CHEIRON *Classic Values, Innovative Advice*

Public Employees' Retirement System of the State of Montana

Actuarial Valuation as of June 30, 2015

Produced by Cheiron

November 2015

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November 10, 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 Public Employees' Retirement System Defined Benefit Retirement Plan (DBRP) 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 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 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 Public Employees' Retirement System 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 Public Employees' Retirement System 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 sufficiency of the statutory contribution rate** paid by the employers for Fiscal Year 2015 to meet the requirements of an actuarial rate calculated as the normal cost, administrative expense, and a level percent of pay 30-year open amortization of the unfunded actuarial liability; 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 employer contribution rate 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 period to amortize unfunded actuarial liability decreased from 29.3 years at the June 30, 2014 valuation to 27.2 years as of June 30, 2015. During the year ended June 30, 2015, the System's assets gained 4.60% 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 9.63%. This return was above the assumed rate of return of 7.75% and resulted in an actuarial gain on investments of $85 million.

The System experienced an actuarial loss on system liabilities resulting from salary increases different than assumed and members retiring, terminating, becoming disabled, and dying at rates different from the actuarial assumptions. The loss added $11.4 million to the expected 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.

As of the June 30, 2015 Actuarial Valuation, the System's unfunded actuarial liability was $1.54 billion. This is a decrease from last year's unfunded actuarial liability of $1.58 billion. The funded ratio increased from 74% at the prior valuation to 76% 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 $135 million greater than actuarial value. If the market value were used rather than the actuarial value, the funded ratio on the valuation date would be 78%, and the amortization period for the unfunded actuarial liability would be 23.5 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 (DCRP) or the Montana University System Retirement Plan (MUS-RP). The calculations show that the amortization of the PCR UAL is 0.6 years, which is within the acceptable range.

GASB Statement No. 67 became effective for the plan year ending June 30, 2014. GASB Statement No. 68 became effective for the employers' Fiscal Years after ending June 15, 2015. Actuarial information related to required disclosures under GASB 67 and GASB 68 will be provided in a separate report.

House Bill 454 (HB 454), which was enacted during the 2013 legislative session, made changes to the Public Employees' Retirement System (PERS) with respect to enhanced funding and reductions in levels of the Guaranteed Annual Benefit Adjustment (GABA). However, the GABA provisions of this bill have been overturned by the Montana Courts. Both the June 30, 2014 and June 30, 2015 valuations have reflected GABA provisions as they existed prior to enactment of HB 454 for members hired prior to July 1, 2013.

SECTION I
BOARD SUMMARY

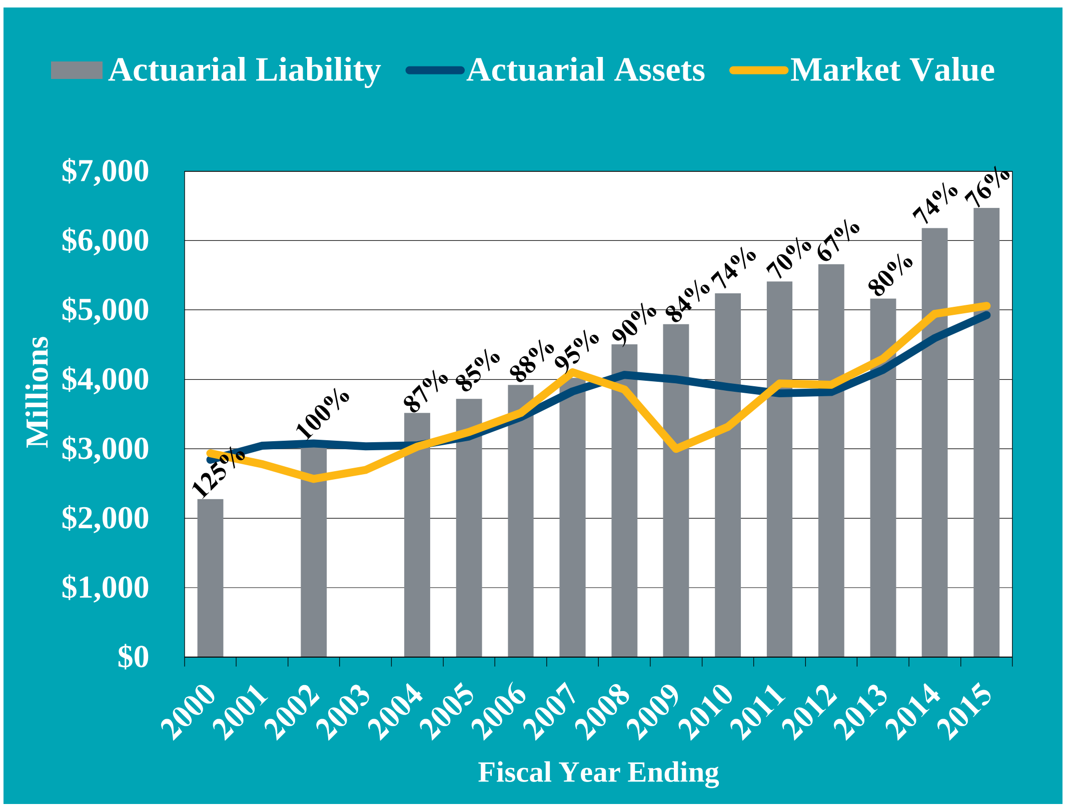
Trends

<u>Assets and Liabilities</u>

The market value of assets (MVA) increased over last year, returning 4.60% 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 7.5% 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. In 2013, the gray bar dropped due to full recognition of HB 454. Then, in 2014, the gray bar jumps up due to a preliminary injunction on the GABA provisions of HB 454. Since 2014, a court ruling has overturned the GABA provisions of 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.



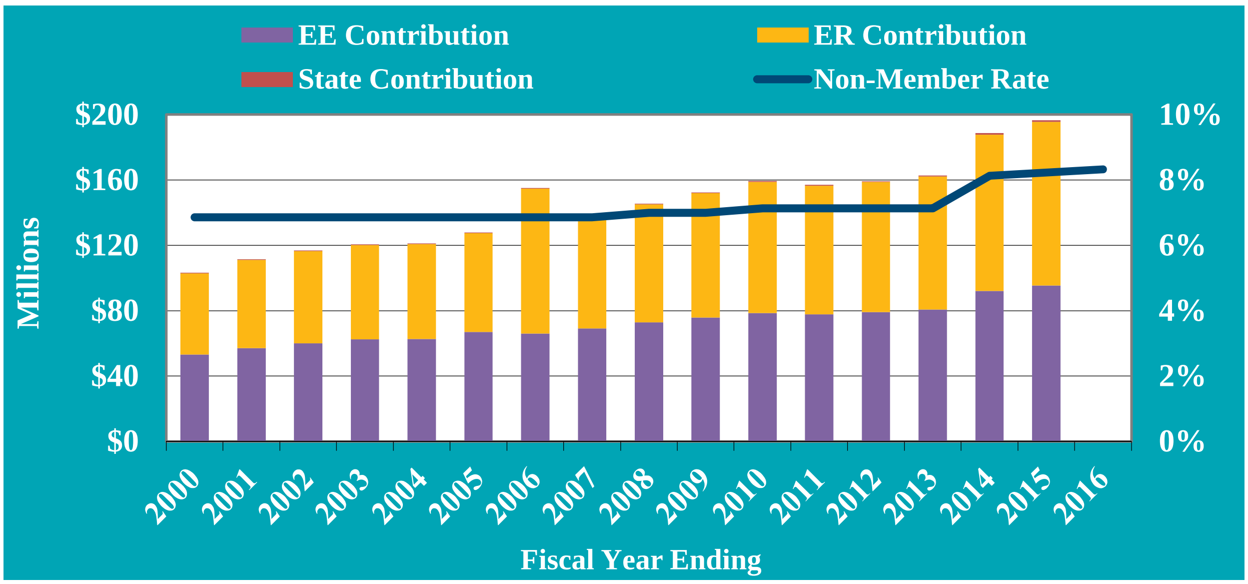
SECTION I
BOARD SUMMARY

Contribution Rates

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

The employer, member, and State contribution rates are set by State law. In 2013, HB 454 set annual increases to those contributions, which will sunset once the plan reaches certain financial measures. The actuarial valuation determines the extent to which the statutory contributions will meet the requirements of funding the System. Please see Appendix C for information pertaining to contribution sunsets.

Beginning with the Fiscal Year ended 2014, contributions to the System are also made from the State's Coal Tax fund. These contributions are not included in the graph below.

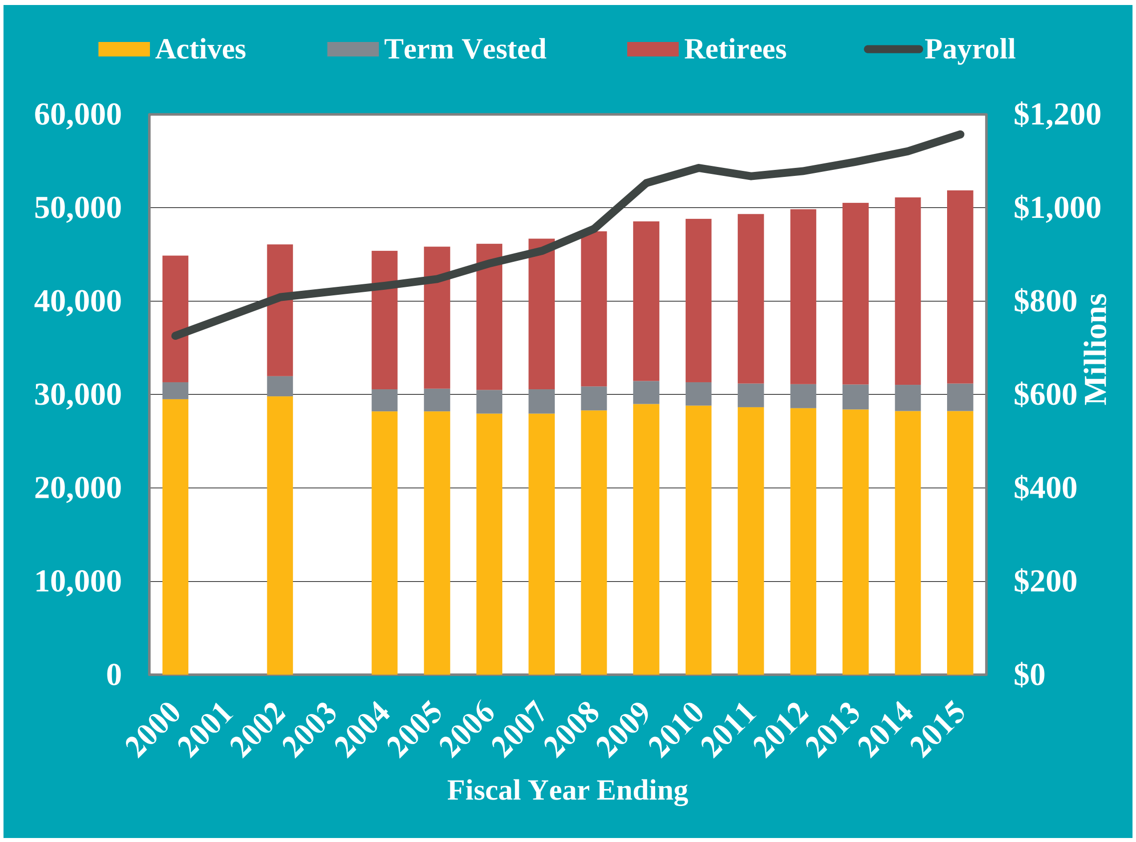


SECTION I
BOARD SUMMARY

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 1.2 actives for each inactive today.

