

Volunteer Firefighters' Compensation Act of the State of Montana

**Actuarial Valuation
as of June 30, 2015**

Produced by Cheiron

September 2015

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September 29, 2015

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 Volunteer Firefighters' Compensation Act as of June 30, 2015. 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 provides information regarding employer contribution levels and certain required disclosures for financial statements. The purpose of this report is to present the annual actuarial valuation of the Volunteer Firefighters' Compensation Act. 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.

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 2015 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.

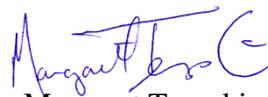
We hereby certify that, to the best of our knowledge, this report and its contents have been prepared in accordance with generally recognized and accepted actuarial principles and practices which are consistent with the Code of Professional Conduct and applicable Actuarial Standards of Practice set out by the Actuarial Standards Board. Furthermore, as credentialed actuaries, we meet the Qualification Standards of the American Academy of Actuaries to render the opinion contained in this report. This report does not address any contractual or legal issues. We are not attorneys and our firm does not provide any legal services or advice.

This actuarial report was prepared exclusively for the Volunteer Firefighters' Compensation Act for the purpose described herein. Other users of this valuation report are not intended users as defined in the Actuarial Standards of Practice, and Cheiron assumes no duty or liability to any other user.

Sincerely,
Cheiron



Stephen T. McElhaney, FSA, FCA
Principal Consulting Actuary



Margaret Tempkin, FSA
Principal Consulting Actuary

FOREWORD

Cheiron has performed the Actuarial Valuation of the Volunteer Firefighters' Compensation Act as of June 30, 2015. 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 actuarial contribution** calculated as the normal cost, administrative expense, and a 20-year open amortization of the unfunded actuarial liability for Fiscal Year 2015 and compare such actuarial contribution to the actual contributions being received; and
- 4) **Provide information** and documentation as may be required for financial statements.

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 actuarial contribution determined using actuarial techniques.

Section V includes certain required disclosures for financial statements.

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 valuation.

In preparing our report, we relied 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.

Future results may differ significantly from the current results presented in this valuation report due to such factors as the following: plan experience differing from that anticipated by the assumptions; changes in assumptions; and changes in plan provisions or applicable law.

SECTION I
BOARD SUMMARY

General Comments

The actuarial contribution increased from \$890,358 at the June 30, 2014 valuation to \$1,331,372 at the June 30, 2015 valuation. The actuarial contribution is determined as the normal cost, administrative expense, and a 20-year open amortization of the unfunded actuarial liability. During the year ended June 30, 2015, the System's assets gained 4.49% on a market value basis. However, due to the System's asset-smoothing method which recognizes only a portion of the gains and losses, the return on the actuarial asset value was 8.95%. This return was above the assumed rate of return of 7.75% and resulted in an actuarial gain on investments of \$0.4 million.

The actuarial liability increased due to the passage of House Bill 483 (HB 483). HB 483, which was enacted during the 2015 legislative session, made changes to the Volunteer Firefighters' Compensation Act (VFCA) by raising the pension benefit available to eligible members. This benefit change added \$5.8 million to the actuarial liability.

The System also experienced an actuarial gain on system liabilities resulting from members retiring, terminating, becoming disabled, and dying at rates different from the actuarial assumptions. The gain deducted \$0.1 million from the expected actuarial liability. The System will experience actuarial gains and losses over time because we cannot predict exactly how people will behave; this type of activity is normal in the course of the System's experience. When a system experiences alternating gains and losses that are small compared to the total actuarial liability, then the system's actuarial assumptions are reasonable.

As of the June 30, 2015 Actuarial Valuation, the System's unfunded actuarial liability was \$10.91 million. This is an increase from last year's unfunded actuarial liability of \$6.69 million. The funded ratio decreased from 82% at the prior valuation to 75% at June 30, 2015.

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, 2015 was \$0.7 million greater than actuarial value. If market value was used rather than actuarial value, the funded ratio on the valuation date would be 77%, down from 88% the prior year, and the actuarial contribution would be \$1,264,118.

GASB Statement No. 67 became effective for the plan year ending June 30, 2014. GASB Statement No. 68 became effective for the State's Fiscal Year ending June 30, 2015. Actuarial information related to required disclosures under GASB 67 and GASB 68 will be provided in a separate report.

MONTANA VOLUNTEER FIREFIGHTERS' COMPENSATION ACT
ACTUARIAL VALUATION AS OF JUNE 30, 2015

**SECTION I
BOARD SUMMARY**

The following table compares the results at June 30, 2015, both before and after House Bill 483, and the June 30, 2014 valuation results.

**Table I-1
Montana Volunteer Firefighters' Compensation Act
Summary of Plan Changes**

Valuation as of:	June 30, 2014	Before House Bill 483 June 30, 2015	After House Bill 483 June 30, 2015
<u>Assets and Liabilities</u>			
Actuarial Liability (AL)	\$ 37,975,358	\$ 38,519,426	\$ 44,318,250
Actuarial Value of Assets (AVA)	<u>31,280,828</u>	<u>33,405,451</u>	<u>33,405,451</u>
Unfunded AL (AL – AVA)	6,694,530	\$ 5,113,975	10,912,799
Funded Ratio (AVA/AL)	82.4%	86.7%	75.4%
<u>Contributions</u>			
Normal Cost	\$ 184,657	\$ 188,048	\$ 217,001
Amortization Payment	644,701	492,489	1,050,931
Administrative Expense	<u>61,000</u>	<u>63,440</u>	<u>63,440</u>
Total	\$ 890,358	\$ 743,977	\$ 1,331,372
Actual Contributions for Preceding Fiscal Year	\$ 1,818,237	\$ 1,913,482	\$ 1,913,482
Amortization Period Based on Actual Contributions*	5.1 years	3.5 years	9.3 years

* Per Montana Code 19-17-404, for years 2014 and 2015 (both before and after HB 483), the pension trust is considered actuarially sound, thus there are no restrictions on pension benefits for future retirees.

**SECTION I
 BOARD SUMMARY**

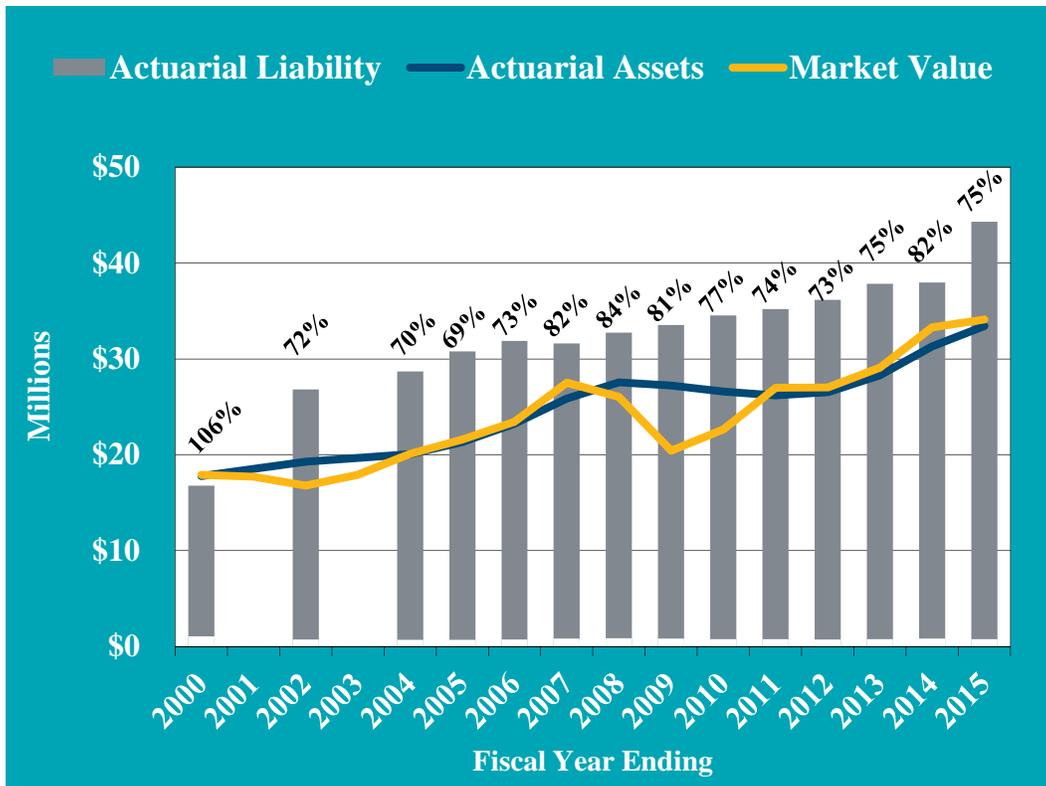
Trends

Assets and Liabilities

The market value of assets (MVA) increased over last year, gaining 4.49% 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 differs from the assumed rate of 7.75%.

Over the period July 1, 2010 to June 30, 2015, the System's assets returned approximately 6.9% per year measured at actuarial value, compared to a current valuation assumption of 7.75% per year.

