Public Employees' Retirement System of the State of Montana

Actuarial Valuation as of June 30, 2013

Produced by Cheiron

October 2013

CHEIRON Classic Values, Innovative Advice

Table of Contents

October 31, 2013

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 Public Employees' Retirement System as of June 30, 2013. The results of the valuation are contained in this report. The purpose of the valuation is discussed in the Foreword.

This report contains information on the System's assets, as well as analyses which combine asset and liability performance and projections. The report also discloses employer contribution levels and required disclosures under the Governmental Accounting Standards Board Statement No. 25. The purpose of this report is to present the annual actuarial valuation of the Public Employees' Retirement System. 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 2013 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 Public Employees' Retirement System for the purpose described herein. This valuation report is not intended to benefit any third party, and Cheiron assumes no duty or liability to any such party.

Sincerely,
Cheiron

Stephen T. McElhaney, FSA, FCA
Principal Consulting Actuary

Margaret Tempkin, FSA
Principal Consulting Actuary

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FOREWORD

Cheiron has performed the Actuarial Valuation of the Public Employees' Retirement System as of June 30, 2013. 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 2013 to meet the requirements of an Annual Required Contribution (ARC) under GASB 25; and

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

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

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

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

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

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

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

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

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

SECTION I
BOARD SUMMARY

General Comments

This is the fifth valuation of the Public Employees' Retirement System performed by Cheiron.

As of June 30, 2012 valuation, the statutory contribution rates were not sufficient to amortize the unfunded actuarial liability. Prior to House Bill 454 adoption, the statutory contribution rates were not sufficient to amortize the unfunded actuarial liability as of June 30, 2013. House Bill 454 was adopted and provided additional funding and plan changes which reduced the period to amortize the unfunded actuarial liability to 14.5 years as of June 30, 2013. During the year ended June 30, 2013, the System's assets gained 12.99% 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 11.91%. This return was above the assumed rate of return of 7.75% and resulted in an actuarial gain on investments of $156 million.

The System also experienced an actuarial gain 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 gain deducted $17 million from the actuarial liability. This type of activity is normal in the course of the System's experience. The System will experience actuarial gains and losses over time, because we cannot predict exactly how people will behave. When a system experiences alternating gains and losses that are small compared to the total actuarial liability, then the system's actuarial assumptions are reasonable.

The actuarial liability was further decreased by legislative changes in accordance with House Bill 454, which increases contributions to the plan and reduces the Guaranteed Annual Benefit Adjustment (GABA) for current and future retirees. This plan amendment reduced the actuarial liability by $755 million.

House Bill 454 also specifies that the GABA percentage rate as of the January 1 following the valuation date may be adjusted based upon the funded ratio and amortization period determined in the valuation. Also, employer and employee contribution rates may be reduced at the January 1 following the valuation date depending upon calculations related to the amortization period. These calculations are shown in Sections III and IV of this report.

House Bill 97, effective July 1, 2013 and pertaining to member compensation, had no impact on the June 30, 2013 actuarial valuation.

As of the June 30, 2013 Actuarial Valuation, the System's unfunded actuarial liability was $1,021 million. This is a decrease from last year's unfunded actuarial liability of $1,844 million. The funded ratio increased from 67% at the prior valuation to 80% at June 30, 2013.

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, 2013 was $159 million greater than actuarial value. If the market value were used rather than the

SECTION I
BOARD SUMMARY

actuarial value, the funded ratio on the valuation date would be 83%, and the amortization period for the unfunded actuarial liability would be 11.6 years.

The valuation also includes calculations related to the Plan Choice Rate (PCR). The PCR is the percent of the employer contribution allocated to the Defined Benefit Retirement Plan for members who choose the Defined Contribution Retirement Plan or the Optional Retirement Plan. The calculations show that the amortization of the PCR UAL is 3.2 years, which is within the acceptable range.

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

The following table compares the results at June 30, 2013, both before and after House Bill 454, and the June 30, 2012 valuation results.

Table I-1
Montana Public Employees' Retirement System
Summary of Plan Changes

Valuation as of:	June 30, 2012	Before House Bill 454 June 30, 2013	After House Bill 454 June 30, 2013
Assets and Liabilities			
Actuarial Liability (AL)	$ 5,661,281,490	5,916,199,419	$ 5,160,950,992
Actuarial Value of Assets (AVA)	3,816,919,734	4,139,921,129	4,139,921,129
Unfunded AL	1,844,361,756	1,776,278,290	1,021,029,863
Funded Ratio (AVA/AL)	67.4%	70.0%	80.2%
Contributions as a Percentage of Payroll			
Statutory Funding Rate	14.18%	14.27%	18.78%
Less: Transfer to DB Ed Fund	0.04%	0.04%	0.04%
Net Statutory Funding Rate	14.14%	14.23%	18.74%
Normal Cost Rate	11.80%	11.61%	10.90%
Available for Amortization of UAL	2.34%	2.62%	7.84%
Period to Amortize	Does not amortize	Does not amortize	14.5 years
Projected 30-year Level Funding Rate	20.71%	20.04%	15.75%
Projected Shortfall (Surplus)	6.53%	5.77%	(3.03%)

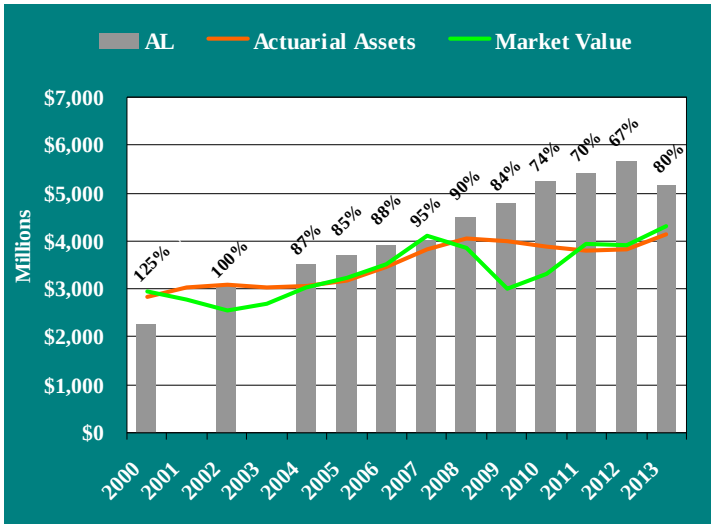
SECTION I
BOARD SUMMARY

Trends

Assets and Liabilities

The market value of assets (MVA) increased over last year, returning 12.99% 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 differs from the assumed rate of 7.75%.

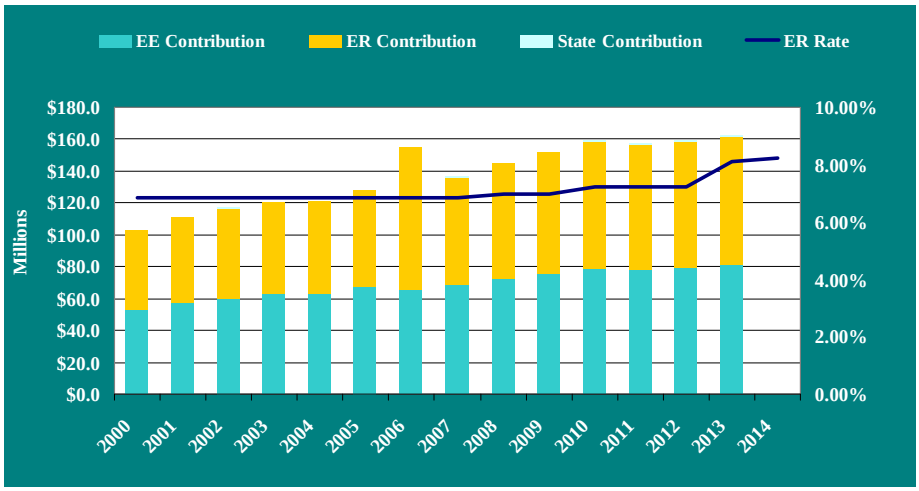
Over the period July 1, 2008 to June 30, 2013 the System's assets returned approximately 2.6% per year measured at actuarial value, compared to a current valuation assumption of 7.75% per year.



For funding purposes, the target amount is represented by the top of the gray bar. In 2013, the gray bar dropped due to HB 454. 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.

Contribution Rates

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



The employer and member contribution rates are set by State law. In 2013, HB 454 increased those contributions by 1%. The actuarial valuation determines the extent to which the statutory contributions will meet the requirements of funding the System.

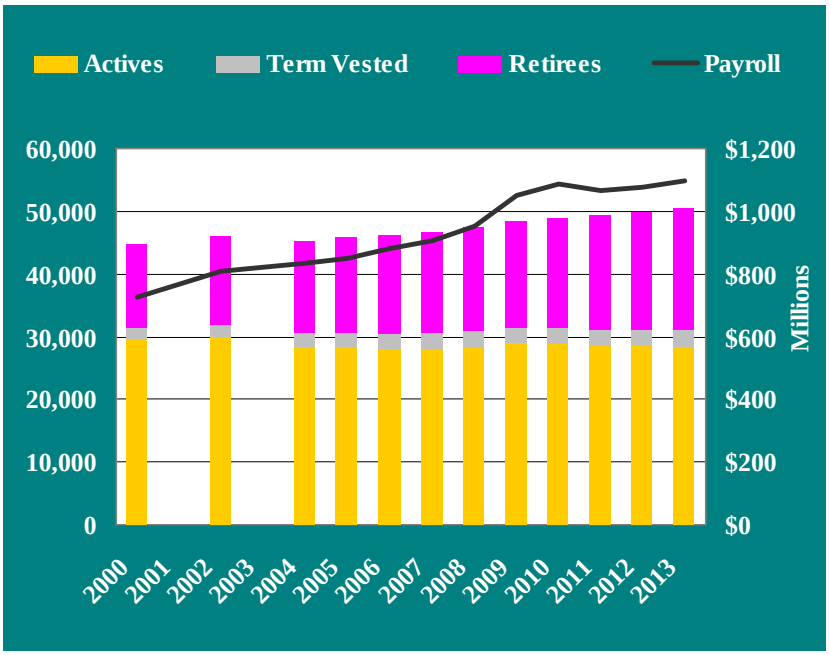
Beginning with the fiscal year ended 2014, contributions to the system will also be made from State's Coal Tax fund. These contributions are not included in the employer rate shown in the graph.

SECTION I
BOARD SUMMARY

Participant Trends

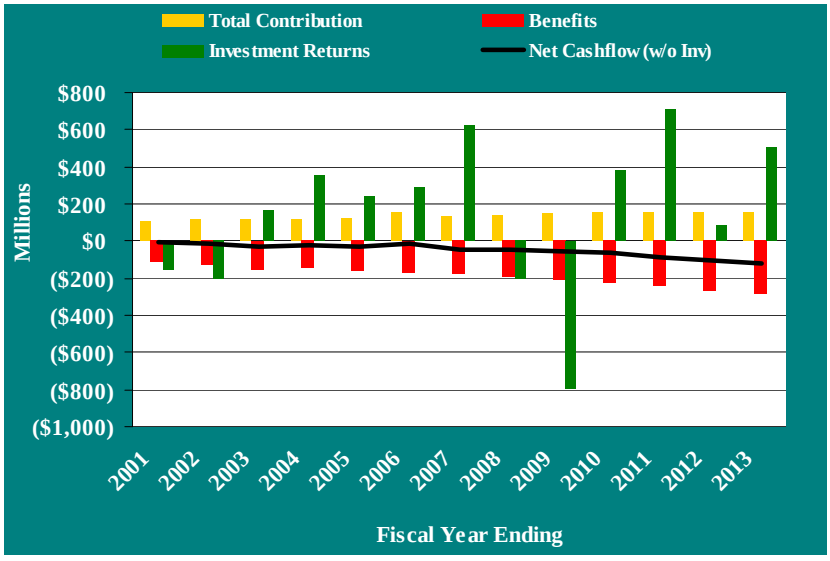
The bars show the number of participants in each category and should be read using the left-hand scale. As with any maturing fund, this System continues to show growth in the number of retired members. The active-to-inactive ratio has decreased from 1.9 actives for each inactive in 2000 to 1.3 actives for each inactive today.

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



Net Cash Flow

This graph shows the historical contributions compared to benefit payments. The difference between these two measures is shown in the solid black line, and is the net cash flow (without including investment returns).