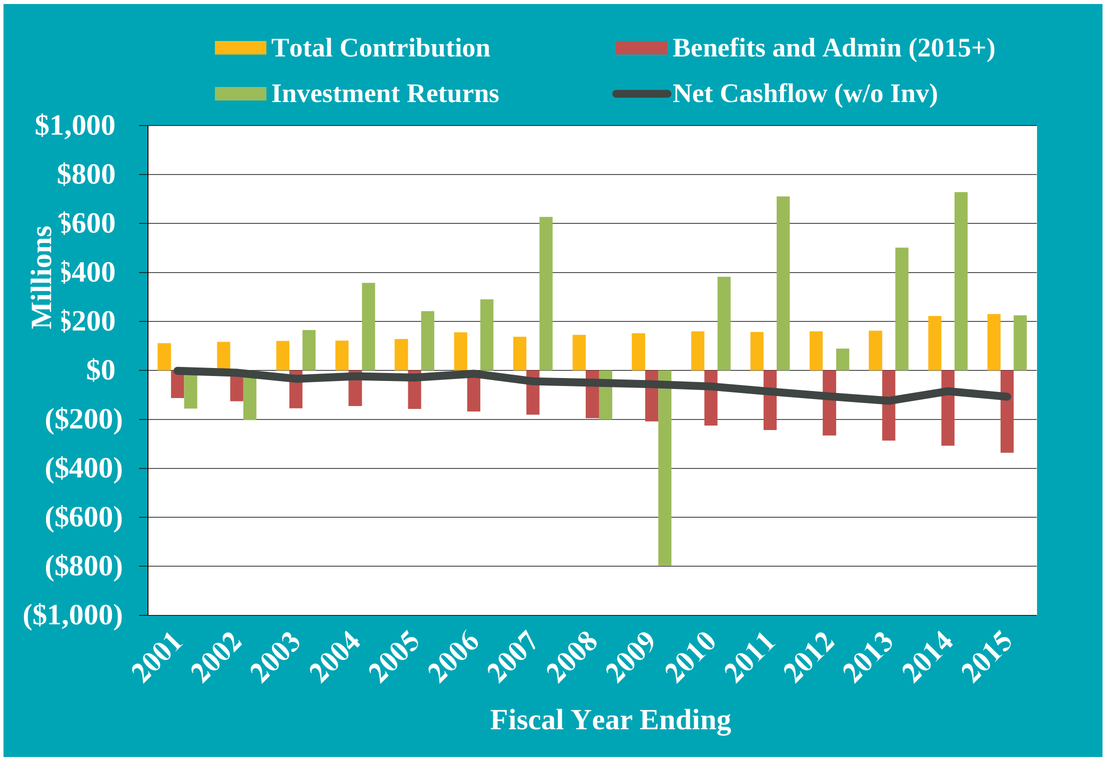
The black line shows the covered payroll in the System and is read using the right-hand scale.



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).



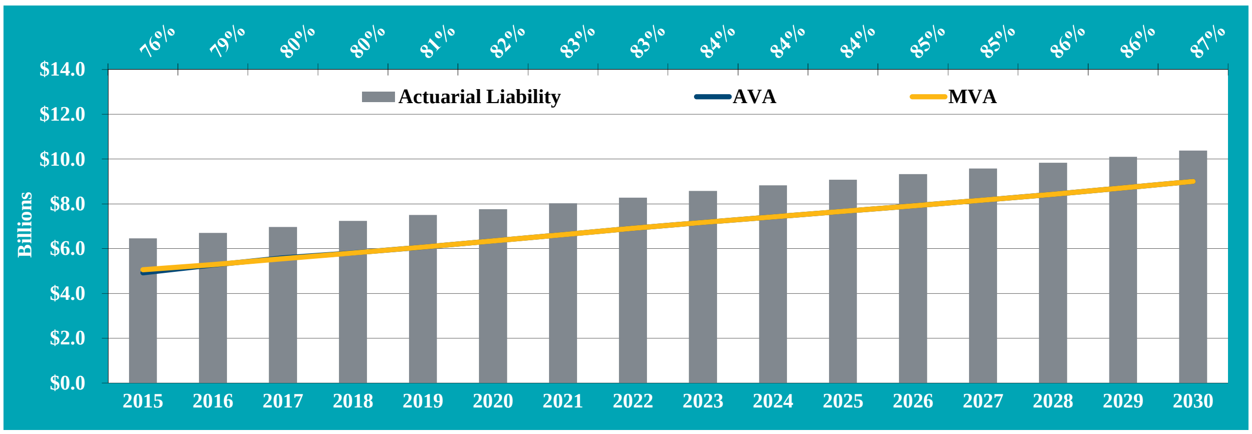
SECTION I
BOARD SUMMARY

Future Outlook

<u>Baseline Projections</u>

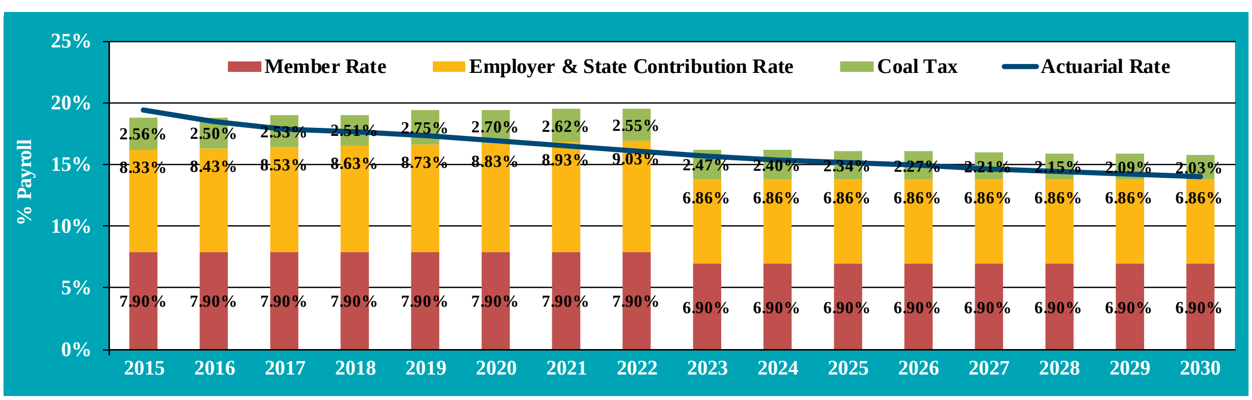
These graphs show the expected progress of the System over the next 15 years assuming the System's assets earn 7.75% on their *market value*, and that contributions continue to be made at the current statutory rates.

The chart below shows that the funded status of the System is expected to gradually increase over the 15-year period, eventually reaching a funded ratio of 87% by the end of the period.



The chart below shows the total contribution (Member, Employer, State, and Coal Tax) computed based on a 25-year amortization of the unfunded actuarial liability. The Member rate is expected to remain at 7.9% for the first eight years then drop to 6.9%. The Employer and State rate is expected to increase in the first eight years, after which time the temporary contributions are projected to cease, dropping the Employer and State rate down to 6.86%. Coal tax contributions are projected at the levels shown using information provided by the Governor's Office of Budget and Program Planning.

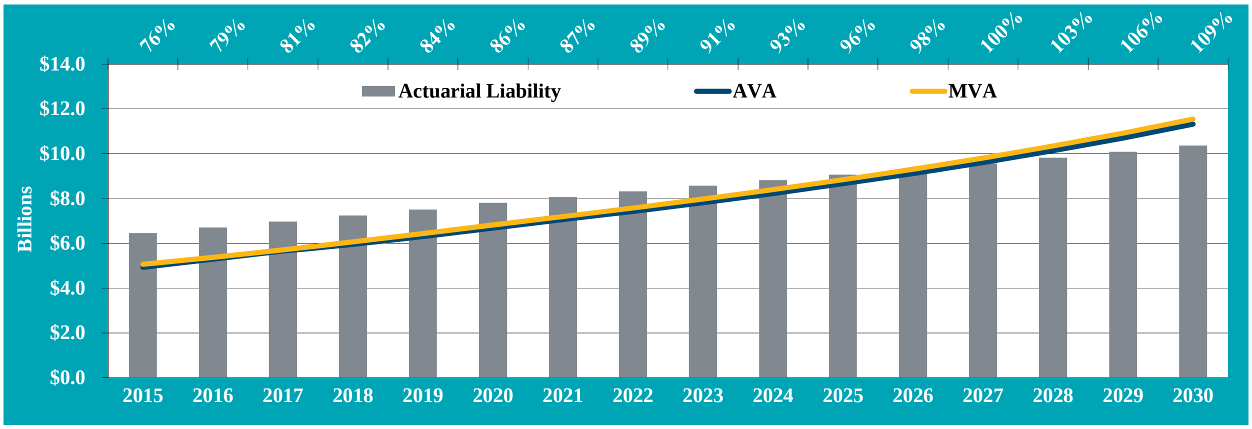
These amounts are compared to an Actuarial Rate, which is calculated as the normal cost, administrative expense, and a level percent of pay 25-year open amortization of the unfunded actuarial liability. The Actuarial Rate is expected to decline over the projection period.



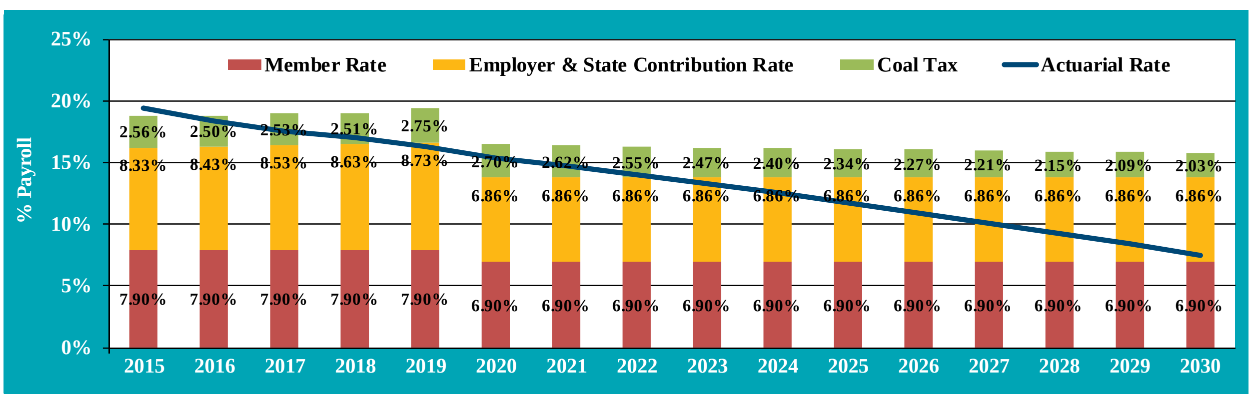
SECTION I
BOARD SUMMARY

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).



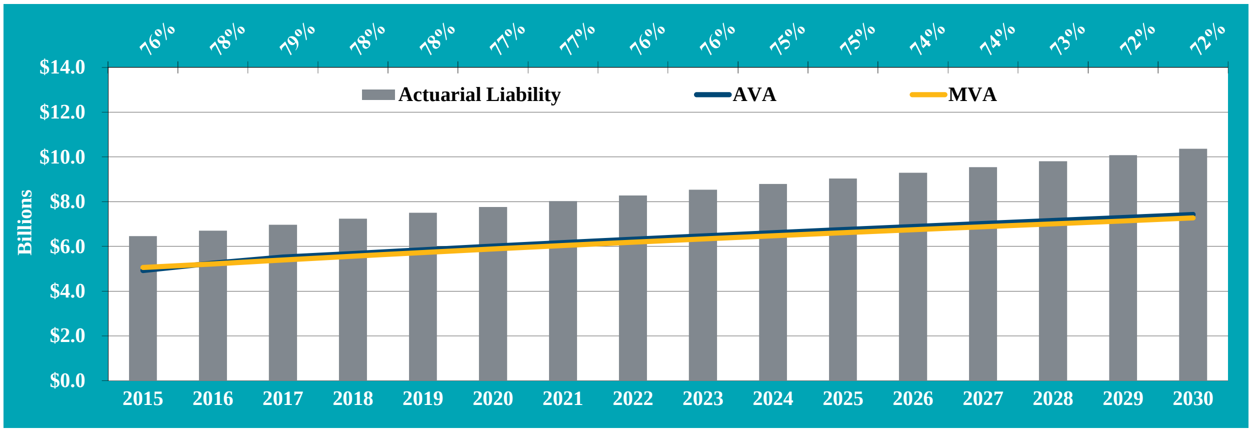
Compared to the baseline projections, the funded status improves more rapidly over the 15-year period, and the Actuarial Rate decreases quicker, with the Employer and State portion dropping close to zero by the end of the projection period. The temporary Member and Employer contributions are expected to conclude three years earlier in 2020.



