-	-	-	58,131
35 to 39	27,659	8,042	6,098	10,392	21,665	14,403	3,594	75	-	-	-	-	91,928
40 to 44	12,027	8,061	7,029	10,767	24,147	19,307	16,485	4,080	39	-	-	-	101,942
45 to 49	12,148	8,702	8,849	13,696	32,768	27,365	28,092	19,018	9,684	218	-	-	160,540
50 to 54	12,250	8,330	8,026	15,387	34,605	30,108	31,376	26,638	23,041	9,836	76	-	199,673
55 to 59	8,089	7,452	6,719	11,871	28,990	29,740	30,697	26,935	23,781	17,495	3,050	41	194,860
60 to 64	4,288	3,354	3,188	5,618	18,001	14,627	15,544	14,680	11,536	8,457	4,701	389	104,383
65 to 69	1,474	940	943	1,712	5,158	3,622	4,383	2,731	2,466	1,571	598	298	25,896
70 & Over	586	291	358	652	1,146	959	736	479	611	142	188	210	6,358
Totals	110,418	63,173	55,144	90,290	188,467	142,851	130,907	94,636	71,158	37,719	8,613	938	994,314

**MONTANA PUBLIC EMPLOYEES' RETIREMENT SYSTEM
ACTUARIAL VALUATION AS OF JUNE 30, 2008**

Table C-1

**Active Members Distribution of
Members and Salaries**

as of June 30, 2008

Average Annual Salary – By Age Group – DBRP Members

<u>Age</u>	<u>Completed Years of Service</u>												<u>Totals</u>
	<u>0</u>	<u>1</u>	<u>2</u>	<u>3 to 4</u>	<u>5 to 9</u>	<u>10 to 14</u>	<u>15 to 19</u>	<u>20 to 24</u>	<u>25 to 29</u>	<u>30 to 34</u>	<u>35 to 39</u>	<u>40+</u>	
Under 25	23,074	25,429	25,555	27,878	27,572	-	-	-	-	-	-	-	24,162
25 to 29	27,636	27,846	30,416	31,712	34,942	-	-	-	-	-	-	-	29,626
30 to 34	27,604	29,054	32,421	34,723	37,946	39,997	-	-	-	-	-	-	32,880
35 to 39	26,467	27,732	29,176	34,072	39,177	45,436	45,495	37,485	-	-	-	-	32,831
40 to 44	27,334	27,324	30,037	30,940	36,366	43,000	48,200	46,361	38,995	-	-	-	35,631
45 to 49	26,409	26,941	27,566	29,454	32,966	40,243	45,383	48,147	47,705	54,501	-	-	35,963
50 to 54	25,898	26,277	26,842	30,590	33,115	36,101	42,515	47,652	52,010	52,043	38,208	-	36,963
55 to 59	24,512	26,333	29,993	30,517	32,463	36,312	39,006	45,575	48,534	54,671	56,485	40,961	37,610
60 to 64	23,957	24,660	26,132	26,878	31,635	35,330	37,455	42,306	47,867	51,881	55,301	48,628	36,143
65 to 69	21,051	20,439	18,493	25,551	27,880	30,961	33,712	35,929	41,803	54,169	49,856	49,695	30,538
70 & Over	16,737	18,204	14,904	19,756	18,491	27,387	26,272	31,949	33,926	47,414	37,538	52,524	22,868
Totals	26,048	26,871	28,512	30,826	33,921	38,267	41,717	45,651	48,906	53,275	54,513	49,382	35,143

