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Maine Public Employees Retirement System

Legislative Retirement Program

Actuarial Valuation Report as of June 30, 2019

Produced by Cheiron

October 2019

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October 15, 2019

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, 2019 Actuarial Valuation Report for the Maine Legislative Retirement Program (Program) of the Maine Public Employees Retirement System (MainePERS or System).

This report is intended solely for the MainePERS Board and its auditors in preparing financial reports according to applicable law and accounting requirements. This report contains information on assets, liabilities, and contributions of the Program, as well as the required accounting statement disclosures under the Governmental Accounting Standards Board (GASB) Statement No. 67.

We prepared this report in accordance with generally recognized and accepted actuarial principles and practices and our understanding of the Code of Professional Conduct and applicable Actuarial Standards of Practice set out by the Actuarial Standards Board as well as applicable laws and regulations. This includes the use of assumptions and methods for funding purposes that comply with the Actuarial Standards of Practice.

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.

In preparing our report, we relied on information, both oral and written, supplied by the System's staff. This information includes, but is not limited to, Program 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 Program experience conforming to the underlying assumptions and methods outlined in this report. Future experience may differ significantly from the current experience because of differences from the anticipated assumptions; changes in assumptions or methods; and changes in Program provisions or applicable law.

Sincerely,
Cheiron

Gene Kalwarski, FSA, EA
Principal Consulting Actuary

Fiona E. Liston, FSA, EA
Principal Consulting Actuary

Elizabeth Wiley, FSA, EA
Consulting Actuary

FOREWORD

Cheiron has completed the Actuarial Valuation Report for the Maine Public Employees Retirement System (MainePERS or System) Legislative Retirement Program (Program) as of June 30, 2019. The purpose of this report is to:

1) Measure and disclose, as of the valuation date, the financial condition of the Program;
2) Examine historical Program trends;
3) Assess and disclose actuarial risks of the Program;
4) Report on the contribution rates developed in this valuation for informational purposes (Note: the actual contributions to be paid by the State for Fiscal Year (FY) 2019 were developed in the budgeting process in July 2016, based on a roll-forward of the June 30, 2015 valuation); and
5) Provide specific information required for MainePERS's financial disclosures.

An actuarial valuation establishes and analyzes assets and liabilities on a consistent basis, and tracks 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 Program trends in recent years, and providing analysis relating to the future status of the Program.

Section II is a new section that assesses and discloses various actuarial risk measures of the Program. While much of this information had been disclosed in previous reports, it was combined in this new section with additional disclosures added to reflect a new Actuarial Standard of Practice (ASOP 51).

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

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

Section V develops informational employer contribution rates to be compared to those established during the ratemaking process.

Section VI includes financial disclosure information.

Finally, we present appendices containing the following summaries:

- Program membership information at the valuation date (Appendix A);
- Major benefit provisions of the Program (Appendix B);
- Actuarial assumptions and methods used in the current valuation (Appendix C); and
- Terminology used in the Governmental Accounting Standards Board (GASB) disclosures (Appendix D).

SECTION I – BOARD SUMMARY

General Comments

The annual employer contributions to this Program are determined on a biennial basis in even years. The contributions for fiscal year (FY) 2018 and FY 2019 were developed through this ratemaking process in 2016. The assets used in developing these rates were the preliminary June 30, 2016 assets. These were then combined with liability measures as of June 30, 2016 that were developed as an adjustment (i.e., roll-forward) of the liabilities of the June 30, 2015 Actuarial Valuation. This adjustment included updating to reflect anticipated growth in benefits, reductions due to benefit payouts, and any changes in assumptions or benefits between the June 30, 2015 valuation date and the June 30, 2016 measurement date. Similarly, the contributions for FY 2020 and FY 2021 were developed in 2018 and were based on estimated assets as of June 30, 2018 and liabilities based on the June 30, 2017 actuarial valuation liabilities adjusted to our best estimate of the June 30, 2018 liabilities.

The liability results of this June 30, 2019 will be adjusted to a June 30, 2020 measurement date and combined with preliminary assets as of June 30, 2020 and be used as the basis for the applicable FY 2022 and FY 2023 State contributions. The results of this June 30, 2019 valuation will also be used for accounting disclosures.

Experience from July 1, 2018 through June 30, 2019 (FY 2019)

The State of Maine employer rate produced by the June 30, 2018 valuation for the Legislative Retirement Program was 0.00% of payroll. The equivalent rate produced in this June 30, 2019 valuation is 0.00% of payroll. While the rate did not change, the change in UAL shown below is attributable to several elements, including a small gain from investment returns and a liability experience loss that consisted primarily of an actual cost of living adjustment (COLA) of 2.9%, greater than the expected 2.2%.

