Via Electronic Mail

October 5, 2015

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

Re: PERS June 30, 2015 Actuarial Results with House Bill 454 Future GABA Changes

Dear Members of the Board:

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.

The actuarial valuation for PERS as of June 30, 2015 recognizes the court ruling and includes the funding changes, but assumes a future GABA based on the Code prior to enactment of HB 454 for participants hired before July 1, 2013. The Board has requested a supplemental actuarial valuation report that fully recognizes all the provisions of HB 454, including the reduction in GABA for all participants. The purpose of this report is to provide the results of this supplemental actuarial valuation.

Data, Methods and Assumptions

The calculations in this report are based upon the data, actuarial methods, assumptions and plan provisions as were used in the Actuarial Valuation of the System as of June 30, 2015, except for retaining the GABA provisions as were in the law with the passing of HB 454 in 2013.

In preparing this 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 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.

<u>Valuation Results</u>

The results of the supplemental actuarial valuation are shown in the enclosed Attachments.

- Attachment A: Summary
- Attachment B: Liabilities
- Attachment C: Contributions
- Attachment D: Future Outlook
- Attachment E: Supplemental Assumptions
- Attachment F: Supplemental HB 454 Plan Provisions

<u>Certification</u>

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 valuation report was prepared exclusively for Montana Public Employees' Retirement System for the purposes 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.

If you have any questions or need additional information, please feel free to contact us.

Sincerely,
Cheiron

Stephen T. McElhaney, FCA, FSA
Principal Consulting Actuary

Margaret Tempkin, FSA
Principal Consulting Actuary

Attachments

ATTACHMENT A
SUMMARY

The following table compares the results at June 30, 2015, both (i) fully recognizing the House Bill 454 (HB 454) changes prospectively from July 1, 2015 and (ii) disregarding changes to GABA contained in HB 454. These are compared to the June 30, 2014 supplemental valuation results, which fully recognized HB 454 prospectively from July 1, 2014. The results shown in the right-hand column below are the same as contained in the June 30, 2015 actuarial valuation report for the System, and are shown here for comparative purposes. The June 30, 2015 results shown in the remainder of this supplemental report fully recognize the future GABA changes within HB 454 prospectively from July 1, 2015, except as otherwise noted.

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

Valuation as of:	*Full Recognition HB 454* June 30, 2014	*Full Recognition HB 454* June 30, 2015	*Prior GABA Provisions* June 30, 2015*
Assets and Liabilities			
Actuarial Liability (AL)	$ 5,480,701,888	$ 5,739,206,638	$ 6,470,303,179
Actuarial Value of Assets (AVA)	4,595,805,330	4,926,515,810	4,926,515,810
Unfunded AL (AL – AVA)	$ 884,896,558	$ 812,690,828	$ 1,543,787,369
Less: PCR-UAL	5,903,188	2,589,223	2,589,223
Net Unfunded AL	$ 878,993,370	$ 810,101,605	$ 1,541,198,146
Funded Ratio (AVA/AL)	83.9%	85.8%	76.1%
Contributions as a Percentage of Payroll			
Statutory Funding Rate**	19.36%	18.83%	18.83%
Less: Transfer to DB Ed Fund	0.04%	0.04%	0.04%
Net Statutory Funding Rate	19.32%	18.79%	18.79%
Normal Cost Rate	10.44%	10.36%	11.18%
Administrative Expense	0.27%	0.27%	0.27%
Available for Amortization of UAL	8.61%	8.16%	7.34%
Period to Amortize	10.5 years	9.8 years	27.2 years
Projected 30-year Level Funding Rate	14.84%	14.32%	18.43%
Projected Shortfall (Surplus)	(4.52%)	(4.51%)	(0.40%)

* Applicable to those hired before July 1, 2013

** Full recognition of HB 454 assumes temporary levels of contributions remain in effect.

ATTACHMENT B
LIABILITIES

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. A more complete description of each appears in the June 30, 2015 actuarial valuation report for the System.

The following table discloses each of these liabilities for the current valuation, fully recognizing all provisions contained in House Bill 454 and compared to the prior valuation. 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**.

