

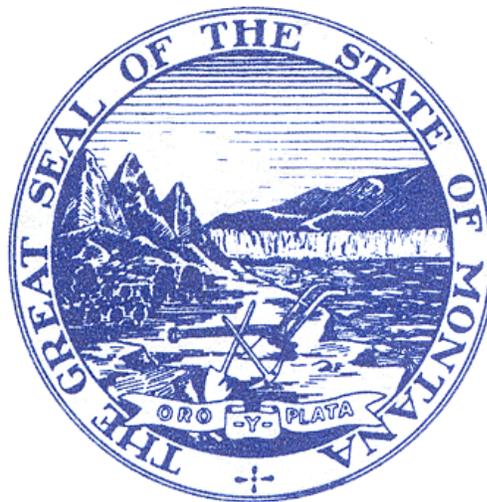


Cavanaugh Macdonald
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**Montana University System
Optional Retirement Program
Supplemental Contribution**

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





Cavanaugh Macdonald

CONSULTING, LLC

The experience and dedication you deserve

October 14, 2010

Mr. David L. Senn
Executive Director
Teacher's Retirement System
State of Montana
1500 Sixth Avenue
Helena, MT 59620-0139

Dear Mr. Senn:

As required by MCA, Section 19-20-621, the purpose of this report is to determine the financial position of the Montana University System (MUS) and determine the supplemental contribution rate necessary to amortize the past service liability of the university members of the Montana Teachers' Retirement System (TRS) by July 1, 2033. The required supplemental contribution rate for the period beginning July 1, 2011 is 8.54% of Optional Retirement Plan (ORP) member salaries. This represents an increase of 3.82% from the amount that was determined as of July 1, 2006 for the period beginning July 1, 2007.

The promised benefits of the System are included in the actuarially calculated contribution rates which are developed using the Entry Age Normal cost method. Market value of assets is used for actuarial valuation purposes. Gains and losses are reflected in the unfunded accrued liability that is being amortized by regular contributions of ORP payroll determined as a percentage of the present value of future ORP payroll thru June 30, 2033, on the assumption that payroll will increase by 4.50% annually. The assumptions recommended by the actuary and adopted by the Board are in the aggregate reasonably related to the experience under the Fund and to reasonable expectations of anticipated experience under the Fund. The July 1, 2010 valuation reflects revised rates of withdrawal, disability and service retirement for active members based on a five-year experience study ending July 1, 2009 adopted by the Board on May 13, 2010.

The calculations assume the value of the GABA benefits for MUS members are not financed by the supplemental contributions made as a percent of ORP member salaries but are instead financed by the TRS contribution rate.

All historical information that references a valuation date prior to July 1, 2010 was prepared by a previous actuarial firm.

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October 14, 2010
Mr. David L. Senn
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This is to certify that the independent consulting actuary is a member of the American Academy of Actuaries and has experience in performing valuations for public retirement systems, that the valuation was prepared in accordance with principles of practice prescribed by the Actuarial Standards Board, and that the actuarial calculations were performed by qualified actuaries in accordance with accepted actuarial procedures, based on the current provisions of the retirement system and on actuarial assumptions that are internally consistent and reasonably based on the actual experience of the System.

Future actuarial results may differ significantly from the current results presented in this report due to such factors as the following: plan experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the plan's funded status); and changes in plan provisions or applicable law. Since the potential impact of such factors is outside the scope of a normal annual actuarial valuation, an analysis of the range of results is not presented herein.

The Table of Contents, which immediately follows, outlines the material contained in the report.

Respectfully submit

A handwritten signature in blue ink, appearing to read 'Edward Macdonald'.

Edward A. Macdonald, ASA, FCA, MAAA
President

A handwritten signature in blue ink, appearing to read 'Todd B. Green'.