**MONTANA PUBLIC EMPLOYEES' RETIREMENT SYSTEM
ACTUARIAL VALUATION AS OF JUNE 30, 2008**

Table C-1

**Active Members Distribution of
Members and Salaries**

as of June 30, 2008

Number of Members – By Age Group – DCRP & ORP Members

Age	Completed Years of Service												Totals
	<u>0</u>	<u>1</u>	<u>2</u>	<u>3 to 4</u>	<u>5 to 9</u>	<u>10 to 14</u>	<u>15 to 19</u>	<u>20 to 24</u>	<u>25 to 29</u>	<u>30 to 34</u>	<u>35 to 39</u>	<u>40+</u>	
Under 25	18	18	5	1	-	-	-	-	-	-	-	-	42
25 to 29	47	100	56	42	18	-	-	-	-	-	-	-	263
30 to 34	31	78	63	92	66	8	-	-	-	-	-	-	338
35 to 39	26	72	41	71	96	39	-	-	-	-	-	-	345
40 to 44	30	54	46	71	94	39	7	1	-	-	-	-	342
45 to 49	23	60	47	73	83	44	18	5	-	-	-	-	353
50 to 54	22	36	45	73	72	34	10	2	-	2	-	-	296
55 to 59	20	28	32	50	40	17	12	1	2	-	-	-	202
60 to 64	9	22	14	16	22	5	1	-	-	-	-	-	89
65 to 69	5	2	4	8	5	2	1	-	-	-	-	-	27
70 & Over	-	2	1	2	-	-	-	-	-	-	-	-	5
Totals	231	472	354	499	496	188	49	9	2	2	-	-	2,302

**MONTANA PUBLIC EMPLOYEES' RETIREMENT SYSTEM
ACTUARIAL VALUATION AS OF JUNE 30, 2008**

Table C-1

**Active Members Distribution of
Members and Salaries**

as of June 30, 2008

Annual Salaries in Thousands – By Age Group – DCRP & ORP Members

Age	Completed Years of Service												Totals
	<u>0</u>	<u>1</u>	<u>2</u>	<u>3 to 4</u>	<u>5 to 9</u>	<u>10 to 14</u>	<u>15 to 19</u>	<u>20 to 24</u>	<u>25 to 29</u>	<u>30 to 34</u>	<u>35 to 39</u>	<u>40+</u>	
Under 25	491	481	136	22	-	-	-	-	-	-	-	-	1,130
25 to 29	1,274	3,212	1,886	1,565	633	-	-	-	-	-	-	-	8,570
30 to 34	962	2,618	2,360	3,601	2,756	415	-	-	-	-	-	-	12,712
35 to 39	734	2,460	1,708	2,879	3,912	1,838	-	-	-	-	-	-	13,531
40 to 44	871	1,537	1,683	2,485	3,883	1,651	271	31	-	-	-	-	12,412
45 to 49	585	1,963	1,612	2,574	3,203	1,754	784	275	-	-	-	-	12,750
50 to 54	732	936	1,687	2,720	2,451	1,495	360	93	-	73	-	-	10,547
55 to 59	465	771	1,047	1,616	1,261	530	412	37	83	-	-	-	6,222
60 to 64	210	426	380	626	845	183	12	-	-	-	-	-	2,682
65 to 69	113	44	69	247	114	41	50	-	-	-	-	-	678
70 & Over	-	25	16	104	-	-	-	-	-	-	-	-	145
Totals	6,437	14,473	12,584	18,439	19,058	7,907	1,889	436	83	73	-	-	81,379