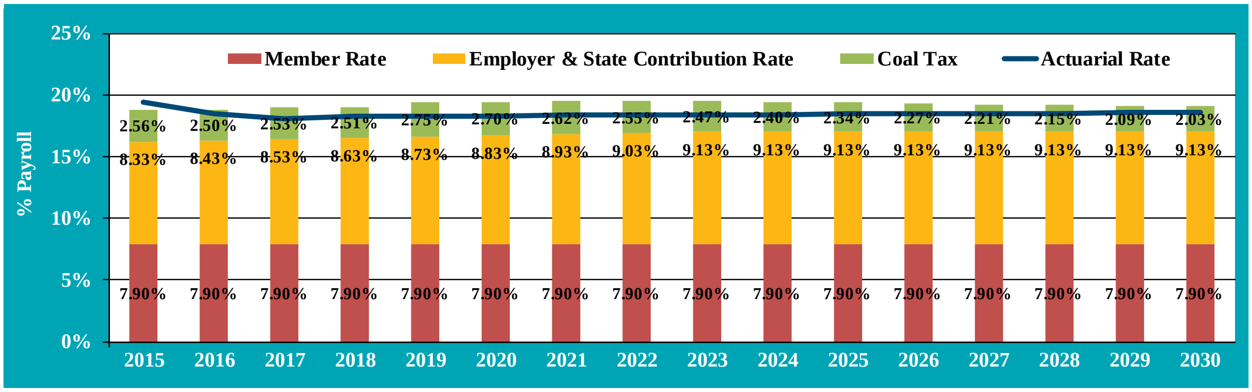
SECTION I
BOARD SUMMARY

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 Actuarial Rate initially drops and then increases, almost reaching the statutory rate by the end of the 15-year period. The temporary Member and Employer contributions are in effect throughout the entire period under this scenario.



SECTION I
BOARD SUMMARY

Table I-1
Montana Public Employees' Retirement System
Summary of Principal System Results

Valuation as of:	June 30, 2014	June 30, 2015	% Change
Participant Counts – DBRP Only			
Active Members	28,229	28,237	0.0%
Disabled Members*	193	176	(8.8%)
Retirees and Beneficiaries*	19,888	20,505	3.1%
Terminated Vested Members	2,825	2,925	3.5%
Terminated Non-Vested Members	7,666	8,839	15.3%
Total**	58,801	60,682	3.2%
Annual Salaries of Active Members	$ 1,120,939,764	$ 1,156,855,431	3.2%
Average Annual Salary	$ 39,709	$ 40,969	3.2%
Annual Retirement Allowances for Retired Members and Beneficiaries	$ 302,758,499	$ 326,390,329	7.8%
Assets and Liabilities			
Actuarial Liability (AL)	$ 6,177,504,549	$ 6,470,303,179	4.7%
Actuarial Value of Assets (AVA)	4,595,805,330	4,926,515,810	7.2%
Unfunded AL (AVA-AL)	$ 1,581,699,219	$ 1,543,787,369	(2.4%)
Less: PCR-UAL	5,903,188	2,589,223	(56.1%)
Net Unfunded AL	$ 1,575,796,031	$ 1,541,198,146	(2.2%)
Funded Ratio (AVA/AL)	74.4%	76.1%	
Present Value of Accrued Benefits (PVAB)	$ 5,443,192,447	$ 5,717,777,056	5.0%
Market Value of Assets	4,942,769,917	5,061,058,221	2.4%
Unfunded PVAB	$ 500,422,530	$ 656,718,835	31.2%
Accrued Benefit Funding Ratio	90.8%	88.5%	
Ratio of Actuarial Value to Market Value	93.0%	97.3%	
Contributions as a Percentage of Payroll			
Statutory Funding Rate	19.36%	18.83%	
Less: Transfer to DB Educational Fund	0.04%	0.04%	
Net Statutory Funding Rate	19.32%	18.79%	
Normal Cost Rate	11.63%	11.18%	
Administrative Expense	0.27%	0.27%	
Available for Amortization of UAL	7.42%	7.34%	
Period to Amortize	29.3 years	27.2 years	
Projected 30-year Level Funding Rate	19.27%	18.43%	
Projected Shortfall (Surplus)	(0.09%)	(0.40%)	

* Based on PERB categorization for the annual report. For actuarial valuation purposes, 742 members in 2014 and 738 members in 2015 were valued as disabled members with offsetting reductions to the number of retired members.

** The total number of members processed in the 2015 valuation was 60,663 compared to 60,682 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, 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.

SECTION II
ASSETS

Table II-1 Changes in Market Values		
Value of Assets – June 30, 2014		**$ 4,942,769,917**
Additions		
Member Contributions	$ 95,424,031	
Employer Contributions	100,175,777	
Non-Employer Contributions	34,466,798	
Investment Return	225,106,692	
Other	0	
Total Additions	**$ 455,173,298**	
Deductions		
Benefit Payments	$ 333,401,463	
Administrative Expenses	3,483,531	
Total Deductions	**$ 336,884,994**	
Value of Assets – June 30, 2015		**$ 5,061,058,221**

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	$ 4,942,769,917
Total Contributions	$ 230,066,606
Benefit Payments	(333,401,463)
Administrative Expense	(3,483,531)
Expected Return at 7.75%	379,002,688
Expected Value at June 30, 2015	$ 5,214,954,217
Actual Value at June 30, 2015	$ 5,061,058,221
Investment Gain/(Loss)	$ (153,895,996)

Table II-3
Develop Excluded Gain/(Loss)

	Total Gain/(Loss)	Excluded Portion
Exclude 75% of 2015 Gain/(Loss)	$ (153,895,996)	$ (115,421,997)
Exclude 50% of 2014 Gain/(Loss)	$ 398,802,269	$ 199,401,134
Exclude 25% of 2013 Gain/(Loss)	$ 202,253,096	$ 50,563,274
Total Excluded Gain/(Loss) for AVA Calculation		$ 134,542,411

Table II-4
Actuarial Value of Assets

Market Value of Assets – June 30, 2015	$ 5,061,058,221
Total Gain/(Loss) excluded	134,542,411
Actuarial Value of Assets – June 30, 2015	$ 4,926,515,810

SECTION II
ASSETS

Investment Performance

The market value of assets (MVA) returned 4.60% during the Fiscal Year ended 2015, which is less than the assumed 7.75% return. A return of 9.63% 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%
2014	17.12%	13.21%
2015	4.60%	9.63%

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	$ 384,535	$ 3,310	$ 230,364	$ (157,481)	$ 386,346	$ 228,865
2016	385,948	3,442	239,994	(149,396)	404,496	255,100
2017	411,242	3,580	251,335	(163,487)	423,731	260,244
2018	437,159	3,723	262,466	(178,416)	443,332	264,916
2019	462,781	3,872	277,927	(188,726)	463,471	274,745
2020	489,462	4,027	289,761	(203,728)	484,193	280,465
2021	517,887	4,188	301,699	(220,376)	505,296	284,920
2022	545,235	4,355	288,603	(260,987)	525,338	264,351
2023	571,387	4,529	272,341	(303,575)	544,701	241,126
2024	596,408	4,711	282,012	(319,107)	562,797	243,690

* Expected contributions include Member, Employer, State, 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, 2015. 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 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;
- Development of actuarial unfunded liability on a market value basis as required under MCA 19-2-407; and
- Development of the Plan Choice Rate unfunded liability and rate.

Disclosure

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

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

SECTION III
LIABILITIES

Table III-1 Liabilities/Net (Surplus)/Unfunded	June 30, 2014	June 30, 2015
Present Value of Benefits		
Active Participant Benefits	$ 3,492,967,105	$ 3,529,100,217
Retiree and Inactive Benefits	3,629,769,037	3,880,797,329
Present Value of Benefits (PVB)	**$ 7,122,736,142**	**$ 7,409,897,546**
Market Value of Assets (MVA)	$ 4,942,769,917	$ 5,061,058,221
Future Member Contributions	672,693,899	665,661,262
Future Non-Member Contributions *	963,626,491	944,878,149
Funding Shortfall/(Surplus)	543,645,835	738,299,914
Total Resources	**$ 7,122,736,142**	**$ 7,409,897,546**
Actuarial Liability		
Present Value of Benefits (PVB)	$ 7,122,736,142	$ 7,409,897,546
Present Value of Future Normal Costs (PVFNC)	945,231,593	939,594,367
Actuarial Liability (AL=PVB–PVFNC)	**6,177,504,549**	**6,470,303,179**
Actuarial Value of Assets (AVA)	4,595,805,330	4,926,515,810
Net (Surplus)/Unfunded (AL – AVA)	**$ 1,581,699,219**	**$ 1,543,787,369**
Present Value of Accrued Benefits		
Present Value of Benefits (PVB)	$ 7,122,736,142	$ 7,409,897,546
Present Value of Future Benefit Accruals (PVFBA)	1,679,543,695	1,692,120,490
Present Value of Accrued Benefits (PVAB=PVB–PVFBA)	**$ 5,443,192,447**	**$ 5,717,777,056**
Market Value of Assets (MVA)	$ 4,942,769,917	$ 5,061,058,221
Net Unfunded (PVAB – MVA)	**$ 500,422,530**	**$ 656,718,835**

* Includes Employer, State, 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 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:

- 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	$ 7,122,736,142	$ 6,177,504,549	$ 5,443,192,447
Liabilities June 30, 2015	$ 7,409,897,546	$ 6,470,303,179	$ 5,717,777,056
Liability Increase (Decrease)	$ 287,161,404	$ 292,798,630	$ 274,584,609
Change Due to:			
Actuarial (Gain)/Loss	NC*	$ 11,372,912	NC*
Plan Changes	$ 0	0	$ 0
Benefits Accumulated and Other Sources	287,161,404	281,425,718	274,584,609

* NC = not calculated.

