



**Montana Firefighters' United
Retirement System
of the
State of Montana**

**Actuarial Valuation
as of June 30, 2010**

Produced by [Cheiron](#)

October 2010

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October 5, 2010

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, 2010. 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 System 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.

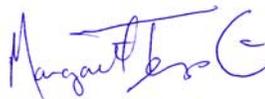
Your attention is called to the Foreword in which we refer to the general approach employed in the preparation of this report. We also comment on the sources and reliability of both the data and the actuarial assumptions on which our findings are based. Those comments are the basis for our certification that this report is complete and accurate to the best of our knowledge and belief. The results of this report are only applicable for Fiscal Year ending 2010 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 is complete and accurate and has 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, and that as Members of the American Academy of Actuaries, we meet the Qualification Standards to render the opinions contained herein.

Sincerely,
 Cheiron



Stephen T. McElhaney, FSA
 Consulting Actuary



Margaret Tempkin, FSA
 Consulting Actuary



FOREWORD

Cheiron has performed the actuarial valuation of the Firefighters' United Retirement System as of June 30, 2010. 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 2010; 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 number 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.

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 true cost of the System could vary from our results.

Finally, in preparing this report, we have conformed to generally 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.

**MONTANA FIREFIGHTERS' UNITED RETIREMENT SYSTEM
ACTUARIAL VALUATION AS OF JUNE 30, 2010**

**SECTION I
BOARD SUMMARY**

General Comments

This is the second valuation of the Firefighters' United Retirement System performed by Cheiron. All results shown for valuations prior to June 30, 2009 were derived from reports prepared by the prior actuary.

The period to amortize unfunded actuarial accrued liability increased from 12.7 years at the June 30, 2009 valuation to 14.7 years as of June 30, 2010. During the year ended June 30, 2010, the System's assets gained 11.99% 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 a negative 0.83%. This return was below the assumed rate of return of 8.0% and resulted in an actuarial loss on investments of \$19 million.

The System also experienced an actuarial loss on System liabilities resulting from salary increases different than assumed and members retiring, terminating, becoming disabled and dying at rates different from the actuarial assumptions. The loss added \$1.4 million to the actuarial liability. 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 plan experiences alternating gains and losses that are small compared to the total actuarial liability, then the plan's actuarial assumptions are reasonable.

As of the June 30, 2010 actuarial valuation, the System's unfunded actuarial liability was \$121.7 million. This is an increase from last year's unfunded actuarial liability of \$96.5 million. The funded ratio decreased from 69% at the prior valuation to 64% at June 30, 2010.

Montana Code Annotated (MCA) 19-2-407 requires an analysis of how market performance is affecting the actuarial funding of the Retirement System. The market value at June 30, 2010 was \$29.3 million less than actuarial value. If market value were used rather than actuarial value, the funded ratio on the valuation date would be 55%, and the amortization period for the unfunded actuarial liability would be 19.8 years.

Since the previous valuation an experience study was performed and several of the actuarial assumptions were changed. A description of the changes in assumptions appears within Appendix B of this report. The following table compares the results at June 30, 2010 using the previous and the revised assumptions.

**MONTANA FIREFIGHTERS' UNITED RETIREMENT SYSTEM
ACTUARIAL VALUATION AS OF JUNE 30, 2010**

**SECTION I
BOARD SUMMARY**

**Table I-1
Montana Firefighters' United Retirement System
Summary of Assumption Changes**

Valuation as of:	Previous Assumptions June 30, 2010	New Assumptions June 30, 2010
Actuarial Accrued Liability (AL)	\$ 325,590,131	\$ 335,463,059
Actuarial Value of Assets (AVA)	<u>213,755,146</u>	<u>213,755,146</u>
Unfunded AL	\$ 111,834,985	\$ 121,707,913
Funded ratio	65.65%	63.72%
Amortization period for statutory funding rate	14.2 years	14.7 years
30-year Level Funding Rate	45.32%	45.85%
Shortfall (surplus) from statutory rate	(12.34%)	(11.81%)

MONTANA FIREFIGHTERS' UNITED RETIREMENT SYSTEM
ACTUARIAL VALUATION AS OF JUNE 30, 2010

SECTION I
BOARD SUMMARY

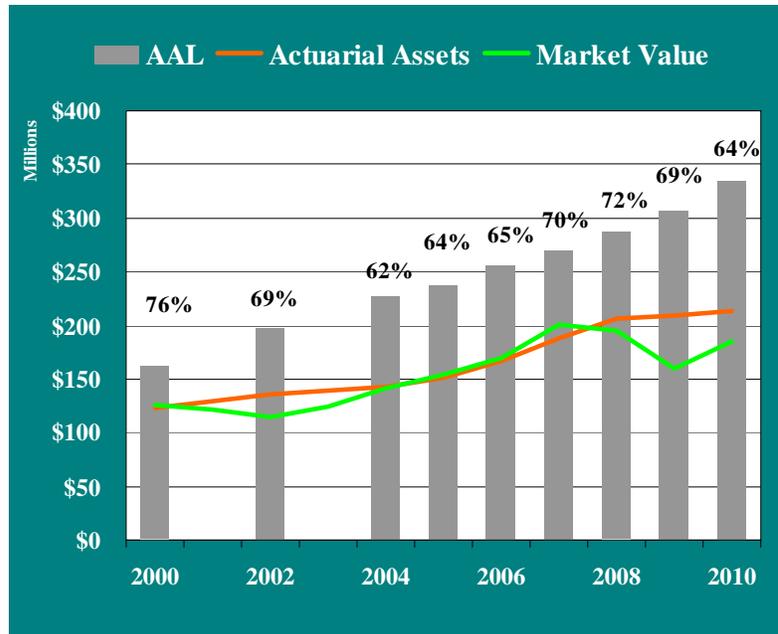
Trends

Assets and Liabilities

The market value of assets (MVA) increased over last year, gaining 11.99% 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 8%.

Over the period July 1, 2005 to June 30, 2010 the System's assets returned approximately 5.4% per year measured at actuarial value, compared to a valuation assumption of 8% per year.

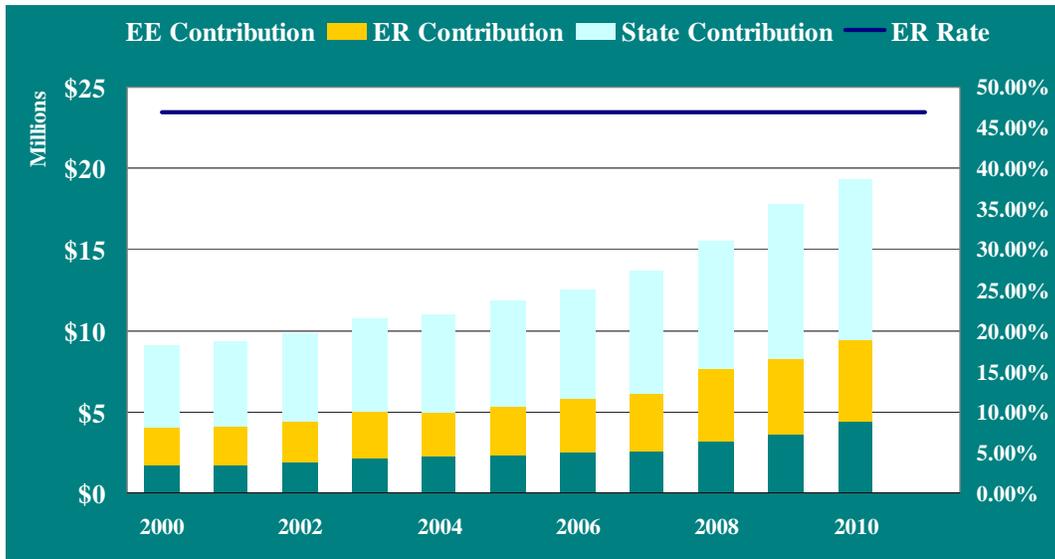
For funding purposes, the target amount is represented by the top of the gray bar. We compare the actuarial value of assets to this measure of liability in developing the funded percent. These are the percentages shown in the graph labels.



**MONTANA FIREFIGHTERS' UNITED RETIREMENT SYSTEM
ACTUARIAL VALUATION AS OF JUNE 30, 2010**

**SECTION I
BOARD SUMMARY**

Contribution Rates



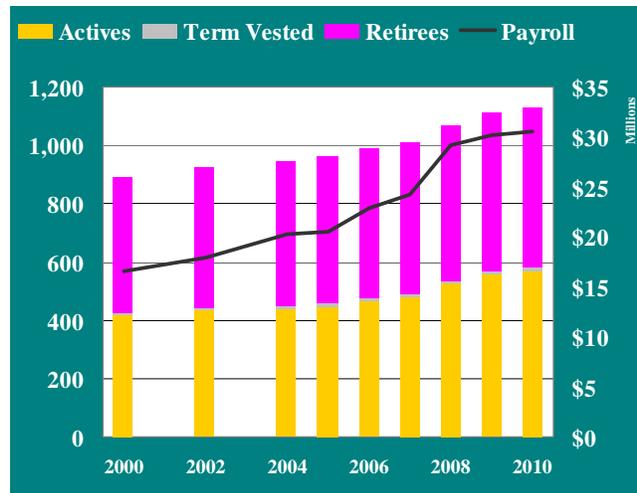
The stacked bars in this graph show the contributions made by members, employers and the State (left hand scale). The black line shows the employer contribution rate as a percent of payroll (right hand scale).

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 any maturing fund, this System continues to show growth in the number of retired members. The active-to-inactive ratio has increased 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 the System and is read using the right-hand scale.