**MONTANA PUBLIC EMPLOYEES' RETIREMENT SYSTEM
ACTUARIAL VALUATION AS OF JUNE 30, 2008**

Table C-1

**Active Members Distribution of
Members and Salaries**

as of June 30, 2008

Average Annual Salary – By Age Group – DCRP & ORP Members

Age	Completed Years of Service												Totals
	<u>0</u>	<u>1</u>	<u>2</u>	<u>3 to 4</u>	<u>5 to 9</u>	<u>10 to 14</u>	<u>15 to 19</u>	<u>20 to 24</u>	<u>25 to 29</u>	<u>30 to 34</u>	<u>35 to 39</u>	<u>40+</u>	
Under 25	27,278	26,729	27,169	21,839	-	-	-	-	-	-	-	-	26,900
25 to 29	27,115	32,122	33,673	37,259	35,167	-	-	-	-	-	-	-	32,586
30 to 34	31,039	33,565	37,464	39,145	41,752	51,923	-	-	-	-	-	-	37,612
35 to 39	28,246	34,165	41,647	40,545	40,745	47,131	-	-	-	-	-	-	39,218
40 to 44	29,030	28,455	36,589	34,999	41,311	42,337	38,758	31,039	-	-	-	-	36,293
45 to 49	25,435	32,723	34,295	35,254	38,593	39,855	43,542	54,966	-	-	-	-	36,117
50 to 54	33,276	26,001	37,500	37,255	34,040	43,971	36,047	46,558	-	36,442	-	-	35,634
55 to 59	23,230	27,525	32,720	32,330	31,526	31,181	34,361	37,132	41,491	-	-	-	30,804
60 to 64	23,315	19,369	27,153	39,104	38,398	36,504	12,480	-	-	-	-	-	30,129
65 to 69	22,650	21,855	17,358	30,837	22,861	20,347	49,678	-	-	-	-	-	25,102
70 & Over	-	12,250	16,326	52,038	-	-	-	-	-	-	-	-	28,980
Totals	27,869	30,662	35,550	36,949	38,423	42,056	38,572	48,458	41,491	36,442	-	-	35,351

MONTANA PUBLIC EMPLOYEES' RETIREMENT SYSTEM
ACTUARIAL VALUATION AS OF JUNE 30, 2008

Table C-2

Distribution of Inactive Lives

Members Receiving Service Retirement Benefits as of June 30, 2008

Age	Number of Persons	Annual Benefit in Thousands	Average Annual Benefits
Under 50	19	335	17,638
50 to 54	289	5,208	18,020
55 to 59	1,031	18,435	17,881
60 to 64	2,168	32,586	15,031
65 to 69	2,880	35,640	12,375
70 to 74	2,415	25,902	10,726
75 to 79	2,003	19,159	9,565
80 to 84	1,484	12,806	8,630
85 to 89	993	7,568	7,621
90 & Over	531	3,904	7,353
Total	13,813	161,543	11,695

Members Receiving Disability Retirement Benefits as of June 30, 2008

Age	Number of Persons	Annual Benefit in Thousands	Average Annual Benefits
Under 50	38	302	7,942
50 to 54	77	626	8,126
55 to 59	158	1,336	8,458
60 to 64	151	1,260	8,343
65 to 69	124	917	7,399
70 to 74	94	626	6,661
75 to 79	69	481	6,971
80 to 84	47	367	7,799
85 to 89	28	269	9,614
90 & Over	7	81	11,596
Total	793	6,265	7,901

**MONTANA PUBLIC EMPLOYEES' RETIREMENT SYSTEM
ACTUARIAL VALUATION AS OF JUNE 30, 2008**

Table C-2

Distribution of Inactive Lives

Survivors of Deceased Members Receiving Retirement Benefits as of June 30, 2008

<u>Age</u>	<u>Number of Persons</u>	<u>Annual Benefit in Thousands</u>	<u>Average Annual Benefits</u>
Under 50	125	693	5,541
50 to 54	73	550	7,531
55 to 59	128	1,129	8,823
60 to 64	167	1,681	10,064
65 to 69	207	2,063	9,967
70 to 74	257	2,475	9,630
75 to 79	325	2,913	8,962
80 to 84	314	2,538	8,084
85 to 89	267	2,014	7,542
90 & Over	<u>158</u>	<u>1,291</u>	<u>8,169</u>
Total	2,021	17,347	8,583

Terminated Vested Members as of June 30, 2008

Number of Persons

<u>Age</u>	<u>Number</u>
Under 25	-
25 to 29	15
30 to 34	53
35 to 39	152
40 to 44	300
45 to 49	508
50 to 54	675
55 to 59	599
60 to 64	216
65 to 69	51
70 & Over	<u>10</u>
Total	2,579

