Montana Firefighters' United Retirement System of the State of Montana

Actuarial Valuation as of June 30, 2012

Produced by Cheiron

September 2012

Table of Contents

Letter of Transmittal i

Foreword ii

Section I – Board Summary 1

Section II – Assets 8

Section III – Liabilities 13

Section IV – Contributions 18

Section V – Accounting Statement Information 21

Appendix A – Membership Information 26

Appendix B – Actuarial Assumptions and Methods 39

Appendix C – Summary of Plan Provisions 44

Appendix D – Glossary 47

September 14, 2012

Public Employees' Retirement Board
100 North Park, Suite 200
Helena, Montana 59620

Dear Members of the Board:

At your request, we have conducted the annual actuarial valuation of the Montana Firefighters' United Retirement System as of June 30, 2012. The results of the valuation are contained in this report. The purpose of the valuation is discussed in the Foreword.

This report contains information on the System's assets, as well as analyses which combine asset and liability performance and projections. The report also discloses employer contribution levels, and required disclosures under the Governmental Accounting Standards Board Statement No. 25. This report is for the use of the Public Employees' Retirement Board and its auditors in preparing financial reports in accordance with applicable law and accounting requirements. Any other user of this report is not an intended user and is considered a third party.

Your attention is called to the Foreword in which we refer to the general approach employed in the preparation of this report. We also comment on the sources and reliability of both the data and the actuarial assumptions on which our findings are based. The results of this report are only applicable for Fiscal Year ending 2012 and rely on future system experience conforming to the underlying assumptions. To the extent that actual system experience deviates from the underlying assumptions, the results would vary accordingly.

We hereby certify that, to the best of our knowledge, this report and its contents, which are based on information supplied by the Montana Public Employees' Retirement Administration, are work products of Cheiron, Inc. These work products are complete and have been prepared in accordance with generally recognized and accepted actuarial principles and practices which are consistent with the Code of Professional Conduct and applicable Actuarial Standards of Practice set out by the Actuarial Standards Board. Furthermore, as credentialed actuaries, we meet the Qualification Standards of the American Academy of Actuaries to render the opinions contained in this report. This report does not address any contractual or legal issues. We are not attorneys and our report does not provide any legal services or advice.

Cheiron's report was prepared exclusively for the Montana Firefighters' United Retirement System for a specific and limited purpose. It is not for use or benefit of any third party for any purpose, and Cheiron assumes no duty or liability to any such party.

Sincerely,
Cheiron

Stephen T. McElhaney, FSA
Principal Consulting Actuary

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Principal Consulting Actuary

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FOREWORD

Cheiron has performed the actuarial valuation of the Firefighters' United Retirement System as of June 30, 2012. The purpose of this report is to:

1) **Measure and disclose**, as of the valuation date, the financial condition of the System;

2) **Indicate trends** in the financial progress of the System;

3) **Determine the sufficiency of the statutory contribution rate** paid by the employers for Fiscal Year 2012 to meet the requirements of an Annual Required Contribution (ARC) under GASB 25; and

4) **Provide specific information** and documentation required by the Governmental Accounting Standards Board (GASB).

An actuarial valuation establishes and analyzes system assets and liabilities on a consistent basis, and traces the progress of both from one year to the next. It includes measurement of the system's investment performance as well as an analysis of actuarial liability gains and losses.

Section I presents a summary containing our findings and disclosing important trends experienced by the System in recent years.

Section II contains details on various asset measures, together with pertinent performance measurements.

Section III shows similar information on System liabilities, measured for actuarial, accounting, and government reporting purposes.

Section IV develops the employer contribution rate determined using actuarial techniques.

Section V includes the required disclosures under GASB Statement No. 25.

The appendices to this report contain a summary of the System's membership at the valuation date, a summary of the major provisions of the System, and the actuarial methods and assumptions used in the valuations.

In preparing our report, we relied without audit, on information (some oral and some written) supplied by the staff of the Public Employee Retirement Administration. This information includes, but is not limited to, plan provisions, employee data, and financial information. We performed an informal examination of the obvious characteristics of the data for reasonableness and consistency in accordance with Actuarial Standard of Practice No. 23.

The actuarial assumptions reflect our understanding of the likely future experience of the System, and the assumptions as a whole represent our best estimate for the future experience of the System. The results of this report are dependent upon future experience conforming to these assumptions. To the extent that future experience deviates from the actuarial assumptions, the cost of the benefits would vary from our projections.

SECTION I
BOARD SUMMARY

General Comments

This is the fourth valuation of the Firefighters' United Retirement System performed by Cheiron.

The period to amortize unfunded actuarial accrued liability increased from 16.0 years at the June 30, 2011 valuation to 16.4 years as of June 30, 2012. During the year ended June 30, 2012, the System's assets gained 2.42% on a market value basis. However, due to the System's asset-smoothing technique which recognizes only a portion of the gains and losses, the return on the actuarial asset value was 3.87% which reflects prior year gains that continue to be recognized. This return was below the assumed rate of return of 7.75% and resulted in an actuarial loss on investments of $8.6 million.

The System also experienced an actuarial loss on system liabilities resulting from salary growth, members retiring, terminating, becoming disabled, and dying at rates different from the actuarial assumptions. The loss added $2.0 million to the actuarial liability which represents a 0.55% increase to the overall liabilities of the System. This type of activity is normal in the course of system experience. The System will experience actuarial gains and losses over time, because we cannot predict exactly how people will behave. When a system experiences alternating gains and losses that are small compared to the total actuarial liability, then the system's actuarial assumptions are considered reasonable.

As of the June 30, 2012 actuarial valuation, the System's unfunded actuarial liability was $144.1 million. This is an increase from last year's unfunded actuarial liability of $135.2 million. The funded ratio declined slightly from 61.9% to 61.8% from the prior valuation to June 30, 2012.

Montana Code Annotated (MCA) 19-2-407 requires an analysis of how market performance is affecting the actuarial funding of the Retirement System. It is our understanding of the Code to report certain key results on a market value of assets basis. The market value at June 30, 2012 was $4.5 million greater than actuarial value. If market value were used rather than actuarial value, the funded ratio decreased from the prior year from 64% last year to 63% on the valuation date, and the amortization period for the unfunded actuarial liability would be 15.7 years versus 14.9_last year.

This report does not reflect any changes in pension accounting requirements from newly issued GASB Statements Nos. 67 and 68. Statement No. 67 will be effective for the plan year ending June 30, 2014. Statement No. 68 will be effective for most employers' fiscal years ending June 30, 2015. All references and calculations with respect to GASB reflect current Statements No. 25 and 27. In addition, in accordance with the System's funding policy, the contribution levels are compared to an amount that would satisfy the requirements for an Annual Required Contribution (ARC) under GASB No. 25. Since the concept of the ARC will disappear when GASB Nos. 67 and 68 become effective, the System may need to define a different calculation basis for measuring funding sufficiency.

SECTION I
BOARD SUMMARY

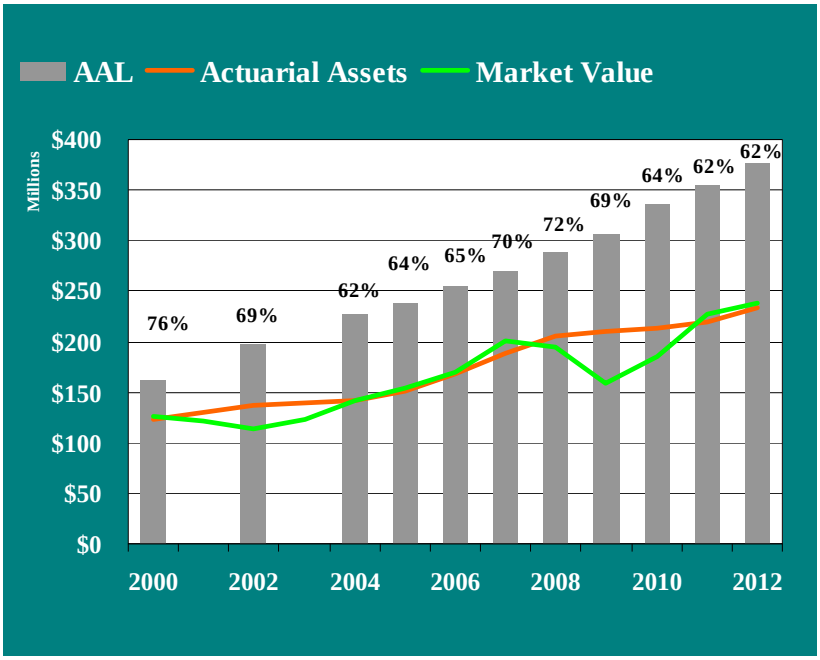
Trends

Assets and Liabilities

The market value of assets (MVA) increased over last year, gaining 2.42% from the value at the prior valuation. The determination of the System's actuarial value of assets reflects only a portion of the amount by which the return was below the assumed rate of 7.75%.

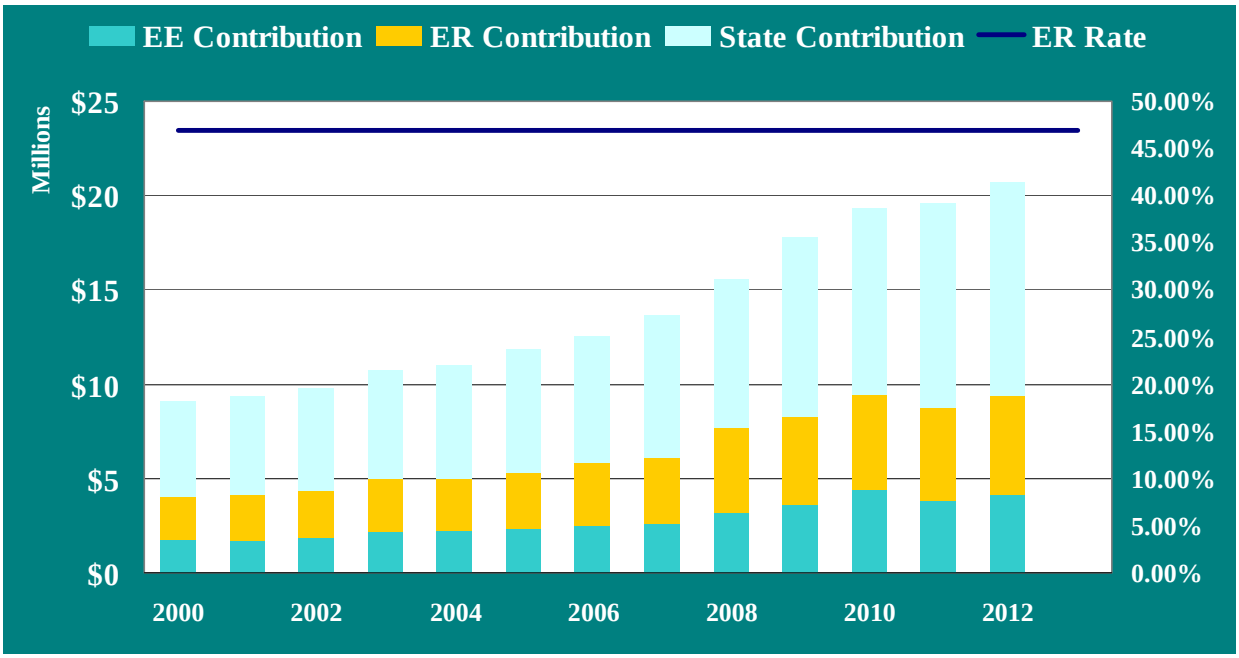
Over the period July 1, 2007 to June 30, 2012 the System's assets returned approximately 2.2% per year measured at actuarial value, compared to a current valuation assumption of 7.75% per year.

For funding purposes, the target amount is represented by the top of the gray bar. We compare the actuarial value of assets to this measure of liability in developing the funded percent. These are the percentages shown in the graph labels.



SECTION I
BOARD SUMMARY

Contribution Rates



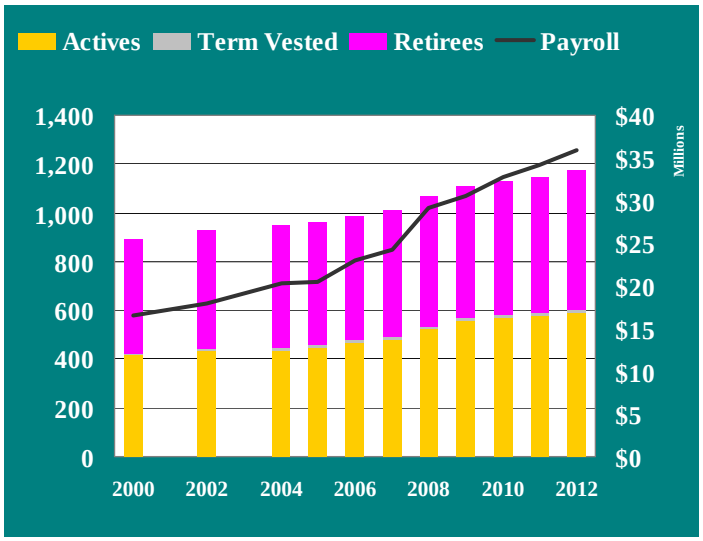
The stacked bars in this graph show the contributions made by members, employers, and the State (left hand scale). The navy line shows the employer contribution rate (including the State rate) as a percent of payroll (right hand scale).

The employer and member contribution rates are set by State law. The actuarial valuation determines the extent to which the statutory contributions will meet the requirements of funding the System.

Participant Trends

The bars show the number of participants in each category and should be read using the left-hand scale. As with many maturing fund, this System continues to show growth in the number of retired members. The active-to-inactive ratio has increased slightly from 0.9 actives for each inactive in 2000 to 1.0 actives for each inactive today.

The black line shows the covered payroll in millions of the System and is read using the right-hand scale.



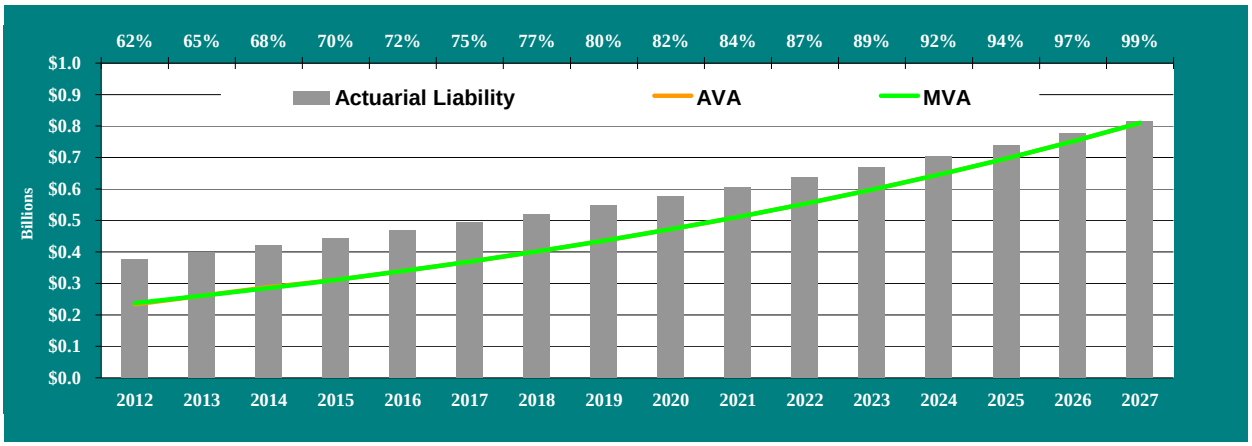
SECTION I
BOARD SUMMARY

Future Outlook

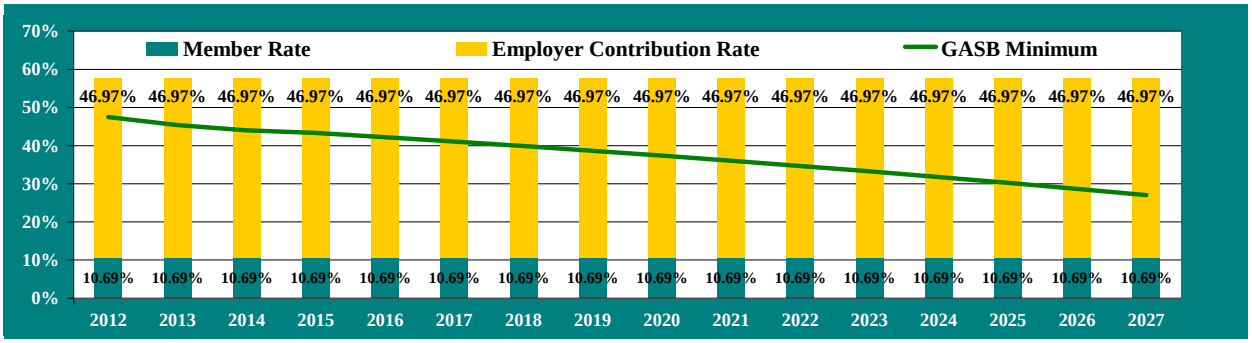
Base Line Projections

These graphs show the expected progress of the System over the next 15 years assuming the System's assets earn 7.75% on their *market value*, and that contributions continue to be made at the current statutory rates.

The values on top of the chart show the funded status of the System is expected to increase gradually from the current ratio of 62% and will reach 99% by the end of the 15-year period.



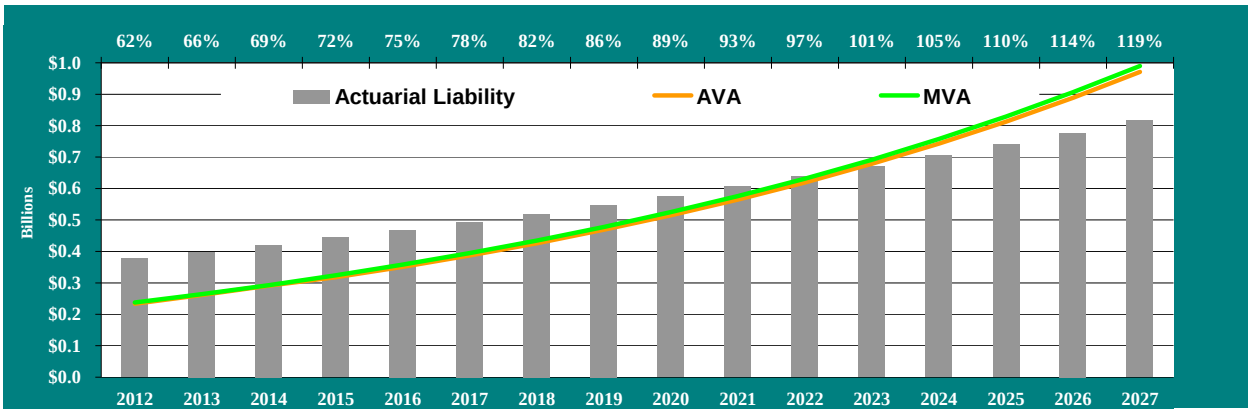
The chart below shows that the total contribution computed on a GASB Annual Required Contribution basis will decrease gradually over the 15-year period as the System moves to become fully funded.



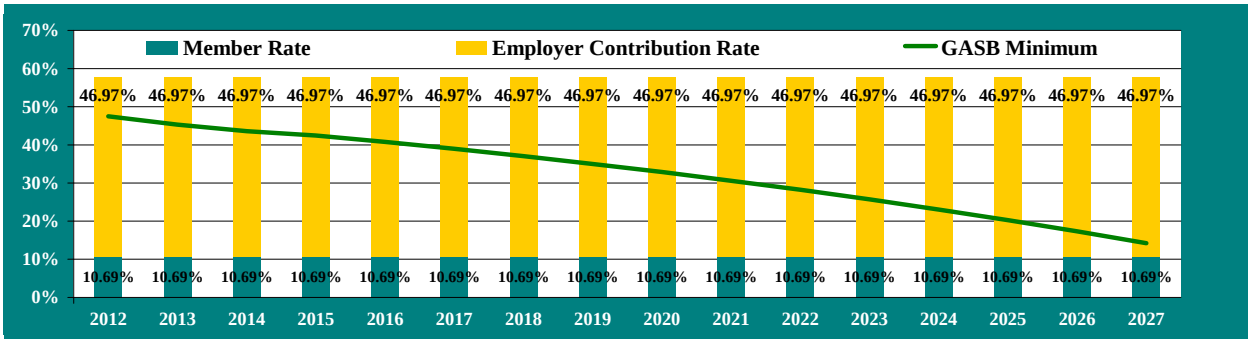
SECTION I
BOARD SUMMARY

Projections with Asset Returns of 9.25%

The future funding status of this System will be impacted by the investment earnings. These two charts below show what the next 15 years would look like with a 9.25% annual return in each year (i.e. 1.5% greater than the assumed rate of return).



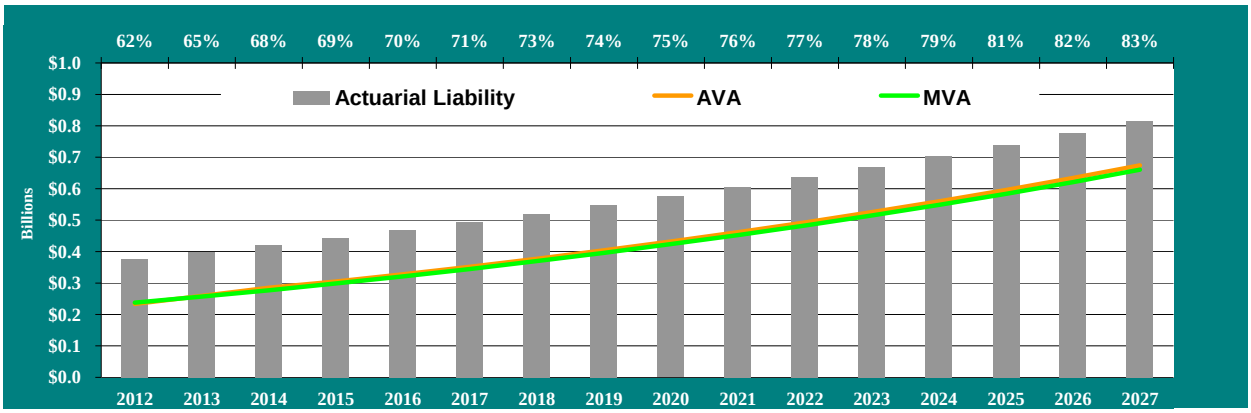
Compared to the baseline projections, the funded status improvement is even greater and the GASB Annual Required Contribution drops further below the statutory contribution rates as projected surplus is applied to offset the normal cost.



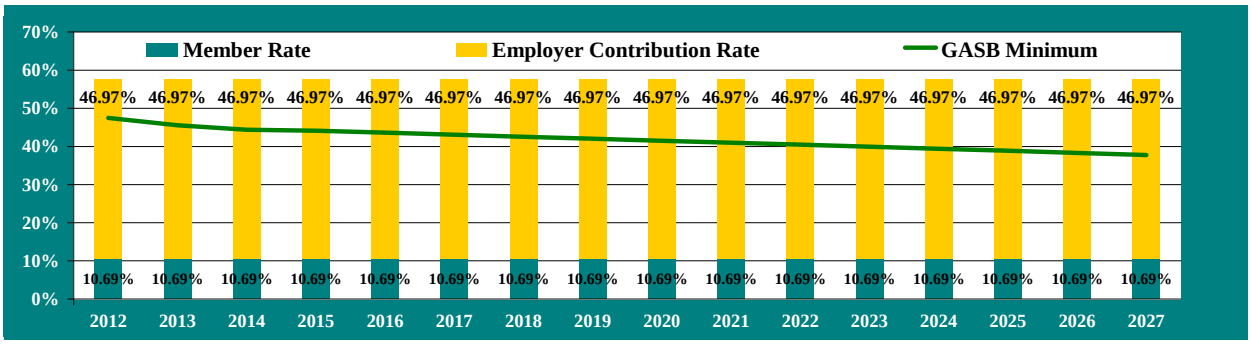
SECTION I
BOARD SUMMARY

Projections with Asset Returns of 6.25%

To further demonstrate how fluctuations in the earnings rate can impact funding, we show the anticipated System funding projections if the invested assets earn 6.25% per year over the entire 15-year period (i.e., 1.5% less than the assumed rate of return).



Under this scenario the improvement in the funded status is substantially less than under the baseline projection. The decrease in the GASB Annual Required Contribution is also less than under the baseline projection. However, the funded ratio is still anticipated to improve over this time which supports the position that the current statutory contribution rates will be sufficient to meet the benefit obligations under investment returns below the current assumption.



SECTION I
BOARD SUMMARY

Table I-1
Montana Firefighters' United Retirement System
Summary of Principal System Results

Valuation as of:	June 30, 2011	June 30, 2012	% Change
Participant Counts			
Active Members	579	590	1.9%
Disabled Members*	7	7	0.0%
Retirees and Beneficiaries	545	564	3.5%
Terminated Vested Members	13	13	0.0%
Terminated Non-Vested Members	60	62	3.3%
Total	1,204	1,236	2.7%
Annual Salaries of Active Members	$ 34,236,205	$ 35,849,518	4.7%
Average Annual Salary	$ 59,130	$ 60,762	2.8%
Annual Retirement Allowances for Retired Members and Beneficiaries	$ 15,805,024	$ 17,066,093	8.0%
Assets and Liabilities			
Actuarial Accrued Liability (AAL)	$ 355,188,062	$ 377,211,275	6.2%
Actuarial Value of Assets (AVA)	219,958,987	233,121,145	6.0%
Unfunded AAL (AVA/AAL)	$ 135,229,075	$ 144,090,130	6.6%
Funded Ratio	61.93%	61.80%	
Present Value of Accrued Benefits (PVAB)	$ 315,852,096	$ 335,559,115	6.2%
Market Value of Assets	227,527,416	237,653,159	4.5%
Unfunded PVAB	$ 88,324,680	$ 97,905,956	10.8%
Accrued Benefit Funding Ratio	72.04%	70.82%	
Ratio of Actuarial Value to Market Value	96.67%	98.09%	
Contributions as a Percentage of Payroll			
Statutory Funding Rate	57.660%	57.660%	
Normal Cost Rate	26.540%	26.500%	
Available for Amortization of UAL	31.120%	31.160%	
Period to Amortize	16.0 years	16.4 years	
Projected 30-year Level Funding Rate	47.150%	47.480%	
Projected Shortfall (Surplus)	(10.510%)	(10.180%)	

* Based on PERA categorization for the annual report. For actuarial valuation purposes, 60 members in 2011 and 62 members in 2012 were valued as disabled members with offsetting reductions to the number of retired members.

SECTION II
ASSETS

Pension plan assets play a key role in the financial operation of the System and in the decisions the Trustees may make with respect to future deployment of those assets. The level of assets, the allocation of assets among asset classes, and the methodology used to measure assets will likely impact upon benefit levels, State contributions, and the ultimate security of participants' benefits.

In this section, we present detailed information on System assets including:

- **Disclosure** of System assets at June 30, 2011 and June 30, 2012;
- Statement of the **changes** in market values during the year;
- Development of the **Actuarial Value of Assets**;
- An assessment of **investment performance**; and
- A projection of the System's expected **cash flows** for the next 10 years.

Disclosure

The market value of assets represents "snap-shot" or "cash-out" values which provide the principal basis for measuring financial performance from one year to the next. Market values, however, can fluctuate widely with corresponding swings in the marketplace.

The actuarial values are market values which have been smoothed and are used for evaluating the System's ongoing liability to meet its obligations.

The actuarial value of assets is the current market value, adjusted by a four-year smoothing of gains and losses on a market value basis. Each year's gain or loss is determined difference between the actual market return and the expected market return using the assumed rate of investment return.

SECTION II
ASSETS

Table II-1
Changes in Market Values

Value of Assets – June 30, 2011		**$ 227,527,416**
Additions		
Member Contributions	$ 4,099,903	
Employer Contributions	5,281,336	
State Contributions	11,797,130	
Investment Return	5,725,512	
Other	22,712	
Total Additions	**$ 26,926,593**	
Deductions		
Benefit Payments	$ 16,638,024	
Administrative Expenses	162,826	
Total Deductions	**$ 16,800,850**	
Value of Assets – June 30, 2012		**$ 237,653,159**

SECTION II
ASSETS

Actuarial Value of Assets (AVA)

The actuarial value of assets represents a "smoothed" value developed by the actuary to reduce, or eliminate, volatile results which could develop from short-term fluctuations in the market value of assets. For this System, the actuarial value has been calculated by taking the market value of assets less 75% of the investment gain (loss) during the preceding year, less 50% of the investment gain (loss) during the second preceding year, and less 25% of the investment gain (loss) during the third preceding year. The tables below illustrate the calculation of actuarial value of assets for the June 30, 2012 valuation.

Table II-2
Market Value Gain/(Loss)

Value of Assets – June 30, 2011	$ 227,527,416
Employer and Member Contributions	$ 21,201,081
Benefit Payments	(16,638,024)
Expected Return at 7.75%	17,806,894
Expected Value at June 30, 2012	$ 249,897,367
Actual Value at June 30, 2012	$ 237,653,159
Investment Gain/(Loss)	$ (12,244,208)

Table II-3
Develop Excluded Gain/(Loss)

	Total Gain/(Loss)	Excluded Portion
Exclude 75% of 2012 Gain/(Loss)	$ (12,244,208)	$ (9,183,156)
Exclude 50% of 2011 Gain/(Loss)	$ 24,195,329	$ 12,097,665
Exclude 25% of 2010 Gain/(Loss)	$ 6,470,022	$ 1,617,505
Total Excluded Gain/(Loss) for AVA Calculation		$ 4,532,014

SECTION II
ASSETS

Table II-4 Actuarial Value of Assets		
Market Value of Assets – June 30, 2012	$	237,653,159
Total Gain/(Loss) excluded		4,532,014
Actuarial Value of Assets – June 30, 2012	$	233,121,145

Investment Performance

The market value of assets (MVA) returned 2.42% during fiscal year end 2012, which is less than the assumed 7.75% return. A return of 3.87% on the AVA is primarily the result of the asset smoothing method being utilized for the calculation of the actuarial value of assets. Since only 25% of the gain or loss from the performance of the System is recognized in a given year, in periods of very good performance, the AVA can lag significantly behind the MVA. In a period of negative returns, the AVA does not decline as rapidly as the MVA.

Table II-5
Annual Rates of Return

Year Ending June 30,	Market Value	Actuarial Value
2005	7.85%	5.47%
2006	8.66%	9.02%
2007	17.36%	11.44%
2008	(4.80%)	7.31%
2009	(20.08%)	(0.17%)
2010	11.99%	(0.83%)
2011	20.71%	0.84%
2012	2.42%	3.87%

SECTION II
ASSETS

Table II-6
Projection of System's Benefit Payments and Contributions (in thousands)

Year Beginning July 1,	Expected Benefits	Expected Contributions*	Net Cash Flow (excluding Investment Return)	Expected Investment Return**	Net Cash Flow (including Investment Return)
2012	$ 18,133	$ 22,291	$ 4,158	$ 18,576	$ 22,734
2013	18,924	23,182	4,258	20,342	24,600
2014	20,103	24,110	4,007	22,239	26,246
2015	21,341	25,074	3,733	24,263	27,996
2016	22,591	26,077	3,486	26,423	29,909
2017	23,840	27,120	3,280	28,733	32,013
2018	25,209	28,205	2,996	31,203	34,199
2019	26,595	29,333	2,738	33,844	36,582
2020	28,095	30,506	2,411	36,666	39,077
2021	29,584	31,727	2,143	39,685	41,828

* Expected contributions include Employer Contributions, State Contributions and Member Contributions. For illustration purposes, we have assumed that all contribution rates will remain level and that payroll will increase at the actuarially assumed rate of 4.00% per year.

** Expected investment return is based upon an assumed return of 7.75% per annum.

Expected benefit payments are projected for the closed group valued at June 30, 2012. Projecting any farther than 10 years using a closed-group would not yield reliable predictions due to the omission of new hires.

SECTION III
LIABILITIES

In this section, we present detailed information on System liabilities including:

- **Disclosure** of System liabilities at June 30, 2011 and June 30, 2012;
- Statement of **changes** in these liabilities during the year;
- Details on the source of actuarial gains and losses between this valuation and the last; and
- Development of actuarial unfunded liability on a market value basis as required under MCA 12-2-407.

Disclosure

Several types of liabilities are calculated and presented in this report. Each type is distinguished by the people ultimately using the figures and the purpose for which they are using them.

- **Present Value of Benefits:** Used for analyzing the financial outlook of the System, this represents the amount of money needed today to fully pay off all future benefits and expenses of the System for the current participants, assuming participants continue to accrue benefits.

- **Actuarial Accrued Liability:** Used for funding calculations and GASB disclosures, this liability is calculated taking the Present Value of Benefits and subtracting the present value of future Member Contributions and future Employer Normal Costs under an acceptable actuarial funding method. This method is referred to as the **Entry Age Normal** (EAN) funding method.

- **Present Value of Accrued Benefits:** Used for communicating the current level of liabilities, this liability represents the total amount of money needed today to fully pay off the current accrued obligations of the System, assuming no future accruals of benefits. These liabilities are also required for accounting purposes (FASB ASC Topic No. 960) and used to assess whether the System can meet its current benefit commitments.

The following table discloses each of these liabilities for the current and prior valuations. With respect to each disclosure, a subtraction of the appropriate value of System assets yields, for each respective liability type, a **net surplus** or an **unfunded liability**.

SECTION III
LIABILITIES

Table III-1
Liabilities/Net (Surplus)/Unfunded

	June 30, 2011	June 30, 2012
Present Value of Benefits		
Active Participant Benefits	$ 227,955,616	$ 238,214,154
Retiree and Inactive Benefits	221,369,496	237,230,277
Present Value of Benefits (PVB)	**$ 449,325,112**	**$ 475,444,431**
Market Value of Assets (MVA)	$ 227,527,416	$ 237,653,159
Future Member Contributions	38,296,122	40,026,221
Future Employer Contributions	168,266,497	175,868,251
Funding Shortfall/(Surplus)	15,235,077	21,896,800
Total Resources	**$ 449,325,112**	**$ 475,444,431**
Actuarial Accrued Liability		
Present Value of Benefits (PVB)	$ 449,325,112	$ 475,444,431
Present Value of Future Normal Costs (PVFNC)	94,137,050	98,233,156
Actuarial Accrued Liability (AAL=PVB–PVFNC)	**355,188,062**	**377,211,275**
Actuarial Value of Assets (AVA)	219,958,987	233,121,145
Net (Surplus)/Unfunded (AAL – AVA)	**$ 135,229,075**	**$ 144,090,130**
Present Value of Accrued Benefits		
Present Value of Benefits (PVB)	$ 449,325,112	$ 475,444,431
Present Value of Future Benefit Accruals (PVFBA)	133,473,016	139,885,316
Present Value of Accrued Benefits (PVAB=PVB–PVFBA)	$ **315,852,096**	**$ 335,559,115**
Market Value of Assets (MVA)	227,527,416	237,653,159
Net Unfunded (PVAB – MVA)	**$ 88,324,680**	**$ 97,905,956**

SECTION III
LIABILITIES

Changes in Liabilities

Each of the Liabilities disclosed in the prior table are expected to change at each valuation. The components of that change, depending upon which liability is analyzed, can include:

- New hires since the last valuation
- Benefits accrued since the last valuation
- System amendments increasing benefits
- Passage of time which adds interest to the prior liability
- Benefits paid to retirees since the last valuation
- Participants retiring, terminating, or dying at rates different than expected
- A change in actuarial or investment assumptions
- A change in the actuarial funding method

Unfunded liabilities will change because of all of the above, and also due to changes in system assets resulting from:

- Employer contributions different than expected
- Investment earnings different than expected
- A change in the method used to measure System assets

In each valuation, we report on those elements of change which are of particular significance, potentially affecting the long-term financial outlook of the System. Below we present key changes in liabilities since the last valuation. On the next page we provide more detail on the sources of the actuarial (gain)/loss as measured on the basis of actuarial accrued liability.

Table III-2

(In Thousands)	Present Value of Benefits	Actuarial Accrued Liability	Present Value of Accrued Liability
Liabilities June 30, 2011	$ 449,325,112	$ 355,188,062	$ 315,852,096
Liabilities June 30, 2012	475,444,431	377,211,275	335,559,115
Liability Increase (Decrease)	26,119,319	22,023,213	19,707,019
Change Due to:			
Actuarial (Gain)/Loss	NC *	2,046,775	NC*
Plan Changes	0	0	0
Benefits Accumulated and Other Sources	26,119,319	19,976,438	19,707,019

* NC = not calculated.

SECTION III
LIABILITIES

Table III-3
Summary of Actuarial Gains and Losses as of June 30, 2012

Actuarial Liabilities as of July 1, 2011	$ 355,188,062
Normal Cost	9,032,147
Actual Benefit Payments	(16,638,024)
Interest	27,582,315
Expected Actuarial Liability as of July 1, 2012	375,164,500
Actual Liability as of July 1, 2012	$ 377,211,275
Liability (Gain)/Loss	$ 2,046,775
Sources of Liability (Gain)/Loss	
Salary (Gain)/Loss	$ 150,857
New Participant (Gain)/Loss	224,993
Active Retirements (Gain)/Loss	158,592
Active Terminations (Gain)/Loss	136,810
Active Deaths (Gain)/Loss	(103,131)
Active Disability (Gain)/Loss	(22,085)
Inactive Decrements (Gain)/Loss	1,500,739
Actual Liability as of July 1, 2012	$ 377,211,275
Liability (Gain)/Loss due to plan changes	$ 0
Actuarial Value of Assets as of July 1, 2011	$ 219,958,987
Net Cash Flow	4,563,057
Expected Earnings	17,220,341
Expected Actuarial Value of Assets as of July 1, 2012	241,742,385
Actual Actuarial Value of Assets as of July 1, 2012	$ 233,121,145
Investment (Gain)/Loss	$ 8,621,240
Total Liability (Gain)/Loss	2,046,775
Total Actuarial (Gain)/Loss	$ 10,668,015

SECTION III
LIABILITIES

Table III-4 shows the actuarial liabilities as of the prior and current valuation dates. The unfunded actuarial liability is the difference between the actuarial liability and the actuarial value of assets. The funded ratio is the ratio of the actuarial value of assets to the actuarial liability.

Table III-4
Actuarial Liabilities for Funding

	June 30, 2011	June 30, 2012
1. Actuarial Liabilities		
Retiree and Inactive Benefits	$ 221,369,496	$ 237,230,277
Active Member Benefits	133,818,566	139,980,998
Total Actuarial Liability	**$ 355,188,062**	**$ 377,211,275**
2. Actuarial Value of Assets	$ 219,958,987	$ 233,121,145
3. Unfunded Actuarial Liability	$ 135,229,075	$ 144,090,130
4. Funded Ratio	61.93%	61.80%

Montana Code Annotated (MCA) 19-2-407 requires an analysis of how market performance is affecting the actuarial funding of the System. Table III-5 presented below shows the same information as in Table III-4 above, but using market value of assets rather than actuarial value of assets.

Table III-5
Actuarial Liabilities on Market Value Basis (MCA 19-2-407)

	June 30, 2011	June 30, 2012
1. Actuarial Liabilities		
Retiree and Inactive Benefits	$ 221,369,496	$ 237,230,277
Active Member Benefits	133,818,566	139,980,998
Total Actuarial Liability	**$ 355,188,062**	**$ 377,211,275**
2. Market Value of Assets	$ 227,527,416	$ 237,653,159
3. Unfunded Actuarial Liability	$ 127,660,646	$ 139,558,116
4. Funded Ratio	64.06%	63.00%

SECTION IV
CONTRIBUTIONS

In the process of evaluating the financial condition of any pension plan, the actuary analyzes the assets and liabilities to determine what level (if any) of contributions is needed to properly maintain the funding status of the System. Typically, the actuarial process will use a funding technique that will result in a pattern of contributions that are both stable and predictable.

For this System, the funding method employed is the **Entry Age Actuarial Cost Method**. Under this method, there are two components to the total contribution: the **normal cost rate** and the **unfunded actuarial liability rate** (UAL rate). The normal cost rate is determined by taking the value, as of entry age into the system, of each member's projected future benefits. This value is then divided by the value, also at entry age, of each member's expected future salary. The normal cost rate is multiplied by current salary to determine each member's normal cost rate. Finally, the total normal cost rate is reduced by the member contribution to produce the employer normal cost rate. The difference between the EAN actuarial liability and the actuarial value of assets is the unfunded actuarial liability.

For purposes of determining the adequacy of the statutory funding rate, the UAL rate is calculated by subtracting the normal cost rate from the statutory rate. A calculation is then made to determine the period over which the UAL rate will amortize the unfunded actuarial liability. A second UAL rate is calculated based upon a 30-year amortization of the UAL, which is the maximum amortization period permitted under GASB Statement No. 25, but which should not necessarily be constructed as a recommended contribution level. All UAL payments are determined as a level percentage of pay, assuming that total pay increases by the annual inflation rate of 4.00%.

SECTION IV
CONTRIBUTIONS

The tables below present and compare the contribution rates for the System for this valuation and the prior one.

Table IV-1
Statutory Basis

	June 30, 2011	June 30, 2012
Statutory Funding Rates		
Members	10.690%	10.690%
Employers	14.360%	14.360%
State	32.610%	32.610%
Total	57.660%	57.660%
Normal Cost Rate	26.540%	26.500%
Funding Rate Available for Amortization	31.120%	31.160%
Unfunded Actuarial Liability (Surplus)	$ 135,229,075	$ 144,090,130
Years to Amortize*	16.0 years	16.4 years

* On a market value basis, the years to amortize the Unfunded Actuarial Liability were 14.9 years at June 30, 2011 and 15.7 years at June 30, 2012.

SECTION IV
CONTRIBUTIONS

Table IV-3
Calculated Contribution Basis

	June 30, 2011	June 30, 2012
Normal Cost Rate	26.540%	26.500%
Amortization Payment (30-years)	20.610%	20.980%
Total Calculated Contribution Rate	47.150%	47.480%
Less Statutory Rate	57.660%	57.660%
Shortfall (Surplus) in Statutory Rate	(10.510%)	(10.180%)

Table IV-4
Calculated Contribution on Market Value (MCA 19-2-407)

	June 30, 2011	June 30, 2012
Normal Cost Rate	26.540%	26.500%
Amortization Payment (30-years)	19.460%	20.320%
Total Calculated Contribution Rate	46.000%	46.820%
Less Statutory Rate	57.660%	57.660%
Shortfall (Surplus) in Statutory Rate	(11.660%)	(10.840%)

The following table projects results for the next five valuations (assuming all assumptions are met, including 7.75% return).

Table IV-5
Projected Calculated Contribution Rates

Valuation Year	Rate
2013	45.42%
2014	43.99%
2015	43.32%
2016	42.21%
2017	41.06%

SECTION V
ACCOUNTING STATEMENT INFORMATION

Accounting Standard Codification Topic No.960 of the Financial Accounting Standards Board specifies certain information for a plan to disclose regarding its funded status. Statement No. 25 of the Governmental Accounting Standards Board (GASB) establishes standards for disclosure of pension information by public employee retirement systems (PERS) and governmental employers in notes to financial statements and supplementary information.

The FASB ASC Topic No. 960 disclosures provide a quasi "snap shot" view of how the System's assets compare to its liabilities if contributions stopped and accrued benefit claims had to be satisfied. However, due to potential legal requirements and the possibility that alternative interest rates would have to be used to determine the liabilities, these values may not be a good indication of the amount of money it would take to buy the benefits for all members if the System were to terminate.

The GASB-25 actuarial accrued liability is the same as the actuarial liability amount calculated for funding purposes.

Both the present value of accrued benefits (FASB ASC Topic No. 960) and the actuarial accrued liability (GASB-25) are determined assuming that the System is on-going and participants continue to terminate employment, retire, etc., in accordance with the actuarial assumptions. Liabilities are discounted at the assumed valuation interest rate of 7.75% per annum.

FASB ASC Topic No. 960 specifies that a comparison of the present value of accrued (accumulated) benefits with the market value of the assets as of the valuation date must be provided. GASB Statement No. 25 requires the actuarial accrued liability be compared with the actuarial value of assets for funding purposes. The relevant amounts as of June 30, 2012 are exhibited in Table V-1.

Tables V-2 through V-5 are exhibits to be used with the System CAFR report. Table V-2 is the Note to Required Supplementary Information, Table V-3 is a history of gains and losses in Accrued Liability, Table V-4 is the Schedule of Funding Progress, and V-5 is the Solvency Test which shows the portion of Accrued Liability covered by Assets.

SECTION V
ACCOUNTING STATEMENT INFORMATION

Table V-1
Accounting Statement Information

	June 30, 2011	June 30, 2012
A. FASB ASC Topic No. 960 Basis		
1. Present Value of Benefits Accrued and Vested to Date		
a. Members Currently Receiving Payments	$ 219,841,563	$ 235,552,821
b. Former Vested Members	1,527,933	1,677,456
c. Active Members	94,482,600	98,328,838
2. Total Present Value of Accrued Benefits (1 (a) + 1(b) + 1(c))	$ 315,852,096	$ 335,559,115
3. Assets at Market Value	227,527,416	237,653,159
4. Unfunded Present Value of Accrued Benefits (2 – 3)	$ 88,324,680	$ 97,905,956
5. Ratio of Assets to Present Value of Accrued Benefits (3 / 2)	72.04%	70.82%
B. GASB No. 25 Basis		
1. Actuarial Accrued Liabilities for retirees and beneficiaries currently receiving benefits and terminated employees not yet receiving benefits	$ 221,369,496	$ 237,230,277
2. Actuarial Accrued Liabilities for current employees	133,818,566	139,980,998
3. Total Actuarial Accrued Liability (1 + 2)	$ 355,188,062	$ 377,211,275
4. Net Actuarial Assets available for benefits	219,958,987	233,121,145
5. Unfunded Actuarial Accrued Liability (3 – 4)	$ 135,229,075	$ 144,090,130

SECTION V
ACCOUNTING STATEMENT INFORMATION

Table V-2
Note To Required Supplementary Information

The information presented in the required supplementary schedules was determined as part of the actuarial valuation at the date indicated. Additional information as of the latest actuarial valuation follows.

Valuation date	June 30, 2012
Actuarial cost method	Entry age
Amortization method	Open
Remaining amortization period for Annual Required Contribution	16.4 years
Asset valuation method	Four-Year smoothed market
Actuarial assumptions:	
Investment rate of return*	7.75%
General wage growth*	4.00%
Merit salary increases	0.0% - 7.3%
*Includes inflation at	3.00%

The actuarial assumptions used have been recommended based on the most recent review of the System's experience (completed in 2010) and adopted by the Retirement Board.

The rate of employer contributions to the System is composed of the normal cost and amortization of the unfunded actuarial accrued liability. The normal cost is a level percent of payroll cost which will pay for projected benefits at retirement for each participant. The actuarial accrued liability is that portion of the present value of projected benefits that will not be paid by future normal costs. The difference between this liability and the funds accumulated as of the same date is the unfunded actuarial accrued liability.

SECTION V
ACCOUNTING STATEMENT INFORMATION

Table V-3
Analysis Of Financial Experience*

Gain and Loss in Accrued Liability During Years Ended June 30
Resulting from Differences Between Assumed Experience and Actual Experience

Type of Activity	*Gain (or Loss) for Year ending June 30, (expressed in thousands)* 2007	2008	2009	2010	2011	2012
Investment Income on Actuarial Assets	$ 5,731	$ (1,368)	$(17,007)	$ (18,762)	$(14,918)	$ (8,621)
Combined Liability Experience	306	(3,600)	(2,846)	(1,396)	(804)	(2,047)
(Loss)/Gain During Year from Financial Experience	$ 6,037	$ (4,968)	$(19,853)	$ (20,158)	$(15,722)	$(10,668)
Non-Recurring Items	0	0	0	(9,873)	0	0
Composite Gain (or Loss) During Year	$ 6,037	$ (4,968)	$(19,853)	$ (30,031)	$(15,722)	$(10,668)

* Years prior to 2009 were taken from reports prepared by prior actuary.

SECTION V
ACCOUNTING STATEMENT INFORMATION

Table V-4
Schedule Of Funding Progress*
(expressed in thousands)

Valuation Date June 30,	Actuarial Value of Assets	Actuarial Accrued Liability (AAL)	Funded Ratio	Unfunded AAL (UAAL)	Covered Payroll	UAAL as a Percentage of Covered Payroll
2012	$ 233,121	$ 377,211	62	$ 144,090	$ 36,177	398 %
2011	219,959	355,188	62	135,229	34,852	388 %
2010	213,755	335,463	64	121,708	33,339	365 %
2009	209,775	306,235	69	96,460	30,160	320 %
2008	206,127	287,218	72	81,091	29,158	278 %
2007	188,545	269,399	70	80,854	24,250	333 %

Table V-5
Solvency Test*
Aggregate Accrued Liabilities for
(expressed in thousands)

Valuation Date June 30,	Active Member Contributions (1)	Retirees & Beneficiaries (2)	Active Member Employer Financed Contributions (3)	Actuarial Value of Reported Assets	Portion of Accrued Liabilities Covered by Reported Assets (1)	(2)	(3)
2012	$ 34,790	$ 235,553	$ 106,868	$ 233,121	100 %	84 %	0 %
2011	33,089	219,842	102,257	219,959	100 %	85 %	0 %
2010	31,422	207,715	96,326	213,755	100 %	88 %	0 %
2009	28,561	194,949	82,725	209,775	100 %	93 %	0 %
2008	25,482	187,999	73,737	206,127	100 %	96 %	0 %
2007	23,896	171,777	73,726	188,545	100 %	96 %	0 %

* Years prior to 2009 were taken from reports prepared by prior actuary.

APPENDIX A
MEMBERSHIP INFORMATION

Reconciliation of Participant Counts

	Active	Disabled	Retirees and Beneficiaries	Terminated Vested Members	Terminated Non-Vested Members	Total
Participant counts used for valuation	590	62	509	13	62	1,236
Disabled members having attained normal retirement age		(55)	55			-
Beneficiaries of Disabled Members						-
Beneficiaries with less than one year of certain payments remaining			-			-
Other Adjustments						-
Participant counts shown in Annual Financial Report	590	7	564	13	62	1,236

This chart is presented for informational purposes only. The counts shown in the valuation line were used for preparation of the liabilities disclosed within this report. The counts disclosed for the Annual Financial Report and the Board Summary (page 7) match the CAFR reports at the request of the Board. The differences between the counts have no material effect upon the liability calculation.

The salaries used in the tables and charts which follow are different than the salaries used for the Board Summary on page 7. For this Appendix A, the valuation projected salaries to be paid for the following fiscal year, whereas for the Board Summary, salaries are applicable in the year ending on the valuation date.

APPENDIX A
MEMBERSHIP INFORMATION

The benefits for retirees and beneficiaries used for the tables and charts which follow are different than the benefits used for the Board Summary on page 7. For this Appendix A, the valuation projected benefits to be paid for the following fiscal year (including GABA where applicable), whereas for the Board Summary, annual benefits are as of the valuation date.

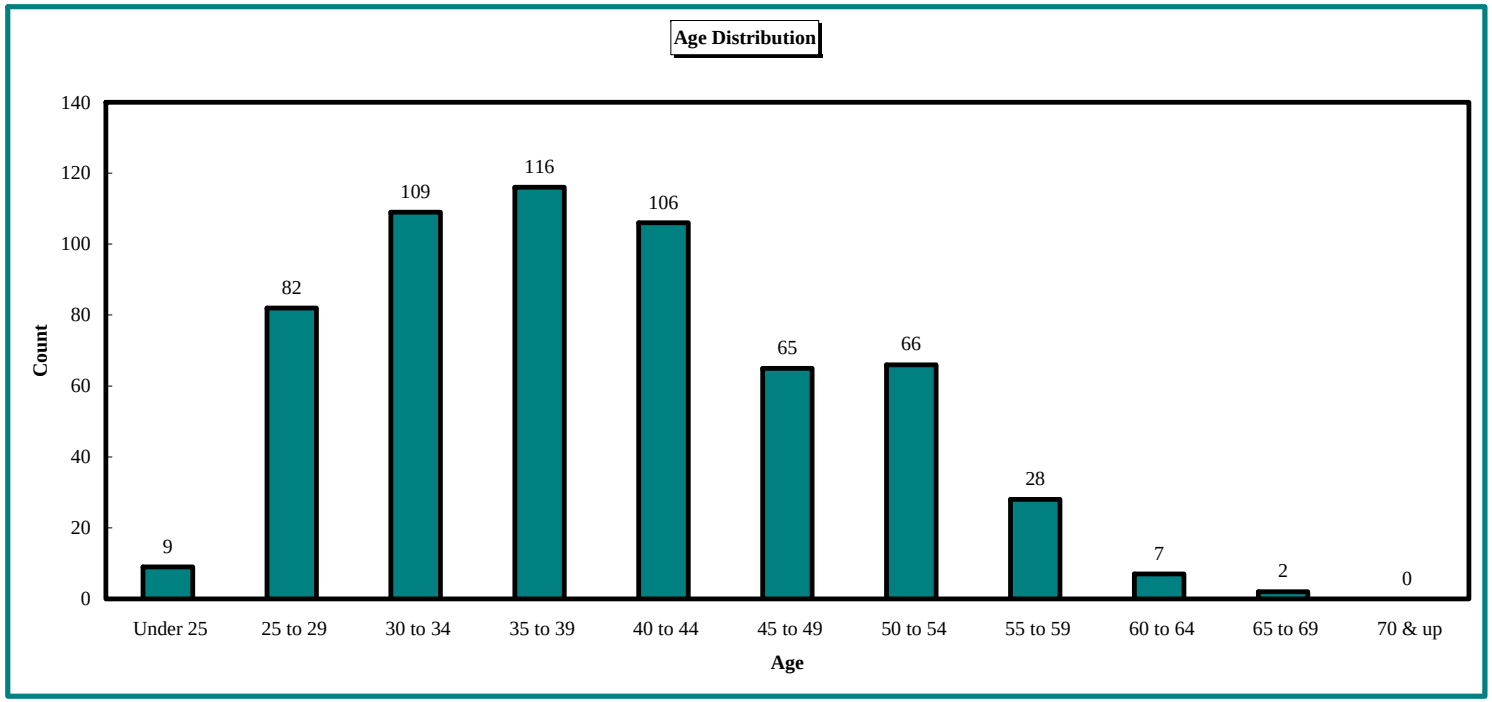
Montana Firefighters' United Retirement System Distribution of Active Members by Age and Service as of June 30, 2012

COUNTS BY AGE/SERVICE

	Service										
Age	Under 1	1 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39	40 & up	Total
Under 25	4	5	0	0	0	0	0	0	0	0	9
25 to 29	21	39	21	1	0	0	0	0	0	0	82
30 to 34	8	47	47	7	0	0	0	0	0	0	109
35 to 39	3	31	41	34	6	0	1	0	0	0	116
40 to 44	3	7	25	41	27	3	0	0	0	0	106
45 to 49	0	2	5	16	29	12	1	0	0	0	65
50 to 54	0	4	2	6	10	25	17	2	0	0	66
55 to 59	1	4	1	2	0	5	6	6	3	0	28
60 to 64	0	3	0	0	0	1	1	1	1	0	7
65 to 69	0	1	0	1	0	0	0	0	0	0	2
70 & up	0	0	0	0	0	0	0	0	0	0	0
Total	40	143	142	108	72	46	26	9	4	0	590

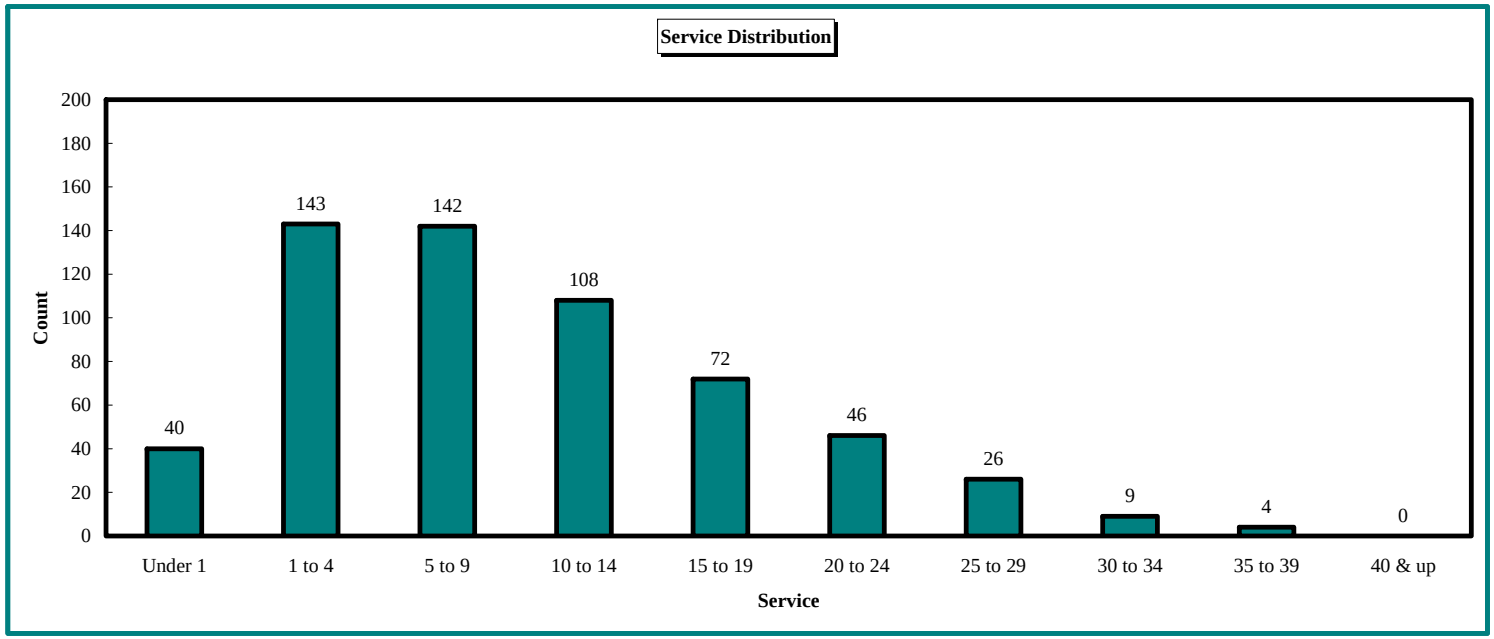
APPENDIX A
MEMBERSHIP INFORMATION

Montana Firefighters' United Retirement System Distribution of Active Members by Age as of June 30, 2012



APPENDIX A
MEMBERSHIP INFORMATION

Montana Firefighters' United Retirement System Distribution of Active Members by Service as of June 30, 2012



APPENDIX A
MEMBERSHIP INFORMATION

Montana Firefighters' United Retirement System Distribution of Active Members by Age and Service as of June 30, 2012

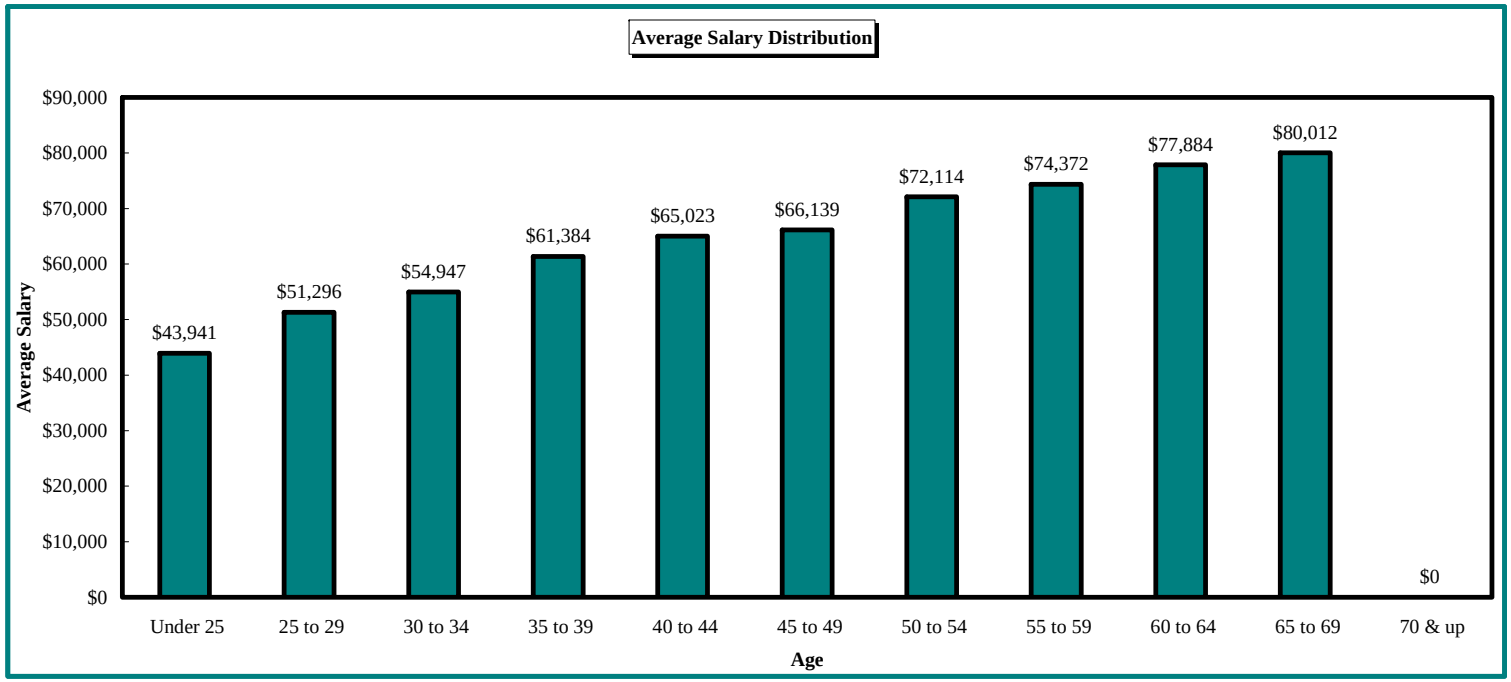
AVERAGE SALARY BY AGE/SERVICE

	Service										
Age	Under 1	1 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39	40 & up	Total
Under 25	$41,273	$46,075	$0	$0	$0	$0	$0	$0	$0	$0	$43,941
25 to 29	$45,560	$51,763	$55,834	$58,253	$0	$0	$0	$0	$0	$0	$51,296
30 to 34	$37,041	$53,905	$57,962	$62,169	$0	$0	$0	$0	$0	$0	$54,947
35 to 39	$47,635	$55,903	$61,456	$66,241	$68,538	$0	$61,527	$0	$0	$0	$61,384
40 to 44	$69,332	$50,546	$63,116	$65,242	$69,397	$68,004	$0	$0	$0	$0	$65,023
45 to 49	$0	$75,353	$59,285	$58,418	$66,346	$75,730	$84,417	$0	$0	$0	$66,139
50 to 54	$0	$49,917	$55,077	$64,000	$69,769	$75,233	$79,209	$70,329	$0	$0	$72,114
55 to 59	$103,276	$60,188	$85,997	$47,503	$0	$76,231	$73,909	$79,971	$84,315	$0	$74,372
60 to 64	$0	$85,340	$0	$0	$0	$44,693	$72,307	$90,541	$81,623	$0	$77,884
65 to 69	$0	$88,461	$0	$71,563	$0	$0	$0	$0	$0	$0	$80,012
70 & up	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Total	$46,809	$54,581	$59,767	$63,943	$68,148	$74,336	$77,240	$79,003	$83,642	$0	$61,780

The salary shown in the above chart was used for valuation purposes and assumes pay increases for the year.

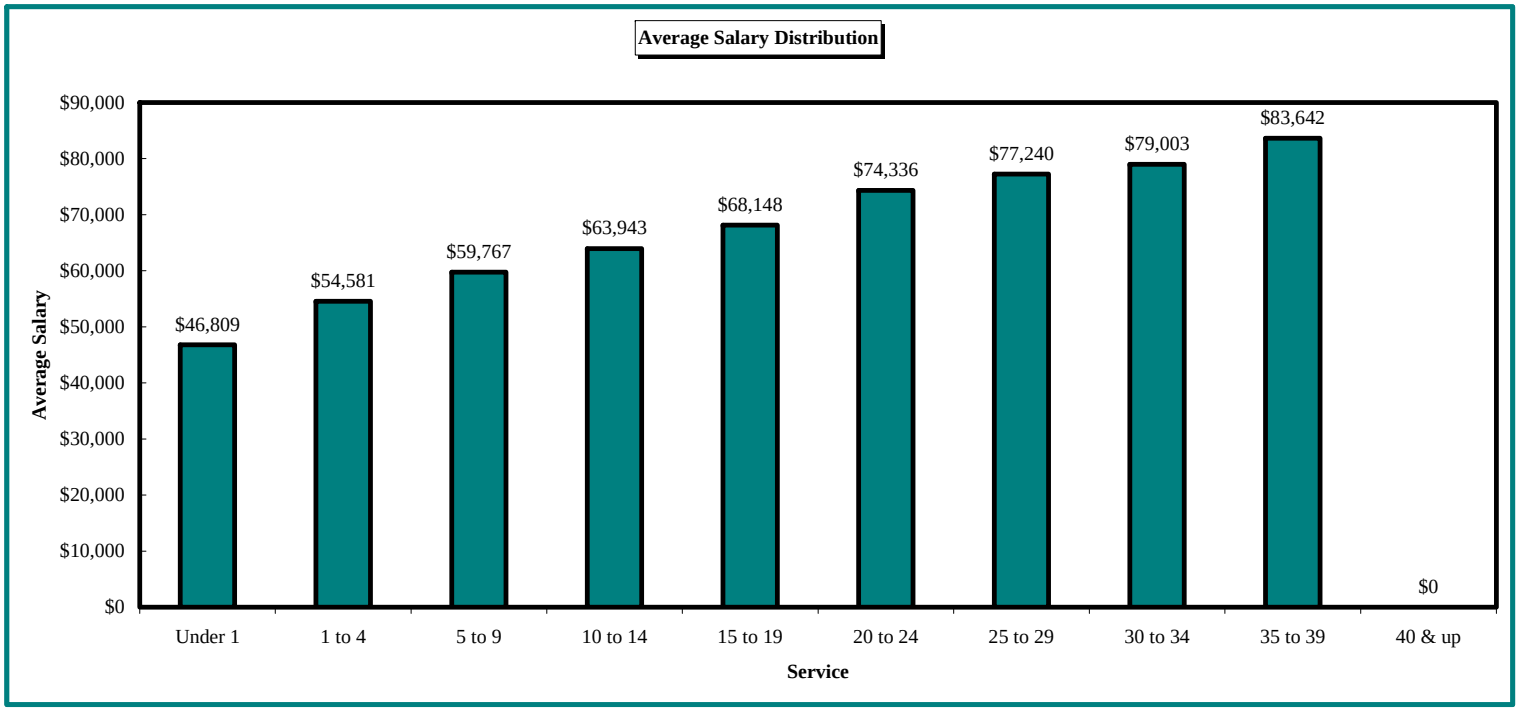
APPENDIX A
MEMBERSHIP INFORMATION

Montana Firefighters' United Retirement System Distribution of Active Members by Age as of June 30, 2012



APPENDIX A
MEMBERSHIP INFORMATION

Montana Firefighters' United Retirement System Distribution of Active Members by Service as of June 30, 2012



APPENDIX A
MEMBERSHIP INFORMATION

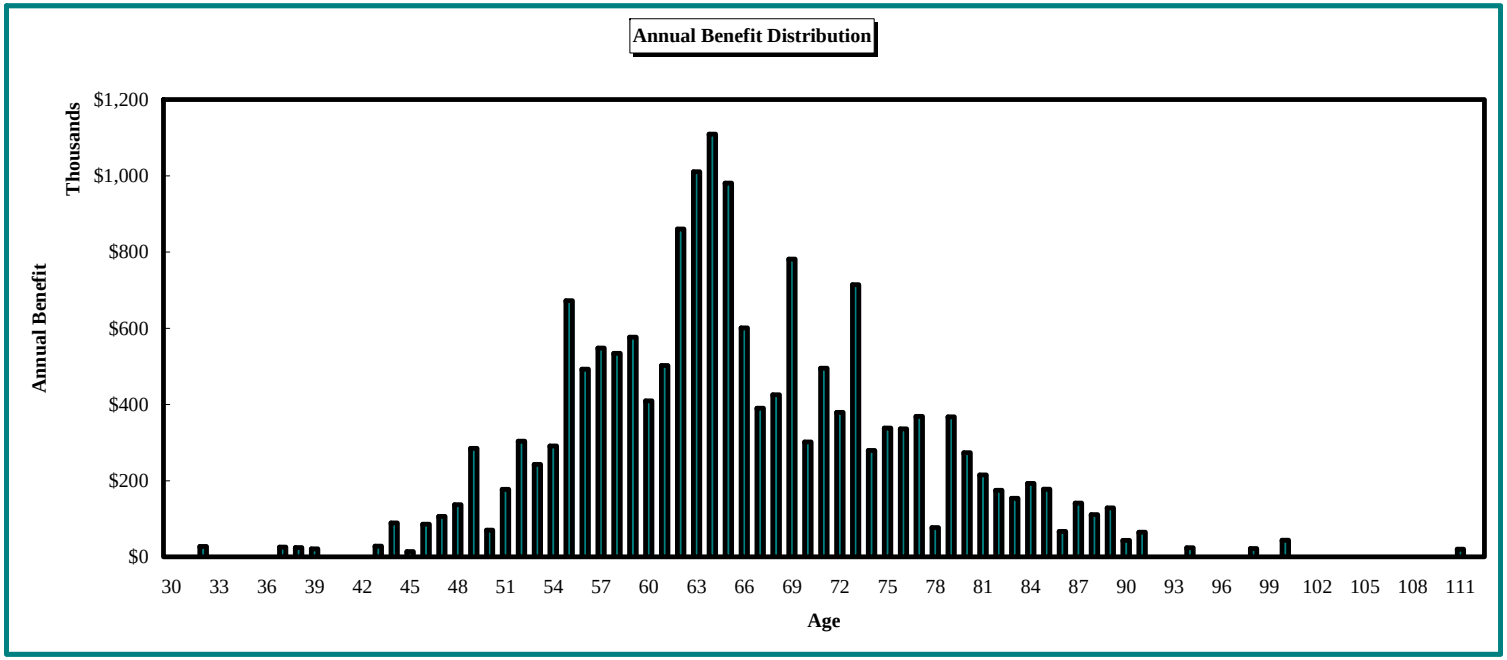
Montana Firefighters' United Retirement System Distribution of Retired Members, Survivors, and Disabled Members as of June 30, 2012

Age	Count	Annual Benefit	Age	Count	Annual Benefit
<25	0	$0	73	26	$714,209
25	0	$0	74	12	$279,394
26	0	$0	75	12	$338,522
27	0	$0	76	15	$336,016
28	0	$0	77	18	$368,795
29	0	$0	78	4	$76,908
30	0	$0	79	15	$367,835
31	0	$0	80	10	$273,570
32	1	$27,157	81	9	$215,029
33	0	$0	82	8	$174,403
34	0	$0	83	9	$153,787
35	0	$0	84	10	$192,834
36	0	$0	85	8	$177,600
37	1	$25,443	86	5	$66,705
38	1	$24,534	87	6	$141,254
39	1	$21,035	88	6	$110,699
40	0	$0	89	6	$128,533
41	0	$0	90	2	$43,176
42	0	$0	91	3	$65,054
43	1	$27,976	92	0	$0
44	3	$88,978	93	0	$0
45	1	$14,002	94	1	$23,849
46	3	$85,839	95	0	$0
47	3	$106,349	96	0	$0
48	3	$137,040	97	0	$0
49	8	$285,015	98	1	$21,957
50	4	$70,256	99	0	$0
51	7	$177,255	100	2	$44,156
52	11	$303,935	101	0	$0
53	9	$242,494	102	0	$0
54	8	$291,447	103	0	$0
55	20	$672,560	104	0	$0
56	15	$492,798	105	0	$0
57	16	$548,050	106	0	$0
58	16	$534,530	107	0	$0
59	15	$576,784	108	0	$0
60	11	$409,344	109	0	$0
61	18	$502,357	110	0	$0
62	19	$860,685	111	1	$20,587
63	27	$1,010,901	112	0	$0
64	28	$1,109,396	113	0	$0
65	28	$980,787	114	0	$0
66	17	$600,976	115	0	$0
67	11	$389,936	116	0	$0
68	13	$425,491	117	0	$0
69	24	$781,930	118	0	$0
70	9	$301,615	119	0	$0
71	18	$495,176	120	0	$0
72	12	$379,087			
			Totals	571	$17,336,028

The chart above reflects the counts and benefits used for valuation purposes as a result of data processing. The benefit amounts shown have been projected using a half year COLA assumption where applicable.

APPENDIX A
MEMBERSHIP INFORMATION

Montana Firefighters' United Retirement System Distribution of Retired Members, Survivors, and Disabled Members as of June 30, 2012



APPENDIX A
MEMBERSHIP INFORMATION

Montana Firefighters' United Retirement System Distribution of Terminated Vested Members as of June 30, 2012

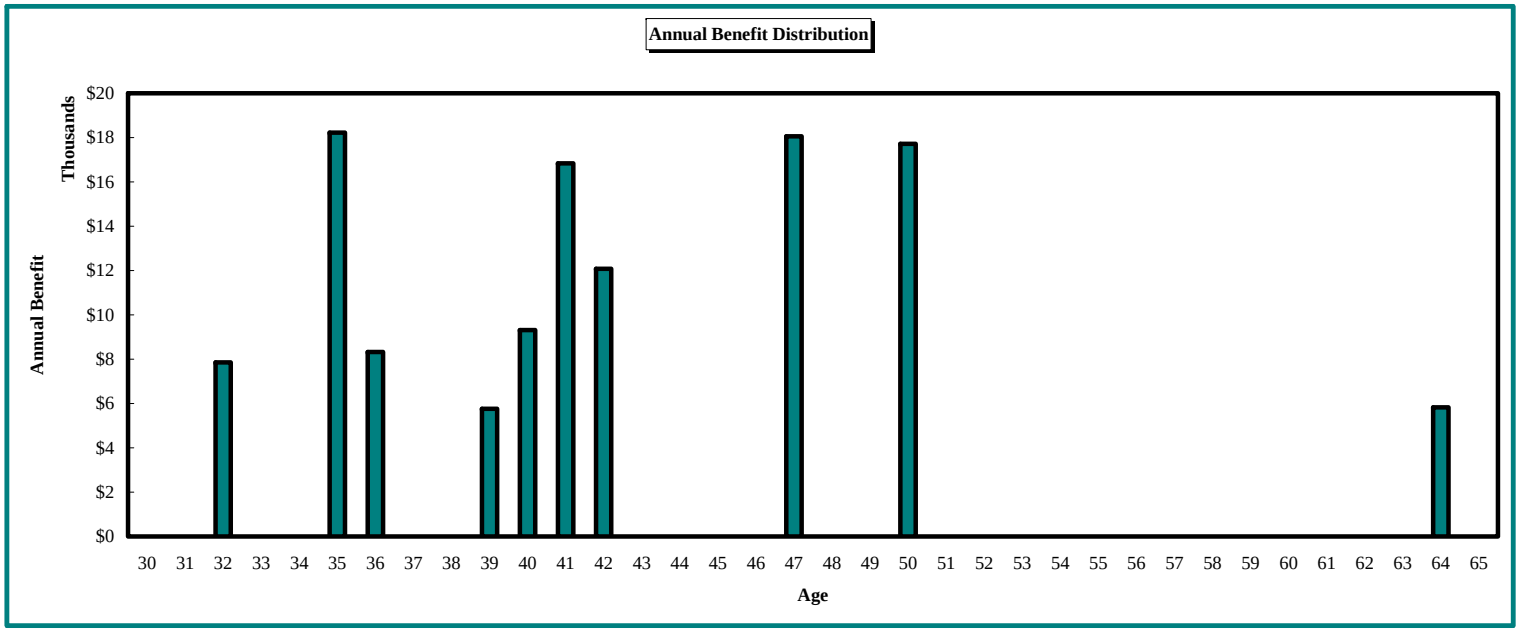
Age	Count	Annual Benefit*	Account Balance*	Age	Count	Annual Benefit*	Account Balance*
<25	0	$0	$0	73	0	$0	$0
25	0	$0	$0	74	0	$0	$0
26	0	$0	$0	75	0	$0	$0
27	0	$0	$0	76	0	$0	$0
28	0	$0	$0	77	0	$0	$0
29	0	$0	$0	78	0	$0	$0
30	0	$0	$0	79	0	$0	$0
31	0	$0	$0	80	0	$0	$0
32	1	$7,854	$0	81	0	$0	$0
33	0	$0	$0	82	0	$0	$0
34	0	$0	$0	83	0	$0	$0
35	2	$18,227	$0	84	0	$0	$0
36	1	$8,323	$0	85	0	$0	$0
37	0	$0	$0	86	0	$0	$0
38	0	$0	$0	87	0	$0	$0
39	1	$5,759	$0	88	0	$0	$0
40	1	$9,309	$0	89	0	$0	$0
41	2	$16,838	$0	90	0	$0	$0
42	1	$12,081	$0	91	0	$0	$0
43	0	$0	$0	92	0	$0	$0
44	0	$0	$0	93	0	$0	$0
45	0	$0	$0	94	0	$0	$0
46	0	$0	$0	95	0	$0	$0
47	1	$18,056	$0	96	0	$0	$0
48	0	$0	$0	97	0	$0	$0
49	0	$0	$0	98	0	$0	$0
50	2	$17,720	$0	99	0	$0	$0
51	0	$0	$0	100	0	$0	$0
52	0	$0	$0	101	0	$0	$0
53	0	$0	$0	102	0	$0	$0
54	0	$0	$0	103	0	$0	$0
55	0	$0	$0	104	0	$0	$0
56	0	$0	$0	105	0	$0	$0
57	0	$0	$0	106	0	$0	$0
58	0	$0	$0	107	0	$0	$0
59	0	$0	$0	108	0	$0	$0
60	0	$0	$0	109	0	$0	$0
61	0	$0	$0	110	0	$0	$0
62	0	$0	$0	111	0	$0	$0
63	0	$0	$0	112	0	$0	$0
64	1	$5,828	$0	113	0	$0	$0
65	0	$0	$0	114	0	$0	$0
66	0	$0	$0	115	0	$0	$0
67	0	$0	$0	116	0	$0	$0
68	0	$0	$0	117	0	$0	$0
69	0	$0	$0	118	0	$0	$0
70	0	$0	$0	119	0	$0	$0
71	0	$0	$0	120	0	$0	$0
72	0	$0	$0				
				Totals	13	$119,997	$0

* payable at the greater of age 50 or current age (use current age if member has 20 years of service)

The chart above reflects the counts and benefits used for valuation purposes as a result of data processing.

APPENDIX A
MEMBERSHIP INFORMATION

Montana Firefighters' United Retirement System Distribution of Terminated Vested Members as of June 30, 2012



APPENDIX A
MEMBERSHIP INFORMATION

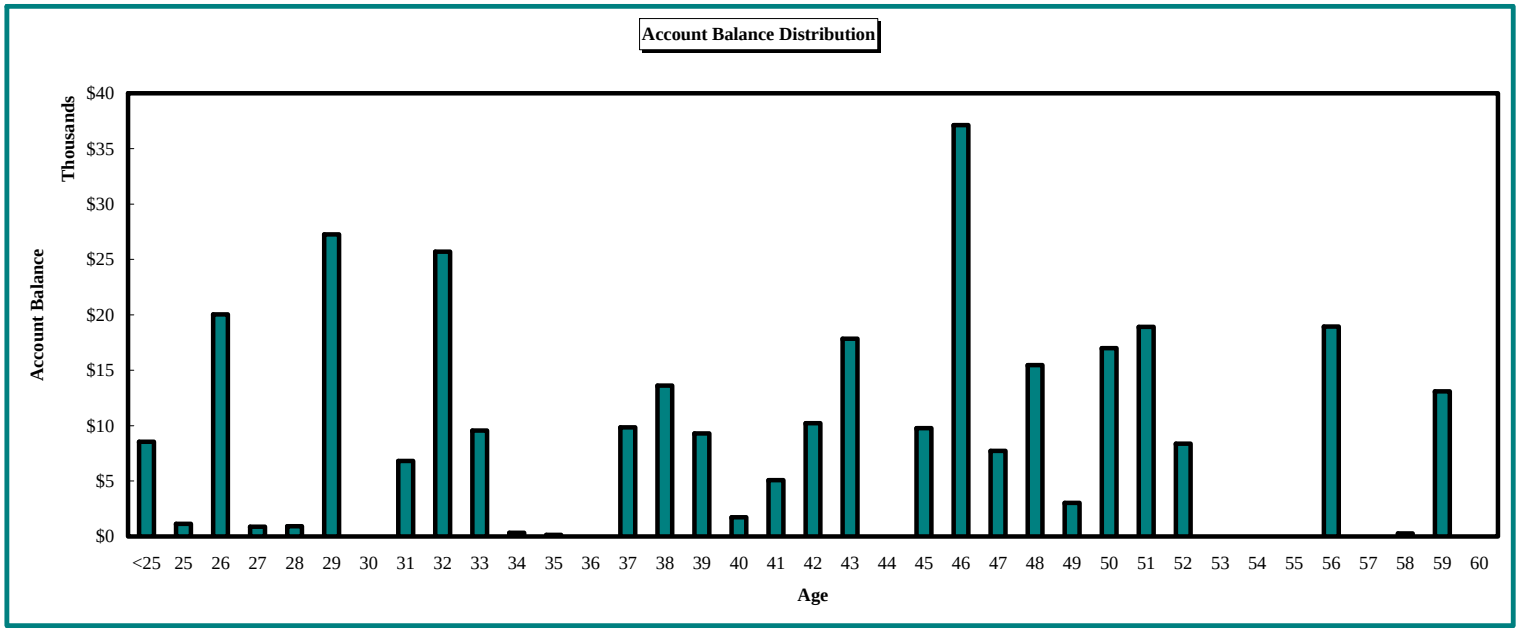
Montana Firefighters' United Retirement System Distribution of Terminated Non-Vested Members as of June 30, 2012

Age	Count	Account Balance	Age	Count	Account Balance
<25	5	$8,540	73	0	$0
25	1	$1,129	74	0	$0
26	6	$20,041	75	0	$0
27	1	$873	76	0	$0
28	1	$919	77	0	$0
29	2	$27,260	78	0	$0
30	0	$0	79	0	$0
31	2	$6,811	80	0	$0
32	1	$25,698	81	0	$0
33	2	$9,549	82	0	$0
34	1	$332	83	0	$0
35	1	$136	84	0	$0
36	0	$0	85	0	$0
37	6	$9,846	86	0	$0
38	5	$13,621	87	0	$0
39	3	$9,286	88	0	$0
40	1	$1,735	89	0	$0
41	1	$5,079	90	0	$0
42	2	$10,218	91	0	$0
43	2	$17,836	92	0	$0
44	0	$0	93	0	$0
45	2	$9,764	94	0	$0
46	3	$37,123	95	0	$0
47	2	$7,722	96	0	$0
48	2	$15,459	97	0	$0
49	1	$3,032	98	0	$0
50	2	$16,991	99	0	$0
51	3	$18,907	100	0	$0
52	1	$8,371	101	0	$0
53	0	$0	102	0	$0
54	0	$0	103	0	$0
55	0	$0	104	0	$0
56	1	$18,945	105	0	$0
57	0	$0	106	0	$0
58	1	$276	107	0	$0
59	1	$13,089	108	0	$0
60	0	$0	109	0	$0
61	0	$0	110	0	$0
62	0	$0	111	0	$0
63	0	$0	112	0	$0
64	0	$0	113	0	$0
65	0	$0	114	0	$0
66	0	$0	115	0	$0
67	0	$0	116	0	$0
68	0	$0	117	0	$0
69	0	$0	118	0	$0
70	0	$0	119	0	$0
71	0	$0	120	0	$0
72	0	$0			
			Totals	62	$318,588

The chart above reflects the counts and benefits used for valuation purposes as a result of data processing.

APPENDIX A
MEMBERSHIP INFORMATION

Montana Firefighters' United Retirement System Distribution of Terminated Non-Vested Members as of June 30, 2012



APPENDIX B
ACTUARIAL ASSUMPTIONS AND METHODS

A. Long-Term Assumptions Used to Determine Plan Costs and Liabilities

1. Demographic Assumptions

a. Healthy Retirees, Beneficiaries and Non-Retired Members

Male and Female RP-2000 Combined Employee and Annuitant Mortality Tables. To reflect mortality improvements since the date of the table and to project future mortality improvements, the tables are projected to 2015 using scale AA.

Sample Rates of Healthy Mortality		
Age	**Male**	**Female**
50	0.163%	0.130%
55	0.272%	0.241%
60	0.530%	0.469%
65	1.031%	0.900%
70	1.770%	1.553%
75	3.062%	2.492%
80	5.536%	4.129%
85	9.968%	7.076%
90	17.271%	12.588%

b. Disabled Inactive Mortality

Male and Female RP-2000 Combined Employee and Annuitant Mortality Tables with no projections. No future mortality improvement is assumed.

Sample Rates of Disabled Inactive Mortality		
Age	**Male**	**Female**
50	0.214%	0.168%
55	0.362%	0.272%
60	0.675%	0.506%
65	1.274%	0.971%
70	2.221%	1.674%
75	3.783%	2.811%
80	6.437%	4.588%
85	11.076%	7.745%
90	18.341%	13.168%

APPENDIX B
ACTUARIAL ASSUMPTIONS AND METHODS

c. Rates of Active Disability

Sample Rates of Active Disability	
Age	Rate
22	0.00%
27	0.10%
32	0.10%
37	0.10%
42	0.50%
47	0.50%
52	0.50%
57	0.50%
62	0.00%

All disabilities are assumed to be permanent and without recovery.

d. Termination of Employment (Prior to Normal Retirement Eligibility)

Service	Rate
0	4%
1	4%
2	2%
3	2%
4	2%
5-9	2%
10-14	2%
15 & over	1%

f. Probability of Electing a Refund of Member Contributions upon Termination

Probability of Electing Refund		
Age at Term.	Non-Vested	Vested
Under 35	100%	50%
35-39	100%	20%
40-44	100%	20%
45-49	100%	20%
50 & Over	100%	0%

APPENDIX B
ACTUARIAL ASSUMPTIONS AND METHODS

g. Retirement

Annual Retirement Rates	
Age	**20 years or more**
<50	5%
50 – 54	10%
55 – 59	25%
60 – 62	50%
63 & over	100%

Vested terminations are assumed to retire at their earliest unreduced eligibility.

h. Merit/Seniority Salary Increase (in addition to across-the-board increase)

Service based table plus an annual inflation rate of 4.00% (rates shown below exclude amount for inflation).

Service	Annual Increase
1	7.3%
2	5.6%
3	4.4%
4	3.5%
5	2.8%
6	2.2%
7	1.7%
8	1.3%
9	1.0%
10	0.7%
11-15	0.4%
16-20	0.2%
21 & over	0.0%

i. Family Composition

Female spouses are assumed to be three years younger than males.

100% of non-retired employees are assumed married for both male and female employees.

Actual marital characteristics are used for pensioners.

APPENDIX B
ACTUARIAL ASSUMPTIONS AND METHODS

j. Vested Benefits for Terminated Members

Vested benefits for members who terminated during years ending June 30, 2009 and later were estimated based upon compensation and service information in the census data. For members who terminated prior to June 30, 2008, vested benefits valued were the same as had been calculated by the prior actuary for the June 30, 2008 actuarial valuation.

2. Economic Assumptions

a. Rate of Investment Return:	7.75% (net of expenses)
b. Rate of Wage Inflation:	4.00% (3.00% inflation plus 1.00% real wage growth)
c. Interest on Member Contributions:	3.50%
d. Rate of Increase in Total Payroll (for Amortization):	4.00%

3. Changes since Last Valuation

None.

APPENDIX B
ACTUARIAL ASSUMPTIONS AND METHODS

B. Actuarial Methods

1. Funding Method

The Entry Age Normal Actuarial Cost method is used to determine costs. Under this funding method, a normal cost is determined as a level percent of pay individually for each active employee.

The actuarial accrued liability is that portion of the present value of projected benefits that will not be paid by future normal costs. The difference between this liability and funds accumulated as of the same date is referred to as the unfunded actuarial liability.

The portion of the actuarial accrued liability in excess of plan assets is amortized to develop an additional cost or savings which is added to each year's employer normal cost. Under this cost method, actuarial gains and losses are directly reflected in the size of the unfunded actuarial liability.

2. Actuarial Value of Assets

For purposes of determining the unfunded actuarial accrued liability, we use an actuarial value of assets. The asset adjustment method dampens the volatility in asset values that could occur because of fluctuations in market conditions. Use of an asset smoothing method is consistent with the long-term nature of the actuarial valuation process.

The actuarial value of assets is the current market value, adjusted by a four-year smoothing of gains and losses on a market value basis. Each year's gain or loss is determined as the difference between the actual market return and the expected market return using the assumed rate of investment return.

3. Amortization Method

The unfunded actuarial accrued liability is amortized as a level percentage of future payroll. The valuation determines the period over which the statutory contributions will fully amortize the unfunded actuarial accrued liability.

4. Changes since Last Valuation

None.

APPENDIX C
SUMMARY OF PLAN PROVISIONS

1. Membership

The Plan is a multiple-employer cost sharing plan that covers firefighters in cities of the first and second class, and those in other cities where the city has elected to participate. The plan also covers firefighters hired by the Montana Air National Guard on or after October 1, 2001.

2. Contributions

For members not electing Guaranteed Annual Benefit Adjustment (GABA), members contribute 9.5% of their compensation. For members electing GABA, members contribute 10.7% of their compensation. Interest is credited at rates determined by the Board.

Member contributions are made through an "employer pick-up" arrangement which results in deferral of taxes on the contributions.

The employer contributes 14.36% of each member's compensation.

The State contributes 32.61% of each member's compensation.

3. Service Credit

Service used to determine the amount of retirement benefit. One month of service credit is earned for each month where the member is paid for 160 hours. This includes certain transferred and purchased service.

4. Membership Service

Service used to determine eligibility for vesting, retirement or other FURS benefits. One month of membership service is earned for any month member contributions are made to FURS regardless of hours worked.

5. Highest Average Compensation (HAC)

Highest Average Compensation is the average of the highest 36 consecutive months (or shorter period of total service) of compensation paid to the member. Compensation generally means total compensation paid, excluding overtime, holiday payments, shift differential payments, compensatory time payments, payments in lieu of sick leave or annual leave, and also excludes maintenance, allowances and expenses. Compensation is specifically defined by law for FURS. For a part-time firefighter, compensation is calculated as 15% of the regular compensation of a newly confirmed full-time firefighter.

APPENDIX C
SUMMARY OF PLAN PROVISIONS

6. Service Retirement

Eligibility: 20 years of membership service.

Benefit: (i) For a member hired on or after July 1, 1981, or a member who has elected to be covered by GABA, 2.5% of HAC multiplier by years of service credit.

(ii) For a member hired prior to July 1, 1981 and who had not elected to be covered by GABA, the greater of (i) or:

(a) if membership service is less than 20, 2% of HAC multiplied by years of service credit, and

(b) if membership service is greater or equal to 20, 50% of highest average compensation plus 2% of HAC multiplied by years of service credit in excess of 20.

7. Early Retirement

Eligibility: Age 50 with five years of membership service.

Benefit: Normal retirement benefit calculated using highest average compensation and service credit at early retirement.

8. Disability Benefit

Eligibility: Any active member.

Benefit: The greater of (a) 50% of highest average compensation or (b) 2.5% of highest average compensation multiplied by years of service credit.

9. Survivor's Benefit

Eligibility: Active or retired member.

Benefit: For deaths of active members with less than 20 years of membership service, a monthly survivor benefit to the surviving spouse (or equally to dependent children if there is no surviving spouse or after a surviving spouse dies, for as long as they remain dependent children) equal to 50% of highest average compensation. For active or inactive members with more than 20 years of membership service, a benefit equal to the accrued retirement benefit.

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APPENDIX C
SUMMARY OF PLAN PROVISIONS

10. Vesting

Eligibility: Employees who separate from service with at least five years of membership service.

Benefit: Accrued normal retirement benefit, payable at normal or early retirement date. In lieu of a pension, a member may receive a refund of accumulated contributions. Upon application for a refund of contributions a member's vested right to a monthly benefit shall be forfeited.

11. Withdrawal of Employee Contributions

Eligibility: Terminates service and is not eligible for other benefits.

Benefit: Accumulated employee contributions.

12. Form of Payment

The retirement benefit is paid for the retired member's life. Upon the death of the retired member, the benefit is paid to the surviving spouse. If there is no surviving spouse, or after the death of a surviving spouse, benefits are paid to the dependent children, if any, for as long as they remain dependent children.

13. Post Retirement Benefit Increases

For retired members who became active members on and after July 1, 1997 and those who elected to be covered under the Guaranteed Annual Benefit Adjustment (GABA) and who have been retired at least 12 months, a GABA will be paid each year in January equal to 3%.

For retired members who were hired prior to July 1, 1997 and who did not elect GABA, the minimum monthly benefit is provided equal to 50% of the current base compensation of a newly confirmed active firefighter of the employer than last employed the member as a firefighter.

14. Changes since Last Valuation

None.

APPENDIX D
GLOSSARY

1. Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disability, and retirement; changes in compensation; inflation; rates of investment earnings, and asset appreciation or depreciation; and other relevant items.

2. Actuarial Cost Method

A procedure for determining the Actuarial Present Value of pension plan benefits and expenses and for developing an allocation of such value to each year of service, usually in the form of a Normal Cost and an Actuarial Liability.

3. 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.

4. Actuarial Liability

The portion of the Actuarial Present Value of Projected Benefits which will not be paid by future Normal Costs. It represents the value of the past Normal Costs with interest to the valuation date.

5. Actuarial Present Value (Present Value)

The value as of a given date of a future amount or series of payments. The Actuarial Present Value discounts the payments to the given date at the assumed investment return and includes the probability of the payment being made. As a simple example: assume you owe $100 to a friend one year from now. Also, assume there is a 1% probability of your friend dying over the next year, in which case you won't be obligated to pay him. If the assumed investment return is 10%, the actuarial present value is:

Amount		Probability of Payment	1/(1+Investment Return)		
$100	x	(1 - .01)	1/(1+.1)	=	$90

6. Actuarial Valuation

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

APPENDIX D
GLOSSARY

7. 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. The purpose of an Actuarial Value of Assets is to smooth out fluctuations in market values. This way long-term costs are not distorted by short-term fluctuations in the market.

8. Actuarially Equivalent

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

9. Amortization Payment

The portion of the pension plan contribution which is designed to pay interest and principal on the Unfunded Actuarial Liability in order to pay for that liability in a given number of years.

10. Entry Age Normal 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.

11. 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.

12. Unfunded Actuarial Liability

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

13. Projected Benefits

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

14. Funded Percentage

The ratio of the Actuarial Liabilities to the Actuarial Value of Assets.

APPENDIX D
GLOSSARY

15. Mortality Table

A set of percentages which estimate the probability of death at a particular point in time. Typically, the rates are annual and based on age and sex.

16. Investment Return Assumption

The assumed interest rate used for projecting dollar related values in the future.

17. Inflation (CPI)

The assumed increase in dollar related values in the future due to the general increase in the cost-of-living. The usual measure for inflation is the Consumer Price Index (CPI).