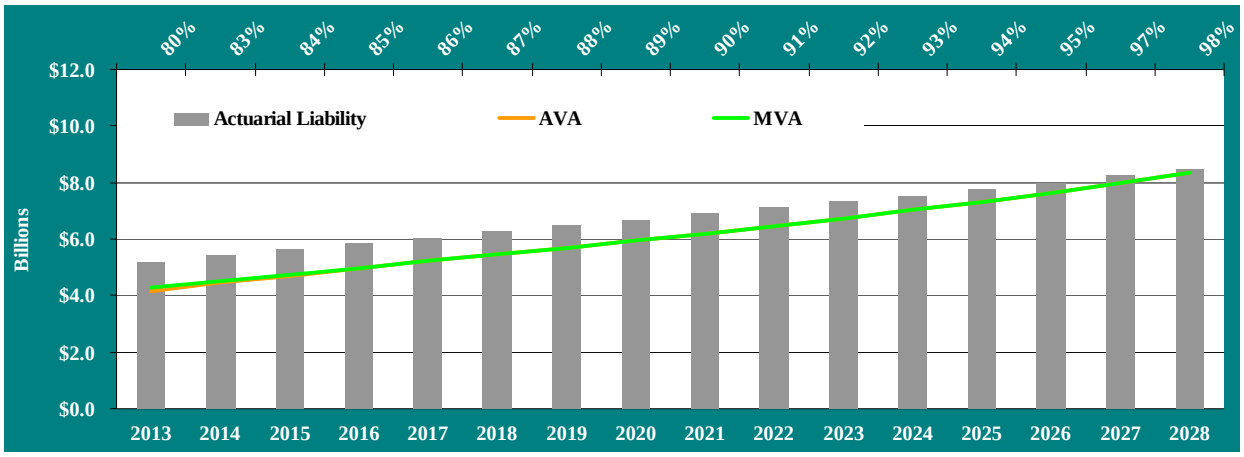
SECTION I
BOARD SUMMARY

Future Outlook

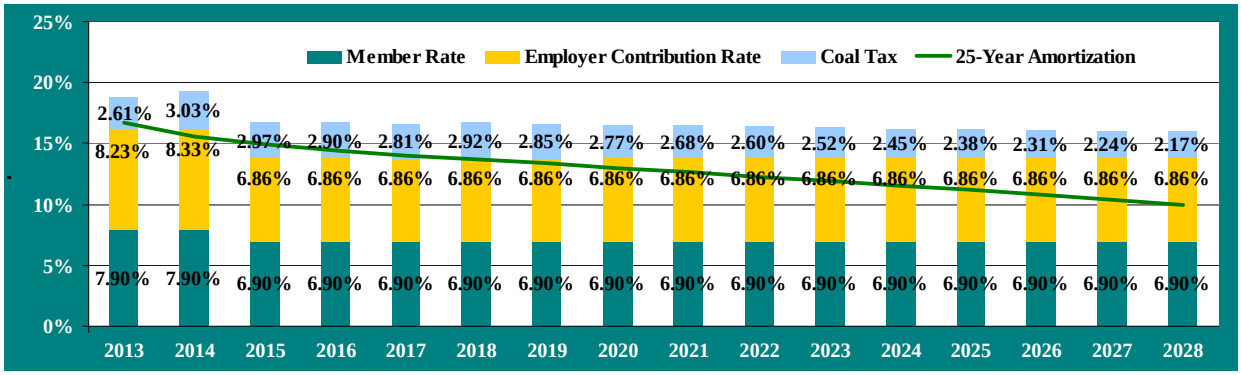
Baseline Projections

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 current statutory rates.

The chart below shows the funded status of the system is expected to gradually increase over the 15-year period, eventually reaching a funded ratio of 98% by the end of the period.



The chart below shows that the total contribution (member and State) computed based on a 25-year amortization of the unfunded actuarial liability, which is the statutory threshold for determining whether employer and employee contribution rates can be reduced. The member and state contribution rates are expected to increase in the first 2 years, after which time the temporary contributions will cease, leaving a lower contribution level for the remaining years. Coal tax contributions are projected at the levels shown using information provided by the Governor's Office of Budget and Program Planning.

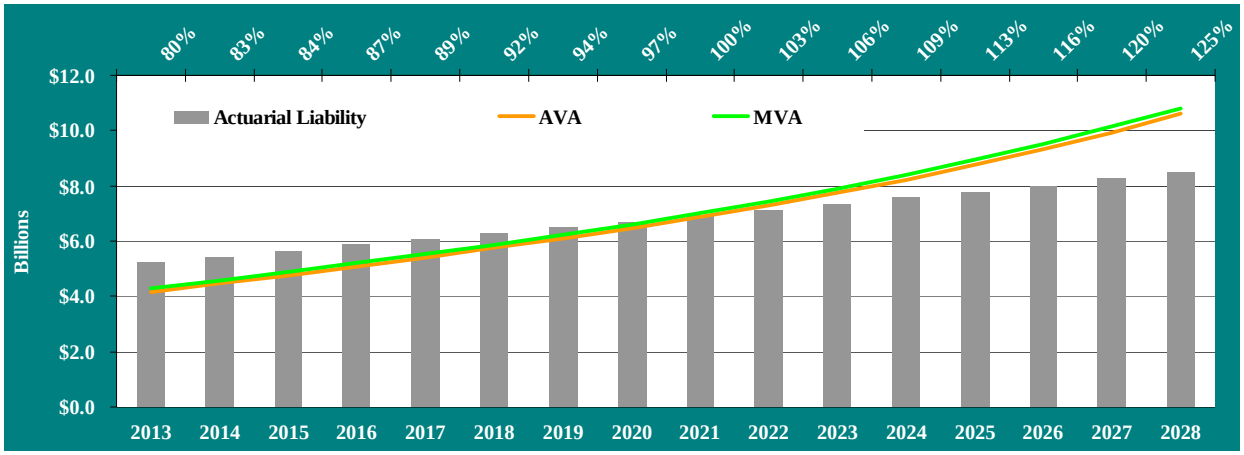


These projections as well as all of the projections that follow, reflect the plan, contribution, and GABA changes associated with House Bill 454, and assume that all future GABAs will be at the maximum statutory rate of 1.5% per year.

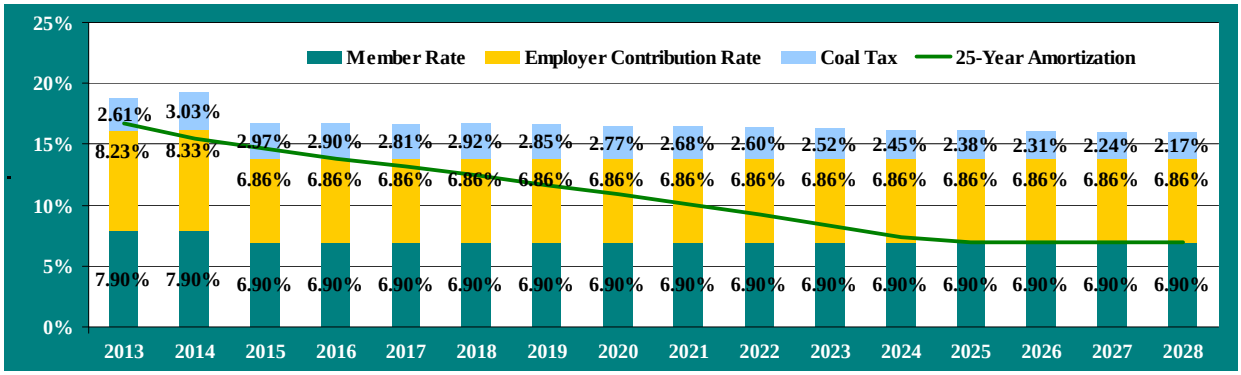
SECTION I
BOARD SUMMARY

Projections with Asset Returns of 9.25%

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



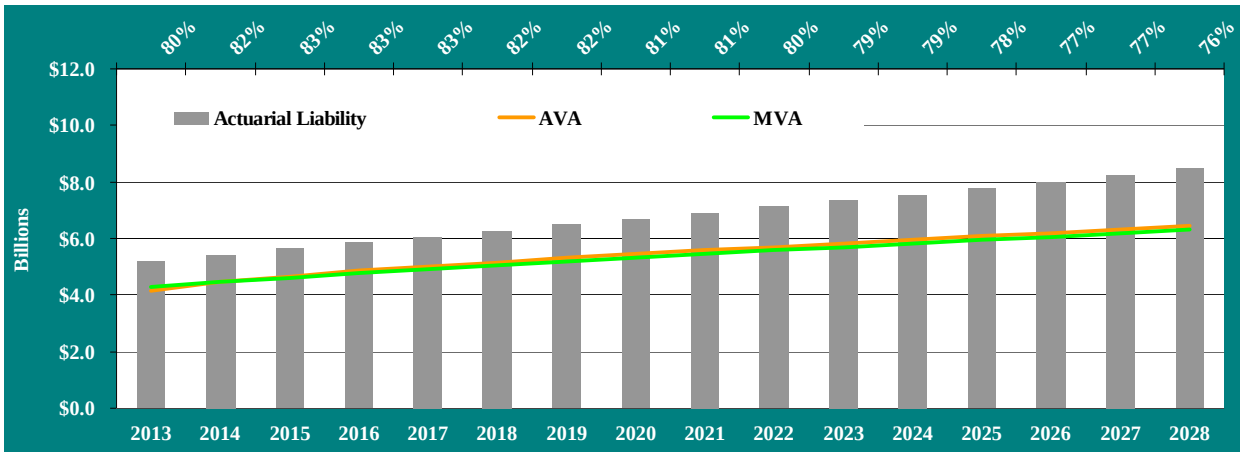
Compared to the baseline projections, the funded status improves more rapidly over the 15-year period. The 25-year amortization contribution rate decreases quicker, with the employer portion dropping to zero by 2025. The temporary employee and employer contributions are still projected to conclude after 2014.



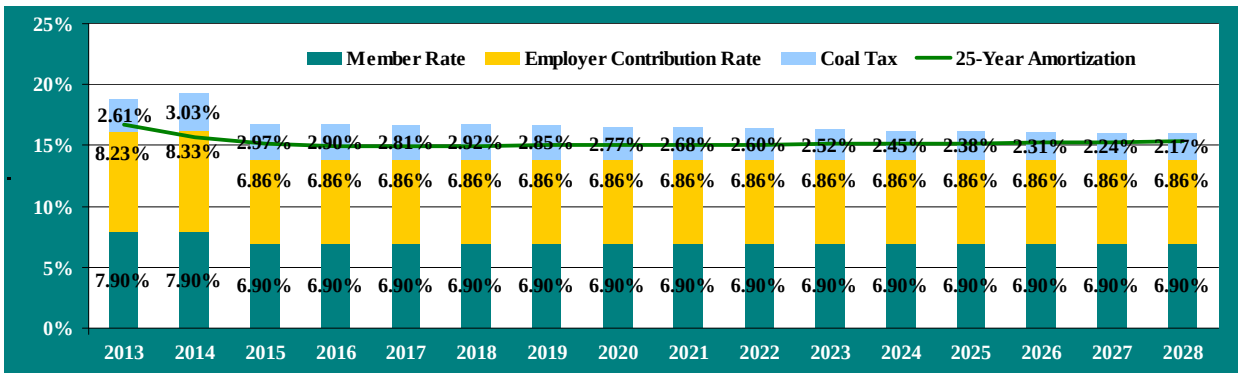
SECTION I
BOARD SUMMARY

Projections with Asset Returns of 6.25%

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



Under this scenario the funded status slightly increases as previous investment gains are realized, and then begins to decline. The 25-year amortization contribution rate initially drops and then begins to increase, almost reaching the statutory rate by the end of the 15-year period. The temporary employee and employer contributions are still projected to conclude after 2014.



SECTION I
BOARD SUMMARY

Table I-2
Montana Public Employees' Retirement System
Summary of Principal System Results

Valuation as of:	June 30, 2012	June 30, 2013	% Change
Participant Counts – DBRP Only			
Active Members	28,548	28,401	(0.5%)
Disabled Members*	200	185	(7.5%)
Retirees and Beneficiaries*	18,538	19,266	3.9%
Terminated Vested Members	2,560	2,686	4.9%
Terminated Non-Vested Members	6,164	6,712	8.9%
Total**	56,010	57,250	2.2%
Annual Salaries of Active Members	$ 1,078,710,468	$ 1,098,340,791	1.8%
Average Annual Salary	$ 37,786	$ 38,673	2.3%
Annual Retirement Allowances for Retired Members and Beneficiaries	$ 258,468,971	$ 281,465,581	8.9%
Assets and Liabilities			
Actuarial Liability (AL)	$ 5,661,281,490	$ 5,160,950,992	(8.8%)
Actuarial Value of Assets (AVA)	3,816,919,734	4,139,921,129	8.5%
Unfunded AL (AVA-AL)	$ 1,844,361,756	$ 1,021,029,863	(44.6%)
Less: PCR-UAL	11,053,147	8,749,140	(20.8%)
Net Unfunded AL	$ 1,833,308,609	$ 1,012,280,723	(44.8%)
Funded Ratio (AVA/AL)	67.4%	80.2%	
Present Value of Accrued Benefits (PVAB)	$ 4,916,084,348	$ 4,543,203,426	(7.6%)
Market Value of Assets	3,921,812,233	4,299,238,343	9.6%
Unfunded PVAB	$ 994,272,115	$ 243,965,083	(75.5%)
Accrued Benefit Funding Ratio	79.8%	94.6%	
Ratio of Actuarial Value to Market Value	97.3%	96.3%	
Contributions as a Percentage of Payroll			
Statutory Funding Rate	14.18%	18.78%	
Less: Transfer to DB Ed Fund	0.04%	0.04%	
Net Statutory Funding Rate	14.14%	18.74%	
Normal Cost Rate	11.80%	10.90%	
Available for Amortization of UAL	2.34%	7.84%	
Period to Amortize	Does not amortize	14.5 years	
Projected 30-year Level Funding Rate	20.71%	15.75%	
Projected Shortfall (Surplus)	6.53%	(3.03%)	

* Based on PERA categorization for the annual report. For actuarial valuation purposes, 750 members in 2012 and 741 members in 2013 were valued as disabled members with offsetting reductions to the number of retired members.

** The total number of members processed in the 2013 valuation was 57,174 compared to 57,250 above being used for the annual report. A reconciliation of this difference appears at the beginning of Appendix A.

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, 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, 2012 and June 30, 2013;
- 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.

SECTION II
ASSETS

Table II-1
Changes in Market Values

Value of Assets – June 30, 2012		**$ 3,921,812,233**
Additions		
Member Contributions	$ 80,768,508	
Employer Contributions	81,337,420	
State Contributions	532,014	
Investment Return	505,068,619	
Other	181,482	
Total Additions	**$ 667,888,043**	
Deductions		
Benefit Payments	$ 286,869,605	
Administrative Expenses	3,592,328	
Total Deductions	**$ 290,461,933**	
Value of Assets – June 30, 2013		**$ 4,299,238,343**

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, 2013 valuation.