SECTION III
LIABILITIES

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

Actuarial Liability as of June 30, 2014	$	6,177,504,549
Normal Cost		138,049,956
Actual Benefit Payments		(333,401,463)
Interest		476,777,225
Expected Actuarial Liability as of June 30, 2015	$	6,458,930,267
Actuarial Liability as of June 30, 2015	$	6,470,303,179
Liability (Gain)/Loss	$	11,372,912
Sources of Liability (Gain)/Loss		
Salary (Gain)/Loss	$	(1,329,746)
New Participant (Gain)/Loss		9,065,275
Active Retirements (Gain)/Loss		4,415,428
Active Terminations (Gain)/Loss		(2,611,993)
Active Deaths (Gain)/Loss		945,579
Active Disability (Gain)/Loss		(1,278,669)
Inactive Mortality (Gain)/Loss		7,161,985
Other (Gain)/Loss		(4,994,947)
Actuarial Liability as of June 30, 2015	$	6,470,303,179
Liability (Gain)/Loss due to plan changes	$	0
Actuarial Value of Assets as of June 30, 2014	$	4,595,805,330
Net Cash Flow		(106,818,388)
Expected Earnings		352,112,933
Expected Actuarial Value of Assets as of June 30, 2015	$	4,841,099,875
Actuarial Value of Assets as of June 30, 2015	$	4,926,515,810
Investment (Gain)/Loss	$	(85,415,935)
Total Liability (Gain)/Loss		11,372,912
Total Actuarial (Gain)/Loss	$	(74,043,023)

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	$ 3,629,769,037	$ 3,880,797,329
Active Member Benefits	2,547,735,512	2,589,505,850
Total Actuarial Liability	**$ 6,177,504,549**	**$ 6,470,303,179**
2. Actuarial Value of Assets	$ 4,595,805,330	$ 4,926,515,810
3. Unfunded Actuarial Liability	$ 1,581,699,219	$ 1,543,787,369
4. Funded Ratio	74.4%	76.1%

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	$ 3,629,769,037	$ 3,880,797,329
Active Member Benefits	2,547,735,512	2,589,505,850
Total Actuarial Liability	**$ 6,177,504,549**	**$ 6,470,303,179**
2. Market Value of Assets	$ 4,942,769,917	$ 5,061,058,221
3. Unfunded Actuarial Liability	$ 1,234,734,632	$ 1,409,244,958
4. Funded Ratio	80.0%	78.2%

SECTION III
LIABILITIES

Table III-6 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-6
Plan Choice Rate Unfunded Liability

	June 30, 2015
1. PCR-UAL as of June 30, 2014	$ 5,903,188
2. Assumed Interest at 7.75% per year	457,497
3. Less: PCR Contributions to DBRP reduced by Normal Cost	(3,630,770)
4. Interest at 7.75% on line 3	(140,692)
5. PCR – UAL as of June 30, 2015	$ 2,589,223

Table III-7 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-7
Plan Choice Rate

		June 30, 2015
PCR – Normal Cost Rate		
Normal Cost Rate		
DBRP Members Only		11.18%
Including DCRP and MUS-RP members		11.18%
Difference	(A)	0.00%
Payroll as of June 30, 2015		
DBRP Members Only	(B)	$ 1,101,079,289
DCRP and MUS-RP members	(C)	$ 121,061,611
PCR – Normal Cost Rate	(A) X (B) ÷ (C)	0.00%
PCR – UAL Amortization		
PCR – UAL as of June 30, 2015		$ 2,589,223
PCR Available for Amortization		
Current PCR Amortization Rate		3.84%
Less: PCR – Normal Cost Rate		0.00%
PCR Available for Amortization - 2015		3.84%
Years to Amortize PCR – UAL from June 30, 2015		0.6 years
Maximum Years for Amortization		14.75 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 Normal Actuarial Cost Method**. Under this method, there are three components to the total contribution: the **normal cost rate**, the **unfunded actuarial liability rate** (UAL rate), and the **administrative expense 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 rate 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, in accordance with Board funding policy. However, this rate should not necessarily be construed as a recommended contribution level and this policy will not fully amortize the unfunded actuarial liability. 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.

The assumed administrative expense rate is 0.27% of payroll. This rate, when applied to payroll, is intended to provide an allowance above the cost of funding the benefits to pay for the expense of operating this System.

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, 2014	June 30, 2015
Statutory Funding Rates		
Members	7.90%	7.90%
Employers and State*	8.27%	8.37%
Coal Tax Contributions	3.09%	2.56%
DCRP/MUS-RP Contributions	0.10%	0.00%
Total	19.36%	18.83%
Transfer to Education Fund	0.04%	0.04%
Net Contribution to DBRP	19.32%	18.79%
Normal Cost Rate**	11.63%	11.18%
Administrative Expense	0.27%	0.27%
Funding Rate Available for Amortization	7.42%	7.34%
Unfunded Actuarial Liability (Surplus)	$ 1,581,699,219	$ 1,543,787,369
Less: PCR-UAL	5,903,188	2,589,223
UAL Funded by DBRP	$ 1,575,796,031	$ 1,541,198,146
Years to Amortize***	29.3 years	27.2 years

* 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.

** The normal cost rate is projected to be 9.58% for members eligible after July 1, 2013. It is expected that the average normal cost rate will decrease over the next generation of active plan members.

*** On a market value basis, the Years to Amortize the Unfunded Actuarial Liability were 19.8 at June 30, 2014 and was 23.5 years at June 30, 2015.

SECTION IV
CONTRIBUTIONS

Table IV-2
Calculated Actuarial Contribution Basis

	June 30, 2014	June 30, 2015
Normal Cost Rate	11.63%	11.18%
Educational Fund	0.04%	0.04%
Amortization Payment (30-years)	7.33%	6.94%
Administrative Expense	0.27%	0.27%
Total Calculated Contribution Rate	19.27%	18.43%
Less Statutory Rate	19.36%	18.83%
Shortfall (Surplus) in Statutory Rate	(0.09%)	(0.40%)

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

	June 30, 2014	June 30, 2015
Normal Cost Rate	11.63%	11.18%
Educational Fund	0.04%	0.04%
Amortization Payment (30-years)	5.71%	6.33%
Administrative Expense	0.27%	0.27%
Total Calculated Contribution Rate	17.65%	17.82%
Less Statutory Rate	19.36%	18.83%
Shortfall (Surplus) in Statutory Rate	(1.71%)	(1.01%)

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

Table IV-4 *
Projected Actuarial Contribution Rates

Valuation Year	Rate
2016	18.42%
2017	17.79%
2018	17.63%
2019	17.27%
2020	16.89%

* Based on a 25 year amortization of the unfunded actuarial liability

SECTION IV
CONTRIBUTIONS

Under MCA 19-3-1605 for members hired on or after July 1, 2013, 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% for members hired on or after July 1, 2013 and future employee contributions will remain level at 7.9% for all members. The calculation as of June 30, 2015 is shown in the table below:

Table IV-5
Actuarial Funded Ratio for GABA Determination
(Members hired on or after July 1, 2013)

			June 30, 2015
1.	Actuarial Liabilities		
	Retiree and Inactive Benefits	$	3,880,797,329
	Active Member Benefits		2,576,677,754
	Total Actuarial Liability	**$**	**6,457,475,083**
2.	Actuarial Value of Assets	$	4,926,515,810
3.	Unfunded Actuarial Liability	$	1,530,959,273
4.	Funded Ratio		76.3%

MCA 19-3-1605 provides that for each full 2% that the rounded funded ratio is less than 90%, the GABA must be reduced by 0.1%. Therefore, the funded ratio determined above is considered 76% and causes a reduction in the GABA rate as of January 1, 2016 from 1.5% to 0.8% for members hired on or after July 1, 2013.

MCA 19-3-1605 also provides that if the amortization period is 40 years or greater than, the GABA must be set at 0%. This calculation as shown below is completed under the same basis as Table IV-5 above (assuming that all future GABAs will be 1.5% for members hired on or after July 1, 2013 and future employee contributions will remain level at 7.9% for all members):

Table IV-6
Amortization Period for GABA Determination
(Members hired on or after July 1, 2013)

	June 30, 2015
Net Contribution to DBRP	18.79%
Normal Cost Rate	11.41%
Administrative Expense	0.27%
Funding Rate Available for Amortization	7.11%
Years to Amortize	28.3 years

SECTION IV
CONTRIBUTIONS

Since the amortization period in Table IV-6 is less than 40 years, the GABA as of January 1, 2016 for members hired on or after July 1, 2013 will not be automatically set at 0%, but will be determined based upon Table IV-5.

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 is below 25 years. This calculation is shown below is completed under the same basis as Tables IV-5 and IV-6 above (assuming that all future GABAs will be 1.5% for members hired on or after July 1, 2013 and future employee contributions will remain level at 7.9% for all members):

Table IV-7
Amortization Period Without Temporary Contributions

	June 30, 2015
Net Contribution to DBRP	16.32%
Normal Cost Rate	11.41%
Administrative Expense	0.27%
Funding Rate Available for Amortization	4.64%
Years to Amortize	99.1 years

Since the amortization period in Table IV-7 exceeds 25 years, there will be no reduction in member or employer contribution rates as of January 1, 2016.

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	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, amortization of the unfunded actuarial liability, and an allowance for administrative expenses. 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. The allowance for administrative expenses is based upon the System's recent history of administrative expenses.

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

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

Type of Activity	2010	2011	2012	2013	2014	2015
Investment Income on Actuarial Assets	$(364,392)	$(301,247)	$(167,747)	$ 155,958	$ 223,502	$ 85,416
Combined Liability Experience	(10,001)	90,607	30,578	16,760	11,276	(11,373)
(Loss)/Gain During Year from Financial Experience	$ (374,393)	$(210,640)	$(137,169)	$ 172,718	$ 234,778	$ 74,043
Non-Recurring Items	(156,543)	35,686	0	755,248	(810,722)	0
Composite Gain (or Loss) During Year	$ (530,936)	$(174,954)	$(137,169)	$ 927,966	$(575,944)	$ 74,043

Table V-3
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
2015	$ 4,926,516	$ 6,470,303	76 %	$ 1,543,787	$ 1,154,867	134 %
2014	4,595,805	6,177,505	74 %	1,581,700	1,129,109	140 %
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 %

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	$ 841,907	$ 3,687,451	$ 1,940,945	$ 4,926,516	100 %	100 %	20 %
2014	838,145	3,436,212	1,903,147	4,595,805	100 %	100 %	17 %
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 %

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	28,237	738	19,924	2,925	8,839	60,663
Disabled members having attained normal retirement age		(562)	562			0
Beneficiaries of Disabled Members						0
Beneficiaries with less than one year of certain payments remaining			19			19
Other Adjustments	0			0	0	0
Participant counts shown in Annual Financial Report	28,237	176	20,505	2,925	8,839	60,682

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.

APPENDIX A
MEMBERSHIP INFORMATION – DBRP ONLY

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

Status Reconciliation	Active	Retired	Vested	Non Vested	Disabled	Survivor	Total
Members on July 1, 2014	28,229	17,073	2,825	7,666	742	2,246	58,781
New Hires	4,891	0	0	0	0	0	4,891
Rehires	342	(10)	(84)	(248)	0	0	0
Retired	(968)	1,159	(174)	(10)	0	(1)	6
Terminated Vested	(498)	0	508	(4)	0	0	6
Terminated Non Vested	(2,012)	0	(6)	2,018	0	0	0
Active Deaths	(5)	0	0	0	0	0	(5)
Became Disabled	(21)	0	(12)	0	33	0	0
In Pay Deaths	0	(564)	0	0	(37)	(150)	(751)
Survivors	0	0	(1)	0	0	181	180
Cash Out	(1,721)	0	(131)	(583)	0	(10)	(2,445)
Members on July 1, 2015	28,237	17,658	2,925	8,839	738	2,266	60,663

The salaries used in the tables and charts which follow are different than the salaries used for the Board Summary on page 9. 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 9. For this Appendix A, the valuation projected benefits to be paid for the following fiscal year (including Guaranteed Annual Benefit Adjustment (GABA) where applicable), whereas for the Board Summary, annual benefits are as of the valuation date.