Todd Green, ASA, FCA, MAAA
Principal and Senior Actuary

EAM:TBG/kc



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Montana University System ORP Supplemental Contribution

Section 1

Summary of Findings

For convenience of reference, the principal results of the valuation and a comparison with the prior valuation results are summarized below:

VALUATION DATE	July 1, 2010	July 1, 2006
Active members		
Number	481	633
Annual compensation	\$ 34,649,007	\$ 40,400,000
Retired members and beneficiaries		
Number	1,575	1,442
Annual allowances	\$ 38,366,803	\$ 30,817,000
Inactive Members		
Vested Terminated Members	85	130
Non-Vested Terminated Members	148	280
Assets		
Market value	\$ 204,749,165	\$ 282,400,000
Unfunded accrued liability	287,331,642	144,676,877
CONTRIBUTION NECESSARY TO AMORTIZE UNFUNDED LIABILITY		
ORP Supplement Contribution Rate*	8.54%	4.72%
Amortization Period (Years)	23	27

* The 8.54% contribution rate would increase to 10.51% if GABA benefits for MUS members were financed by the supplemental contributions.



Montana University System ORP Supplemental Contribution

Section 1

Summary

Per Section 19-20-621 of MCA,

“Montana university optional retirement program supplemental contributions.

- (1) Each employer within the university system with employees participating in the Optional Retirement Program under Title 19, chapter 21, shall contribute to the teachers’ retirement system supplemental employer contributions sufficient to amortize, by July 1, 2033, the past service liability of the teachers’ retirement system for the university system members.
- (2) The optional retirement program supplemental employer contribution as a percentage of the total compensation of all employees participating in the program is
 - a. 4.04% beginning July 1, 2001, through June 30, 2007; and
 - b. 4.72% beginning July 1, 2007.
 - c. The board shall periodically review the supplemental employer rate and recommend adjustments to the legislature as needed to maintain the amortization of the university system’s past service liability by July 1, 2033”

This legislation was the result of the creation of the ORP for employees of the MUS, which was established January 1, 1988. Subsequent to the establishment of the ORP, MUS employees could elect to join ORP or TRS. To prevent and adverse impact on TRS, a supplemental contribution of earned compensation of MUS employees who participated in ORP was contributed to TRS. Legislation in 1993 removed the MUS election and required all new MUS employees hired after July 1, 1993 to join ORP.

As of July 1, 2010, the unfunded prior service liability of the MUS members is \$287,331,642. Per Section 19-20-621 of MCA, this amount must be amortized by July 1, 2033. The percent of ORP payroll necessary to amortize this liability within the prescribe time frame is 8.54%. This represents an increase from the current contribution rate of 4.72%.

The dramatic increase from 4.72% to 8.54% is largely due to asset performance.



Section 2

Assets

In many respects, an actuarial valuation can be regarded as an inventory process. The inventory is taken as of the actuarial valuation date, which for this valuation is July 1, 2010. On that date, the assets available for the payment of benefits are appraised. These assets are compared with the actuarial accrued liabilities. The actuarial process thus leads to a method of determining what contributions by members and their employers are needed to strike a balance.

The asset valuation method being used is market value.

Table 1 lists the assets held and their market value. Table 2 summarizes the activity during the year.



Montana University System ORP Supplemental Contribution

Section 2

Table 1

Statement of Fiduciary Net Assets

	2010
ASSETS	
Cash/Cash Equivalents-Short Term	
Investment Pool	\$ 3,800,858
Receivables:	
Accounts Receivable	1,617,223
Interest Receivable	333,797
Total Receivables	\$ <u>5,751,878</u>
Investments, at fair value:	
Mortgages	\$ 1,327,013
Investment Pools	196,993,121
Other Investments	680,705
Securities Lending Collateral	13,162,308
Total Investments	\$ <u>212,163,147</u>
Assets Used in Plan Operations:	
Land and Buildings	\$ 15,740
Less: Accumulated Depreciation	(12,224)
Equipment	11,587
Less: Accumulated Depreciation	(4,016)
Prepaid Expense	599
Intangible Assets, net of amortization	8,638
Total Other Assets	\$ <u>20,324</u>
TOTAL ASSETS	\$ 217,935,349
LIABILITIES	
Accounts Payable	\$ 9,040
Securities Lending Liability	13,162,307
Compensated Absences	14,837
OPEB Implicit Rate Subsidy	11,705
TOTAL LIABILITIES	\$ <u>13,186,184</u>
NET ASSETS HELD IN TRUST FOR PENSION BENEFITS	\$ 204,749,165