Table II-2
Market Value Gain/(Loss)

Value of Assets – June 30, 2012	$ 3,921,812,233
Total Contributions	$ 162,819,424
Benefit Payments	(286,869,605)
Expected Return at 7.75%	299,223,195
Expected Value at June 30, 2013	$ 4,096,985,247
Actual Value at June 30, 2013	$ 4,299,238,343
Investment Gain/(Loss)	$ 202,253,096

Table II-3
Develop Excluded Gain/(Loss)

	Total Gain/(Loss)	Excluded Portion
Exclude 75% of 2013 Gain/(Loss)	$ 202,253,096	$ 151,689,822
Exclude 50% of 2012 Gain/(Loss)	$ (213,054,652)	$ (106,527,326)
Exclude 25% of 2011 Gain/(Loss)	$ 456,618,871	$ 114,154,718
Total Excluded Gain/(Loss) for AVA Calculation		$ 159,317,214

Table II-4
Actuarial Value of Assets

Market Value of Assets – June 30, 2013	$ 4,299,238,343
Total Gain/(Loss) excluded	159,317,214
Actuarial Value of Assets – June 30, 2013	$ 4,139,921,129

SECTION II
ASSETS

Investment Performance

The market value of assets (MVA) returned 12.99% during the fiscal year ended 2013, which is more than the assumed 7.75% return. A return of 11.91% 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	8.03%	5.32%
2006	8.98%	9.25%
2007	17.92%	11.94%
2008	(4.91%)	7.62%
2009	(20.85%)	(0.16%)
2010	12.91%	(1.18%)
2011	21.70%	(0.08%)
2012	2.27%	3.28%
2013	12.99%	11.91%

SECTION II
ASSETS

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

Year Beginning July 1,	Expected Benefits	Expected Contributions**	Net Cash Flow (excluding Investment Return)	Expected Investment Return***	Net Cash Flow (including Investment Return)
2013	$ 326,637	$ 217,964	($ 108,673)	$ 329,058	$ 220,385
2014	328,179	217,992	(110,187)	345,791	235,604
2015	347,554	210,385	(137,168)	363,314	226,146
2016	367,086	217,875	(149,210)	380,382	231,172
2017	386,440	225,474	(160,965)	397,851	236,886
2018	406,946	236,058	(170,889)	415,833	244,944
2019	428,812	244,447	(184,364)	434,303	249,939
2020	450,175	252,906	(197,269)	453,183	255,913
2021	471,065	261,695	(209,370)	472,556	263,185
2022	490,793	270,829	(219,965)	492,550	272,585

* These projections reflect the plan, contribution, and GABA changes associated with House Bill 454, and assume that all future GABAs will be at the maximum statutory rate of 1.5% per year.

** Expected contributions include Employer Contributions, State Contributions, Member Contributions, and anticipated Coal Tax Contributions. For illustration purposes, we have assumed that contribution rates will follow those listed in the Future Outlook portion of the Board Summary section and that payroll will increase at the actuarially assumed rate of 4.00% per year.

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

Expected benefit payments are projected for the closed group valued at June 30, 2013. Projecting any farther than 10 years using a closed-group would not yield reliable predictions due to the omission of new hires.

SECTION III
LIABILITIES

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

- **Disclosure** of system liabilities at June 30, 2012 and June 30, 2013;
- Statement of **changes** in these liabilities during the year;
- Details on the source of actuarial gains and losses between this valuation and the last;
- Development of actuarial unfunded liability on a market value basis as required under MCA 12-2-407;
- Development of the funded ratio for purposes of determining the percentage rate for the Guaranteed Annual Benefit Adjustment (GABA) at January 1, 2014; 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 and all of our assumptions are met.

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

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

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

SECTION III
LIABILITIES

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

	June 30, 2012	June 30, 2013
Present Value of Benefits		
Active Participant Benefits	$ 3,456,788,033	$ 3,085,032,331
Retiree and Inactive Benefits	3,131,292,565	2,949,478,004
Present Value of Benefits (PVB)	**$ 6,588,080,598**	**$ 6,034,510,335**
Market Value of Assets (MVA)	$ 3,921,812,233	$ 4,299,238,343
Future Member Contributions	573,705,041	594,123,899
Future Employer Contributions *	582,632,328	848,628,947
Funding Shortfall/(Surplus)	1,509,930,996	292,519,146
Total Resources	**$ 6,588,080,598**	**$ 6,034,510,335**
Actuarial Liability		
Present Value of Benefits (PVB)	$ 6,588,080,598	$ 6,034,510,335
Present Value of Future Normal Costs (PVFNC)	926,799,108	873,559,343
Actuarial Liability (AL=PVB–PVFNC)	**5,661,281,490**	**5,160,950,992**
Actuarial Value of Assets (AVA)	3,816,919,734	4,139,921,129
Net (Surplus)/Unfunded (AL – AVA)	**$ 1,844,361,756**	**$ 1,021,029,863**
Present Value of Accrued Benefits		
Present Value of Benefits (PVB)	$ 6,588,080,598	$ 6,034,510,335
Present Value of Future Benefit Accruals (PVFBA)	1,671,996,250	1,491,306,909
Present Value of Accrued Benefits (PVAB=PVB–PVFBA)	**$ 4,916,084,348**	**$ 4,543,203,426**
Market Value of Assets (MVA)	$ 3,921,812,233	$ 4,299,238,343
Net Unfunded (PVAB – MVA)	**$ 994,272,115**	**$ 243,965,083**

* Includes Employer, State, DC/ORP, and Coal Tax contributions.

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 the System's 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 liability.

Table III-2

	Present Value of Benefits	Actuarial Liability	Present Value of Accrued Liability
Liabilities June 30, 2012	$ 6,588,080,598	$ 5,661,281,490	$ 4,916,084,348
Liabilities June 30, 2013	6,034,510,335	5,160,950,992	4,543,203,426
Liability Increase (Decrease)	(553,570,263)	(500,330,498)	(372,880,922)
Change Due to:			
Actuarial (Gain)/Loss	NC*	(16,760,182)	NC*
Plan Changes	(806,034,665)	(755,248,426)	(633,039,301)
Benefits Accumulated and Other Sources	252,464,402	271,678,110	260,158,379

* NC = not calculated.

SECTION III
LIABILITIES

Table III-3
Summary of Actuarial Gains and Losses as of June 30, 2013

Actuarial Liabilities as of July 1, 2012	$ 5,661,281,490
Normal Cost	121,498,465
Actual Benefit Payments	(286,869,605)
Interest	437,049,250
Expected Actuarial Liability as of July 1, 2013	5,932,959,600
Actual Liability before House Bill 454 as of July 1, 2013	$ 5,916,199,418
Liability (Gain)/Loss	$ (16,760,182)
Sources of Liability (Gain)/Loss	
Salary (Gain)/Loss	$ (32,966,044)
New Participant (Gain)/Loss	12,678,920
Active Retirements (Gain)/Loss	5,735,543
Active Terminations (Gain)/Loss	(1,135,124)
Active Deaths (Gain)/Loss	915,450
Active Disability (Gain)/Loss	(1,321,290)
Inactive Decrements (Gain)/Loss	11,692,059
Other (Gain)/Loss	(12,359,696)
Actual Liability as of July 1, 2013	$ 5,160,950,992
Liability (Gain)/Loss due to plan changes	$ (755,248,426)
Actuarial Value of Assets as of July 1, 2012	$ 3,816,919,734
Net Cash Flow	(124,050,181)
Expected Earnings	291,094,026
Expected Actuarial Value of Assets as of July 1, 2013	3,983,963,579
Actual Actuarial Value of Assets as of July 1, 2013	$ 4,139,921,129
Investment (Gain)/Loss	$ (155,957,550)
Total Liability (Gain)/Loss	(772,008,608)
Total Actuarial (Gain)/Loss	$ (927,966,158)

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, 2012	June 30, 2013
1. Actuarial Liabilities		
Retiree and Inactive Benefits	$ 3,131,292,565	$ 2,949,478,004
Active Member Benefits	2,529,988,925	2,211,472,988
Total Actuarial Liability	**$ 5,661,281,490**	**$ 5,160,950,992**
2. Actuarial Value of Assets	$ 3,816,919,734	$ 4,139,921,129
3. Unfunded Actuarial Liability	$ 1,844,361,756	$ 1,021,029,863
4. Funded Ratio	67.4%	80.2%

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, 2012	June 30, 2013
1. Actuarial Liabilities		
Retiree and Inactive Benefits	$ 3,131,292,565	$ 2,949,478,004
Active Member Benefits	2,529,988,925	2,211,472,988
Total Actuarial Liability	**$ 5,661,281,490**	**$ 5,160,950,992**
2. Market Value of Assets	$ 3,921,812,233	$ 4,299,238,343
3. Unfunded Actuarial Liability	$ 1,739,469,257	$ 861,712,649
4. Funded Ratio	69.3%	83.3%

SECTION III
LIABILITIES

Under MCA 19-3-1605, the Guaranteed Annual Benefit Adjustment (GABA) as of any January 1 will be 1.5%, but must be reduced if the funded ratio is less than 90% as of the prior actuarial valuation date. The calculation of the funded ratio for this purpose is done assuming that all future GABAs will be 1.5%, which results in higher actuarial liabilities than have been presented previously within this section. The calculation as of June 30, 2013, is shown in the table below:

Table III-6
Actuarial Funded Ratio for GABA Determination

	June 30, 2013
1. Actuarial Liabilities	
Retiree and Inactive Benefits	$ 2,987,218,689
Active Member Benefits	2,218,963,724
Total Actuarial Liability	**$ 5,206,182,413**
2. Actuarial Value of Assets	$ 4,139,921,129
3. Unfunded Actuarial Liability	$ 1,066,261,284
4. Funded Ratio	79.5%

MCA 19-3-1605 provides that for each full 2% that the funded ratio is less than 90%, the GABA must reduced by 0.1%. Therefore, the funded ratio determined above is considered 80% and would cause a reduction in the GABA rate as of January 1, 2014 from 1.5% to 1.0%.

MCA 19-3-1605 also provides that if the amortization period is 40 years or greater then, the GABA must be set at 0%. This calculation appears in Section IV of this report and indicates that the amortization period does not exceed 40 years.

SECTION III
LIABILITIES

Table III-7 shows the development of the portion of the unfunded actuarial liability allocated to PERS members who are in alternative defined contribution plans. This liability is funded by the Plan Choice Rate (PCR) contributions.

Table III-7
Plan Choice Rate Unfunded Liability

		June 30, 2013
1.	PCR-UAL as of June 30, 2012	$ 11,053,147
2.	Assumed Interest at 7.75% per year	856,619
3.	Less: PCR Contributions to DBRP reduced by Normal Cost	(3,042,720)
4.	Interest at 7.75% on line 3	(117,905)
5.	PCR – UAL as of June 30, 2013	$ 8,749,140

Table III-8 determines the sufficiency of the Plan Choice Rate (PCR), which is used to determine the contributions made to the System for purposes of funding the PCR unfunded liability.

Table III-8
Plan Choice Rate

		June 30, 2013
PCR – Normal Cost Rate		
Normal Cost Rate		
DBRP Members Only		10.90%
Including DCRP and ORP members		10.91%
Difference	(A)	(0.01%)
Payroll as of June 30, 2013		
DBRP Members Only	(B)	$ 1,047,120,467
DCRP and ORP members	(C)	$ 106,419,342
PCR – Normal Cost Rate	(A) X (B) ÷ (C)	(0.10%)
PCR – UAL Amortization		
PCR – UAL as of June 30, 2013		$ 8,749,140
PCR Available for Amortization		
Current PCR Amortization Rate		2.64%
Less: PCR – Normal Cost Rate		(0.10%)
PCR Available for Amortization - 2013		2.74%
Years to Amortize PCR – UAL from June 30, 2013		3.2 years
Maximum Years for Amortization		15.75 years
Sufficient or Insufficient		Sufficient

SECTION IV
CONTRIBUTIONS

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

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

For purposes of determining the adequacy of the statutory funding rate, the UAL rate is calculated by subtracting the normal cost rate from the statutory rate. A calculation is then made to determine the period over which the UAL rate will amortize the unfunded actuarial liability. A second UAL rate is calculated based upon a 30-year amortization of the UAL, which is the maximum amortization period permitted under GASB Statement No. 25, but which should not necessarily be construed 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%.

In addition to these calculations, amortization periods are calculated for purposes of determining whether certain member and employer contributions can be reduced, and also for purposes of determination whether the GABA rate at January 1, 2014 would need to be set at 0%.

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, 2012	June 30, 2013
Statutory Funding Rates		
Members	7.01%	7.90%
Employers and State[1]	7.17%	8.17%
Coal Tax Contributions	N/A	2.61%
DC/ORP Contributions	N/A	0.10%
Total	14.18%	18.78%
Transfer to Education Fund	0.04%	0.04%
Net Contribution to DBRP	14.14%	18.74%
Normal Cost Rate[2]	11.80%	10.90%
Funding Rate Available for Amortization	2.34%	7.84%
Unfunded Actuarial Liability (Surplus)	$ 1,844,361,756	$ 1,021,029,863
Less: PCR-UAL	11,053,147	8,749,140
UAL Funded by DBRP	1,833,308,609	1,012,280,723
Years to Amortize[3]	Does not amortize	14.5 years

[1] Rates shown are for the fiscal year following the valuation date. The allocation of the rate between Employers and the State is described in Appendix C, item 2.

[2] The normal cost rate is projected to be 9.50% for members eligible after July 1, 2011. It is expected that the average normal cost rate will decrease over the next generation of active plan members.

[3] On a market value basis, the unfunded actuarial liability did not amortize at June 30, 2012 and was 11.6 years at June 30, 2013.