APPENDIX A
MEMBERSHIP INFORMATION – DBRP ONLY

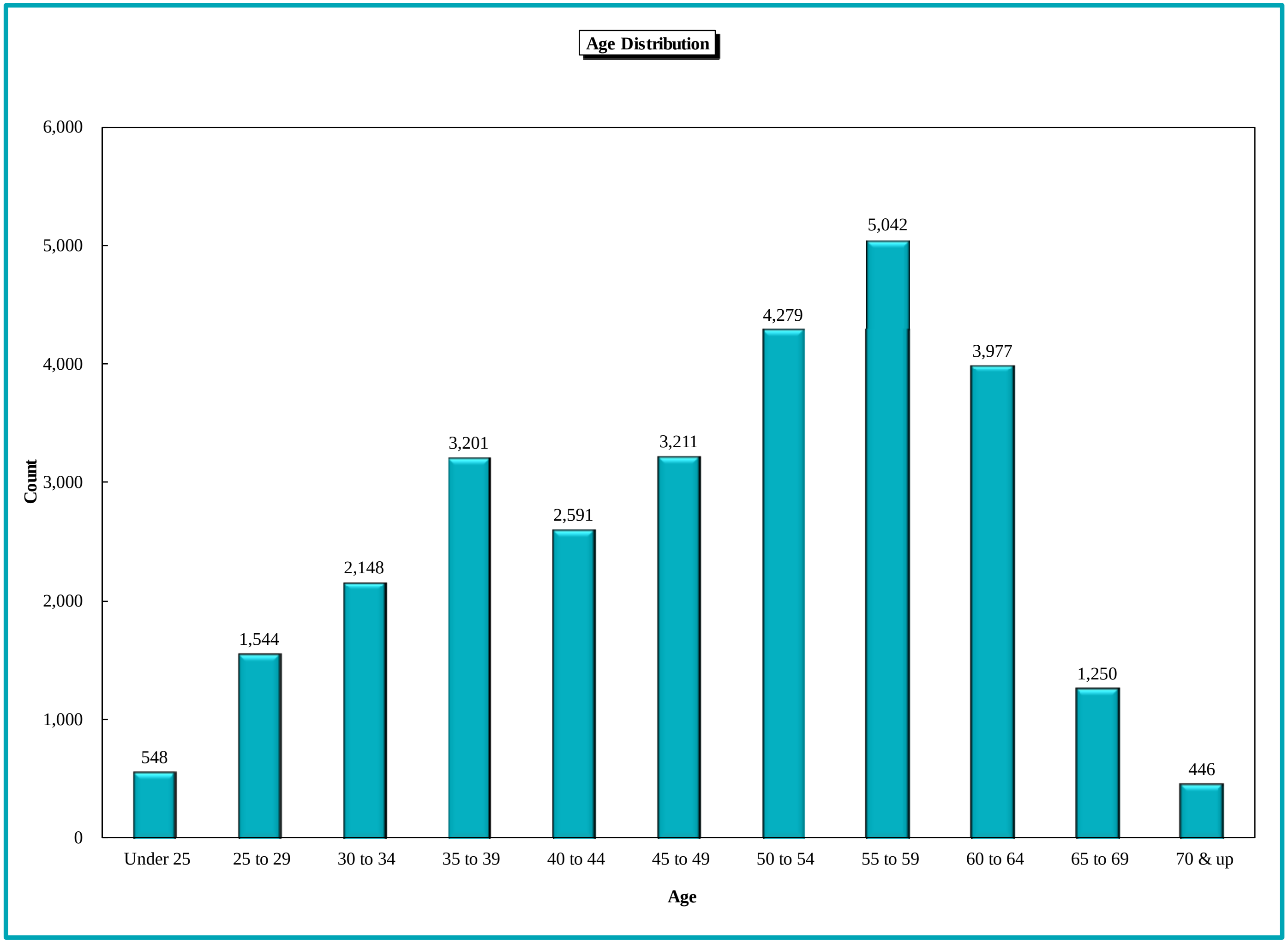
Montana Public Employees' Retirement System Distribution of Active Members by Age and Service as of June 30, 2015

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	333	213	2	0	0	0	0	0	0	0	548
25 to 29	547	868	129	0	0	0	0	0	0	0	1,544
30 to 34	518	1,004	528	98	0	0	0	0	0	0	2,148
35 to 39	1,150	997	642	352	60	0	0	0	0	0	3,201
40 to 44	369	867	601	449	242	63	0	0	0	0	2,591
45 to 49	379	911	703	452	379	296	91	0	0	0	3,211
50 to 54	376	972	871	675	503	421	363	95	3	0	4,279
55 to 59	376	938	886	756	686	560	488	249	100	3	5,042
60 to 64	214	659	691	595	558	463	373	234	138	52	3,977
65 to 69	80	218	262	189	163	130	92	58	29	29	1,250
70 & up	41	119	87	54	60	28	23	21	4	9	446
Total	4,383	7,766	5,402	3,620	2,651	1,961	1,430	657	274	93	28,237

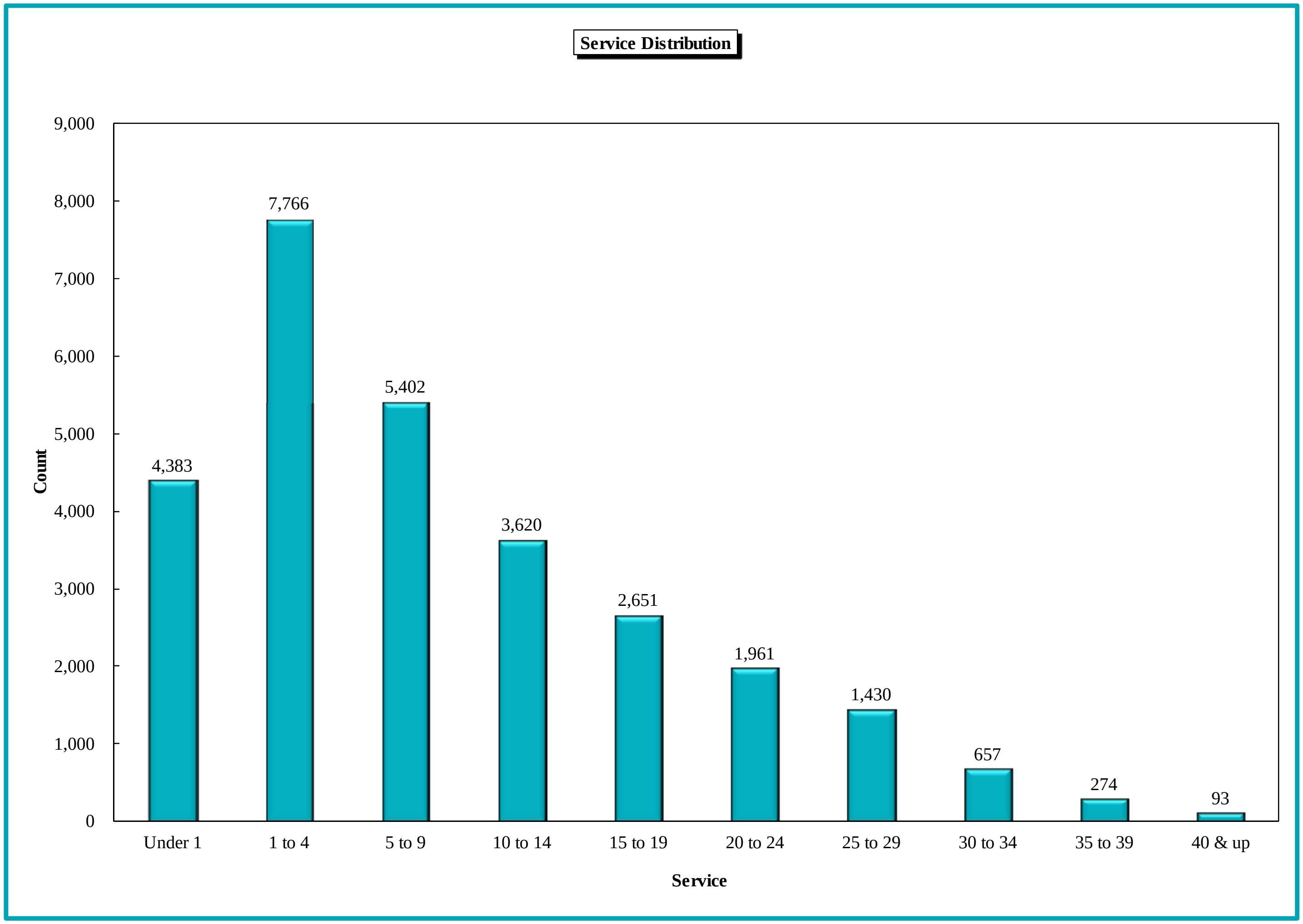
APPENDIX A
MEMBERSHIP INFORMATION – DBRP ONLY

Montana Public Employees' Retirement System Distribution of Active Members by Age as of June 30, 2015



APPENDIX A
MEMBERSHIP INFORMATION – DBRP ONLY

Montana Public Employees' Retirement System Distribution of Active Members by Service as of June 30, 2015



APPENDIX A
MEMBERSHIP INFORMATION – DBRP ONLY

Montana Public Employees' Retirement System Distribution of Active Members by Age and Service as of June 30, 2015