Section 2

Table 2

Statement of Changes in Fiduciary Net Assets

	2010
ADDITIONS	
Contributions:	
Employer	\$ 12,769,654
Plan Member	3,334,001
Other	0
Total Contributions	<u>\$ 16,103,655</u>
Misc Income	\$ 5,596
Investment Income:	
Net Appreciation/(Depreciation) in Fair Value of Investments	\$ 17,115,423
Investment Earnings	9,428,156
Security Lending Income	107,549
Investment Income/(Loss)	<u>\$ 26,651,128</u>
Less: Investment Expense	(1,316,957)
Less: Security Lending Expense	<u>(30,022)</u>
Net Investment Income/(Loss)	\$ 25,304,149
Total Additions	\$ 41,413,401
DEDUCTIONS	
Benefit Payments	\$ 33,752,156
Withdrawals	102,932
Administrative Expense	163,441
OPEB Expenses	4,047
Total Deductions	<u>\$ 34,022,576</u>
NET INCREASE (DECREASE) IN PLAN NET ASSETS	\$ 7,390,824
NET ASSETS HELD IN TRUST FOR PENSION BENEFITS	
BEGINNING OF YEAR	197,456,698
Prior Period Adjustment	<u>(98,357)</u>
END OF YEAR	\$ 204,749,165



Section 3

Actuarial Present Value of Future Benefits

In the previous section, an actuarial valuation was related to an inventory process, and an analysis was given of the inventory of assets of the System as of the valuation date. In this section, the discussion will focus on the commitments of the System, which will be referred to as its actuarial liabilities.

Table 3 contains an analysis of the actuarial present value of all future benefits for contributing members, for former contributing members, and for beneficiaries. The analysis is given by type of benefit.

The actuarial liabilities summarized in Table 3 include the actuarial present value of all future benefits expected to be paid with respect to each member covered as of the valuation date. For an active member, this value includes a measure of both benefits already earned and future benefits to be earned. Thus, for all members, active and retired, the value extends over benefits earnable and payable for the rest of their lives and, if an optional benefit is chosen, for the lives of their surviving beneficiaries.



Montana University System ORP Supplemental Contribution

Section 3

Table 3
Actuarial Present Value of Future Benefits

	July 1, 2010	July 1, 2006
A. Active Members		
Service Retirement	\$ 146,058,040	\$ 169,727,280
Disability Retirement	575,180	848,878
Survivors' Benefits	3,489,949	4,239,124
Vested Retirement	335,121	382,053
Refund of Member Contributions	Included Above	288,912
Total	\$ 150,458,290	\$ 175,486,248
B. Inactive Members and Annuitants		
Service Retirement	\$ 321,178,284	\$ 254,263,454
Disability Retirement	1,128,846	1,302,872
Beneficiaries	30,926,567	20,827,660
Vested Terminated Members	4,139,322	7,872,562
Refund of Member Contributions	286,479	524,080
Total	\$ 357,659,498	\$ 284,790,628
C. Grand Total	\$ 508,117,788	\$ 460,276,876



Montana University System ORP Supplemental Contribution

Section 4

Employer Contributions

Table 4 shows how the ORP Employer Contribution Rate was derived for the System. Lines A and B show, respectively, the total present value of future benefits and the portion of the future liability that is expected to be paid from future normal cost contributions, both employer and employee. Line C shows the actuarial accrued liability. Line D shows the amount of assets available for benefits. Line E shows the past service liability(UAAL). Line F shows the present value of future ORP salaries for which the Past Service Liability will be amortized. Line G shows the derived contribution rate that ORP employers must contribute to TRS to amortize the unfunded liability of the MUS by June 30, 2033.

Under Section 19-20-621, periodic separate valuations are to be performed to measure the liabilities of benefits to be paid under TRS for MUS members. The MUS valuations calculate contribution rates that finance the university member benefits with university contributions and reflect actual experience including investment returns. Therefore the university supplemental contribution rate has varied from time to time. Recently it has varied as follows:

<u>Supplemental University Contribution Rate</u>	<u>Fiscal Years Ending</u>
2.81%	June 30, 1998
3.12%	June 30, 1999
3.42%	June 30, 2000
3.73%	June 30, 2001
4.04%	June 30, 2002 to June 30, 2007
4.72%	June 30, 2008 to June 30, 2033

The UAAL at any date after establishment of a system is affected by any actuarial gains or losses arising when the actual experience of the system varies from the experience anticipated by the actuarial assumptions used in the valuations. To the extent actual experience as it develops differs from the assumptions used, so also will the actual emerging costs differ from the estimated costs.