Table B-1
Liabilities/Net (Surplus)/Unfunded
Full Recognition HB 454

	June 30, 2014	June 30, 2015
Present Value of Benefits		
Active Participant Benefits	$ 3,116,870,284	$ 3,172,603,760
Retiree and Inactive Benefits	3,216,152,651	3,443,815,626
Present Value of Benefits (PVB)	**$ 6,333,022,935**	**$ 6,616,419,386**
Market Value of Assets (MVA)	$ 4,942,769,917	$ 5,061,058,221
Future Member Contributions	587,542,773	650,285,828
Future Employer Contributions *	844,188,268	890,036,216
Funding Shortfall/(Surplus)	(41,478,023)	15,039,121
Total Resources	**$ 6,333,022,935**	**$ 6,616,419,386**
Actuarial Liability		
Present Value of Benefits (PVB)	$ 6,333,022,935	$ 6,616,419,386
Present Value of Future Normal Costs (PVFNC)	852,321,047	877,212,748
Actuarial Liability (AL=PVB–PVFNC)	**5,480,701,888**	**5,739,206,638**
Actuarial Value of Assets (AVA)	4,595,805,330	4,926,515,810
Net (Surplus)/Unfunded (AL – AVA)	**$ 884,896,558**	**$ 812,690,828**
Present Value of Accrued Benefits		
Present Value of Benefits (PVB)	$ 6,333,022,935	$ 6,616,419,386
Present Value of Future Benefit Accruals (PVFBA)	1,511,806,688	1,541,836,788
Present Value of Accrued Benefits (PVAB=PVB–PVFBA)	**$ 4,821,216,247**	**$ 5,074,582,598**
Market Value of Assets (MVA)	$ 4,942,769,917	$ 5,061,058,221
Net Unfunded (PVAB – MVA)	**$ (121,553,670)**	**$ 13,524,377**

* Includes Employer, State, and Coal Tax contributions.

ATTACHMENT B
LIABILITIES

Changes in Liabilities

Below, we present key changes in liabilities since the last valuation, fully recognizing House Bill 454 for both the June 30, 2014 and June 30, 2015 results. 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 B-2
Full Recognition HB 454

	Present Value of Benefits	Actuarial Liability	Present Value of Accrued Liability
Liabilities June 30, 2014	$ 6,333,022,935	$ 5,480,701,888	$ 4,821,216,247
Liabilities June 30, 2015	6,616,419,386	5,739,206,638	5,074,582,598
Liability Increase (Decrease)	283,396,451	258,504,750	253,366,351
Change Due to:			
Actuarial (Gain)/Loss	NC*	46,301,454	NC*
Plan Changes	0	0	0
Benefits Accumulated and Other Sources	283,396,451	212,203,296	253,366,351

* NC = not calculated.

Table B-3
Summary of Actuarial Gains and Losses as of June 30, 2015
Full Recognition HB 454

Actuarial Liabilities as of June 30, 2014	$ 5,480,701,888
Normal Cost	123,924,466
Actual Benefit Payments	(333,401,463)
Interest	421,680,293
Expected Actuarial Liability as of June 30, 2015	$ 5,692,905,184
Actuarial Liability as of June 30, 2015	$ 5,739,206,638
Liability (Gain)/Loss	$ 46,301,454
Sources of Liability (Gain)/Loss	
Salary (Gain)/Loss	$ (1,633,687)
New Participant (Gain)/Loss	8,441,742
Active Retirements (Gain)/Loss	3,364,612
Active Terminations (Gain)/Loss	(2,560,065)
Active Deaths (Gain)/Loss	951,994
Active Disability (Gain)/Loss	(985,182)
Inactive Mortality (Gain)/Loss	7,149,878
Inactive GABA Granted (Gain)/Loss	48,634,021
Other (Gain)/Loss	(17,061,859)
Actuarial Liability as of June 30, 2015	$ 5,739,206,638
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	46,301,454
Total Actuarial (Gain)/Loss	$ (39,114,481)

ATTACHMENT B
LIABILITIES

Table B-4 shows the actuarial liabilities as of the current valuation, utilizing the full GABA provisions contained in House Bill 454, and compared to the prior valuation. 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 B-4
Actuarial Liabilities for Funding
Full Recognition HB 454

		June 30, 2014	June 30, 2015
1.	Actuarial Liabilities		
	Retiree and Inactive Benefits	$ 3,216,152,651	$ 3,443,815,626
	Active Member Benefits	2,264,549,237	2,295,391,012
	Total Actuarial Liability	**$ 5,480,701,888**	**$ 5,739,206,638**
2.	Actuarial Value of Assets	$ 4,595,805,330	$ 4,926,515,810
3.	Unfunded Actuarial Liability	$ 884,896,558	$ 812,690,828
4.	Funded Ratio	83.9%	85.8%

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

Table B-5
Actuarial Liabilities on Market Value Basis (MCA 19-2-407)
Full Recognition HB 454