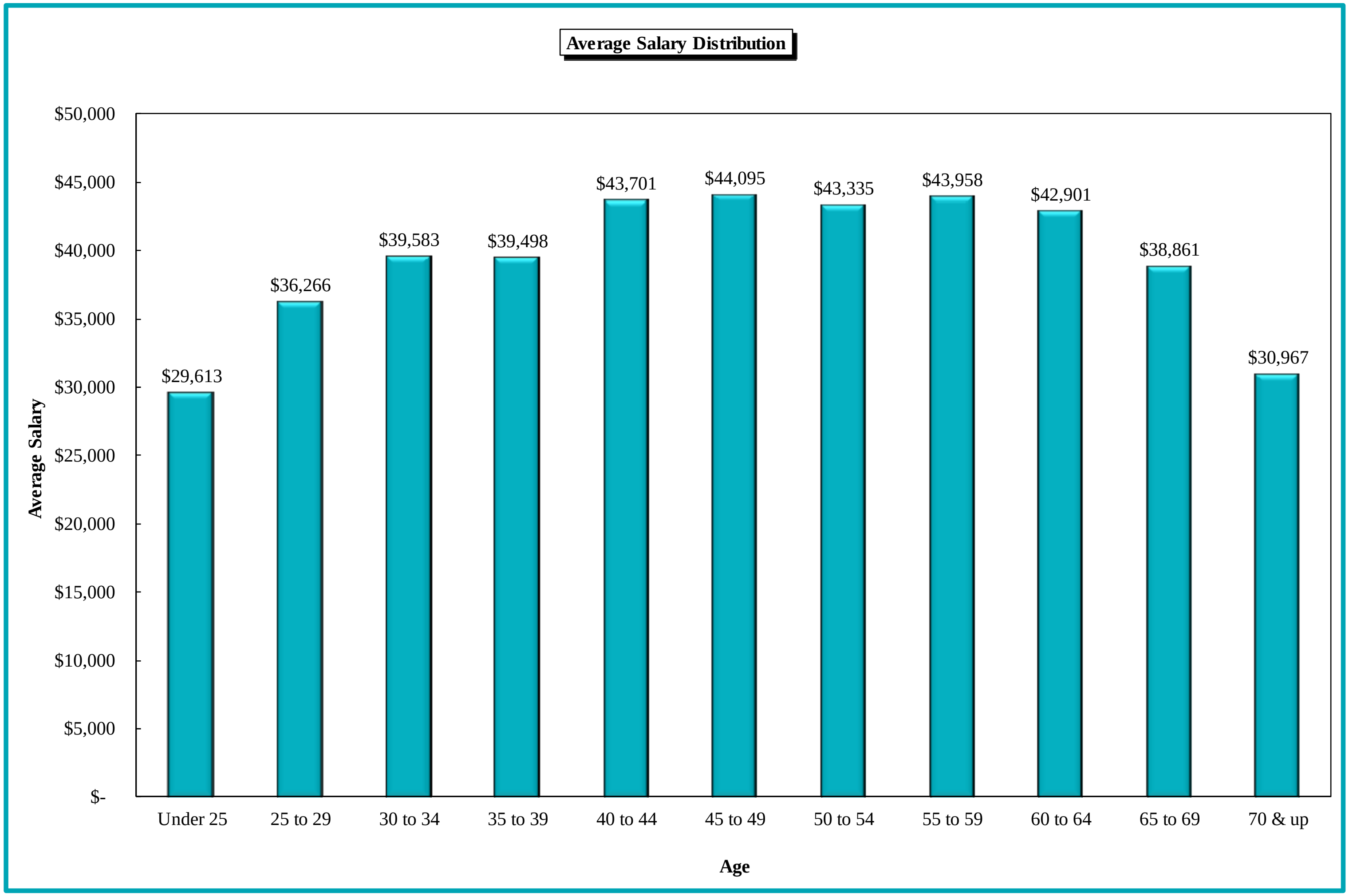
AVERAGE SALARY BY AGE/SERVICE

	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	$ 28,535	$ 31,299	$ 29,714	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 29,613
25 to 29	$ 34,244	$ 36,959	$ 40,172	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 36,266
30 to 34	$ 35,614	$ 38,913	$ 43,650	$ 45,501	$ -	$ -	$ -	$ -	$ -	$ -	$ 39,583
35 to 39	$ 32,407	$ 38,870	$ 45,644	$ 51,252	$ 51,118	$ -	$ -	$ -	$ -	$ -	$ 39,498
40 to 44	$ 34,135	$ 37,314	$ 45,636	$ 51,050	$ 57,794	$ 62,643	$ -	$ -	$ -	$ -	$ 43,701
45 to 49	$ 33,692	$ 36,438	$ 43,050	$ 47,358	$ 54,106	$ 60,991	$ 59,283	$ -	$ -	$ -	$ 44,095
50 to 54	$ 30,917	$ 34,380	$ 39,646	$ 44,329	$ 49,994	$ 56,647	$ 58,322	$ 59,220	$ 48,278	$ -	$ 43,335
55 to 59	$ 32,646	$ 33,286	$ 39,308	$ 42,977	$ 47,688	$ 51,775	$ 58,575	$ 57,457	$ 59,947	$ 76,139	$ 43,958
60 to 64	$ 29,833	$ 30,996	$ 37,223	$ 40,903	$ 44,178	$ 48,641	$ 55,417	$ 60,195	$ 62,117	$ 62,484	$ 42,901
65 to 69	$ 25,645	$ 22,306	$ 35,933	$ 38,364	$ 42,977	$ 47,815	$ 54,630	$ 52,057	$ 61,738	$ 66,897	$ 38,861
70 & up	$ 25,318	$ 20,753	$ 25,849	$ 33,763	$ 40,247	$ 42,880	$ 40,034	$ 43,559	$ 50,054	$ 64,481	$ 30,967
Total	$ 32,555	$ 35,348	$ 41,101	$ 44,931	$ 48,846	$ 53,432	$ 57,180	$ 57,766	$ 60,958	$ 64,494	$ 41,739

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, 2015



APPENDIX A
MEMBERSHIP INFORMATION – DBRP ONLY

Montana Public Employees' Retirement System Distribution of Active Members by Service as of June 30, 2015

APPENDIX A
MEMBERSHIP INFORMATION – DBRP ONLY

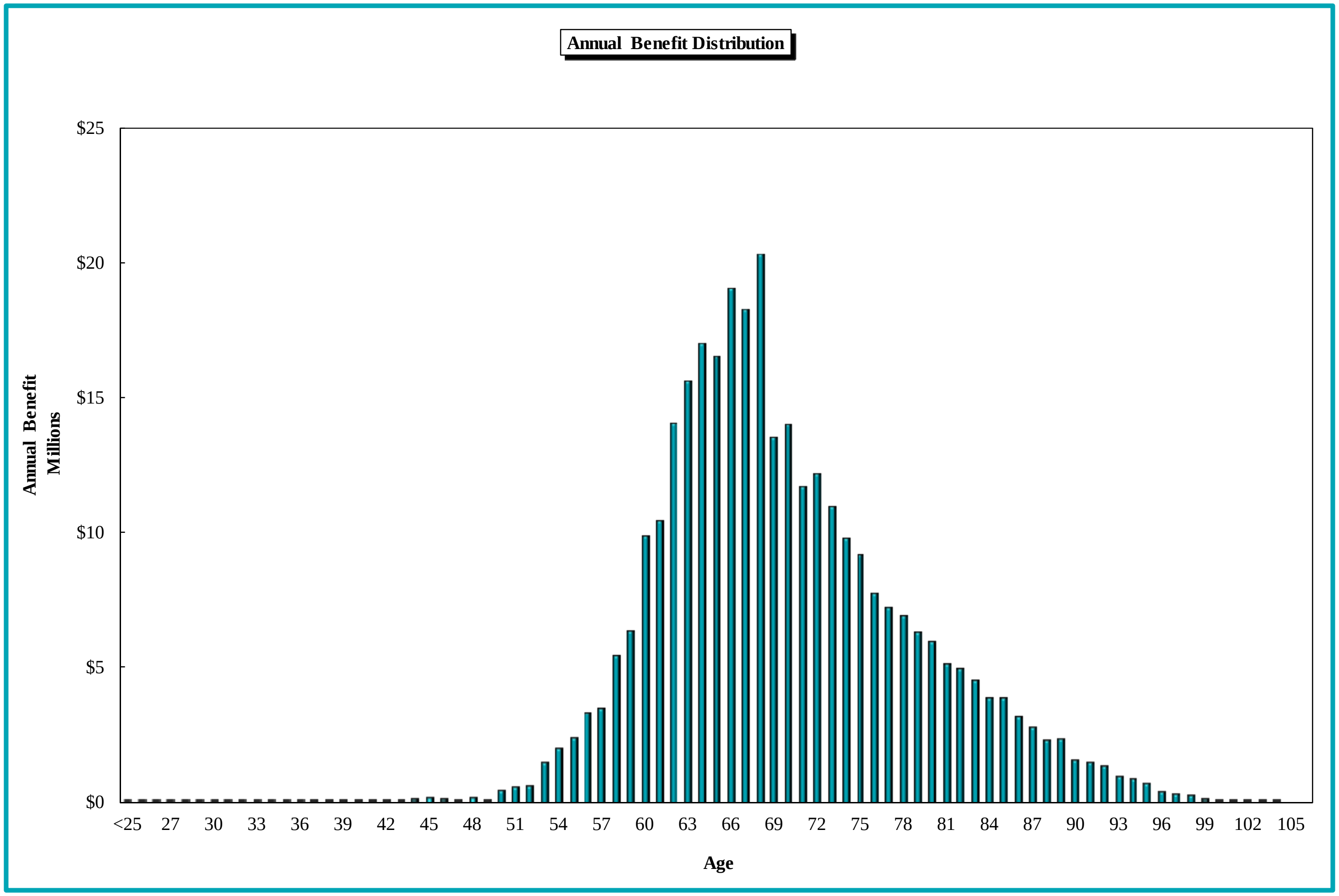
Montana Public Employees' Retirement System Distribution of Retired Members and Survivors as of June 30, 2015

Age	Count	Annual Benefit	Age	Count	Annual Benefit
<25	1	$2,120	73	703	$10,903,953
25	4	$15,828	74	668	$9,744,464
26	3	$22,617	75	641	$9,130,281
27	4	$52,528	76	552	$7,724,688
28	4	$22,619	77	537	$7,202,020
29	4	$19,489	78	494	$6,857,215
30	4	$25,025	79	454	$6,265,475
31	5	$43,995	80	474	$5,935,739
32	4	$16,528	81	428	$5,113,741
33	7	$36,768	82	389	$4,913,957
34	6	$70,559	83	372	$4,494,652
35	2	$6,777	84	340	$3,836,962
36	4	$15,621	85	344	$3,846,877
37	7	$69,891	86	282	$3,140,387
38	5	$29,989	87	262	$2,749,715
39	5	$31,043	88	205	$2,260,225
40	8	$46,364	89	203	$2,280,594
41	4	$38,922	90	160	$1,526,345
42	8	$51,482	91	145	$1,420,680
43	8	$29,337	92	138	$1,291,982
44	10	$97,731	93	102	$935,605
45	11	$129,889	94	83	$848,058
46	10	$107,125	95	74	$659,510
47	6	$35,588	96	44	$363,455
48	11	$140,489	97	25	$267,277
49	9	$63,065	98	26	$243,285
50	20	$420,587	99	12	$106,471
51	30	$537,125	100	3	$30,140
52	33	$593,787	101	7	$47,603
53	70	$1,457,550	102	1	$9,901
54	81	$1,949,752	103	3	$46,268
55	109	$2,343,646	104	1	$6,345
56	153	$3,289,779	105	0	$0
57	173	$3,466,256	106	0	$0
58	220	$5,382,306	107	0	$0
59	281	$6,317,147	108	0	$0
60	439	$9,815,493	109	0	$0
61	512	$10,399,545	110	0	$0
62	664	$14,021,086	111	0	$0
63	785	$15,617,746	112	0	$0
64	849	$16,961,943	113	0	$0
65	920	$16,486,987	114	0	$0
66	1,021	$19,042,768	115	0	$0
67	985	$18,202,623	116	0	$0
68	1,100	$20,336,679	117	0	$0
69	769	$13,492,481	118	0	$0
70	836	$13,955,704	119	0	$0
71	757	$11,683,237	120	0	$0
72	791	$12,145,297			
			Totals	19,924	$323,344,787

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, 2015



APPENDIX A
MEMBERSHIP INFORMATION – DBRP ONLY

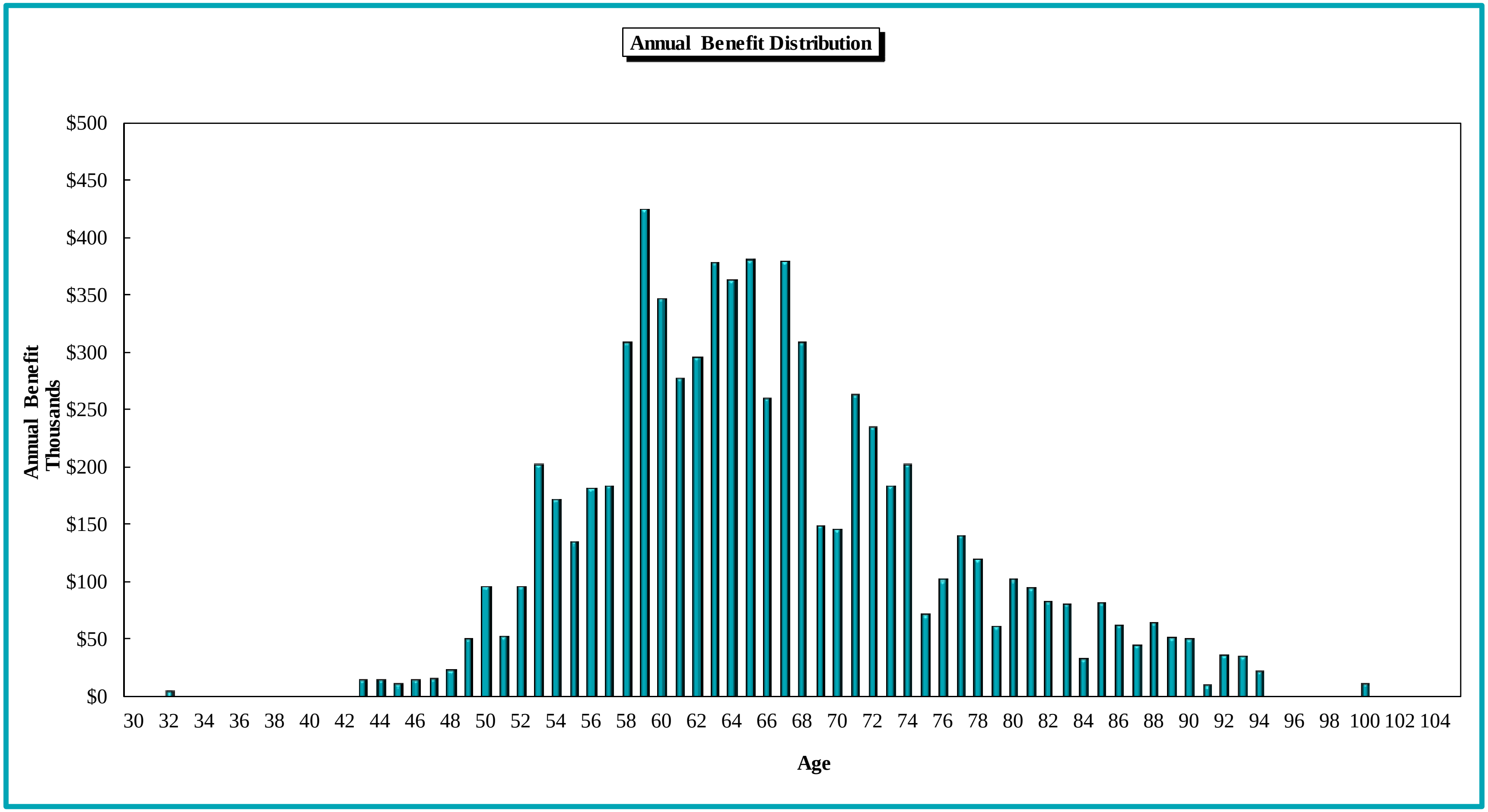
Montana Public Employees' Retirement System Distribution of Disabled Members as of June 30, 2015