For funding purposes, the target amount or Actuarial Liability 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.

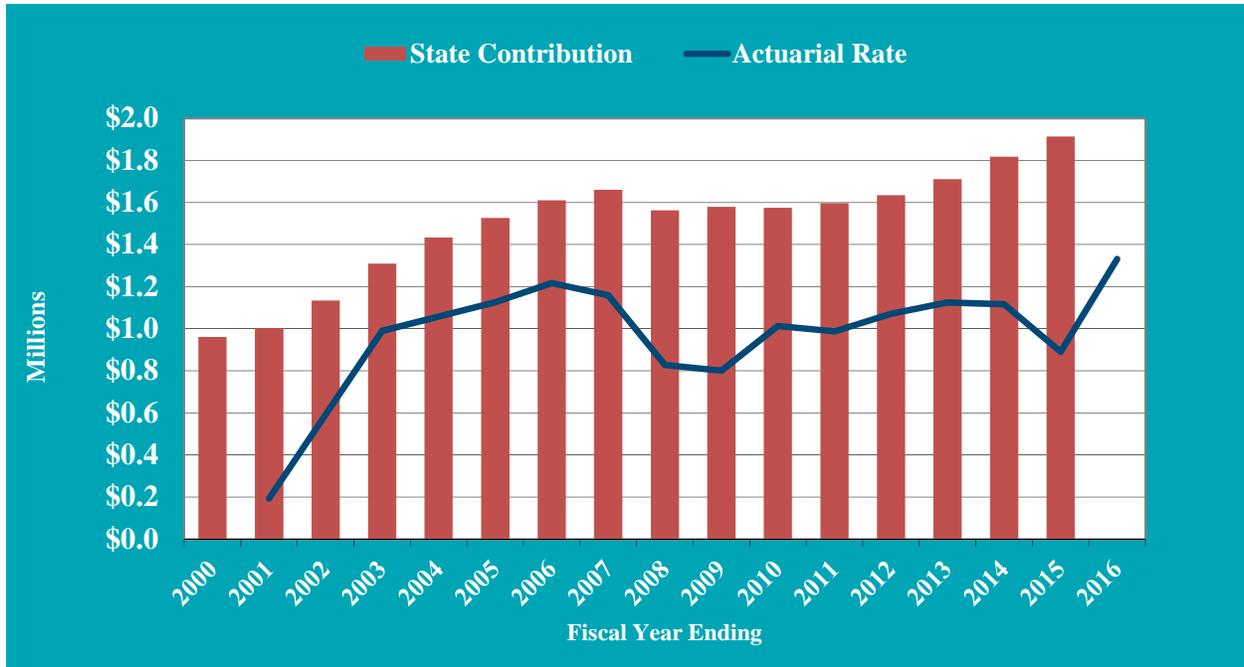


MONTANA VOLUNTEER FIREFIGHTERS' COMPENSATION ACT
ACTUARIAL VALUATION AS OF JUNE 30, 2015

SECTION I
BOARD SUMMARY

Contributions

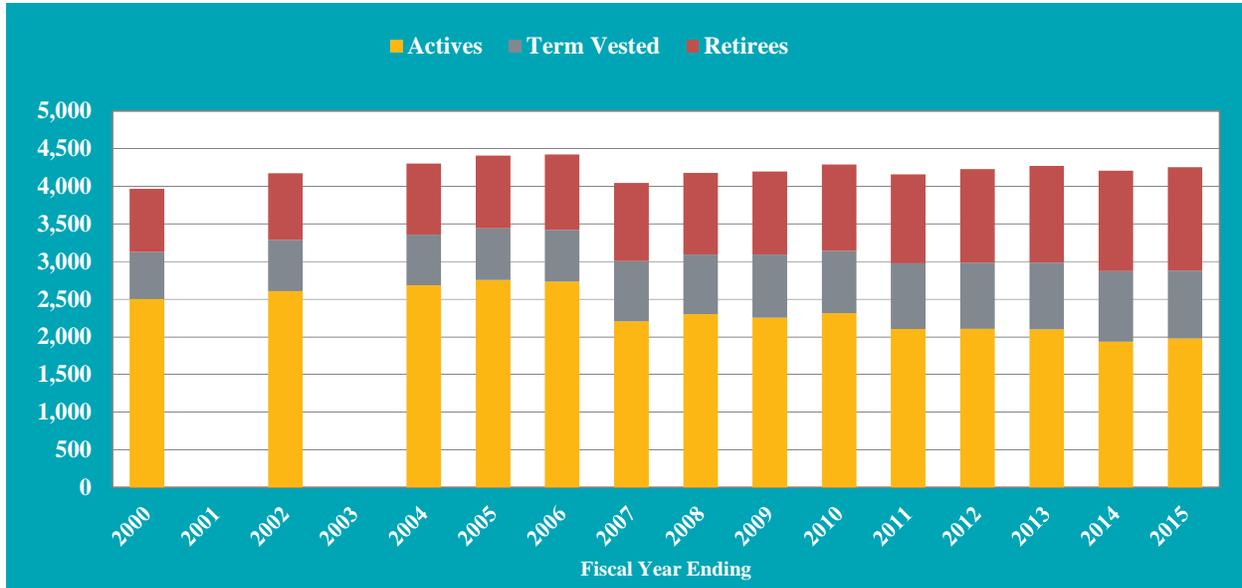
The bars in this graph show the contributions made by the State. The navy line shows the Actuarial Contribution, which is calculated as the normal cost, administrative expense, and a level dollar 20-year open amortization of the unfunded actuarial liability.



**SECTION I
BOARD SUMMARY**

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 decreased from 1.7 actives for each inactive in 2000 to 0.9 actives for each inactive today.

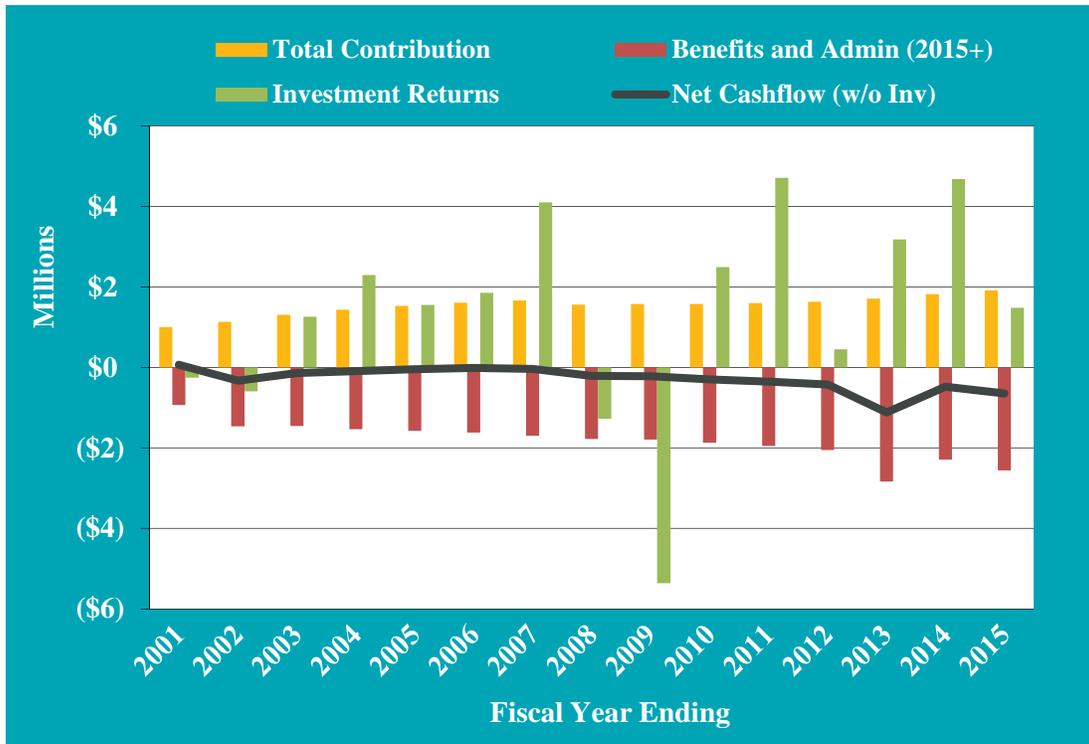


MONTANA VOLUNTEER FIREFIGHTERS' COMPENSATION ACT
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SECTION I
BOARD SUMMARY

Net Cash Flow

This graph shows the historical contributions compared to benefit payments, and for 2015 and later, administrative expenses. The difference between these two measures is shown in the solid black line, and is the net cash flow (excluding investment returns).