		June 30, 2014	June 30, 2015
1.	Actuarial Liabilities		
	Retiree and Inactive Benefits	$ 3,216,152,651	$ 3,443,815,626
	Active Member Benefits	2,264,549,237	2,295,391,012
	Total Actuarial Liability	**$ 5,480,701,888**	**$ 5,739,206,638**
2.	Market Value of Assets	$ 4,942,769,917	$ 5,061,058,221
3.	Unfunded Actuarial Liability	$ 537,931,971	$ 678,148,417
4.	Funded Ratio	90.2%	88.2%

ATTACHMENT B
LIABILITIES

Under MCA 19-3-1605 as contained in HB 454, 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% and future employee contributions will remain level at 7.9%, which results in actuarial liabilities that differ from those presented previously within this section. The calculation as of June 30, 2015, is shown in the table below:

Table B-6 Actuarial Funded Ratio for GABA Determination		June 30, 2015
1.	Actuarial Liabilities	
	Retiree and Inactive Benefits	$ 3,449,599,110
	Active Member Benefits	2,284,739,287
	Total Actuarial Liability	**$ 5,734,338,397**
2.	Actuarial Value of Assets	$ 4,926,515,810
3.	Unfunded Actuarial Liability	$ 807,822,587
4.	Funded Ratio	85.9%

MCA 19-3-1605 as contained in HB 454 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 86% and would cause a reduction in the GABA rate as of January 1, 2016 from 1.5% to 1.3%.

MCA 19-3-1605 as contained in HB 454 also provides that if the amortization period is 40 years or greater then, the GABA must be set at 0%. This calculation appears in Attachment C of this supplemental report and indicates that the amortization period does not exceed 40 years.

ATTACHMENT C
CONTRIBUTIONS

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

Table C-1 Statutory Basis *Full Recognition HB 454*	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%
DC/ORP 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**	10.44%	10.36%
Administrative Expense	0.27%	0.27%
Funding Rate Available for Amortization	8.61%	8.16%
Unfunded Actuarial Liability (Surplus)	$ 884,896,558	$ 812,690,828
Less: PCR-UAL	5,903,188	2,589,223
UAL Funded by DBRP	$ 878,993,370	$ 810,101,605
Years to Amortize***	10.5 years	9.8 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, of the PERS Actuarial Valuation report as of June 30, 2015.

** The normal cost rate is projected to be 9.33% 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 unfunded actuarial liability was 5.9 years at June 30, 2014 and was 7.9 years at June 30, 2015.

ATTACHMENT C
CONTRIBUTIONS

Table C-2 **Calculated Actuarial Contribution Basis** ***Full Recognition HB 454***	**June 30, 2014**	**June 30, 2015**
Normal Cost Rate	10.44%	10.36%
Educational Fund	0.04%	0.04%
Amortization Payment (30-years)	4.09%	3.65%
Administrative Expense	0.27%	0.27%
Total Calculated Contribution Rate	14.84%	14.32%
Less Statutory Rate	19.36%	18.83%
Shortfall (Surplus) in Statutory Rate	(4.52%)	(4.51%)

Table C-3 **Calculated Actuarial Contribution on Market Value (MCA 19-2-407)** ***Full Recognition HB 454***	**June 30, 2014**	**June 30, 2015**
Normal Cost Rate	10.44%	10.36%
Educational Fund	0.04%	0.04%
Amortization Payment (30-years)	2.47%	3.04%
Administrative Expense	0.27%	0.27%
Total Calculated Contribution Rate	13.22%	13.71%
Less Statutory Rate	19.36%	18.83%
Shortfall (Surplus) in Statutory Rate	(6.14%)	(5.12%)

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

Table C-4 *
Projected Actuarial Contribution Rates

Valuation Year	Rate
2016	13.84%
2017	13.24%
2018	13.10%
2019	12.78%
2020	12.44%

* 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. Additionally, these projections are based on a 25 year amortization of the unfunded actuarial liability.

Calculations of the amortization period of the unfunded actuarial liability are also required using the basis applied for purposes of Table B-6; that is, assuming that all future GABAs will be at the rate of 1.5% and future employee contributions will remain level at 7.9%. Tables C-5 and C-6 are prepared on that basis.