SECTION IV
CONTRIBUTIONS

Table IV-2
Calculated Contribution Basis

	June 30, 2012	June 30, 2013
Normal Cost Rate	11.80%	10.90%
Educational Fund	0.04%	0.04%
Amortization Payment (30-years)	8.87%	4.81%
Total Calculated Contribution Rate	20.71%	15.75%
Less Statutory Rate	14.18%	18.78%
Shortfall (Surplus) in Statutory Rate	6.53%	(3.03%)

Table IV-3
Calculated Contribution on Market Value (MCA 19-2-407)

	June 30, 2012	June 30, 2013
Normal Cost Rate	11.80%	10.90%
Educational Fund	0.04%	0.04%
Amortization Payment (30-years)	8.36%	4.05%
Total Calculated Contribution Rate	20.20%	14.99%
Less Statutory Rate	14.18%	18.78%
Shortfall (Surplus) in Statutory Rate	6.02%	(3.79%)

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

Table IV-4 *
Projected Calculated Contribution Rates

Valuation Year	Rate
2014	15.09%
2015	14.47%
2016	13.96%
2017	13.66%
2018	13.35%

* These projections reflect the plan, contribution, and GABA changes associated with House Bill 454, and assume that all future GABAs will be at the maximum statutory rate of 1.5% per year.

SECTION IV
CONTRIBUTIONS

Calculations of the amortization period of the unfunded actuarial liability are also required using the basis applied for purposes of Table III-6, that is, assuming that all future GABAs will be at the rate of 1.5%. Tables IV-5 and IV-6 are prepared on that basis.

Under MCA 19-3-1605, the GABA as of the next January 1 must be 0%, if the amortization period under this calculation basis is 40 years or greater. This calculation is shown in the table below:

Table IV-5
Amortization Period for GABA Determination

	June 30, 2013
Net Contribution to DBRP	18.74%
Normal Cost Rate	11.02%
Funding Rate Available for Amortization	7.72%
Years to Amortize	15.6 years

Since the amortization period in Table IV-5 is less than 40 years, the GABA as of January 1, 2014 will not be automatically set at 0%, but will be determined based upon Table III-6.

Under MCA 19-3-315 and MCA 19-3-316, certain temporary member and employer contributions will cease as of the next January 1 if the amortization period without regard to these contributions would not cause the amortization period to exceed 25 years. This calculation is shown below:

Table IV-6
Amortization Period Without Temporary Contributions

	June 30, 2013
Net Contribution to DBRP	16.37%
Normal Cost Rate	11.02%
Funding Rate Available for Amortization	5.35%
Years to Amortize	26.8 years

Since the amortization period in Table IV-6 exceeds 25 years, there will be no reduction in member or employer contribution rates as of January 1, 2014.

SECTION V
ACCOUNTING STATEMENT INFORMATION

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

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

The GASB-25 actuarial 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 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 liability be compared with the actuarial value of assets for funding purposes. The relevant amounts as of June 30, 2013 are exhibited in Table V-1.

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

SECTION V
ACCOUNTING STATEMENT INFORMATION

Table V-1
Accounting Statement Information

	June 30, 2012	June 30, 2013
A. FASB ASC Topic No. 960 Basis		
1. Present Value of Benefits Accrued and Vested to Date		
a. Members Currently Receiving Payments	$ 2,958,075,715	$ 2,790,429,676
b. Former Vested Members	173,216,850	159,048,328
c. Active Members	1,784,791,783	1,593,725,422
2. Total Present Value of Accrued Benefits (1 (a) + 1(b) + 1(c))	$ 4,916,084,348	$ 4,543,203,426
3. Assets at Market Value	3,921,812,233	4,299,238,343
4. Unfunded Present Value of Accrued Benefits (2 – 3)	$ 994,272,115	$ 243,965,083
5. Ratio of Assets to Present Value of Accrued Benefits (3 / 2)	79.8%	94.6%
B. GASB No. 25 Basis		
1. Actuarial Liabilities for retirees and beneficiaries currently receiving benefits and terminated employees not yet receiving benefits	$ 3,131,292,565	$ 2,949,478,004
2. Actuarial Liabilities for current employees	2,529,988,925	2,211,472,988
3. Total Actuarial Liability (1 + 2)	$ 5,661,281,490	$ 5,160,950,992
4. Net Actuarial Assets available for benefits	3,816,919,734	4,139,921,129
5. Unfunded Actuarial Liability (3 – 4)	$ 1,844,361,756	$ 1,021,029,863

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, 2013
Actuarial cost method	Entry Age
Amortization method	Open
Remaining amortization period for Annual Required Contribution	30 years
Asset valuation method	Four-Year smoothed market
Actuarial assumptions:	
Investment rate of return*	7.75%
General wage growth*	4.00%
Merit salary increases	0.0% - 6.0%
*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 liability. The normal cost is a level percent of payroll 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.

SECTION V
ACCOUNTING STATEMENT INFORMATION

Table V-3
Analysis Of Financial Experience*

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

Type of Activity	*Gain (or Loss) for Year ending June 30, (expressed in thousands)* 2008	2009	2010	2011	2012	2013
Investment Income on Actuarial Assets	$(14,160)	$(329,471)	$(364,392)	$ (301,247)	$(167,747)	$ 155,958
Combined Liability Experience	(47,012)	(14,731)	(10,001)	90,607	30,578	16,760
(Loss)/Gain During Year from Financial Experience	$ (61,172)	$(344,202)	$(374,393)	$ (210,640)	$(137,169)	$ 172,718
Non-Recurring Items	0	0	(156,543)	35,686	0	755,248
Composite Gain (or Loss) During Year	$ (61,172)	$(344,202)	$(530,936)	$ (174,954)	$(137,169)	$ 927,966

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

SECTION V
ACCOUNTING STATEMENT INFORMATION

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

Valuation Date June 30,	Actuarial Value of Assets	Actuarial Accrued Liability (AAL)	Funded Ratio	Unfunded AAL (UAAL)	Covered Payroll	UAAL as a Percentage of Covered Payroll
2013	$ 4,139,921	$ 5,160,951	80 %	$ 1,021,030	$ 1,104,000	92 %
2012	3,816,920	5,661,281	67 %	1,844,361	1,081,288	171 %
2011	3,800,479	5,410,144	70 %	1,609,665	1,071,376	150 %
2010	3,889,890	5,241,819	74 %	1,351,929	1,083,780	125 %
2009	4,002,212	4,792,819	84 %	790,607	1,003,215	79 %
2008	4,065,307	4,504,743	90 %	439,436	955,113	46 %

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

Valuation Date June 30,	Active Member Contributions (1)	Retirees & Beneficiaries (2)	Active Member Employer Financed Contributions (3)	Actuarial Value of Reported Assets	Portion of Accrued Liabilities Covered by Reported Assets (1)	(2)	(3)
2013	$ 828,657	$ 2,790,430	$ 1,541,864	$ 4,139,921	100 %	100 %	34 %
2012	837,663	2,958,076	1,865,543	3,816,920	100 %	100 %	1 %
2011	840,762	2,728,687	1,840,696	3,800,479	100 %	100 %	13 %
2010	848,756	2,481,534	1,911,529	3,889,890	100 %	100 %	29 %
2009	828,390	2,272,582	1,691,847	4,002,212	100 %	100 %	53 %
2008	783,801	2,232,148	1,488,794	4,065,307	100 %	100 %	70 %

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

APPENDIX A
MEMBERSHIP INFORMATION – DBRP ONLY

Reconciliation of Participant Counts

	Active	Disabled	Retirees and Beneficiaries	Terminated Vested Members	Terminated Non-Vested Members	Total
Participant counts used for valuation	28,401	741	18,634	2,686	6,712	57,174
Disabled members having attained normal retirement age		(556)	556			-
Beneficiaries of Disabled Members						-
Beneficiaries with less than one year of certain payments remaining			76			76
Other Adjustments	-			-	-	-
Participant counts shown in Annual Financial Report	28,401	185	19,266	2,686	6,712	57,250

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, if any, 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 applicable in the year ending on 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.

APPENDIX A
MEMBERSHIP INFORMATION – DBRP ONLY

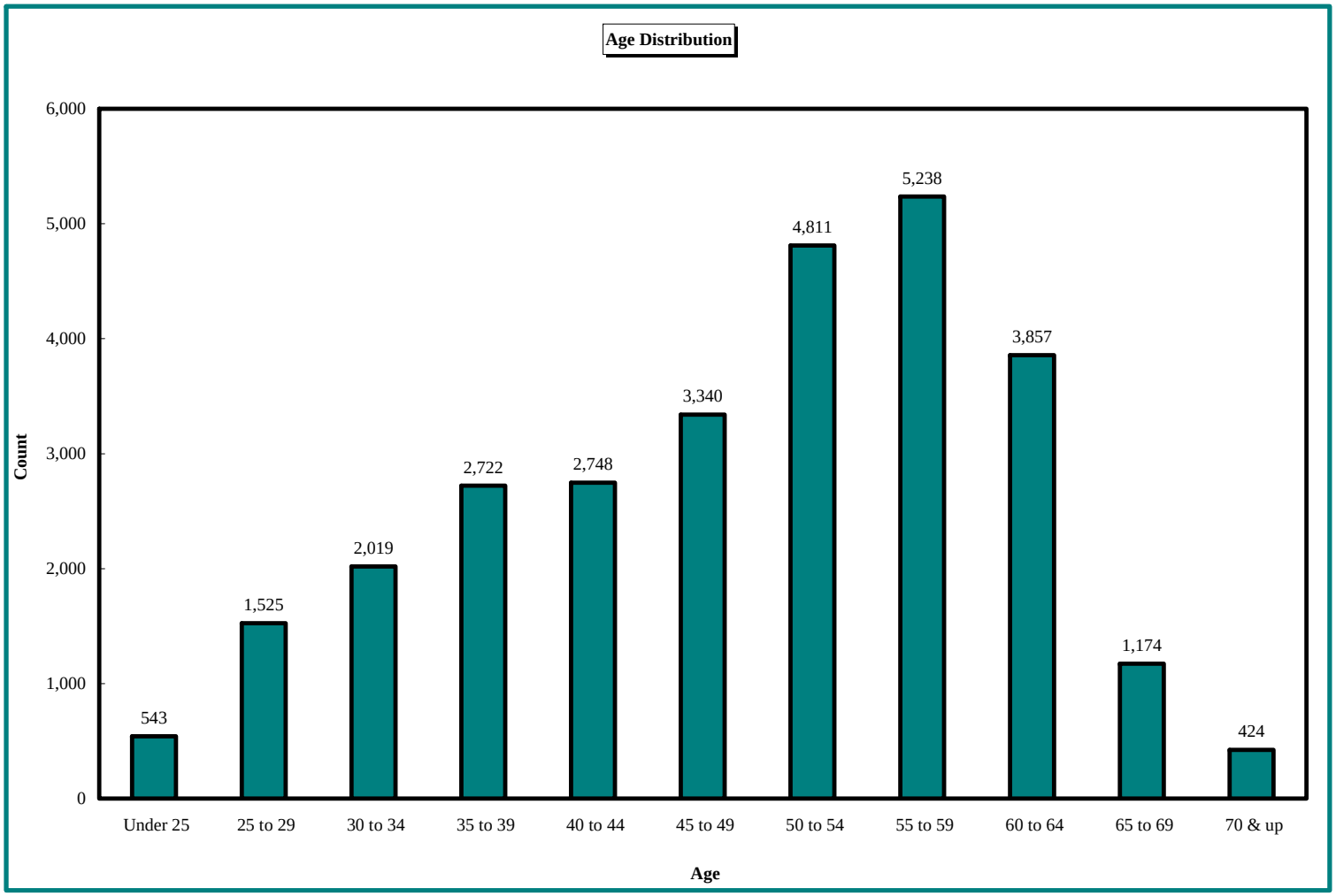
Montana Public Employees' Retirement System Distribution of Active Members by Age and Service as of June 30, 2013

COUNTS BY AGE/SERVICE

	Service										
Age	Under 1	1 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39	40 & up	Total
Under 25	350	189	4	0	0	0	0	0	0	0	543
25 to 29	550	802	169	4	0	0	0	0	0	0	1,525
30 to 34	494	880	552	93	0	0	0	0	0	0	2,019
35 to 39	769	884	663	349	57	0	0	0	0	0	2,722
40 to 44	435	855	675	429	273	76	5	0	0	0	2,748
45 to 49	404	887	733	518	389	321	86	2	0	0	3,340
50 to 54	436	1,019	991	770	555	540	369	127	3	1	4,811
55 to 59	377	929	971	790	706	622	466	262	112	3	5,238
60 to 64	235	590	652	587	563	501	339	229	137	24	3,857
65 to 69	68	207	238	209	131	120	96	46	36	23	1,174
70 & up	31	115	98	61	36	30	26	15	4	8	424
Total	4,149	7,357	5,746	3,810	2,710	2,210	1,387	681	292	59	28,401