**MONTANA FIREFIGHTERS' UNITED RETIREMENT SYSTEM
ACTUARIAL VALUATION AS OF JUNE 30, 2010**

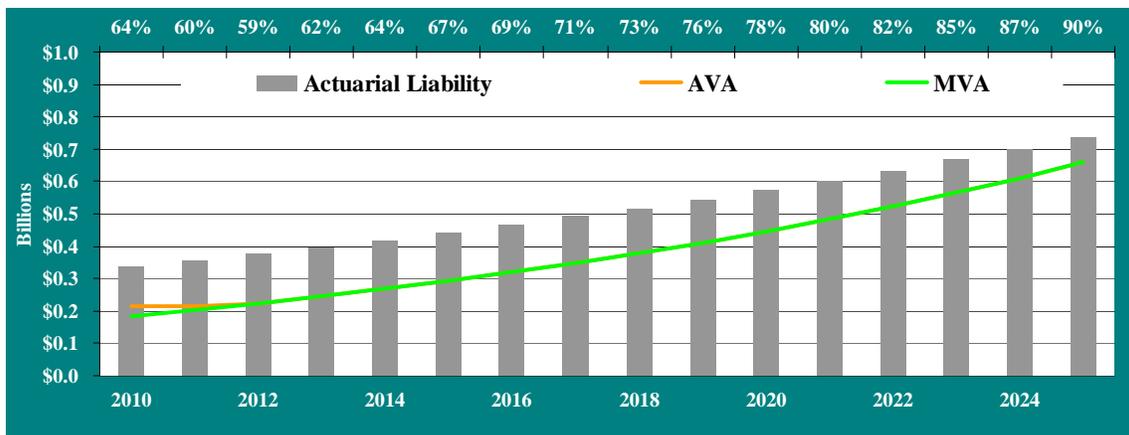
**SECTION I
BOARD SUMMARY**

Future Outlook

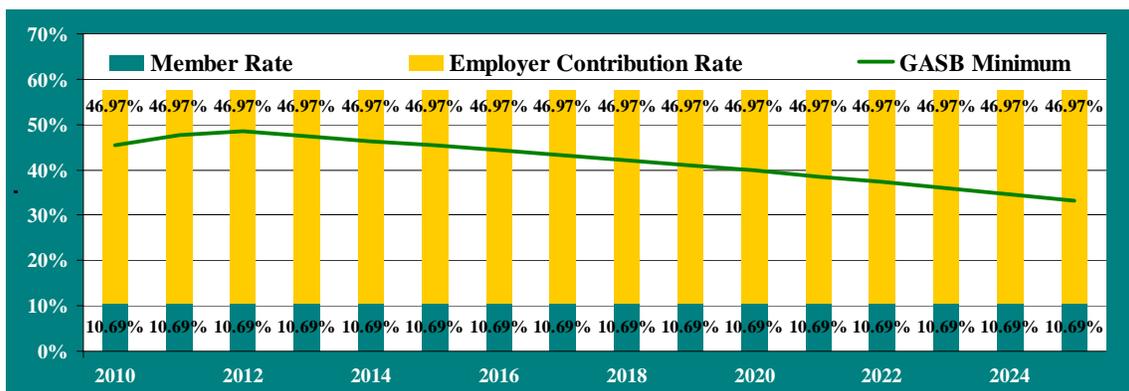
Base Line Projections

These graphs show the expected progress of the System over the next fifteen 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 chart below shows the funded status of the plan is expected to decrease over the next two years as excluded investment losses are recognized by the smoothing method. The funded status will then begin to increase and attain 90% by the end of the fifteen-year period.



The chart below shows that the total contribution computed on a GASB Minimum basis will increase slightly over the next several years and then begin decreasing.

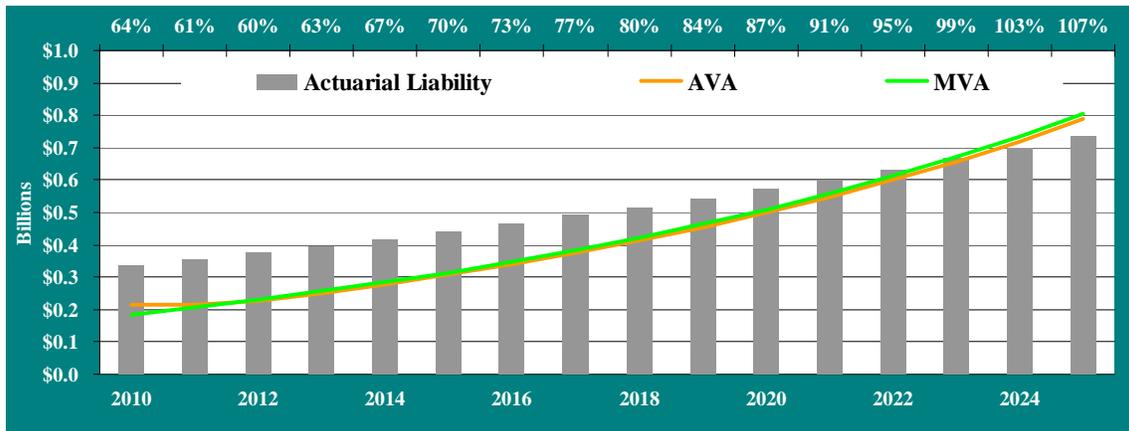


**MONTANA FIREFIGHTERS' UNITED RETIREMENT SYSTEM
ACTUARIAL VALUATION AS OF JUNE 30, 2010**

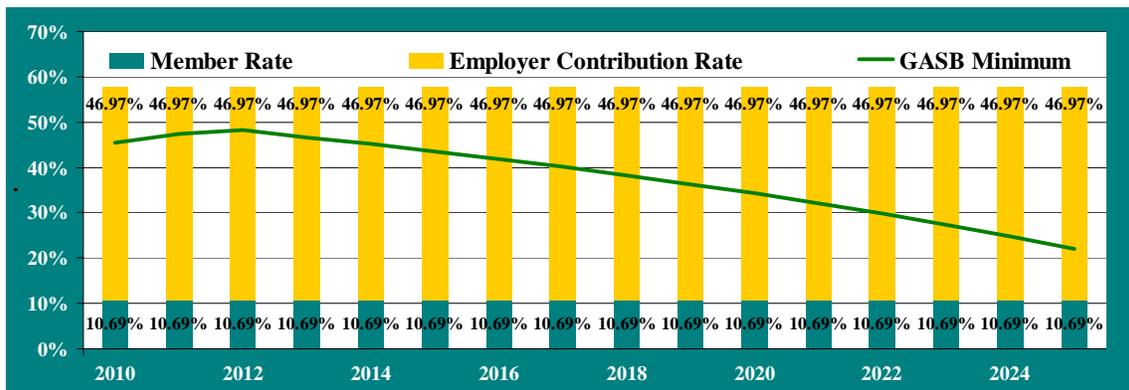
**SECTION I
BOARD SUMMARY**

Projections With Asset Returns of 9.25%

The future funding status of this System will be impacted by the investment earnings. While improved investment performance can help in meeting funding needs, this projection shows the funded level is still projected to decline without further action. These two charts below show what the next fifteen 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 Minimum contribution drops further below the statutory contribution rates.

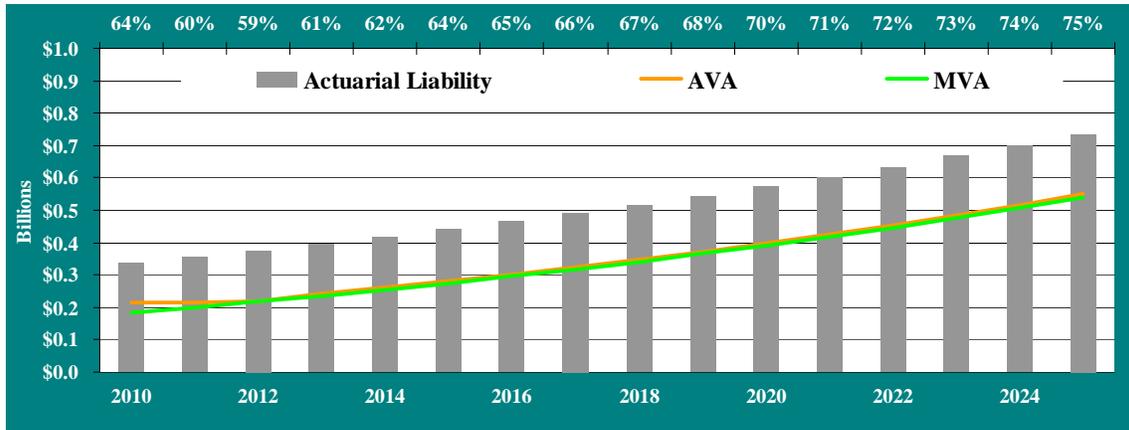


**MONTANA FIREFIGHTERS' UNITED RETIREMENT SYSTEM
ACTUARIAL VALUATION AS OF JUNE 30, 2010**

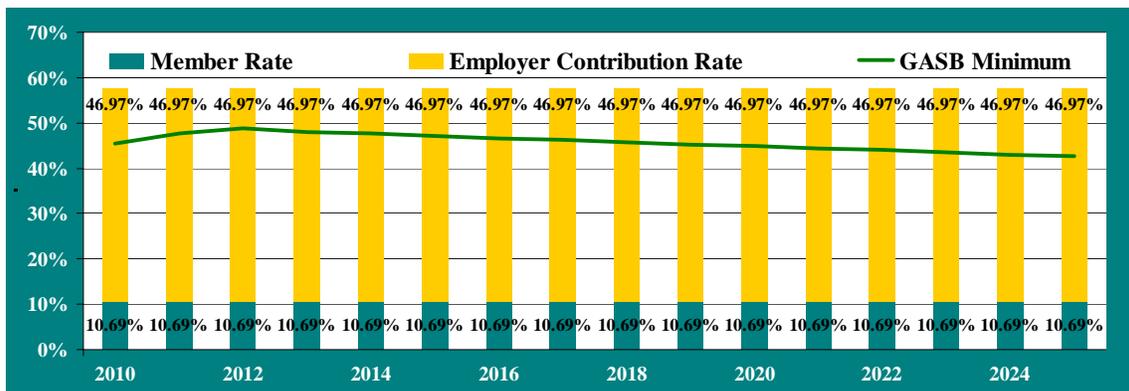
**SECTION I
BOARD SUMMARY**

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 fifteen-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 Minimum contribution is very minimal.