Montana University System ORP Supplemental Contribution

Section 4

Table 4
Employer Contribution Rate

	July 1, 2010	July 1, 2006
A. Actuarial present value of all future benefits for present and former members and their survivors	\$ 508,117,788	\$ 460,276,877
B. Less actuarial present value of total future normal costs for present members	<u>16,036,981</u>	<u>33,200,000</u>
C. Actuarial accrued liability	\$ 492,080,807	\$ 427,076,877
D. Less assets available for benefits	<u>204,749,165</u>	<u>282,400,000</u>
E. Remaining Past Service Liability to be paid for by a percentage of ORP Salaries(UAAL)	\$ 287,331,642	\$ 144,676,877
F. Present Value of of future ORP salaries through June 30, 2033	\$ 3,363,100,937	\$ 3,174,600,000
G. Supplemental Contribution Rate	8.54%	4.72%



Appendix A

Actuarial Procedures and Assumptions

Retirement, disablement and termination of employment assumptions have been revised to reflect the five-year experience study for the period ending July 1, 2009 adopted by the Board on May 13, 2010. These actions reflect the recommended changes in the Experience Study.

The current mortality assumptions were adopted for the July 1, 2006 valuation.

Economic assumptions were reviewed in the 2009 Investigation of Experience Study.

Tables A-3 through A-6 give rates of decrement for service retirement, disablement, mortality, and other terminations of employment.

Actuarial Cost Method

The actuarial valuation was prepared using the entry age actuarial cost method. Under this method, the actuarial present value of the projected benefits of each individual included in the valuation is allocated as a level percentage of the individual's projected compensation between entry age and assumed exit. The portion of this actuarial present value allocated to a valuation year is called the normal cost. The normal cost was first calculated for each individual member. The normal cost rate is defined to equal the total of the individual normal costs, divided by the total pay rate.

The portion of this actuarial present value not provided for at a valuation date by the sum of (a) the actuarial value of the assets and (b) the actuarial present value of future normal costs is called the UAAL. The UAAL is amortized as a level percentage of the projected salaries of present members of the System thru July 1, 2033.

Records and Data

The data used in the valuation consist of financial information; records of age, sex, service, salary, contribution rates, and account balances of contributing members; and records of age, sex, and amount of benefit for retired members and beneficiaries. All of the data were supplied by the System and are accepted for valuation purposes without audit.



Montana University System ORP Supplemental Contribution

Appendix A

Administrative and Investment Expenses

The administrative and investment expenses of the System are assumed to be funded by investment earnings in excess of 7.75% per year.

Valuation of Assets

Market Value

Investment Earnings

The annual rate of investment earnings of the assets of the System is assumed to be 7.75% per year, compounded annually. (Adopted effective July 1, 2004)

Interest on Member Contributions

Interest on member contributions is assumed to accrue at a rate of 5% per annum, compounded annually. This assumption was set as of July 1, 2004.

Future Salaries

The rates of annual salary increase assumed for the purpose of the valuation are illustrated in Table A-2. In addition to increases in salary due to merit and longevity, this scale includes an assumed 4.5% annual rate of increase in the general wage level of the membership. The merit and longevity increases for the MUS members did not show a pattern of increasing or decreasing with service at the time of our most recent study. Therefore, the MUS members have a flat 1% merit and longevity assumption. The general wage increase assumption was adopted July 1, 2004 and the merit and longevity scales were adopted July 1, 2002.

Montana University System (MUS) members are assumed to have a 0.63% higher average final compensation to account for the larger than average annual compensation increases observed in the years immediately preceding retirement.

Service Retirement

Table A-3 shows the annual assumed rates of retirement among members eligible for service retirement. Separate rates are used when a member is eligible for reduced benefits, for the first year a member is eligible for full benefits, and for the years following the first year a member is eligible for full benefits. The rates for University Members were adopted May 13, 2010.

Disablement

The rates of disablement used in this valuation are illustrated in Table A-4. These rates were adopted May 13, 2010.