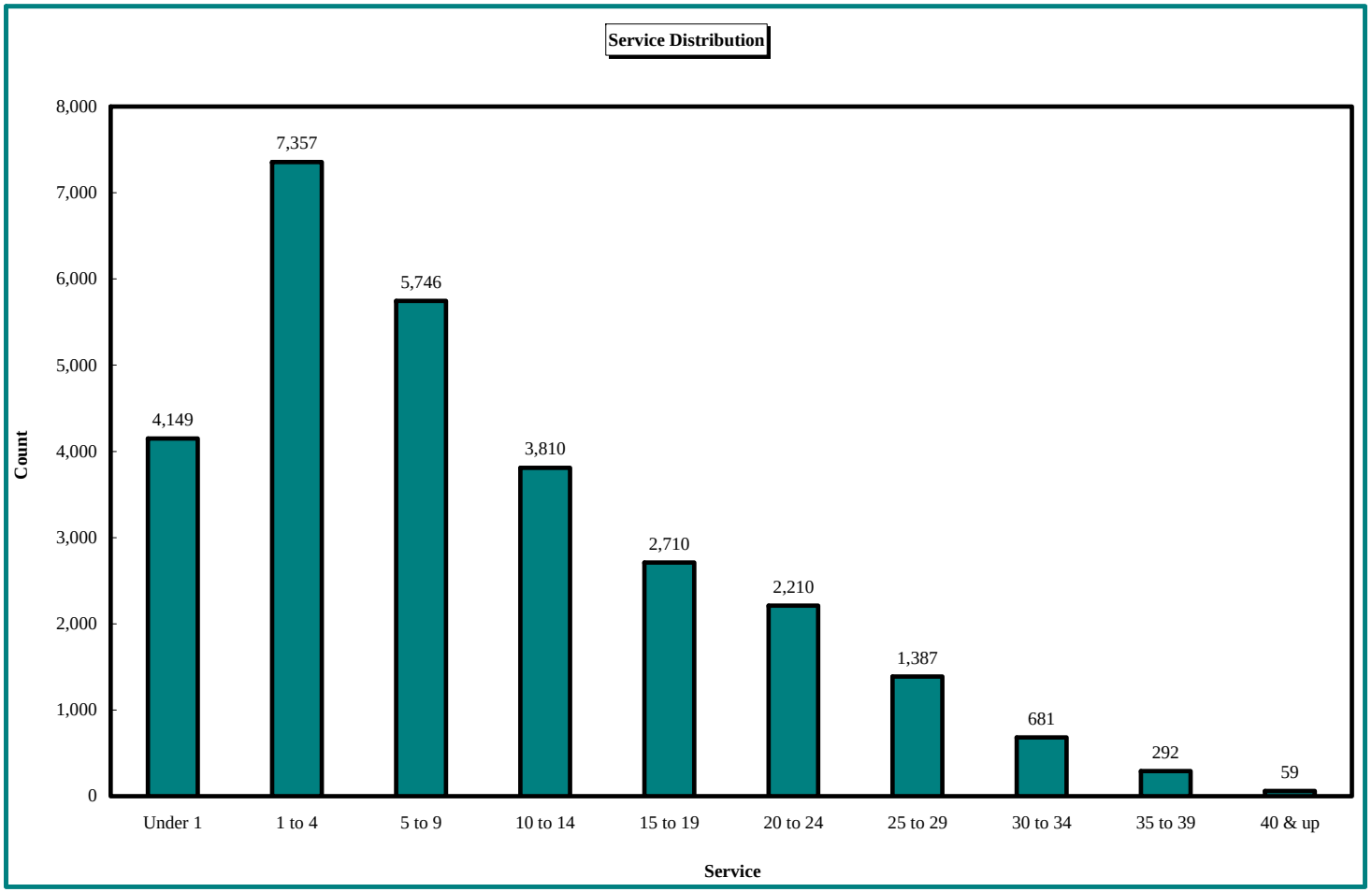
APPENDIX A
MEMBERSHIP INFORMATION – DBRP ONLY

Montana Public Employees' Retirement System Distribution of Active Members by Age as of June 30, 2013



APPENDIX A
MEMBERSHIP INFORMATION – DBRP ONLY

Montana Public Employees' Retirement System Distribution of Active Members by Service as of June 30, 2013



APPENDIX A
MEMBERSHIP INFORMATION – DBRP ONLY

Montana Public Employees' Retirement System Distribution of Active Members by Age and Service as of June 30, 2013

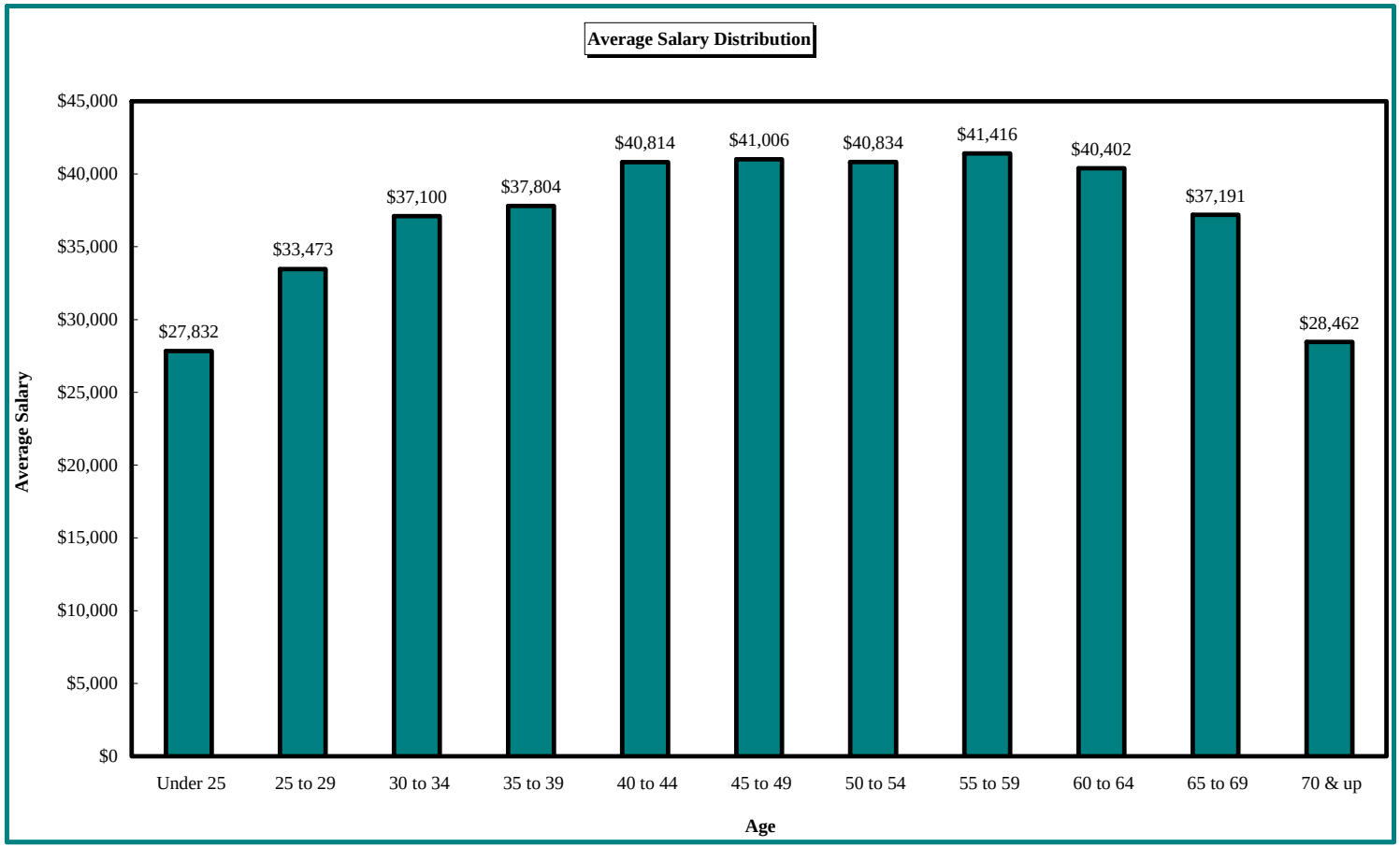
AVERAGE SALARY BY AGE/SERVICE

	Service										
Age	Under 1	1 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39	40 & up	Total
Under 25	$26,813	$29,613	$32,762	$0	$0	$0	$0	$0	$0	$0	$27,832
25 to 29	$31,954	$33,641	$37,527	$37,540	$0	$0	$0	$0	$0	$0	$33,473
30 to 34	$33,406	$35,853	$41,297	$43,603	$0	$0	$0	$0	$0	$0	$37,100
35 to 39	$30,370	$35,782	$43,135	$47,636	$47,246	$0	$0	$0	$0	$0	$37,804
40 to 44	$32,697	$35,138	$41,288	$48,198	$55,065	$53,830	$44,231	$0	$0	$0	$40,814
45 to 49	$32,421	$33,641	$39,334	$44,009	$51,039	$55,885	$52,464	$45,088	$0	$0	$41,006
50 to 54	$31,888	$31,683	$36,906	$41,262	$46,541	$53,392	$55,253	$52,687	$43,929	$44,722	$40,834
55 to 59	$30,531	$31,777	$36,611	$40,456	$43,314	$49,684	$53,667	$57,977	$58,354	$60,455	$41,416
60 to 64	$27,133	$29,436	$35,968	$38,207	$42,103	$45,901	$51,326	$54,093	$61,369	$54,730	$40,402
65 to 69	$26,324	$24,468	$30,936	$39,031	$42,188	$43,933	$47,424	$56,945	$57,503	$54,222	$37,191
70 & up	$24,067	$20,142	$23,338	$33,603	$30,125	$38,022	$38,075	$52,196	$50,484	$58,572	$28,462
Total	$30,963	$32,921	$38,251	$42,171	$45,869	$50,305	$52,684	$55,449	$59,408	$55,174	$39,366

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

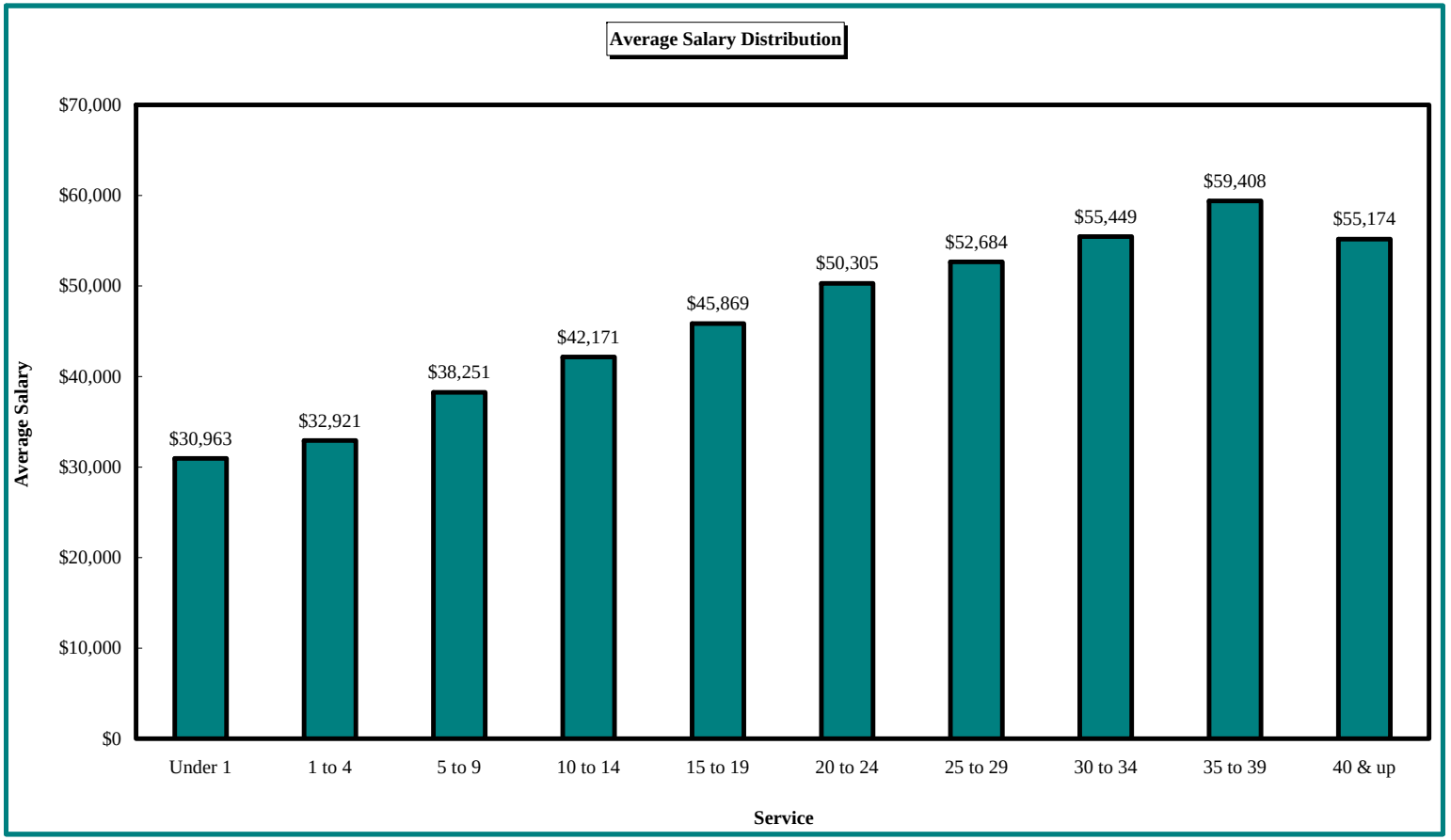
APPENDIX A
MEMBERSHIP INFORMATION – DBRP ONLY

Montana Public Employees' Retirement System Distribution of Active Members by Age as of June 30, 2013



APPENDIX A
MEMBERSHIP INFORMATION – DBRP ONLY

Montana Public Employees' Retirement System Distribution of Active Members by Service as of June 30, 2013