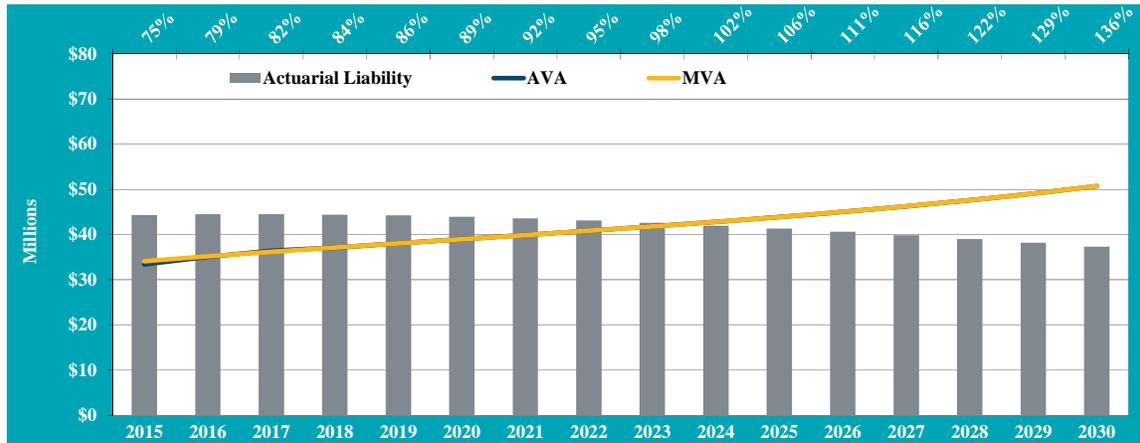
**SECTION I
 BOARD SUMMARY**

Future Outlook

Baseline Projections

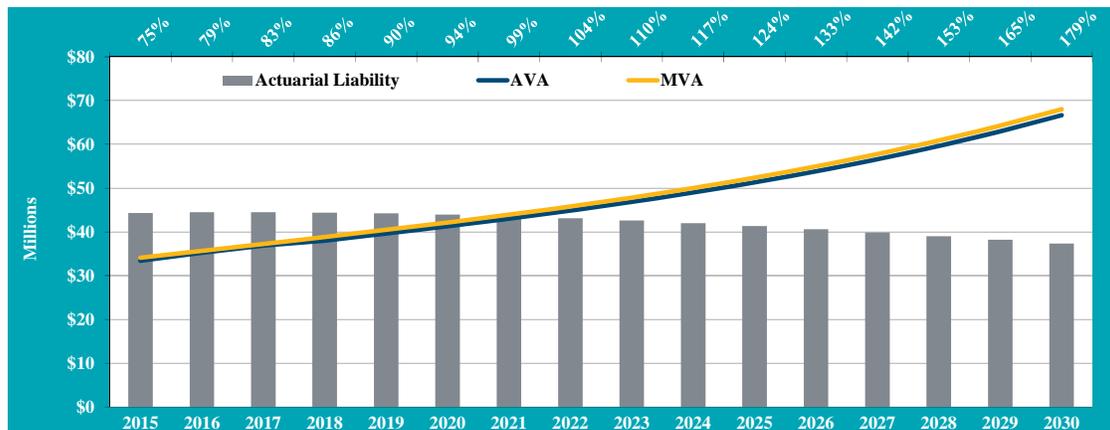
These graphs show the expected progress of the System over the next 15 years assuming the System's assets earn 7.75% on their *market value*, and that contributions continue to be made at the same amount as in the most recent fiscal year.

The chart below shows that the funded status of the System is expected to increase substantially over the 15-year period.



Projections with Asset Returns of 9.25%

The future funding status of this System will be largely driven by the investment earnings. Due to the size of assets, as compared to liabilities, the System is in a highly leveraged position. This means that relatively minor changes in market returns can have significant effects on the System's status. The chart below shows 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).



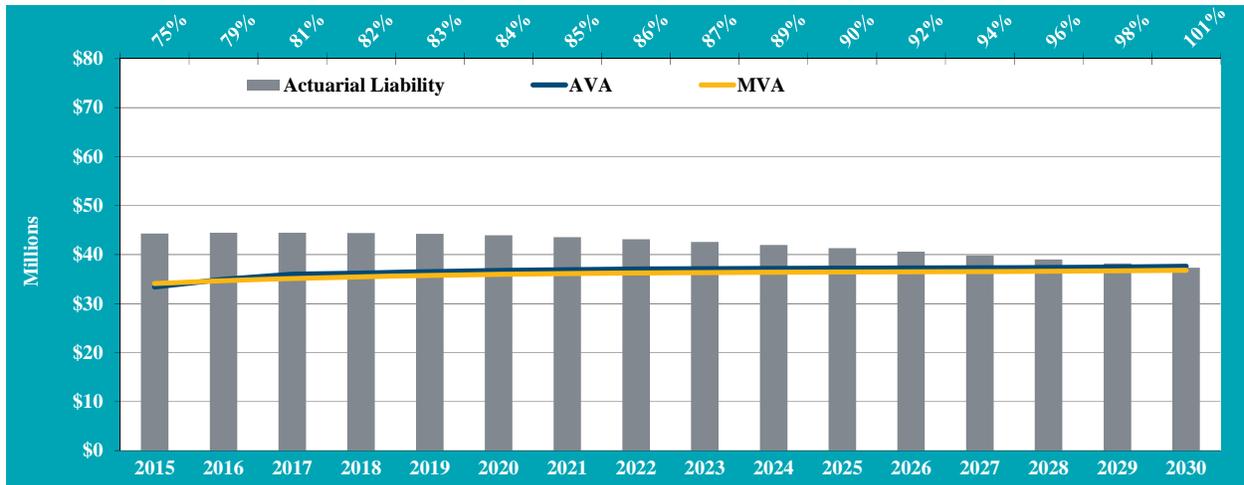
Compared to the baseline projections, the funded status improves to a greater extent during the 15-year period.

MONTANA VOLUNTEER FIREFIGHTERS' COMPENSATION ACT
ACTUARIAL VALUATION AS OF JUNE 30, 2015

SECTION I
BOARD SUMMARY

Projections with Asset Returns of 6.25%

To further demonstrate how the future funding of this System will be driven by investment earnings, 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 funded status increases to a lesser extent but still exceeds 100% by the end of the 15-year period.

MONTANA VOLUNTEER FIREFIGHTERS' COMPENSATION ACT
ACTUARIAL VALUATION AS OF JUNE 30, 2015

**SECTION I
BOARD SUMMARY**

Table I-2			
Montana Volunteer Firefighters' Compensation Act			
Summary of Principal System Results			
Valuation as of:	June 30, 2014	June 30, 2015	% Change
<u>Participant Counts</u>			
Active Members	1,935	1,977	2.2%
Disabled Members	0	0	N/A
Retirees and Beneficiaries	1,332	1,371	2.9%
Terminated Vested Members	939	905	(3.6%)
Terminated Non-Vested Members	<u>0</u>	<u>0</u>	N/A
Total*	4,206	4,253	1.1%
Annual Retirement Allowances for Retired Members and Beneficiaries	\$ 2,314,164	\$ 2,377,170	2.7%
<u>Assets and Liabilities</u>			
Actuarial Liability (AL)	\$ 37,975,358	\$ 44,318,250	16.7%
Actuarial Value of Assets (AVA)	<u>31,280,828</u>	<u>33,405,451</u>	6.8%
Unfunded AL	6,694,530	10,912,799	63.0%
Funded Ratio (AVA/AL)	82.4%	75.4%	
Present Value of Accrued Benefits (PVAB)	\$ 35,913,850	\$ 41,989,712	16.9%
Market Value of Assets	<u>33,270,201</u>	<u>34,103,818</u>	2.5%
Unfunded PVAB	\$ 2,643,649	\$ 7,885,894	198.3%
Accrued Benefit Funding Ratio	92.6%	81.2%	
Ratio of Actuarial Value to Market Value	94.0%	98.0%	
<u>Contributions</u>			
Normal Cost	\$ 184,657	\$ 217,001	17.5%
Amortization Payment	644,701	1,050,931	63.0%
Administrative Expense	<u>61,000</u>	<u>63,440</u>	4.0%
Total	\$ 890,358	\$ 1,331,372	49.5%
Actual Contributions for Preceding Fiscal Year Amortization Period Based on Actual Contributions **	\$ 1,818,237	\$ 1,913,482	
	5.1 years	9.3 years	

* A reconciliation of the counts for annual report purposes to counts for valuation purposes appears at the beginning of Appendix A.

** Per Montana Code 19-17-404, for years 2014 and 2015, the pension trust is considered actuarially sound, thus there are no restrictions on pension benefits for future retirees.

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 have an impact upon benefit levels, contributions, and the ultimate security of participants' benefits.

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

- **Disclosure** of System assets at June 30, 2014 and June 30, 2015;
- 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 as the difference between the actual market return and the expected market return using the assumed rate of investment return.