**MONTANA PUBLIC EMPLOYEES' RETIREMENT SYSTEM
ACTUARIAL VALUATION AS OF JUNE 30, 2008**

Table C-3

Active Membership Data History

Valuation Date (June 30)	Active Members					
	Total Contributing Members	Annual Salaries in Thousands	Average Annual Salary	Average Age	Average Years of Service	Average Hire Age
1998	28,091	\$660,588	\$23,516	44.9	8.8	36.1
2000	29,500	739,831	25,079	45.4	8.8	36.6
2002	29,808	815,130	27,346	46.2	9.1	37.1
2004	28,201	831,564	29,487	47.3	9.8	37.5
2005	28,213	854,570	30,290	47.6	9.9	37.7
2006	27,962	892,825	31,930	48.0	9.9	38.1
2007	27,977	943,286	33,716	48.3	10.0	38.3
2008	28,293	994,314	35,143	48.4	9.9	38.5

**MONTANA PUBLIC EMPLOYEES' RETIREMENT SYSTEM
ACTUARIAL VALUATION AS OF JUNE 30, 2008**

Table C-4

Retired and Inactive Membership Data History

Valuation Date (June 30)	All Annuitants			Terminated Members	
	Number	Annual Benefits in Thousands	Average Annual Benefit	Number Vested Terminated	Number Non-Vested Terminated
1998	12,924	87,115	6,741	1,653	8,474
2000	13,572	97,147	7,158	1,813	9,966
2002	14,116	115,613	8,190	2,150	10,944
2004	14,834	135,207	9,115	2,362	9,132
2005	15,220	145,150	9,537	2,418	8,153
2006	15,654	156,999	10,029	2,530	7,178
2007	16,137	170,192	10,547	2,576	6,401
2008	16,627	185,155	11,136	2,579	6,268

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Appendix D

Glossary

The following definitions are largely excerpts from a list adopted in 1981 by the major actuarial organizations in the United States. In some cases, the definitions have been modified for specific applicability to this System. Defined terms are capitalized throughout this Appendix.

Actuarial Assumptions:	Assumptions as to the occurrence of future events affecting pension costs, such as mortality, withdrawal, disablement, and retirement, changes in compensation, rates of investment earnings and asset appreciation or depreciation, procedures used to determine the Actuarial Value of Assets, and other relevant items.
Actuarial Cost Method:	A procedure for determining the Actuarial Present Value of pension plan benefits and expenses and for developing an actuarially equivalent allocation of such value to time periods, usually in the form of a Normal Cost and an Actuarial Liability.
Actuarial Gain or Loss:	A measure of the difference between actual experience and that expected based upon a set of Actuarial Assumptions during the period between two Actuarial Valuation dates, as determined in accordance with a particular Actuarial Cost Method.
Actuarial Liability:	That portion, as determined by a particular Actuarial Cost method, of the Actuarial Present Value of pension plan benefits and expenses which is not provided for by future Normal Costs.
Actuarial Present Value:	The value of an amount or series of amounts payable or receivable at various times, determined as of a given date by the application of a particular set of Actuarial Assumptions.
Actuarial Surplus:	The excess, if any, of the Actuarial Value of Assets over the Actuarial Liability.
Actuarial Valuation:	The determination, as of a Valuation Date, of the Normal Cost, Actuarial Liability, Actuarial Value of Assets, and related Actuarial Present Values for a retirement plan.

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Actuarial Value of Assets:	The value of cash, investments and other property belonging to a pension plan, as used by the actuary for the purpose of an Actuarial Valuation.
Actuarial Equivalent:	Of equal Actuarial Present Value, determined as of a given date with each value based on the same set of Actuarial Assumptions.
Entry Age Cost Method:	An actuarial cost method under which the Actuarial Present Value of Projected Benefits of each individual included in an Actuarial Valuation is allocated on a level basis over the earnings of the individual between entry age and assumed exit ages. The portion of this Actuarial Present Value allocated to a valuation year is called the Normal Cost. The portion of this Actuarial Present Value not provided for at a valuation date by the Actuarial Present Value of future Normal Costs is called the Actuarial Liability.
Normal Cost:	The portion of the Actuarial Present Value of Projected Benefits which is allocated to a valuation year by the Actuarial Cost Method.
Unfunded Actuarial Liability:	The excess, if any, of the Actuarial Liability over the Actuarial Value of Assets.
Valuation Date:	June 30, 2008.