Age	Count	Annual Benefit	Age	Count	Annual Benefit
<25	0	$0	73	19	$183,848
25	0	$0	74	21	$201,799
26	0	$0	75	8	$72,114
27	0	$0	76	13	$101,487
28	0	$0	77	17	$140,243
29	0	$0	78	15	$119,590
30	0	$0	79	8	$61,931
31	0	$0	80	11	$102,055
32	1	$5,908	81	12	$95,129
33	0	$0	82	10	$83,115
34	0	$0	83	7	$80,520
35	0	$0	84	5	$33,825
36	0	$0	85	9	$81,239
37	0	$0	86	5	$62,149
38	0	$0	87	5	$44,703
39	0	$0	88	6	$64,503
40	0	$0	89	4	$51,218
41	0	$0	90	5	$50,474
42	0	$0	91	1	$10,161
43	2	$14,383	92	3	$37,111
44	1	$13,905	93	3	$35,862
45	2	$10,678	94	1	$22,055
46	2	$14,059	95	0	$0
47	2	$15,460	96	0	$0
48	2	$22,917	97	0	$0
49	7	$50,580	98	0	$0
50	8	$95,900	99	0	$0
51	6	$52,129	100	1	$10,924
52	10	$96,702	101	0	$0
53	15	$202,285	102	0	$0
54	15	$171,874	103	0	$0
55	14	$134,541	104	0	$0
56	17	$181,971	105	0	$0
57	12	$183,881	106	0	$0
58	25	$309,054	107	0	$0
59	35	$424,890	108	0	$0
60	36	$346,852	109	0	$0
61	28	$277,396	110	0	$0
62	29	$295,452	111	0	$0
63	38	$378,581	112	0	$0
64	32	$362,120	113	0	$0
65	35	$380,814	114	0	$0
66	25	$259,305	115	0	$0
67	34	$378,880	116	0	$0
68	28	$308,384	117	0	$0
69	17	$148,768	118	0	$0
70	18	$145,708	119	0	$0
71	27	$262,729	120	0	$0
72	26	$234,751			
			Totals	738	$7,526,909

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, 2015



APPENDIX A
MEMBERSHIP INFORMATION – DBRP ONLY

Montana Public Employees' Retirement System Distribution of Terminated Vested Members as of June 30, 2015

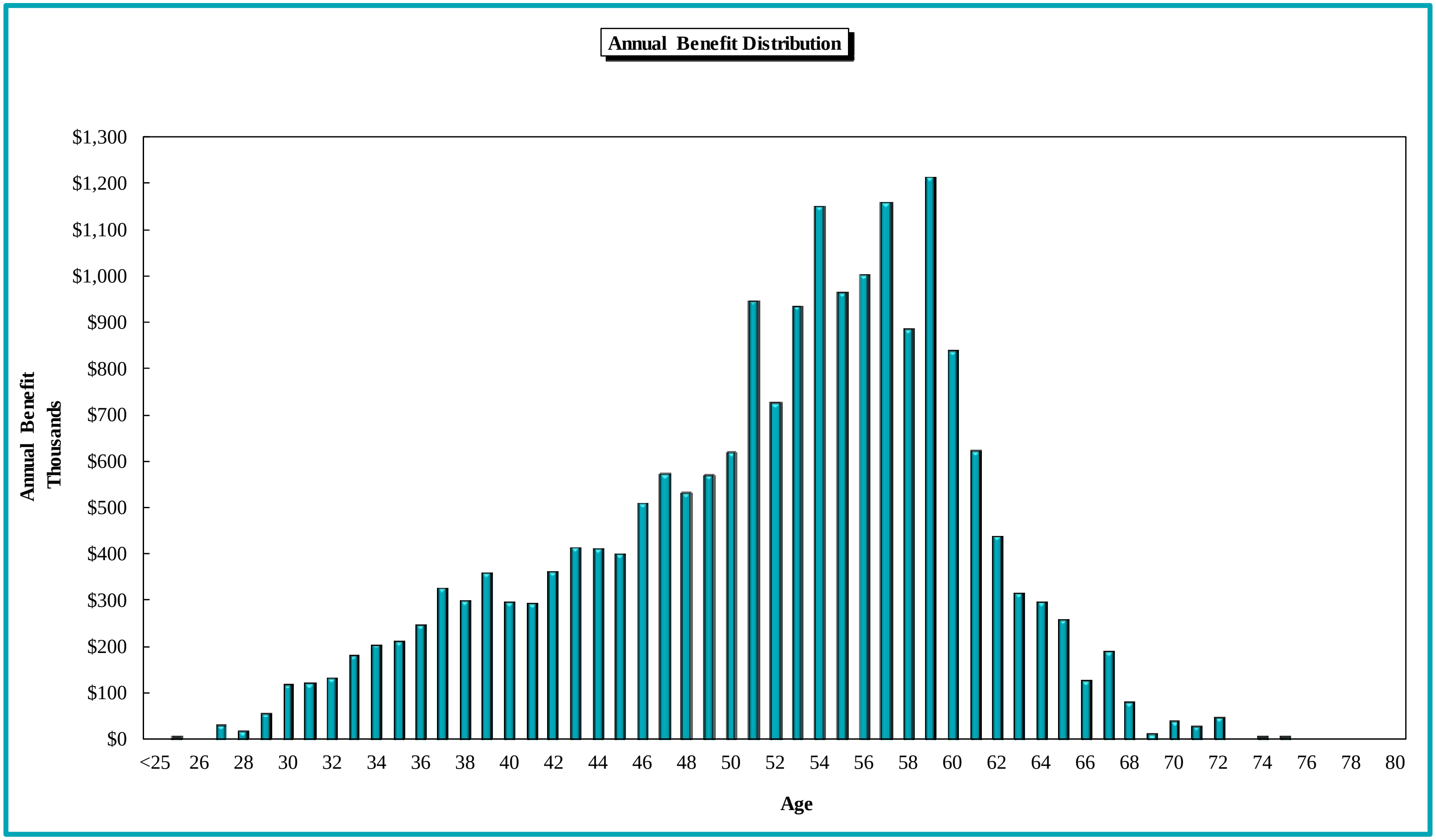
Age	Count	Annual Benefit*	Age	Count	Annual Benefit*
<25	0	$0	73	1	$2,525
25	1	$6,087	74	1	$6,187
26	0	$0	75	2	$5,529
27	5	$31,388	76	0	$0
28	3	$16,710	77	0	$0
29	8	$57,319	78	0	$0
30	16	$120,092	79	0	$0
31	17	$122,454	80	0	$0
32	21	$132,128	81	0	$0
33	29	$179,961	82	0	$0
34	30	$204,851	83	0	$0
35	33	$211,902	84	0	$0
36	37	$246,716	85	0	$0
37	46	$326,432	86	0	$0
38	41	$298,580	87	0	$0
39	48	$361,646	88	0	$0
40	40	$296,125	89	0	$0
41	40	$292,300	90	0	$0
42	52	$363,849	91	0	$0
43	56	$413,410	92	0	$0
44	58	$411,044	93	0	$0
45	59	$400,498	94	0	$0
46	71	$511,516	95	0	$0
47	75	$572,505	96	0	$0
48	85	$532,685	97	0	$0
49	81	$571,452	98	0	$0
50	98	$617,684	99	0	$0
51	129	$946,938	100	0	$0
52	107	$727,210	101	0	$0
53	136	$933,676	102	0	$0
54	157	$1,151,961	103	0	$0
55	152	$965,786	104	0	$0
56	148	$1,003,122	105	0	$0
57	174	$1,160,013	106	0	$0
58	154	$883,453	107	0	$0
59	167	$1,216,133	108	0	$0
60	134	$838,695	109	0	$0
61	112	$620,545	110	0	$0
62	71	$437,607	111	0	$0
63	52	$314,755	112	0	$0
64	52	$297,353	113	0	$0
65	38	$259,720	114	0	$0
66	25	$126,100	115	0	$0
67	27	$187,565	116	0	$0
68	12	$82,097	117	0	$0
69	4	$10,936	118	0	$0
70	7	$38,365	119	0	$0
71	7	$26,259	120	0	$0
72	6	$47,478			
			Totals	2,925	$19,589,340

** 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, 2015



APPENDIX A
MEMBERSHIP INFORMATION – DBRP ONLY

Montana Public Employees' Retirement System Distribution of Terminated Non-Vested Members*
as of June 30, 2015

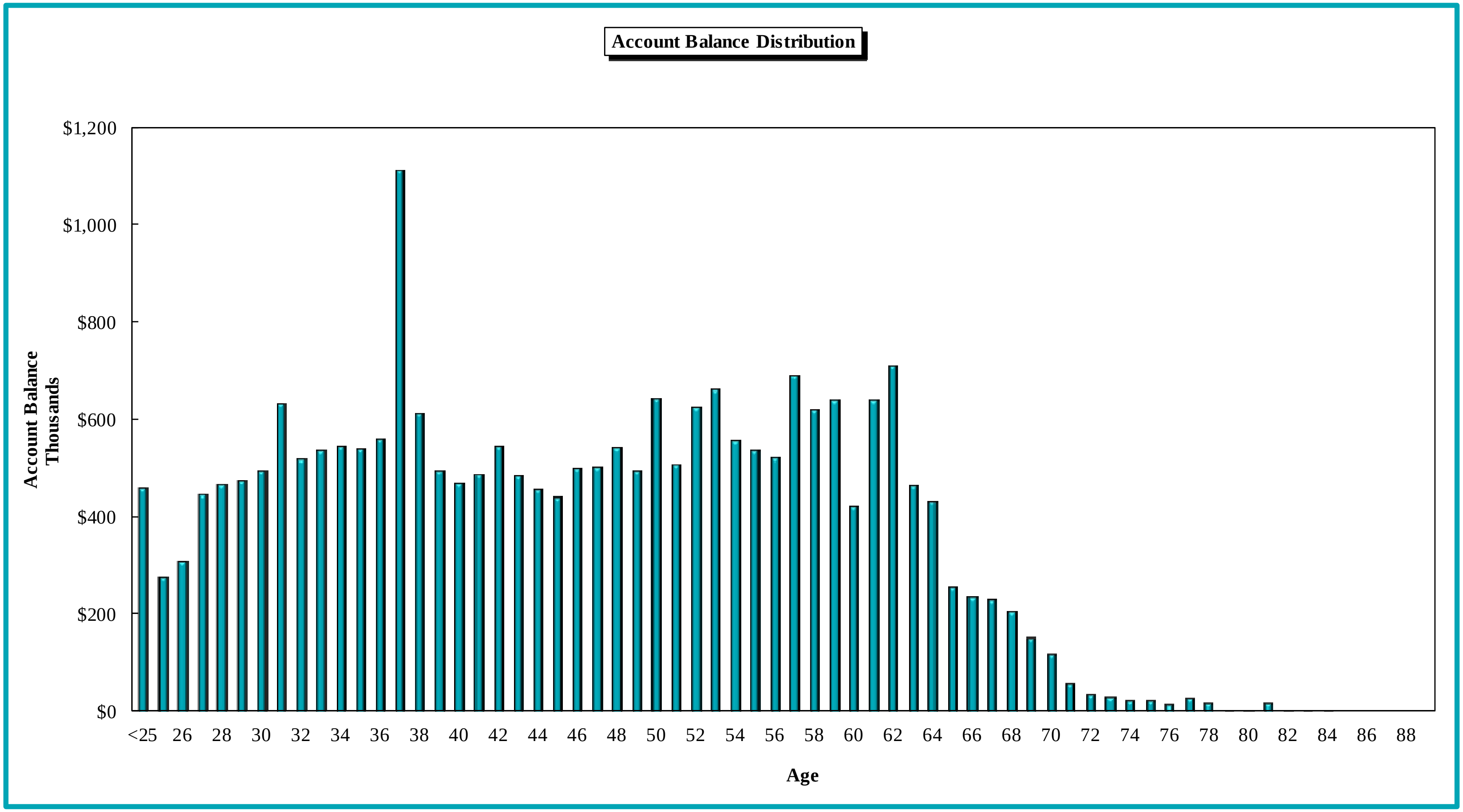
Age	Count	Account Balance	Age	Count	Account Balance
<25	403	$455,863	73	8	$26,576
25	143	$272,818	74	8	$18,204
26	164	$305,896	75	4	$19,652
27	196	$442,395	76	6	$11,236
28	189	$464,518	77	6	$22,904
29	206	$472,928	78	4	$13,861
30	189	$492,565	79	5	$3,651
31	219	$631,945	80	3	$1,658
32	191	$517,291	81	4	$13,506
33	198	$533,965	82	1	$975
34	190	$542,049	83	1	$1,458
35	182	$536,747	84	2	$503
36	197	$557,406	85	0	$0
37	1,172	$1,112,717	86	0	$0
38	177	$609,043	87	0	$0
39	162	$492,062	88	0	$0
40	170	$466,278	89	0	$0
41	180	$485,459	90	0	$0
42	195	$542,608	91	0	$0
43	197	$482,852	92	0	$0
44	207	$453,100	93	0	$0
45	160	$439,216	94	0	$0
46	190	$498,139	95	0	$0
47	157	$500,984	96	0	$0
48	176	$538,583	97	0	$0
49	167	$492,321	98	0	$0
50	200	$640,092	99	0	$0
51	165	$506,541	100	0	$0
52	198	$622,852	101	0	$0
53	203	$658,845	102	0	$0
54	165	$556,200	103	0	$0
55	165	$534,366	104	0	$0
56	166	$519,561	105	0	$0
57	163	$687,785	106	0	$0
58	174	$617,579	107	0	$0
59	159	$639,428	108	0	$0
60	132	$420,820	109	0	$0
61	135	$638,438	110	0	$0
62	162	$708,061	111	0	$0
63	140	$461,018	112	0	$0
64	113	$431,582	113	0	$0
65	64	$252,603	114	0	$0
66	75	$231,817	115	0	$0
67	55	$227,231	116	0	$0
68	62	$203,295	117	0	$0
69	36	$149,054	118	0	$0
70	36	$115,722	119	0	$0
71	24	$54,645	120	0	$0
72	18	$31,324			
			Totals	8,839	$23,382,787

** Assumes average age of 37 for 995 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, 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%

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%
60	0.00%
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 investment 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	4.00% (for amortization and non-GABA post retirement increases)
e. Administrative Expenses as a Percentage of Payroll	0.27%

3. Assumptions related to the Guaranteed Annual Benefit Adjustment (GABA) for members hired on or after July 1, 2013

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, 2015:	0.8%	January 1, 2022 - 2026:	1.2%
January 1, 2016:	0.8%	January 1, 2027 - 2030:	1.3%
January 1, 2017 - 2019:	1.0%	January 1, 2031 - 2033:	1.4%
January 1, 2020 - 2021:	1.1%	January 1, 2034 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 and MCA 19-3-316, it is assumed that the member contribution rate will be reduced from 7.9% to 6.9% at January 1, 2023.

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

5. Changes since Last Valuation

Assumptions related to future member contribution rates have been updated based on revised projections, which incorporate Plan experience over the year ending on the valuation date.

Assumptions related to the Guaranteed Annual Benefit Adjustment (GABA) for members hired on or after July 1, 2013 have been added, given new guidance on the GABA applicable to these members.

APPENDIX B
ACTUARIAL ASSUMPTIONS AND METHODS

6. 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. The assumptions related to GABA for members hired on or after July 1, 2013 were derived from a deterministic projection of System assets and liabilities, assuming a constant future active workforce and that all actuarial assumptions are realized.

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 Montana University System Retirement Plan (MUS-RP) 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
FY2015 (July 1, 2014)	0.100
FY2016 (July 1, 2015)	1.100
Total Plan Choice Contribution Rate	**3.840%**

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 Montana University System 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, DCRP, and MUS-RP 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 MUS-RP members who would have been in the DBRP.

2. Compared to the members who remain in the DBRP, if the transferring DCRP and MUS-RP 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 MUS-RP payroll. Therefore, the employers whose employees choose the DCRP and MUS-RP 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 - DBRP

1. Membership

The Plan is a multiple-employer cost sharing plan that covers employees of the State, local governments that have contracted for PERS coverage, 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

All members contribute 7.9% of their compensation. This is a temporary 1% increase for members hired prior to July 1, 2011 and remains the same for members hired on or after July 1, 2011. Interest is credited to member accounts at the rates determined by the Board.

All member contributions will be decreased to 6.9% on January 1 following actuarial valuation results that project the amortization period to drop below 25 years and remain below 25 years following the termination of the 1% additional member contribution rate.

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

Employers contribute 8.27% of each member's compensation. This was increased from 6.9% to 7.035% on July 1, 2007, 7.17% on July 1, 2009, 8.17% on July 1, 2013, and to 8.27% on July 1, 2014. This is offset by 0.1% of compensation from the State for local governments and school districts. For school districts this offset was increased to 0.235% on July 1, 2007 and 0.37% on July 1, 2009. These increased contributions and offsets will increase 0.1% each fiscal year through 2024 but will terminate on January 1 following actuarial valuation results that project the amortization period to drop below 25 years and remain below 25 years following the termination of the additional employer contribution rates. The contribution going into the PERS Defined Benefit Plan is reduced by 0.04% of compensation paid into the Educational Fund. Effective July 1, 2013, contributions are also made to the system from the Coal Tax Fund.

Beginning July 1, 2013, employers who hire PERS retirees who work less than 960 hours in the calendar year, but do not become active members, contribute the employer's contribution rate on the working retiree's compensation.

3. Service Credit

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

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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 (HAC)

For members hired prior to July 1, 2011: Highest Average Compensation (HAC) is the average of the highest 36 consecutive months (or shorter period of total service) of compensation paid to the member.

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.

For members hired on or after July 1, 2013: Highest Average Compensation calculations initially exclude amounts over 110% of the compensation included for each previous year with this 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 HAC.

Bonuses paid on or after July 1, 2013 to any member will not be treated as compensation for retirement purposes. No member or employer contributions will be paid on bonuses.

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 prior to July 1, 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.

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

(i) If less than 25 years of membership service, the greater of (a) 1/56 of HAC 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 HAC 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.

7. Early Retirement

Eligibility: **For members hired prior to July 1, 2011:**

(i) age 50 with five 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 five 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

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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 portion 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.

8. Disability Benefit

Eligibility: Five years of membership service.

Benefit: (i) If hired on or before February 24, 1991, the greater of (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) if less than 25 years of membership service: 1/56 of HAC multiplied by service credit, or (b) with at least 25 years of membership service: 2% of HAC multiplied by service credit.

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

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Death Payment Benefit:

The sum of (1) accumulated contributions plus (2) monthly compensation multiplied by the lesser of years of service credit or six, plus (3) interest until benefit paid. However, the survivor of an inactive member who was inactive for more than six months will receive only accumulated contributions and interest from the date of death until payment.

A survivor may elect to receive the payment as a non-increasing annuity that is the actuarial equivalent of the amount of benefit the member would have received.

Survivor Benefit:

For members hired prior to July 1, 2011, the survivorship benefit payable to an active vested member's survivor is the actuarial equivalent of the member's accrued retirement benefit at the time of death or, if the member dies prior to age 50 or 25 years of membership service, the actuarial equivalent of the accrued portion of the early retirement benefit that would have been paid to the member at age 50.

For members hired on or after July 1, 2011, the survivorship benefit payable to an active vested member's survivor is the actuarial equivalent of the member's accrued retirement benefit at the time of death, or if the member dies prior to age 55, the actuarial equivalent of the accrued portion of the early retirement benefit that would have been paid to the member at age 55.

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.

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12. Retirement Benefits - Form of Payment

The normal form of payment is a single life annuity with a refund of any remaining accumulated contributions (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 contingent annuitant 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 contingent annuitant and/or a different option if the retiree provides notification within 18 months of the death or divorce.

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

The Post Retirement Benefit Increases follow the provisions specified by the Code for members hired prior to July 1, 2013 before the enactment of House Bill 454 and outcome of the lawsuit challenging that legislation.

For retired members who were hired on or after July 1, 2013 and who have been retired at least 12 months, a Guaranteed Annual Benefit Adjustment (GABA) will be made each year equal to:

i. A maximum of 1.5% for each year PERS is funded at or above 90%;
ii. For each 2% PERS is funded below 90% the 1.5% is reduced by 0.1%; and
iii. 0% whenever the amortization period for PERS is 40 years or more.

Second Retirement Benefit - House Bill 101, effective January 1, 2016:

- Members who retire before January 1, 2016, return to PERS-covered employment, and accumulate less than 2 years of additional service credit receive:
  i. A refund of the member's contributions plus regular interest (.25%);
  ii. No service credit for second employment;
  iii. Start the same benefit amount the month following termination; and
  iv. Their GABA starts again in the January immediately following their second retirement.
- Members who retire before January 1, 2016 and return to PERS covered employment for at least 2 years of additional service credit receive:
  i. A recalculated retirement benefit based on provisions in effect after their initial retirement; and

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ii. Their GABA starts on their recalculated benefit in the January after receiving new benefit for 12 months.

- Members who retire on or after January 1, 2016, return to PERS service, and accumulate less than 5 years of additional service credit receive:
  i. A refund of the member's contributions plus regular interest (.25%);
  ii. No service credit for second employment;
  iii. Start the same benefit amount the month following termination; and
  iv. Their GABA starts again in the January immediately following their second retirement.

- Members who retire on or after January 1, 2016, return to PERS service, and accumulate 5 or more years of service credit receive:
  i. The same retirement benefit as prior to their return to service;
  ii. A second retirement benefit for their second period of service based on laws in effect upon their rehire date; and
  iii. Their GABA starts on both benefits in the January after receiving the original and new benefit for 12 months.

Limited Re-Employment of Retirees - House Bill 101, effective January 1, 2016:

- Employer must report elected officials who decline PERS membership. This information is necessary if elected officials later become a PERS member and want to buy this time.

Employer Contributions and the Defined Contribution Plan - House Bill 107, effective July 1, 2015:

- Effective July 1, 2015 (the first FY2016 pay date payroll), the additional 1.0% employer contribution is directed to the Plan Choice Rate Unfunded Actuarial Liability rather than the Defined Benefit Unfunded Actuarial Liability.

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)	x	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.

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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.

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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.