APPENDIX A
MEMBERSHIP INFORMATION – DBRP ONLY

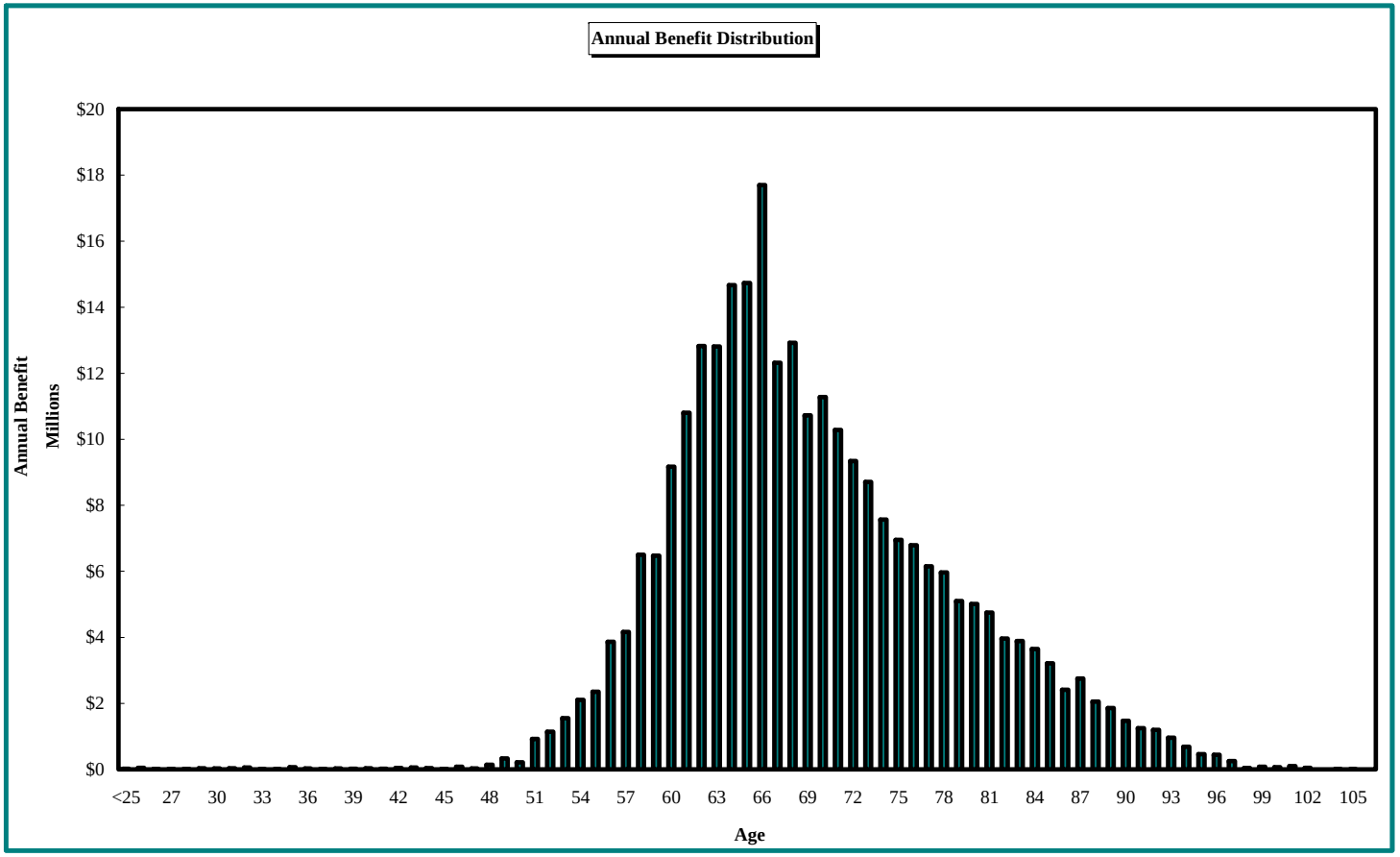
Montana Public Employees' Retirement System Distribution of Retired Members and Survivors as of June 30, 2013

Age	Count	Annual Benefit	Age	Count	Annual Benefit
<25	5	$24,173	73	657	$8,709,403
25	4	$49,512	74	573	$7,569,055
26	2	$12,049	75	555	$6,955,847
27	2	$13,787	76	521	$6,791,528
28	3	$17,037	77	479	$6,154,339
29	4	$34,918	78	496	$5,968,757
30	3	$27,336	79	452	$5,104,027
31	6	$32,864	80	423	$5,013,414
32	4	$55,100	81	421	$4,752,658
33	2	$6,388	82	376	$3,962,243
34	3	$8,173	83	375	$3,888,598
35	7	$65,878	84	336	$3,649,883
36	5	$28,267	85	319	$3,217,814
37	3	$11,840	86	239	$2,416,837
38	5	$25,382	87	272	$2,754,879
39	3	$24,378	88	217	$2,056,436
40	6	$35,921	89	198	$1,858,090
41	6	$22,113	90	172	$1,473,220
42	7	$45,827	91	140	$1,249,494
43	9	$56,000	92	130	$1,197,969
44	5	$38,915	93	117	$964,915
45	3	$15,106	94	81	$685,597
46	8	$80,466	95	48	$463,694
47	5	$26,189	96	48	$447,123
48	10	$139,829	97	25	$255,130
49	17	$332,552	98	6	$47,698
50	16	$212,711	99	10	$79,168
51	46	$925,408	100	8	$69,807
52	56	$1,145,590	101	8	$98,590
53	78	$1,553,770	102	4	$49,547
54	103	$2,107,076	103	0	$0
55	126	$2,354,333	104	1	$11,523
56	167	$3,867,421	105	1	$6,377
57	201	$4,166,264	106	0	$0
58	278	$6,505,456	107	0	$0
59	325	$6,473,914	108	0	$0
60	435	$9,172,730	109	0	$0
61	532	$10,806,030	110	0	$0
62	660	$12,824,971	111	0	$0
63	725	$12,807,614	112	0	$0
64	789	$14,669,347	113	0	$0
65	830	$14,734,269	114	0	$0
66	1,011	$17,703,869	115	0	$0
67	733	$12,321,385	116	0	$0
68	799	$12,921,610	117	0	$0
69	737	$10,725,958	118	0	$0
70	777	$11,276,596	119	0	$0
71	696	$10,283,380	120	0	$0
72	669	$9,341,649			
			Totals	18,634	$278,055,012

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.

APPENDIX A
MEMBERSHIP INFORMATION – DBRP ONLY

Montana Public Employees' Retirement System Distribution of Retired Members and Survivors as of June 30, 2013



APPENDIX A
MEMBERSHIP INFORMATION – DBRP ONLY

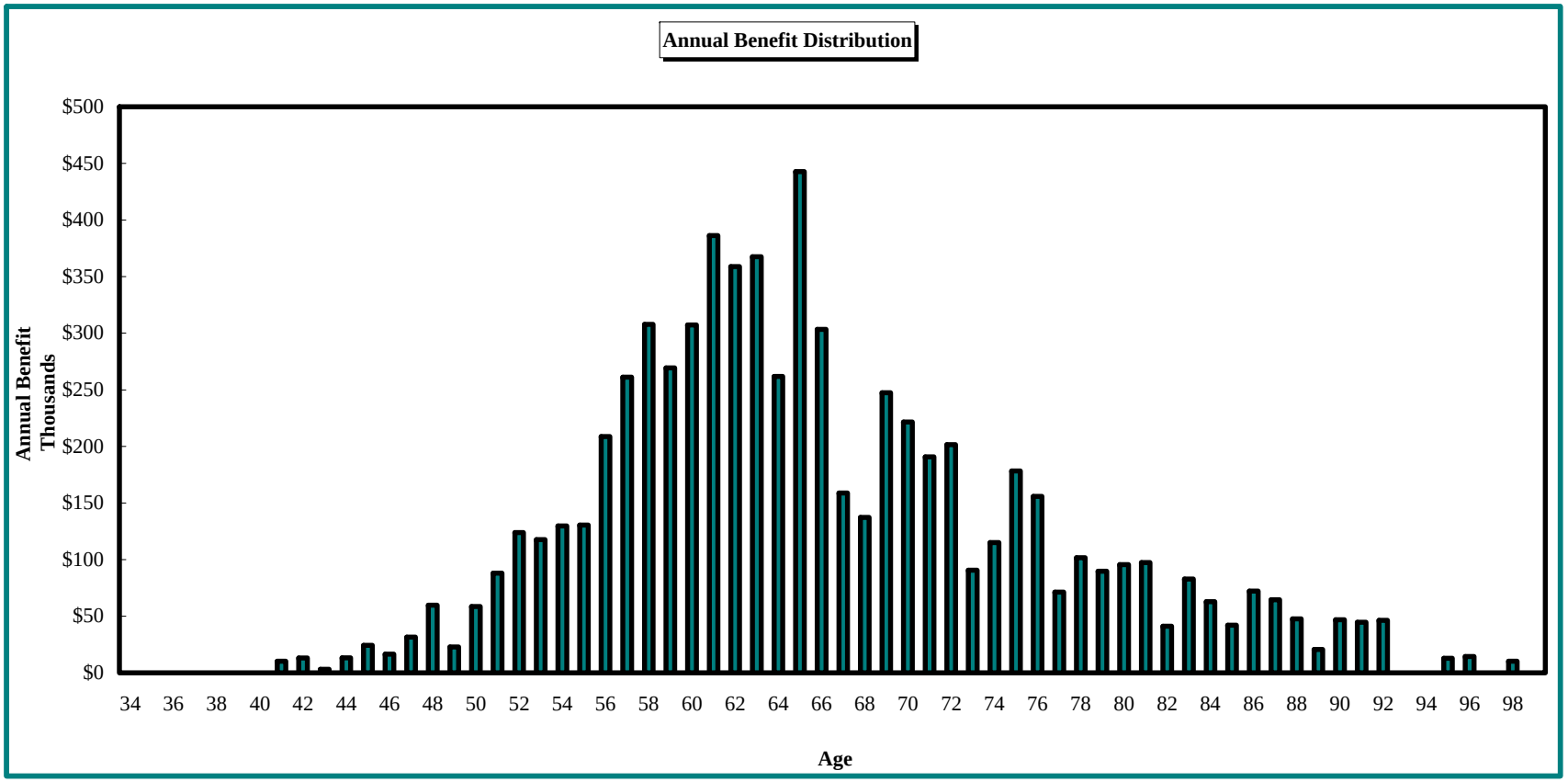
Montana Public Employees' Retirement System Distribution of Disabled Members as of June 30, 2013

Age	Count	Annual Benefit	Age	Count	Annual Benefit
<25	0	$0	73	10	$90,552
25	0	$0	74	15	$115,001
26	0	$0	75	22	$178,211
27	0	$0	76	21	$155,835
28	0	$0	77	10	$71,376
29	0	$0	78	12	$101,627
30	0	$0	79	12	$89,668
31	0	$0	80	12	$95,621
32	0	$0	81	10	$97,450
33	0	$0	82	6	$41,120
34	0	$0	83	10	$82,810
35	0	$0	84	6	$62,781
36	0	$0	85	5	$42,137
37	0	$0	86	7	$72,151
38	0	$0	87	6	$64,525
39	0	$0	88	5	$47,577
40	0	$0	89	2	$20,586
41	1	$10,201	90	5	$46,827
42	1	$13,107	91	4	$44,660
43	1	$3,147	92	3	$46,327
44	2	$13,252	93	0	$0
45	3	$24,304	94	0	$0
46	1	$16,578	95	1	$12,796
47	4	$31,607	96	1	$14,309
48	4	$59,632	97	0	$0
49	3	$22,747	98	1	$10,297
50	7	$58,667	99	0	$0
51	9	$88,110	100	0	$0
52	10	$123,785	101	0	$0
53	11	$117,525	102	0	$0
54	13	$129,809	103	0	$0
55	9	$130,416	104	0	$0
56	19	$208,664	105	0	$0
57	24	$261,129	106	0	$0
58	33	$307,744	107	0	$0
59	29	$269,303	108	0	$0
60	32	$307,300	109	0	$0
61	40	$386,240	110	0	$0
62	33	$358,867	111	0	$0
63	36	$367,507	112	0	$0
64	28	$261,782	113	0	$0
65	39	$442,690	114	0	$0
66	29	$303,327	115	0	$0
67	19	$158,735	116	0	$0
68	18	$137,344	117	0	$0
69	27	$247,395	118	0	$0
70	26	$221,556	119	0	$0
71	21	$190,697	120	0	$0
72	23	$201,660			
			Totals	741	$7,079,069

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.