Mortality

The mortality rates used in this valuation are illustrated in Table A-5. A written description of each table used is included in Table A-1. These rates were adopted July 1, 2006.



Montana University System ORP Supplemental Contribution

Appendix A

Other Terminations of Employment

The rates of assumed future withdrawal from active service for reasons other than death, disability or retirement are shown for representative ages in Table A-6. These rates were adopted May 13, 2010.

Benefits for Terminating Members

Members terminating with less than five years of service are assumed to request an immediate withdrawal of their contributions with interest. Table A-7 shows the assumed probability of retaining membership in the System among members terminating with five or more years of service. These rates were adopted July 1, 2002.

We estimated the present value of future benefits for terminated vested members based on the greater of the present value of their deferred benefit at age 60 or their available contribution account.

Part-Time Employees

The valuation data for active members identify part-time members, but give no indication as to the number of hours worked. As done in the past, we imputed a "part-time percentage" by comparing the pay received with their annual equivalent full-time salary. Their accumulated service was divided by this percentage to reflect their full benefit. Part-time members earning less than \$1,000 during the last year were valued at their current member contribution balance.

Buybacks, Purchase of Service, and Military Service

The active liabilities and normal cost (excluding liabilities and normal cost in respect of Return of Employee Contributions) were increased to 100.5% of their original value to fund this additional service based on a study of the System's experience for the five calendar years 1995 through 1999. Effective July 1, 2008.

Probability of Marriage

If death occurs in active status, all members are assumed to have an eligible surviving spouse and two children. The spouse is assumed to be the same age as the member.

Records with no Birth Date

New records with no birth date are assumed to be 25 years old. Records that are not new and have no birth date used the same birth date as the prior year's valuation.



Montana University System ORP Supplemental Contribution

Appendix A

Table A-1
Summary of Valuation Assumptions
(July 1, 2010)

I. Economic assumptions		
A.	General wage increases* (Adopted July 1, 2004)	4.50%
B.	Investment return (Adopted July 1, 2004)	7.75%
C.	Price Inflation Assumption (Adopted July 1, 2004)	3.50%
D.	Growth in membership	0.00%
E.	Postretirement benefit increases (Starting three years after retirement)	1.50%
F.	Interest on member accounts (Adopted July 1, 2004)	5.00%
II. Demographic assumptions		
A.	Individual salary increase due to promotion and longevity (University Member assumptions adopted July 1, 2000)	Table A-2
B.	Retirement (adopted May 13, 2010)	Table A-3
C.	Disablement (adopted May 13, 2010)	Table A-4
D.	Mortality among contributing members, service retired members, and beneficiaries For Males: RP 2000 Combined Mortality Table for Males, set back three years, with mortality improvements projected by Scale AA to 2008 (adopted July 1, 2006). For Females: RP 2000 Combined Mortality Table for Females, set back two years, with mortality improvements projected by Scale AA to 2008 (adopted July 1, 2006).	Table A-5
E.	Mortality among disabled members For Males: RP 2000 Disabled Mortality Table for Males, set back three years, with mortality improvements projected by Scale AA to 2008 (adopted July 1, 2006). For Females: RP 2000 Disabled Mortality Table for Females, set forward three years, with mortality improvements projected by Scale AA to 2008 (adopted July 1, 2006).	Table A-5
F.	Other terminations of employment (adopted May 13, 2010)	Table A-6
G.	Probability of retaining membership in the System upon vested termination (adopted July 1, 2002)	Table A-7

* Montana University System (MUS) members are assumed to have a 0.63% higher average final compensation to account for the larger than average annual compensation increases observed in the years immediately preceding retirement.



Montana University System ORP Supplemental Contribution

Appendix A

Table A-2

Future Salaries

Years of Service	University Members		
	Individual Merit & Longevity	General Wage Increase	Total Salary Increase
1	1.00%	4.50%	5.50%
2	1.00	4.50	5.50
3	1.00	4.50	5.50
4	1.00	4.50	5.50
5	1.00	4.50	5.50
6	1.00	4.50	5.50
7	1.00	4.50	5.50
8	1.00	4.50	5.50
9	1.00	4.50	5.50
10	1.00	4.50	5.50
11	1.00	4.50	5.50
12	1.00	4.50	5.50
13	1.00	4.50	5.50
14	1.00	4.50	5.50
15	1.00	4.50	5.50
16	1.00	4.50	5.50
17	1.00	4.50	5.50
18	1.00	4.50	5.50
19	1.00	4.50	5.50
20	1.00	4.50	5.50
21	1.00	4.50	5.50
22 & Up	1.00	4.50	5.50