Under MCA 19-3-1605 as contained in HB 454, 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 C-5
Amortization Period for GABA Determination

	June 30, 2015
Net Contribution to DBRP	18.79%
Normal Cost Rate	10.66%
Administrative Expense	0.27%
Funding Rate Available for Amortization	7.86%
Years to Amortize	10.1 years

Since the amortization period in Table C-5 is less than 40 years, the GABA as of January 1, 2016 will not be automatically set at 0%, but will be determined based upon Table B-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 C-6
Amortization Period Without Temporary Contributions

	June 30, 2015
Net Contribution to DBRP	16.32%
Normal Cost Rate	10.66%
Administrative Expense	0.27%
Funding Rate Available for Amortization	5.39%
Years to Amortize	16.4 years

Since the amortization period in Table C-6 is below 25 years, there would be a reduction in member and employer contribution rates as of January 1, 2016.

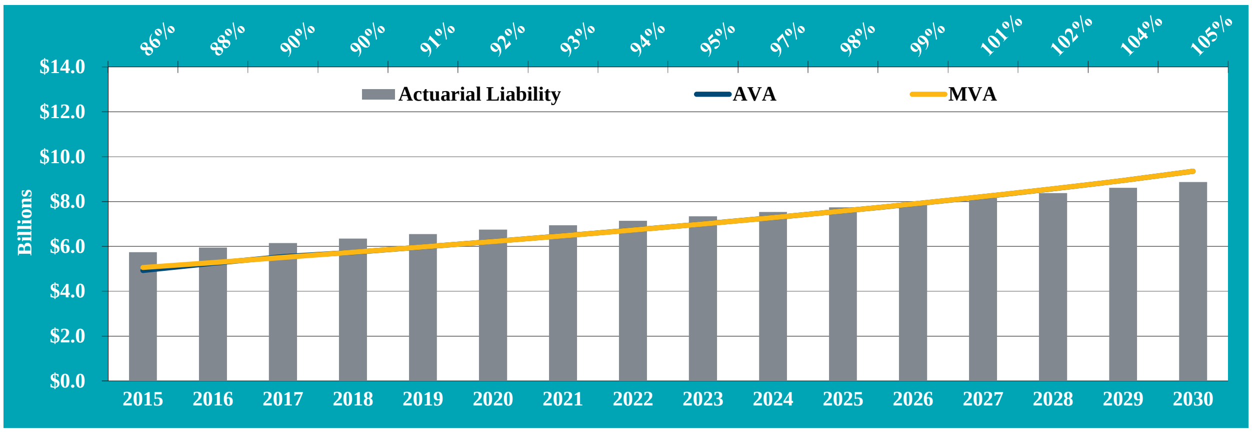
Future Outlook

<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.

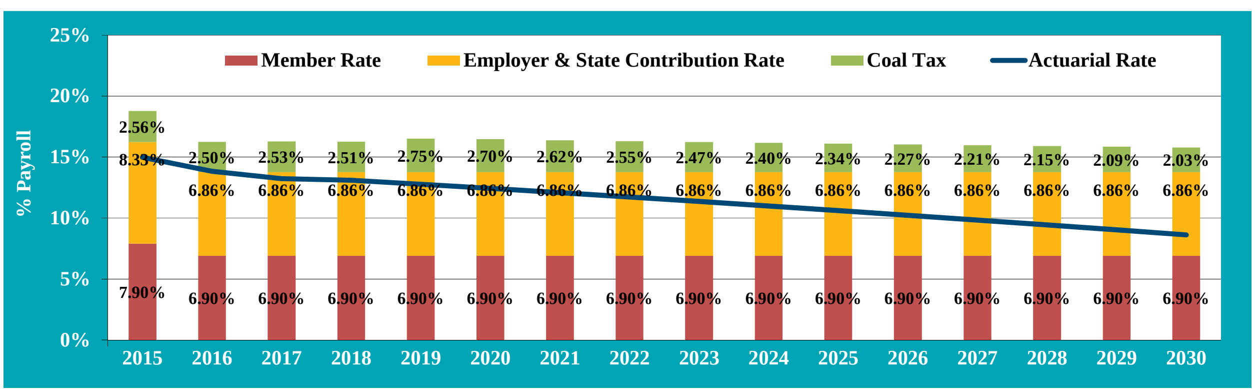
These projections as well as all of the projections that follow reflect the plan, contribution, and GABA changes associated with House Bill 454, and assume that all future GABAs will be at the maximum statutory rate of 1.5% per year.

The chart below shows the funded status of the System would be expected to gradually increase over the 15-year period, eventually reaching a funded ratio of 105% 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 temporary Member and Employer rates are expected to cease as of January 1, 2016. Coal tax contributions are projected at the levels shown using information provided by the Governor's Office of Budget and Program Planning.