APPENDIX A
MEMBERSHIP INFORMATION – DBRP ONLY

Montana Public Employees' Retirement System Distribution of Disabled Members as of June 30, 2013



APPENDIX A
MEMBERSHIP INFORMATION – DBRP ONLY

Montana Public Employees' Retirement System Distribution of Terminated Vested Members as of June 30, 2013

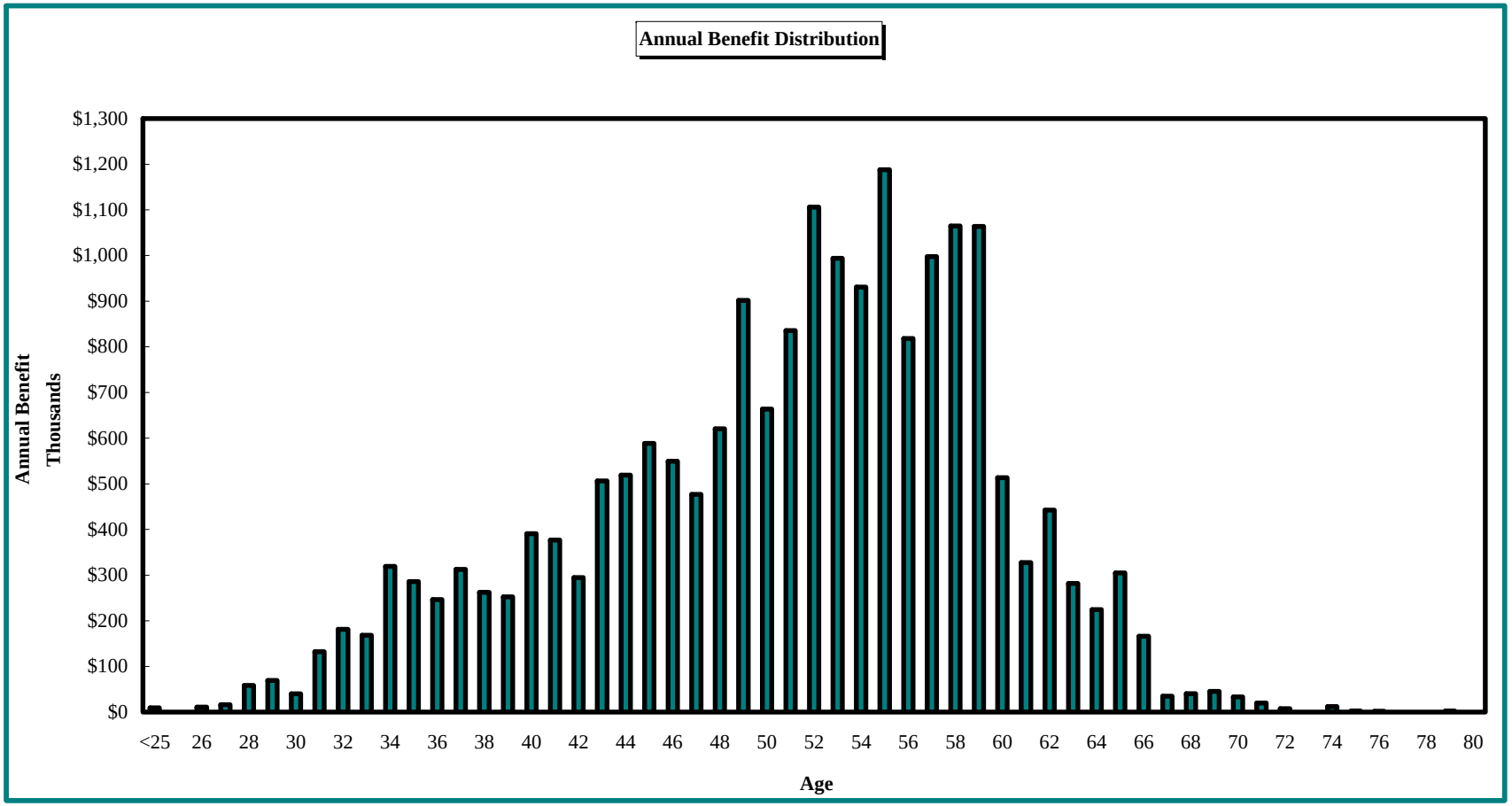
Age	Count	Annual Benefit*	Age	Count	Annual Benefit*
<25	1	$9,390	73	0	$0
25	0	$0	74	1	$12,168
26	1	$10,771	75	1	$2,547
27	2	$16,228	76	1	$1,800
28	6	$58,476	77	0	$0
29	8	$69,448	78	0	$0
30	5	$39,940	79	1	$2,679
31	15	$132,317	80	0	$0
32	21	$181,322	81	0	$0
33	16	$168,295	82	0	$0
34	31	$319,181	83	0	$0
35	28	$285,971	84	0	$0
36	26	$246,539	85	0	$0
37	31	$312,686	86	0	$0
38	30	$262,127	87	0	$0
39	28	$252,347	88	0	$0
40	41	$391,039	89	0	$0
41	42	$376,980	90	0	$0
42	38	$294,580	91	0	$0
43	54	$506,297	92	0	$0
44	60	$518,929	93	0	$0
45	69	$588,712	94	0	$0
46	73	$549,439	95	0	$0
47	59	$476,811	96	0	$0
48	86	$620,784	97	0	$0
49	108	$901,629	98	0	$0
50	89	$663,553	99	0	$0
51	115	$835,613	100	0	$0
52	138	$1,105,950	101	0	$0
53	144	$993,762	102	0	$0
54	129	$931,213	103	0	$0
55	168	$1,187,800	104	0	$0
56	138	$818,335	105	0	$0
57	145	$997,858	106	0	$0
58	157	$1,064,454	107	0	$0
59	152	$1,063,909	108	0	$0
60	98	$513,249	109	0	$0
61	61	$327,830	110	0	$0
62	70	$442,182	111	0	$0
63	45	$281,961	112	0	$0
64	43	$224,594	113	0	$0
65	44	$304,869	114	0	$0
66	22	$166,014	115	0	$0
67	10	$34,495	116	0	$0
68	10	$40,360	117	0	$0
69	11	$45,179	118	0	$0
70	7	$33,401	119	0	$0
71	5	$19,686	120	0	$0
72	2	$7,434			
			Totals	2,686	$19,713,131

** payable at the greater of age 60 or current age*

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

APPENDIX A
MEMBERSHIP INFORMATION – DBRP ONLY

Montana Public Employees' Retirement System Distribution of Terminated Vested Members as of June 30, 2013



APPENDIX A
MEMBERSHIP INFORMATION – DBRP ONLY

Montana Public Employees' Retirement System Distribution of Terminated Non-Vested Members* as of June 30, 2013

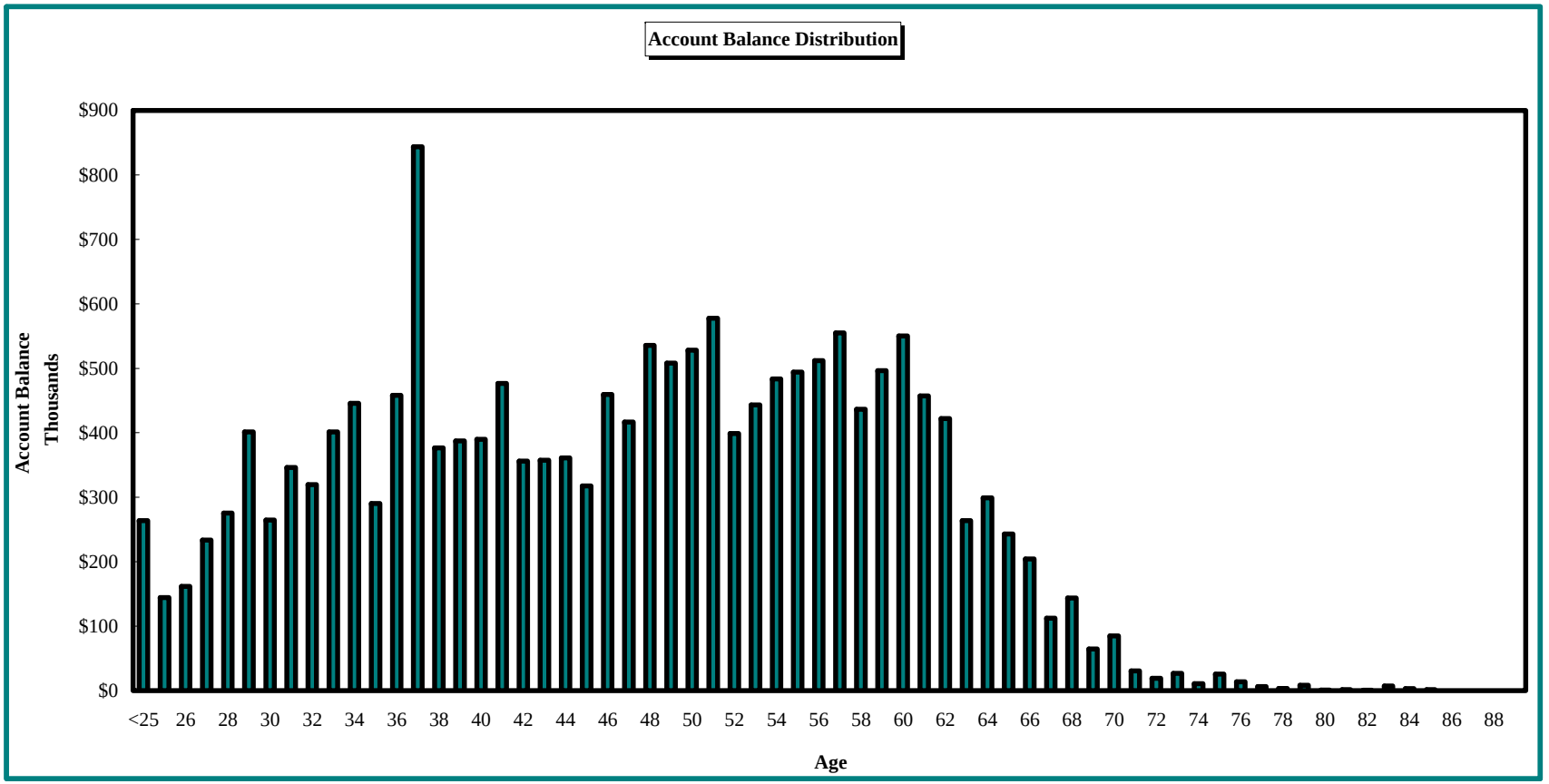
Age	Count	Account Balance	Age	Count	Account Balance
<25	293	$263,861	73	7	$26,796
25	105	$144,423	74	9	$10,989
26	92	$161,882	75	10	$25,755
27	132	$233,647	76	4	$13,784
28	122	$275,715	77	7	$6,385
29	148	$401,510	78	5	$3,357
30	121	$264,743	79	3	$8,224
31	142	$346,224	80	2	$973
32	128	$319,441	81	1	$1,451
33	144	$401,489	82	2	$501
34	155	$445,553	83	3	$7,283
35	127	$290,271	84	2	$3,231
36	137	$458,071	85	1	$1,618
37	863	$843,715	86	0	$0
38	143	$376,682	87	0	$0
39	152	$387,547	88	0	$0
40	149	$390,050	89	0	$0
41	162	$476,621	90	0	$0
42	157	$356,062	91	0	$0
43	126	$357,502	92	0	$0
44	156	$360,857	93	0	$0
45	116	$317,476	94	0	$0
46	153	$459,316	95	0	$0
47	138	$416,564	96	0	$0
48	166	$535,603	97	0	$0
49	141	$508,295	98	0	$0
50	161	$528,242	99	0	$0
51	174	$577,743	100	0	$0
52	122	$398,942	101	0	$0
53	139	$443,237	102	0	$0
54	147	$483,487	103	0	$0
55	134	$494,005	104	0	$0
56	145	$511,846	105	0	$0
57	152	$555,113	106	0	$0
58	121	$436,446	107	0	$0
59	117	$496,471	108	0	$0
60	133	$550,255	109	0	$0
61	124	$457,182	110	0	$0
62	108	$422,041	111	0	$0
63	64	$263,724	112	0	$0
64	76	$299,165	113	0	$0
65	64	$243,019	114	0	$0
66	62	$204,206	115	0	$0
67	27	$112,456	116	0	$0
68	36	$143,793	117	0	$0
69	26	$64,811	118	0	$0
70	28	$85,144	119	0	$0
71	18	$30,653	120	0	$0
72	10	$19,166			
			Totals	6,712	$17,724,613

** Assumes average entry age of 37 for 588 Terminated Non-Vested members either older than 85, younger than 15, or missing a birthdate.*

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

APPENDIX A
MEMBERSHIP INFORMATION – DBRP ONLY

Montana Public Employees' Retirement System Distribution of Terminated Non-Vested Members as of June 30, 2013



APPENDIX B
ACTUARIAL ASSUMPTIONS AND METHODS

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

1. Demographic Assumptions

a. Healthy Retirees, Beneficiaries and Non-Retired Members

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

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

b. Disabled Inactive Mortality

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

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

APPENDIX B
ACTUARIAL ASSUMPTIONS AND METHODS

c. Rates of Active Disability

Sample Rates of Active Disability	
Age	Rate
22	0.00%
27	0.01%
32	0.01%
37	0.04%
42	0.10%
47	0.13%
52	0.25%
57	0.36%
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	25%
1	20%
2	15%
3	10%
4	10%
5-9	5%
10-14	5%
15 & over	2%

No terminations are assumed after age 50 with five years of service for either male or female.

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

Probability of Electing Refund		
Age at Term.	Non-Vested	Vested
Under 35	100%	60%
35-39	100%	50%
40-44	100%	45%
45-49	100%	35%
50 & Over	100%	30%

APPENDIX B
ACTUARIAL ASSUMPTIONS AND METHODS

f. Retirement

Annual Retirement Rates		
Age	**<30 years**	**30 years or more and age 60 with 25 years**
<50	0.00%	10.00%
50 – 54	3.00	10.00
55	3.00	15.00
56	4.00	15.00
57	5.00	15.00
58	5.00	15.00
59	6.00	15.00
60	8.00	15.00
61	15.00	15.00
62	25.00	25.00
63	15.00	15.00
64	15.00	15.00
65	30.00	30.00
66	30.00	30.00
67	25.00	25.00
68	25.00	25.00
69	25.00	25.00
70 & Over	100.00	100.00

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

APPENDIX B
ACTUARIAL ASSUMPTIONS AND METHODS

g. 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	6.0%
2	4.9
3	3.9
4	3.1
5	2.4
6	1.8
7	1.4
8	1.0
9	0.7
10	0.5
11-15	0.3
16-20	0.1
21 & over	0.0

h. 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 members.

Actual marital characteristics are used for pensioners.

i. Vested Benefits for Terminated Members

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

APPENDIX B
ACTUARIAL ASSUMPTIONS AND METHODS

2. Economic Assumptions

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

3. Assumptions related to the Guaranteed Annual Benefit Adjustment (GABA)

a. For all calculations other than those required due to MCA 19-3-315, 19-3-316, and 19-3-1605, the rate of GABA is assumed to be as follows:

January 1, 2014:	1.0%
January 1, 2015:	1.2%
January 1, 2016:	1.2%
January 1, 2017:	1.3%
January 1, 2018:	1.3%
January 1, 2019:	1.4%
January 1, 2020:	1.4%
January 1, 2021 and later:	1.5%

b. For calculations required due to MCA 19-3-315, MCA 19-3-316 and MCA 19-3-1605, GABA is assumed to be 1.5% for all future years.

4. Assumptions related to future member contribution rates

a. For all calculations other than those required due to MCA 19-3-315, 19-3-316, and 19-3-1605, it is assumed that the member contribution rate will be reduced from 7.9% to 6.9% at January 1, 2015.

b. For calculations required due to MCA 19-3-315, MCA 19-3-316 and MCA 19-3-1605, the member contribution rate is assumed to be 7.9% for all future years.

5. Changes since Last Valuation

Assumptions have been added with respect to future GABA percentages and future member contribution rates.

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

4. Changes since Last Valuation

None.

APPENDIX B
ACTUARIAL ASSUMPTIONS AND METHODS

C. Plan Choice Rate Calculations

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

	Percent of Salary
Plan Choice Rate to DBRP (PCR)	2.370%
Additional PCR Contribution	
FY2008 (July 1, 2007)	0.135
FY2010 (July 1, 2009)	0.135
Total Plan Choice Contribution Rate	**2.640%**

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

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

1. The PCR provides that the amortization of the DBRP UAL at the time of the transfer is financed over the sum of payroll of the DBRP and DCRP members. This method ensures a continuation of the amortization schedule that was in place just prior to the transfers. The legislation provided a starting point for this element of the PCR equal to 2.37% of the payroll of DCRP members and the ORP members who would have been in the DBRP.

2. Compared to the members who remain in the DBRP, if the transferring DCRP and ORP members are, on average, either younger at the time of hire, or have a shorter career, the DBRP Normal Cost Rate could increase. The dollar amount of the increase in the DBRP Normal Cost is financed as a percentage of DCRP and ORP payroll. Therefore, the employers whose employees choose the DCRP and ORP will fund any increase in the Normal Cost of the DBRP. This rate is known as the PCR Normal Cost Rate (PCR-NCR).

APPENDIX B
ACTUARIAL ASSUMPTIONS AND METHODS

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

Amortization of PCR-UAL

	Baseline	Acceptable Range	
1998 Valuation	12.75	2.75	22.75
2000 Valuation	11.75	1.75	21.75
2002 Valuation	10.75	0.75	20.75
2004 Valuation	9.75	n/a*	19.75
2006 Valuation	8.75	n/a*	18.75
2008 Valuation	7.75	n/a*	17.75
2010 Valuation	6.75	n/a*	16.75
2012 Valuation	5.75	n/a*	15.75
2014 Valuation	4.75	n/a*	14.75
2016 Valuation	3.75	n/a*	13.75
2018 Valuation	2.75	n/a*	12.75
2020 Valuation	1.75	n/a*	11.75
2022 Valuation	0.75	n/a*	10.75

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

APPENDIX C
SUMMARY OF PLAN PROVISIONS

1. Membership

The Plan is a multiple-employer cost sharing plan that covers employees of the State, local governments, and certain employees of the university system and school districts, who are not covered by a separate retirement system governed by Title 19 of Montana Code Annotated.

2. Contributions

For members hired on or before June 30, 2011 Members contribute 6.9% of their compensation. Interest is credited at rates determined by the Board.

For new members hired on or after July 1, 2011 Members contribute 7.9% 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.

Employers contribute 6.9% of each member's compensation, increased to 7.035% on July 1, 2007 and 7.17% on July 1, 2009. This is offset by a 0.1% of compensation from the State for local governments and school districts. For school districts, this offset increased to 0.235% on July 1, 2007 and 0.37% on July 1, 2009. These increased contributions and offsets as of 2007 and 2009 will terminate if an actuarial valuation shows that the period required to amortize the system's unfunded liabilities is less than 25 years, and that the termination of those increases would not cause the amortization to increase beyond 25 years.

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 PERS benefits. One month of membership service is earned for any month member contributions are made to PERS, regardless of the number of hours worked.

5. Highest Average Compensation

For members hired on or before June 30, 2011 Highest Average Compensation is the average of the highest 36 consecutive months (or shorter period of total service) of compensation paid to the member.

APPENDIX C
SUMMARY OF PLAN PROVISIONS

For members hired on or after July 1, 2011 Highest Average Compensation is the average of the highest 60 consecutive months (or shorter period of total service) of compensation paid to the member.

Compensation generally means all remuneration paid, excluding certain allowances, benefits and lump sum payments. Compensation is specifically defined in law for PERS.

6. Service Retirement

Eligibility: **For members hired on or before June 30, 2011** (i) age 60 with five years of membership service; or (ii) age 65 regardless of service; or (iii) any age with 30 years of membership service. **For members hired on or after July 1, 2011** (i) age 65 with five years of membership service; or (ii) age 70 regardless of service.

Benefit: **For members hired on or before June 30, 2011**

(i) If less than 25 years of membership service, the greater of (a) 1/56 of highest average compensation multiplied by years of service credit, or (b) the actuarial equivalent of double the member's regular contributions plus interest plus the actuarial equivalent of any additional contributions plus interest.

(ii) If 25 years of membership service or more, the greater of (a) 2% of highest average compensation multiplied by years of service credit, or (b) above.

For members hired on or after July 1, 2011

(i) If less than 10 years of membership service, the greater of (a) 1.5% of highest average compensation multiplied by years of service credit, or (b) the actuarial equivalent of double the member's regular contributions plus interest plus the actuarial equivalent of any additional contributions plus interest.

(ii) If between 10 and 30 years of membership service, the greater of (a) 1/56 of highest average compensation multiplied by years of service credit, or (b) above.

(iii) If 30 years of membership service or more, the greater of (a) 2% of highest average compensation multiplied by years of service credit, or (b) above.

APPENDIX C
SUMMARY OF PLAN PROVISIONS

7. Early Retirement

Eligibility: **For members hired prior to July 1, 2011** (i) age 50 with 5 years of membership service; or (ii) any age with 25 years of membership service.

For members hired on or after July 1, 2011 (i) age 55 with 5 years of membership service.

Benefit: **For members hired prior to July 1, 2011 and**

(i) who retire prior to October 1, 2011

The actuarial equivalent of the accrued portion of the service retirement benefit that would have been payable to the member commencing at age 60 or upon completion of 30 years of membership service with the exception that the benefit must be reduced by a factor resulting from multiplying 0.5% (for first five years from service retirement eligibility) or 0.3% (for six to 10 years from service retirement eligibility) by the number of months by which the retirement date precedes the date at which the member would have attained age 60 or completed 30 years of membership service.

(ii) who retire on or after October 1, 2011

The actuarial equivalent of the accrued portion of the service retirement benefit that would have been payable to the member commencing at age 60 or upon completion of 30 years of membership service with the exception that the benefit must be reduced using actuarially equivalent factors based on the most recent valuation.

For members hired on or after July 1, 2011
The actuarial equivalent of the accrued potion of the service retirement benefit that would have been payable to the member commencing at age 65 with the exception that the benefit must be reduced using actuarially equivalent factors based on the most recent valuation.

APPENDIX C
SUMMARY OF PLAN PROVISIONS

8. Disability Benefit

Eligibility: Five years of membership service

Benefit: (i) If hired on or before February 24, 1991 and did not make an election, the greater of (a) or (b):

(a) 90% of 1/56 of highest average compensation multiplied by service credit, or

(b) 25% of highest average compensation.

(ii) If hired after February 24, 1991 and prior to July 1, 2011:

(a) Less than 25 years of membership service: 1/56 of HAC multiplied by service credit, or
(b) At least 25 years of membership service: 2% of HAC multiplied by service credit.

(iii) If hired on or after July 1, 2011:

(a) If less than 10 years of membership service, 1.5% of highest average compensation multiplied by years of service credit.

(b) If between 10 and 30 years of membership service, 1/56 of highest average compensation multiplied by years of service credit.

(c) If 30 years of membership service or more, 2% of highest average compensation multiplied by years of service credit.

9. Survivor's Benefit

Eligibility: Member's status at time of death: (i) active, (ii) within 6 months after severance, (iii) receiving disability benefit for less than 6 months, (iv) continuously disabled without receiving a disability benefit, or (v) inactive.

APPENDIX C
SUMMARY OF PLAN PROVISIONS

Benefit: The sum of (i) accumulated contributions plus (ii) monthly compensation multiplied by the lesser of years of service credit or six, plus (iii) accumulated regular interest. However an inactive member's survivor will receive only accumulated contributions.

For the survivor of an active member who had completed five years of membership service, the benefit will be the actuarial equivalent of the accrued retirement benefit at the time of death subject to the minimum in the above paragraph.

A beneficiary may elect to receive the payment as an annuity that is the actuarial equivalent of the amount of benefit.

For retired members receiving the normal form of annuity, a payment will be made equal to the accumulated contributions reduced by any retirement benefits already paid.

10. Vesting

Eligibility: Five years of membership service.

Benefit: Accrued normal retirement benefit, payable at age 60 (or 65 if hired after June 30, 2011). In lieu of a pension, a member may receive a refund of accumulated contributions. Upon receipt of a refund of contributions a member's vested right to a monthly benefit is forfeited.

11. Withdrawal of Employee Contributions

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

Benefit: Accumulated employee contributions. Upon receipt of a refund of contributions a member's vested right to a monthly benefit is forfeited.

12. Form of Payment

The normal form of payment is a life annuity with a refund of any remaining account balance to a designated beneficiary. (Option 1)

Optional benefits: (i) Option 2, a joint and 100% survivor benefit, (ii) Option 3, a joint and 50% survivor benefit, and (iii) Option 4, a life annuity with a period certain. If a retiring member selects Option 2 or 3 and the designated beneficiary predeceases or is divorced from the member, the benefit may revert to the higher Option 1 benefit available at retirement or the retiree may select a different beneficiary and/or a different option if the retiree provides notification within 18 months of the death or divorce.

APPENDIX C
SUMMARY OF PLAN PROVISIONS

13. Post Retirement Benefit Increases

For retired members who have been retired at least 12 months, a Guaranteed Annual Benefit Adjustment (GABA) will be made each year equal to (i) 3% for members hired before July 1, 2007 and (ii) 1.5% for members hired on or after July 1, 2007.

14. Changes since Last Valuation

Working Retirees - House Bill 95, effective July 1, 2013:

- Requires employer contributions on working retiree compensation. Member contributions are not required.
- Working retiree limitations are not impacted. PERS working retirees may still work up to 960 hours a year.

Highest Average Compensation (HAC) CAP - House Bill 97, effective July 1, 2013:

- For members hired on or after July 1, 2013, establishes a 110% annual cap on compensation considered as part of a member's highest or final average compensation, with the excess compensation, if any, divided by the member's total months of service credit and added to the compensation for each month considered part of the member's highest or final average compensation.
- Bonuses paid on or after July 1, 2013 to any member will not be treated as compensation for retirement purposes. Employer and member contributions will no longer be paid on bonuses.

General Revisions - House Bill 105, effective July 1, 2013:

- Requires a retired PERS employee working as an independent contractor in a PERS - covered position be subject to working retiree limitations.

APPENDIX C
SUMMARY OF PLAN PROVISIONS

PERS Funding Bill - House Bill 454, varying dates:

PERS - covered member contributions temporarily increased:

- All members will contribute 7.9% of compensation on July 1, 2013. This is an increase of 1% for members hired prior to July 1, 2011.
- All member contributions will be decreased to 6.9% on January 1 following the actuary valuation results showing the amortization period has dropped below 25 years and would remain below 25 years following the reduction of both the employer and member contribution rates.

PERS - covered employer contributions temporarily increased:

- Employer contributions for all members will increase 1% on July 1, 2013.
- Beginning July 1, 2014, employer contributions will increase 0.1% a year over 10 years, through FY2024.
- The employer additional contributions including the .27% added in 2007 and 2009, terminates on January 1 following the actuary valuation results showing the amortization period has dropped below 25 years and would remain below 25 years following the reduction of both the employer and member contribution rates.

GABA revised for all PERS members:

Includes current and future retirees, regardless of when they retired or the date they will retire in the future.

- GABA is a maximum of 1.5% for all current and future retirees for each year PERS is funded at or above 90%.
- The 1.5% GABA is reduced 0.1% for each 2% PERS is funded below 90%.
- GABA is 0% for all current and future retirees whenever the amortization period for PERS is 40 years or more.

PERS-DCRP allocation of employer contribution increases:

- The 1% increase in employer contributions is allocated to the Defined Benefit Retirement Plan Unfunded Actuarial Liability.
- The 0.1% annual additional increases, beginning July 1, 2014, are allocated first to the DCRP Plan Choice Rate, then the DCRP long-term disability fund.

APPENDIX D
GLOSSARY

1. Actuarial Assumptions

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

2. Actuarial Cost Method

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

3. Actuarial Gain (Loss)

A measure of the difference between actual experience and that expected based upon a set of Actuarial Assumptions during the period between two Actuarial Valuation dates, as determined in accordance with a particular Actuarial Cost Method.

4. Actuarial Liability

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

5. Actuarial Present Value (Present Value)

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

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

6. Actuarial Valuation

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

APPENDIX D
GLOSSARY

7. Actuarial Value of Assets

The value of cash, investments and other property belonging to a pension plan as used by the actuary for the purpose of an Actuarial Valuation. The purpose of an Actuarial Value of Assets is to smooth out fluctuations in market values. This way long-term costs are not distorted by short-term fluctuations in the market.

8. Actuarially Equivalent

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

9. Amortization Payment

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

10. Entry Age Normal Actuarial Cost Method

A method under which the Actuarial Present Value of the Projected Benefits of each individual included in an Actuarial Valuation is allocated on a level basis over the earnings of the individual between entry age and assumed exit ages.

11. 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.