MONTANA VOLUNTEER FIREFIGHTERS' COMPENSATION ACT
 ACTUARIAL VALUATION AS OF JUNE 30, 2015

SECTION II
ASSETS

Table II-1		Changes in Market Values	
Value of Assets – June 30, 2014		\$	33,270,201
<u>Additions</u>			
Non-Employer Contributions	\$ 1,913,482		
Investment Return	<u>1,479,954</u>		
Total Additions	\$ 3,393,436		
<u>Deductions</u>			
Benefit Payments	\$ 2,379,353		
Administrative Expenses	<u>180,466</u>		
Total Deductions	\$ 2,559,819		
Value of Assets – June 30, 2015		\$	34,103,818

**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, 2015 valuation.

Table II-2 Market Value Gain/(Loss)	
Value of Assets – June 30, 2014	\$ 33,270,201
Total Contributions	\$ 1,913,482
Benefit Payments	(2,379,353)
Administrative Expense	(180,466)
Expected Return at 7.75%	<u>2,553,862</u>
Expected Value at June 30, 2015	\$ 35,177,726
Actual Value at June 30, 2015	\$ 34,103,818
Investment Gain/(Loss)	\$ (1,073,908)

Table II-3 Develop Excluded Gain/(Loss)		
	Total Gain/(Loss)	Excluded Portion
Exclude 75% of 2015 Gain/(Loss)	\$ (1,073,908)	\$ (805,431)
Exclude 50% of 2014 Gain/(Loss)	\$ 2,444,819	\$ 1,222,409
Exclude 25% of 2013 Gain/(Loss)	\$ 1,125,555	\$ 281,389
Total Excluded Gain/(Loss) for AVA Calculation		\$ 698,367

Table II-4 Actuarial Value of Assets	
Market Value of Assets – June 30, 2015	\$ 34,103,818
Total Gain/(Loss) excluded	<u>698,367</u>
Actuarial Value of Assets – June 30, 2015	\$ 33,405,451

**SECTION II
 ASSETS**

Investment Performance

The market value of assets (MVA) returned 4.49% during the Fiscal Year ended 2015, which is less than the assumed 7.75% return. A return of 8.95% 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
2005	7.74%	6.49%
2006	8.58%	9.10%
2007	17.52%	11.47%
2008	(4.65%)	7.37%
2009	(20.69%)	(0.37%)
2010	12.30%	(1.30%)
2011	20.98%	(0.14%)
2012	1.67%	2.97%
2013	12.01%	11.11%
2014	16.23%	12.34%
2015	4.49%	8.95%

MONTANA VOLUNTEER FIREFIGHTERS' COMPENSATION ACT
ACTUARIAL VALUATION AS OF JUNE 30, 2015

**SECTION II
ASSETS**

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

Year Beginning July 1,	Expected Benefits	Expected Admin Expense	Expected Contributions*	Net Cash Flow (excluding Investment Return)	Expected Investment Return**	Net Cash Flow (including Investment Return)
2015	\$ 3,374	\$ 63	\$ 1,913	\$ (1,524)	\$ 2,585	\$ 1,061
2016	3,518	66	1,913	(1,671)	2,662	991
2017	3,632	69	1,913	(1,788)	2,734	946
2018	3,696	71	1,913	(1,854)	2,805	951
2019	3,789	74	1,913	(1,950)	2,875	925
2020	3,865	77	1,913	(2,029)	2,944	915
2021	3,906	80	1,913	(2,073)	3,013	940
2022	3,953	83	1,913	(2,123)	3,084	961
2023	3,986	87	1,913	(2,160)	3,157	997
2024	3,987	90	1,913	(2,164)	3,234	1,070

* Expected contributions only include expected State contributions. For illustration purposes, we have assumed State contributions will remain at the same level as the most recent fiscal 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, 2015. Projecting any further 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 the System's liabilities including:

- **Disclosure** of System liabilities at June 30, 2014 and June 30, 2015,
- 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 19-2-407.

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 and all of the assumptions are met.
- **Actuarial Liability:** Used for funding calculations, this liability is calculated by 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 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**.

MONTANA VOLUNTEER FIREFIGHTERS' COMPENSATION ACT
ACTUARIAL VALUATION AS OF JUNE 30, 2015

**SECTION III
LIABILITIES**

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

	June 30, 2014	June 30, 2015
<u>Present Value of Benefits</u>		
Active Participant Benefits	\$ 11,456,633	\$ 13,729,639
Retiree and Inactive Benefits	27,316,020	31,520,180
Present Value of Benefits (PVB)	\$ 38,772,653	\$ 45,249,819
Market Value of Assets (MVA)	\$ 33,270,201	\$ 34,103,818
Funding Required by Future State Contributions	5,502,452	11,146,001
Total Resources	\$ 38,772,653	\$ 45,249,819
<u>Actuarial Liability</u>		
Present Value of Benefits (PVB)	\$ 38,772,653	\$ 45,249,819
Present Value of Future Normal Costs (PVFNC)	797,295	931,569
Actuarial Liability (AL = PVB – PVFNC)	37,975,358	44,318,250
Actuarial Value of Assets (AVA)	31,280,828	33,405,451
Net (Surplus)/Unfunded (AL – AVA)	\$ 6,694,530	\$ 10,912,799
<u>Present Value of Accrued Benefits</u>		
Present Value of Benefits (PVB)	\$ 38,772,653	\$ 45,249,819
Present Value of Future Benefit Accruals (PVFBA)	2,858,803	3,260,107
Present Value of Accrued Benefits (PVAB = PVB – PVFBA)	\$ 35,913,850	\$ 41,989,712
Market Value of Assets (MVA)	33,270,201	34,103,818
Net Unfunded (PVAB – MVA)	\$ 2,643,649	\$ 7,885,894

**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 changing 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 the System's assets resulting from the following:

- 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 liability.

Table III-2 Changes in Liabilities			
	Present Value of Benefits	Actuarial Liability	Present Value of Accrued Liability
Liabilities June 30, 2014	\$ 38,772,653	\$ 37,975,358	\$ 35,913,850
Liabilities June 30, 2015	45,249,819	44,318,250	41,989,712
Liability			
Increase (Decrease)	6,477,166	6,342,892	6,075,862
Change Due to:			
Actuarial (Gain)/Loss	NC*	(128,158)	NC*
Plan Changes	5,922,814	5,798,824	5,586,502
Benefits Accumulated and Other Sources	554,352	672,226	489,360

* NC = not calculated.

MONTANA VOLUNTEER FIREFIGHTERS' COMPENSATION ACT
ACTUARIAL VALUATION AS OF JUNE 30, 2015

**SECTION III
LIABILITIES**

**Table III-3
Summary of Actuarial Gains and Losses as of June 30, 2015**

Actuarial Liabilities as of June 30, 2014	\$ 37,975,358
Normal Cost	184,657
Actual Benefit Payments	(2,379,353)
Interest	<u>2,866,922</u>
Expected Actuarial Liability as of June 30, 2015	\$ 38,647,584
Actuarial Liability as of June 30, 2015 (Before HB 483)	\$ 38,519,426
Liability (Gain)/Loss	\$ (128,158)
Sources of Liability (Gain)/Loss	
New Participant (Gain)/Loss	\$ 437,505
Active Retirements (Gain)/Loss	(106,093)
Active Terminations (Gain)/Loss	(126,923)
Active Deaths (Gain)/Loss	23,947
Active Disability (Gain)/Loss	0
Inactive Mortality (Gain)/Loss	96,969
Other (Gain)/Loss	(453,563)
Actuarial Liability as of June 30, 2015 (After HB 483)	\$ 44,318,250
Liability (Gain)/Loss due to HB 483	\$ 5,798,824
Actuarial Value of Assets as of June 30, 2014	\$ 31,280,828
Net Cash Flow	(646,337)
Expected Earnings	<u>2,399,686</u>
Expected Actuarial Value of Assets as of June 30, 2015	\$ 33,034,177
Actuarial Value of Assets as of June 30, 2015	\$ 33,405,451
Investment (Gain)/Loss	\$ (371,274)
Total Liability (Gain)/Loss	<u>5,670,666</u>
Total Actuarial (Gain)/Loss	\$ 5,299,392

MONTANA VOLUNTEER FIREFIGHTERS' COMPENSATION ACT
ACTUARIAL VALUATION AS OF JUNE 30, 2015

**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, 2014	June 30, 2015
1. Actuarial Liabilities		
Retiree and Inactive Benefits	\$ 27,316,020	\$ 31,520,180
Active Member Benefits	<u>10,659,338</u>	<u>12,798,070</u>
Total Actuarial Liability	\$ 37,975,358	\$ 44,318,250
2. Actuarial Value of Assets	\$ 31,280,828	\$ 33,405,451
3. Unfunded Actuarial Liability	\$ 6,694,530	\$ 10,912,799
4. Funded Ratio	82.4%	75.4%

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, 2014	June 30, 2015
1. Actuarial Liabilities		
Retiree and Inactive Benefits	\$ 27,316,020	\$ 31,520,180
Active Member Benefits	<u>10,659,338</u>	<u>12,798,070</u>
Total Actuarial Liability	\$ 37,975,358	\$ 44,318,250
2. Market Value of Assets	\$ 33,270,201	\$ 34,103,818
3. Unfunded Actuarial Liability	\$ 4,705,157	\$ 10,214,432
4. Funded Ratio	87.6%	77.0%

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 Normal Actuarial Cost Method**. Under this method, there are three components to the total contribution: the **normal cost**, the **unfunded actuarial liability payment** (UAL payment), and the **administrative expense**. The normal cost 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 service. The EAN actuarial liability is the portion of the present value future projected benefits that will not be paid by future normal costs. The difference between the EAN actuarial liability and the actuarial value of assets is the unfunded actuarial liability.