Montana University System ORP Supplemental Contribution

Appendix A

Table A-3
Retirement
Annual Rates

Age	University Members		
	Eligible for Reduced Benefits	First Year Eligible for Full Benefits	Thereafter
45		17.0%	8.0%
46		17.0	8.0
47		17.0	8.0
48		17.0	8.0
49	*	17.0	8.0
50	7.0%	17.0	8.0
51	7.0	17.0	8.0
52	7.0	17.0	8.0
53	7.0	17.0	8.0
54	7.0	17.0	8.0
55	7.0	15.0	8.0
56	7.0	15.0	8.0
57	7.0	15.0	8.0
58	7.0	15.0	8.0
59	7.0	15.0	8.0
60	*	15.0	8.5
61		14.0	14.5
62		20.0	19.0
63		14.0	14.5
64		20.0	18.0
65		28.0	26.0
66		21.0	21.0
67		21.0	24.5
68		21.0	19.5
69		21.0	30.0
70		**	**

* All benefits are unreduced after attaining age 60. Reduced benefits are not available before age 50.

** Immediate retirement is assumed at age 70 or over.



Appendix A

Table A-4
Disablement
Annual Rates

Age	All Members
25	.005%
30	.005
35	.008
40	.028
45	.044
50	.063
55	.084
60	.100



Montana University System ORP Supplemental Contribution

Appendix A

Table A-5
Mortality
Annual Rates

Age	Contributing Members, Service Retired Members and Beneficiaries		Disabled Members	
	Men	Women	Men	Women
25	.03%	.02%	1.97%	.68%
30	.04	.02	2.17	.69
35	.05	.04	2.17	.67
40	.09	.05	2.17	.66
45	.11	.08	2.08	.85
50	.15	.12	2.23	1.31
55	.23	.20	2.69	1.89
60	.41	.38	3.32	2.43
65	.78	.73	3.99	3.19
70	1.45	1.29	4.90	4.33
75	2.42	2.17	6.15	6.01
80	4.22	3.55	8.30	8.30
85	7.55	5.91	11.43	11.86



Appendix A

Table A-6
Other Terminations of Employment
Among Members Not Eligible to Retire
Annual Rates

<u>Years of Service</u>	<u>All Members</u>
1	36.5%
2	20.5
3	14.6
4	10.5
5	8.5
6	7.0
7	6.4
8	5.8
9	5.4
10	5.0
11	4.3
12	3.9
13	3.5
14	3.2
15	2.9
16	2.6
17	2.3
18	2.0
19	1.9
20	1.8
21	1.7
22	1.6
23	1.5
24	1.5



Appendix A

Table A-7

**Probability of Retaining Membership in the System
Upon Vested Termination**

<u>Age</u>	<u>Probability of Retaining Membership</u>
25	54%
30	54
35	58
40	58
45	60
50	70
55	75



Montana University System ORP Supplemental Contribution

Appendix B

Summary of Benefit Provisions

Effective Date	September 1, 1937.
Vesting Period	Five years. No benefits are payable unless the member has a vested right, except the return of employee contributions with interest.
Final Compensation	Average of highest three consecutive years of earned compensation.
Normal Form of Benefits	Life only annuity. All benefits cease upon death; however, in no event will the member receive less than the amount of employee contributions with interest.
Normal Retirement Benefits	
Eligibility:	25 years of service or age 60 and five years of service.
Benefit:	The retirement benefit is equal to 1/60 of final compensation for each year of service.
Early Retirement Benefits	
Eligibility:	Five years of service and age 50.
Benefit:	The retirement benefit is calculated in the same manner as described for normal retirement, but the benefit is reduced 1/2 of 1% for each of the first 60 months early and 3/10 of 1% for each of the next 60 months early.



Montana University System ORP Supplemental Contribution

Appendix B

Death Benefit

Eligibility: Five years of service.

