

# **Maine Public Employees Retirement System State Employee and Teacher Retirement Program**

## **Revised Actuarial Valuation Report as of June 30, 2015**

**Produced by Cheiron**

**March 2016**

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March 9 , 2016

Board of Trustees  
Maine Public Employees Retirement System  
PO Box 349  
Augusta, Maine 04332-0349

Dear Members of the Board:

We are pleased to submit the June 30, 2015 Actuarial Valuation Report for the State Employee and Teacher Retirement Program (Program) of the Maine Public Employees Retirement System (MainePERS). 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. This report contains information on assets, liabilities, and contributions of the Program, as well as the required accounting statement disclosures under the Governmental Accounting Standards Board Statement No. 67. This revised report replaces the report dated October 27, 2015 and reflects changes to Table V-5 only.

In preparing our report, we relied on information, some oral and some written, supplied by the System's staff. This information includes, but is not limited to, the plan provisions, employee data, and financial information. We performed an informal examination of the obvious characteristics of the data for reasonableness and consistency in accordance with Actuarial Standard of Practice No. 23.

The results of this report rely on future plan experience conforming to the underlying assumptions and methods outlined in this report. To the extent that the actual plan experience deviates from the underlying assumptions and methods, or there are any changes in plan provisions or applicable laws, the results would vary accordingly.

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 that 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 valuation was prepared for the Maine Public Employees Retirement System for the purposes described herein and for the use by the plan auditor in completing an audit related to the matters herein. Other users of this 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



Gene Kalwarski, FSA, EA  
Principal Consulting Actuary



Fiona E. Liston, FSA, EA  
Principal Consulting Actuary

**MAINE PUBLIC EMPLOYEES RETIREMENT SYSTEM  
STATE EMPLOYEE AND TEACHER RETIREMENT PROGRAM  
ACTUARIAL VALUATION AS OF JUNE 30, 2015**

**FOREWORD**

Cheiron has completed the Actuarial Valuation Report of the Maine Public Employees Retirement System State Employee and Teacher Program 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 Program;
- 2) Indicate trends, both historical and prospective, in the financial condition of the Program;
- 3) Report on the employer contribution rates developed in this valuation for informational purposes (the actual contributions to be paid by the employers for Fiscal Year (FY) 2016 and FY 2017 were developed in July 2014, based on a roll forward of the June 30, 2013 valuation); and,
- 4) Provide specific information and documentation required for MainePERS's financial disclosures.

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

Section I presents a summary containing our key findings, disclosing important trends experienced by the Program in recent years, and providing analysis relating to the future status of the Program.

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

Section III shows similar information on liability measures for various purposes, including analysis of key changes in the measures.

Section IV develops the employer contribution rates that would be applied absent the State's biennial budgeting process.

Section V includes financial disclosure information.

Finally, at the end of this report we present appendices that contain a summary of the:

- Program membership by plan at the valuation date (Appendix A);
- Actuarial methods and assumptions used in the valuation (Appendix B);
- Major benefit provisions of the Program and the various plans included in the Program (Appendix C); and,
- Terminology used in the Governmental Accounting Standards Board (GASB) disclosures provided as a glossary (Appendix D).

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**SECTION I  
BOARD SUMMARY**

**General Comments**

The annual employer contributions to the plans in this Program are determined on a biennial basis. The contributions developed through the State's budgeting process to produce the applicable contributions in Fiscal Year (FY) 2016 and FY 2017 were based on the liabilities of the June 30, 2013 valuation, adjusted for anticipated growth in benefits and reductions due to payouts to reflect our best estimate of the June 30, 2014 liability based on the valuation of the Program as of June 30, 2013. This adjustment process also reflects any change in assumptions or plan provisions between the valuation date and the measurement date. The budgeting process then combined this expected liability with the actual plan assets as of June 30, 2014 to develop the budgeted rates. The results of this June 30, 2015 valuation will be used as the basis for the applicable FY 2018 and FY 2019 State budget contributions.

**Experience from July 1, 2014 through June 30, 2015 (FY 2015)**

The State of Maine composite total employer rate produced by the June 30, 2014 valuation for all plans in the State Employees and Teacher Retirement Program was 16.06% of payroll. The same rate produced in this valuation is 16.07% of payroll. The change in contribution rate was attributable to several elements, including a loss in investment returns and a gain in liabilities.

As of June 30, 2015, the Program had an unfunded actuarial liability (UAL) of \$2.241 billion. This represents a decrease of \$0.062 billion from the \$2.303 billion UAL measured as of June 30, 2014. The specific factors contributing to this change are presented in Table I-1 below.

<b>Table I-1</b>	
<b>Components of Unfunded Actuarial Liability (UAL) Change</b>	
	<b>\$ in Billions</b>
1. UAL as of June 30, 2014	\$ 2.303
2. Decrease Expected as of June 30, 2015	(0.086)
3. Change due to Plan or Assumption Changes	0.000
4. Increase due to Recognized Investment Losses	0.068
5. Decrease due to Liability Gain during the Year	<u>(0.044)</u>
6. UAL as of June 30, 2015	\$ 2.241

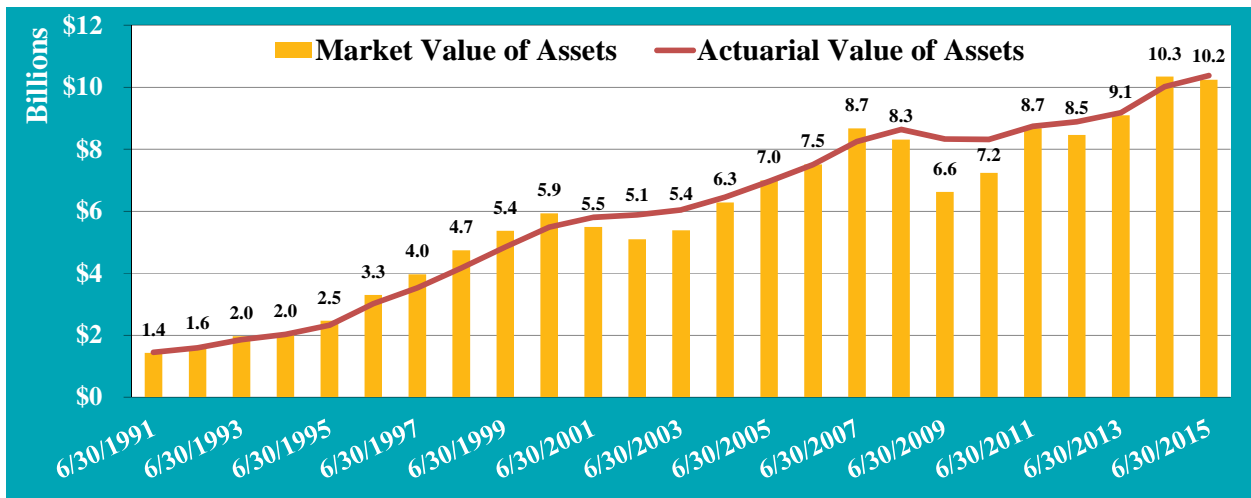
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**SECTION I  
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**Trends**

It is important to take a step back from the latest results and view them in the context of the Program’s history. On the next few pages, we present a series of graphs that display key historical trends in the Program’s financial condition. Following the historical review, we present projections of the probable condition of the Program in the future under various market return scenarios.

Growth in Assets



The graph above illustrates how well the Program’s actuarial smoothing method has insulated it from market volatility, as seen by the relative smoothness of the actuarial values of assets, the red line, relative to the market values of assets, the gold bars. Additionally, it demonstrates how there has generally been an upward trend for both the market value and actuarial value of assets since 1991. The few exceptions are the years immediately following the severe market declines in the early and late 2000s. The values shown are as of June 30 of the indicated year. The black labels above the gold bars are the actuarial value of assets values in millions of dollars.

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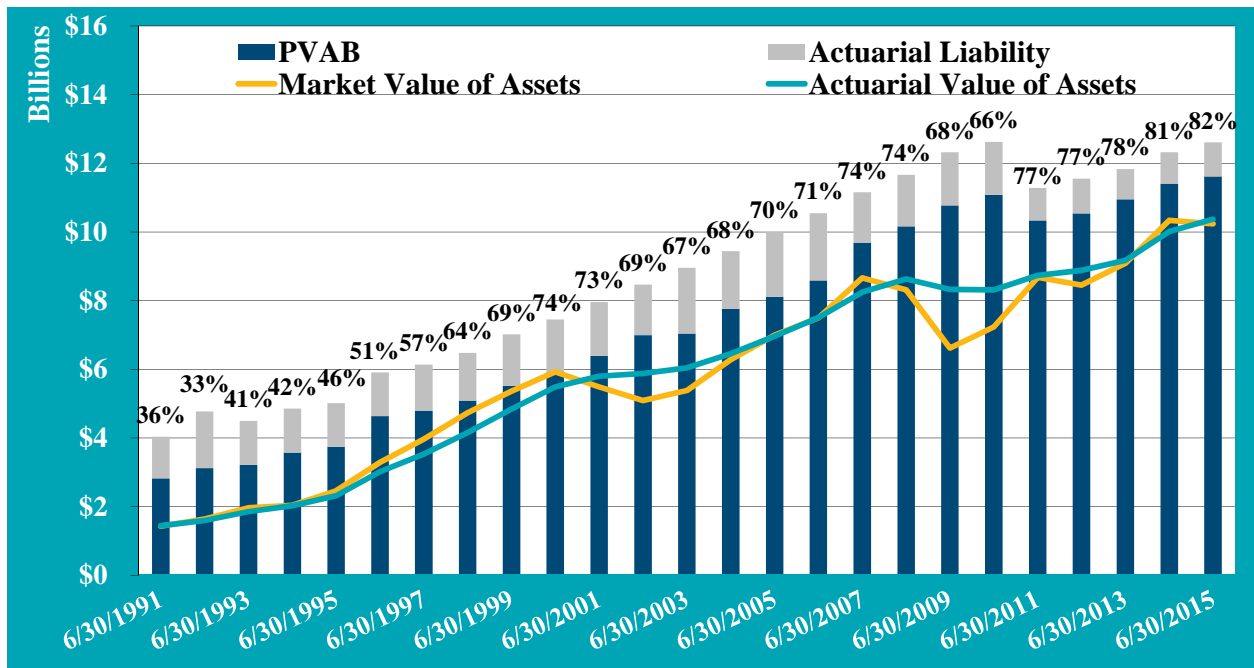
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Assets and Liabilities

This next graph shown below illustrates the progress of assets against liabilities for the Program since June 30, 1991. The blue bars represent the present value of accrued benefits (PVAB) as of June 30 of the indicated years.

The actuarial liability (AL), the liability measured used for funding purposes, is represented by the top of the grey bars. The actuarial value of assets (AVA) divided by this measure of liability is the AVA funded ratio used in evaluating the Program's financial status. These values as of each valuation date are the percentages shown in the graph labels.

Plan changes were legislated during 2010 and first reflected in the 2011 valuation, resulting in a reduction in liability for that year. As of June 30, 2015, the Program is funded 82% based on the AVA funded ratio, which represents the highest AVA funded ratio for the Program for the period shown, and most likely since the inception of the Program.

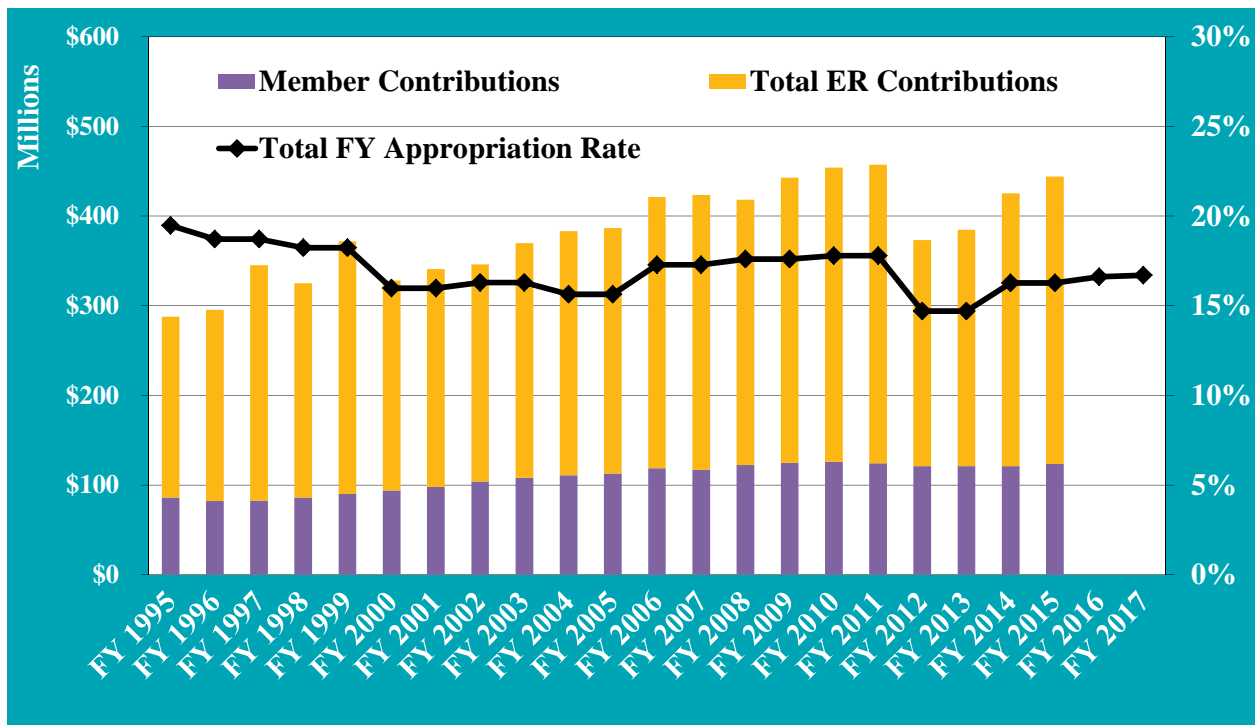


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Contributions

The graph below shows the history of contributions to the Program, both as dollar amounts and as a percentage of payroll. The stacked bars in this graph show the contributions made by both the employers and the members in dollar terms for each Fiscal Year (FY) ending in the year indicated by the horizontal axis. These bars are read using the left-hand axis. The black line shows the total employer appropriation contribution rate for the FY as a percentage of payroll and should reference the right-hand axis. The FY 2016 and FY 2017 contributions have already been determined based on the 2013 valuation adjusted to a June 30, 2014 valuation, so two additional years of the contribution rate are shown versus the dollars received.



The member contribution rates are set by statute, based on the plan in which the member participates. The total employer contribution rate is set by the actuarial process, on a biennial basis. The contribution rate for FY 2015 was based on a roll forward of the June 30, 2011 valuation to June 30, 2012.



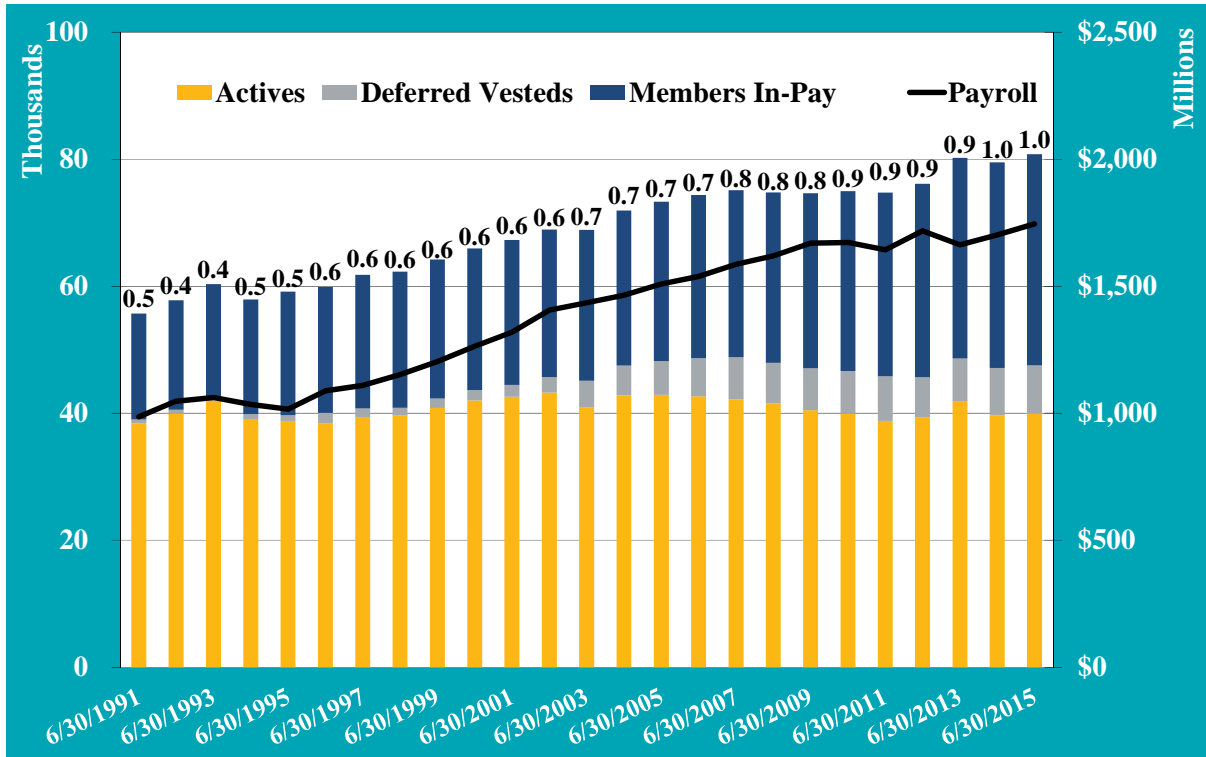
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Participant Trends

The stacked bars in the graph below show the number of actives, terminated vested, and members in-pay status covered by the Program as of June 30 of each year indicated and is read using the left-hand axis of the graph. As with many funds in this country, there has been a steady growth in the number of retired members as the Program has matured. The labels above each bar show the ratio of inactive members (members in-pay plus deferred vested members) per active member, which has been generally increasing since 1991. We anticipate that this ratio will continue to increase as the “baby boomer” generation enters retirement. While a declining ratio would be a concern in a plan with no prefunding, in the Plan’s case, it just indicates that there may be difficulty in recovering from an investment loss since assets are lost on all covered liabilities, but contributions only come in on the basis of payroll. The more negative a plan’s cash flows, the more sensitive, in terms of contribution volatility, the plan is to volatile investment markets. The valuation process takes this trend into account, and the projections on the next few pages show that the assets are expected to be sufficient to meet this growing cash flow disparity.

The black line in the graph indicates the total covered payroll of actives in the Program and is read using the right-hand axis of the graph. It has been generally increasing since 1991.



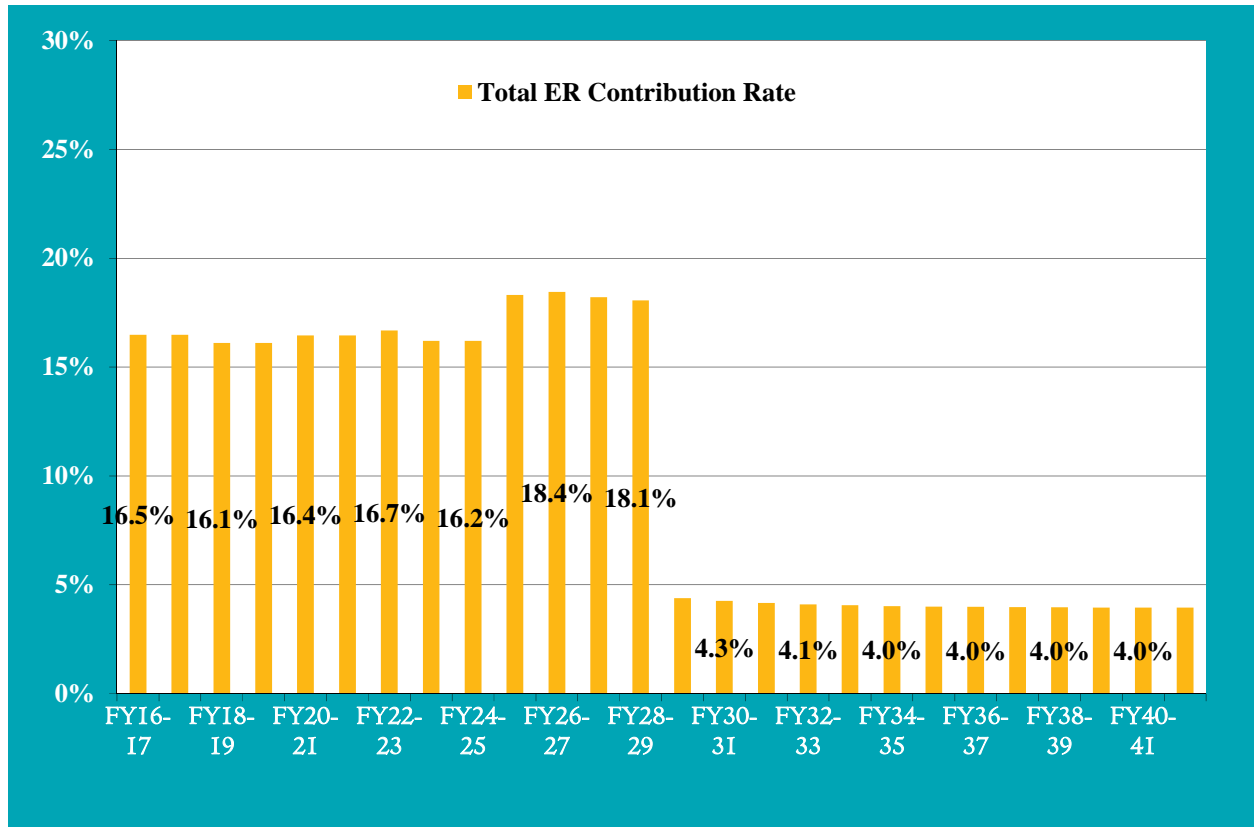
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**Projections**

Our analysis of the projected financial trends for the Program is an important part of this valuation. In this section, we present sensitivity analysis of future valuation results in terms of benefit security, the previously referenced AVA funded ratio (AVA over AL), and the expected employer contribution rates. We first present a baseline projection of these future results if all actuarial assumptions being exactly met during the projection period, including the assumed 7.125% investment return being achieved each year. We then present the same projections based on achieving all assumptions exactly met except for having investment earnings 1% above and 1% below the assumed 7.125% return. The primary purpose of presenting these projections is to demonstrate how sensitive future valuation results are to deviations from our investment return expectations.

Baseline Projections



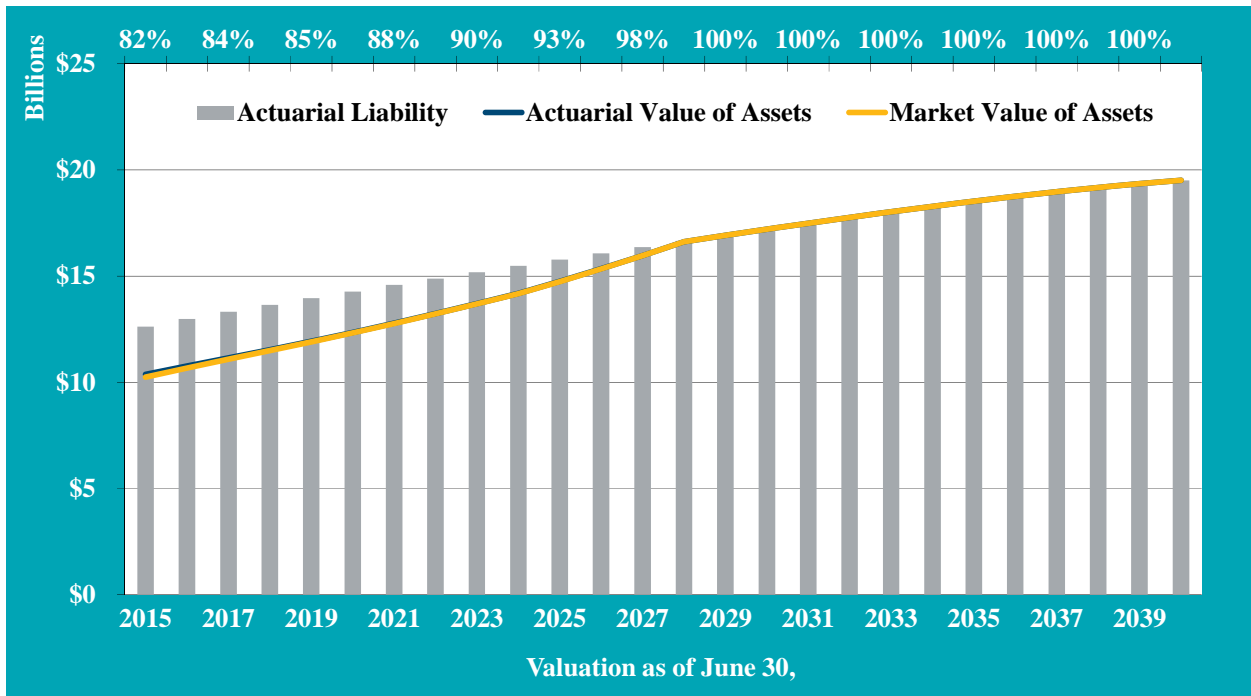
The graph above shows the expected progress of the Program’s employer contribution rates over the next 25 years assuming that the Program’s assets earn 7.125% on their *market value*. It shows that the overall composite employer contribution rate for the Program is projected to remain fairly stable for the next nine years, then to increase as the 2013 and 2014 UAL gain bases are fully amortized. The initial UAL balance under the current funding method will be paid off in FY 2028. At that point, only the normal cost of approximately 4% will be payable under this scenario. Note that this projection is based on the assumption that all actuarial assumptions are

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exactly met each and every year, including the 7.125% investment assumption. The reality is that there will be gains and losses each and every year, resulting in new amortization layers (negative or positive) occurring every year. Also, due to the short amortization periods (currently 10 years for new layers), there will always be this type of up and down volatility in the rate as is shown above for the period 2016 through 2028.

The graph that follows shows the projected funded ratio (AVA divided by AL) over the next 25 years in this baseline scenario. It shows that the Program’s funded ratio is projected to improve from the starting level of 81% as of FY 2016 to 100% funding in FY 2028, the year that the Maine Constitution mandates that the Program’s UAL is to be paid off. However as just mentioned earlier, annual gains and losses will always occur, meaning that by 2028, there will be either an unfunded actuarial liability (if more losses occur) or a surplus of plan assets (if more gains occur).

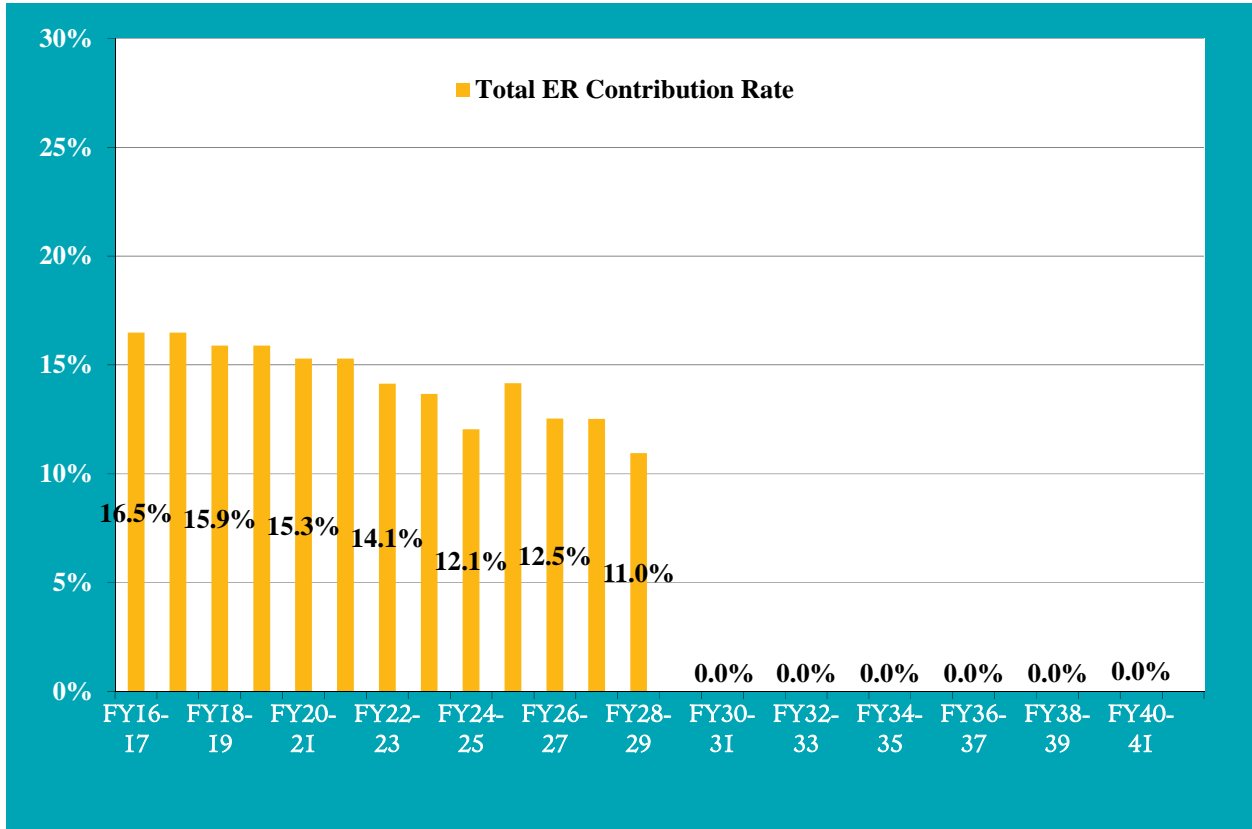


Projections with Asset Returns of 8.125%

The future funding of this Program will be significantly driven by the investment earnings as relatively minor changes in the market returns can have significant effects on the Program’s funding status. The graph below shows that with an 8.125% annual returns in each year while exactly meeting all other assumptions, the composite total employer contribution rate would decline throughout most of the UAL payoff period, and both the normal cost rate and the UAL rates would go to zero. This is due to the excess earnings each year resulting in a surplus of assets such that the amortization of the surpluses would be more than enough to offset the entirety of the employer normal cost for the remainder of the projection period.

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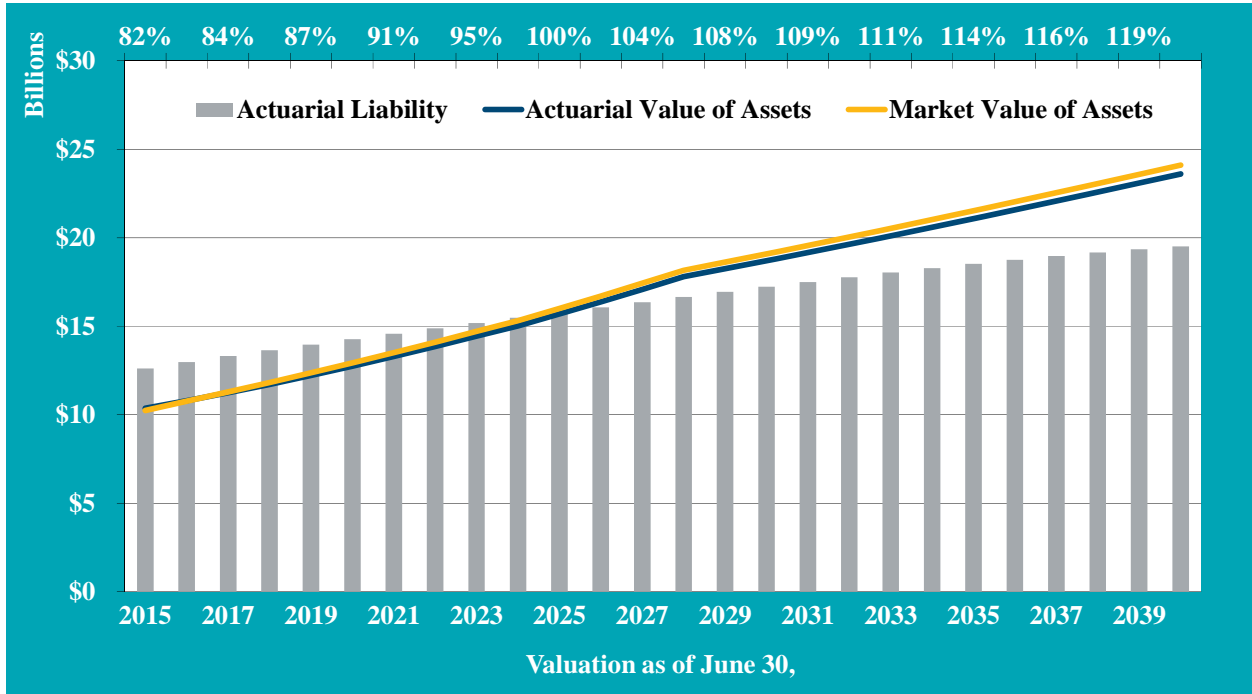
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Assuming the same 8.125% return on investments scenario, this next graph shows that the Program’s funded ratio would increase to reach 100% by 2026, and then continue to improve. The reason the plan reaches 100% funding in the year 2026 and the UAL payments in the graph above continued until 2028 has to do with the timing of when the valuation is performed and when the State’s biennial budget is set.

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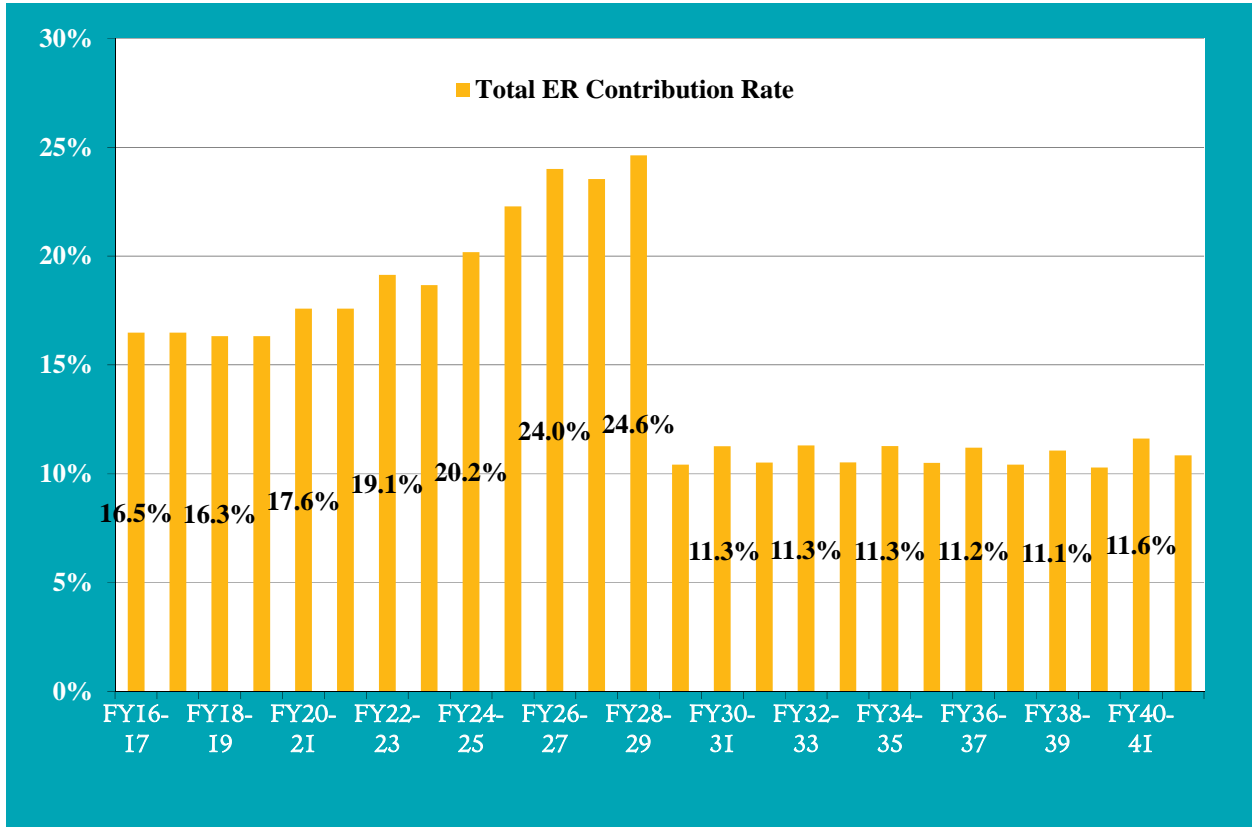


Projections with Asset Returns of 6.125%

Just as returns in excess of the rate of return assumption will lead to declining employer contributions and an improved funded ratio, the opposite will occur if actual investment earnings are below the assumed rate. The graph below shows the contribution projection under a 6.125% annual return scenario, continuing to meet all other assumptions exactly. The period of decline in the composite employer contribution rate will be shorter than in the baseline scenario, and this contribution rate would rise to around 24% of payroll in order to meet the Constitutional requirement of full funding in 2028. Beyond 2028, there will be continued unfunded actuarial contributions in order to amortize the annual investment losses of 1% each year compared to the assumed rate of return.

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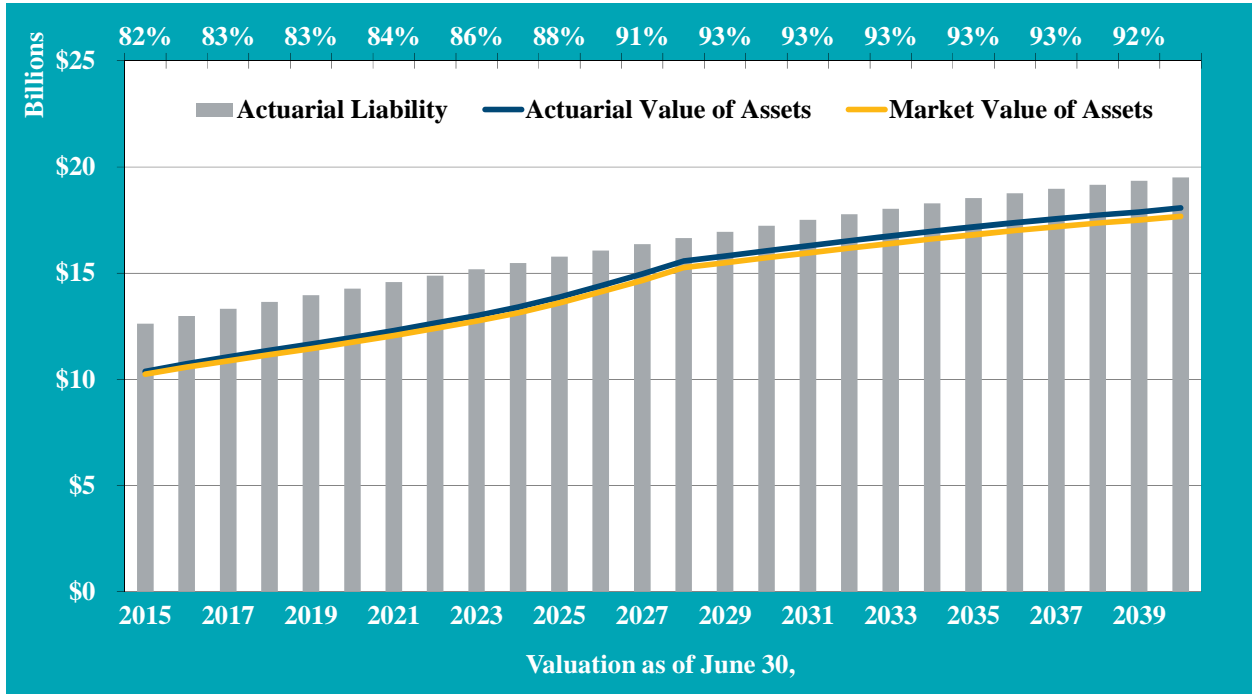
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The next graph shows that the Program’s funded ratio would increase to 92% over the next 25 years with actual returns at 6.125%, one percentage point lower than the assumed rate. In addition, under this scenario, the Program would still have an unfunded actuarial liability (UAL) in 2028, the end of the current amortization period. The Constitutional Amendment would be satisfied, in that the UAL existing on July 1, 1997 would be paid off by 2028, but new losses that create additional UAL would continue to be funded over up to ten years each based on the Constitutional Amendment.

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**Principal Results Summary**

The balance of this Board Summary section of the actuarial valuation report presents a summary of the principal results of the valuation, comparing key results between this year’s valuation and last year’s for member counts, assets and liabilities, and contribution rates. These summary results are shown for the total State Employee and Teacher programs, and then for each of these subgroups.

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**Table I-2  
Summary of Principal Results  
Total State and Teacher Program**

<b>Valuation as of:</b>	<b>June 30, 2014</b>	<b>June 30, 2015</b>	<b>% Change</b>
<b><u>Member Counts</u></b>			
Active Members	39,669	40,016	0.9%
Retired Members	24,039	24,880	3.5%
Beneficiaries of Retired Members	6,015	6,059	0.7%
Survivors of Deceased Members	638	637	(0.2%)
Disabled Members	1,699	1,684	(0.9%)
Deferred Vested Members	7,447	7,511	0.9%
Inactives Due Refunds	<u>36,611</u>	<u>36,810</u>	0.5%
Total Membership	116,118	117,597	1.3%
Annual Payroll of Active Members*	\$ 1,702,310,338	\$ 1,745,075,075	2.5%
Annual Payments to Benefit Recipients	\$ 658,595,271	\$ 691,848,265	5.0%
<b><u>Assets and Liabilities</u></b>			
Actuarial Liability (AL)	\$ 12,320,158,783	\$ 12,616,287,054	2.4%
Actuarial Value of Assets (AVA)	<u>10,017,512,006</u>	<u>10,375,552,498</u>	3.6%
Unfunded Actuarial Liability (UAL)	\$ 2,302,646,777	\$ 2,240,734,556	(2.7%)
AVA Funding Ratio (AVA/AL)	81.3%	82.2%	
MVA Funding Ratio (MVA/AL)	83.9%	81.2%	
Accrued Benefit Liability (PVAB)	\$ 11,407,151,568	\$ 11,620,489,393	1.9%
Market Value of Assets (MVA)	<u>10,337,615,927</u>	<u>10,242,097,022</u>	(0.9%)
Unfunded PVAB**	\$ 1,069,535,641	\$ 1,378,392,371	28.9%
Accrued Benefit Funded Ratio	90.6%	88.1%	
<b><u>Contributions as a Percentage of Payroll</u></b>			
	<b><u>FY 2016</u></b>	<b><u>FY 2017</u></b>	
Employer Normal Cost Rate	3.96%	3.95%	
UAL Rate	<u>12.10%</u>	<u>12.12%</u>	
Total Employer Rate	16.06%	16.07%	

\*For FY 2016

\*\*Limited to be not less than \$0



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**Table I-3  
Summary of Principal Results  
Teachers Program**

Valuation as of:	June 30, 2014	June 30, 2015	% Change
<b><u>Member Counts</u></b>			
Active Members	26,763	27,200	1.6%
Retired Members	14,313	14,984	4.7%
Beneficiaries of Retired Members	2,748	2,783	1.3%
Survivors of Deceased Members	280	278	(0.7%)
Disabled Members	704	703	(0.1%)
Deferred Vested Members	4,662	4,700	0.8%
Inactives Due Refunds	<u>30,682</u>	<u>30,549</u>	(0.4%)
Total Membership	80,152	81,197	1.3%
Annual Payroll of Active Members*	\$ 1,125,915,449	\$ 1,154,016,315	2.5%
Annual Payments to Benefit Recipients	\$ 399,267,433	\$ 424,433,055	6.3%
<b><u>Assets and Liabilities</u></b>			
Actuarial Liability (AL)	\$ 7,980,307,969	\$ 8,208,737,166	2.9%
Actuarial Value of Assets (AVA)	<u>6,686,320,439</u>	<u>6,947,987,526</u>	3.9%
Unfunded Actuarial Liability (UAL)	\$ 1,293,987,530	\$ 1,260,749,640	(2.6%)
AVA Funding Ratio (AVA/AL)	83.8%	84.6%	
MVA Funding Ratio (MVA/AL)	86.5%	83.6%	
Accrued Benefit Liability (PVAB)	\$ 7,318,652,948	\$ 7,503,274,005	2.5%
Market Value of Assets (MVA)	<u>6,899,978,021</u>	<u>6,858,619,082</u>	(0.6%)
Unfunded PVAB**	\$ 418,674,927	\$ 644,654,923	54.0%
Accrued Benefit Funded Ratio	94.3%	91.4%	
<b><u>Contributions as a Percentage of Payroll</u></b>			
	<b><u>FY 2016</u></b>	<b><u>FY 2017</u></b>	
Employer Normal Cost Rate	3.22%	3.38%	
UAL Rate	<u>9.67%</u>	<u>9.63%</u>	
Total Employer Rate	12.89%	13.01%	

\* For FY 2016

\*\*Limited to be not less than \$0

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**Table I-4  
Summary of Principal Results  
State Program (Regular and Special Plans)**

<b>Valuation as of:</b>	<b>June 30, 2014</b>	<b>June 30, 2015</b>	<b>% Change</b>
<b><u>Member Counts</u></b>			
Active Members	12,906	12,816	(0.7%)
Retired Members	9,726	9,896	1.7%
Beneficiaries of Retired Members	3,267	3,276	0.3%
Survivors of Deceased Members	358	359	0.3%
Disabled Members	995	981	(1.4%)
Deferred Vested Members	2,785	2,811	0.9%
Inactives Due Refunds	<u>5,929</u>	<u>6,261</u>	5.6%
Total Membership	35,966	36,400	1.2%
Annual Payroll of Active Members*	\$ 576,394,889	\$ 591,058,760	2.5%
Annual Payments to Benefit Recipients	\$ 259,327,838	\$ 267,415,210	3.1%
<b><u>Assets and Liabilities</u></b>			
Actuarial Liability (AL)	\$ 4,339,850,814	\$ 4,407,549,888	1.6%
Actuarial Value of Assets (AVA)	<u>3,331,191,567</u>	<u>3,427,564,972</u>	2.9%
Unfunded Actuarial Liability (UAL)	\$ 1,008,659,247	\$ 979,984,916	(2.8%)
AVA Funding Ratio (AVA/AL)	76.8%	77.8%	
MVA Funding Ratio (MVA/AL)	79.2%	76.8%	
Accrued Benefit Liability (PVAB)	\$ 4,088,498,620	\$ 4,117,215,388	0.7%
Market Value of Assets (MVA)	<u>3,437,637,906</u>	<u>3,383,477,940</u>	(1.6%)
Unfunded PVAB**	\$ 650,860,714	\$ 733,737,448	12.7%
Accrued Benefit Funded Ratio	84.1%	82.2%	
<b><u>Contributions as a Percentage of Payroll</u></b>			
	<b><u>FY 2016</u></b>	<b><u>FY 2017</u></b>	
Employer Normal Cost Rate	5.39%	5.05%	
UAL Rate	<u>16.84%</u>	<u>16.99%</u>	
Total Employer Rate	22.23%	22.04%	

\* For FY 2016

\*\* Limited to be not less than \$0

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**Table I-5  
Summary of Principal Results  
State Program – Regular Plans Only**

<b>Valuation as of:</b>	<b>June 30, 2014</b>	<b>June 30, 2015</b>	<b>% Change</b>
<b><u>Member Counts</u></b>			
Active Members	11,134	11,038	(0.9%)
Retired Members	8,864	9,036	1.9%
Beneficiaries of Retired Members	2,901	2,897	(0.1%)
Survivors of Deceased Members	349	349	0.0%
Disabled Members	915	901	(1.5%)
Deferred Vested Members	2,549	2,573	0.9%
Inactives Due Refunds	<u>5,242</u>	<u>5,495</u>	4.8%
Total Membership	31,954	32,289	1.0%
Annual Payroll of Active Members*	\$ 488,119,422	\$ 499,495,116	2.3%
Annual Payments to Benefit Recipients	\$ 226,682,819	\$ 234,063,127	3.3%
<b><u>Assets and Liabilities</u></b>			
Actuarial Liability (AL)	\$ 3,712,477,722	\$ 3,780,803,720	1.8%
Actuarial Value of Assets (AVA)	<u>2,881,426,309</u>	<u>2,992,282,440</u>	3.8%
Unfunded Actuarial Liability (UAL)	\$ 831,051,413	\$ 788,521,280	(5.1%)
AVA Funding Ratio (AVA/AL)	77.6%	79.1%	
MVA Funding Ratio (MVA/AL)	80.1%	78.1%	
Accrued Benefit Liability (PVAB)	\$ 3,494,405,003	\$ 3,528,747,276	1.0%
Market Value of Assets (MVA)	<u>2,973,500,653</u>	<u>2,953,794,227</u>	(0.7%)
Unfunded PVAB**	\$ 520,904,350	\$ 574,953,049	10.4%
Accrued Benefit Funded Ratio	85.1%	83.7%	
<b><u>Contributions as a Percentage of Payroll</u></b>			
	<b><u>FY 2016</u></b>	<b><u>FY 2017</u></b>	
Employer Normal Cost Rate	5.19%	4.87%	
UAL Rate	<u>16.39%</u>	<u>16.55%</u>	
Total Employer Rate	21.58%	21.42%	

\* For FY 2016

\*\*Limited to be not less than \$0

**MAINE PUBLIC EMPLOYEES RETIREMENT SYSTEM  
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**SECTION I  
BOARD SUMMARY**

**Table I-6  
Summary of Principal Results  
State Program – Special Plans Only**

Valuation as of:	June 30, 2014	June 30, 2015	% Change
<b><u>Member Counts</u></b>			
Active Members	1,772	1,778	0.3%
Retired Members	862	860	(0.2%)
Beneficiaries of Retired Members	366	379	3.6%
Survivors of Deceased Members	9	10	11.1%
Disabled Members	80	80	0.0%
Deferred Vested Members	236	238	0.8%
Inactives Due Refunds	687	766	11.5%
Total Membership	4,012	4,111	2.5%
Annual Payroll of Active Members*	\$ 88,275,467	\$ 91,563,644	3.7%
Annual Payments to Benefit Recipients	\$ 32,645,019	\$ 33,352,083	2.2%
<b><u>Assets and Liabilities</u></b>			
Actuarial Liability (AL)	\$ 627,373,092	\$ 626,746,168	(0.1%)
Actuarial Value of Assets (AVA)	449,765,258	435,282,532	(3.2%)
Unfunded Actuarial Liability (UAL)	\$ 177,607,834	\$ 191,463,636	7.8%
AVA Funding Ratio (AVA/AL)	71.7%	69.5%	
MVA Funding Ratio (MVA/AL)	74.0%	68.6%	
Accrued Benefit Liability (PVAB)	\$ 594,093,617	\$ 588,468,112	(0.9%)
Market Value of Assets (MVA)	464,137,253	429,683,713	(7.4%)
Unfunded PVAB**	\$ 129,956,364	\$ 158,784,399	22.2%
Accrued Benefit Funded Ratio	78.1%	73.0%	
<b><u>Contributions as a Percentage of Payroll</u></b>			
	<b><u>FY 2016</u></b>	<b><u>FY 2017</u></b>	
Employer Normal Cost Rate	6.52%	6.06%	
UAL Rate	19.36%	19.45%	
Total Employer Rate	25.88%	25.51%	

\*For FY 2016

\*\*Limited to be not less than \$0

**CONSOLIDATED PLAN FOR PARTICIPATING LOCAL DISTRICTS  
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**SECTION II  
ASSETS**

Pension plan assets play a key role in the financial operation of plans and in the decisions Trustees make with respect to future deployment of those assets. The level of assets, the allocation of assets among asset classes, and the methodology used to measure assets will likely impact benefit levels, employer contribution rates, and the ultimate security of members' benefits.

The assets for all defined benefit (DB) programs administered by MainePERS are invested together. These programs are the State Employee and Teacher Retirement Program, the Judicial Retirement Program, the Legislative Retirement Program, and the Participating Local District Retirement Program, including both the Consolidated Plan and the several Nonconsolidated PLDs. The assets of all of these programs are entirely commingled for investment purposes, so the actuarial value of assets (AVA) for each of these programs is developed by first developing it for the entire asset pool and then subsequently allocating that total AVA to each of the specific programs.

In this section, we present detailed information on Program assets including:

- Disclosure of total MainePERS DB assets at June 30, 2014 and June 30, 2015
- Statement of the changes in total MainePERS DB market values during the year;
- Development of the total MainePERS DB actuarial value of assets;
- Allocation of total actuarial value to MainePERS DB sub-plans;
- Assessment of the total MainePERS DB investment performance; and,
- Projection of expected cash flows for the Plan for the next ten years.

## **Disclosure**

The market value of assets (MVA) represents a “snap-shot” or “cash-out” value, which provides the principal basis for measuring financial performance from one year to the next. However, market values can fluctuate widely with corresponding swings in the marketplace, resulting in volatility in the resulting contributions if the unadjusted market value is used in the valuation process. Therefore, a smoothed, actuarial value is developed for use in this process and for evaluating the Program's ongoing ability to meet its obligations.

Current actuarial methods employed in this Program use an allocated portion of the actuarial value of assets developed for the total MainePERS DB assets. The actuarial methodology used for the total assets sets the actuarial value of assets equal to the expected value of the actuarial value of assets plus one-third of the difference between the actual market value of assets and the expected actuarial value of assets all as of the valuation date. The expected value of the actuarial value of assets takes the prior year's actuarial value of assets and adjusts it for contributions, benefit payments, and expected interest earnings at the investment return assumption that was in effect for the previous year, 7.125% for this valuation.

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**SECTION II  
ASSETS**

Table II-1 below develops the change in the market value of assets for the total MainePERS DB assets during FY 2015.

<b>Table II-1</b>	
<b>Changes in Market Value of Total MainePERS Defined Benefit (DB) Assets</b>	
<b>Market Value of Total MainePERS DB Assets – June 30, 2014</b>	<b>\$ 12,898,321,939</b>
<b><u>Additions</u></b>	
Contributions:	
Employer Contributions	\$ 365,886,167
Member Contributions	161,569,243
Transfers	<u>(5,355)</u>
Total Contributions	\$ 527,450,055
Investment Income:	
Net Appreciation (Depreciation) in Fair Value of Investments	\$ 294,468,581
Interest on Bank Balances	<u>105,896</u>
Total Investment Income	\$ 294,574,477
Investment Activity Expenses:	
Management Fees	\$ (51,359,116)
Investment Related Expense	(3,351,547)
Banking Fees	<u>(34,971)</u>
Total Investment Activity Expenses	\$ (54,745,634)
Net Income from Investing Activities	\$ 239,828,843
Total Additions	\$ 767,278,898
<b><u>Deductions</u></b>	
Retirement Benefits	\$ (782,698,209)
Disability Benefits	(34,865,317)
Survivor Benefits	(21,546,043)
Refunds	(68,482,431)
Administrative Expenses	<u>(11,125,637)</u>
Total Deductions	\$ (918,717,637)
<b><u>Total</u></b>	
Net Increase (Decrease)	\$ (151,438,739)
<b>Market Value of Total MainePERS DB Assets – June 30, 2015</b>	<b>\$ 12,746,883,200</b>

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**SECTION II  
ASSETS**

Table II-2 below develops the actuarial value of assets for the Total MainePERS DB assets as of June 30, 2015 using the adopted actuarial valuation methodology.

<b>Table II-2 Development of Actuarial Value of Total MainePERS Defined Benefit (DB) Assets as of June 30, 2015</b>		
1.	Actuarial Value of Total MainePERS DB Assets at June 30, 2014	\$ 12,498,925,846
2.	Amount in (1) with Interest to June 30, 2015	13,389,474,313
3.	Employer and Member Contributions for FY 15	527,450,055
4.	Interest on Contributions in (3), Assuming Received Uniformly Throughout FY 15	18,467,122
5.	Total Disbursements without Administrative Expenses for FY 15	(907,592,000)
6.	Interest on Disbursements in (5), Assuming Payments Made Uniformly throughout FY 15	<u>(31,776,681)</u>
7.	Expected Value of Total MainePERS DB Assets at June 30, 2015 = (2) + (3) + (4) + (5) + (6)	\$ 12,996,022,809
8.	Actual Market Value of Total MainePERS DB Assets at June 30, 2015	12,746,883,200
9.	Excess of (8) Over (7)	(249,139,609)
10.	Recognition of Past Deferred Asset Gains	<u>0</u>
11.	Actuarial Value of Total MainePERS DB Assets at June 30, 2015 = (7) + [33⅓% of (9)] + (10)	\$ 12,912,976,273

**Actuarial Value of Total MainePERS DB Assets**

As discussed in the disclosure portion of this section, the actuarial value of assets for the Program represents a “smoothed” value developed by the actuary to reduce, or eliminate, volatility in contribution rates that could develop from short-term fluctuations in the market value of assets. Current actuarial methods employed in this Plan use an allocated portion of the actuarial valuation process applied to the total MainePERS DB assets. This methodology for the total MainePERS DB assets sets the actuarial value of assets equal to the expected value of the actuarial value of assets plus one-third of the difference between the actual market value of assets and the expected actuarial value of assets. The expected value of the actuarial value of assets takes the prior year’s actuarial value of assets and adjusts it for contributions, benefit payments, and expected interest earnings at the investment return assumption that was in effect for the previous year, 7.125% for this valuation. The previous table, Table II-2, illustrates the calculation of the actuarial value of assets for the total MainePERS DB assets as of June 30, 2015.

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**SECTION II  
ASSETS**

**Allocation of Actuarial Value of Assets to the Program**

The assets for all of the defined benefit plans administered by MainePERS are commingled for investment purposes, with the adopted actuarial smoothing methodology applied to the market value of the total MainePERS DB assets. This produces an asset ratio (total MainePERS actuarial value of assets divided by total MainePERS market value of assets) that is then applied to the market value of assets attributable to each of the programs to determine their actuarial value of assets as of the valuation date. The asset ratio derived in this June 30, 2015 valuation as shown in Table II-2 above is 1.013030 ( $\$12,912,976,273 \div \$12,746,883,200$ ). The allocation of actuarial value of the total MainePERS DB assets to each of the MainePERS DB programs based on this asset ratio is shown in the following chart.

<b>Table II-3 Allocation of Actuarial Value of Total MainePERS DB Assets as of June 30, 2015</b>		
	<b>Market Value</b>	<b>Actuarial Value</b>
Teachers	\$ 6,858,619,082	\$ 6,947,987,526
State (Regular & Special)	3,383,477,940	3,427,564,972
Judges	56,340,825	57,074,951
Legislators	11,075,564	11,219,880
Participating Local Districts (Consolidated & Non-Consolidated)	<u>2,437,369,789</u>	<u>2,469,128,944</u>
<b>Total</b>	<b>\$ 12,746,883,200</b>	<b>\$ 12,912,976,273</b>

**Investment Performance**

The market value of assets for the total MainePERS DB assets returned a positive 1.80% during FY 2015. This is lower than the assumed return of 7.125%. The equivalent returns in FY 2014 and FY 2013 were positive 16.85% and positive 11.20%, respectively.

On an actuarial value of assets basis, the return for FY 2015 for the total MainePERS DB assets was a positive 6.45%. This return is higher than the return on a market value basis, but still lower than the 7.125% assumption. Therefore, this return gave rise to an investment loss on the total MainePERS DB assets this year of which the Program experienced a portion.



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**SECTION II  
ASSETS**

**Cash Flow Projections**

<b>Table II-4 Projection of State and Teacher Program Benefit Payments and Contributions</b>				
<b>FY Ending June 30</b>	<b>Expected Benefit Payments</b>	<b>Expected Employer Contributions</b>	<b>Expected Member Contributions</b>	<b>Total Expected Contributions</b>
2016	\$ 720,157,000	\$ 292,592,000	\$136,702,000	\$429,294,000
2017	781,433,000	302,833,000	141,487,000	444,320,000
2018	823,154,000	306,319,000	146,439,000	452,758,000
2019	861,764,000	317,040,000	151,564,000	468,604,000
2020	898,314,000	335,046,000	156,869,000	491,915,000
2021	934,130,000	346,773,000	162,359,000	509,132,000
2022	967,858,000	363,955,000	168,042,000	531,997,000
2023	1,000,379,000	366,010,000	173,923,000	539,933,000
2024	1,030,671,000	378,819,000	180,010,000	558,829,000
2025	1,059,325,000	443,079,000	186,311,000	629,390,000

In Table II-4 above, we provide a projection of cash flows in and out of the Program for the next ten years for informational purposes. The Board may share these projections with its investment advisor for consideration of the growing gap shown between cash coming into the Program through employer and member contributions and cash being paid out of the Program to provide benefit payments.

The expected benefit payments in Table II-4 were developed using the data currently included in this valuation and on the assumption that the actuarial assumptions disclosed in Appendix C will be exactly met. Actual benefit payments will vary if members retire sooner or later than assumed, if salary increases and projected future post-retirement COLAs differ from those assumed, or if other assumptions differ from the actual experience seen. These benefit projections exclude any assumption about new Program participants, whose experience will eventually lead to increased benefit payments. However, we do not feel this exclusion will materially impact the projections for the time period shown.

Expected employer contributions in this table use the budget UAL contributions for FY 15 through FY 17. Future contributions beyond that point are developed based on the assumption that all actuarial assumptions are exactly met, including that the market value of assets will earn 7.125% per year, that payroll grows at 3.50% per year, and that these rates are based on following the biennial budgeting process. These future employer contributions are shown graphically in the baseline projection on page six.

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The projection of member contributions is similarly based on a 3.50% per year increase in covered payroll multiplied by the average aggregate member contribution rate of 7.70%.

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**SECTION III  
LIABILITIES**

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

- Disclosure of Program liabilities at June 30, 2014 and June 30, 2015;
- Statement of changes in these liabilities during the year; and,
- An allocation of liabilities to the Teachers, State Regular, and State Special Plans.

**Disclosure**

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

- Present Value of Future Benefits (PVB): Used for analyzing the overall financial obligations of the Program, this represents the amount of money needed today to fully pay off all future benefits of the Program, assuming active participants continue to earn salary increases and accrue benefits under their current plan provisions and assuming all actuarial assumptions are exactly met, including the 7.125% per year investment return.
- Actuarial Liability (AL): Used for funding calculations and GASB disclosures, this liability is calculated taking PVB above and subtracting the value of accruals that are assigned to future years on a person-by-person basis. This offset is equal to the present value of future member contributions and future employer normal cost contributions under an acceptable actuarial funding method. For this Program and the other MainePERS defined benefit plans, this method is referred to as the entry age normal (EAN) funding method.
- Present Value of Accrued Benefits (PVAB): Used for communicating the liabilities for benefits accrued as of the valuation date.

Table III-1 below discloses each of these liabilities for the current and prior years' valuations. With respect to the actuarial liability and the present value of accrued benefits, a subtraction of the appropriate value of plan assets yields, for each respective type, a net surplus or an unfunded liability.

We note that none of the liabilities presented in this report is an appropriate measure of the settlement liability.

The present value of future benefits (PVB) is compared to the current market value of assets, the expected future value of member contributions, and the expected future value of total employer contributions. The difference between the PVB and these anticipated resources indicates either an expected shortfall or an expected surplus representing either additional funding or excess funding required on the payroll of new hires to pay for benefits of existing members. This surplus or shortfall indicates the size of the Program's stored gains or losses that remain outside of the valuation process. These gains or losses may enter the rate-making process depending on the future investment performance.

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**SECTION III  
LIABILITIES**

**Table III-1  
Disclosure of Liabilities**

	June 30, 2014	June 30, 2015
<b>Present Value of Benefits (PVB)</b>		
Active Member Benefits	\$ 5,984,525,148	\$ 6,064,463,166
Retiree Benefits	7,092,689,887	7,318,952,505
Terminated (Vested & Nonvested) Benefits	479,348,398	512,396,398
<b>Total PVB</b>	<b>\$ 13,556,563,433</b>	<b>\$ 13,895,812,069</b>
Market Value of Assets (MVA)	\$ 10,337,615,927	\$ 10,242,097,022
Future Member Contributions	844,326,336	893,621,684
Future Employer Contributions Assuming No Further Gains or Losses or New Hires	2,761,137,318	2,699,173,285
Projected (Surplus)/Shortfall	(386,516,148)	60,920,078
<b>Total Resources</b>	<b>\$ 13,556,563,433</b>	<b>\$ 13,895,812,069</b>
<b>Actuarial Liability (AL)</b>		
Present Value of Benefits (PVB)	\$ 13,556,563,433	\$ 13,895,812,069
Present Value of Future Normal Costs (PVFNC)		
Employer Portion	392,078,314	385,903,331
Member Portion	844,326,336	893,621,684
<b>Actuarial Liability (AL = PVB – PVFNC)</b>	<b>\$ 12,320,158,783</b>	<b>\$ 12,616,287,054</b>
Actuarial Value of Assets (AVA)	10,017,512,006	10,375,552,498
<b>Net (Surplus)/Unfunded (AL – AVA)</b>	<b>\$ 2,302,646,777</b>	<b>\$ 2,240,734,556</b>
<b>Present Value of Accrued Benefits</b>		
Present Value of Future Benefits (PVB)	\$ 13,556,563,433	\$ 13,895,812,069
Present Value of Future Benefit Accruals (PVFBA)	2,149,411,865	2,275,322,676
<b>Accrued Liability (PVAB = PVB – PVFBA)</b>	<b>\$ 11,407,151,568</b>	<b>\$ 11,620,489,393</b>
Market Value of Assets (MVA)	10,337,615,927	10,242,097,022
<b>Net (Surplus)/Unfunded (PVAB – MVA)</b>	<b>\$ 1,069,535,641</b>	<b>\$ 1,378,392,371</b>

**MAINE PUBLIC EMPLOYEES RETIREMENT SYSTEM  
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**SECTION III  
LIABILITIES**

**Changes in Liabilities**

Each of the liabilities disclosed in the prior table is expected to change at each subsequent valuation. The components of these changes, depending upon which liability is analyzed, can include:

- New plan participants since the last valuation
- Benefits accrued since the last valuation
- Plan amendments changing benefits since the last valuation
- 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 since the last valuation
- A change in actuarial assumptions since the last valuation
- A change in the actuarial funding method since the last valuation

Unfunded liability measurements will change because of all of the above, as well as due to changes in Program asset measurements resulting from:

- Employer contributions being different than expected
- Investment earnings being different than expected
- A change in the method used to measure Program assets in developing the unfunded liability measure since the last valuation

In each valuation, we report on those elements of change in Program liability measures that are of particular significance, potentially affecting the long-term financial outlook of the Program. In Table III-2 below, we present key changes in Program liability measures since the last valuation.

	<b>Table III-2</b>		
	<b>Present Value of Future Benefits</b>	<b>Actuarial Liability</b>	<b>Present Value of Accrued Benefits</b>
Liability Measurement – June 30, 2014	\$ 13,556,563,433	\$ 12,320,158,783	\$ 11,407,151,568
Liability Measurement – June 30, 2015	<u>13,895,812,069</u>	<u>12,616,287,054</u>	<u>11,620,489,393</u>
Liability Measurement Increase	\$ 339,248,636	\$ 296,128,271	\$ 213,337,825
(Decrease) Due to:			
Plan Amendment	\$ 9,778,106	\$ 9,778,106	\$ 9,778,106
Assumption Change	0	0	0
Actuarial (Gain)/Loss	N/C	(44,287,643)	N/C
Benefits Accumulated and Other Sources	\$ 329,470,530	\$ 330,637,808	\$ 203,559,719

N/C = Not calculated

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**SECTION III  
LIABILITIES**

Table III-3 below presents the actuarial liability information for the total Program divided into the Teacher Program, the State Regular Plans, and the State Special Plans.

<b>Table III-3</b>				
<b>Allocation of Actuarial Liability as of June 30, 2015</b>				
	<b>Total Program</b>	<b>Teachers Program</b>	<b>State Regular Plans</b>	<b>State Special Plans</b>
1. Actuarial Liabilities for:				
a. Active Members	\$ 4,784,938,151	\$3,289,054,389	\$ 1,244,022,690	\$ 251,861,072
b. Retired, Disabled, and Beneficiary Members	7,318,952,505	4,574,408,674	2,380,068,772	364,475,059
c. Terminated Vested and Inactive Members	512,396,398	345,274,103	156,712,258	10,410,037
2. Total Actuarial Liability (1(a) + 1(b) + 1(c))	\$ 12,616,287,054	\$8,208,737,166	\$ 3,780,803,720	\$ 626,746,168
3. Actuarial Value of Assets	<u>10,375,552,498</u>	<u>6,947,987,526</u>	<u>2,992,282,440</u>	<u>435,282,532</u>
4. Unfunded Actuarial Liability (2 – 3)	\$ 2,240,734,556	\$1,260,749,640	\$ 788,521,280	\$ 191,463,636

**MAINE PUBLIC EMPLOYEES RETIREMENT SYSTEM  
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**SECTION IV  
CONTRIBUTIONS**

In this section, we present detailed information on the employer contributions based on this June 30, 2015 valuation for the Program, including:

- Development of the composite total employer contribution rate, including the composite employer normal cost rate and the composite unfunded actuarial liability (UAL) rate;
- Summary of the employer normal cost rate, the UAL rate, and the total employer rate by plan;
- Derivation and division of the composite UAL rate into the two component programs, Teachers and State; and,
- Allocation of the UAL rate for the total State Program into each State Regular and Special plan.

Note that these contribution rates are only informational and the actual contribution rates are set by the budgeting process described in the Board Summary at the beginning of this report.

**Description of Rate Components**

For the plans in this Program, the funding methodology employed is the entry age normal funding method. Under this method, there are two components to the total contribution: the normal cost rate (NC rate), and the unfunded actuarial liability rate (UAL rate). Both of these rates are developed for each plan within the Program, consisting of the Teachers Plan, the State Regular Plan, and several State Special Plans.

For each plan in the Program, an individual entry age normal cost rate is determined for each active member. The normal cost is determined by the following steps. First, an individual normal cost rate is determined by taking the value, as of entry age into a plan, of each active member's projected future benefit. Second, this value is then divided by the value, also at entry age, of the member's expected future salary. Finally, the rate is reduced by the member contribution rate to produce the employer normal contribution rate. These rates are then multiplied by each member's salary as of the valuation date to get the total normal cost dollars as of the valuation date for that plan and then divided by the total payroll at the valuation for the plan to get the normal cost rate for that plan. This process results in specific normal cost rates for each of the plans in the Program.

The unfunded actuarial liability under the entry age normal funding method equals the present value, at the time of valuation, of the future benefit payments less the present value of future employer normal cost contributions, future member contributions, future UAL payments, and current assets. The UAL rate determined is the percentage that applied to member payroll is expected to amortize the UAL according to the Program's amortization policy. Specifically, the remaining original UAL has 13 years of its amortization period remaining and all other gains, losses, and changes are amortized over ten-year periods beginning on the date as of which they occur.

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**SECTION IV  
CONTRIBUTIONS**

**Contribution Calculations**

Table IV-1 below presents and compares the composite total employer contribution rate, as well as its two components, for all plans in the Program for this valuation and the prior one.

<b>Table IV-1</b>		
<b>Composite Total Employer Rate</b>		
	<b>June 30, 2014</b>	<b>June 30, 2015</b>
Composite Employer NC Rate	3.96%	3.95%
Composite UAL Rate	<u>12.10%</u>	<u>12.12%</u>
Composite Total Employer Rate	16.06%	16.07%

Table IV-2 shows the employer NC rate, the UAL rate, and the total employer rate for each plan in the Program.

<b>Table IV-2</b>			
<b>Total Employer Contribution Rates by Plan</b>			
<b>Valuation Date</b>	<b>Employer</b>	<b>UAL</b>	<b>Total</b>
<b>June 30, 2015</b>	<b>NC Contribution</b>	<b>Contribution</b>	<b>Employer</b>
	<b>Rate</b>	<b>Rate</b>	<b>Contribution</b>
			<b>Rate</b>
Total Program	3.95%	12.12%	16.07%
Teacher Program	3.38%	9.63%	13.01%
State Program	5.05%	16.99%	22.04%
State Regular	4.87%	16.55%	21.42%
State Police (Closed)	11.95%	27.24%	39.19%
Inland F&W (Closed)	13.09%	28.74%	41.83%
Prison Employees (Closed)	4.65%	17.58%	22.23%
Forest Rangers (Closed)	4.30%	17.12%	21.42%
25 & Out Plan	4.72%	17.68%	22.40%
1998 Special Plan	6.66%	20.24%	26.90%



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Table IV-3 below provides the development of the UAL rate for the Teacher Program as well as the composite UAL rate based on the total State Program.

**Table IV-3  
Derivation of Unfunded Actuarial Liability Rates**

Valuation Date June 30, 2015	Teacher Program	State Program (Regular and Special Plans)	Total Program
1. Actuarial Liability (AL)	\$ 8,208,737,166	\$ 4,407,549,888	\$12,616,287,054
2. Actuarial Value of Assets (AVA)	<u>6,947,987,526</u>	<u>3,427,564,972</u>	<u>10,375,552,498</u>
3. Unfunded Actuarial Liability (UAL)	\$ 1,260,749,640	\$ 979,984,916	\$ 2,240,734,556
4. Remaining Balances of Prior Amortization Bases			
a. Original UAL Amount	\$ 1,567,751,505	\$ 902,753,527	\$ 2,470,505,032
b. 2012 (Gain)/Loss Base	25,670,323	25,670,323	51,340,646
c. 2013 (Gain)/Loss Base	(117,458,725)	132,039,672	14,580,947
d. 2014 (Gain)/Loss Base	(202,463,905)	(82,192,197)	(284,656,102)
e. 2015 (Gain)/Loss Base	<u>(12,749,558)</u>	<u>1,713,591</u>	<u>(11,035,967)</u>
f. Sum of the Bases	\$ 1,260,749,640	\$ 979,984,916	\$ 2,240,734,556
5. UAL Amortizations			
a. Original UAL Amount 13 Years	\$ 152,189,806	\$ 87,634,988	\$ 239,824,794
b. 2012 (Gain)/Loss Base 7 Years	4,198,569	4,198,569	8,397,138
c. 2013 (Gain)/Loss Base 8 Years	(17,089,025)	19,210,401	2,121,376
d. 2014 (Gain)/Loss Base 9 Years	(26,615,724)	(10,804,913)	(37,420,637)
e. 2015 (Gain)/Loss Base 10 Years	<u>(1,533,193)</u>	<u>206,067</u>	<u>(1,327,126)</u>
f. Sum of Amortization Payments	\$ 111,150,433	\$ 100,445,112	\$ 211,595,545
6. Covered Payroll	\$ 1,154,016,315	\$ 591,058,760	\$ 1,745,075,075
7. UAL Amortization Rate			
a. Original UAL Amount 13 Years	13.19%	14.83%	13.74%
b. 2012 (Gain)/Loss Base 7 Years	0.36%	0.71%	0.48%
c. 2013 (Gain)/Loss Base 8 Years	(1.48%)	3.25%	0.12%
d. 2014 (Gain)/Loss Base 9 Years	(2.31%)	(1.83%)	(2.14%)
e. 2015 (Gain)/Loss Base 10 Years	<u>(0.13%)</u>	<u>0.03%</u>	<u>(0.08%)</u>
<b>f. Sum of UAL Amortization Rates</b>	<b>9.63%</b>	<b>16.99%</b>	<b>12.12%</b>

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Table IV-4 below shows the development of the UAL rate for each plan within the State Program.

<b>Table IV-4 Allocation of Unfunded Actuarial Liability Rates within State Program (Regular &amp; Special Plans)</b>								
<b>Valuation Date June 30, 2015</b>	<b>Total State Program</b>	<b>State Regular Plan</b>	<b>State Police (Closed)</b>	<b>Inland F&amp;W (Closed)</b>	<b>Prison Employees (Closed)</b>	<b>Forest Rangers (Closed)</b>	<b>25 &amp; Out Plan</b>	<b>1998 Special Plan</b>
1. Employer NC Rate	5.05%	4.87%	11.95%	13.09%	4.65%	4.30%	4.72%	6.66%
2. Member Contribution Rate	<u>7.80%</u>	<u>7.65%</u>	<u>8.65%</u>	<u>8.65%</u>	<u>8.65%</u>	<u>8.65%</u>	<u>8.65%</u>	<u>8.65%</u>
3. Total NC Rate	12.85%	12.52%	20.60%	21.74%	13.30%	12.95%	13.37%	15.31%
4. UAL Amortization Rates*								
a. Original UAL Amount	14.83%	14.45%	23.77%	25.09%	15.35%	14.94%	15.43%	17.67%
b. 2012 Loss Base	0.71%	0.69%	1.14%	1.20%	0.73%	0.72%	0.74%	0.84%
c. 2013 Loss Base	3.25%	3.16%	5.21%	5.50%	3.36%	3.27%	3.38%	3.87%
d. 2014 Gain Base	(1.83%)	(1.78%)	(2.93%)	(3.10%)	(1.89%)	(1.84%)	(1.90%)	(2.18%)
e. 2015 Loss Base	0.03%	0.03%	0.05%	0.05%	0.03%	0.03%	0.03%	0.04%
f. Sum of Amortization Rates	16.99%	16.55%	27.24%	28.74%	17.58%	17.12%	17.68%	20.24%

\* The 16.99% UAL amortization rate for the State Program in total is allocated to each of the plans within the program based on the ratio of that plan's total NC rate to the 12.85% total NC rate for the State Program in total.

The rates developed in this section are for valuation purposes only. Actual budgeted rates are set based on the process described in the Board Summary section.

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This section contains financial disclosure information regarding the Program developed under a number of accounting standards and guidance.

First, for informational purposes, we show the Program's funded status under the Financial Accounting Standards Board (FASB) ASC Topic 960, which discloses how the market value of assets would compare to accrued liabilities if contributions were to stop and accrued benefit claims had to be satisfied as of the valuation date. However, due to potential legal requirements and the possibility that alternative interest rates would have to be used to determine the liabilities, these values may not be a good indication of the amount of money it would take to buy the benefits for all members if all plans in the Consolidated Program were to terminate. We have prepared the following exhibit in this section based on FASB ASC Topic 960:

- Table V-1: Accrued Benefits information

The Governmental Accounting Standards Board (GASB) Statements Nos. 67 and 68 establish standards for disclosure of pension information by public employee retirement systems (PERS) and governmental employers in financial statements, notes to financial statements, and supplementary information. We have prepared the following exhibits reflecting provisions of GASB Statement Nos. 67 and 68:

- Table V-2: Schedule of Changes in Net Pension Liability and Related Ratios
- Table V-3: Sensitivity of Net Pension Liability to Changes in Discount Rate
- Table V-4: Schedule of Employer Contributions
- Table V-5: Average Expected Remaining Service Lives

A summary of the terminology used in GASB Statement Nos. 67 and 68 is provided in Appendix D of this report. Note that while much of the information provided in this report under GASB No. 67 is also utilized in GASB No. 68 and Table V-5 included in this section is only applicable to GASB No. 68, additional information necessary for disclosures under Statement No. 68 is developed elsewhere.

Finally, we have also developed disclosure information in this section based on additional guidance relating to Comprehensive Annual Financial Reports (CAFRs) of PERS provided by the Government Finance Officers Association (GFOA) in their publication, *Governmental Accounting, Auditing, and Financial Reporting* (GFAAR). We have prepared the following exhibits reflecting guidance in the GFAAR:

- Table V-6: Analysis of Financial Experience
- Table V-7: Solvency Test

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The present value of accrued benefits, the total pension liability (GASB 67/68), and the actuarial liability (GAAFR) disclosures in this section are all determined assuming that the Program is ongoing and participants continue to terminate employment, retire, etc., in accordance with the actuarial assumptions. Liabilities as of June 30, 2015 are discounted at the assumed valuation interest rate of 7.125% per annum in all of these disclosures.

Table V-1 below includes the relevant amounts as of June 30, 2014 and June 30, 2015 as well as a reconciliation between the two dates under FASB ASC Topic 960.

<b>Table V-1 Accrued Benefits Information</b>		
	<b>June 30, 2014</b>	<b>June 30, 2015</b>
<b>FASB ASC Topic 960 Basis</b>		
1. Present Value of Benefits Accrued to Date (PVAB)		
a. Members Currently Receiving Payments	\$ 7,092,689,887	\$ 7,318,952,505
b. Vested Terminated Members	479,348,398	512,396,398
c. Active Members	<u>3,835,113,283</u>	<u>3,789,140,490</u>
d. Total PVAB	\$ 11,407,151,568	\$ 11,620,489,393
2. Market Value of Assets (MVA)	<u>10,337,615,927</u>	<u>10,242,097,022</u>
3. Unfunded Present Value of Accrued Benefits, But Not Less Than Zero	\$ 1,069,535,641	\$ 1,378,392,371
4. Ratio of MVA to PVAB (2)/(1)(d)	90.6%	88.1%
<b>Change in Present Value of Benefits Accrued to Date during FY 2015</b>		
Increase (Decrease) During Year Attributable to:		
Passage of Time	\$ 787,460,755	
Benefits Paid	(722,573,349)	
Assumption Changes	0	
Plan Changes	9,778,106	
Benefits Accrued, Other Gains/Losses	<u>138,672,313</u>	
Net Increase (Decrease)	\$ 213,337,825	

Table V-2 below shows the changes in the total pension liability (TPL), the plan fiduciary net position (FNP) (i.e., fair value of Program assets), and the net pension liability (NPL) during the measurement year ending June 30, 2015 and related ratios as calculated under the provisions of GASB Statement No. 67 for the Program.

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The change in benefit terms item below reflects the 2014 one-time COLA paid September 19, 2014 based on 1.8% of the first \$30,000 of annual benefits, up to a maximum of \$540 for eligible members. There were no changes in assumptions during the year.

**Table V-2  
Schedule of Changes in Net Pension Liability and Related Ratios  
FY 2015**

	Teachers Program	State Program	Total State and Teacher Program
<b><u>Total Pension Liability (TPL)</u></b>			
Service Cost	\$ 117,658,164	\$ 73,870,485	\$ 191,528,649
Interest (Includes Interest on Service Cost)	558,259,408	303,423,100	861,682,508
Changes of Benefit Terms	5,880,348	3,897,758	9,778,106
Differences Between Actual and Expected Experience	(10,009,695)	(34,277,948)	(44,287,643)
Changes of Assumptions	0	0	0
Benefit Payments, Including Refunds of Member Contributions	<u>(443,359,028)</u>	<u>(279,214,321)</u>	<u>(722,573,349)</u>
<b>Net Change in TPL</b>	<b>228,429,197</b>	<b>67,699,074</b>	<b>296,128,271</b>
<b>Beginning of Year TPL</b>	<b><u>7,980,307,969</u></b>	<b><u>4,339,850,814</u></b>	<b><u>12,320,158,783</u></b>
<b>End of Year TPL</b>	<b><u>\$ 8,208,737,166</u></b>	<b><u>\$ 4,407,549,888</u></b>	<b><u>\$ 12,616,287,054</u></b>
<b><u>Plan Fiduciary Net Position (FNP)</u></b>			
Employer Contributions	\$ 191,332,652	\$ 129,286,416	\$ 320,619,068
Member Contributions	88,243,425	35,285,382	123,528,807
Net Investment Income	128,369,472	63,454,232	191,823,704
Benefit Payments, Including Refunds of Member Contributions	(443,359,028)	(279,214,321)	(722,573,349)
Administrative Expense	<u>(5,945,460)</u>	<u>(2,971,675)</u>	<u>(8,917,135)</u>
<b>Net Change in FNP</b>	<b>(41,358,939)</b>	<b>(54,159,966)</b>	<b>(95,518,905)</b>
<b>Beginning of Year FNP</b>	<b><u>6,899,978,021</u></b>	<b><u>3,437,637,906</u></b>	<b><u>10,337,615,927</u></b>
<b>End of Year FNP</b>	<b><u>\$ 6,858,619,082</u></b>	<b><u>\$ 3,383,477,940</u></b>	<b><u>\$ 10,242,097,022</u></b>
<b>End of Year Net Pension Liability (NPL)</b>	<b><u>\$ 1,350,118,084</u></b>	<b><u>\$ 1,024,071,948</u></b>	<b><u>\$ 2,374,190,032</u></b>
FNP as a Percentage of TPL	83.6%	76.8%	81.2%
Covered-Employee Payroll (Payroll)*	1,143,110,948	556,049,941	1,699,160,889
NPL as a Percentage of Payroll	118.1%	184.2%	139.7%

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A ten-year schedule of changes in NPL and related ratios is to be included within the CAFR for PERS. However, based on GASB guidance, this ten-year history can be built one year at a time following implementation. We have shown only the second year of this *Schedule of Changes in Net Pension Liability and Related Ratios* above and believe that you can accumulate these individual years in the MainePERS CAFR to build this schedule to show the full ten-year schedule over time. Notes to this schedule should be included for any factors significantly impacting the trends reported within the period shown in this schedule at that time. We do not believe that any such note is necessary for the measurement year ending June 30, 2015, but it is our expectation that System staff will make the final determination regarding any notes needed for this schedule.

Table V-3 below illustrates the sensitivity of the net pension liability (NPL) to the discount rate. Changes in the discount rate affect the measurement of the total pension liability (TPL) for the Program. Lower discount rates produce a higher TPL, and higher discount rates produce a lower TPL. Because the discount rate does not affect the measurement of assets, the percentage change in the Net Pension Liability (NPL) can be very significant for relatively small changes in the discount rate.

**Table V-3  
Sensitivity of Net Pension Liability to Changes in Discount Rate  
FY 2015**

	1% Decrease 6.125%	Discount Rate 7.125%	1% Increase 8.125%
<b>Teacher Program</b>			
Total Pension Liability (TPL)	\$ 9,222,356,552	\$ 8,208,737,166	\$ 7,364,509,603
Plan Fiduciary Net Position (FNP)	<u>6,858,619,082</u>	<u>6,858,619,082</u>	<u>6,858,619,082</u>
Net Pension Liability (NPL)	<u>\$ 2,363,737,470</u>	<u>\$ 1,350,118,084</u>	<u>\$ 505,890,521</u>
FNP as a Percentage of TPL	74.4%	83.6%	93.1%
<b>State Program</b>			
Total Pension Liability (TPL)	\$ 4,902,815,988	\$ 4,407,549,888	\$ 3,989,462,667
Plan Fiduciary Net Position (FNP)	<u>3,383,477,940</u>	<u>3,383,477,940</u>	<u>3,383,477,940</u>
Net Pension Liability (NPL)	<u>\$ 1,519,338,048</u>	<u>\$ 1,024,071,948</u>	<u>\$ 605,984,727</u>
FNP as a Percentage of TPL	69.0%	76.8%	84.8%
<b>Total State and Teacher Program</b>			
Total Pension Liability (TPL)	\$14,125,172,540	\$12,616,287,054	\$11,353,972,270
Plan Fiduciary Net Position (FNP)	<u>10,242,097,022</u>	<u>10,242,097,022</u>	<u>10,242,097,022</u>
Net Pension Liability (NPL)	<u>\$ 3,883,075,518</u>	<u>\$ 2,374,190,032</u>	<u>\$ 1,111,875,248</u>
FNP as a Percentage of TPL	72.5%	81.2%	90.2%

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A one percent decrease in the discount rate increases the TPL by approximately 12% and increases the NPL by approximately 64%. A one percent increase in the discount rate decreases the TPL by approximately 10% and decreases the NPL by approximately 53%.

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Table V-4 below provides information relating to the employer contributions for the Program. Under GASB 67, if an actuarially determined contribution (ADC) or a contractually or statutorily required contribution (CRC) is developed for a single employer or cost-sharing plan, the following schedule is required. For purposes of this schedule, an ADC is a contribution amount determined in accordance with Actuarial Standards of Practice and a CRC is based on statutory or contractual requirements. Both should exclude any amounts to specifically finance specific liabilities of individual employers of the plan. If an ADC is available, the schedule of employer contributions should be developed on that basis. If there is no ADC, but there is a CRC, the schedule should be developed on that basis. Only if neither an ADC nor a CRC is developed can this schedule be omitted from the PERS's CAFR.

The Program's rates set in the ratemaking process meet the definition of an ADC, so for this Program this schedule should be developed on that basis. Based on GASB guidance, a full ten years of information should be shown in this schedule if it is available, but this ten-year history can be built one year at a time following implementation. We have shown only the second year of this *Schedule of Employer Contributions* below and believe that you can accumulate these in the MainePERS CAFR to build this schedule to show the full ten-year schedule over time.

Only the current year of the *Notes to Schedule of Employer Contributions* below needs to be included in the notes to this schedule. However, any factors that significantly affect trends in the *Schedule of Employer Contributions* at any point in the ten-year period should also be included in the notes to this schedule. We do not believe that any such note is necessary for the measurement year ending June 30, 2015, but it is our expectation that System staff will make the final determination regarding any notes needed for this schedule.

**Table V-4  
Schedule of Employer Contributions  
FY 2015**

	Teachers Program	State Program	Total State and Teacher Program
Actuarially Determined Contribution (ADC)	\$ 185,452,117	\$116,576,608	\$ 302,028,725
Contributions in Relation to the ADC	<u>185,452,117</u>	<u>116,576,608</u>	<u>302,028,725</u>
Contribution Deficiency/(Excess)	<u>\$ 0</u>	<u>\$ 0</u>	<u>\$ 0</u>
Covered-Employee Payroll (Payroll)	\$1,143,110,948	\$556,049,941	\$ 1,699,160,889
Contributions as a Percentage of Payroll	16.22%	20.97%	17.78%

\*For FY 2015



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**Notes to Schedule of Employer Contributions:**

Valuation Date: June 30, 2012

Timing: June 30, 2015 ADC rates are calculated based on a 2012 actuarial valuation developed as a roll-forward of the 2011 valuation liability, adjusted for expected experience and any assumption or methodology changes during FY 2012 using actual assets as of June 30, 2012.

**Key Methods and Assumptions Used to Determine Contribution Rates**

Actuarial Cost Method: Entry Age Normal

Asset Valuation Method: 3-year smoothed market

Amortization Method: Level percentage of payroll, closed 16-year amortization of the 2012 UAL

Discount Rate: 7.25%

Amortization  
Growth Rate: 3.50%

Price Inflation 3.50%

Salary Increases: 3.50% plus merit component based on employee's years of service

Mortality: Sex distinct RP-2000 Combined Mortality projected to 2015 using Scale AA for State Employees; Teachers use the same table with a 2-year set back.

A complete description of the methods and assumptions used to determine contribution rates for the year ending June 30, 2015 can be found in the June 30, 2012 actuarial valuation report.

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Table V-5 below was provided in this report at the request of MainePERS staff, showing the development of the average remaining service life for the Plan. GASB 68 requires some items be recognized by employers into pension expense over a period “equal to the average of the expected remaining service lives of all employees that are provided with pensions through the pension plan (active employees and inactive employees) determined as of the beginning of the measurement period.” For the current measurement year ending on June 30, 2015, these values are thus developed as of June 30, 2014. The development of this value is shown below, including reflection of the decision by MainePERS to round the resulting value to the nearest whole year. Note that the decision was made to apply GASB 68 separately to the Teachers Program and the State Program based upon paragraph 19 of that statement, so this value has been provided for both of these Programs.

<b>Table V-5 Average Expected Remaining Service Lives For Measurement Year Ending June 30, 2015</b>			
<b><u>Teachers Program</u></b>			
<b>Status</b>	<b>Total Expected Future Service</b>	<b>Count</b>	<b>Average Remaining Service Lives</b>
Actives	214,986	26,763	8
In-Pay Members	0	18,045	0
Deferred Vested Members	0	4,662	0
Inactives Due Refunds	<u>0</u>	<u>30,682</u>	<u>0</u>
Total Membership	214,986	80,152	3
<b><u>State Program</u></b>			
<b>Status</b>	<b>Total Expected Future Service</b>	<b>Count</b>	<b>Average Remaining Service Life</b>
Actives	116,411	12,906	9
In-Pay Members	0	14,346	0
Deferred Vested Members	0	2,785	0
Inactives Due Refunds	<u>0</u>	<u>5,929</u>	<u>0</u>
Total Membership	116,411	35,966	3

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Table V-6 below is a gain/loss analysis of the changes in the actuarial liability over the past six years, reflecting variances between actual experience and assumed experience for different kinds of risk as specified in the GFOA GAAFR.

<b>Table V-6 ANALYSIS OF FINANCIAL EXPERIENCE Gain and Loss in Actuarial Liability During Fiscal Years Ended June 30 Resulting from Differences Between Assumed Experience and Actual Experience</b>						
<b>Type of Activity</b>	<b>Gain (or Loss) For Fiscal Year Ended June 30, 2010</b>	<b>Gain (or Loss) For Fiscal Year Ended June 30, 2011</b>	<b>Gain (or Loss) For Fiscal Year Ended June 30, 2012</b>	<b>Gain (or Loss) For Fiscal Year Ended June 30, 2013</b>	<b>Gain (or Loss) For Fiscal Year Ended June 30, 2014</b>	<b>Gain (or Loss) For Fiscal Year Ended June 30, 2015</b>
Investment Income	\$(534,019,417)	\$ (29,110,015)	\$(220,050,211)	\$ (52,030,633)	\$ 639,521,136	\$ (67,533,511)
Combined Liability Experience	<u>248,398,931</u>	<u>(91,222,335)</u>	<u>57,603,161</u>	<u>21,191,240</u>	<u>17,694,276</u>	<u>44,287,643</u>
Gain (or Loss) during Year from Financial Experience	\$(285,620,486)	\$(120,332,350)	\$(162,447,050)	\$ (30,839,393)	\$ 657,215,412	\$ (23,245,868)
Non-Recurring Items	<u>0</u>	<u>1,822,058,877</u>	<u>15,629,192</u>	<u>50,659,935</u>	<u>(167,650,573)</u>	<u>0</u>
Composite Gain (or Loss) During Year	<b>\$ (285,620,486)</b>	<b>\$1,701,726,527</b>	<b>\$ (146,817,858)</b>	<b>\$ 19,820,542</b>	<b>\$ 489,564,839</b>	<b>\$ (23,245,868)</b>

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Table V-7 below compares the Program’s assets as of each valuation date shown to the Program’s actuarial liability divided into three separate groups: liabilities for contributions on deposit for current active members, liabilities for future benefits for inactive members, and employer-financed liabilities for current active members. This solvency test is used to assess funding progress based on what percentage of the liabilities for each of these groups the Program’s assets are sufficient to cover. Per GFOA guidance, this schedule is to include this assessment for the ten most recent years and notes to this schedule should be provided to explain any factors that affect the comparability of the data. We do not believe that any such note is necessary for the measurement year ending June 30, 2015, but it is our expectation that System staff will make the final determination regarding any notes needed for this schedule.

<b>Table V-7 SOLVENCY TEST Aggregate Actuarial Liabilities For</b>							
<b>Valuation Date June 30,</b>	<b>(1)</b>	<b>(2)</b>	<b>(3)</b>	<b>Reported Assets</b>	<b>Portion of Actuarial Liabilities Covered by Reported Assets</b>		
	<b>Active Member Contributions</b>	<b>Retirees, Vested Terms, Beneficiaries</b>	<b>Active Members (Employer Financed Portion)</b>		<b>(1)</b>	<b>(2)</b>	<b>(3)</b>
2015	\$2,339,138,044	\$ 7,831,348,903	\$ 2,445,800,107	\$10,375,552,497	100%	100%	8%
2014	2,315,075,905	7,572,038,284	2,433,044,594	10,017,512,006	100%	100%	5%
2013	2,290,505,939	7,181,259,077	2,358,884,866	9,177,749,627	100%	96%	0%
2012	2,271,164,594	6,656,860,191	2,625,281,496	8,880,730,120	100%	99%	0%
2011	2,229,984,967	6,453,384,730	2,598,295,489	8,736,885,121	100%	100%	2%
2010	2,117,903,830	6,856,828,427	3,642,411,748	8,313,459,810	100%	90%	0%
2009	2,002,784,767	6,622,143,609	3,696,290,956	8,325,951,236	100%	95%	0%
2008	1,898,148,565	6,209,005,616	3,560,878,330	8,631,557,629	100%	100%	15%
2007	1,789,362,929	5,850,882,771	3,517,524,438	8,245,520,019	100%	100%	17%
2006	1,678,240,981	5,367,785,679	3,501,272,534	7,504,219,546	100%	100%	13%

**MAINE PUBLIC EMPLOYEES RETIREMENT SYSTEM  
STATE EMPLOYEE AND TEACHER RETIREMENT PROGRAM  
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Active Member Data as of June 30, 2015	
<b><u>Teachers</u></b>	
Count	27,200
Average Current Age	46.4
Average Service	13.1
Average Valuation Pay	\$ 42,427
<b><u>State Employee Regular Plan</u></b>	
Count	11,038
Average Current Age	48.5
Average Service	12.6
Average Valuation Pay	\$ 45,252
<b><u>Forest Rangers Special Plan (Closed Plan)</u></b>	
Count	4
Average Current Age	57.6
Average Service	36.4
Average Valuation Pay	\$ 58,053
<b><u>Inland Fisheries &amp; Wildlife Officers Special Plan (Closed Plan)</u></b>	
Count	3
Average Current Age	59.4
Average Service	34.1
Average Valuation Pay	\$ 57,271
<b><u>Prison Employees Special Plan (Closed Plan)</u></b>	
Count	1
Average Current Age	51.9
Average Service	31.5
Average Valuation Pay	\$ 61,116

MAINE PUBLIC EMPLOYEES RETIREMENT SYSTEM  
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Active Member Data as of June 30, 2015

**State Police Special Plan (Closed Plan)**

Count	4
Average Current Age	57.0
Average Service	33.1
Average Valuation Pay	\$ 92,044

**State Employee Special 25 & Out Plan**

Count	454
Average Current Age	40.6
Average Service	13.8
Average Valuation Pay	\$ 64,711

**State Employee 1998 Special Plan**

Count	1,312
Average Current Age	43.9
Average Service	11.4
Average Valuation Pay	\$ 46,762

**State Employee Totals (Excludes Teachers)**

Count	12,816
Average Current Age	47.8
Average Service	12.6
Average Valuation Pay	\$ 46,119

**MAINE PUBLIC EMPLOYEES RETIREMENT SYSTEM  
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<b>Non-Active Member Data as of June 30, 2015</b>			
<b>Teachers</b>			
	<b>Count</b>	<b>Total Annual Benefit</b>	<b>Average Annual Benefit</b>
Retired	14,984	\$ 373,625,251	\$ 24,935
Retired – Concurrent Beneficiaries	1,440	8,126,682	5,644
Disabilities/1122	0	0	0
Disabilities/3 and 3A	703	19,095,957	27,164
Beneficiaries	1,343	22,008,371	16,387
Pre-Retirement Death Benefits	278	1,576,794	5,672
Terminated Vested	4,700	33,516,261	7,131
Inactive Due Refund	30,549	NA	NA

<b>Non-Active Member Data as of June 30, 2015</b>			
<b>State Regular</b>			
	<b>Count</b>	<b>Total Annual Benefit</b>	<b>Average Annual Benefit</b>
Retired	9,036	\$ 182,673,669	\$ 20,216
Retired – Concurrent Beneficiaries	1,049	5,338,005	5,089
Disabilities/1122	4	69,271	17,318
Disabilities/3 and 3A	897	19,938,797	22,228
Beneficiaries	1,848	24,064,200	13,022
Pre-Retirement Death Benefits	349	1,979,186	5,671
Terminated Vested	2,573	17,441,164	6,779
Inactive Due Refund	5,495	NA	NA

**MAINE PUBLIC EMPLOYEES RETIREMENT SYSTEM  
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<b>Non-Active Member Data as of June 30, 2015 Special Plans</b>			
	<b>Count</b>	<b>Total Annual Benefit</b>	<b>Average Annual Benefit</b>
Retired	860	\$ 26,682,693	\$ 31,026
Retired – Concurrent Beneficiaries	149	889,048	5,967
Disabilities/1122	1	18,619	18,619
Disabilities/3 and 3A	79	2,092,955	26,493
Beneficiaries	230	3,618,269	15,732
Pre-Retirement Death Benefits	10	50,498	5,050
Terminated Vested	238	1,831,443	7,695
Inactive Due Refund	766	NA	NA



**MAINE PUBLIC EMPLOYEES RETIREMENT SYSTEM  
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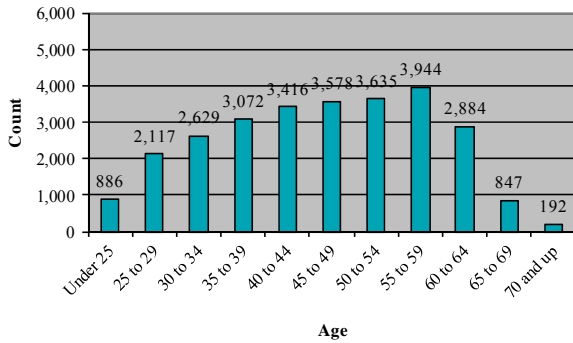
**APPENDIX A  
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**Distribution of Active Members  
As of June 30, 2015**

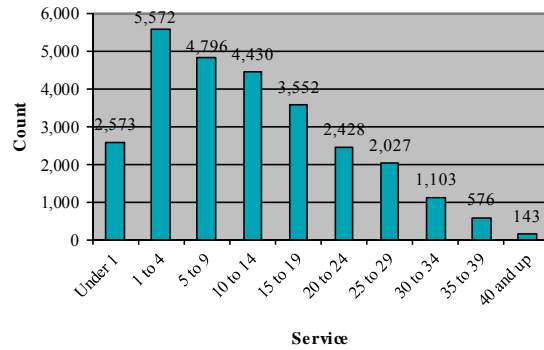
**Teachers**

	Years of Service										Totals
	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 and up	
Under 25	497	389	0	0	0	0	0	0	0	0	886
25 to 29	408	1,325	384	0	0	0	0	0	0	0	2,117
30 to 34	303	767	1,173	386	0	0	0	0	0	0	2,629
35 to 39	296	679	725	1,035	337	0	0	0	0	0	3,072
40 to 44	288	726	639	674	848	240	1	0	0	0	3,416
45 to 49	237	598	613	648	580	680	221	1	0	0	3,578
50 to 54	199	431	491	620	548	425	694	225	2	0	3,635
55 to 59	146	316	408	607	660	511	520	558	217	1	3,944
60 to 64	92	210	251	352	451	456	445	238	312	77	2,884
65 to 69	70	92	86	94	116	99	126	73	38	53	847
70 and up	37	39	26	14	12	17	20	8	7	12	192
<b>Total</b>	<b>2,573</b>	<b>5,572</b>	<b>4,796</b>	<b>4,430</b>	<b>3,552</b>	<b>2,428</b>	<b>2,027</b>	<b>1,103</b>	<b>576</b>	<b>143</b>	<b>27,200</b>

**Age Distribution**



**Service Distribution**



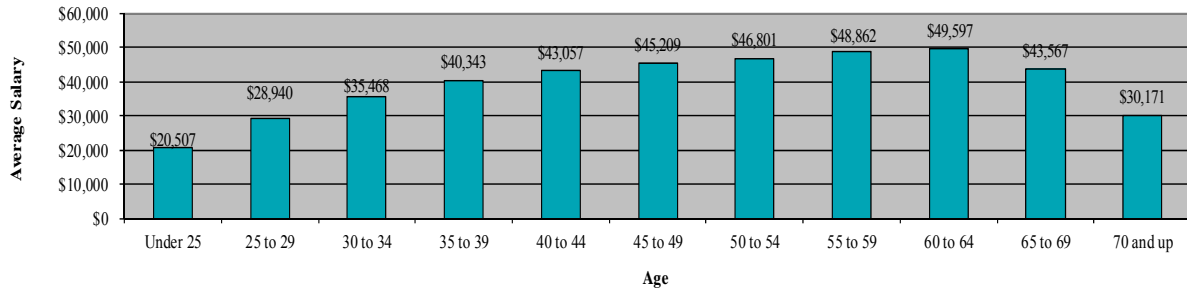
**MAINE PUBLIC EMPLOYEES RETIREMENT SYSTEM  
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**APPENDIX A  
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Distribution of Active Members  
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	Teachers											Average
	Average Salary											
	Years of Service											
	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 and up		
Under 25	\$ 16,361	\$ 25,805	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 20,507	
25 to 29	19,262	29,636	36,821	0	0	0	0	0	0	0	28,940	
30 to 34	20,031	29,907	39,743	45,646	0	0	0	0	0	0	35,468	
35 to 39	19,411	29,722	39,750	48,809	55,399	0	0	0	0	0	40,343	
40 to 44	17,819	28,573	39,149	50,229	56,004	61,464	93,838	0	0	0	43,057	
45 to 49	19,143	26,081	36,604	46,323	56,222	62,419	63,850	3,135	0	0	45,209	
50 to 54	18,407	25,551	33,521	42,335	51,111	60,309	63,446	66,625	39,025	0	46,801	
55 to 59	19,451	24,824	31,985	41,644	47,456	55,036	62,010	66,994	67,105	64,597	48,862	
60 to 64	16,996	23,590	31,172	41,597	46,212	54,781	58,966	65,740	68,310	65,365	49,597	
65 to 69	16,326	15,418	30,895	39,809	44,064	53,843	56,207	58,814	65,032	68,914	43,567	
70 and up	14,108	8,124	19,489	32,656	44,373	43,968	56,904	52,436	47,201	68,510	30,171	
Average	\$ 18,346	\$ 27,694	\$ 37,016	\$ 45,683	\$ 51,966	\$ 58,488	\$ 61,638	\$ 65,943	\$ 67,282	\$ 66,939	\$ 42,427	

Average Salary Distribution



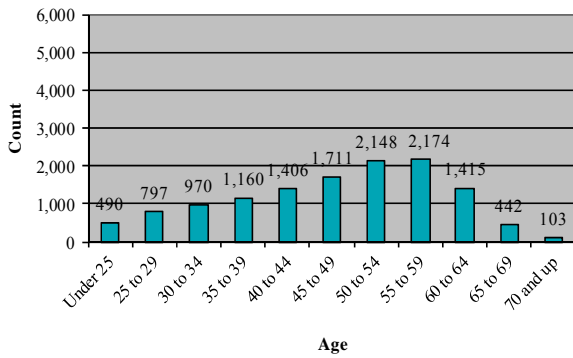
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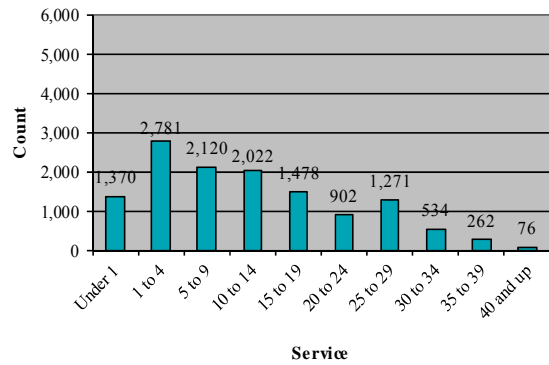
**Distribution of Active Members  
As of June 30, 2015**

	State										Totals
	Years of Service										
	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 and up	
Under 25	337	152	1	0	0	0	0	0	0	0	490
25 to 29	214	480	100	3	0	0	0	0	0	0	797
30 to 34	155	396	286	127	6	0	0	0	0	0	970
35 to 39	125	312	302	301	119	1	0	0	0	0	1,160
40 to 44	117	309	281	315	284	85	15	0	0	0	1,406
45 to 49	113	292	293	281	300	207	216	9	0	0	1,711
50 to 54	127	317	284	348	274	207	421	157	13	0	2,148
55 to 59	94	278	289	344	255	206	348	218	134	8	2,174
60 to 64	55	188	203	205	191	137	199	112	90	35	1,415
65 to 69	31	45	67	83	36	50	56	30	18	26	442
70 and up	2	12	14	15	13	9	16	8	7	7	103
<b>Total</b>	<b>1,370</b>	<b>2,781</b>	<b>2,120</b>	<b>2,022</b>	<b>1,478</b>	<b>902</b>	<b>1,271</b>	<b>534</b>	<b>262</b>	<b>76</b>	<b>12,816</b>

**Age Distribution**



**Service Distribution**



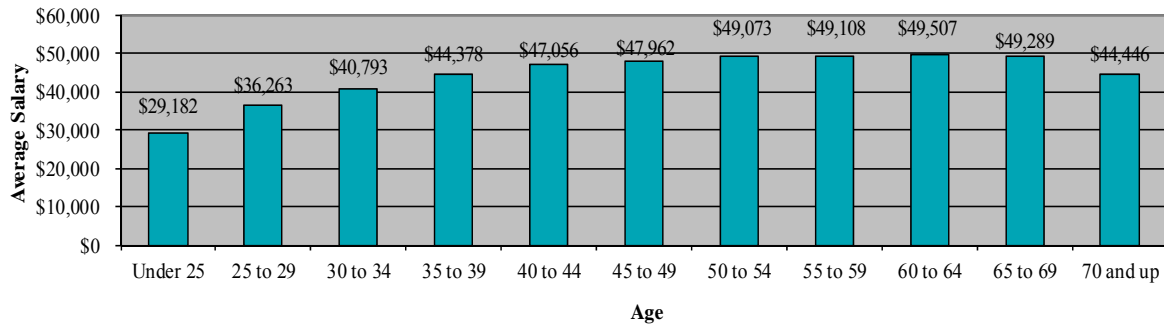
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**APPENDIX A  
MEMBERSHIP INFORMATION**

**Distribution of Active Members  
As of June 30, 2015**

	State											Average
	Average Salary Years of Service											
	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 and up		
Under 25	\$ 27,381	\$ 33,133	\$ 35,724	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 29,182	
25 to 29	33,526	36,836	39,378	35,937	0	0	0	0	0	0	36,263	
30 to 34	36,213	38,365	43,141	48,253	49,522	0	0	0	0	0	40,793	
35 to 39	35,225	39,943	43,957	49,395	53,789	68,928	0	0	0	0	44,378	
40 to 44	35,818	39,874	43,258	49,397	56,602	58,799	57,338	0	0	0	47,056	
45 to 49	38,340	37,927	41,969	49,694	54,122	57,307	54,650	54,572	0	0	47,962	
50 to 54	35,922	40,060	43,618	49,937	53,186	54,853	55,138	55,096	45,569	0	49,073	
55 to 59	35,351	38,584	43,711	47,559	51,222	54,007	55,248	56,520	56,257	55,722	49,108	
60 to 64	37,608	39,960	43,195	48,703	51,209	54,888	54,319	58,544	57,851	52,733	49,507	
65 to 69	32,310	31,425	44,496	50,092	52,388	53,521	54,527	64,706	66,260	56,994	49,289	
70 and up	25,626	21,744	32,482	41,954	39,732	55,933	54,984	49,159	63,273	63,695	44,446	
Average	\$ 33,538	\$ 38,253	\$ 43,049	\$ 49,029	\$ 53,334	\$ 55,553	\$ 54,954	\$ 56,843	\$ 57,149	\$ 55,515	\$ 46,119	

**Average Salary Distribution**



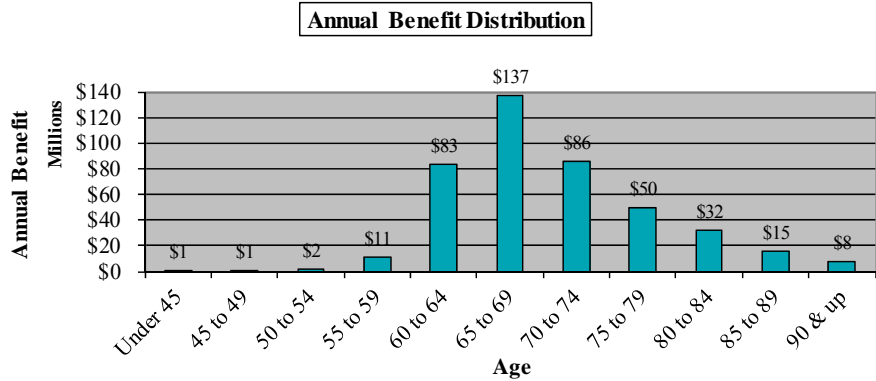
**MAINE PUBLIC EMPLOYEES RETIREMENT SYSTEM  
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**APPENDIX A  
MEMBERSHIP INFORMATION**

**Distribution of Retirees, Disabled  
Members, Beneficiaries, and Survivors  
As of June 30, 2015**

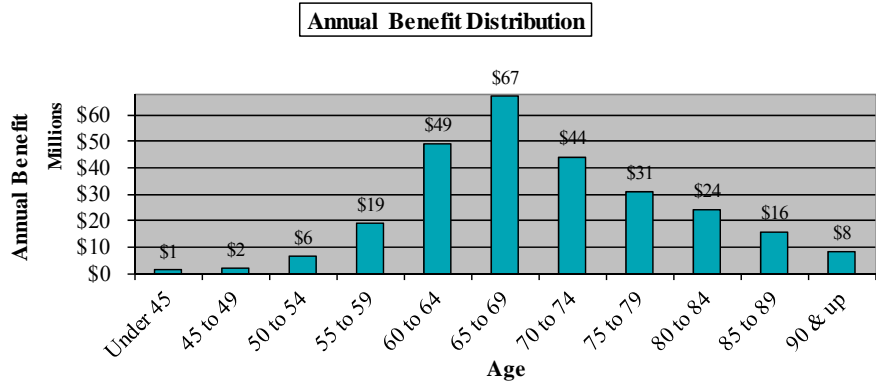
**Teachers**

Age	Count	Annual Benefit
Under 45	136	\$ 832,171
45 to 49	64	753,650
50 to 54	107	1,752,682
55 to 59	454	10,725,824
60 to 64	3,121	83,087,796
65 to 69	5,636	136,593,506
70 to 74	3,811	85,835,765
75 to 79	2,344	49,527,376
80 to 84	1,627	31,966,134
85 to 89	924	15,465,395
90 & up	524	7,892,755
<b>Total</b>	<b>18,748</b>	<b>\$ 424,433,055</b>



**State**

Age	Count	Annual Benefit
Under 45	158	\$ 1,178,081
45 to 49	138	1,793,856
50 to 54	348	6,498,142
55 to 59	954	18,867,157
60 to 64	2,343	49,202,495
65 to 69	3,349	66,888,498
70 to 74	2,347	44,147,936
75 to 79	1,749	30,788,975
80 to 84	1,511	24,278,689
85 to 89	1,023	15,730,711
90 & up	592	8,040,671
<b>Total</b>	<b>14,512</b>	<b>\$ 267,415,210</b>



**MAINE PUBLIC EMPLOYEES RETIREMENT SYSTEM  
STATE EMPLOYEE AND TEACHER RETIREMENT PROGRAM  
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**APPENDIX B  
SUMMARY OF PROGRAM AND PLAN PROVISIONS**

**1. Membership:**

Membership is a condition of employment for state employees and teachers, and optional for elected and appointed officials.

Membership ceases on the earlier of withdrawal of contributions, retirement, or death.

**2. Member Contributions:**

Except as otherwise described below, members are required to contribute 7.65% of earnable compensation.

**Contribution Requirements for Special State Employee Groups**

State police and inland fisheries and wildlife officers employed before September 1, 1984: required to contribute 8.65% of earnable compensation for 20 years of service and 7.65% thereafter.

Forest rangers and state prison employees employed before September 1, 1984: required to contribute 8.65% of earnable compensation until eligible for retirement and 7.65% thereafter.

1998 Special Plan employees which include state prison employees, airplane pilots, forest rangers, defense, veterans and emergency management firefighters employed at Bangor International Airport, corrections employees, Baxter State Park Authority rangers, fire marshals, investigators and inspectors, oil and hazardous materials emergency response workers and capitol security officers: required to contribute 8.65% of earnable compensation for 25 years and 7.65% thereafter.

State police employed on or after September 16, 1984 and special agent investigators hired before June 21, 1982: required to contribute 8.65% of earnable compensation for 25 years and 7.65% thereafter.

Inland fisheries and wildlife officers and marine resources officers employed on or after September 1, 1984: required to contribute 8.65% of earnable compensation for 25 years and 7.65% thereafter.

**3. Average Final Compensation:**

For purposes of determining benefits payable, average final compensation is the average annual rate of earnable compensation for the three years of creditable service (not necessarily consecutive) that produce the highest such average.

**MAINE PUBLIC EMPLOYEES RETIREMENT SYSTEM  
STATE EMPLOYEE AND TEACHER RETIREMENT PROGRAM  
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**APPENDIX B  
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For compensation paid on or after July 1, 1993, increases in earnable compensation of greater than 5% per year or greater than 10% over the highest three years are not included in calculating average final compensation unless the employer pays the cost of including such compensation. Earnable compensation does not include sick and vacation pay for those members who had less than ten years of service at July 1, 1993. For members for whom sick and vacation pay is includable in earnable compensation, these payments are included in applying the caps described above.

**4. Creditable Service:**

Creditable service includes service while a member, certain service prior to the establishment of the Program, purchased military service credit, other purchased service credit, and service while receiving disability benefits under the Program.

**5. Service Retirement Benefits:**

***A. Regular Plan (State Employees and Teachers)***

***i. Provisions for Members with at Least Ten Years of Creditable Service on July 1, 1993***

Normal Retirement Age: 60

Eligibility for Members in Active Service and Inactive Members: 25 years of creditable service.

Eligibility Alternative for Members in Active Service: At least one year of creditable service immediately before retirement and at least normal retirement age.

Eligibility for Members not in Active Service at Retirement, and not in Active Service on or After October 1, 1999: At least ten years of creditable service and at least normal retirement age.

Eligibility for Members not in Active Service at Retirement, but in Active Service on or After October 1, 1999: At least five years of creditable service and at least normal retirement age.

Benefit: 1/50 of average final compensation multiplied by years of membership service and up to 25 years of prior service, reduced by approximately 2¼% for each year retirement age is less than age 60.

Form of Payment: Life annuity.

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**APPENDIX B  
SUMMARY OF PROGRAM AND PLAN PROVISIONS**

*ii. Provisions for Members with Less Than Ten Years of Creditable Service on July 1, 1993*

Normal Retirement Age: 62

Eligibility for Members in Active Service and Inactive Members: 25 years of creditable service.

Eligibility Alternative for Members in Active Service: At least one year of creditable service immediately before retirement age and at least normal retirement age.

Eligibility for Members not in Active Service at Retirement, and not in Active Service on or After October 1, 1999: At least ten years of creditable service and at least normal retirement age.

Eligibility for Members not in Active Service at Retirement, but in Active Service on or After October 1, 1999: At least five years of creditable service and at least normal retirement age.

Benefit: 1/50 of average final compensation multiplied by years of membership service and up to 25 years of prior service, reduced by 6% for each year retirement age is less than age 62.

Form of Payment: Life annuity.

*iii. Provisions for Members with Less Than Five Years of Creditable Service on July 1, 2011*

Normal Retirement Age: 65

Eligibility for Members in Active Service and Inactive Members: 25 years of creditable service.

Eligibility Alternative for Members in Active Service: At least one year of creditable service immediately before retirement age and at least normal retirement age.

Eligibility for Members not in Active Service at Retirement, and not in Active Service on or After October 1, 1999: At least ten years of creditable service and at least normal retirement age.

Eligibility for Members not in Active Service at Retirement, but in Active Service on or After October 1, 1999: At least five years of creditable service and at least normal retirement age.

Benefit: 1/50 of average final compensation multiplied by years of membership service and up to 25 years of prior service, reduced by 6% for each year retirement age is less than age 65.

Form of Payment: Life annuity.



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**APPENDIX B  
SUMMARY OF PROGRAM AND PLAN PROVISIONS**

***B. Special Plans (State Employees)***

***i. State Police Employed Before September 16, 1984 and Inland Fisheries and Wildlife Officers Employed Before September 1, 1984***

Eligibility: 20 years of creditable service in named positions.

Benefit: one-half of average final compensation plus 2% for each year of service in excess of 20. If greater, the pro-rated portion of the benefit for service before July 1, 1976 is based on annual pay instead of average final pay.

Form of Payment: 50% joint and survivor annuity, or life annuity.

***ii. Forest Rangers Employed Before September 1, 1984***

Eligibility: Age 50 with 25 years of creditable service as a forest ranger.

Benefit: one-half of average final compensation plus 2% for each year of service earned after qualification for retirement. If greater, the pro-rated portion of the benefit for service before July 1, 1976 is based on annual pay instead of average final pay.

Form of Payment: Life annuity.

***iii. Liquor Inspectors Employed Before September 1, 1984***

Eligibility: Age 55 and 25 years of creditable service as a liquor inspector.

Benefit: one-half of average final compensation plus 2% for each year of service earned after qualification for retirement. If greater, the pro-rated portion of the benefit for service before July 1, 1976 is based on annual pay instead of average final pay.

Form of Payment: Life annuity.

***iv. State Prison Employees Employed Before September 1, 1984***

Eligibility: Age 50 and 20 years of creditable service as a prison employee.

Benefit: one-half of average final compensation plus 2% for each year of service earned after qualification for retirement.

Form of Payment: Life annuity.

**MAINE PUBLIC EMPLOYEES RETIREMENT SYSTEM  
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***v. 1998 Special Plan***

1998 Entrants: State prison employees, airline pilots, forest rangers and liquor inspectors, employed after August 31, 1984; defense, veterans and emergency management firefighters employed on and after July 1, 1998.

2000 Entrants: Baxter State Park Authority rangers, correctional employees and state fire marshals employed on or after January 1, 2000.

2002 Entrants: Capitol security officers and oil and hazardous materials emergency response workers.

Eligibility: Ten years of creditable service under the 1998 Special Plan in one or a combination of the covered capacities and the attainment of age 55 – OR – 25 years of creditable service in one or a combination of the covered capacities.

Benefit: For service prior to coverage in the 1998 Special Plan, 1/50 of average final compensation multiplied by years of service reduced for retirement before age 60 or 62, except oil and hazardous materials emergency response workers and certain prison employee benefits are reduced for retirement before age 55.

-AND-

For service under the 1998 Special Plan, 1/50 of average final compensation multiplied by years of service reduced for retirement before age 55.

Form of Payment: Life annuity.

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1998 Entrants: State police employed on or after September 16, 1984 and special agent investigators hired before June 21, 1982.

2002 Entrants: Inland fisheries and wildlife officers and marine resources officers employed on and after August 31, 1984.

Eligibility: 25 years of creditable service in named positions.

Benefit: 1/50 of average final compensation multiplied by years of service.

Form of Payment: Life annuity.

Members in Special Plans who fail to qualify for special plan benefits can receive regular plan benefits when and as eligible and qualified.

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**6. Disability Retirement Benefits Other Than No Age Benefits (See Item 7):**

Eligibility: Disabled as defined in the MainePERS statutes prior to normal retirement age, employed prior to October 16, 1992 and did not elect No Age Disability Benefits, and either disabled in the line-of-duty or disabled with at least five years of creditable service.

Benefit: 66 $\frac{2}{3}$ % of average final compensation, reduced by employment earnings over the specified statutory limit, and to the extent that the benefit, in combination with Workers' Compensation and Social Security, exceeds 80% of average final compensation.

Form of Payment: Payment begins on termination of service and ceases on cessation of disability or after two years, unless the member is unable to engage in any substantially gainful activity; in which case, payments cease on the earlier of ten years following normal retirement age or on the date that the service retirement benefit equals or exceeds the disability benefit.

Conversion to Service Retirement: During the period of disability, service is credited and average final compensation is increased at same rate as any cost-of-living adjustments for which the member is eligible (not subject to a cap) (see item 11). On the date when service benefits reach a level of 66 $\frac{2}{3}$ % of average final compensation or ten years after the normal retirement date, if earlier, the disability converts to a service retirement benefit based on service and average final compensation at that time.

**7. No Age Disability Retirement Benefits**

Eligibility: Disabled as defined in the MainePERS statutes, employed on or after October 16, 1992 or employed prior to October 16, 1992 and elected the provisions of No Age Disability, and either disabled in the line-of-duty or disabled with at least five years of creditable service.

Benefit: 59% of average final compensation, reduced by employment earnings over the specified statutory limit, and to the extent that the benefit, in combination with Workers' Compensation and Social Security, exceeds 80% of average final compensation.

Form of Payment: Payment begins on termination of service and ceases on cessation of disability or after two years, unless the member is unable to engage in any substantially gainful activity; in which case, payments cease on the date the service retirement benefit equals or exceeds the disability benefit.

Conversion to Service Retirement: During the period of disability, service is credited and average final compensation is increased at the same rate as any cost-of-living adjustments for which the member is eligible (not subject to a cap) (see item 11). On the date when service

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benefits reach a level of 59% of average final compensation, the disability benefit converts to a service retirement benefit based on service and average final compensation at that time.

**8. Pre-Retirement Ordinary Death Benefits:**

Eligibility: Death while active, inactive eligible to retire, or disabled.

Benefit: Designated beneficiary, spouse, child(ren), or parents entitled to benefit calculated as if deceased member had retired under Option 2 (see item 12); however, beneficiary may elect survivor benefits payable to a surviving spouse, dependent child(ren), parent, or other designated beneficiaries in monthly amounts varying by status of beneficiary and number of eligible survivors. Otherwise accumulated contributions with interest are payable to designated beneficiary, spouse, child(ren), older parents, or estate.

**9. Pre-Retirement Accidental Death Benefits:**

Eligibility: Death while active or disabled resulting from an injury received in the line-of-duty.

Benefit:

- If the member leaves no dependent children, two-thirds of the member's average final compensation to the surviving spouse until death.
- If the member is survived by a spouse who has the care of dependent child(ren) of the member, the surviving spouse shall receive an annual sum equal to the member's average final compensation while having the care of dependent child(ren). When there are no longer any dependent children, the surviving spouse shall receive two-thirds of member's average final compensation until death.
- If the member is survived by a spouse who does not have the care of the member's dependent child(ren), the surviving spouse and dependent child(ren) shall share equally an annual sum equal to the member's average final compensation. When there are no longer any dependent children, the surviving spouse shall receive two-thirds of the member's average final compensation until death.
- If the member leaves no spouse, the dependent child(ren) shall share an annual amount equal to the member's average final compensation. Benefits will cease when the last dependent child no longer meets the definition of "dependent child."

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**10. Refund of Contributions:**

Eligibility: Termination of service other than by retirement or death.

Benefit: Member's accumulated contributions with interest.

**11. Cost-of-Living Adjustments:**

All service and disability retirement and survivor benefits are adjusted each year that there is a percentage change in the Consumer Price Index, based on the Index. If the percentage change is negative, then no adjustment is made in that year. In subsequent years, the adjustment that would have been made will be adjusted downward to the extent necessary to recoup the full actuarial value of not having made the previous year's negative adjustment. This process of adjustment may occur over a multi-year period if needed to recoup the full value of negative changes in the Index.

Cost-of-living adjustments (COLA) are effective September 1 of each year and are applied to that portion of the benefit which is not in excess of a COLA cap whose value grows annually with the same adjustment as the COLA (see values below) for all benefits that have been in payment for at least twelve months as of that date. The maximum annual increase is 3%. Average final compensation used in determining disability benefits for disabled members is similarly adjusted for purposes of determining the recipient's service retirement benefit if and when the recipient moves to service retirement.

COLA Cap History: (value as of September 1 of listed year when COLA effective):

2014 - \$20,000.00

2015 - \$20,420.00

Members who did not have ten years of service on July 1, 1993 will begin receiving cost-of-living adjustments at the latter of 12 months after their normal retirement age and the first September 1 following a minimum of twelve months of being in receipt of their benefit.

**12. Methods of Payment of Service Retirement Benefits:**

At retirement, a member who retires with a benefit must choose from the following methods of payment:

Full Benefit: Unadjusted benefit paid for the life of the member only.

Option 1: Cash refund equal to the remaining member contribution balance, if any, at the date of death (where the member contribution balance has been reduced each month by the portion of the monthly benefit deemed to be provided by member contributions).

Option 2: 100% joint and survivor annuity.

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Option 3: 50% joint and survivor annuity.

Option 4: Joint and survivor annuity at any percentage other than those available under Option 2 and Option 3.

Option 5: Designated percentage of the benefit (not less than 51%) payable to the member, with the remaining percentage (the two to equal 100%) payable to a beneficiary (may only be a sole beneficiary) while both are alive. At the death of either, the higher of the two percentages is paid to the survivor for the survivor's life, and the lower-percentage benefit ceases to be paid.

Option 6: 100% joint and survivor annuity (Option 2) with pop-up\*.

Option 7: 50% joint and survivor annuity (Option 3) with pop-up\*.

Option 8: Option 4 with pop-up\*.

\* The "pop-up" feature attached to a given Option means that in the case of a beneficiary predeceasing the member, the member's benefit will be revised prospectively to the amount that the benefit would have been had the member selected Full Benefit payment upon retirement.

**13. Plan Changes since Prior Valuation:**

None.

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**A. Actuarial Assumptions**

**1. Rate of Investment Return:**

State Employees	7.125%
Teachers	7.125%

Rate is net of both administrative and investment expense.

**2. Cost-of-Living Increases in Benefits:**

State Employees	2.55%
Teachers	2.55%

**3. Rates of Salary Increase (% at Selected Years of Service):**

Service	State Employees	Teachers
0	10.50%	13.50%
5	6.00	6.25
10	4.50	5.00
15	3.95	4.50
20	3.70	3.70
25 and over	3.50	3.50

The above rates include a 3.50% across-the-board increase at each year of service.

**4. Rates of Termination (% at Selected Service):**

Service	State Employees	Teachers
0	30.00%	37.00%
5	7.50	12.00
10	4.40	6.90
15	4.00	5.50
20	4.00	5.50
25	4.00	5.50

Non-vested members are assumed to take a refund of contributions with interest. Once vested, the member is assumed to elect the greater of the deferred vested benefit or a refund.

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**5. Rate of Mortality for Active Healthy Lives and Retired Healthy Lives at Selected Ages (number of deaths per 10,000 members)\*:**

Age	State Employees		Teachers	
	Male	Female	Male	Female
50	16	13	14	11
55	27	24	22	20
60	53	47	41	36
65	103	90	81	71
70	177	155	142	125
75	306	249	246	204
80	554	413	448	338
85	997	708	807	571
90	1,727	1,259	1,418	1,026
95	2,596	1,888	2,267	1,654

\* For State Regular and Teachers 5% of deaths assumed to arise out of and in the course of employment; for State Special 20% of deaths are assumed to arise out of and in the course of employment.

Rates for State Employees are based on the RP 2000 Mortality Table for Males and Females projected forward for 2015 using Scale AA. Rates for Teachers are based on the same projected table but with a two-year set back. These assumptions were set in 2011 with a margin for future improvement based on the five-year experience study process and will be examined following this valuation based on the experience from 2010 to 2015 to determine the base and projection tables to use for the 2016 valuation forward as well as ascertain the margin for future improvements.

**6. Rates of Mortality for Disabled Lives and Retired Disabled Lives at Selected Ages (number of deaths per 10,000 members):**

Age	State Employees		Teachers	
	Male	Female	Male	Female
25	92	72	92	72
30	112	89	112	89
35	134	109	134	109
40	160	126	160	126
45	193	144	193	144
50	236	165	236	165
55	295	191	295	191
60	362	226	362	226
65	446	272	446	272
70	576	331	576	331

Rates are based on the Revenue Ruling 96-7 Disabled Mortality Table for Males and Females.



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**7. Rates of Retirement at Selected Ages (number retiring per 1,000 members):**

Age	State Employees			Teachers		
	Tier 1	Tier 2	Tier 3	Tier 1	Tier 2	Tier 3
45	3	NA	NA	13	NA	NA
50	19	NA	NA	29	NA	NA
55	19	NA	NA	79	NA	NA
59	58	75	75	150	225	225
60	300	100	100	225	225	225
61	300	100	100	230	225	225
62	270	250	125	250	300	225
63	270	250	125	260	300	225
64	250	250	125	270	300	225
65	250	250	250	300	300	300
70	1,000	1,000	1,000	1,000	1,000	1,000

\* Members of Special Groups are assumed to retire at a rate of 50% per year, once they reach eligibility for unreduced benefits at every age.

In the case of State Regular and Teacher employees, Tier 1 refers to those who had accrued at least ten years of service by July 1, 1993. Tier 2 are those who had not or were hired after that date but had five years of service by July 1, 2011. Tier 3 are those who did not have five years of service by July 1, 2011.

**8. Rates of Disability at Selected Ages (members becoming disabled per 10,000 members)\*:**

Age	State	
	Employees	Teachers
25	6.8	3.5
30	7.6	3.8
35	10.2	3.8
40	19.0	5.1
45	27.9	11.6
50	42.7	18.2
55	53.0	24.8
60	63.0	31.3

\* 10% assumed to receive Workers Compensation benefits offsetting disability benefit; also, rates for State Special groups are higher by 7 per 10,000 at all ages.

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**9. Family Composition Assumptions:**

80% of active members are married and have two children born when the member is 24 and 28; children are dependent until age 18; female spouse is three years younger than male spouse; member has no dependent parents; unmarried members have beneficiaries entitled to benefits worth 80% as much as those of married members' beneficiaries.

**10. Vacation/Sick Leave Credits:**

For members who had ten years of service on July 1, 1993, credits for unused vacation and sick leave may be used to increase final average compensation and/or creditable service. In order to reflect this, projected retirement benefits are increased by 0.48% for state (regular) employees and 0.75% for teachers.

**11. Rationale for Assumptions**

The assumptions were adopted by the Trustees as a result of the latest experience study review performed in 2011 and covering the period July 1, 2005 through June 30, 2010.

The Board continually reviews the investment return and inflation assumptions and adopted a reduced rate of 7.125%, effective with the 2014 valuation, at the advice of its investment consultants.

**12. Changes since Last Valuation**

None.

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**B. Actuarial Methods**

**1. Funding Method:**

For the plans in this Program, the funding methodology employed is the entry age normal funding method. Under this method, there are two components to the total contribution: the normal cost rate (NC rate), and the unfunded actuarial liability rate (UAL rate). Both of these rates are developed for each plan within the Program, consisting of the Teachers Program, the State Regular Plan, and several State Special Plans.

For each plan in the Program, an individual entry age normal cost rate is determined for each active member. The normal cost is determined by the following steps. First, an individual normal cost rate is determined by taking the value, as of entry age into a plan, of each active member's projected future benefit. Second, this value is then divided by the value, also at entry age, of the member's expected future salary. Finally, the rate is reduced by the member contribution rate to produce the employer normal contribution rate. These rates are then multiplied by each member's salary as of the valuation date to get the total normal cost dollars as of the valuation date for that plan and then divided by the total payroll at the valuation for the plan to get the normal cost rate for that plan. This process results in specific normal cost rates for each of the plans in the Program.

The unfunded actuarial liability under the entry age normal funding method equals the present value, at the time of valuation, of the future benefit payments less the present value of future employer normal cost contributions, future member contributions, future UAL payments, and current assets. The UAL rate determined is the percentage that applied to member payroll is expected to amortize the UAL according to the Program's amortization policy. Specifically, the remaining original UAL has 13 years of its amortization period remaining and all other gains, losses, and changes are amortized over ten-year periods beginning on the date as of which they occur.

**2. Asset Valuation Method:**

For purposes of determining the employer contributions to the Program and the Program's funded ratio, 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.

In determining the actuarial value of assets, we calculate an expected actuarial value based on cash flow for the year and imputed returns at the actuarial assumption. This expected value is compared to the market value and one-third of the difference is added to the preliminary actuarial value to arrive at the final actuarial value.

**3. Changes since Last Valuation:**

None.

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**APPENDIX D  
GLOSSARY OF GASB TERMS**

**1. Actuarially Determined Contribution**

A target or recommended contribution for the reporting period, determined in conformity with Actuarial Standards of Practice based on the most recent measurement available when the contribution for the reporting period was adopted.

**2. Actuarial Valuation Date**

The date as of which an actuarial valuation is performed. This date may be up to 24 months prior to the measurement date and up to 30 months prior to the employer's reporting date.

**3. Deferred Inflow of Resources**

An acquisition of net assets by a government employer that is applicable to a future reporting period. In the context of GASB 68, these are experience gains on the Total Pension Liability, assumption changes reducing the Total Pension Liability, or investment gains that are recognized in future reporting periods.

**4. Deferred Outflow of Resources**

A consumption of net assets by a government employer that is applicable to a future reporting period. In the context of GASB 68, these are experience losses on the Total Pension Liability, assumption changes increasing the Total Pension Liability, or investment losses that are recognized in future reporting periods.

**5. Entry Age Actuarial Cost Method**

The actuarial cost method required for GASB 67 and 68 calculations. Under this method, 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. The portion of this actuarial present value allocated to a valuation year is called the Service Cost. The portion of this actuarial present value not provided for at a valuation date by the actuarial present value of future service costs is called the Total Pension Liability.

**6. Measurement Date**

The date as of which the Total Pension Liability and Plan Fiduciary Net Position are measured. The Total Pension Liability may be projected from the Actuarial Valuation Date to the Measurement Date. The Measurement Date must be the same as the Reporting Date for the plan.

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**7. Net Pension Liability**

The liability of employers and non-employer contributing entities for employees for benefits provided through a defined benefit pension plan. It is calculated as the Total Pension Liability less the Plan Fiduciary Net Position.

**8. Plan Fiduciary Net Position**

The fair or market value of assets.

**9. Reporting Date**

The last day of the Plan or employer's fiscal year.

**10. Service Cost**

The portion of the actuarial present value of projected benefit payments that is attributed to the current period of employee service in conformity with the requirements of GASB 67 and 68. The Service Cost is the normal cost calculated under the entry age actuarial cost method.

**11. Total Pension Liability**

The portion of the actuarial present value of projected benefit payments that is attributed to past periods of employee service in conformity with the requirements of GASB 67 and 68. The Total Pension Liability is the actuarial liability calculated under the entry age actuarial cost method.



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