Under the adopted funding policy, the actuarial contribution is computed as the normal cost plus an amount that will amortize the UAL over a 20-year period plus an assumed administrative expense. All UAL payments are determined as level dollar amounts. This rate should not necessarily be construed as a recommended contribution level and this policy will not fully amortize the unfunded actuarial liability.

The assumed administrative expense is \$63,440. This amount is intended to provide an allowance above the cost of funding the benefits to pay for the expense of operating this System.

MONTANA VOLUNTEER FIREFIGHTERS' COMPENSATION ACT
ACTUARIAL VALUATION AS OF JUNE 30, 2015

**SECTION IV
CONTRIBUTIONS**

The tables below present and compare the actuarial contributions for the System for this valuation and the prior one.

Table IV-1 Calculated Actuarial Contribution		
	June 30, 2014	June 30, 2015
Normal Cost	\$ 184,657	\$ 217,001
Amortization Payment (20-years)	644,701	1,050,931
Administrative Expense	<u>61,000</u>	<u>63,440</u>
Total Calculated Contributions	\$ 890,358	\$ 1,331,372
Actual Contributions for Preceding Fiscal Year	\$ 1,818,237	\$ 1,913,482
Amortization Period Based on Actual Contributions	5.1 years	9.3 years

Table IV-2 Calculated Actuarial Contribution on Market Value (MCA 19-2-407)		
	June 30, 2014	June 30, 2015
Normal Cost	\$ 184,657	\$ 217,001
Amortization Payment (20-years)	453,119	983,677
Administrative Expense	<u>61,000</u>	<u>63,440</u>
Total Calculated Contributions	\$ 698,776	\$ 1,264,118
Actual Contributions for Preceding Fiscal Year	\$ 1,818,237	\$ 1,913,482
Amortization Period Based on Actual Contributions	3.4 years	8.4 years

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

Table IV-3 Projected Actuarial Contributions	
Valuation Year	Amount
2016	\$ 1,186,794
2017	1,062,927
2018	991,042
2019	885,900
2020	772,787

SECTION V
FINANCIAL STATEMENT INFORMATION

The Government Finance Officers Association (GFOA) maintains a checklist of items to be included in a public retirement system's Comprehensive Annual Financial Report (CAFR) in order to receive recognition for excellence in financial reporting. Therefore, we have included certain schedules in this section for possible inclusion within the System's audited financial statements.

Tables V-1 through V-4 are exhibits which could be used with the CAFR report. Table V-1 is the Note to Required Supplementary Information, Table V-2 is a history of Financial Experience, Table V-3 is the Schedule of Funding Progress and Table V-4 is the Solvency Test which shows the portion of actuarial liability covered by assets.

SECTION V
FINANCIAL STATEMENT INFORMATION

Table V-1
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, 2015
Actuarial cost method	Entry Age Normal
Amortization method	Open
Remaining amortization period for Actuarial Contribution	20 years
Asset valuation method	Four-Year smoothed market
Actuarial assumptions:	
Investment rate of return*	7.75%
General wage growth*	N/A
Merit salary increases	N/A
*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 employer contributions to the System are composed of the normal cost, amortization of the unfunded actuarial liability, and an allowance for administrative expenses. The normal cost is a level cost which will pay for projected benefits at retirement for each participant. The actuarial 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 liability. The allowance for administrative expenses is based upon the System's recent history of administrative expenses.

MONTANA VOLUNTEER FIREFIGHTERS' COMPENSATION ACT
 ACTUARIAL VALUATION AS OF JUNE 30, 2015

SECTION V
FINANCIAL STATEMENT INFORMATION

Table V-2
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)					
	2010	2011	2012	2013	2014	2015
Investment Income on Actuarial Assets	\$ (2,517)	\$ (2,082)	\$ (1,242)	\$ 872	\$ 1,288	\$ 371
Combined Liability Experience	<u>27</u>	<u>354</u>	<u>(144)</u>	<u>(1,075)</u>	<u>618</u>	<u>128</u>
(Loss)/Gain During Year from Financial Experience	\$ (2,490)	\$ (1,728)	\$ (1,386)	\$ (203)	\$ 1,906	\$ 499
Non-Recurring Items	<u>170</u>	<u>(151)</u>	<u>0</u>	<u>(983)</u>	<u>0</u>	<u>(5,799)</u>
Composite Gain (or Loss) During Year	\$ (2,320)	\$ (1,879)	\$ (1,386)	\$ (1,186)	\$ 1,906	\$ (5,300)

Table V-3
Schedule of Funding Progress
 (expressed in thousands)

Valuation Date	Actuarial Value	Actuarial	Funded	Unfunded	Covered	UAAL as a
June 30,	of Assets	Accrued	Ratio	AAL	Payroll	Percentage of
		Liability (AAL)		(UAAL)		Covered Payroll
2015	\$ 33,405	\$ 44,318	75 %	\$ 10,913	N/A	N/A
2014	31,281	37,975	82 %	6,694	N/A	N/A
2013	28,294	37,830	75 %	9,536	N/A	N/A
2012	26,531	36,146	73 %	9,615	N/A	N/A
2011	26,183	35,195	74 %	9,012	N/A	N/A
2010	26,575	34,512	77 %	7,937	N/A	N/A

MONTANA VOLUNTEER FIREFIGHTERS' COMPENSATION ACT
 ACTUARIAL VALUATION AS OF JUNE 30, 2015

SECTION V
FINANCIAL STATEMENT INFORMATION

Table V-4
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)
2015	\$ 0	\$ 22,161	\$ 22,157	\$ 33,405	N/A	100 %	51 %
2014	0	18,888	19,088	31,281	N/A	100 %	65 %
2013	0	18,612	19,218	28,294	N/A	100 %	50 %
2012	0	17,465	18,681	26,531	N/A	100 %	49 %
2011	0	16,483	18,712	26,183	N/A	100 %	52 %
2010	0	15,846	18,665	26,575	N/A	100 %	57 %

MONTANA VOLUNTEER FIREFIGHTERS' COMPENSATION ACT
ACTUARIAL VALUATION AS OF JUNE 30, 2015

**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	1,977	0	1,371	905	7,253	11,506
Disabled members having attained normal retirement age		0	0			0
Beneficiaries of Disabled Members						0
Beneficiaries with less than one year of certain payments remaining			0			0
Other Adjustments						0
Participant counts shown in Annual Financial Report	1,977	0	1,371	905	7,253	11,506

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 9) match the CAFR reports at the request of the Board. The differences between the counts, if any, have no material effect upon the liability calculation.

MONTANA VOLUNTEER FIREFIGHTERS' COMPENSATION ACT
ACTUARIAL VALUATION AS OF JUNE 30, 2015

**APPENDIX A
MEMBERSHIP INFORMATION**

The following table shows a reconciliation of the participants used in the previous valuation to this valuation.

	Status Reconciliation						Total
	Active	Retired	Vested	Non Vested	Disabled	Survivor	
Members on July 1, 2014	1,935	1,327	939	7,069	0	5	11,275
New Hires	195	0	0	93	0	0	288
Rehires	291	0	(60)	(231)	0	0	0
Retired	(31)	69	(36)	(2)	0	0	0
Terminated Vested	(68)	0	73	(5)	0	0	0
Terminated Non Vested	(337)	0	0	337	0	0	0
Active Deaths	(2)	0	0	0	0	0	(2)
Became Disabled	0	0	0	0	0	0	0
In Pay Deaths	0	(31)	0	0	0	(2)	(33)
Survivors	0	0	0	0	0	3	3
Cash Out	(6)	0	(11)	(8)	0	0	(25)
Members on July 1, 2015	1,977	1,365	905	7,253	0	6	11,506

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 9. For this Appendix A, the valuation projected benefits to be paid for the following fiscal year (including benefit updates in accordance with HB 483), whereas for the Board Summary, annual benefits are as of the valuation date.