Benefit: The death benefit is equal to 1/60 of final compensation for each year of service accrued at date of death, with an actuarial adjustment based on the relation of the member's age at death to the beneficiary's age. A monthly benefit of \$200 is paid to each child until age 18. In addition, a lump-sum benefit of \$500 is paid upon the death of an active or retired member.

Disability Benefit

Eligibility: Five years of service.

Benefit: The disability benefit is equal to 1/60 of final compensation for each year of service accrued at date of disability. The minimum benefit is 1/4 of the final compensation.

Withdrawal Benefits

With less than five years of service, the accumulated employee contributions with interest are returned. With more than five years, the member may elect a refund of contributions with interest or leave the contributions and interest in the System and retain a vested right to retirement benefits.

Contributions

Member: 7.15% of compensation.

Employer: 9.96% of compensation.

MCA 19-20-604 specifies that the employer contribution rate will be reduced by 0.11% when the amortization period of the System's UAAL is 10 years or less according to the System's latest actuarial valuation.

Interest on Member Contributions

Effective July 1, 2010, the Interest credited on member contributions is reduced from 1.0% to 0.25% per annum.

Cost-of-Living Adjustments

On January 1 of each year, the retirement allowance payable must be increased by 1.5% if the retiree has received benefits for at least 36 months prior to January 1 of the year in which the adjustment is to be made.



Montana University System ORP Supplemental Contribution

Appendix C

Valuation Data

This valuation is based upon the membership of the System as of July 1, 2010. 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.

<u>Active Members</u>	<u>Number</u>	<u>Annual Salaries</u>
Full-Time Members	427	\$ 33,264,856
Part-Time Members	<u>54</u>	<u>1,384,151</u>
Total	481	\$ 34,649,007



Montana University System ORP Supplemental Contribution

Appendix C

The following is a summary of retired members and beneficiaries currently receiving benefits:

<u>Type of Annuitant</u>	<u>Number</u>	<u>Annual Benefits</u>	<u>Average Annual Benefits</u>
Service Retirement	1,304	\$ 34,289,638	\$ 26,296
Survivors of Deceased Retired Members	<u>204</u>	<u>3,186,273</u>	<u>15,619</u>
Total Service Retirement (including survivors)	1,508	\$ 37,475,911	\$ 24,851
Disability Retirement	10	127,663	12,766
Survivors of Deceased Active Members	<u>57</u>	<u>763,229</u>	<u>13,390</u>
Total Annuitants	1,575	\$ 38,366,803	\$ 24,360

<u>Terminated Members with Contributions Not Withdrawn</u>	<u>Number</u>
Vested Terminated Members	85
Non-Vested Terminated Members	<u>148</u>
Total Terminated Members	233



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 the Teachers' Retirement System Retirement System. Defined terms are capitalized throughout this Appendix.

Accrued Benefit

The amount of an individual's benefit (whether or not vested) as of a specific date, determined in accordance with the terms of a pension plan and based on compensation and service to that date.

Actuarial Accrued 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 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 Accrued Liability.

Actuarial Gain (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.



Appendix D

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 Valuation

The determination, as of a valuation date, of the Normal Cost, Actuarial Accrued Liability, Actuarial Value of Assets, and related Actuarial Present Values for a pension plan.

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.

Actuarially Equivalent

Of equal Actuarial Present Value, determined as of a given date with each value based on the same set of Actuarial Assumptions.

Amortization Payment

That portion of the pension plan contribution which is designed to pay interest on and to amortize the Unfunded Actuarial Accrued Liability.

Entry Age Actuarial Cost Method

A method under which the Actuarial Present Value of the 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 Accrued Liability.

Market Value of Assets

The fair value of cash, investments and other property belonging to a pension plan that could be acquired by exchanging them on the open market.

Normal Cost

That portion of the Actuarial Present Value of pension plan benefits and expenses which is allocated to a valuation year by the Actuarial Cost Method.



Appendix D

Projected Benefits

Those pension plan benefit amounts which are expected to be paid at various future times under a particular set of Actuarial Assumptions, taking into account such items as the effect of advancement in age and past and anticipated future compensation and service credits.

Unaccrued Benefit

The excess of an individual's Projected Benefits over the Accrued Benefits as of a specified date.

Unfunded Actuarial Accrued Liability

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets.