

**Maine Public Employees  
Retirement System  
Consolidated Plan for  
Participating Local Districts**

**Actuarial Valuation Report  
as of June 30, 2016**

**Produced by Cheiron**

**October 2016**

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October 28, 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, 2016 Actuarial Valuation Report for the Consolidated Plan for Participating Local Districts (Plan) of the Maine Public Employees Retirement System (MainePERS). This report is for the use of the MainePERS 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 Plan, as well as the required accounting statement disclosures under the Governmental Accounting Standards Board (GASB) Statement No. 67.

In preparing our report, we relied on information, some oral and some written, supplied by MainePERS staff. This information includes, but is not limited to, the plan provisions, member 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

**CONSOLIDATED PLAN FOR PARTICIPATING LOCAL DISTRICTS  
OF THE MAINE PUBLIC EMPLOYEES RETIREMENT SYSTEM  
ACTUARIAL VALUATION AS OF JUNE 30, 2016**

**FOREWORD**

Cheiron has completed the Actuarial Valuation Report of the Consolidated Plan for Participating Local Districts (Plan) of the Maine Public Employees Retirement System (MainePERS) as of June 30, 2016. The purpose of this report is to:

- 1) Measure and disclose, as of the valuation date, the financial condition of the Plan;
- 2) Indicate trends, both historical and prospective, in the financial condition of the Plan;
- 3) Determine the adequacy of the contribution rates to be paid by the PLDs for Fiscal Year (FY) 2018; and
- 4) Provide specific information and documentation required for MainePERS's financial disclosures.

An actuarial valuation establishes and analyzes plan 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 Plan in recent years, and providing analysis relating to the future status of the Plan.

**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 PLD contribution rates determined using actuarial techniques and compares those to the reduced corridor rates currently in place for each Regular and Special Plan.

**Section V** includes financial disclosure information.

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

- Plan elections that have been made by the participating local districts (Appendix A);
- Plan membership information at the valuation date (Appendix B);
- Major benefit provisions of the Plan and the various Regular and Special Plans included in the Plan (Appendix C);
- Actuarial methods and assumptions used in the current valuation (Appendix D); and
- Terminology used in the Governmental Accounting Standards Board (GASB) disclosures provided as a glossary (Appendix E).

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**SECTION I - BOARD SUMMARY**

**General Comments**

Most of the participating local districts (PLDs) in the State of Maine participate in this Consolidated Plan for PLDs (Plan). The Plan offers a number of plan choices from which each PLD can choose, with each benefit choice having its own cost associated with it to be paid by both the member and the PLD. The member costs are paid as rates that are set by the Board and are applicable to payroll. The pooled PLD costs are paid as rates applicable to payroll determined using a corridor funding method. PLDs that entered the Plan with liabilities exceeding their assets also pay an additional amount relating to this unfunded liability until it is fully amortized.

Under the Plan's corridor funding approach, as long as the Plan's funded ratio (the ratio of actuarial value of assets to actuarial liability) remains within a corridor of 90% to 130%, the total pooled PLD contribution rate for each plan is fixed at the rate paid in the prior year. If the funded ratio falls outside of the corridor, the total pooled PLD contribution rate will be incrementally adjusted, but will never be less than a given minimum rate (75% of the PLD normal cost, which is the total normal cost rate reduced by the member contribution rate). The factor for incremental adjustments, when the funded ratio falls outside the corridor range, is 10% of the difference between the calculated rate under the Plan's funding method for each plan without the corridor and the rate for that plan then in effect.

The total pooled PLD contribution rate discussed above is defined as the sum of the total normal cost rate reduced by the member contributions to produce the PLD normal cost and a 20-year layered amortization of the Pooled Unfunded Actuarial Liability (PUAL). In addition to this total pooled PLD contribution rate, some PLDs are making additional contributions to reduce their Individual Unpooled Unfunded Actuarial Liability (IUUAL) due to entering the Plan with liabilities exceeding assets.

**Experience from July 1, 2015 through June 30, 2016 (Fiscal Year 2016)**

As of this June 30, 2016 valuation, the funded ratio for the Plan is 86.1%, which is a decrease from last year's 89.4% funded ratio. Since this funded ratio is less than 90%, the corridor calculation requires an adjustment. Over the last few years, the aggregate corridor rate has been increasing from 3% of payroll to 9.5% of payroll for FY 2017. The corridor calculation in this year's valuation calls for an additional increase to an aggregate 9.8% for FY 2018. The decrease in funded ratio was attributable to several elements, including a loss in investment returns, a gain in liabilities, and a change in several of the actuarial assumptions. Details on the assumption changes can be found in a separate report.

As of June 30, 2016, the Plan had an unfunded actuarial liability (UAL) of \$0.401 billion. This represents an increase of \$0.113 billion from the \$0.288 billion UAL measured as of June 30, 2015. The specific factors contributing to this change are presented in Table I-1. There are separate columns showing the impact of liabilities and investments.

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**SECTION I - BOARD SUMMARY**

<b>Table I-1</b>			
<b>\$ in Billions</b>	<b>Liabilities</b>	<b>Assets*</b>	<b>UAL</b>
Value as of June 30, 2015	\$ 2.721	\$ 2.433	\$ 0.288
Expected Change	0.127	0.120	0.007
Impact of Assumption Changes	0.051	0.000	0.051
Recognized Investment	0.000	(0.064)	0.064
Recognized Liability	<u>(0.009)</u>	<u>0.000</u>	<u>(0.009)</u>
Value as of June 30, 2016	\$ 2.890	\$ 2.489	\$ 0.401

\* Demonstration uses the actuarial value of assets. Results would be different if the market value was used.

The remainder of this section summarizes the Plan's trends, provides projections of the Plan's future status, and summarizes the principal results of this year's valuation.

## **Trends**

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

### Assets and Liabilities

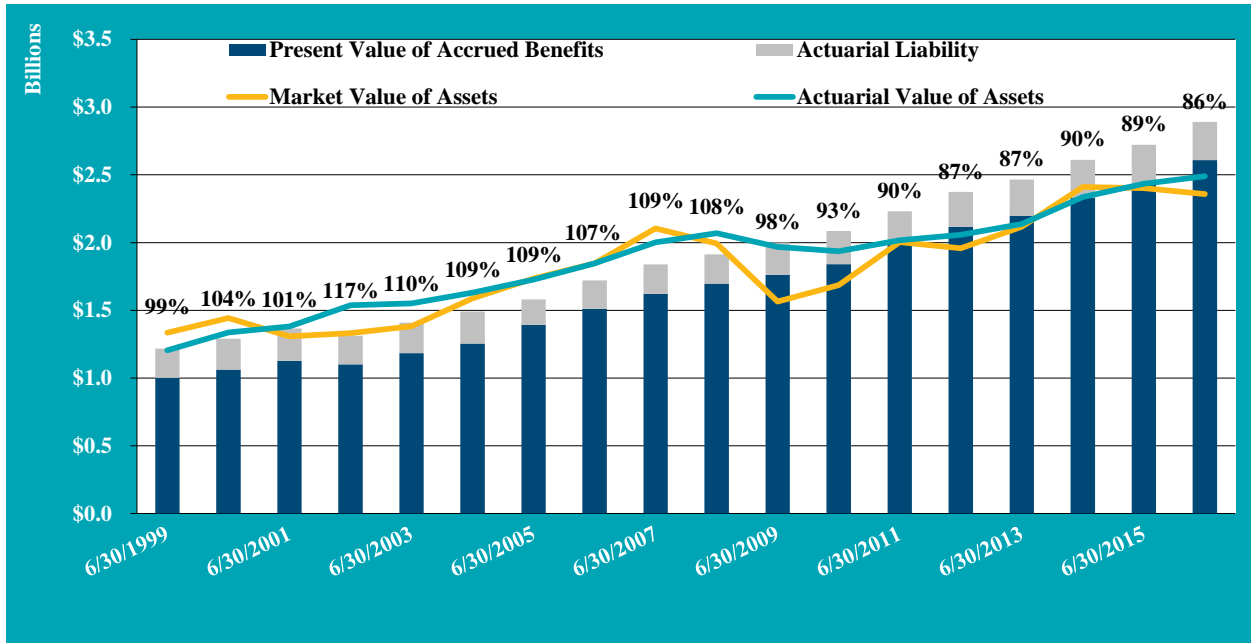
This graph illustrates the progress of assets against liabilities for the Plan since June 30, 1999. The blue bars represent the present value of accrued benefits (PVAB) as of the valuation date.

The actuarial liability (AL), the liability measure 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 Plan's financial status. These values as of each valuation date shown are the percentages shown in the graph labels.

This graph also illustrates that the Plan had its highest AVA funded ratio (117%) at June 30, 2002, which was just after several PLDs paid off their IUUALs. After that, the funded ratio declined in a measured way until the financial market events of 2008-2009 which resulted in the ratio dropping below 100%. The ratio of market value to AL was actually as low as 78% as of the June 30, 2009 valuation, but has been improving ever since due to market recovery combined with increasing contributions rates for both PLDs and members.

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**SECTION I - BOARD SUMMARY**

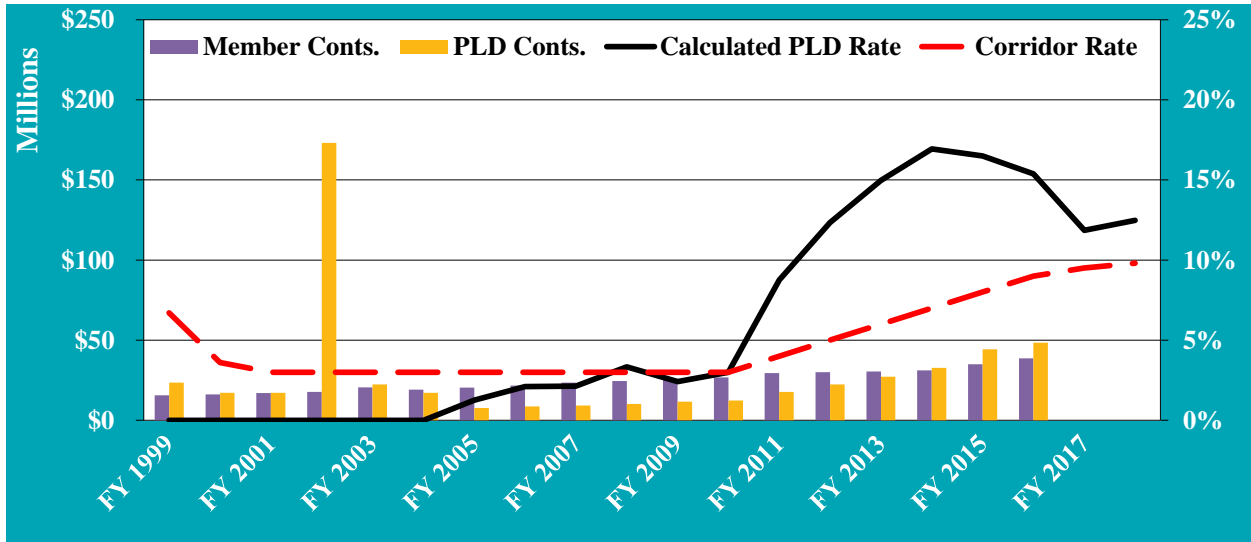


Contributions

The next graph shows the history of contributions to the Plan, both as dollar amounts and as percentages of payroll. The stacked bars in this graph show the contributions made by both the PLDs and their members in dollar terms for each Fiscal Year (FY) since 1999 and are read using the left-hand axis. The black line shows the aggregate actuarially calculated PLD contribution rate as a percentage of payroll, while the red dotted line shows the aggregate corridor contribution rate that is actually being paid. Both the red and the black line are read using the right-hand axis. The recent significant increase in the calculated rate was due primarily to investment losses sustained in the 2008-09 plan year. The increases in the corridor rate combined with plan changes has been working to close the gap between these two rates and are expected to continue to do so. The increase in the rates calculated in this valuation was primarily due to two straight years of investment losses. Since there is a lag between the calculation of a contribution rate and the year in which it applies, we are showing two additional years of the contribution rates.

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The member contribution rate is set by statute and by the Board, based on the Regular or Special Plan in which the member participates. The calculated total pooled PLD contribution rate is set by the annual actuarial valuations, with this June 30, 2016 valuation determining the FY 2018 employer rates, and varies according to the plan in which the covered members of the PLD participate. The actual paid corridor total pooled PLD contribution rate is determined based on the Plan’s AVA funded ratio, the rate for the prior year, and the calculated rate. In addition, some PLDs pay an additional IUUAL contribution. Note that the large dollar amount contributed in FY 2002 by the PLDs in the graph above was due to several PLDs paying off their IUUAL amounts.

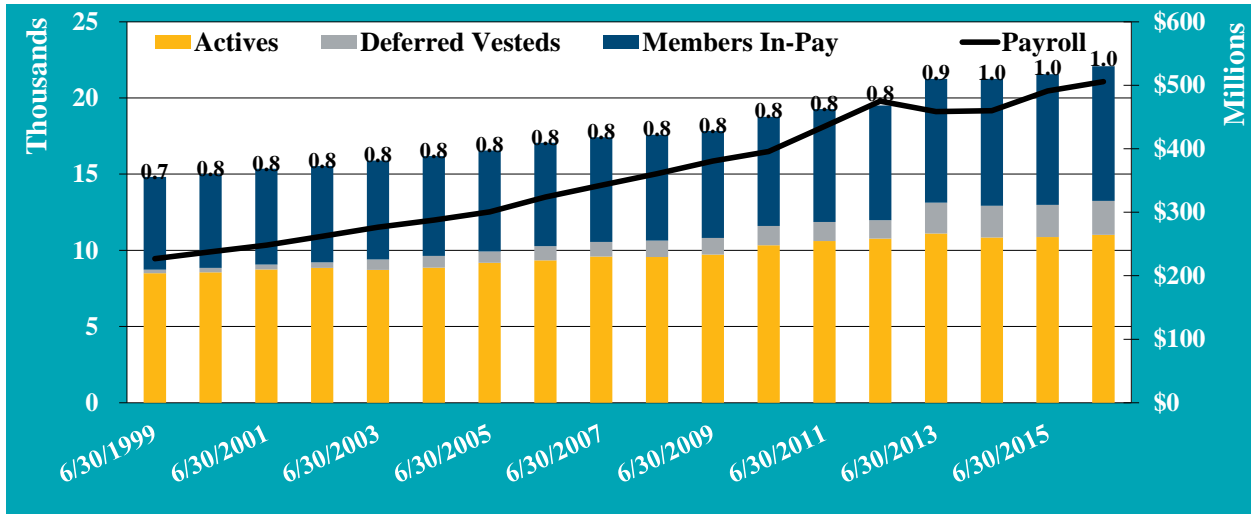
Participant Trends

The stacked bars in the graph that follows show the number of actives, terminated vested, and members in-pay status covered by the Plan as of each valuation date and is read using the left-hand axis of the graph. The black line indicates the total covered payroll of actives in the Plan and is read using the right-hand axis of the graph. The use of a revised data collection process leads to the reduction in the covered payroll as of June 30, 2014 compared to the previous valuation. The payroll for the current valuation increased over that of that June 30, 2015 valuation.



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There has been about 1.3% per year growth in the active and a 2.2% per year growth in the in-pay members counts of the Plan over the time period shown. The terminated vested group has shown the most growth, averaging 13.7% per year over this period.

As with many plans in this country, there has been a steady growth in the number of members in-pay status as the Plan has matured. The labels above each bar in the graph above indicate the ratio of inactive members per active member. While this ratio has been reasonably stable for the Plan since 1999, this ratio may start increasing as more and more “baby boomers” retire. While an increasing 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.

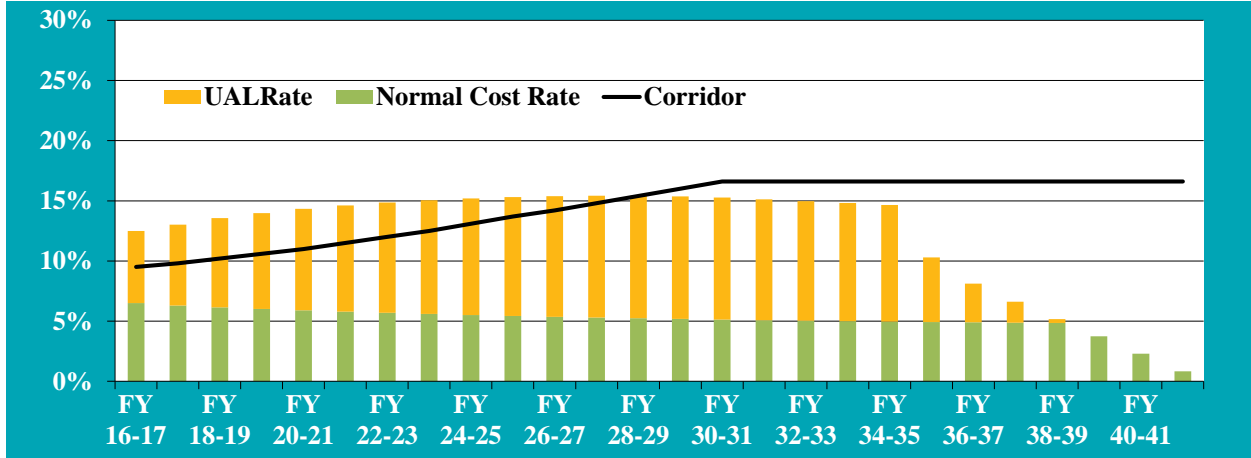
**Projections**

Our analysis of the projected financial trends for the Plan 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 PLD contribution rates. We first present a baseline projection of these future results based on all actuarial assumptions being exactly met during the projection period, including the assumed 6.875% investment rate of return being achieved each year. We then present the same projections based on keeping all assumptions exactly met except for having investment earnings 1% above and 1% below the assumed 6.875% return. The primary purpose of presenting these projections is to demonstrate how sensitive future valuation results are to deviations from our investment return expectations.

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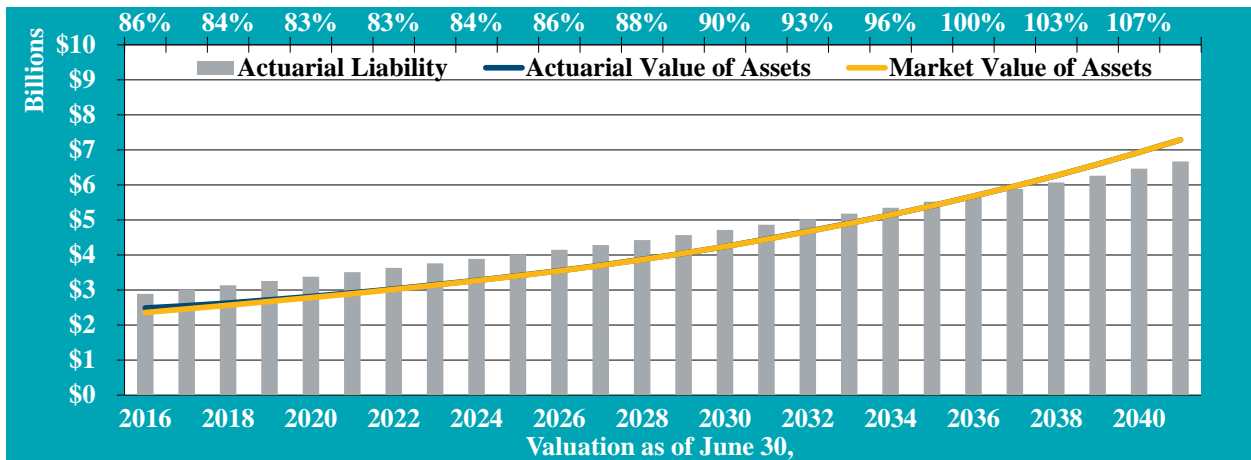
**SECTION I - BOARD SUMMARY**

Baseline Projections



The graph above shows the expected progress of the Plan’s contribution rates over the next 25 years assuming that the Plan’s assets earn 6.875% on their *market value*, showing that as the UAL is paid down over time, the corridor contribution rate catches up to, and then exceeds the total calculated rate. Both rates are shown as those being in effect for the fiscal year identified.

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 Plan’s funded ratio is projected to increase and reach 100% funding by 2036. The amounts shown are as of June 30 of the year identified in the horizontal axis.

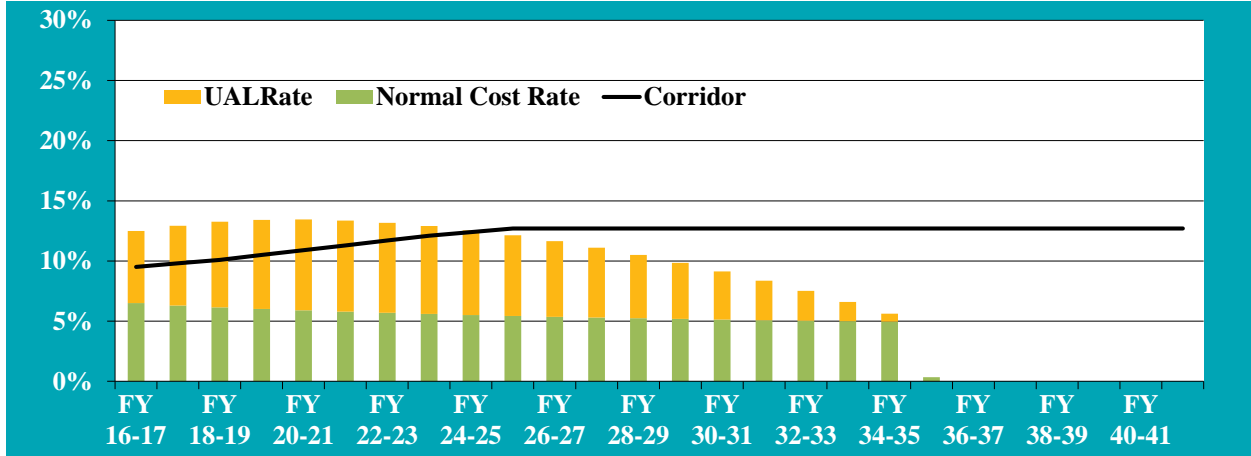


Of course this projection assumes all assumptions are exactly met in each and every year. Since that is not likely to occur, we also show projections based on optimistic and pessimistic assumptions for the rate of return.

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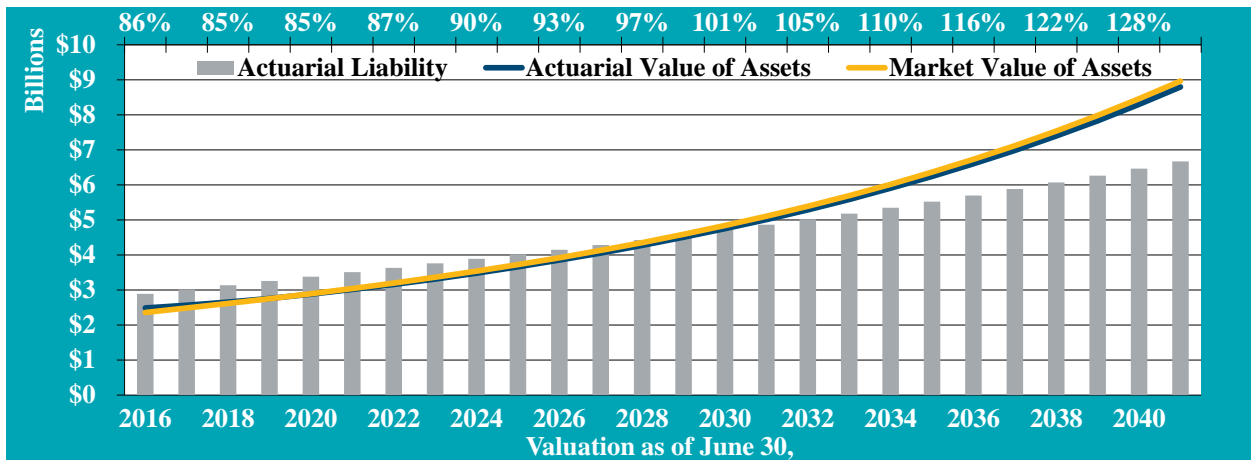
**SECTION I - BOARD SUMMARY**

Projections with Asset Returns of 7.875%



The future funding status of this Plan will be significantly driven by investment earnings as relatively minor changes in the market returns can have significant effects on the Plan’s funding status. The graph above shows that with a 7.875% annual return in each year while exactly meeting all other assumptions, the aggregate calculated contribution rate produced by the valuation process would decrease to zero, while the corridor method rate would catch up to the calculated amount by FY 2025 and remain level through the remainder of the projection period. Once the Plan reaches 130% funded, the top of the corridor for the corridor funding method, at a date beyond the end of this projection, the corridor rate would also begin to step down, but would not go below the minimum total pooled PLD contribution level of 75% of PLD normal cost.

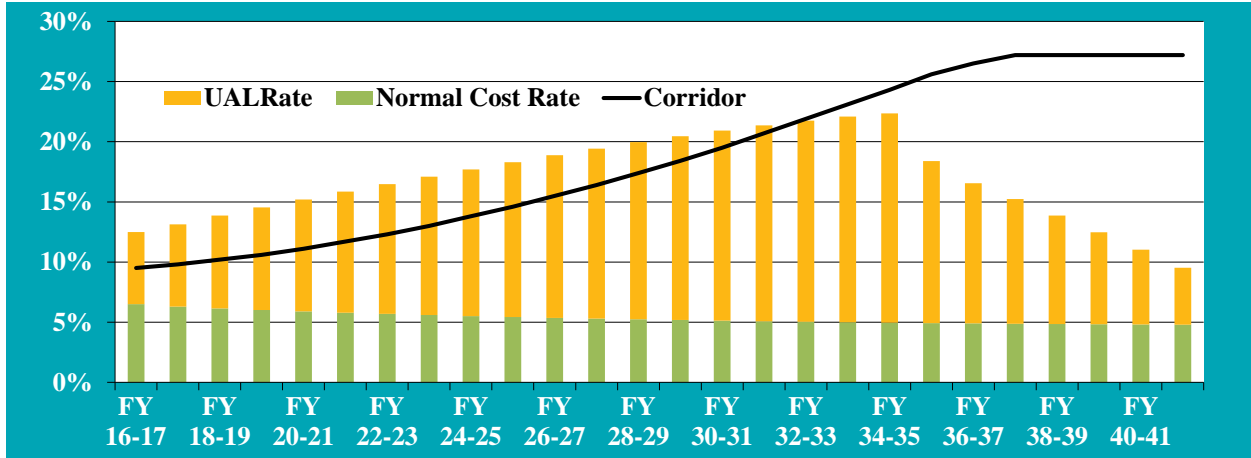
Assuming the same 7.875% return on investments scenario, this next graph shows that the Plan’s funded ratio steadily increases from 86% to 128% by the end of the period shown, compared to 107% at the end of the baseline scenario.



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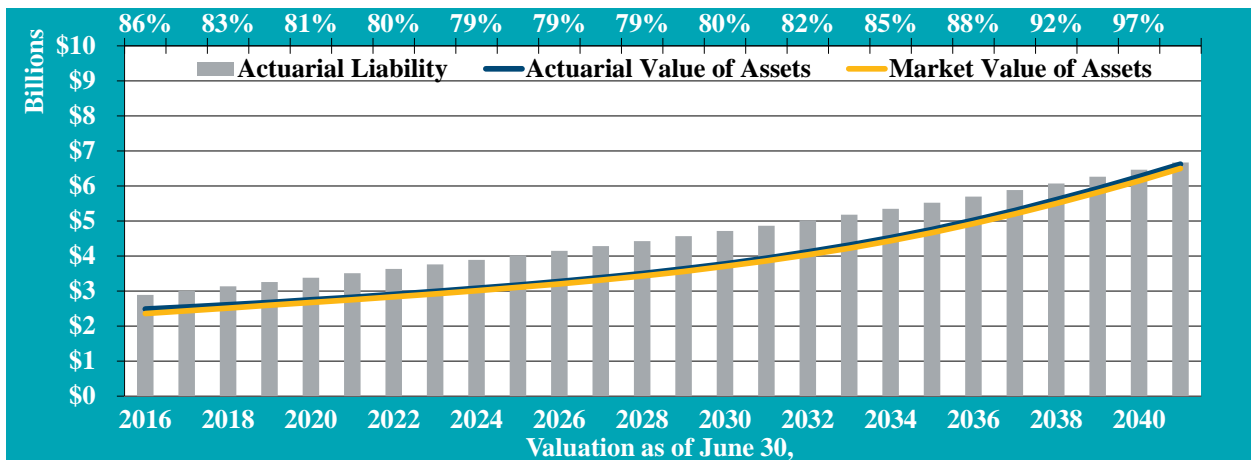
**SECTION I - BOARD SUMMARY**

Projections with Asset Returns of 5.875%



Just as returns in excess of the rate of return assumption will lead to declining contributions and an improved funded ratio, the opposite will occur if actual investment earnings are below the assumed rate. The graph above shows the contribution projection under a 5.875% annual return scenario, continuing to meet all other assumptions exactly. The calculated total pooled PLD contribution climbs as it reflects the 5.875% returns not meeting assumptions. The corridor rate also climbs and then holds at the level reached when it reenters the corridor (90% funded). That rate as of reentering the corridor will not decline until the Plan’s funded ratio reaches the 130% top of the corridor and the corridor funding method again permits it to decline.

The next graph shows that the Plan’s funded ratio in this 5.875% rate of return scenario would fall as low as 79% before starting to rebound as contributions subject to the corridor funding method ramp up, with a funded ratio of 97% at the end of the projection period in contrast to the equivalent baseline scenario value of 107%. However, the cost to reach this funded level is contribution rates in excess of 25% of payroll.



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**SECTION I - BOARD SUMMARY**

**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 Consolidated Plan and then for the Regular Plans subgroup and the Special Plans subgroup.

**Table I-2  
Summary of Principal Results  
PLD Consolidated Retirement Plan  
Total**

<b>Valuation as of:</b>	<b>June 30, 2015</b>	<b>June 30, 2016</b>	<b>% Change</b>
<b><u>Member Counts</u></b>			
Active Members	10,870	11,019	1.4%
Retired Members	6,061	6,279	3.6%
Beneficiaries of Retired Members	1,947	1,987	2.1%
Survivors of Deceased Members	167	176	5.4%
Disabled Members	406	405	(0.2%)
Terminated Vested Members	2,112	2,221	5.2%
Inactives Due Refunds	6,341	6,849	8.0%
Total Membership	27,904	28,936	3.7%
Annual Payroll of Active Members	\$ 490,974,092	\$ 505,798,133	3.0%
Annual Payments to Benefit Recipients	\$ 130,647,324	\$ 135,629,476	3.8%
<b><u>Assets and Liabilities</u></b>			
Actuarial Liability (AL)	\$ 2,720,936,009	\$ 2,889,740,634	6.2%
Actuarial Value of Assets (AVA)	2,433,186,149	2,489,157,281	2.3%
Unfunded Actuarial Liability (UAL)	\$ 287,749,860	\$ 400,583,353	39.2%
Individual Portion (IUUAL)	3,618,300	NA	(100.0%)
Pooled Portion (PUAL)	\$ 284,131,560	\$ 400,583,353	41.0%
AVA Funded Ratio (AVA/AL)	89.4%	86.1%	
MVA Funded Ratio (MVA/AL)	88.3%	81.6%	
Accrued Benefit Liability (PVAB)	\$ 2,432,356,813	\$ 2,609,285,626	7.3%
Market Value of Assets (MVA)	2,401,889,308	2,358,409,925	(1.8%)
Unfunded PVAB*	\$ 30,467,505	\$ 250,875,701	723.4%
Accrued Benefit Funded Ratio	98.7%	90.4%	
<b><u>PLD Contribution Rate</u></b>			
	<b><u>FY 2017</u></b>	<b><u>FY 2018</u></b>	
PLD Normal Cost Rate	7.8%	6.5%	
Pooled UAL Rate	4.1%	6.0%	
Total Calculated PLD Rate	11.9%	12.5%	
Corridor PLD Rate	9.5%	9.8%	

\*Limited to be not less than \$0

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**SECTION I - BOARD SUMMARY**

**Table I-3  
Summary of Principal Results  
PLD Consolidated Retirement Plan  
Regular Plans: AC, AN & BC**

<b>Valuation as of:</b>	<b>June 30, 2015</b>	<b>June 30, 2016</b>	<b>% Change</b>
<b><u>Member Counts</u></b>			
Active Members	8,327	8,437	1.3%
Retired Members	4,764	4,840	1.6%
Beneficiaries of Retired Members	1,359	1,353	(0.4%)
Survivors of Deceased Members	145	151	4.1%
Disabled Members	316	310	(1.9%)
Terminated Vested Members	1,878	1,946	3.6%
Inactives Due Refunds	<u>6,049</u>	<u>6,284</u>	3.9%
Total Membership	22,838	23,321	2.1%
Annual Payroll of Active Members	\$ 340,922,053	\$ 349,979,018	2.7%
Annual Payments to Benefit Recipients	\$ 83,660,000	\$ 82,378,852	(1.5%)
<b><u>Assets and Liabilities</u></b>			
Actuarial Liability (AL)	\$ 1,727,472,447	\$ 1,732,370,852	0.3%
Actuarial Value of Assets (AVA)	<u>1,529,554,019</u>	<u>1,458,972,630</u>	(4.6%)
Unfunded Actuarial Liability (UAL)	\$ 197,918,428	\$ 273,398,222	38.1%
Individual Portion (IUUAL)	<u>1,670,613</u>	<u>NA</u>	(100.0%)
Pooled Portion (PUAL)	\$ 196,247,815	\$ 273,398,222	39.3%
AVA Funded Ratio (AVA/AL)	88.5%	84.2%	
MVA Funded Ratio (MVA/AL)	87.4%	79.8%	
Accrued Benefit Liability (PVAB)	\$ 1,559,579,407	\$ 1,568,673,059	0.6%
Market Value of Assets (MVA)	<u>1,509,880,139</u>	<u>1,382,337,529</u>	(8.4%)
Unfunded PVAB*	\$ 49,699,268	\$ 186,335,530	274.9%
Accrued Benefit Funded Ratio	96.8%	88.1%	
<b><u>PLD Contribution Rate</u></b>			
	<b><u>FY 2017</u></b>	<b><u>FY 2018</u></b>	
PLD Normal Cost Rate	7.9%	6.1%	
Pooled UAL Rate	<u>4.1%</u>	<u>5.8%</u>	
Total Calculated PLD Rate	12.0%	11.9%	
Corridor PLD Rate	9.3%	9.3%	

\*Limited to be not less than \$0

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**SECTION I - BOARD SUMMARY**

**Table I-4  
Summary of Principal Results  
PLD Consolidated Retirement Plan  
Special Plans: 1C-4C & 1N-4N**

<b>Valuation as of:</b>	<b>June 30, 2015</b>	<b>June 30, 2016</b>	<b>% Change</b>
<b><u>Member Counts</u></b>			
Active Members	2,543	2,582	1.5%
Retired Members	1,297	1,439	10.9%
Beneficiaries of Retired Members	588	634	7.8%
Survivors of Deceased Members	22	25	13.6%
Disabled Members	90	95	5.6%
Terminated Vested Members	234	275	17.5%
Inactives Due Refunds	292	565	93.5%
Total Membership	5,066	5,615	10.8%
Annual Payroll of Active Members*	\$ 150,052,039	\$ 155,819,115	3.8%
Annual Payments to Benefit Recipients	\$ 46,987,324	\$ 53,250,624	13.3%
<b><u>Assets and Liabilities</u></b>			
Actuarial Liability (AL)	\$ 993,463,562	\$ 1,157,369,782	16.5%
Actuarial Value of Assets (AVA)	903,632,130	1,020,027,500	12.9%
Unfunded Actuarial Liability (UAL)	\$ 89,831,432	\$ 137,342,282	52.9%
Individual Portion (IUUAL)	1,947,687	NA	(100.0%)
Pooled Portion (PUAL)	\$ 87,883,745	\$ 137,342,282	56.3%
AVA Funded Ratio (AVA/AL)	91.0%	88.1%	
MVA Funded Ratio (MVA/AL)	89.8%	83.5%	
Accrued Benefit Liability (PVAB)	\$ 872,777,406	\$ 1,040,612,567	19.2%
Market Value of Assets (MVA)	892,009,169	966,448,765	8.3%
Unfunded PVAB*	\$ 0	\$ 74,163,802	0.0%
Accrued Benefit Funded Ratio	102.2%	92.9%	
<b><u>PLD Contribution Rate</u></b>			
	<b><u>FY 2017</u></b>	<b><u>FY 2018</u></b>	
PLD Normal Cost Rate	7.6%	7.4%	
Pooled UAL Rate	4.1%	6.5%	
Total Calculated PLD Rate	11.7%	13.9%	
Corridor PLD Rate	10.1%	10.9%	

\*Limited to be not less than \$0

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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, PLD 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 that is the subject of this valuation 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 plan assets including:

- Disclosure of total MainePERS DB assets at June 30, 2015 and June 30, 2016
- 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 Plan's ongoing ability to meet its obligations.

Current actuarial methods employed in this Plan 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.

Table II-1 on the following page develops the change in the market value of assets for the total MainePERS DB assets during FY 2016.



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**SECTION II - ASSETS**

<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, 2015</b>		<b>\$ 12,746,883,200</b>
<b><u>Additions</u></b>		
Contributions:		
Employer Contributions	\$ 361,012,746	
Member Contributions	167,156,743	
Transfers	<u>(222,487)</u>	
Total Contributions	\$ 527,947,002	
Investment Income:		
Net Appreciation (Depreciation) in Fair Value of Investments	\$ 126,844,129	
Interest on Bank Balances	<u>228,561</u>	
Total Investment Income	\$ 127,072,690	
Investment Activity Expenses:		
Management Fees	\$ (72,537,525)	
Investment Related Expense	(3,471,936)	
Banking Fees	<u>(32,470)</u>	
Total Investment Activity Expenses	\$ (76,041,931)	
Net Income from Investing Activities	\$ 51,030,759	
Total Additions		\$ 578,977,761
<b><u>Deductions</u></b>		
Retirement Benefits	\$ (813,553,420)	
Disability Benefits	(33,769,256)	
Survivor Benefits	(21,711,881)	
Refunds	(21,969,587)	
Administrative Expenses	<u>(10,764,216)</u>	
Total Deductions		\$ (901,768,360)
<b><u>Total</u></b>		
Net Increase (Decrease)		\$ (322,790,599)
<b>Market Value of Total MainePERS DB Assets – June 30, 2016</b>		<b>\$ 12,424,092,601</b>

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Table II-2 below develops the actuarial value of assets for the Total MainePERS DB assets as of June 30, 2016 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, 2016</b>		
1.	Actuarial Value of Total MainePERS DB Assets at June 30, 2015	\$ 12,912,976,273
2.	Amount in (1) with Interest to June 30, 2016	13,833,025,831
3.	Employer and Member Contributions for FY 2016	527,947,002
4.	Interest on Contributions in (3), Assuming Received Uniformly Throughout FY 2016	18,484,521
5.	Total Disbursements without Administrative Expenses for FY 2016	(891,004,144)
6.	Interest on Disbursements in (5), Assuming Payments Made Uniformly throughout FY 2016	<u>(31,195,906)</u>
7.	Expected Value of Total MainePERS DB Assets at June 30, 2016 = (2) + (3) + (4) + (5) + (6)	\$ 13,457,257,304
8.	Actual Market Value of Total MainePERS DB Assets at June 30, 2016	12,424,092,601
9.	Excess of (8) Over (7)	<u>(1,033,164,703)</u>
10.	Actuarial Value of Total MainePERS DB Assets at June 30, 2016 = (7) + 33⅓% of (9)	\$ 13,112,869,070

**Actuarial Value of Total MainePERS DB Assets**

As discussed in the disclosure portion of this section, the actuarial value of assets for the Plan 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, 2016.

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

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, 2016 valuation as shown in Table II-2 above is 1.055439 ( $\$13,112,869,070 \div \$12,424,092,601$ ). 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, 2016</b>		
	<b>Market Value</b>	<b>Actuarial Value</b>
Teachers	\$ 6,665,703,555	\$ 7,035,241,991
State (Regular & Special)	3,294,631,835	3,477,282,187
Judges	60,890,109	64,265,782
Legislators	10,806,661	11,405,769
Participating Local Districts (Consolidated & Non-Consolidated)	<u>2,392,060,441</u>	<u>2,524,673,341</u>
<b>Total</b>	<b>\$ 12,424,092,601</b>	<b>\$ 13,112,869,070</b>

**Investment Performance**

The market value of assets for the total MainePERS DB assets returned a positive 0.32% during FY 2016. This is lower than the assumed return of 7.125%. The equivalent returns in FY 2015 and FY 2014 were positive 1.80% and positive 16.85% respectively.

On an actuarial value of assets basis, the return for FY 2016 for the total MainePERS DB assets was a positive 4.42%. 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 Plan experienced a portion.

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**SECTION II - ASSETS**

**Cash Flow Projections**

In Table II-4 below, we provide a projection of expected cash flows in and out of the Plan over 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 the cash coming into the Plan through PLD and member contributions and the cash being paid out of the Plan to provide benefit payments.

<b>Table II-4 Projection of Plan's Benefit Payments and Contributions</b>				
<b>FY Ending June 30,</b>	<b>Expected Benefit Payments</b>	<b>Expected Pooled PLD Contributions (based on Corridor Method) Plus IUUAL Payments</b>	<b>Expected Member Contributions</b>	<b>Total Expected Contributions</b>
2016	\$ 146,842,000	\$ 48,707,000	\$ 41,734,000	\$ 90,441,000
2017	156,375,000	51,627,000	42,882,000	94,509,000
2018	165,554,000	54,955,000	44,061,000	99,016,000
2019	174,064,000	58,723,000	45,273,000	103,996,000
2020	182,533,000	62,902,000	46,518,000	109,420,000
2021	191,408,000	67,471,000	47,797,000	115,268,000
2022	200,392,000	72,418,000	49,112,000	121,530,000
2023	209,519,000	77,732,000	50,462,000	128,194,000
2024	218,677,000	83,404,000	51,850,000	135,254,000
2025	227,221,000	89,428,000	53,276,000	142,704,000

The expected benefit payments in Table II-4 were developed using the data of those currently included in this valuation and on the assumption that the actuarial assumptions disclosed in Appendix D will be exactly met. Actual benefit payments will vary if members retire sooner or later than assumed, if salary increases and actual 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 plan 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.

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Expected PLD contributions in this table are based on the current covered payroll and the anticipated aggregate total pooled PLD contribution rates developed using the corridor funding method. Future contribution increases as stored asset losses are picked up by the smoothing method in developing this projection. We have assumed that payroll will increase by 2.75% per year in the projection period.

The expected member contributions are similarly based on a 2.75% per year increase in covered payroll combined with the average aggregate member contribution rate of 8.14% for FY 2017.

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**SECTION III - LIABILITIES**

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

- Disclosure of plan liabilities at June 30, 2015 and June 30, 2016; and
- Statement of changes in these liabilities during the year.

**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 Plan, this represents the amount of money needed today to fully fund all future benefits of the Plan, 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 6.875% 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 PLD normal cost contributions under an acceptable actuarial funding method. For this Plan 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 on the following page 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 PLD contributions assuming the corridor rate remains constant. 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.

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**SECTION III - LIABILITIES**

**Table III-1  
Disclosure of Liabilities**

	<b>June 30, 2015</b>	<b>June 30, 2016</b>
<b>Present Value of Benefits (PVB)</b>		
Active Member	\$ 1,689,053,989	\$ 1,682,004,497
Retired, Disabled, and Beneficiary Members	1,445,264,541	1,534,650,366
Terminated Vested & Inactive Members	<u>98,268,262</u>	<u>120,331,296</u>
<b>Total PVB</b>	<b>\$ 3,232,586,792</b>	<b>\$ 3,336,986,159</b>
Market Value of Assets (MVA)	\$ 2,401,889,308	\$ 2,358,409,925
Future Member Contributions	277,113,276	274,966,210
Future PLD Contributions at Fixed Rate*	343,266,909	332,653,159
Projected (Surplus)/Shortfall	<u>210,317,299</u>	<u>370,956,865</u>
<b>Total Resources</b>	<b>\$ 3,232,586,792</b>	<b>\$ 3,336,986,159</b>
<b>Actuarial Liability (AL)</b>		
Present Value of Benefits (PVB)	\$ 3,232,586,792	\$ 3,336,986,159
Present Value of Future Normal Costs (PVFNC)		
PLD Portion	234,537,507	172,279,315
Member Portion	<u>277,113,276</u>	<u>274,966,210</u>
<b>Actuarial Liability (AL = PVB – PVFNC)</b>	<b>\$ 2,720,936,009</b>	<b>\$ 2,889,740,634</b>
Actuarial Value of Assets (AVA)	<u>2,433,186,149</u>	<u>2,489,157,281</u>
<b>Net (Surplus)/Unfunded (AL – AVA)</b>	<b>\$ 287,749,860</b>	<b>\$ 400,583,353</b>
<b>Present Value of Accrued Benefits</b>		
Present Value of Benefits (PVB)	\$ 3,232,586,792	\$ 3,336,986,159
Present Value of Future Benefit Accruals (PVFBA)	<u>800,229,979</u>	<u>727,700,533</u>
<b>Accrued Liability (PVAB = PVB – PVFBA)</b>	<b>\$ 2,432,356,813</b>	<b>\$ 2,609,285,626</b>
Market Value of Assets (MVA)	<u>2,401,889,308</u>	<u>2,358,409,925</u>
<b>Net (Surplus)/Unfunded (PVAB – MVA)</b>	<b>\$ 30,467,505</b>	<b>\$ 250,875,701</b>

\* Assumed fixed rates are 9.50% in FY 2017 and 9.80% for FY 2018 and all years after that.

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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 as a result of all of the above, as well as due to changes in plan asset measurements resulting from:

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

In each valuation, we report on those elements of change in plan liability measures that are of particular significance, potentially affecting the long-term financial outlook of the Plan. In Table III-2 below, we present key changes in Plan 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 - 06/30/2015	\$ 3,232,586,792	\$ 2,720,936,009	\$ 2,432,356,813
Liability Measurement - 06/30/2016	<u>3,336,986,159</u>	<u>2,889,740,634</u>	<u>2,609,285,626</u>
Liability Measurement Increase	\$ 104,399,367	\$ 168,804,625	\$ 176,928,813
(Decrease) Due to:			
Plan Amendment	\$ 0	\$ 0	\$ 0
Assumption Change	(34,792,756)	50,884,219	63,131,319
Actuarial (Gain)/Loss	N/C	\$ (9,142,757)	N/C
Benefits Accumulated and Other Sources	\$ 139,192,123	\$ 127,063,163	\$ 113,797,494

N/C = Not calculated



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**SECTION IV - CONTRIBUTIONS**

**General Comments**

Under established procedures, PLD contribution rates based on this June 30, 2016 Actuarial Valuation Report are used to determine Fiscal Year 2018 contributions. In this context, the term “PLD contribution rate” means the percentage that is applied by each PLD to its active member payroll to determine the PLD’s actual employer contribution amount.

In addition to the applicable PLD contribution rate, several individual PLDs are still making dollar payments based on their Initial Unpooled Unfunded Actuarial Liability (IUUAL), which are added to the amount derived by applying the applicable PLD contribution rate to the active member payroll. These payments had been separately identified in the development of the Pooled UAL amount but with this valuation we are recognizing that the PLD asset pool now includes those future contributions as a receivable.

Active members are required to contribute to the Plans. Member contribution rates are detailed in Appendix C.

**Description of Rate Components**

The entry age normal funding method was used to develop the PLD contribution rates in this section. Under this funding method, as with most other actuarial funding methods, a total contribution rate is determined which consists of two elements: the normal cost rate and the pooled unfunded actuarial liability rate. A separate rate is developed for each of the Regular and Special Plans in the Consolidated Plan. These plans are listed in Appendix C along with the relevant plan provisions for each Regular and Special Plan in the Consolidated Plan.

**Normal Cost Rate**

For each of the Regular and Special Plans in the Consolidated Plan, 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 benefits. 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 Regular and Special Plans in the Consolidated Plan.

**Pooled Unfunded Actuarial Liability Rate**

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

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employer normal cost contributions, future member contributions, future IUUAL payments, and current assets. Under the Consolidated Plan, a Pooled Unfunded Actuarial Liability Rate is calculated for the Consolidated Plan in the Aggregate. This rate is then allocated to each plan within the Consolidated Plan on the basis of total normal cost plus member contributions for each such plan. That is, those plans that constitute a larger portion of the overall liability will pay a larger portion of the pooled UAL payment when this rate is positive and receive a larger UAL credit when this rate is negative. Composite contribution rates for this year and the prior year are shown in Table IV-1.

### **IUUAL Payments**

In addition to total PLD contributions required under the Consolidated Plan, each individual PLD in the Consolidated Plan that came into the Plan with liabilities in excess of their assets will make payments on its Individual Unpooled Unfunded Actuarial Liability (IUUAL) until it is fully paid off. Where IUUAL payments are due, each PLD makes payment of a specific dollar amount. In prior valuations this was an explicit amount that was recognized as a component of the Program's total UAL. In this valuation we recognize the fact that the System is treating future IUUAL payments as a receivable contribution which is already included in the asset values provided which is why the IUUAL amount is listed as NA in the 2016 column of the Section I summary tables.

### **PLD Contribution Rate Summary**

In Table IV-2, we present the PLD contribution rates developed in this valuation and the corridor contribution rate for FY 2018 by Regular and Special Plans, using the cost methods described above. These were developed using the actuarial assumptions and methods described in Appendix D.

### **Corridor Contribution Rate**

Under the Plan's corridor funding approach, as long as the Plan's funded ratio (the ratio of actuarial value of assets to actuarial liability) remains within a corridor of 90% to 130%, the total pooled PLD contribution rate for each plan is fixed at the rate paid in the prior year. If the funded ratio falls outside of the corridor, the total pooled PLD contribution rate is adjusted to reflect 10% of the difference between the calculated contribution rate and the current corridor rate. Note that when the rate is reduced, it will never be less than 75% of the PLD normal cost (which is the total normal cost rate reduced by the member contribution rate). The overall plan corridor rate is then allocated across each of the subplans on the basis of their relative total normal cost rates (total normal cost being the PLD normal cost plus the member contribution rate).

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**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 as developed in this valuation and the prior one.

<b>Table IV-1 Composite Total Employer Rate</b>		
<b>Valuation Date</b>	<b>June 30, 2015</b>	<b>June 30, 2016</b>
Composite Employer NC Rate	7.8%	6.5%
Composite UAL Rate	<u>4.1%</u>	<u>6.0%</u>
Composite Total Employer Rate	11.9%	12.5%
Corridor Contribution Rate	9.5%	9.8%

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

<b>Table IV-2 Total Employer Contribution Rates by Plan</b>						
<b>Valuation Date June 30, 2016</b>	<b>Total NC Rate</b>	<b>Employee Contribution Rate</b>	<b>Employer NC Rate</b>	<b>UAL Contribution Rate</b>	<b>Total Employer Calculated Rate</b>	<b>Total Employer Corridor Rate</b>
<b>Plans With COLA</b>						
Regular Employees Plan AC	14.3%	8.0%	6.3%	5.8%	12.1%	9.5%
Regular Employees Plan BC	8.7%	4.5%	4.2%	3.5%	7.7%	6.0%
Special Plan 1C	19.7%	8.0%	11.7%	8.1%	19.8%	15.6%
Special Plan 2C	14.7%	8.0%	6.7%	6.0%	12.7%	10.0%
Special Plan 3C	17.6%	9.5%	8.1%	7.2%	15.3%	12.0%
Special Plan 4C	13.9%	9.0%	4.9%	5.7%	10.6%	8.3%
<b>Plans With No COLA</b>						
Regular Employees Plan AN	11.9%	8.0%	3.9%	4.9%	8.8%	6.9%
Special Plan 1N	15.1%	8.0%	7.1%	6.2%	13.3%	10.4%
Special Plan 2N	10.6%	8.0%	2.6%	4.4%	7.0%	5.5%
Special Plan 3N	13.5%	9.5%	4.0%	5.5%	9.5%	7.5%
Special Plan 4N	9.9%	9.0%	0.9%	4.0%	4.9%	3.9%

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**SECTION IV - CONTRIBUTIONS**

Table IV-3 below provides the development of the UAL rate for the PLD Consolidated Plan as a whole. In Table IV-4, the resulting total Plan rate is allocated to each of the sub plans on the basis of their relative values, as measured by the Total Normal Cost developed in each sub plan.

<b>Table IV-3 Derivation of Unfunded Actuarial Liability</b>	
1. Actuarial Liability (AL)	\$ 2,889,740,634
2. Actuarial Value of Assets (AVA)	<u>2,489,157,281</u>
3. Unfunded Actuarial Liability (UAL)	\$ 400,583,353
4. Remaining Balances of Prior Amortization Bases	
a. Original UAL Amount	\$ 283,679,654
b. 2016 (Gain)/Loss Base	<u>116,903,699</u>
c. Sum of the Bases	\$ 400,583,353
5. UAL Amortizations	
a. Original UAL Amount 19 Years	\$ 21,625,769
b. 2016 (Gain)/Loss Base 20 Years	<u>8,613,102</u>
c. Sum of Amortization Payments	\$ 30,238,871
6. Covered Payroll	\$ 505,798,133
7. UAL Amortization Rate	
a. Original UAL Amount 19 Years	4.3%
b. 2016 (Gain)/Loss Base 20 Years	<u>1.7%</u>
c. <b>Sum of UAL Amortization Rates</b>	<b>6.0%</b>

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

<b>Table IV-4</b>						
<b>Allocation of Unfunded Actuarial Liability Rates within Consolidated PLD (Regular &amp; Special Plans)</b>						
	<b>Total Program</b>	<b>Regular AN</b>	<b>Special 1N</b>	<b>Special 2N</b>	<b>Special 3N</b>	<b>Special 4N</b>
1. Employer NC Rate	6.5%	3.9%	7.1%	2.6%	4.0%	0.9%
2. Member Contribution Rate	<u>8.1%</u>	<u>8.0%</u>	<u>8.0%</u>	<u>8.0%</u>	<u>9.5%</u>	<u>9.0%</u>
3. Total NC Rate	14.6%	11.9%	15.1%	10.6%	13.5%	9.9%
4. UAL Amortization Rates*	6.0%	4.9%	6.2%	4.4%	5.5%	4.0%
5. Total Calculated Cost (1. + 4.)	12.5%	8.8%	13.3%	7.0%	9.5%	4.9%
6. Corridor Rates**	9.8%	6.9%	10.4%	5.5%	7.5%	3.9%

<b>Table IV-4 (cont.)</b>						
<b>Allocation of Unfunded Actuarial Liability Rates within Consolidated PLD (Regular &amp; Special Plans)</b>						
	<b>Regular AC</b>	<b>Regular BC</b>	<b>Special 1C</b>	<b>Special 2C</b>	<b>Special 3C</b>	<b>Special 4C</b>
1. Employer NC Rate	6.3%	4.2%	11.7%	6.7%	8.1%	4.9%
2. Member Contribution Rate	<u>8.0%</u>	<u>4.5%</u>	<u>8.0%</u>	<u>8.0%</u>	<u>9.5%</u>	<u>9.0%</u>
3. Total NC Rate	14.3%	8.7%	19.7%	14.7%	17.6%	13.9%
4. UAL Amortization Rates*	5.8%	3.5%	8.1%	6.0%	7.2%	5.7%
5. Total Calculated Cost (1. + 4.)	12.1%	7.7%	19.8%	12.7%	15.3%	10.6%
6. Corridor Rates**	9.5%	6.0%	15.6%	10.0%	12.0%	8.3%

\* UAL amortization Rates = (total Amort/Total Plan NC) x Individual NC

\*\* Corridor Rates = (Total corridor/Total Calculated) x Individual Calculated

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**SECTION V - FINANCIAL DISCLOSURE INFORMATION**

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

First, for informational purposes, we show the Plan'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 Plan 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, Table V-5 included in this section is only applicable to GASB No. 68. Additional information necessary for disclosures under Statement No. 68 is provided under separate cover.

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* (GAAFR). We have prepared the following exhibits reflecting guidance in the GAAFR:

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

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 Plan is ongoing and participants continue to terminate employment, retire, etc., in accordance with the actuarial assumptions. Liabilities as of June 30, 2016 are discounted at the assumed valuation interest rate of 6.875% per annum in all of these disclosures.

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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, 2016 are discounted at the assumed valuation interest rate of 6.875% per annum in all of these disclosures. The June 30, 2015 amounts used the prior year's assumption of 7.125%.

Table V-1 below includes the relevant amounts as of June 30, 2015 and June 30, 2016 as well as a reconciliation between the two dates under FASB ASC Topic 960.

**Table V-1  
Accrued Benefits Information**

<b>FASB ASC Topic 960 Basis</b>	<b>June 30, 2015</b>	<b>June 30, 2016</b>
1. Present Value of Benefits Accrued to Date (PVAB)		
a. Members Currently Receiving Payments	\$ 1,445,264,541	\$ 1,534,650,366
b. Vested Terminated Members	98,268,262	120,331,296
c. Active Members	<u>888,824,010</u>	<u>954,303,964</u>
d. Total PVAB	\$ 2,432,356,813	\$ 2,609,285,626
2. Assets at Market Value (MVA)	<u>2,401,889,308</u>	<u>2,358,409,925</u>
3. Unfunded Present Value of Accrued Benefits, But Not Less Than Zero	\$ 30,467,505	\$ 250,875,701
4. Ratio of MVA to PVAB (2) / (1)(d)	98.7%	90.4%
<b>Change in Present Value of Benefits Accrued to Date during FY</b>		
Increase/(Decrease) During Year Attributable to:		
Passage of Time	\$ 168,406,544	
Benefits Paid	<u>(139,919,679)</u>	
Assumption Changes	63,131,319	
Plan Changes	0	
Benefits Accrued, Other Gains/Losses	<u>85,310,629</u>	
Net Increase/(Decrease)	\$ 176,928,813	



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Table V-2 below shows the changes in the total pension liability (TPL), the plan fiduciary net position (FNP) (i.e., fair value of Plan net assets), and the net pension liability (NPL) during the measurement year ending June 30, 2016 and related ratios as calculated under the provisions of GASB Statement No. 67 for the Plan.

<b>Table V-2</b>	
<b>Schedule of Changes in Net Pension Liability and Related Ratios</b>	
<b>FY 2016</b>	
	<b>Total Consolidated PLDs</b>
<b><u>Total Pension Liability (TPL)</u></b>	
Service Cost	\$ 74,208,414
Interest (Includes Interest on Service Cost)	192,774,429
Changes of Benefit Terms	0
Differences Between Actual and Expected Experience	(9,142,757)
Changes of Assumptions	50,884,219
Benefit Payments, Including Refunds of Member Contributions	<u>(139,919,680)</u>
<b>Net Change in TPL</b>	<b>168,804,625</b>
<b>Beginning of Year TPL</b>	<b><u>2,720,936,009</u></b>
<b>End of Year TPL</b>	<b><u>\$ 2,889,740,634</u></b>
<b><u>Plan Fiduciary Net Position (FNP)</u></b>	
PLD (Employer) Contributions	\$ 47,624,182
Member Contributions	40,861,405
Transfers	(217,338)
Net Investment Income	10,200,342
Benefit Payments, Including Refunds of Member Contributions	(139,919,680)
Administrative Expenses	<u>(2,028,294)</u>
Net Change in FNP	\$ (43,479,383)
<b>Beginning of Year FNP</b>	<b><u>2,401,889,308</u></b>
<b>End of Year FNP</b>	<b><u>\$ 2,358,409,925</u></b>
<b>End of Year Net Pension Liability (NPL)</b>	<b><u>\$ 531,330,709</u></b>
FNP as a Percentage of TPL	81.6%
Covered-Employee Payroll (Payroll)	\$ 521,870,235
NPL as a Percentage of Payroll	101.8%

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**SECTION V - FINANCIAL DISCLOSURE INFORMATION**

**Notes to Schedule of Changes in Net Pension Liability and Related Ratios**

*Change of assumptions.* In 2016, the amounts reported as changes of assumptions were due to assumptions that were updated based on the experience study covering the period from June 30, 2012 through June 30, 2015.

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 current 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. As of June 30, 2016, we believe the only such note relates to the rate of return for this June 30, 2016 valuation and have as such included information relating to this item in the *Notes to Schedule of Changes in Net Pension Liability and Related Ratios* above.

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 Plan. 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 2016**

	<b>1% Decrease 5.875%</b>	<b>Discount Rate 6.875%</b>	<b>1% Increase 7.875%</b>
Total Pension Liability (TPL)	\$ 3,240,323,191	\$ 2,889,740,634	\$ 2,559,679,676
Plan Fiduciary Net Position (FNP)	<u>2,358,409,925</u>	<u>2,358,409,925</u>	<u>2,358,409,925</u>
Net Pension Liability (NPL)	<u>\$ 881,913,266</u>	<u>\$ 531,330,709</u>	<u>\$ 201,269,751</u>
FNP as a Percentage of TPL	72.8%	81.6%	92.1%

A one percent decrease in the discount rate increases the TPL by approximately 12% and increases the NPL by approximately 66%. A one percent increase in the discount rate decreases the TPL by approximately 11% and decreases the NPL by approximately 62%.

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**SECTION V - FINANCIAL DISCLOSURE INFORMATION**

Table V-4 below provides information relating to the employer contributions for the Plan. 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 Consolidated Plan's corridor rates meet the definition of an ADC, so for this Plan 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 believe that the only applicable item at this time is the rate of return assumption change in 2016, which we have included in the "Other Information" section of the notes to this schedule.

**Table V-4  
Schedule of Employer Contributions  
FY 2016**

	<b>Total Consolidated PLDs</b>
Actuarially Determined Contribution (ADC)	\$ 46,968,321
Contributions in Relation to the ADC	<u>46,968,321</u>
Contribution Deficiency/(Excess)	<u>\$ 0</u>
Covered-Employee Payroll (Payroll)	\$ 521,870,235
Contributions as a Percentage of Payroll	9.00%

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**SECTION V - FINANCIAL DISCLOSURE INFORMATION**

**Notes to Schedule of Employer Contributions**

Valuation Date	6/30/2014
Timing	6/30/2016 ADC rates calculated based on the 2014 Actuarial Valuation

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

Actuarial Cost Method	Entry Age Normal
Asset Valuation Method	Three-year smoothed market
Amortization Method	Corridor method, amortize liability outside of 90% corridor over an open 15-year period with level dollar payments.
Discount Rate	7.25%
Amortization Growth Rate	0.00%
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

A complete description of the methods and assumptions used to determine contribution rates for the year ending June 30, 2016 can be found in the June 30, 2014 Actuarial Valuation Report.

**Other Information**

*Change of assumptions.* In 2016, the amounts reported as changes of assumptions were due to assumptions that were updated based on the experience study covering the period from June 30, 2012 through June 30, 2015.

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**SECTION V - FINANCIAL DISCLOSURE INFORMATION**

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, 2016, these values are thus developed as of June 30, 2015. 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.

<b>Table V-5 Average Expected Remaining Service Lives For Measurement Year Ending June 30, 2016</b>			
<b>Status</b>	<b>Total Expected Future Service</b>	<b>Count</b>	<b>Average Remaining Service Lives</b>
Actives	104,475	10,870	10
In-Pay Members	0	8,581	0
Deferred Vested Members	0	2,112	0
Inactives Due Refunds	<u>0</u>	<u>6,341</u>	<u>0</u>
Total Membership	104,475	27,904	4

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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</b>						
<b>ANALYSIS OF FINANCIAL EXPERIENCE</b>						
<b>Gain and Loss in Actuarial Liability During Fiscal Years Ended June 30</b>						
<b>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, 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>	<b>Gain (or Loss) For Fiscal Year Ended June 30, 2016</b>
Investment Income	\$ (642,960)	\$ (40,860,595)	\$ (26,747,451)	\$ 110,262,333	\$ (15,798,973)	\$ (63,941,136)
Combined Liability Experience	<u>(2,603,019)</u>	<u>(45,091,413)</u>	<u>(20,284,597)</u>	<u>(19,939,857)</u>	<u>54,634,906</u>	<u>9,142,757</u>
Gain (or Loss) during Year from Financial Experience	\$ (3,245,979)	\$ (85,952,008)	\$ (47,032,048)	\$ 90,322,476	\$ 38,835,933	\$ (54,798,379)
Non-Recurring Items	<u>(48,704,140)</u>	<u>4,567,558</u>	<u>52,024,637</u>	<u>0</u>	<u>(37,593,598)</u>	<u>(50,884,219)</u>
Composite Gain (or Loss) During Year	<b>\$ (51,950,119)</b>	<b>\$ (81,384,450)</b>	<b>\$ 4,992,589</b>	<b>\$ 90,322,476</b>	<b>\$ 1,242,335</b>	<b>\$ (105,682,598)</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, 2016 valuation, 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) Active Member Contributions</b>		<b>(2) Retirees Vested Terms, Beneficiaries</b>		<b>(3) Active Members (Employer Financed Portion)</b>		<b>Portion of Actuarial Liabilities Covered by Reported Assets</b>			
						<b>Reported Assets*</b>	<b>(1)</b>	<b>(2)</b>	<b>(3)</b>	
2016	\$	452,446,198	\$	1,654,981,662	\$	782,312,774	\$2,489,157,281	100%	100%	49%
2015		438,925,747		1,543,532,803		738,477,459	2,433,186,149	100	100	61
2014		423,097,001		1,462,031,828		724,529,016	2,379,733,634	100	100	68
2013		412,347,408		1,378,065,748		675,521,588	2,179,961,872	100	100	58
2012		398,895,449		1,262,186,227		707,745,483	2,103,481,277	100	100	63
2011		379,478,840		1,175,482,545		676,024,931	2,084,982,632	100	100	78
2010		347,801,024		1,083,097,662		654,598,374	2,011,019,138	100	100	89
2009		319,531,110		1,039,566,071		641,162,528	2,046,361,132	100	100	107
2008		294,627,592		990,913,007		628,335,716	2,151,832,580	100	100	138
2007		270,986,236		938,899,387		629,089,299	2,085,117,271	100	100	139

\* Reported Assets are measured at actuarial value. Results would be different if market value of assets were used. Despite the name of this exhibit, the liabilities presented in this schedule are not an appropriate measurement of the settlement value of the System.

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**APPENDIX A - PARTICIPATING LOCAL DISTRICT PLAN ELECTIONS**

PLD Name	PLD #	Regular Plan	Special Plan	Special Plan	COLA	Entry Date	FO COLA Date
Acton, Town of	0361	A	2		Yes	7/1/2016	
Androscoggin County	0067	A <sup>1</sup>	1 <sup>1</sup>	2 <sup>1</sup>	Yes	7/1/1994	
Androscoggin Valley Council of Government	0231	A			Yes	7/1/1996	
Aroostook County	0106	A			Yes	7/1/1994	
Auburn Housing Authority	0145	A			Yes	7/1/1994	
Auburn Lewiston Airport	0256	A			Yes	7/1/1996	
Auburn Public Library	0043	A			FO	7/1/1996	7/1/2001
Auburn Water and Sewer District	0052	A			Yes	7/1/1994	
Auburn, City of	0027	A	2	3 <sup>2</sup>	Yes	7/1/1994	
Augusta Housing Authority	0351	A			Yes	4/1/2014	
Augusta, City of	0023	A	2	3 <sup>3</sup>	Yes	7/1/1994	
Baileyville, Town of	0069	A	3		Yes	7/1/1996	
Bangor Housing Authority	0288	A			Yes	7/1/1994	
Bangor Public Library	0022	A			Yes	7/1/1996	
Bangor Water District	0059	B <sup>4</sup>			Yes	7/1/1996	
Bangor, City of	0020	A	1	2	Yes	7/1/1996	
Bar Harbor, Town of	0015	A	4		Yes	7/1/1995	
Bath Water District	0019	A			Yes	7/1/1994	
Bath, City of	0073	A	2	3	Yes	7/1/1996	



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**APPENDIX A - PARTICIPATING LOCAL DISTRICT PLAN ELECTIONS**

PLD Name	PLD #	Regular Plan	Special Plan	Special Plan	COLA	Entry Date	FO COLA Date
Baxter Academy of Technology And Sciences	0348	A			Yes	7/1/2013	
Belfast Water District	0132	A			Yes	7/1/1995	
Belfast, City of	0035	A	2		Yes	7/1/1996	
Berwick Sewer District	0207	A			Yes	7/1/1994	
Berwick, Town of	0108	A	1 <sup>5</sup>		FO	7/1/1996	7/1/2008
Bethel, Town of	0246	A			Yes	7/1/1996	
Biddeford Housing Authority	0310	A			Yes	7/1/2007	
Biddeford, City of	0158	A	3 <sup>6</sup>		FO	7/1/2010	7/1/2010
Boothbay Harbor, Town of	0146	A	2		Yes	7/1/1996	
Boothbay Region Water District	0298	A	2		Yes	1/1/2002	
Bowdoinham Water District	0319	A			Yes	1/1/2009	
Brewer Housing Authority	0248	A			Yes	7/1/1994	
Brewer, City of	0063	A <sup>7</sup>	2		Yes	7/1/1996	
Brownville, Town of	0177	A			No	7/1/2010	
Brunswick Fire And Police	0292	A	1 <sup>8</sup>	3 <sup>8</sup>	FO	7/1/1997	7/1/1997
Brunswick Public Library Association	0273	A			FO	7/1/1995	7/1/1995
Brunswick Sewer District	0072	A			Yes	7/1/1996	
Brunswick, Town of	0042	A			FO	7/1/1995	7/1/2000
Buckfield, Town of	0344	A			No	1/1/2013	
Bucksport, Town of	0130	A	4 <sup>9</sup>		No	7/1/1995	

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PLD Name	PLD #	Regular Plan	Special Plan	Special Plan	COLA	Entry Date	FO COLA Date
Calais, City of	0036	A			FO	7/1/1996	7/1/1996
Camden, Town of	0008	A			Yes	7/1/1994	
Cape Elizabeth Police	0317	A	2		Yes	7/1/2008	
Caribou Fire & Police	0208	A	1	2	No	7/1/1996	
Carrabassett Valley, Town of	0277	A			FO	7/1/1994	7/1/1994
Chesterville, Town of	0295	A <sup>10</sup>			Yes	7/1/1999	
China, Town of	0235	A			FO	7/1/1996	7/1/2008
Coastal Counties Workforce Incorporated	0301	A <sup>11</sup>			Yes	7/1/2003	
Community School Dist. #912	0252	A			Yes	7/1/1996	
Corinna, Town of	0217	A			Yes	7/1/1996	
Cornville Regional Charter School	0345	A			Yes	7/1/2013	
Cumberland County	0005	A	2 <sup>12</sup>		Yes	7/1/1996	
Cumberland, Town of	0216	A	2	3 <sup>13</sup>	Yes	7/1/1995	
Damariscotta, Town of	0191	A			Yes	7/1/2011	
Dexter, Town of	0097	A			Yes	7/1/1996	
Dover-Foxcroft Water District	0137	A			Yes	7/1/1994	
Dover-Foxcroft, Town of	0167	A			No	7/1/1995	
Durham, Town of	0234	A			No	7/1/1996	
Eagle Lake Water & Sewer District	0274	A			Yes	7/1/1996	
East Millinocket, Town of	0054	A	2		Yes	7/1/1996	

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PLD Name	PLD #	Regular Plan	Special Plan	Special Plan	COLA	Entry Date	FO COLA Date
Easton, Town of	0240	A			Yes	7/1/1994	
Eliot, Town of	0180	A	1 <sup>14</sup>		Yes	7/1/1994	
Ellsworth, City of	0013	A	4		Yes	7/1/1995	
Erskine Academy	0249	A			No	7/1/1994	
Fairfield, Town of	0260	A	3		Yes	7/1/1995	
Falmouth Memorial Library	0058	A			Yes	7/1/1996	
Falmouth, Town of	0087	A	2 <sup>15</sup>	3 <sup>15</sup>	Yes	7/1/1996	
Farmington Village Corporation	0118	A			No	7/1/1994	
Farmington, Town of	0100	A	1		Yes	7/1/1995	
Fort Fairfield Housing Authority	0275	A			FO	7/1/2002	7/1/1994
Fort Fairfield Utilities District	0131	A			Yes	7/1/1996	
Fort Fairfield, Town of	0017	A			Yes	7/1/2000	
Franklin County	0102	A	3 <sup>16</sup>		Yes	7/1/2006	
Freeport, Town of	0142	A	2 <sup>11</sup>		Yes	7/1/2003	
Frenchville, Town of	0098	A			No	7/1/1996	
Fryeburg, Town of	0149	A			No	1/1/2011	
Gardiner Water District	0221	A			No	7/1/1994	
Gardiner, City of	0024	A	3		FO	7/1/1996	7/1/2009
Glenburn, Town of	0174	A			Yes	7/1/1994	
Good Will Home Association	0347	A			Yes	7/1/2013	

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PLD Name	PLD #	Regular Plan	Special Plan	Special Plan	COLA	Entry Date	FO COLA Date
Gorham Fire & Police	0334	A	3		Yes	7/1/2009	
Gorham, Town of	0133	A			Yes	7/1/1996	
Gould Academy	0205	A			No	7/1/1996	
Grand Isle, Town of	0312	B			Yes	7/1/2008	
Greater Augusta Utility District <sup>17</sup>	0311	A			Yes	1/1/2008	
Greenville, Town of	0112	A	2 <sup>18</sup>		Yes	7/1/1996	
Hallowell, City of	0160	A			Yes	7/1/1996	
Hampden Water District	0183	A			Yes	7/1/1996	
Hampden, Town of	0151	A	3 <sup>19</sup>		FO	7/1/1996	7/1/2009
Hancock County	0056	A			Yes	7/1/1994	
Hancock, Town of	0353	A			Yes	7/1/2014	
Harpwell, Town of	0270	A			Yes	7/1/1994	
Harrison, Town of	0280	B <sup>20</sup>			Yes	7/1/1994	
Hartland, Town of	0360	A			Yes	1/1/2016	
Hermon, Town of	0150	A			No	7/1/1996	
Hodgdon, Town of	0215	A			FO	7/1/1996	7/1/2007
Holden, Town of	0338	A	4		Yes	7/1/2011	
Houlton Water District	0026	A			Yes	7/1/1995	
Houlton, Town of	0010	A	4 <sup>9</sup>		Yes	7/1/1996	
Jackman Utility District	0294	A			Yes	7/1/1996	
Jay, Town of	0045	A	2 <sup>21</sup>		Yes	7/1/1994	

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PLD Name	PLD #	Regular Plan	Special Plan	Special Plan	COLA	Entry Date	FO COLA Date
Kennebec County	0047	A	2		Yes	7/1/1995	
Kennebec Sanitary Treatment District	0220	A			FO	7/1/1995	7/1/1995
Kennebec Water District	0031	A			Yes	7/1/1996	
Kennebunk Light & Power District	0062	A			Yes	7/1/1994	
Kennebunk Sewer District	0201	A			FO	7/1/1994	7/1/2000
Kennebunk, Kennebunkport & Wells Water District	0255	A			FO	7/1/1996	7/1/1999
Kennebunk, Town of	0084	A	2 <sup>22</sup>		Yes	7/1/1996	
Kennebunkport, Town of	0188	A	1		FO	7/1/1996	7/1/2006
Kittery Water District	0012	A			Yes	7/1/1994	
Kittery, Town of	0014	A	1 <sup>23</sup>		Yes	7/1/1995	
Knox County Sheriffs	0359	A	3		No	1/1/2016	
Lebanon, Town of	0181	A			Yes	7/1/1996	
Levant, Town of	0339	A			Yes	7/1/2011	
Lewiston-Auburn Water Pollution Control Authority	0163	A			FO	7/1/1996	7/1/1996
Lewiston Housing Authority	0154	A			Yes	7/1/1994	
Lewiston, City of	0048	A	1	2	Yes	7/1/1996	
Lewiston/Auburn 9-1-1	0291	A			Yes	7/1/1994	
Limestone, Town of	0245	A			Yes	7/1/2006	
Lincoln Academy	0134	A			Yes	7/1/1994	
Lincoln County	0095	A			Yes	7/1/2004	

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PLD Name	PLD #	Regular Plan	Special Plan	Special Plan	COLA	Entry Date	FO COLA Date
Lincoln Sanitary District	0219	A			Yes	7/1/1994	
Lincoln & Sagadahoc Multicounty Jail Authority	0304	A	2		Yes	7/1/2004	
Lincoln County Sheriffs	0302	A	2 <sup>11</sup>		Yes	7/1/2003	
Lincoln, Town of	0076	A	3		No	7/1/1996	
Linneus, Town of	0214	A			No	7/1/1996	
Lisbon Water Department	0243	A			FO	7/1/1996	7/1/2007
Lisbon, Town of	0103	A	2		Yes	7/1/1996	
Livermore Falls Water District	0032	A			Yes	7/1/1994	
Livermore Falls, Town of	0109	A			No	7/1/1996	
Lovell, Town of	0276	A			Yes	7/1/1996	
Lubec Water and Electric District	0088	A			Yes	7/1/1996	
Lubec, Town of	0228	A			No	7/1/1996	
Madawaska Water District	0236	A			Yes	7/1/1994	
Madawaska, Town of	0082	A			Yes	7/1/1996	
Maine Academy of Natural Sciences	0346	A			Yes	7/1/2013	
Maine County Commissioners Association	0225	A			No	7/1/1996	
Maine Maritime Academy	0038	A	2		Yes	7/1/1996	
Maine Municipal Association	0055	A			Yes	7/1/2009	
Maine Municipal Bond Bank	0093	A			Yes	7/1/1995	

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PLD Name	PLD #	Regular Plan	Special Plan	Special Plan	COLA	Entry Date	FO COLA Date
Maine School Management Association	0239	A			Yes	7/1/1994	
Maine Secondary School Principals Association	0105	A			Yes	7/1/1994	
Maine Turnpike Authority	0049	A			Yes	7/1/1994	
Maine Veterans Home	0271	A			Yes	7/1/1994	
Maine Public Employees Retirement System	0290	A			Yes	7/1/1994	
Maine School of Science & Mathematics	0352	A			Yes	7/1/2014	
Maine State Housing Authority	0169	A			Yes	7/1/2005	
Maine Virtual Academy	0357	A			Yes	7/1/2015	
Mapleton, Castle Hill And Chapman, Town of	0265	A			Yes	7/1/1996	
Mars Hill Utility District	0283	A			Yes	7/1/1994	
Mars Hill, Town of	0227	A			Yes	7/1/1996	
Mechanic Falls Sanitary District	0282	A			FO	7/1/1994	7/1/2002
Mechanic Falls, Town of	0114	A			Yes	7/1/1994	
Medway, Town of	0194	A			Yes	7/1/1996	
Midcoast Council of Governments	0343	A			Yes	7/1/2012	
Milford, Town of	0186	A			No	7/1/1996	
Millinocket, Town of	0003	A	3	4	Yes	7/1/1996	
Milo Water District	0238	A			No	7/1/1996	

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PLD Name	PLD #	Regular Plan	Special Plan	Special Plan	COLA	Entry Date	FO COLA Date
Monmouth, Town of	0316	A	3		Yes	7/1/2008	
Monson, Town of	0184	A			No	7/1/1996	
Mount Desert Island Regional School District	0120	A			Yes	7/1/1996	
Mount Desert, Town of	0016	A			Yes	7/1/1996	
Mount Desert Water District	0300	A <sup>11</sup>			Yes	7/1/2003	
New Gloucester, Town of	0210	A			FO	7/1/1995	7/1/2007
Newport Water District	0313	A			Yes	7/1/2008	
Newport, Town of	0314	A	2		Yes	7/1/2008	
North Berwick, Town of	0254	A	1		No	7/1/1996	
North Berwick Water District	0308	A			Yes	7/1/2006	
Norway Water District	0136	A			FO	7/1/1995	7/1/2000
Norway, Town of	0125	A			FO	7/1/1996	7/1/2000
Ogunquit, Town of	0303	A	1		Yes	7/1/2004	
Old Orchard Beach, Town of	0140	A	2	3/1 <sup>24</sup>	Yes	7/1/2003	
Old Town Housing Authority	0262	A			FO	7/1/1994	7/1/1994
Old Town Water District	0079	A			No	7/1/1994	
Old Town, City of	0111	A	2 <sup>25</sup>	3 <sup>25</sup>	No	7/1/1995	
Orland, Town of	0166	A			No	7/1/1996	
Orono, Town of	0061	A	2 <sup>26</sup>		FO	7/1/1996	7/1/2002



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PLD Name	PLD #	Regular Plan	Special Plan	Special Plan	COLA	Entry Date	FO COLA Date
Orrington, Town of	0209	A	3		No	7/1/1995	
Otisfield, Town of	0193	A			FO	7/1/1996	7/1/1996
Oxford County	0057	A <sup>11</sup>	2		Yes	7/1/1994	
Oxford, Town of	0200	A			No	7/1/1996	
Paris Utility District	0159	A			Yes	7/1/1995	
Paris, Town of	0127	A			Yes	7/1/1996	
Penobscot County	0011	A			Yes	7/1/1994	
Penquis Cap Inc	0237	A			No	7/1/1995	
Phippsburg, Town of	0202	A	3 <sup>27</sup>		Yes	7/1/1996	
Piscataquis County	0121	A			Yes	7/1/1994	
Pittsfield, Town of	0110	A			No	7/1/1996	
Pleasant Point Passamaquoddy Reservation Housing Authority	0165	A			Yes	7/1/1996	
Poland, Town of	0336	A	1		No	7/1/2010	
Portland Housing Authority	0185	A			Yes	7/1/1994	
Portland Public Library	0041	A			Yes	7/1/1995	
Portland, City of	0002	A	1	2	Yes	7/1/1995	
Princeton, Town of	0258	A			No	7/1/1996	
Regional School Unit #01	0315	A	2		Yes	7/1/2008	
Regional School Unit #02	0323	A			FO	7/1/2009	7/1/2009
Regional School Unit #04	0324	A			Yes	7/1/2009	

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PLD Name	PLD #	Regular Plan	Special Plan	Special Plan	COLA	Entry Date	FO COLA Date
Regional School Unit #05	0325	A			Yes	7/1/2009	
Regional School Unit #10	0326	A			Yes	7/1/2009	
Regional School Unit #20	0328	A			Yes	7/1/2009	
Regional School Unit #21	0322	A			FO	7/1/2009	7/1/2009
Regional School Unit #23	0329	A			Yes	7/1/2009	
Regional School Unit #25	0321	A			No	7/1/2009	
Regional School Unit #26	0330	A			Yes	7/1/2009	
Regional School Unit #34	0331	A			No	7/1/2009	
Regional School Unit #39	0332	A			Yes	7/1/2009	
Regional School Unit #67	0126	A			Yes	7/1/2016	
Regional School Unit #71	0358	A			Yes	7/1/2015	
Regional School Unit #73	0340	A			Yes	7/1/2011	
Richmond Utilities District	0242	A			No	7/1/1994	
Richmond, Town of	0213	A			Yes	7/1/2007	
Rockland , City of	0018	A	3		Yes	7/1/1995	
Rockport, Town of	0161	A			No	7/1/1996	
Rumford Fire And Police	0060	A	2 <sup>28</sup>	4	Yes	7/1/1995	
Rumford Mexico Sewerage District	0247	A			Yes	7/1/1996	
Rumford Water District	0065	A			Yes	7/1/1995	
Rumford, Town of	0090	A			Yes	7/1/1995	

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PLD Name	PLD #	Regular Plan	Special Plan	Special Plan	COLA	Entry Date	FO COLA Date
Sabattus, Town of	0175	A			FO	7/1/1996	7/1/2006
Saco, City of	0192	A	2	3 <sup>29</sup>	No	7/1/1995	
Sagadahoc County	0096	A	2	3 <sup>30</sup>	Yes	7/1/2002	
Sanford Housing Authority	0152	A			Yes	7/1/1996	
Sanford Sewerage District	0089	A			FO	7/1/1994	1/1/2009
Sanford Water District	0170	A			Yes	7/1/1996	7/1/2009
Sanford, City of	0083	A	1/3 <sup>31</sup>	2 <sup>31</sup>	FO	7/1/1995	7/1/2002
Scarborough, Town of	0147	A	3 <sup>32</sup>	1 <sup>32</sup>	Yes	7/1/1996	
School Administrative District No. 09 Farmington	0119	A			Yes	7/1/1995	
School Administrative District No. 13 Bingham	0223	A			Yes	7/1/1996	
School Administrative District No. 29 Houlton	0168	A			Yes	7/1/1996	
School Administrative District No. 31 Howland	0050	A			FO	7/1/1994	7/1/1994
School Administrative District No. 41 Milo	0143	A			Yes	7/1/1996	
School Administrative District No. 49 Fairfield	0189	A			No	7/1/1995	
School Administrative District No. 51 Cumberland Center	0198	A			No	7/1/1996	
School Administrative District No. 53 Pittsfield	0129	A			No	7/1/1996	

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PLD Name	PLD #	Regular Plan	Special Plan	Special Plan	COLA	Entry Date	FO COLA Date
School Administrative District No. 54 Skowhegan	0115	A			Yes	7/1/1996	
School Administrative District No. 60 North Berwick	0187	A			No	7/1/1994	
School Administrative District No. 67 Lincoln	0126	A			Yes	7/1/1996	
Searsport Water District	0124	A			No	7/1/1996	
Searsport, Town of	0117	A			No	7/1/1996	
Skowhegan, Town of	0080	A	3		Yes	7/1/1996	
South Portland Housing Authority	0206	A			Yes	7/1/1996	
Somerset County	0101	A			Yes	7/1/2005	
South Berwick Water District	0171	A	2		Yes	7/1/1996	
South Berwick, Town of	0141	A	1		FO	7/1/1996	7/1/1996
South Berwick Sewer District	0299	A <sup>11</sup>			Yes	7/1/2003	
South Portland, City of	0009	A	3 <sup>33</sup>		Yes	7/1/1995	
St. Agatha, Town of	0030	A			Yes	7/1/1996	
Thomaston, Town of	0164	A	2		Yes	1/1/2010	1/1/2010
Thompson Free Library	0318	A			Yes	1/1/2009	
Topsham Sewer District	0307	A <sup>34</sup>			Yes	7/1/2005	
Topsham, Town of	0081	A	2	3	Yes	7/1/1996	
Tri-Community Recycle/Sanitary Landfill	0267	A			Yes	7/1/1996	

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Union, Town of	0342	A			No	7/1/2012	
United Technologies Center, Region 4, S Penobscot	0269	A			FO	7/1/1996	7/1/2009
Van Buren, Town of	0182	A			Yes	7/1/1995	
Vassalboro, Town of	0153	A			Yes	7/1/1996	
Veazie Fire & Police	0305	A	3 <sup>35</sup>		Yes	7/1/2004	
Waldo County	0046	A	2		Yes	7/1/1994	
Waldo County Technical Center	0224	A			No	7/1/1996	
Waldoboro, Town of	0195	A	3		Yes	7/1/1995	
Washburn Water & Sewer District	0335	A			No	7/1/2009	
Washburn, Town of	0230	A			No	7/1/1994	
Washington County	0040	A			Yes	7/1/1996	
Waterboro, Town of	0356	A			No	1/1/2015	
Waterville Fire & Police	0066	A	3		No	7/1/1996	
Waterville Sewerage District	0222	A			Yes	7/1/1994	
Wells Ogunquit Community School District #918	0266	A			FO	7/1/1995	7/1/1995
Wells Fire And Police	0349	A	2		Yes	7/1/2013	
Wells, Town of	0107	A	3		Yes	7/1/1995	
West Bath, Town of	0333	A			Yes	7/1/2009	
Westbrook Fire & Police	0070	A	1	3	Yes	7/1/2006	

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Westbrook, City of	0122	A			Yes	7/1/2006	
Wilton, Town of	0086	A	2		FO	1/1/2009	1/1/2009
Windham, Town of	0309	A	4	3	Yes	7/1/2006	
Winterport Water & Sewer Districts	0306	A <sup>34</sup>			Yes	7/1/2005	
Winthrop Utilities District	0337	A			Yes	1/1/2011	
Winthrop, Town of	0179	A			FO	7/1/1994	7/1/2003
Wiscasset, Town of	0417	A			No	1/1/2012	
Yarmouth Water District	0278	A			Yes	7/1/1994	
Yarmouth, Town of	0116	A	1 <sup>36</sup>		Yes	7/1/1996	
York County	0037	A	2 <sup>37</sup>	1 <sup>37</sup>	Yes	7/1/1996	
York Sewer District	0139	A			FO	7/1/1994	7/1/2006
York Water District	0039	A			Yes	7/1/1996	
York, Town of	0028	A	234		Yes	7/1/1994	

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**Notes to Appendix A:**

FO = Future Service COLA only, that is, for benefits attributable to service rendered after the Future Service COLA date.

- <sup>1</sup> Employees hired prior to July 1, 1997 who are members of the Plan are covered under Plan 1. Corrections Officers and Law Enforcement Officers hired on or after July 1, 1997 are covered under Plan 2. All other employees hired on or after July 1, 1997 will be covered under Regular Plan A.
- <sup>2</sup> Plan 3 applicable for future service only from January 1, 2014 for Firefighters hired after July 1, 1989 and for Law Enforcement Officers hired after December 31, 1989.
- <sup>3</sup> Plan 3 is applicable for future service only rendered by the City's Firefighters hired after December 31, 1989, effective January 1, 2015.
- <sup>4</sup> Plan B applicable to all new hires on or after July 1, 1996. All members in the PLD at July 1, 1996 elected to remain in the 1/50 Plan under Regular Plan A.
- <sup>5</sup> Plan 1 applicable for future service only for Police Officers from July 1, 2008 and for future service only for Firefighters from July 1, 2010.
- <sup>6</sup> Applicable for future service only rendered by Law Enforcement Officers from July 1, 2003. Applicable for future service only rendered by Firefighters from July 1, 2007.
- <sup>7</sup> Brewer Water District (P0068) ceased to exist as a separate entity on January 15, 2003 and became part of the City of Brewer (P0063). All Brewer Water District Regular Plan AN members became members of the Regular Plan AC for future service only as of that date.
- <sup>8</sup> Plan 1 applicable to Police Officers for future service only after January 1, 2010 and Plan 3 applicable to Firefighters for future service only after January 1, 2010. Some grandparented Police Officers and Firefighters receive all service in Plan 1.
- <sup>9</sup> Plan 4 applicable for future service only rendered by the Town's Firefighters and Police Officers from July 1, 2001.
- <sup>10</sup> Applicable for future service only from July 1, 2000.

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- <sup>11</sup> Applicable for future service only from July 1, 2003.
- <sup>12</sup> Plan 2 applicable for future service only rendered by the County's Police Officers from July 1, 2008.
- <sup>13</sup> Plan 3 is applicable for future service only rendered by the Town's Law Enforcement Officers, effective January 1, 2015.
- <sup>14</sup> Plan 1 applicable for future service only of Police Officers, effective July 1, 2006.
- <sup>15</sup> Plan 2 applicable for future service only of Police Officers, from July 1, 2006 to December 31, 2015.  
Plan 3 applicable for future service only of Police Officers, effective January 1, 2016.
- <sup>16</sup> Plan 3 applicable for future service only for Police Officers from January 1, 2014.
- <sup>17</sup> Greater Augusta Utility District (P0311) was formed by the merger of the Augusta Water District (former P0034) and the Augusta Sanitary District (former P0064).
- <sup>18</sup> Plan 2 applicable for future service only for the Town's Police Officers from July 1, 2016.
- <sup>19</sup> Plan 3 applicable for future service only for the Town's Firefighters and Police Officers, effective July 1, 2009.
- <sup>20</sup> Applicable to all new hires on or after July 1, 1994. All members in the PLD at July 1, 1994 elected to remain in the 1/50 Plan under Regular Plan A.
- <sup>21</sup> Plan 2 applicable for future service only for the Town's Police Officers, effective January 1, 2012.
- <sup>22</sup> Plan 2 applicable to all service for Police Officers and for future service only of Firefighters rendered from July 1, 2008.
- <sup>23</sup> Plan 1 applicable for future service only of Police Officers, effective July 1, 2007.
- <sup>24</sup> Plan 3 for future service only after January 1, 2010 for Police Officers hired on or after October 12, 1992. Plan 1 for future service only after January 1, 2010 for Police Officers hired prior to October 1, 1992.



**CONSOLIDATED PLAN FOR PARTICIPATING LOCAL DISTRICTS  
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ACTUARIAL VALUATION AS OF JUNE 30, 2016**

**APPENDIX A - PARTICIPATING LOCAL DISTRICT PLAN ELECTIONS**

- 25 Plan 3 applicable for future service only for Firefighters and Police Officers effective January 1, 2014.
- 26 Plan 2 applicable to future service only rendered by the Town's Firefighters and Police Officers from July 1, 2005. Prior service was credited under Plan 4.
- 27 Plan 3 applicable for future service only rendered by the Town's Police Officers from July 1, 2007.
- 28 Plan 2 applicable for future service only for Firefighters from January 1, 2014.
- 29 Plan 3 is applicable for future service only rendered by the City's Police Officers, effective July 1, 2015. Service for the City's Police Officers prior to July 1, 2015 under Plan 2. Plan 3 is applicable for future service only rendered by the City's Firefighters, effective July 1, 2016. Service for the City's Firefighters prior to July 1, 2016 under Plan 2.
- 30 Plan 3 applicable for future service only rendered by Law Enforcement Officers from July 1, 2002. Service for Law Enforcement Officers prior to July 1, 2002 under Plan 2.
- 31 Plan 1 is applicable for future service only rendered by Firefighters from July 1, 2002 and Police Officers from July 1, 2004. Plan 2 is applicable for Police Officers hired on or after July 1, 2014 and for Firefighters hired after December 31, 2014. Existing Firefighters as of December 31, 2014 elected either to remain under Plan 1 or move to Plan 3 for service rendered after December 31, 2014. Existing Police as of July 1, 2014 remained under Plan 1 for future service January 1, 2015.
- 32 Plan 3 is applicable for future service only rendered by the Town's Firefighters from July 1, 2014. Firefighters who were covered under Plan 1, for future service rendered after July 1, 2008, could make an irrevocable election to remain in Plan 1. Firefighters hired after June 30, 2014 in Plan 3. Plan 1 is applicable to the Town's Police Officers for future service rendered effective July 1, 2009.
- 33 Plan 3 applicable for future service only of Police Officers, effective July 1, 2009, and for future service only of Firefighters, effective July 1, 2010. Prior service credited under Special Plan 2. Police hired on or after July 1, 2014 covered by Plan 2.
- 34 Applicable for future service only from July 1, 2005.

**CONSOLIDATED PLAN FOR PARTICIPATING LOCAL DISTRICTS  
OF THE MAINE PUBLIC EMPLOYEES RETIREMENT SYSTEM  
ACTUARIAL VALUATION AS OF JUNE 30, 2016**

**APPENDIX A - PARTICIPATING LOCAL DISTRICT PLAN ELECTIONS**

- <sup>35</sup> Plan 3 applicable for future service only rendered by the Town's Firefighters from July 1, 2005.
- <sup>36</sup> Applicable for future service rendered by Police Officers after January 1, 2010.
- <sup>37</sup> Plan 1 applicable for all future service rendered by the Town's Firefighters/EMS and Police Officers from July 1, 2010. Previous service credited under Plan 2. Police Officers hired on or after July 1, 2014 covered by Plan 2.

CONSOLIDATED PLAN FOR PARTICIPATING LOCAL DISTRICTS  
OF THE MAINE PUBLIC EMPLOYEES RETIREMENT SYSTEM  
ACTUARIAL VALUATION AS OF JUNE 30, 2016

APPENDIX B - MEMBERSHIP INFORMATION

Active Member Data as of June 30, 2016

**Regular Plans Members**

Count	8,437
Average Current Age	47.8
Average Benefit Service	8.8
Average Vesting Service	9.2
Average Valuation Pay	\$ 41,481

**Special Plans Members**

Count	2,582
Average Current Age	41.2
Average Benefit Service	11.6
Average Vesting Service	12.0
Average Valuation Pay	\$ 60,348

**All Plans Members**

Count	11,019
Average Current Age	46.2
Average Benefit Service	9.4
Average Vesting Service	9.9
Average Valuation Pay	\$ 45,902

**CONSOLIDATED PLAN FOR PARTICIPATING LOCAL DISTRICTS  
OF THE MAINE PUBLIC EMPLOYEES RETIREMENT SYSTEM  
ACTUARIAL VALUATION AS OF JUNE 30, 2016**

**APPENDIX B - MEMBERSHIP INFORMATION**

<b>Participating Local Districts of the Maine Public Employees Retirement System Inactive Member Data as of June 30, 2016 Regular Plans</b>				
	<b>Count</b>	<b>Average Age</b>	<b>Total Annual Benefit</b>	<b>Average Annual Benefit</b>
Retired	4,840	73.2	\$ 65,104,195	\$ 13,451
Retired - Concurrent Beneficiary	363	71.2	1,236,828	3,407
Disability - Section 1122	31	75.1	352,340	11,366
Disability – Sections 3 and 3A	279	64.5	5,538,813	19,852
Beneficiary of Above	990	74.6	9,221,751	9,315
Pre-Retirement Death Beneficiary	151	70.0	924,925	6,125
Terminated Vested	1,946	53.6	8,837,870	4,542
Inactive Due Refund	6,284			

<b>Participating Local Districts of the Maine Public Employees Retirement System Inactive Member Data as of June 30, 2016 Special Plans</b>				
	<b>Count</b>	<b>Average Age</b>	<b>Total Annual Benefit</b>	<b>Average Annual Benefit</b>
Retired	1,439	67.6	\$ 43,954,888	\$ 30,545
Retired - Concurrent Beneficiary	363	66.3	2,203,435	6,070
Disability - Section 1122	24	72.1	466,683	19,445
Disability – Sections 3 and 3A	71	59.1	2,083,495	29,345
Beneficiary of Above	271	72.2	4,372,079	16,133
Pre-Retirement Death Beneficiary	25	59.1	170,044	6,802
Terminated Vested	275	47.2	2,468,718	8,977
Inactive Due Refund	565			

**CONSOLIDATED PLAN FOR PARTICIPATING LOCAL DISTRICTS  
OF THE MAINE PUBLIC EMPLOYEES RETIREMENT SYSTEM  
ACTUARIAL VALUATION AS OF JUNE 30, 2016**

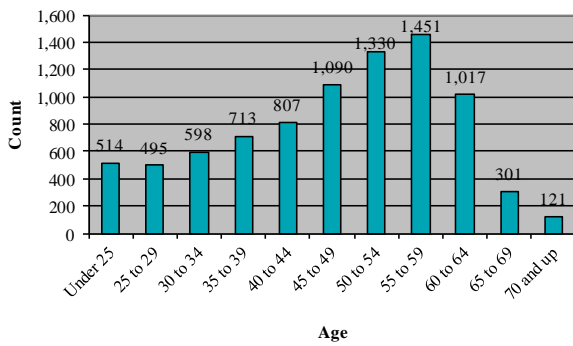
**APPENDIX B - MEMBERSHIP INFORMATION**

**Distribution of Active Members  
As of June 30, 2016**

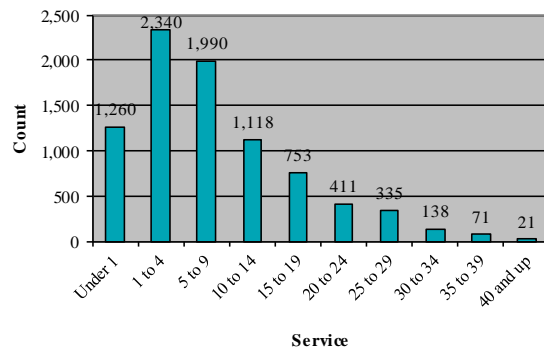
**Regular Plan Participants**

	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	333	179	2	0	0	0	0	0	0	0	0	514
25 to 29	139	266	88	2	0	0	0	0	0	0	0	495
30 to 34	114	268	173	40	3	0	0	0	0	0	0	598
35 to 39	126	276	188	91	31	1	0	0	0	0	0	713
40 to 44	110	268	221	133	62	13	0	0	0	0	0	807
45 to 49	134	288	300	171	106	51	39	1	0	0	0	1,090
50 to 54	123	316	337	203	166	84	76	22	3	0	0	1,330
55 to 59	97	253	347	253	176	113	118	62	30	2	0	1,451
60 to 64	56	158	248	151	147	99	78	37	31	12	0	1,017
65 to 69	20	41	60	57	42	40	18	13	7	3	0	301
70 and up	8	27	26	17	20	10	6	3	0	4	0	121
<b>Total</b>	<b>1,260</b>	<b>2,340</b>	<b>1,990</b>	<b>1,118</b>	<b>753</b>	<b>411</b>	<b>335</b>	<b>138</b>	<b>71</b>	<b>21</b>		<b>8,437</b>

**Age Distribution**



**Service Distribution**



**CONSOLIDATED PLAN FOR PARTICIPATING LOCAL DISTRICTS  
OF THE MAINE PUBLIC EMPLOYEES RETIREMENT SYSTEM  
ACTUARIAL VALUATION AS OF JUNE 30, 2016**

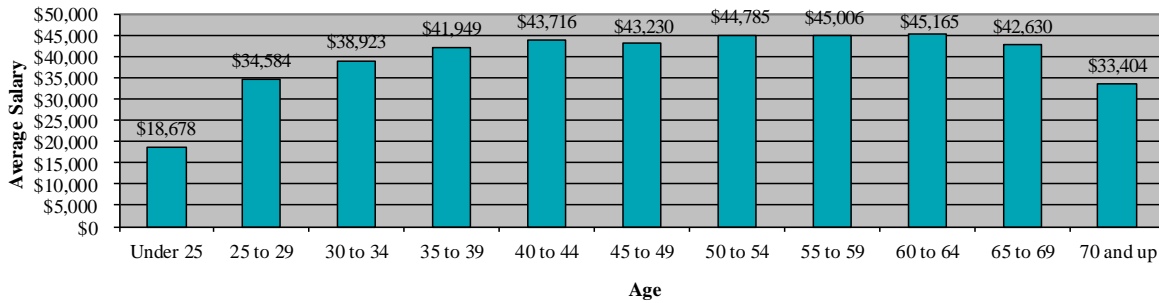
**APPENDIX B - MEMBERSHIP INFORMATION**

**Distribution of Active Members  
As of June 30, 2016**

**Regular Plan Participants**

	Average Salary Years of Service										Average	
	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	\$ 13,144	\$ 28,718	\$ 41,569	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 18,678
25 to 29	25,305	37,232	41,224	35,095	0	0	0	0	0	0	0	34,584
30 to 34	26,320	38,095	46,815	45,369	50,690	0	0	0	0	0	0	38,923
35 to 39	30,096	39,371	49,156	48,488	49,813	53,424	0	0	0	0	0	41,949
40 to 44	28,542	40,271	50,227	47,617	51,364	56,070	0	0	0	0	0	43,716
45 to 49	27,300	38,290	46,230	47,265	53,097	52,809	53,466	76,660	0	0	0	43,230
50 to 54	30,542	39,882	45,360	46,057	49,427	56,671	54,886	57,813	53,628	0	0	44,785
55 to 59	26,874	37,320	48,085	44,759	45,074	51,791	51,636	56,182	57,552	78,744	0	45,006
60 to 64	25,366	36,969	45,142	46,998	42,978	52,789	55,336	54,818	57,067	60,130	0	45,165
65 to 69	10,620	30,444	38,467	45,513	50,396	45,483	58,609	62,012	69,783	61,051	0	42,630
70 and up	9,667	27,101	27,765	41,548	36,115	52,512	40,790	42,351	0	46,338	0	33,404
<b>Average</b>	<b>\$ 23,459</b>	<b>\$ 37,524</b>	<b>\$ 46,340</b>	<b>\$ 46,318</b>	<b>\$ 47,548</b>	<b>\$ 52,698</b>	<b>\$ 53,628</b>	<b>\$ 56,473</b>	<b>\$ 58,381</b>	<b>\$ 59,407</b>	<b>\$ 0</b>	<b>\$ 41,481</b>

**Average Salary Distribution**



**CONSOLIDATED PLAN FOR PARTICIPATING LOCAL DISTRICTS  
OF THE MAINE PUBLIC EMPLOYEES RETIREMENT SYSTEM  
ACTUARIAL VALUATION AS OF JUNE 30, 2016**

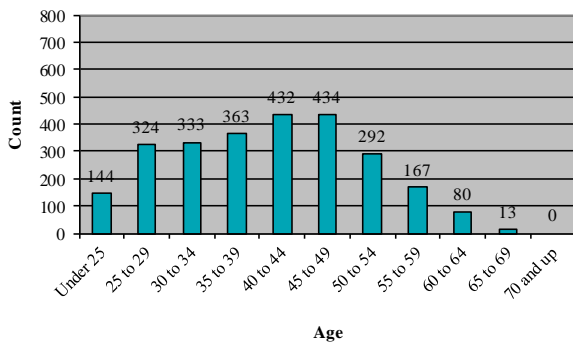
**APPENDIX B - MEMBERSHIP INFORMATION**

**Distribution of Active Members  
As of June 30, 2016**

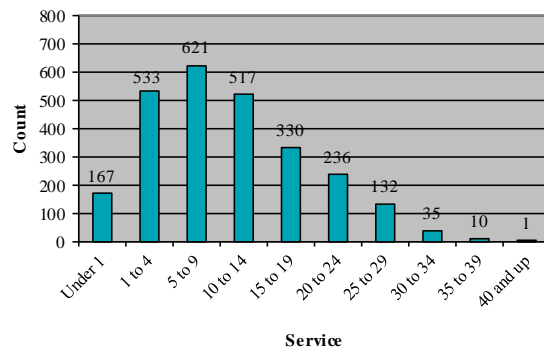
**Special Plan Participants**

	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	63	81	0	0	0	0	0	0	0	0	144
25 to 29	51	191	82	0	0	0	0	0	0	0	324
30 to 34	19	110	156	48	0	0	0	0	0	0	333
35 to 39	10	55	129	132	37	0	0	0	0	0	363
40 to 44	8	47	84	125	114	53	1	0	0	0	432
45 to 49	8	24	67	106	105	94	30	0	0	0	434
50 to 54	2	16	47	67	42	44	65	9	0	0	292
55 to 59	2	7	35	28	23	28	26	15	3	0	167
60 to 64	4	2	21	10	6	14	8	9	5	1	80
65 to 69	0	0	0	1	3	3	2	2	2	0	13
70 and up	0	0	0	0	0	0	0	0	0	0	0
<b>Total</b>	<b>167</b>	<b>533</b>	<b>621</b>	<b>517</b>	<b>330</b>	<b>236</b>	<b>132</b>	<b>35</b>	<b>10</b>	<b>1</b>	<b>2,582</b>

**Age Distribution**



**Service Distribution**



**CONSOLIDATED PLAN FOR PARTICIPATING LOCAL DISTRICTS  
OF THE MAINE PUBLIC EMPLOYEES RETIREMENT SYSTEM  
ACTUARIAL VALUATION AS OF JUNE 30, 2016**

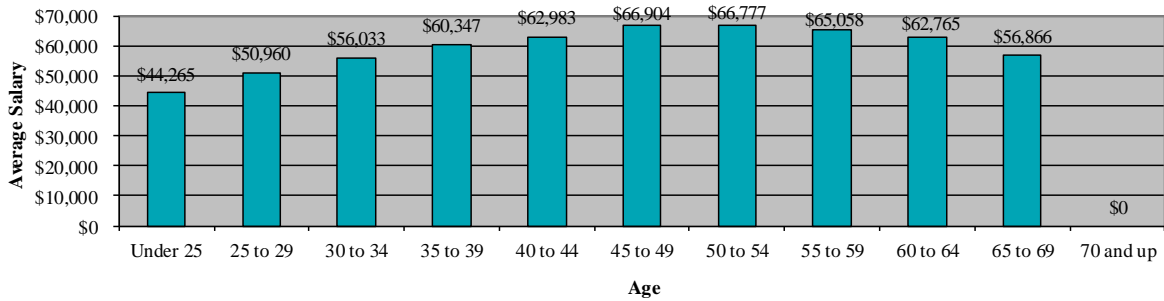
**APPENDIX B - MEMBERSHIP INFORMATION**

**Distribution of Active Members  
As of June 30, 2016**

**Special Plan Participants**

	Average Salary Years of Service										Average	
	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	\$ 36,773	\$ 50,092	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 44,265
25 to 29	38,388	51,297	57,994	0	0	0	0	0	0	0	0	50,960
30 to 34	38,570	52,475	58,573	62,842	0	0	0	0	0	0	0	56,033
35 to 39	40,842	51,584	59,569	64,788	65,512	0	0	0	0	0	0	60,347
40 to 44	42,520	53,777	59,809	62,857	67,649	69,947	40,896	0	0	0	0	62,983
45 to 49	47,738	55,920	61,512	64,710	67,629	74,109	75,489	0	0	0	0	66,904
50 to 54	41,943	52,940	63,260	65,229	65,154	69,518	73,178	74,739	0	0	0	66,777
55 to 59	65,083	46,275	62,106	62,541	59,491	69,783	68,586	77,357	73,300	0	0	65,058
60 to 64	42,328	25,662	63,075	61,717	64,992	59,317	59,604	74,631	78,770	96,069	0	62,765
65 to 69	0	0	0	37,985	45,764	83,829	28,863	46,724	80,658	0	0	56,866
70 and up	0	0	0	0	0	0	0	0	0	0	0	0
Average	\$ 39,049	\$ 51,701	\$ 59,894	\$ 63,949	\$ 66,269	\$ 71,051	\$ 71,060	\$ 74,232	\$ 77,507	\$ 96,069	\$ 60,348	

**Average Salary Distribution**





**CONSOLIDATED PLAN FOR PARTICIPATING LOCAL DISTRICTS  
OF THE MAINE PUBLIC EMPLOYEES RETIREMENT SYSTEM  
ACTUARIAL VALUATION AS OF JUNE 30, 2016**

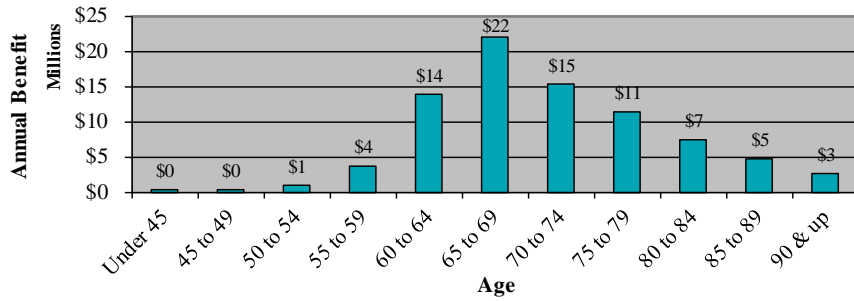
**APPENDIX B - MEMBERSHIP INFORMATION**

**Distribution of Retirees, Disabled  
Members, Beneficiaries, and Survivors  
As of June 30, 2016**

**Regular Plan Participants**

Age	Count	Annual Benefit
Under 45	57	\$ 355,431
45 to 49	33	279,450
50 to 54	79	844,913
55 to 59	227	3,747,467
60 to 64	943	13,795,491
65 to 69	1,561	21,925,964
70 to 74	1,176	15,215,850
75 to 79	992	11,409,942
80 to 84	724	7,489,797
85 to 89	528	4,760,056
90 & up	<u>334</u>	<u>2,554,492</u>
Total	6,654	\$ 82,378,852

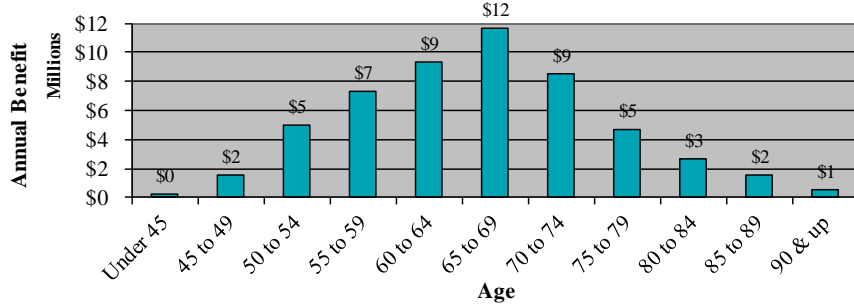
**Annual Benefit Distribution**



**Special Plan Participants**

Age	Count	Annual Benefit
Under 45	19	\$ 290,052
45 to 49	66	1,530,974
50 to 54	184	5,032,417
55 to 59	255	7,318,112
60 to 64	339	9,331,641
65 to 69	459	11,694,281
70 to 74	369	8,500,346
75 to 79	225	4,730,558
80 to 84	149	2,679,858
85 to 89	90	1,589,712
90 & up	<u>38</u>	<u>552,672</u>
Total	2,193	\$ 53,250,624

**Annual Benefit Distribution**



**CONSOLIDATED PLAN FOR PARTICIPATING LOCAL DISTRICTS  
OF THE MAINE PUBLIC EMPLOYEES RETIREMENT SYSTEM  
ACTUARIAL VALUATION AS OF JUNE 30, 2016**

**APPENDIX C - SUMMARY OF PROGRAM AND PLAN PROVISIONS**

**1. Member Contributions**

Members are required to contribute a percentage of earnable compensation, which varies by Plan as follows:

Regular AC & AN	7.5%
Regular BC	4.0%
Special 1C & 1N	7.5%
Special 2C & 2N	7.5%
Special 3C & 3N	9.0% for first 25 years, 7.5% after
Special 4C & 4N	8.5% for first 25 years, 7.5% after

Member contributions to increase by 0.5% in FY 17 (for 3C/3N & 4C/4N, both pre-25 years and post 25-years rates to increase by this amount). Member contributions earn 5% annual interest.

**2. 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.

**3. Creditable Service**

Creditable service includes service while a member, certain service prior to the establishment of the Plan, purchased service credit of which there are several types, and service while receiving disability benefits under the Plan.

**4. Service Retirement Benefits**

*Regular Plan AC*

Normal Retirement Age:

Plan members prior to July 1, 2014:	60
New members to the Plan on or after July 1, 2014:	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 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.

**CONSOLIDATED PLAN FOR PARTICIPATING LOCAL DISTRICTS  
OF THE MAINE PUBLIC EMPLOYEES RETIREMENT SYSTEM  
ACTUARIAL VALUATION AS OF JUNE 30, 2016**

**APPENDIX C - SUMMARY OF PROGRAM AND PLAN PROVISIONS**

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 under Consolidated Plan AC reduced by:

Plan members prior to July 1, 2014:	approximately 2¼% for each year that a member is younger than age 60 at retirement.
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New members to the Plan on or after July 1, 2014:	6% for each year that a member is younger than age 65 at retirement.
---	--

Form of Payment: Life annuity (“full benefit”), unless an optional method of payment is selected.

Cost-of-Living Adjustment: See item 11.

***Regular Plan AN***

This benefit plan is the same as Regular Benefit Plan AC, except that there is no provision for cost-of-living adjustments.

***Regular Plan BC***

Normal Retirement Age:

Plan members prior to July 1, 2014:	60
New members to the Plan on or after July 1, 2014:	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 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 10 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.

**CONSOLIDATED PLAN FOR PARTICIPATING LOCAL DISTRICTS  
OF THE MAINE PUBLIC EMPLOYEES RETIREMENT SYSTEM  
ACTUARIAL VALUATION AS OF JUNE 30, 2016**

**APPENDIX C - SUMMARY OF PROGRAM AND PLAN PROVISIONS**

Benefit: 1/100 of average final compensation multiplied by years of membership service under Consolidated Plan BC reduced by:

Plan members prior to July 1, 2014:                      approximately 2¼% for each year that a member is younger than age 60 at retirement.

New members to the Plan on or after July 1, 2014:                      6% for each year that a member is younger than age 65 at retirement.

Form of Payment: Life annuity (“full benefit”), unless an optional method of payment is selected.

Cost-of-Living Adjustment: See item 11.

***Regular Plan Notes***

1. Under certain circumstances, Regular Plan service can count, on a pro rata basis specific to the applicable Special Plan, toward meeting Special Plan benefit eligibility requirements.
2. The actual benefit for service earned prior to coverage under the Consolidated Plan may be based on a variable percentage of average final compensation multiplied by years of service under any previous plan(s) (the percentage depends on the previous plan(s)).

***Special Plan 1C***

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 years of service.

Form of Payment: Life annuity (“full benefit”), unless an optional method of payment is selected.

Cost-of-Living Adjustment: See item 11.

***Special Plan 1N***

This benefit plan is identical to Special Benefit Plan 1C, except that there is no provision for cost-of-living adjustments.

***Special Plan 2C***

Eligibility: 25 years of creditable service in named positions.

**CONSOLIDATED PLAN FOR PARTICIPATING LOCAL DISTRICTS  
OF THE MAINE PUBLIC EMPLOYEES RETIREMENT SYSTEM  
ACTUARIAL VALUATION AS OF JUNE 30, 2016**

**APPENDIX C - SUMMARY OF PROGRAM AND PLAN PROVISIONS**

Benefit: One-half average final compensation plus 2% for each year of service in excess of 25 years of service.

Form of Payment: Life annuity (“full benefit”), unless an optional method of payment is selected.

Cost-of-Living Adjustment: See item 11.

***Special Plan 2N***

This benefit plan is identical to Special Benefit Plan 2C, except that there is no provision for cost-of-living adjustments.

***Special Plan 3C***

Eligibility: 25 years of creditable service in named positions.

Benefit: Two thirds of average final compensation plus 2% for each year of service in excess of 25 years of service.

Form of Payment: Life annuity (“full benefit”), unless an optional method of payment is selected.

Cost-of-Living Adjustment: See item 11.

***Special Plan 3N***

This benefit is identical to Regular Benefit Plan 3C, except that there is no provision for cost-of-living adjustments.

***Special Plan 4C***

Eligibility: Age 55 with 25 years of creditable service in named positions.

Benefit: 1/50 of average final compensation multiplied by years of membership service under Consolidated Plan 4C reduced by:

Plan members prior to July 1, 2014:	approximately 2¼% for each year that a member is younger than age 55 at retirement.
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New members to the Plan on or after July 1, 2014:	6% for each year that a member is younger than age 55 at retirement.
---	--

Form of Payment: Life annuity (“full benefit”), unless an optional method of payment is selected.

**CONSOLIDATED PLAN FOR PARTICIPATING LOCAL DISTRICTS  
OF THE MAINE PUBLIC EMPLOYEES RETIREMENT SYSTEM  
ACTUARIAL VALUATION AS OF JUNE 30, 2016**

**APPENDIX C - SUMMARY OF PROGRAM AND PLAN PROVISIONS**

Cost-of-Living Adjustment: See item 11.

***Special Plan 4N***

This benefit plan is identical to Special Benefit Plan 4C, except that there is no provision for cost-of-living adjustments.

***Special Plan Notes***

1. If a Special Plan member fails to meet the Special Plan eligibility criteria, their service retirement benefit is that provided by the applicable underlying Regular Plan; Special Plan service credits are used toward Regular Plan eligibility requirements.
2. Service in all Special Plans counts, on a percentage basis, toward meeting the benefit eligibility requirements of any Special Plan.
3. The actual benefit for service earned prior to coverage under the Consolidated Plan may be based on a variable percentage of average final compensation multiplied by years of service under any previous plan(s) (the percentage depends on the previous plan(s)).

**5. Pre-Retirement Accidental Death Benefits**

Eligibility: Death while active or disabled resulting from 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."

**CONSOLIDATED PLAN FOR PARTICIPATING LOCAL DISTRICTS  
OF THE MAINE PUBLIC EMPLOYEES RETIREMENT SYSTEM  
ACTUARIAL VALUATION AS OF JUNE 30, 2016**

**APPENDIX C - SUMMARY OF PROGRAM AND PLAN PROVISIONS**

**6. 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.

**7. Disability Retirement Benefits Other Than No Age Benefits (See Item 8)**

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 upon termination of service and ceases on cessation of disability or after five 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 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 (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.

**8. No-Age Disability 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 upon termination of service and ceases on cessation of disability or after five years, unless the member is unable to engage in any substantially

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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 (see item 11). On the date when service 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 date.

## **9. Termination Benefit**

Eligibility: Termination of service other than by retirement or death with at least 5 years of credible service.

Benefit: The Member's choice of a refund of the accumulated contributions with interest or a retirement benefit using Creditable Service and Average Final Compensation as of date of termination, deferred to Normal Retirement age.

## **10. Refund of Contributions**

Eligibility: Termination of service other than by retirement or death with less than 5 years of Creditable Service.

Benefit: Refund of Member's accumulated contributions with interest.

## **11. Cost-of-Living Adjustments (COLA)**

All service and disability retirement and survivor benefits payable to (or in relation to) benefit recipients who were employed by a PLD that elected a plan that provides for a COLA 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 are effective September 1 and are applied to all benefits which have been in payment for twelve months for retirees who retired on or after September 1, 2015 or for six months for retirees who retire prior to September 1, 2015. The maximum annual increase is 3% (4% prior to the 2014 COLA).



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**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.

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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**APPENDIX D - ACTUARIAL ASSUMPTIONS AND METHODS**

**A. Actuarial Assumptions**

**1. Discount Rate:**

	Previous	Revised
PLDs	7.125%	6.875%

Rate is net of both administrative and investment expense.

**2. Cost-of-Living Adjustment (COLA) Assumed Rate:**

	Previous	Revised
PLDs	2.55%	2.20%

**3. Sample Rates of Individual Salary Increases (% at Selected Years of Service):**

Years of Service	Previous	Revised
0	9.5%	9.0%
1	7.5	4.8
2	6.0	3.6
3	4.7	3.1
4	4.3	2.75
5	4.0	2.75
10	3.5	2.75
15	3.5	2.75
20	3.5	2.75
25	3.5	2.75
30	3.5	2.75

The previous rates include a 3.50% across-the-board increase at each year of service. The revised rates include a 2.75% across-the-board increase at each year of service.

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

Service	Previous Assumption		Revised Assumption	
	Regular	Special	Regular	Special
0	20.0%	25.0%	25.0%	25.0%
1	17.5	12.5	20.0	12.5
2	15.0	10.0	15.0	10.0
3	12.5	7.5	12.0	7.5
4	10.0	5.0	10.0	5.0
5	7.5	4.0	9.0	4.0
10	2.5	2.5	6.0	2.5
15	2.5	2.5	4.0	2.5
20	2.5	2.5	2.5	2.5

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 of member contributions with interest based on present value at time of termination.

**5. Sample Rates of Mortality for Healthy Annuitant Lives at Selected Ages (number of deaths per 10,000 members):**

Age	Previous Assumption		Revised Assumption (showing values in 2016)	
	Male	Female	Male	Female
50	16	13	42	32
55	27	24	59	43
60	53	47	79	63
65	103	90	113	97
70	177	155	175	156
75	306	249	285	256
80	554	413	480	432
85	997	708	837	766
90	1,727	1,259	1,469	1,365
95	2,596	1,888	2,314	2,242

Previous rates are based on the RP-2000 Mortality Table for males and females projected forward to 2015 using Scale AA. These assumptions were set in 2011 with a margin for future improvement based on the five-year experience study process.

Revised rates are based on 104% and 120% of the RP-2014 Total Dataset Healthy Annuitant Mortality Table, respectively, for males and females, using the RP-2014 Total Dataset Employee Mortality Table for ages prior to start of the Healthy Annuitant Mortality Table, both projected from the 2006 base rates using the RPEC\_2015 model,

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with an ultimate rate of 0.85% for ages 20-85 grading down to an ultimate rate of 0.00% for ages 111-120, and convergence to the ultimate rate in the year 2020.

**6. Sample Rates of Mortality for Active Lives at Selected Ages (number of deaths per 10,000 members)\*:**

Age	Previous Assumption		Revised Assumption (showing values in 2016)	
	Male	Female	Male	Female
20	3	2	4	2
25	3	2	5	2
30	4	2	4	3
35	7	4	5	4
40	10	6	6	5
45	12	9	10	8
50	16	13	17	13
55	27	24	29	20
60	53	47	48	30
65	103	90	85	45

\* For Regular Plans, 5% of deaths assumed to arise out of and in the course of employment, while for Special Plans, 20% of deaths are assumed to arise out of and in the course of employment.

Previous rates are based on the RP-2000 Mortality Table for males and females projected forward to 2015 using Scale AA. These assumptions were set in 2011 with a margin for future improvement based on the five-year experience study process.

Revised rates are based on 104% and 120% of the RP-2014 Total Dataset Employee Mortality Table, respectively, for males and females, using the RP-2014 Total Dataset Healthy Annuitant Mortality Table rates after the end of the Total Employee Mortality Table, both projected from the 2006 base rates using the RPEC\_2015 model, with an ultimate rate of 0.85% for ages 20-85, grading down to an ultimate rate of 0.00% for ages 111-120, and convergence to the ultimate rate in the year 2020.

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**7. Sample Rates of Mortality for Disabled Annuitant Lives at Selected Ages (number of deaths per 10,000 members):**

Age	Previous Assumption		Revised Assumption (showing values in 2016)	
	Male	Female	Male	Female
25	92	72	84	24
30	112	89	80	31
35	134	109	94	43
40	160	126	114	59
45	193	144	177	92
50	236	165	216	121
55	295	191	249	152
60	362	226	282	181
65	446	272	337	220
70	576	331	437	300

Previous rates are based on the Revenue Ruling 96-7 Disabled Mortality Table for males and females.

Revised rates are based on 108% and 105% of the RP-2014 Total Dataset Disabled Annuitant Mortality Table, respectively, for males and females, projected from the 2006 base rates using the RPEC\_2015 model, with an ultimate rate of 0.85% for ages 20-85, grading down to an ultimate rate of 0.00% for ages 111-120, and convergence to the ultimate rate in the year 2020.

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

Age	Regular Plans		
	Previous Assumption	Revised Assumption	
		Tier 1	Tier 2
45	50	50	50
50	50	50	50
55	100	50	50
60	270	200	50
65	300	250	200
70	1,000	1,000	1,000

In the case of PLD employees, Tier 1 refers to those who were hired prior to July 1, 2014, and Tier 2 refers to those who were hired on or after July 1, 2014.

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Special Plans		
Years of Service	Previous Assumption	Revised Assumption
20	400	400
21-24	300	300
25	400	400
26-29	300	300
30	400	400
31-34	300	300
35+	1,000	1,000

Note that the all retirement rates are only applied once the member is eligible to retire, so those in 25-year plans are not assumed to retire at 20 years of service. For Special Plan retirements with less than 20 years of service, we assume 250 retirements per 1,000 members.

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

Age	Previous Assumption	Revised Assumption
25	3.0	1.8
30	4.0	2.4
35	5.0	3.0
40	7.0	4.2
45	15.0	9.0
50	33.0	19.8
55	61.0	36.6
60	0.0	65.0

\* 10% assumed to receive Workers Compensation benefits offsetting disability benefit.

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**10. Family Composition Assumptions:**

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

**11. Technical and Miscellaneous Assumptions:**

**Decrement Timing:** Middle of the valuation year

**Pay Increase Timing:** Salary provided is treated as the rate of pay as of valuation date. Annual increases are applied as of the beginning of each subsequent valuation.

**Member Contribution Interest Rate:** 5%

**COLA Timing:** September 1

**12. Rationale for Assumptions:**

The revised assumptions have been proposed by the actuary and adopted by the Board on July 14, 2016 for use starting with the 2016 valuation. The demographic assumptions are based on an experience study covering the period from June 30, 2012 through June 30, 2015. The Board continually reviews the investment return and inflation assumptions and adopted a reduced rate of 6.875%, effective with the 2016 valuation, at the advice of its investment consultants.

**13. Changes since Last Valuation:**

The COLA, salary increase, termination, retirement, disability, mortality, and disability mortality assumptions were updated based on the experience study covering the period from June 30, 2012 through June 30, 2015.

**B. Actuarial Methods**

**1. Funding Method:**

The entry age normal actuarial funding method is used to determine costs. Under this funding method, the total PLD contribution rate consists of two elements: the PLD normal cost rate and the Pooled Unfunded Actuarial Liability (PUAL) rate. The actual contribution for a given PLD will include an Individual Unpooled Unfunded Actuarial Liability (IUUAL) payment as well, unless the PLD came into the Plan without an IUUAL or has paid off its IUUAL.

For each of the Regular and Special Plans in the Consolidated Plan, 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 benefits. 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

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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 Regular and Special Plans in the Consolidated Plan.

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 normal costs, future member contributions, future IUUAL payments, and current assets. Under the Consolidated Plan, a PUAL Rate is calculated for the Consolidated Plan in the Aggregate based on the PUAL being amortized over a 20-year period commencing with the June 30, 2015 valuation date and any layers of PUAL arising after that date amortized over individual 20-year periods. This amortization uses a level percentage of pay method with payroll assumed to increase at 3.5% per year. The amortization payment thus derived for the valuation year is then divided by the total payroll to develop a rate that is then allocated to each plan within the Consolidated Plan on the basis of total normal cost plus member contributions for each such plan. That is, those plans that constitute a larger portion of the overall liability will pay a larger portion of the pooled UAL payment when this rate is positive and receive a larger UAL credit when this rate is negative.

The Initial Unpooled Unfunded Actuarial Liability (IUUAL) was calculated at entry into the Consolidated Plan for each PLD that entered with liabilities in excess of their assets and is paid off through payment of a specific dollar amount until paid off.

**2. Asset Valuation Method:**

For purposes of determining PLD contribution to the Plan and the Plan's funding status, 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 E - 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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