MONTANA FIREFIGHTERS' UNITED RETIREMENT SYSTEM
ACTUARIAL VALUATION AS OF JUNE 30, 2010

**SECTION I
BOARD SUMMARY**

Table I-2			
Montana Firefighters' United Retirement System			
Summary of Principal System Results			
Valuation as of:	June 30, 2009	June 30, 2010	% Change
<u>Participant Counts</u>			
Active Members	558	570	2.2%
Disabled Members*	5	7	40.0%
Retirees and Beneficiaries*	537	539	0.4%
Terminated Vested Members	9	13	44.4%
Terminated Non-Vested Members	<u>49</u>	<u>53</u>	8.2%
Total	1,158	1,182	2.1%
Annual Salaries of Active Members	\$ 30,580,735	\$ 32,699,095	6.9%
Average Annual Salary	\$ 54,804	\$ 57,367	4.7%
Annual Retirement Allowances for Retired Members and Beneficiaries	\$ 14,166,976	\$ 14,903,069	5.2%
<u>Assets and Liabilities</u>			
Actuarial Accrued Liability (AAL)	\$ 306,235,565	\$ 335,463,059	9.5%
Actuarial Value of Assets (AVA)	<u>209,775,081</u>	<u>213,755,146</u>	1.9%
Unfunded AAL (AVA/AAL)	\$ 96,460,484	\$ 121,707,913	26.2%
Funded Ratio	68.50%	63.72%	
Present Value of Accrued Benefits (PVAB)	\$ 271,560,550	\$ 298,014,617	9.7%
Market Value of Assets	<u>159,304,345</u>	<u>184,479,255</u>	15.8%
Unfunded PVAB	\$ 112,256,205	\$ 113,535,362	1.1%
Accrued Benefit Funding Ratio	58.66%	61.90%	
Ratio of Actuarial Value to Market Value	131.68%	115.87%	
<u>Contributions as a Percentage of Payroll</u>			
Statutory Funding Rate	57.660%	57.660%	
Normal Cost Rate	26.340%	26.450%	
Available for Amortization of UAL	31.320%	31.210%	
Period to Amortize	12.7 years	14.7 years	
Projected 30-year Level Funding Rate	43.690%	45.850%	
Projected Shortfall (Surplus)	(13.970%)	(11.810%)	

* Based on PERA categorization for the annual report. For actuarial valuation purposes, 66 members in 2009 and 64 members in 2010 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, 2009 and June 30, 2010;
- 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 **cashflows** for the next ten years.

Disclosure

The market value of assets represents a "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.

MONTANA GAME WARDENS' AND PEACE OFFICERS' RETIREMENT SYSTEM
 ACTUARIAL VALUATION AS OF JUNE 30, 2008

**SECTION II
 ASSETS**

Table II-1	
Changes in Market Values	
Value of Assets – June 30, 2009	\$ 159,304,345
<u>Additions</u>	
Member Contributions	\$ 4,362,320
Employer Contributions	5,128,634
State Contributions	10,871,717
Investment Return	19,511,860
Other	<u>56,688</u>
Total Additions	\$ 39,931,219
<u>Deductions</u>	
Benefit Payments	\$ 14,683,826
Administrative Expenses	<u>72,483</u>
Total Deductions	\$ 14,756,309
Value of Assets – June 30, 2010	\$ 184,479,255

**MONTANA GAME WARDENS' AND PEACE OFFICERS' RETIREMENT SYSTEM
ACTUARIAL VALUATION AS OF JUNE 30, 2008**

**SECTION II
ASSETS**

Actuarial Value of Assets

The actuarial value of assets represents a “smoothed” value developed by the actuary to reduce, or eliminate, erratic 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, 2010 valuation.

Table II-2 Market Value Gain/(Loss)	
Value of Assets – June 30, 2009	\$ 159,304,345
Employer Contributions	\$ 20,419,359
Benefit Payments	(14,683,826)
Expected Return at 8.0%	<u>12,969,355</u>
Expected Value at June 30, 2010	\$ 178,009,233
Actual Value at June 30, 2010	\$ 184,479,255
Investment Gain/(Loss)	\$ 6,470,022

Table II-3 Develop Excluded Gain/(Loss)		
	Total Gain/(Loss)	Excluded Portion
Exclude 75% of 2010 Gain/(Loss)	\$ 6,470,022	\$ 4,852,516
Exclude 50% of 2009 Gain/(Loss)	\$ (55,252,315)	\$ (27,626,157)
Exclude 25% of 2008 Gain/(Loss)	\$ (26,009,000)	\$ (6,502,250)
Total Excluded Gain/(Loss) for AVA Calculation		\$ (29,275,891)

**MONTANA GAME WARDENS' AND PEACE OFFICERS' RETIREMENT SYSTEM
ACTUARIAL VALUATION AS OF JUNE 30, 2008**

**SECTION II
ASSETS**

Table II-4 Actuarial Value of Assets	
Market Value of Assets – June 30, 2010	\$ 184,479,255
Total Gain/(Loss) excluded	(29,275,891)
Actuarial Value of Assets – June 30, 2010	\$ 213,755,146

Investment Performance

The market value of assets (MVA) returned 11.99% during 2010, which is greater than the assumed 8% return. A return of (0.83%) on the actuarial value of assets (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
2004	12.61%	N/A
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%)

**MONTANA GAME WARDENS' AND PEACE OFFICERS' RETIREMENT SYSTEM
ACTUARIAL VALUATION AS OF JUNE 30, 2008**

**SECTION II
ASSETS**

Table II-6 Projection of System's Benefit Payments and Contributions		
Year Beginning July 1,	Expected Benefit Payments	Expected Contributions*
2010	\$ 15,897,461	\$ 19,970,971
2011	16,621,636	20,769,809
2012	17,727,525	21,600,602
2013	18,843,681	22,464,626
2014	19,986,370	23,363,211
2015	21,305,942	24,297,739
2016	22,455,919	25,269,649
2017	23,703,980	26,280,435
2018	25,060,233	27,331,652
2019	26,466,323	28,424,918

* 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 benefit payments are projected for the closed group valued at June 30, 2010. Projecting any farther than ten 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, 2009 and June 30, 2010; and
- Statement of **changes** in these liabilities during the year; and
- 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; and
- Development of the Plan Choice Rate unfunded liability and rate.

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, 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 Liabilities:** 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 type, a **net surplus** or an **unfunded liability**.

MONTANA FIREFIGHTERS' UNITED RETIREMENT SYSTEM
ACTUARIAL VALUATION AS OF JUNE 30, 2010

**SECTION III
LIABILITIES**

Table III-1		
Liabilities/Net (Surplus)/Unfunded		
	June 30, 2009	June 30, 2010
<u>Present Value of Benefits</u>		
Active Participant Benefits	\$ 204,148,323	\$ 217,248,384
Retiree and Inactive Benefits	195,689,650	209,129,817
Present Value of Benefits (PVB)	\$ 399,837,973	\$ 426,378,201
Market Value of Assets (MVA)	\$ 159,304,345	\$ 184,479,255
Future Member Contributions	38,036,641	36,993,930
Future Employer Contributions	167,126,382	162,544,892
Funding Shortfall/(Surplus)	35,370,605	42,360,124
Total Resources	\$ 399,837,973	\$ 426,378,201
<u>Actuarial Accrued Liability</u>		
Present Value of Benefits (PVB)	\$ 399,837,973	\$ 426,378,201
Present Value of Future Normal Costs (PVFNC)	93,602,000	90,915,142
Actuarial Accrued Liability (AAL=PVB-PVFNC)	306,235,973	335,463,059
Actuarial Value of Assets (AVA)	209,775,081	213,755,146
Net (Surplus)/Unfunded (AAL – AVA)	\$ 96,460,892	\$ 121,707,913
<u>Present Value of Accrued Liability</u>		
Present Value of Benefits (PVB)	\$ 399,837,973	\$ 426,378,201
Present Value of Future Benefit Accruals (PVFBA)	128,277,423	128,363,584
Present Value of Accrued Liability (PVAB=PVB-PVFBA)	271,560,550	298,014,617
Market Value of Assets (MVA)	159,304,345	184,479,255
Net Unfunded (PVAB – MVA)	\$ 112,256,205	\$ 113,535,362

**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, 2009	\$ 399,837,973	\$ 306,235,565	\$ 271,560,550
Liabilities June 30, 2010	426,378,201	335,463,059	298,014,617
Liability			
Increase (Decrease)	26,540,228	29,227,494	26,454,067
Change Due to:			
Actuarial	NC *	1,396,131	NC*
(Gain)/Loss			
Assumption Changes	5,697,325	9,872,928	6,280,327
Benefits			
Accumulated and	20,842,903	17,958,435	20,173,740
Other Sources			

* NC = not calculated.

**MONTANA FIREFIGHTERS' UNITED RETIREMENT SYSTEM
ACTUARIAL VALUATION AS OF JUNE 30, 2010**

**SECTION III
LIABILITIES**

**Table III-3
Summary of Actuarial Gains and Losses as of June 30, 2010**

Actuarial Liabilities as of July 1, 2009	\$ 306,235,565
Normal Cost	8,084,035
Actual Benefit Payments	(14,683,826)
Expected Earnings	<u>24,558,2265</u>
Expected Actuarial Liability as of July 1, 2010	\$ 324,194,000
Actual Liability as of July 1, 2010 (before assumption changes)	\$ 325,590,131
Liability (Gain)/Loss	1,396,131
Sources of Liability (Gain)/Loss	
Salary (Gain)/Loss	\$ 1,243,279
New Participant (Gain)/Loss	789,883
Active Retirements (Gain)/Loss	482,568
Active Terminations (Gain)/Loss	(302,867)
Active Deaths (Gain)/Loss	(958,619)
Active Disability (Gain)/Loss	454,233
Inactive Decrements (Gain)/Loss	(312,346)
Actual Liability as of July 1, 2010 (after assumption changes)	\$ 335,463,059
Liability (Gain)/Loss due to assumption changes	\$ 9,872,928
Actuarial Value of Assets as of July 1, 2009	\$ 209,775,081
Net Cash Flow	5,735,533
Expected Earnings	<u>17,007,014</u>
Expected Actuarial Value of Assets as of July 1, 2010	\$ 232,517,628
Actual Actuarial Value of Assets as of July 1, 2010	\$ 213,755,146
Investment (Gain)/Loss	\$ 18,762,482
Total Liability (Gain)/Loss	<u>11,269,059</u>
Total Actuarial (Gain)/Loss	\$ 30,031,541

**MONTANA FIREFIGHTERS' UNITED RETIREMENT SYSTEM
ACTUARIAL VALUATION AS OF JUNE 30, 2010**

**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, 2009	June 30, 2010
1. Actuarial Liabilities		
Retiree and Inactive Benefits	\$ 195,689,650	\$ 209,129,817
Active Member Benefits	<u>110,545,915</u>	<u>126,333,242</u>
Total Actuarial Liability	\$ 306,235,565	\$ 335,463,059
2. Actuarial Value of Assets	\$ 209,775,081	\$ 213,755,146
3. Unfunded Actuarial Liability	\$ 96,460,484	\$ 121,707,913
4. Funded Ratio	68.50%	63.72%

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, 2009	June 30, 2010
1. Actuarial Liabilities		
Retiree and Inactive Benefits	\$ 195,689,650	\$ 209,129,817
Active Member Benefits	<u>110,545,915</u>	<u>126,333,242</u>
Total Actuarial Liability	\$ 306,235,565	\$ 335,463,059
2. Market Value of Assets	\$ 159,304,345	\$ 184,479,255
3. Unfunded Actuarial Liability	\$ 146,931,220	\$ 150,983,804
4. Funded Ratio	52.02%	54.99%

**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 Plan. 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 plan, 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%.

**MONTANA FIREFIGHTERS' UNITED RETIREMENT SYSTEM
ACTUARIAL VALUATION AS OF JUNE 30, 2010**

**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, 2009	June 30, 2010
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	26.340%	26.450%
Funding Rate Available for Amortization	31.320%	31.210%
Unfunded Actuarial Liability (Surplus)	96,460,484	121,707,913
Years to Amortize*	12.7 years	14.7 years

* On a market value basis, the Years to Amortize the Unfunded Actuarial Liability were 22.7 years at June 30, 2009 and 19.8 years at June 30, 2010.

**MONTANA FIREFIGHTERS' UNITED RETIREMENT SYSTEM
ACTUARIAL VALUATION AS OF JUNE 30, 2010**

**SECTION IV
CONTRIBUTIONS**

Table IV-3		
Calculated Contribution Basis		
	June 30, 2009	June 30, 2010
Normal Cost Rate	26.340%	26.450%
Educational Fund	0.000%	0.000%
Amortization Payment (30-years)	<u>17.350%</u>	<u>19.400%</u>
Total Calculated Contribution Rate	43.690%	45.850%
Less Statutory Rate	<u>57.660%</u>	<u>57.660%</u>
Shortfall (Surplus) in Statutory Rate	(13.970%)	(11.810%)

Table IV-4		
Calculated Contribution on Market Value (MCA 19-2-407)		
	June 30, 2009	June 30, 2010
Normal Cost Rate	26.340%	26.450%
Educational Fund	0.000%	0.000%
Amortization Payment (30-years)	<u>26.430%</u>	<u>24.060%</u>
Total Calculated Contribution Rate	52.770%	50.510%
Less Statutory Rate	<u>57.660%</u>	<u>57.660%</u>
Shortfall (Surplus) in Statutory Rate	(4.890%)	(7.150%)

As the remaining unrecognized losses are picked and amortized in future valuations, we project the following results for the next 5 valuations (assuming all assumptions are met, including 7.75% return):

Table IV-5	
Projected Calculated Contribution Rates	
Valuation Year	Rate
2011	47.59%
2012	48.51%
2013	47.34%
2014	46.38%
2015	45.38%

**MONTANA FIREFIGHTERS' UNITED RETIREMENT SYSTEM
ACTUARIAL VALUATION AS OF JUNE 30, 2010**

**SECTION V
ACCOUNTING STATEMENT INFORMATION**

Accounting Standards Codification Topic No. 960 of the Financial Accounting Standards Board requires the System to disclose certain information 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, 2010 are exhibited in Table V-1.

Tables V-2 through V-5 are exhibits to be used with the State 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.

MONTANA FIREFIGHTERS' UNITED RETIREMENT SYSTEM
ACTUARIAL VALUATION AS OF JUNE 30, 2010

SECTION V
ACCOUNTING STATEMENT INFORMATION

Table V-1		
Accounting Statement Information		
	June 30, 2009	June 30, 2010
A. FASB ASC Topic No. 960 Basis		
1. Present Value of Benefits Accrued and Vested to Date		
a. Members Currently Receiving Payments	\$ 194,949,316	\$ 207,714,750
b. Former Vested Members	740,334	1,415,067
c. Active Members	<u>75,870,900</u>	<u>88,884,800</u>
2. Total Present Value of Accrued Benefits (1 (a) + 1(b) + 1(c))	\$ 271,560,550	\$ 298,014,617
3. Assets at Market Value	<u>159,304,345</u>	<u>184,479,255</u>
4. Unfunded Present Value of Accrued Benefits (2 – 3)	\$ 112,256,205	\$ 113,535,362
5. Ratio of Assets to Present Value of Accrued Benefits (3 / 2)	58.66%	61.90%
B. GASB No. 25 Basis		
1. Actuarial Accrued Liabilities for retirees and beneficiaries currently receiving benefits and terminated employees not yet receiving benefits	\$ 195,689,650	\$ 209,129,817
2. Actuarial Accrued Liabilities for current employees	<u>110,545,915</u>	<u>126,333,242</u>
3. Total Actuarial Accrued Liability (1 + 2)	\$ 306,235,565	\$ 335,463,059
4. Net Actuarial Assets available for benefits	<u>209,775,081</u>	<u>213,755,146</u>
5. Unfunded Actuarial Accrued Liability (3 – 4)	\$ 96,460,484	\$ 121,707,913

**MONTANA FIREFIGHTERS' UNITED RETIREMENT SYSTEM
ACTUARIAL VALUATION AS OF JUNE 30, 2010**

**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, 2010
Actuarial cost method	Entry age
Amortization method	Open
Remaining amortization period for Annual Required Contribution	14.7 years
Asset valuation method	4-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.

MONTANA FIREFIGHTERS' UNITED RETIREMENT SYSTEM
ACTUARIAL VALUATION AS OF JUNE 30, 2010

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**
*Gain (or Loss) for Year ending June 30,
(expressed in thousands)*

Type of Activity	2005	2006	2007	2008	2009	2010
Investment Income on Actuarial Assets	\$ (3,666)	\$ 1,501	\$ 5,731	\$ (1,368)	\$ (17,007)	\$ (18,762)
Combined Liability Experience	<u>2,337</u>	<u>(4,190)</u>	<u>306</u>	<u>(3,600)</u>	<u>(2,846)</u>	<u>(1,396)</u>
(Loss)/Gain During Year from Financial Experience	\$ (1,329)	\$ (2,689)	\$ 6,037	\$ (4,968)	\$ (19,853)	\$ (20,158)
Non-Recurring Items	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>(9,873)</u>
Composite Gain (or Loss) During Year	\$ (1,329)	\$ (2,689)	\$ 6,037	\$ (4,968)	\$ (19,853)	\$ (30,031)

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

**MONTANA FIREFIGHTERS' UNITED RETIREMENT SYSTEM
ACTUARIAL VALUATION AS OF JUNE 30, 2010**

**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
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
2006	167,343	255,513	65	88,170	22,917	385
2005	151,393	238,157	64	86,764	20,474	424

Table V-5 SOLVENCY TEST* Aggregate Accrued Liabilities for (expressed in thousands)							
Valuation Date June 30,	Active Member Contributions	Retirants & Beneficiaries	Active Member Employer Financed Contributions	Actuarial Value of Reported Assets	Portion of Accrued Liabilities Covered by Reported Assets		
					(1)	(2)	(3)
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
2006	22,738	159,121	73,654	167,343	100	91	0
2005	21,587	148,378	68,192	151,393	100	87	0

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

**MONTANA FIREFIGHTERS' UNITED RETIREMENT SYSTEM
ACTUARIAL VALUATION AS OF JUNE 30, 2010**

**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	570	64	482	13	53	1,182	
Disabled members having attained normal retirement age		(57)	57			0	
Beneficiaries of Disabled Members						0	
Beneficiaries with less than one year of certain payments remaining			-			0	
Other Adjustments						0	
Participant counts shown in Annual Financial Report	570	7	539	13	53	1,182	

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 8) 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 8. For this Appendix A, the valuation projected salaries to be paid for the following fiscal year, whereas for the Board Summary, salaries are as of the valuation date.

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 8. 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
ACTUARIAL VALUATION AS OF JUNE 30, 2010**

**APPENDIX A
MEMBERSHIP INFORMATION**

**Montana Firefighters' United Retirement System Distribution of Active Members
by Age and Service as of June 30, 2010**

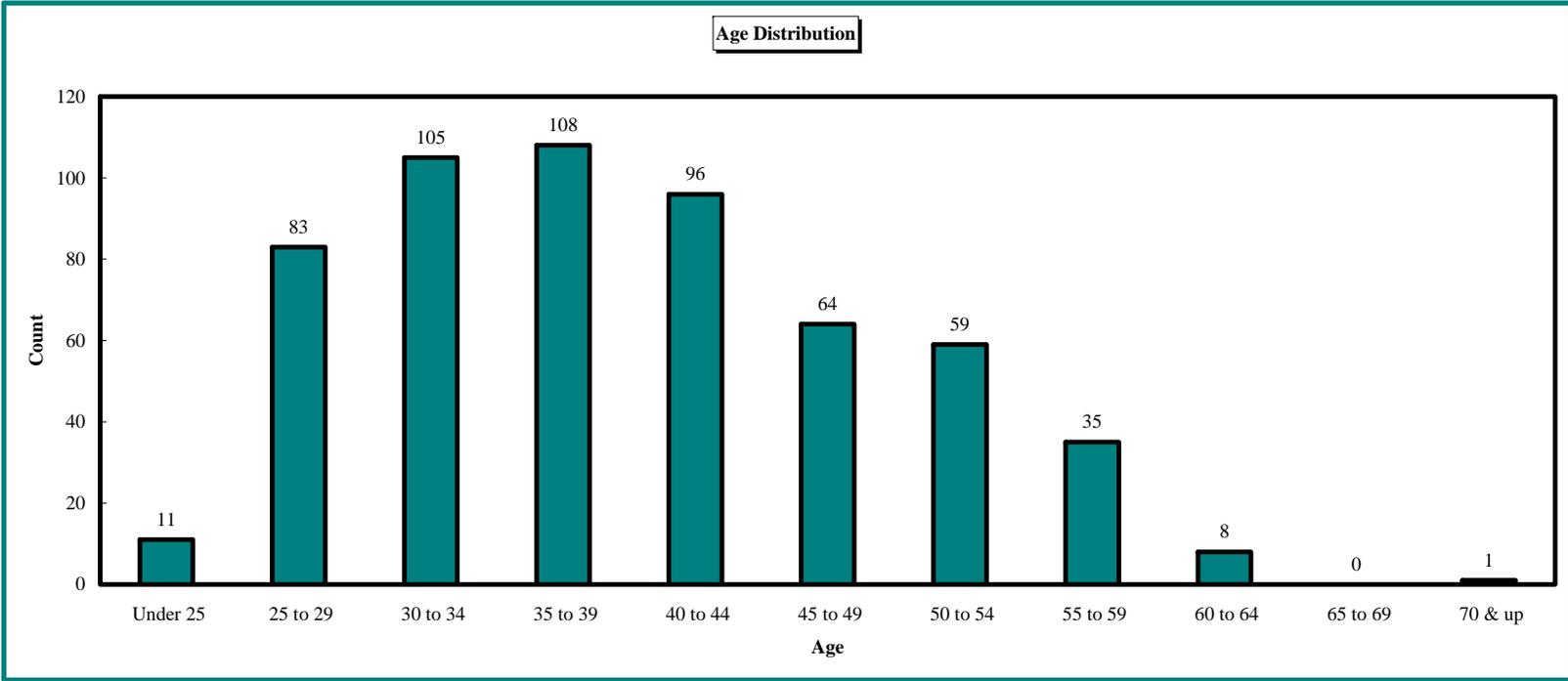
COUNTS BY AGE/SERVICE

Age	Service										Total
	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	
Under 25	4	7	0	0	0	0	0	0	0	0	11
25 to 29	8	63	12	0	0	0	0	0	0	0	83
30 to 34	5	59	39	2	0	0	0	0	0	0	105
35 to 39	5	26	37	37	2	1	0	0	0	0	108
40 to 44	0	8	27	34	25	2	0	0	0	0	96
45 to 49	2	1	3	14	18	22	4	0	0	0	64
50 to 54	2	3	4	3	13	19	13	2	0	0	59
55 to 59	1	3	2	1	0	7	9	12	0	0	35
60 to 64	2	2	0	1	0	3	0	0	0	0	8
65 to 69	0	0	0	0	0	0	0	0	0	0	0
70 & up	1	0	0	0	0	0	0	0	0	0	1
Total	30	172	124	92	58	54	26	14	0	0	570

MONTANA FIREFIGHTERS' UNITED RETIREMENT SYSTEM
ACTUARIAL VALUATION AS OF JUNE 30, 2010

APPENDIX A
MEMBERSHIP INFORMATION

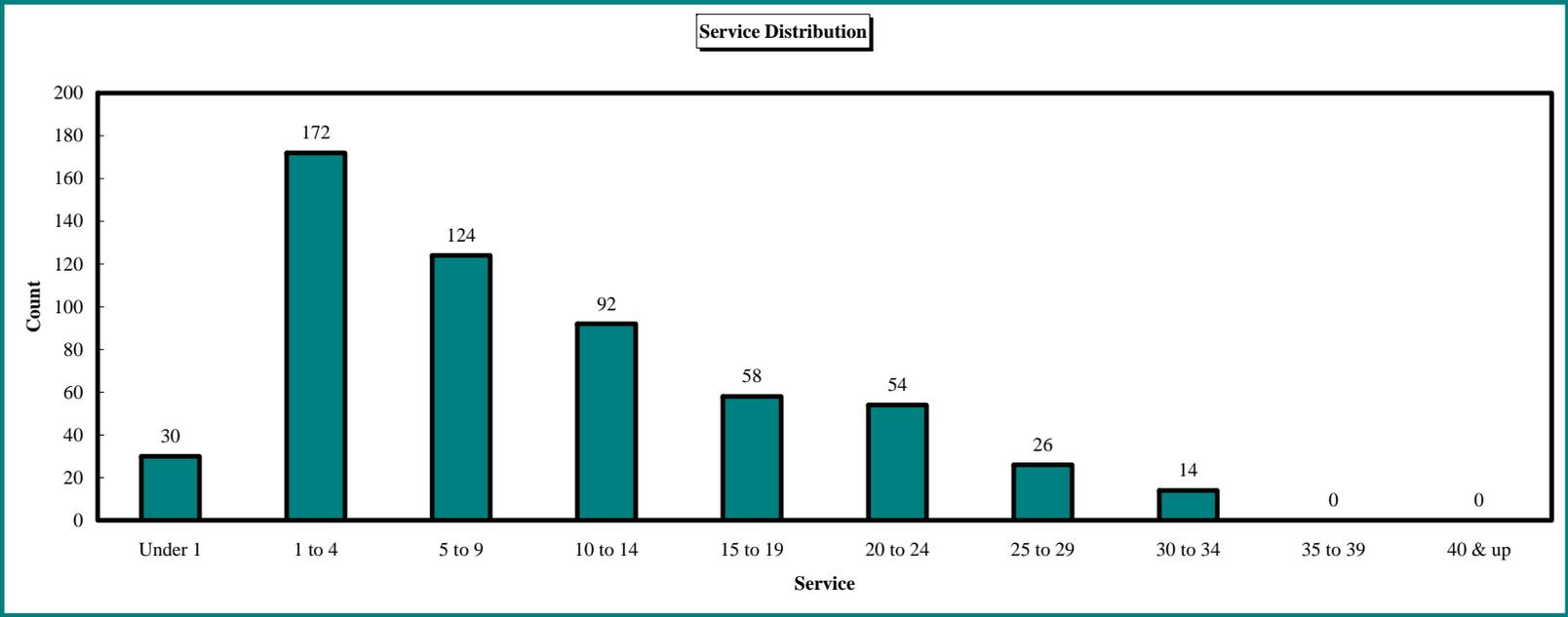
Montana Firefighters' United Retirement System Distribution of Active Members
by Age as of June 30, 2010



MONTANA FIREFIGHTERS' UNITED RETIREMENT SYSTEM
ACTUARIAL VALUATION AS OF JUNE 30, 2010

APPENDIX A
MEMBERSHIP INFORMATION

Montana Firefighters' United Retirement System Distribution of Active Members
by Service as of June 30, 2010



**MONTANA FIREFIGHTERS' UNITED RETIREMENT SYSTEM
ACTUARIAL VALUATION AS OF JUNE 30, 2010**

**APPENDIX A
MEMBERSHIP INFORMATION**

**Montana Firefighters' United Retirement System Distribution of Active Members
by Age and Service as of June 30, 2010**

AVERAGE SALARY BY AGE/SERVICE

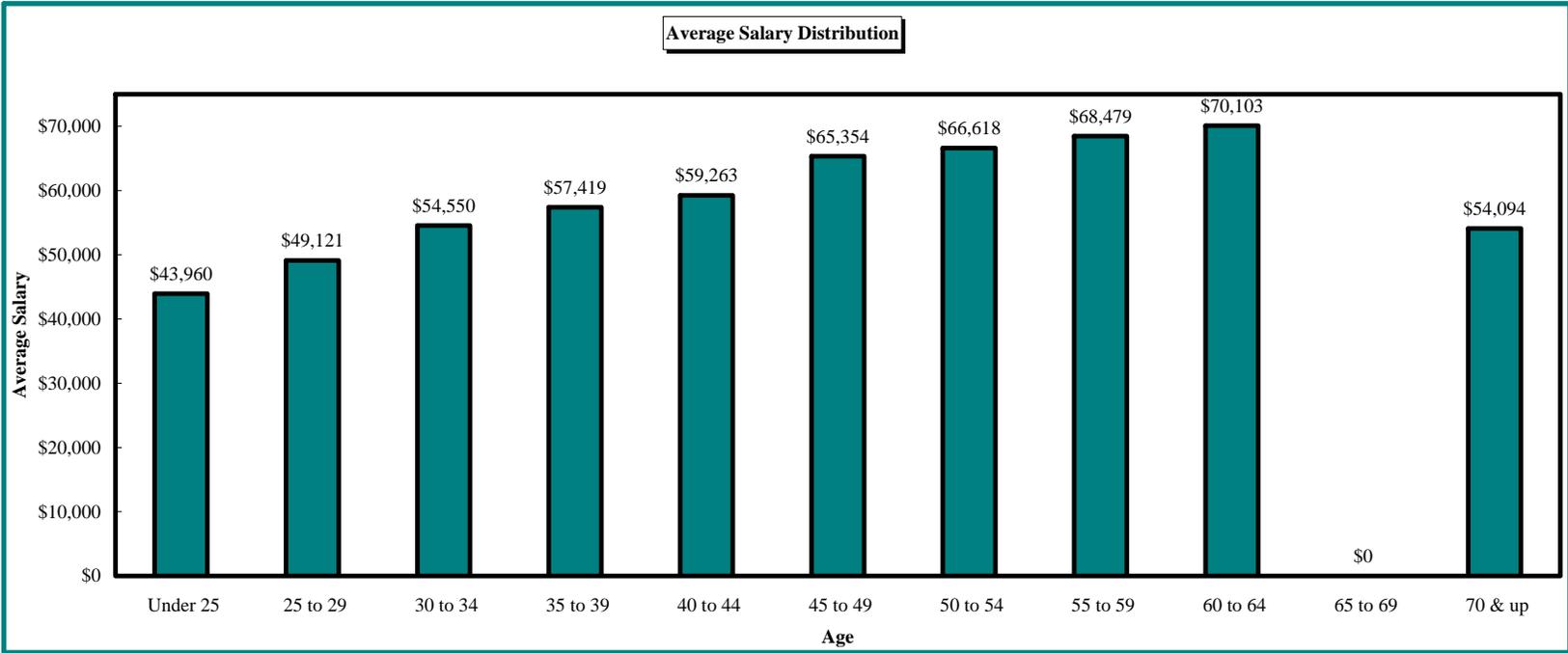
Age	Service										Total	
	Under 1	1 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39	40 & up		
Under 25	\$34,289	\$49,486	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$43,960
25 to 29	\$34,546	\$50,292	\$52,690	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$49,121
30 to 34	\$44,701	\$52,436	\$58,797	\$58,711	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$54,550
35 to 39	\$40,407	\$53,242	\$58,151	\$61,838	\$58,837	\$57,630	\$0	\$0	\$0	\$0	\$0	\$57,419
40 to 44	\$0	\$53,908	\$57,122	\$58,253	\$63,696	\$71,362	\$0	\$0	\$0	\$0	\$0	\$59,263
45 to 49	\$53,854	\$48,999	\$52,571	\$59,580	\$62,587	\$71,863	\$81,645	\$0	\$0	\$0	\$0	\$65,354
50 to 54	\$69,899	\$48,238	\$61,010	\$60,595	\$62,456	\$69,499	\$74,546	\$59,298	\$0	\$0	\$0	\$66,618
55 to 59	\$53,501	\$65,288	\$73,529	\$37,415	\$0	\$67,267	\$71,304	\$70,860	\$0	\$0	\$0	\$68,479
60 to 64	\$61,244	\$96,276	\$0	\$70,267	\$0	\$58,505	\$0	\$0	\$0	\$0	\$0	\$70,103
65 to 69	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
70 & up	\$54,094	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$54,094
Total	\$43,888	\$52,362	\$57,807	\$59,887	\$62,906	\$69,411	\$74,516	\$69,208	\$0	\$0	\$0	\$58,427

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

MONTANA FIREFIGHTERS' UNITED RETIREMENT SYSTEM
ACTUARIAL VALUATION AS OF JUNE 30, 2010

APPENDIX A
MEMBERSHIP INFORMATION

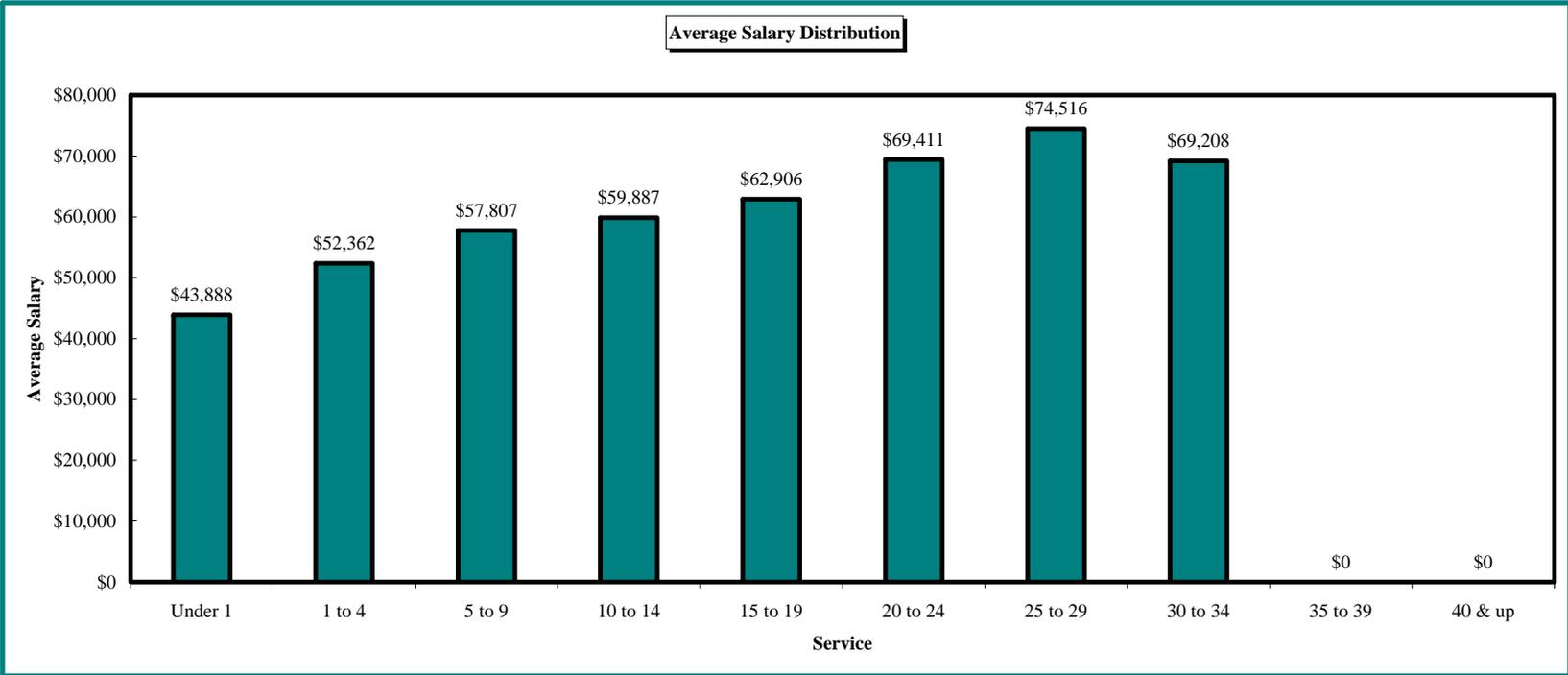
Montana Firefighters' United Retirement System Distribution of Active Members
by Age as of June 30, 2010



MONTANA FIREFIGHTERS' UNITED RETIREMENT SYSTEM
ACTUARIAL VALUATION AS OF JUNE 30, 2010

APPENDIX A
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Montana Firefighters' United Retirement System Distribution of Active Members
by Age as of June 30, 2010



**MONTANA FIREFIGHTERS' UNITED RETIREMENT SYSTEM
ACTUARIAL VALUATION AS OF JUNE 30, 2010**

**APPENDIX A
MEMBERSHIP INFORMATION**

**Montana Firefighters' United Retirement System Distribution of Retired
Members, Survivors, and Disabled Members as of June 30, 2010**

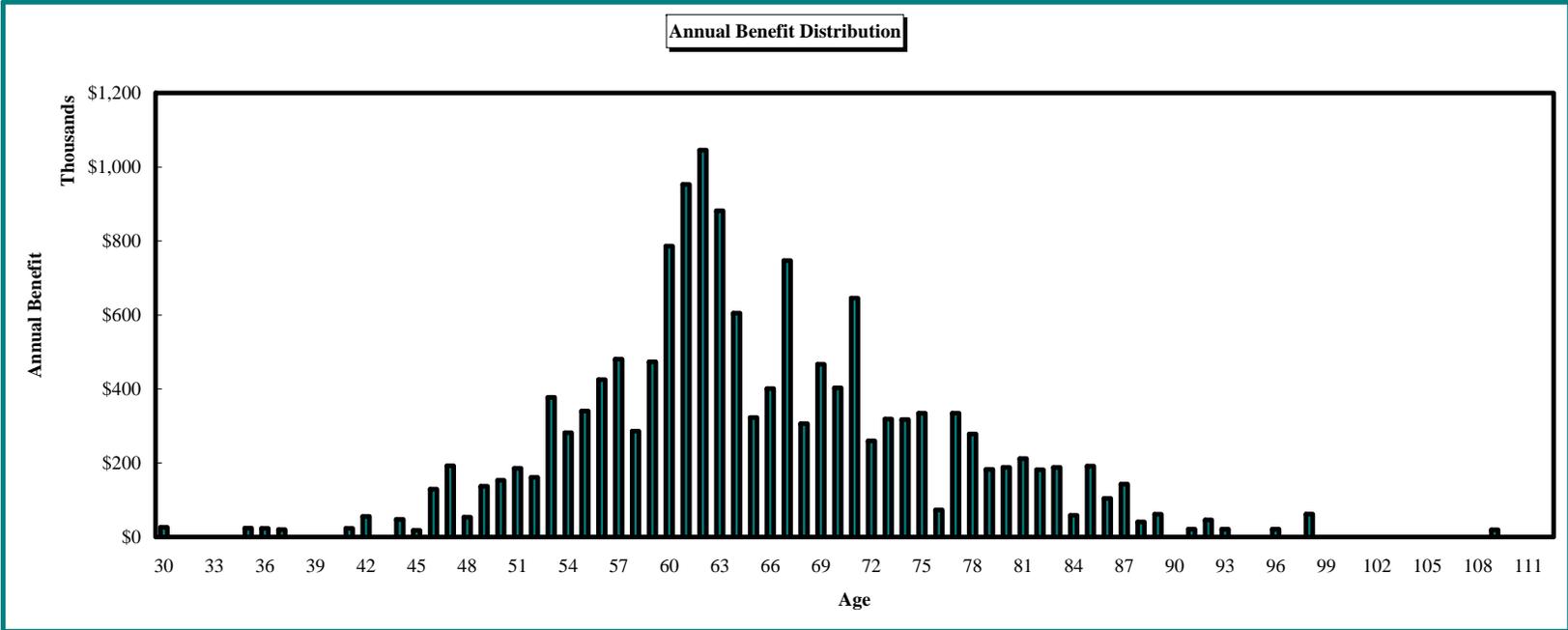
Age	Count	Annual Benefit	Age	Count	Annual Benefit
<25	0	\$0	73	12	\$319,089
25	0	\$0	74	15	\$317,253
26	0	\$0	75	17	\$334,899
27	0	\$0	76	4	\$73,019
28	0	\$0	77	15	\$334,711
29	0	\$0	78	11	\$278,698
30	1	\$26,366	79	8	\$182,804
31	0	\$0	80	10	\$188,457
32	0	\$0	81	12	\$211,953
33	0	\$0	82	10	\$181,664
34	0	\$0	83	9	\$188,237
35	1	\$23,983	84	5	\$58,349
36	1	\$23,125	85	10	\$191,489
37	1	\$19,827	86	6	\$104,294
38	0	\$0	87	7	\$142,622
39	0	\$0	88	2	\$40,698
40	0	\$0	89	3	\$61,320
41	1	\$23,007	90	0	\$0
42	2	\$55,589	91	1	\$20,975
43	0	\$0	92	2	\$45,988
44	2	\$47,568	93	1	\$20,715
45	1	\$17,929	94	0	\$0
46	3	\$129,173	95	0	\$0
47	6	\$192,378	96	1	\$20,696
48	3	\$53,539	97	0	\$0
49	5	\$136,951	98	3	\$61,927
50	6	\$152,978	99	0	\$0
51	7	\$185,735	100	0	\$0
52	6	\$161,293	101	0	\$0
53	15	\$377,316	102	0	\$0
54	11	\$281,595	103	0	\$0
55	11	\$340,508	104	0	\$0
56	14	\$425,285	105	0	\$0
57	13	\$480,308	106	0	\$0
58	9	\$286,179	107	0	\$0
59	18	\$473,735	108	0	\$0
60	19	\$786,221	109	1	\$19,405
61	27	\$953,158	110	0	\$0
62	28	\$1,045,712	111	0	\$0
63	27	\$882,009	112	0	\$0
64	18	\$605,074	113	0	\$0
65	10	\$323,205	114	0	\$0
66	13	\$401,066	115	0	\$0
67	23	\$747,360	116	0	\$0
68	10	\$306,380	117	0	\$0
69	18	\$466,901	118	0	\$0
70	14	\$402,898	119	0	\$0
71	25	\$645,849	120	0	\$0
72	12	\$260,122			
			Totals	546	\$15,139,584

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.

MONTANA FIREFIGHTERS' UNITED RETIREMENT SYSTEM
ACTUARIAL VALUATION AS OF JUNE 30, 2010

APPENDIX A
MEMBERSHIP INFORMATION

Montana Firefighters' United Retirement System Distribution of Retired
Members, Survivors, and Disabled Members as of June 30, 2010



**MONTANA FIREFIGHTERS' UNITED RETIREMENT SYSTEM
ACTUARIAL VALUATION AS OF JUNE 30, 2010**

**APPENDIX A
MEMBERSHIP INFORMATION**

**Montana Firefighters' United Retirement System Distribution of
Vested Members as of June 30, 2010**

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	1	\$7,854	\$0	79	0	\$0	\$0
31	0	\$0	\$0	80	0	\$0	\$0
32	0	\$0	\$0	81	0	\$0	\$0
33	1	\$0	\$84,534	82	0	\$0	\$0
34	1	\$8,323	\$0	83	0	\$0	\$0
35	0	\$0	\$0	84	0	\$0	\$0
36	0	\$0	\$0	85	0	\$0	\$0
37	1	\$5,759	\$0	86	0	\$0	\$0
38	0	\$0	\$0	87	0	\$0	\$0
39	2	\$17,110	\$0	88	0	\$0	\$0
40	0	\$0	\$0	89	0	\$0	\$0
41	0	\$0	\$0	90	0	\$0	\$0
42	0	\$0	\$0	91	0	\$0	\$0
43	0	\$0	\$0	92	0	\$0	\$0
44	1	\$16,993	\$0	93	0	\$0	\$0
45	1	\$0	\$95,124	94	0	\$0	\$0
46	0	\$0	\$0	95	0	\$0	\$0
47	1	\$15,348	\$0	96	0	\$0	\$0
48	2	\$15,219	\$0	97	0	\$0	\$0
49	1	\$0	\$86,927	98	0	\$0	\$0
50	0	\$0	\$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	1	\$5,828	\$0	111	0	\$0	\$0
63	0	\$0	\$0	112	0	\$0	\$0
64	0	\$0	\$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	\$92,435	\$266,584

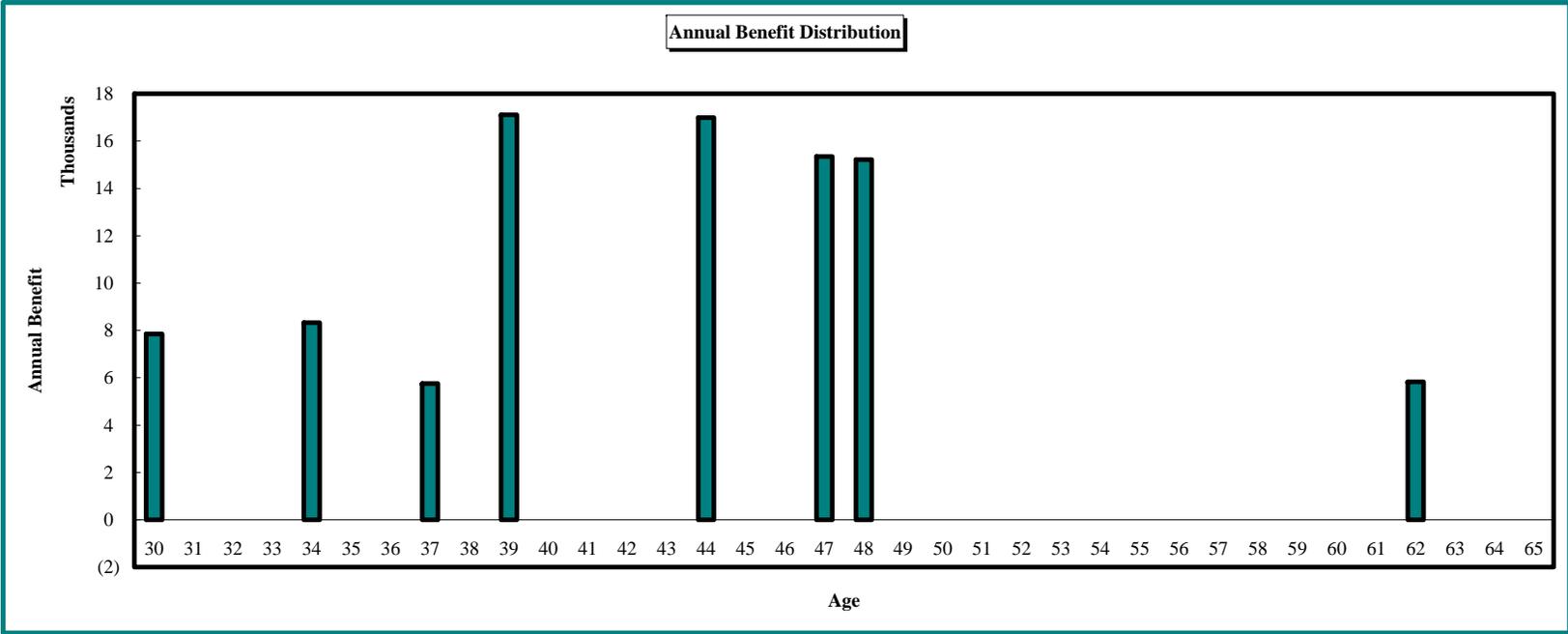
* projected to the greater of age 50 or current age

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

MONTANA FIREFIGHTERS' UNITED RETIREMENT SYSTEM
ACTUARIAL VALUATION AS OF JUNE 30, 2010

APPENDIX A
MEMBERSHIP INFORMATION

Montana Firefighters' United Retirement System Distribution of
Vested Members as of June 30, 2010



**MONTANA FIREFIGHTERS' UNITED RETIREMENT SYSTEM
ACTUARIAL VALUATION AS OF JUNE 30, 2010**

**APPENDIX A
MEMBERSHIP INFORMATION**

**Montana Firefighters' United Retirement System Distribution of
Non-Vested Members as of June 30, 2010**

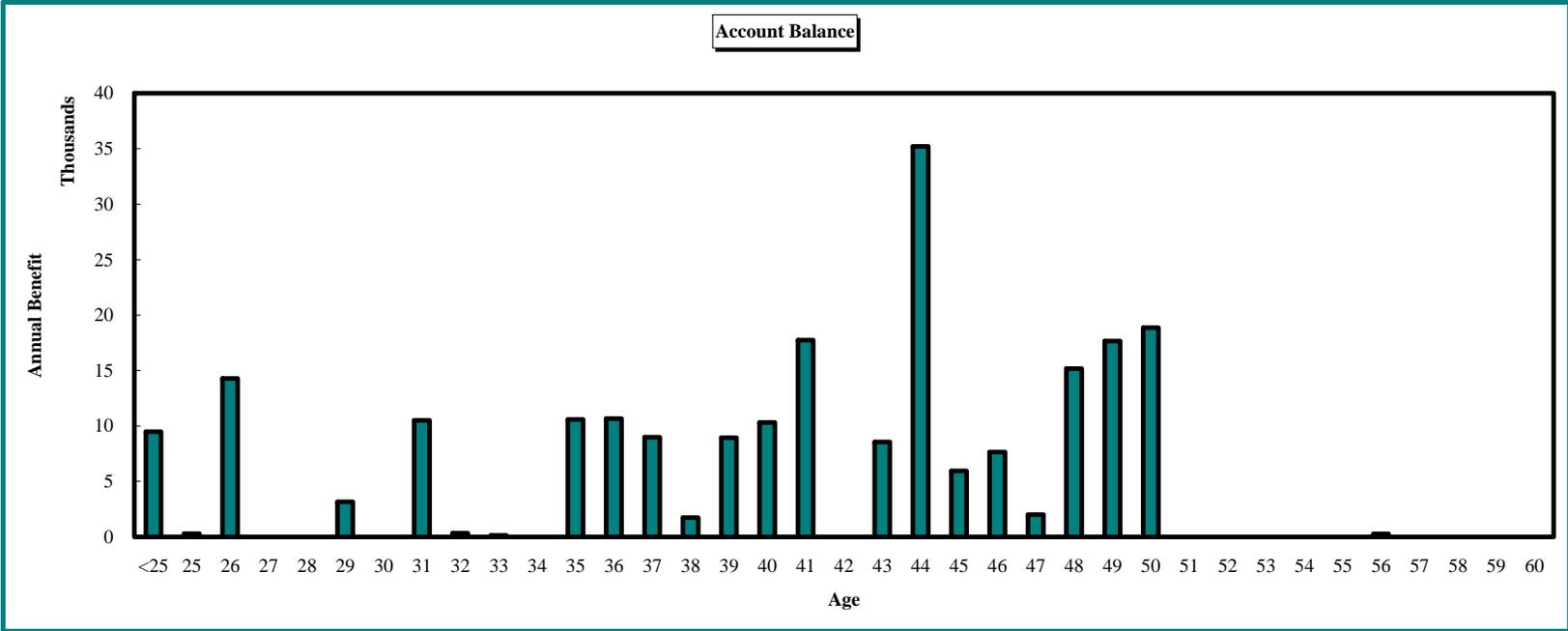
Age	Count	Account Balance	Age	Count	Account Balance
<25	9	\$9,486	73	0	\$0
25	1	\$288	74	0	\$0
26	1	\$14,300	75	0	\$0
27	0	\$0	76	0	\$0
28	0	\$0	77	0	\$0
29	1	\$3,158	78	0	\$0
30	0	\$0	79	0	\$0
31	3	\$10,503	80	0	\$0
32	1	\$330	81	0	\$0
33	1	\$136	82	0	\$0
34	0	\$0	83	0	\$0
35	4	\$10,604	84	0	\$0
36	5	\$10,658	85	0	\$0
37	4	\$8,988	86	0	\$0
38	1	\$1,726	87	0	\$0
39	2	\$8,945	88	0	\$0
40	3	\$10,325	89	0	\$0
41	2	\$17,747	90	0	\$0
42	0	\$0	91	0	\$0
43	1	\$8,555	92	0	\$0
44	3	\$35,204	93	0	\$0
45	1	\$5,949	94	0	\$0
46	1	\$7,646	95	0	\$0
47	1	\$2,009	96	0	\$0
48	2	\$15,173	97	0	\$0
49	3	\$17,653	98	0	\$0
50	2	\$18,866	99	0	\$0
51	0	\$0	100	0	\$0
52	0	\$0	101	0	\$0
53	0	\$0	102	0	\$0
54	0	\$0	103	0	\$0
55	0	\$0	104	0	\$0
56	1	\$274	105	0	\$0
57	0	\$0	106	0	\$0
58	0	\$0	107	0	\$0
59	0	\$0	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	53	\$218,522

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

MONTANA FIREFIGHTERS' UNITED RETIREMENT SYSTEM
ACTUARIAL VALUATION AS OF JUNE 30, 2010

APPENDIX A
MEMBERSHIP INFORMATION

Montana Firefighters' United Retirement System Distribution of
Non-Vested Members as of June 30, 2010



**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

RP-2000 Combined Healthy Male and Female Mortality Tables projected to 2015 with scale AA.

Sample Rates of Healthy Mortality		
Age	Male	Female
50	0.163%	0.130%
55	0.241%	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

RP-2000 Combined Healthy Male and Female Mortality Tables with no projections.

Sample Rates of Disabled Inactive Mortality		
Age	Male	Female
50	0.241%	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%

**MONTANA FIREFIGHTERS' UNITED RETIREMENT SYSTEM
ACTUARIAL VALUATION AS OF JUNE 30, 2010**

**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

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

**MONTANA FIREFIGHTERS' UNITED RETIREMENT SYSTEM
ACTUARIAL VALUATION AS OF JUNE 30, 2010**

**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.

j. Vested Benefits for Terminated Members

**MONTANA FIREFIGHTERS' UNITED RETIREMENT SYSTEM
ACTUARIAL VALUATION AS OF JUNE 30, 2010**

**APPENDIX B
ACTUARIAL ASSUMPTIONS AND METHODS**

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%
- b. Rate of Wage Inflation: 4.00%
- c. Interest on Member Contributions: 3.50%
- d. Rate of Increase in Total Payroll
(for Amortization): 4.00%

3. Changes Since Last Valuation

The demographic and economic assumptions were updated to reflect the 2009 experience study. The prior assumptions are listed below for those assumptions where changes were made:

a. Demographic Assumptions

i. Healthy Retirees, Beneficiaries and Non-Retired Members

- Male: Male UP-1994 Mortality Table set back one year.
- Female: Female UP-1994 Mortality Table set back one year.

Sample Rates of Healthy Mortality		
Age	Male	Female
50	0.250%	0.141%
55	0.428%	0.224%
60	0.762%	0.415%
65	1.391%	0.819%
70	2.336%	1.367%
75	3.661%	2.192%
80	6.007%	3.802%
85	9.636%	6.557%
90	14.995%	11.247%

**MONTANA FIREFIGHTERS' UNITED RETIREMENT SYSTEM
ACTUARIAL VALUATION AS OF JUNE 30, 2010**

**APPENDIX B
ACTUARIAL ASSUMPTIONS AND METHODS**

ii. Disabled Inactive Mortality

Male: IRS Revenue Ruling 96-7, Male Table set back three years.
Female: IRS Revenue Ruling 96-7, Female Table set forward one year.

Sample Rates of Disabled Inactive Mortality		
Age	Male	Female
50	2.085%	1.697%
55	2.587%	1.976%
60	3.194%	2.344%
65	3.933%	2.828%
70	4.900%	3.492%
75	6.468%	4.710%
80	8.522%	6.346%
85	10.971%	9.015%
90	14.405%	13.322%

iii. Rates of Active Disability

Sample Rates of Active Disability		
Age	Male	Female
22	0.00%	0.00%
27	0.10%	0.10%
32	0.10%	0.10%
37	0.10%	0.10%
42	0.40%	0.40%
47	0.40%	0.40%
52	0.40%	0.40%
57	0.40%	0.40%
62	0.00%	0.00%

All disabilities are assumed to be permanent and without recovery.

**MONTANA FIREFIGHTERS' UNITED RETIREMENT SYSTEM
ACTUARIAL VALUATION AS OF JUNE 30, 2010**

**APPENDIX B
ACTUARIAL ASSUMPTIONS AND METHODS**

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

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

v. Probability of Electing a Refund of Member Contributions Upon Termination

Probability of Electing Refund		
Age at Term.	Non-Vested	Vested
Under 35	100%	70%
35-39	100%	60%
40-44	100%	40%
45-49	100%	40%
50 & Over	100%	0%

vi. Retirement

Annual Retirement Rates	
Age	20 years or more
<50	10.00%
50 – 54	12.00%
55	15.00%
56	15.00%
57	15.00%
58	15.00%
59	15.00%
60	15.00%
61	15.00%
62	15.00%
63	15.00%
64	15.00%
65 & over	100.00%

MONTANA FIREFIGHTERS' UNITED RETIREMENT SYSTEM
ACTUARIAL VALUATION AS OF JUNE 30, 2010

APPENDIX B
ACTUARIAL ASSUMPTIONS AND METHODS

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

Service based table plus an annual inflation rate of 4.25% (rates shown below exclude amount for inflation).

b. Economic Assumptions

i.	Rate of Investment Return:	8.00%
ii.	Rate of Wage Inflation:	4.25%
iii.	Interest on Member Contributions:	5.00%
iv.	Rate of Increase in Total Payroll (for Amortization):	4.25%

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.

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 all 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 covered by GABA, members contribute 9.5% of their compensation. For members covered by 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. Earned for all periods of service, regardless of hours worked or pay received.

5. Highest Average Compensation

Highest Average Compensation is the average of any 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. 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. Normal Retirement

Eligibility: 20 years of membership service.

- Benefit:
- (i) For a member hired on or after July 1, 1981, or a member who had elected to be covered by GABA, 2.5% of highest average compensation times 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 minimum of (i) and:
 - (a) if membership service is less than 20, 2% of highest average compensation times years of service credit, and
 - (b) if membership service is greater or equal to 20, 50% of highest average compensation plus 2% of highest average compensation times years of service credit in excess of 20.

7. Early Retirement

Eligibility: Age 50 with 5 years of membership service.

Benefit: Normal retirement benefit calculated using highest average compensation and service credit at early retirement, and reduced to the actuarial equivalent commencing at age 60.

8. Disability Benefit

Eligibility: Any active member.

Benefit: The greater of (a) 50% of highest average compensation and (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 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 more

APPENDIX C
SUMMARY OF PLAN PROVISIONS

than 20 years of membership service, a benefit equal to the accrued retirement benefit.

For retired members without a contingent annuitant, a payment will be made equal to the accumulated contributions reduced by any retirement benefits already paid.

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 with interest. 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 with interest.

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.

APPENDIX C
SUMMARY OF PLAN PROVISIONS

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 this provision, and who have been retired at least 12 months, a Guaranteed Annual Benefit Adjustment (GABA) will be made each year 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.