MONTANA VOLUNTEER FIREFIGHTERS' COMPENSATION ACT
 ACTUARIAL VALUATION AS OF JUNE 30, 2015

APPENDIX A
MEMBERSHIP INFORMATION

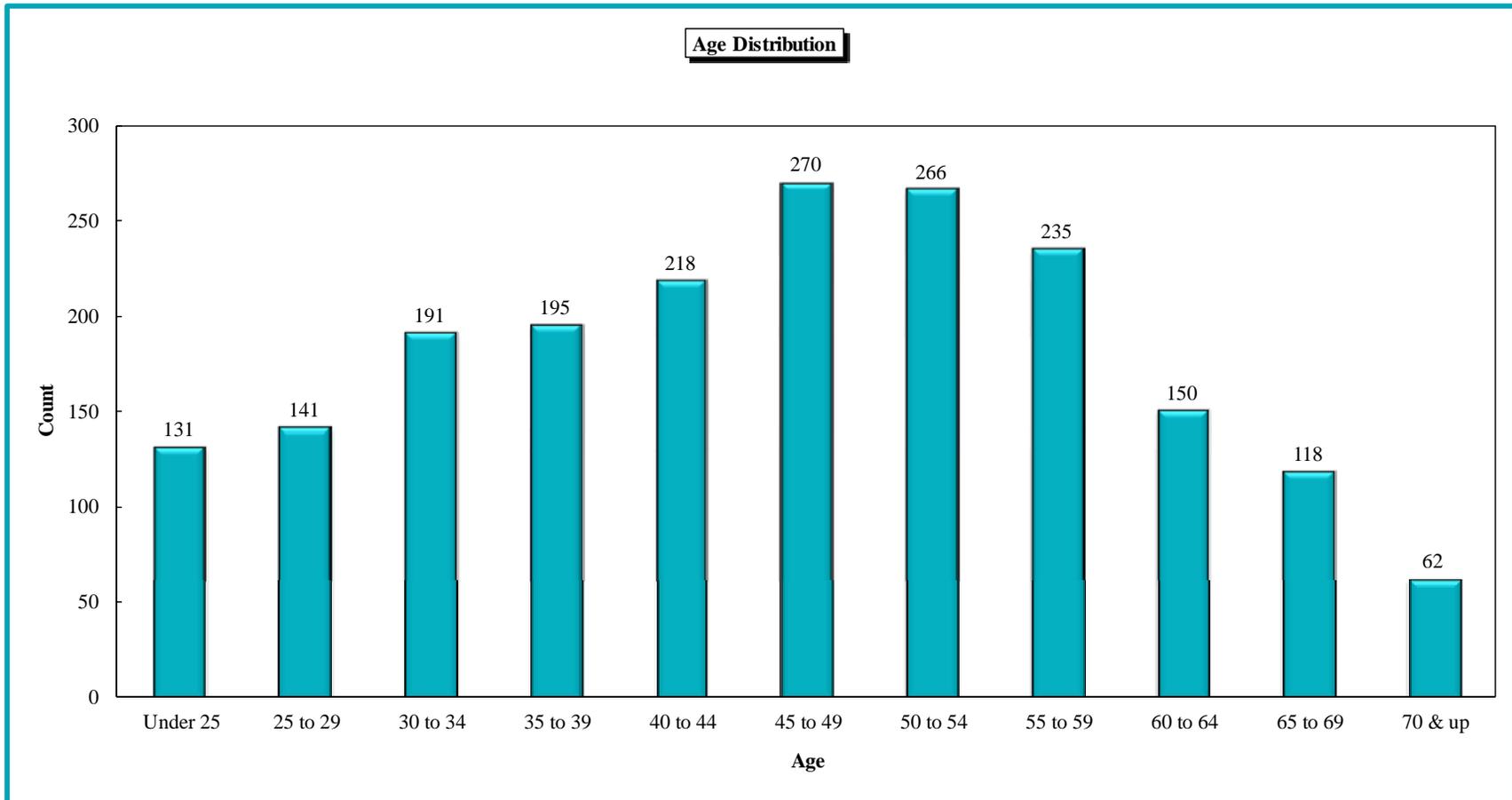
**Montana Volunteer Firefighters' Compensation Act Distribution of Active Members
 by Age and Service as of June 30, 2015**

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	0	117	14	0	0	0	0	0	0	0	0	131
25 to 29	0	79	57	5	0	0	0	0	0	0	0	141
30 to 34	0	85	81	23	2	0	0	0	0	0	0	191
35 to 39	0	72	68	43	11	1	0	0	0	0	0	195
40 to 44	0	66	60	52	30	9	1	0	0	0	0	218
45 to 49	0	70	59	62	46	23	9	1	0	0	0	270
50 to 54	0	49	55	46	49	33	27	7	0	0	0	266
55 to 59	0	41	40	53	42	30	18	10	1	0	0	235
60 to 64	0	27	29	26	31	17	11	7	2	0	0	150
65 to 69	0	22	25	24	23	16	4	2	0	2	0	118
70 & up	0	12	16	13	8	8	3	2	0	0	0	62
Total	0	640	504	347	242	137	73	29	3	2	0	1,977

APPENDIX A
MEMBERSHIP INFORMATION

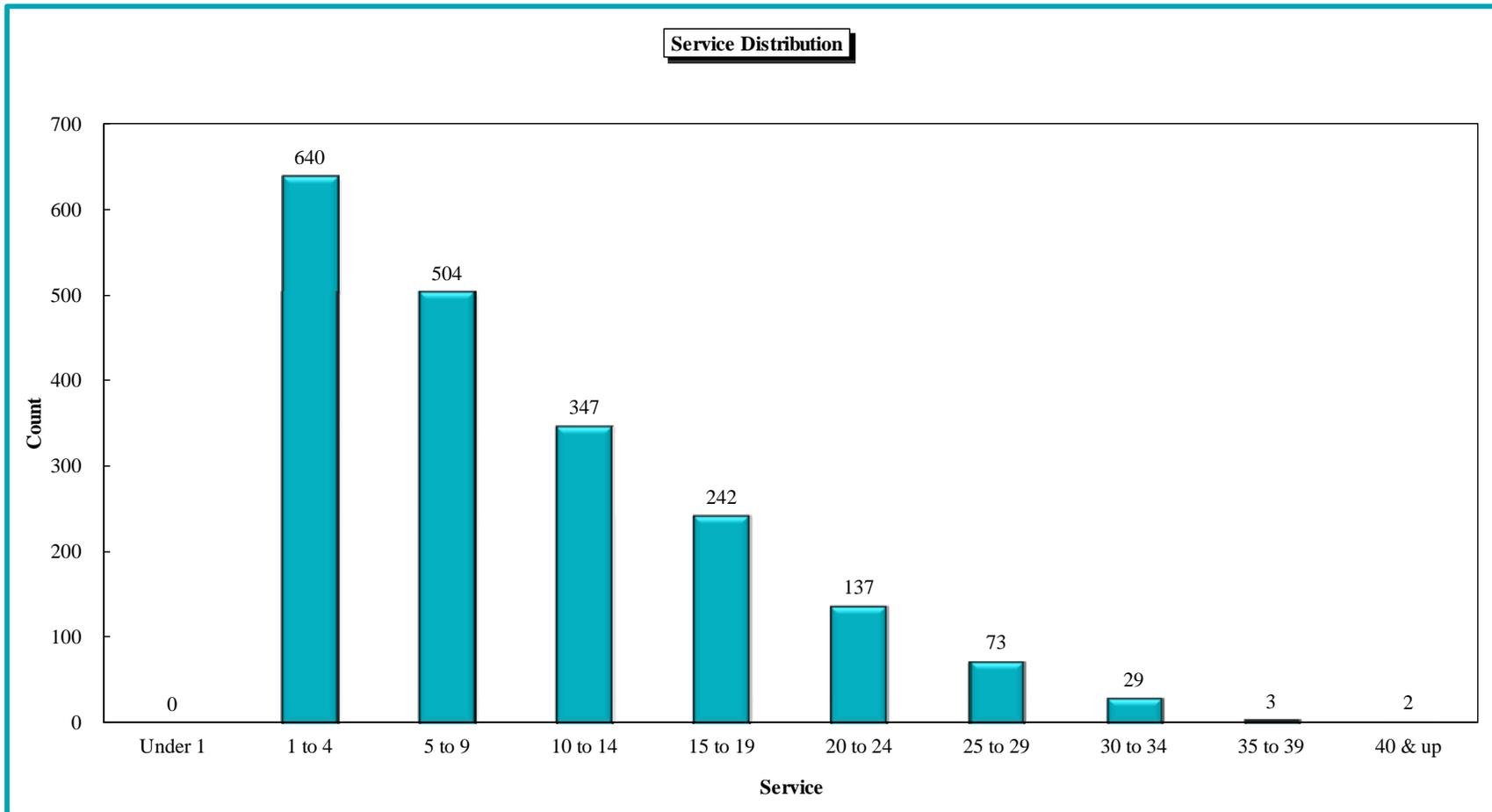
**Montana Volunteer Firefighters' Compensation Act Distribution of Active Members
by Age as of June 30, 2015**



MONTANA VOLUNTEER FIREFIGHTERS' COMPENSATION ACT
ACTUARIAL VALUATION AS OF JUNE 30, 2015

APPENDIX A
MEMBERSHIP INFORMATION

**Montana Volunteer Firefighters' Compensation Act Distribution of Active Members
by Service as of June 30, 2015**



MONTANA VOLUNTEER FIREFIGHTERS' COMPENSATION ACT
 ACTUARIAL VALUATION AS OF JUNE 30, 2015

APPENDIX A
MEMBERSHIP INFORMATION

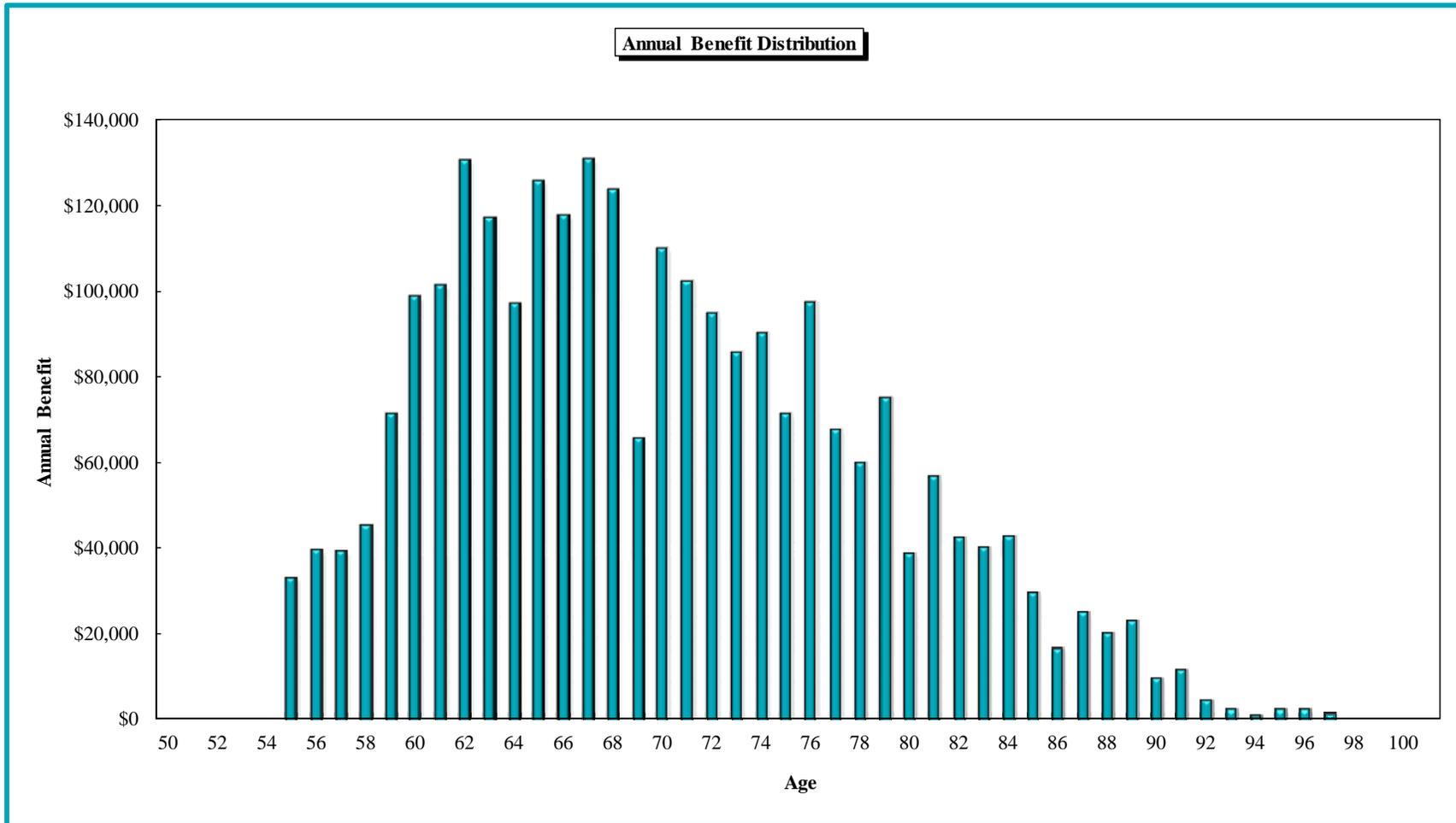
**Montana Volunteer Firefighters' Compensation Act Distribution of
 Retired Members and Survivors as of June 30, 2015**

Age	Count	Annual Benefit	Age	Count	Annual Benefit
<25	0	\$0	73	46	\$85,605
25	0	\$0	74	47	\$90,323
26	0	\$0	75	40	\$71,198
27	0	\$0	76	56	\$97,350
28	0	\$0	77	41	\$67,605
29	0	\$0	78	33	\$59,775
30	0	\$0	79	41	\$75,173
31	0	\$0	80	22	\$38,565
32	0	\$0	81	32	\$56,618
33	0	\$0	82	23	\$42,278
34	0	\$0	83	23	\$40,005
35	0	\$0	84	23	\$42,825
36	0	\$0	85	17	\$29,685
37	0	\$0	86	11	\$16,568
38	0	\$0	87	13	\$24,840
39	0	\$0	88	12	\$19,830
40	0	\$0	89	13	\$22,755
41	0	\$0	90	5	\$9,405
42	0	\$0	91	7	\$11,475
43	0	\$0	92	3	\$4,095
44	0	\$0	93	2	\$2,145
45	0	\$0	94	1	\$975
46	0	\$0	95	1	\$2,130
47	0	\$0	96	1	\$2,130
48	0	\$0	97	1	\$1,658
49	0	\$0	98	0	\$0
50	0	\$0	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	14	\$32,790	104	0	\$0
56	17	\$39,630	105	0	\$0
57	17	\$39,090	106	0	\$0
58	19	\$45,330	107	0	\$0
59	32	\$71,355	108	0	\$0
60	46	\$98,648	109	0	\$0
61	51	\$101,340	110	0	\$0
62	67	\$130,500	111	0	\$0
63	60	\$117,143	112	0	\$0
64	54	\$96,923	113	0	\$0
65	68	\$125,655	114	0	\$0
66	64	\$117,690	115	0	\$0
67	70	\$130,718	116	0	\$0
68	66	\$123,555	117	0	\$0
69	38	\$65,348	118	0	\$0
70	62	\$109,763	119	0	\$0
71	59	\$102,278	120	0	\$0
72	53	\$94,620			
			Totals	1,371	\$2,557,380

MONTANA VOLUNTEER FIREFIGHTERS' COMPENSATION ACT
ACTUARIAL VALUATION AS OF JUNE 30, 2015

APPENDIX A
MEMBERSHIP INFORMATION

Montana Volunteer Firefighters' Compensation Act Distribution of Retired Members
and Survivors as of June 30, 2015



MONTANA VOLUNTEER FIREFIGHTERS' COMPENSATION ACT
 ACTUARIAL VALUATION AS OF JUNE 30, 2015

APPENDIX A
MEMBERSHIP INFORMATION

**Montana Volunteer Firefighters' Compensation Act Distribution of
 Terminated Vested Members
 as of June 30, 2015**

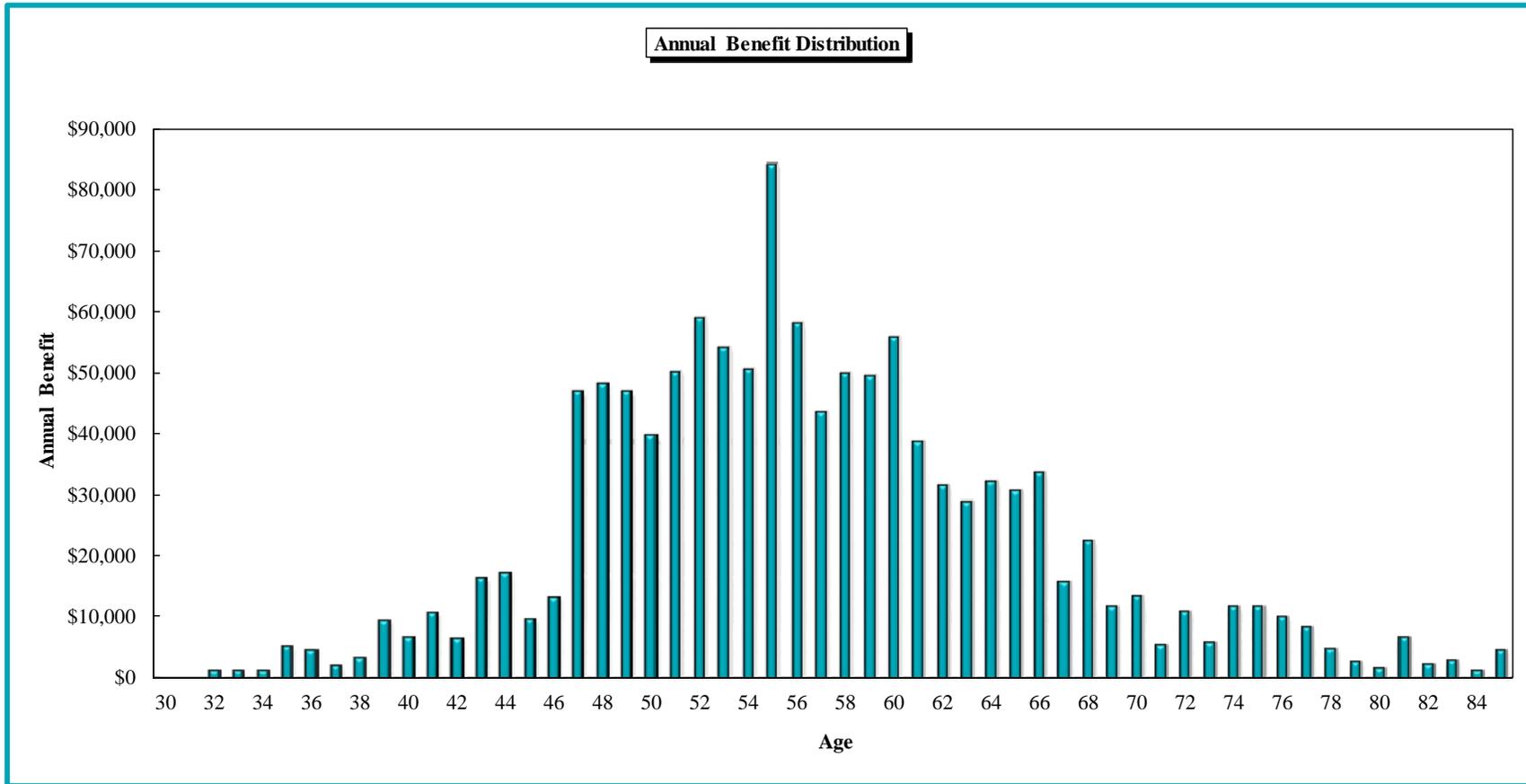
Age	Count	Annual Benefit*	Age	Count	Annual Benefit*
<25	0	\$0	73	5	\$5,850
25	0	\$0	74	9	\$11,505
26	0	\$0	75	10	\$11,603
27	0	\$0	76	8	\$9,750
28	0	\$0	77	6	\$8,085
29	0	\$0	78	4	\$4,583
30	0	\$0	79	2	\$2,438
31	0	\$0	80	1	\$1,365
32	1	\$975	81	4	\$6,608
33	1	\$975	82	2	\$2,145
34	1	\$975	83	2	\$2,828
35	5	\$5,070	84	1	\$1,073
36	4	\$4,485	85	4	\$4,388
37	2	\$1,950	86	0	\$0
38	3	\$3,218	87	0	\$0
39	7	\$9,263	88	0	\$0
40	5	\$6,533	89	0	\$0
41	9	\$10,530	90	0	\$0
42	5	\$6,428	91	0	\$0
43	13	\$16,283	92	0	\$0
44	14	\$17,258	93	0	\$0
45	8	\$9,360	94	0	\$0
46	12	\$13,163	95	0	\$0
47	40	\$46,823	96	0	\$0
48	39	\$48,233	97	0	\$0
49	39	\$46,800	98	0	\$0
50	30	\$39,660	99	0	\$0
51	35	\$50,108	100	0	\$0
52	40	\$58,905	101	0	\$0
53	40	\$53,910	102	0	\$0
54	36	\$50,505	103	0	\$0
55	57	\$84,375	104	0	\$0
56	41	\$58,035	105	0	\$0
57	33	\$43,478	106	0	\$0
58	37	\$49,965	107	0	\$0
59	37	\$49,418	108	0	\$0
60	40	\$55,770	109	0	\$0
61	28	\$38,603	110	0	\$0
62	24	\$31,298	111	0	\$0
63	21	\$28,755	112	0	\$0
64	26	\$31,950	113	0	\$0
65	25	\$30,420	114	0	\$0
66	25	\$33,458	115	0	\$0
67	13	\$15,563	116	0	\$0
68	17	\$22,313	117	0	\$0
69	10	\$11,505	118	0	\$0
70	10	\$13,350	119	0	\$0
71	5	\$5,363	120	0	\$0
72	9	\$10,628			
			Totals	905	\$1,187,865

* Payable at the greater of age 60 or current age (use the greater of age 55 or current age if member has 20 years of service)

MONTANA VOLUNTEER FIREFIGHTERS' COMPENSATION ACT
ACTUARIAL VALUATION AS OF JUNE 30, 2015

APPENDIX A
MEMBERSHIP INFORMATION

Montana Volunteer Firefighters' Compensation Act Distribution of
Terminated Vested Members
as of June 30, 2015



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%

c. Rates of Active Disability

None assumed.

**APPENDIX B
 ACTUARIAL ASSUMPTIONS AND METHODS**

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

Annual Rates of Termination	
Service	Rate
<4	20.00%
4 – 9	15.00%
10 & over	10.00%

e. Retirement

Age	Annual Retirement Rates	
	10-19 Years	20 years or more
<55	0.00%	0.00%
55 – 59	0.00%	40.00%
60 – 69	20.00%	40.00%
70 & over	100.00%	100.00%

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

f. Family Composition

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

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

Actual marital characteristics are used for pensioners.

g. Vested Benefits for Terminated Members

Vested benefits for members who terminated during the years ending June 30, 2009 and later were estimated based upon 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.

APPENDIX B
ACTUARIAL ASSUMPTIONS AND METHODS

2. Economic Assumptions

- | | |
|---------------------------------------------|---------------------------------------------------------------------------------------------------------------|
| a. Rate of Investment Return: | 7.75% (net of investment expenses) |
| b. Rate of Increase in Inflation: | 3.00% |
| c. Rate of Increase in Total Payroll | 4.00% |
| | (for inflation on the administrative expense assumption) |
| d. Administrative Expenses: | \$61,000 in Fiscal Year end 2015, increased by salary inflation thereafter (\$63,440 in Fiscal Year end 2016) |

3. Changes since Last Valuation

None.

4. Rationale for Demographic and Economic Actuarial Assumptions

The actuarial assumptions (other than the administrative expense rate) were adopted by the Board based upon the results of an actuarial experience study covering the period July 1, 2003 through June 30, 2009. The administrative expense rate is based upon actual recurring administrative expenses during the period July 1, 2008 through June 30, 2013.

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 dollar amount individually for each active member.

The actuarial 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 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 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 liability is amortized over a rolling 20-year period, as level dollar amounts.

4. Changes since Last Valuation

None.

APPENDIX C
SUMMARY OF PLAN PROVISIONS

1. Membership

The plan is a state-wide retirement and disability plan. The plan covers volunteer firefighters serving with qualified volunteer fire companies in unincorporated areas throughout the state. All members are unpaid volunteers and the State of Montana is the only contributor to the Plan.

2. Contributions

There are no member contributions.

The State contributes 5.0% of certain premium taxes collected.

3. Credit for Service

To receive a year of credit for service, a volunteer firefighter must serve with a fire company for an entire fiscal year and received a minimum of 30 hours of training. Fractional years are not credited.

4. Normal Retirement

Eligibility: Age 55 with 20 years of credit for service, or age 60 with 10 years of credit for service.

Benefit: \$7.50 per month for each year of credit for service.

For VFCA members retiring prior to July 1, 2011, maximum service is 30 years.

VFCA members retiring on or after July 1, 2011, will receive \$7.50 per month for each additional year of credited service after 30 years in each year that the trust is actuarially sound and the amortization period is 20 years or less; otherwise benefits for the year will only be paid on credited service up to 30 years.

5. Disability Benefit

Eligibility: Any current member on a fire company's roster.

Benefit: The greater of (a) \$75 per month, or (b) \$7.50 per month per year of service (up to 30 years of service).

APPENDIX C
SUMMARY OF PLAN PROVISIONS

6. Survivor's Benefit

Eligibility: 10 years of credit for service or a retired member.

Benefit: 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 the full benefit otherwise payable to the member. Survivor benefits terminate when benefits have been paid for a total of 40 months, including any benefits paid to the retired member prior to death.

7. Changes since Last Valuation

VFCA Pension Benefit – House Bill 483, effective January 1, 2016:

- The monthly base benefit increases to \$8.75 from \$7.50 for each year of credited service, up to 20 years. Credited service after 20 years remains at \$7.50 per year. This applies to all retirees, current and future.

Allowable payments to volunteer firefighters – House Bill 555, effective October 1, 2015:

- Allowable payments increase from \$300 to \$3,000, which includes stipends or per diem. Compensation is not included.

**APPENDIX D
GLOSSARY**

1. Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disability, and retirement; 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 as follows:

$$\begin{array}{ccccccc} \frac{\text{Amount}}{\$100} & & \frac{\text{Probability of}}{(1 - .01)} & & \frac{1/(1+\text{Investment}}{1/(1+.1)} & & \\ & \times & & \times & & = & \\ & & & & & & \$90 \end{array}$$

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 between entry age and assumed exit ages.

11. Funded Percentage

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

12. 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).

13. Investment Return Assumption

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

14. 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 gender.

**APPENDIX D
GLOSSARY**

15. 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.

16. 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.

17. Unfunded Actuarial Liability

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