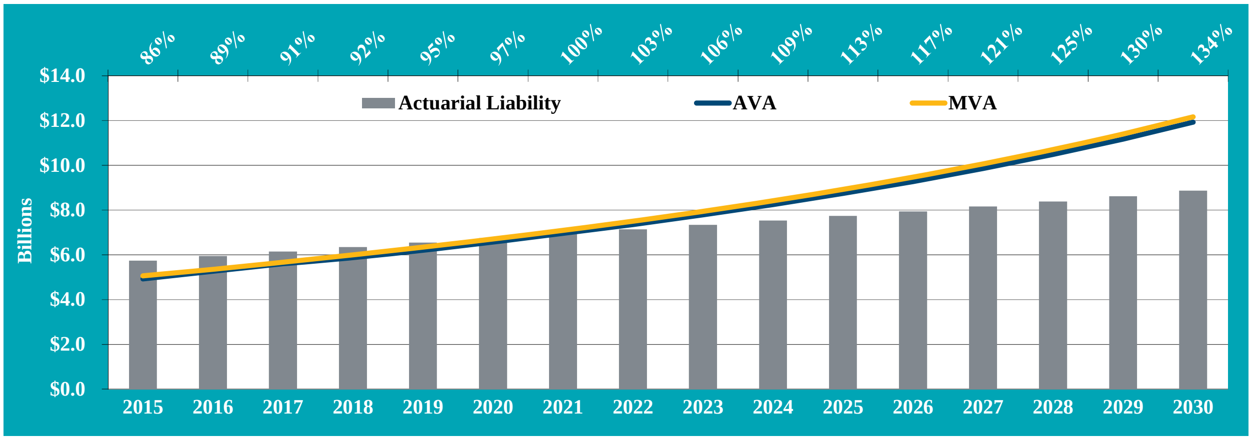
These amounts are compared to an Actuarial Rate, which is calculated as the normal cost, administrative expense, and a level percent of pay 25-year open amortization of the unfunded actuarial liability. The Actuarial Rate is projected to decline over the projection period.



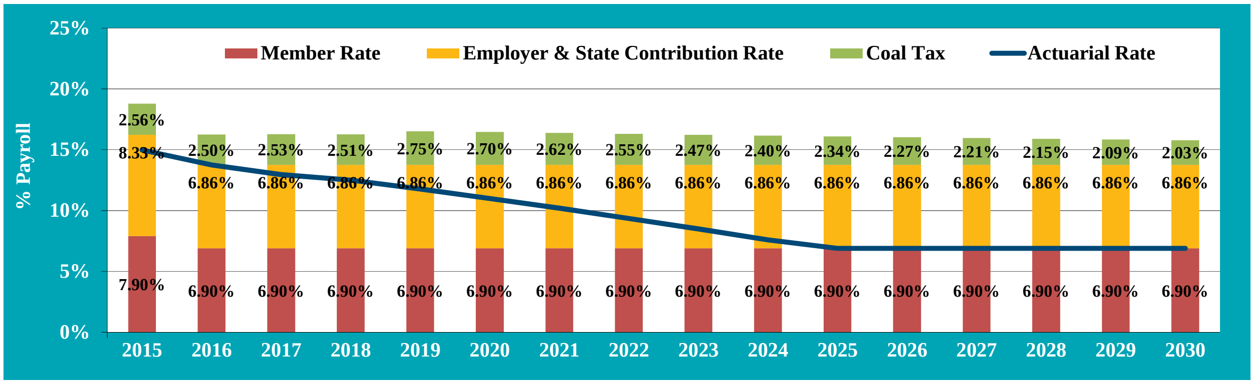
ATTACHMENT D
FUTURE OUTLOOK

<u>Projections with Asset Returns of 9.25%</u>

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).



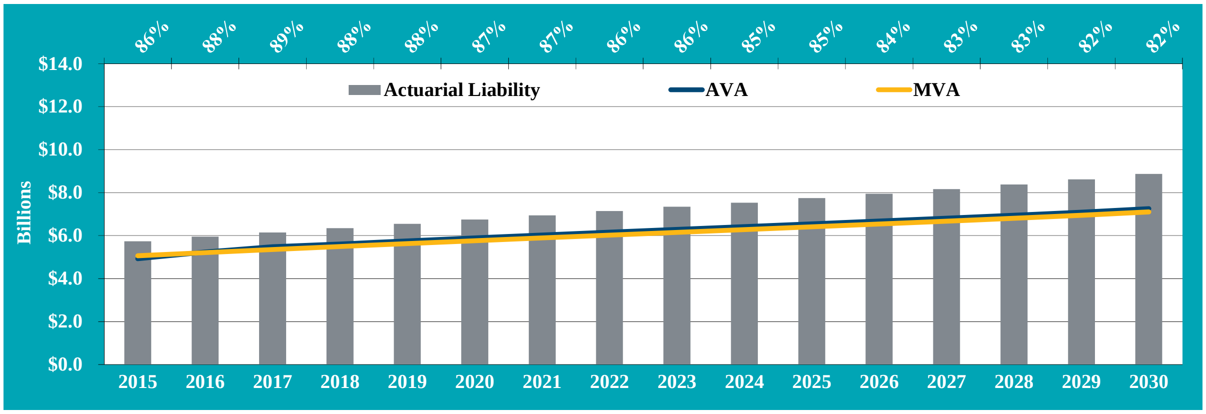
Compared to the baseline projections, the funded status improves more rapidly over the 15-year period. The Actuarial Rate decreases quicker, with the temporary contributions still having ceased beginning in 2016. The Employer, State and DC/ORP portions drop to zero in 2025.



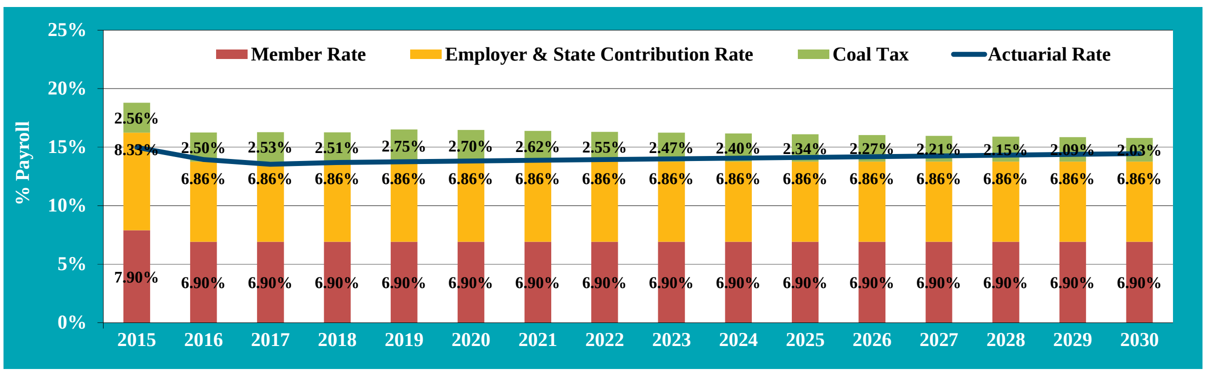
ATTACHMENT D
FUTURE OUTLOOK

<u>Projections with Asset Returns of 6.25%</u>

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 begins to increase remaining below the statutory rate through the period. The temporary contributions would still cease in 2016.



ATTACHMENT E
SUPPLEMENTAL ASSUMPTIONS

The calculations in this report are based upon the data, actuarial methods, assumptions and plan provisions as were used in the Actuarial Valuation of the System as of June 30, 2015, except for retaining the GABA provisions as were in the law with the passing of HB 454 in 2013. The following are additional assumptions used in this supplemental valuation.

1. 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, 2016:	1.3%
January 1, 2017:	1.4%
January 1, 2018 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.

2. 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, 2016.

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.

3. Changes since Last Valuation

Assumptions related to future Guaranteed Annual Benefit Adjustment (GABA) and member contribution rates have been updated based on revised projections, which incorporate Plan experience over the year ending on the valuation date.

ATTACHMENT F
SUPPLEMENTAL HB 454 PLAN PROVISIONS
Full Recognition of HB 454 GABA Provisions

The calculations in this report are based upon the data, actuarial methods, assumptions and plan provisions as were used in the Actuarial Valuation of the System as of June 30, 2015, except for retaining the GABA provisions as were in the law with the passing of HB 454 in 2013. The following are additional plan provisions used in this supplemental valuation.

1. Post Retirement Benefit Increases

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

a. GABA is a maximum of 1.5% for all current and future retirees for each year PERS is funded at or above 90%.

b. The 1.5% GABA is reduced 0.1% for each 2% PERS is funded below 90%.

c. GABA is 0% for all current and future retirees whenever the amortization period for PERS is 40 years or more.

2. Changes since Last Valuation

None.