As of June 30, 2019, the Program had an unfunded actuarial liability (UAL) of $(4.026) million (i.e., a surplus). This represents a decrease of $0.063 million from the $(3.963) million UAL measured as of June 30, 2018, thus increasing the Program's surplus. The specific factors contributing to this change are presented in Table I-1 that follows. This table has separate columns showing the components of the changes in liabilities and investments during FY 2019 as well as their combined effect on the UAL.

Table I-1
(Amounts in Millions)

	Liabilities	Assets*	UAL
Value as of June 30, 2018	$ 8.560	$ 12.523	$ (3.963)
Expected Change	0.268	0.454	(0.186)
Impact of Assumption Changes	0.000	0.000	0.000
Recognized Investment Gain	0.000	0.116	(0.116)
Recognized Liability Loss	0.239	0.000	0.239
Value as of June 30, 2019	$ 9.067	$ 13.093	$ (4.026)

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

SECTION I – BOARD SUMMARY

The remainder of this Board Summary section summarizes the Program's historical trends and compares key results between this year's and last year's valuations for member counts, assets and liabilities, and contribution rates.

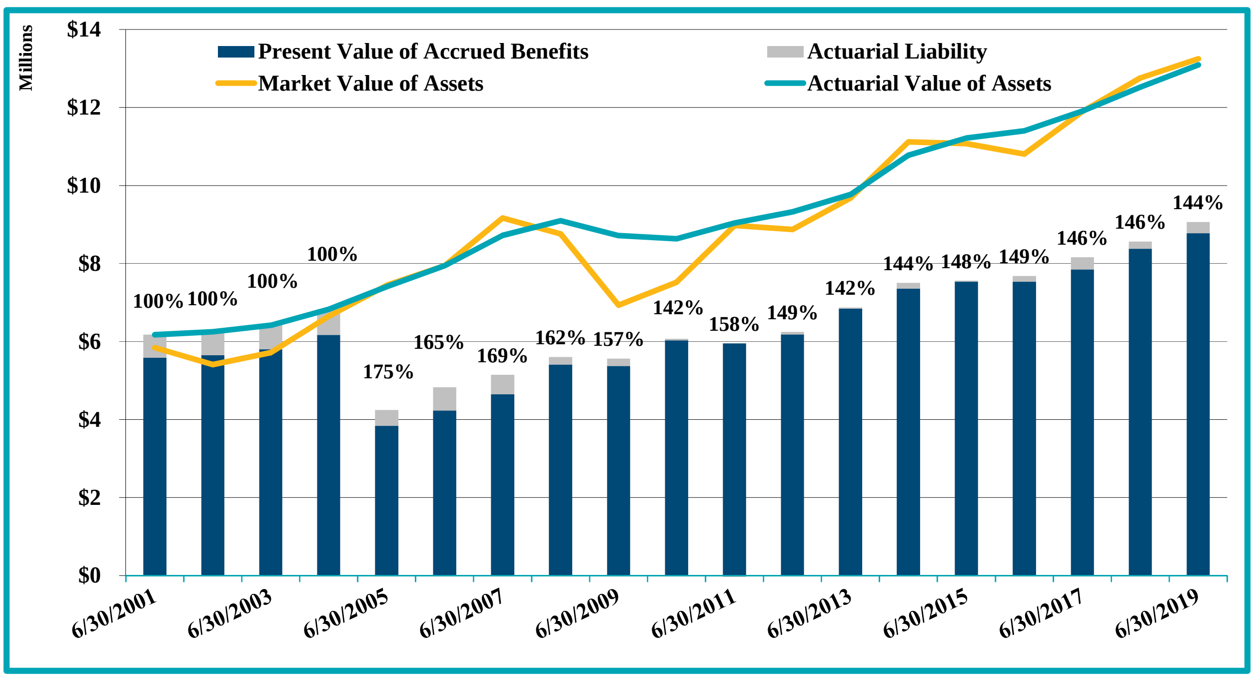
Trends

It is important to take a step back from the latest results and view them in the context of the Program's history. On the next few pages, we present a series of graphs that display key historical trends relating to the Program's condition.

Assets and Liabilities

The following graph illustrates the progress of assets and liabilities for the Program since June 30, 2001 as well as the Program's funded ratio on an actuarial value of assets (AVA) basis.

Liability measures are shown as bars as of June 30 of the indicated years. The actuarial liability (AL), the liability measure used for the Program's funding purposes, is represented by the top of the grey bars. The blue bars represent the present value of accrued benefits (PVAB). Measures of the assets are shown as lines. The AVA is shown with a teal line, while the market value of assets (MVA) is shown as a yellow line. The AVA divided by the AL is the AVA funded ratio that is often used in evaluating the Program's financial status. The values as of this metric as of each valuation date are shown as the percentages in the graph labels.

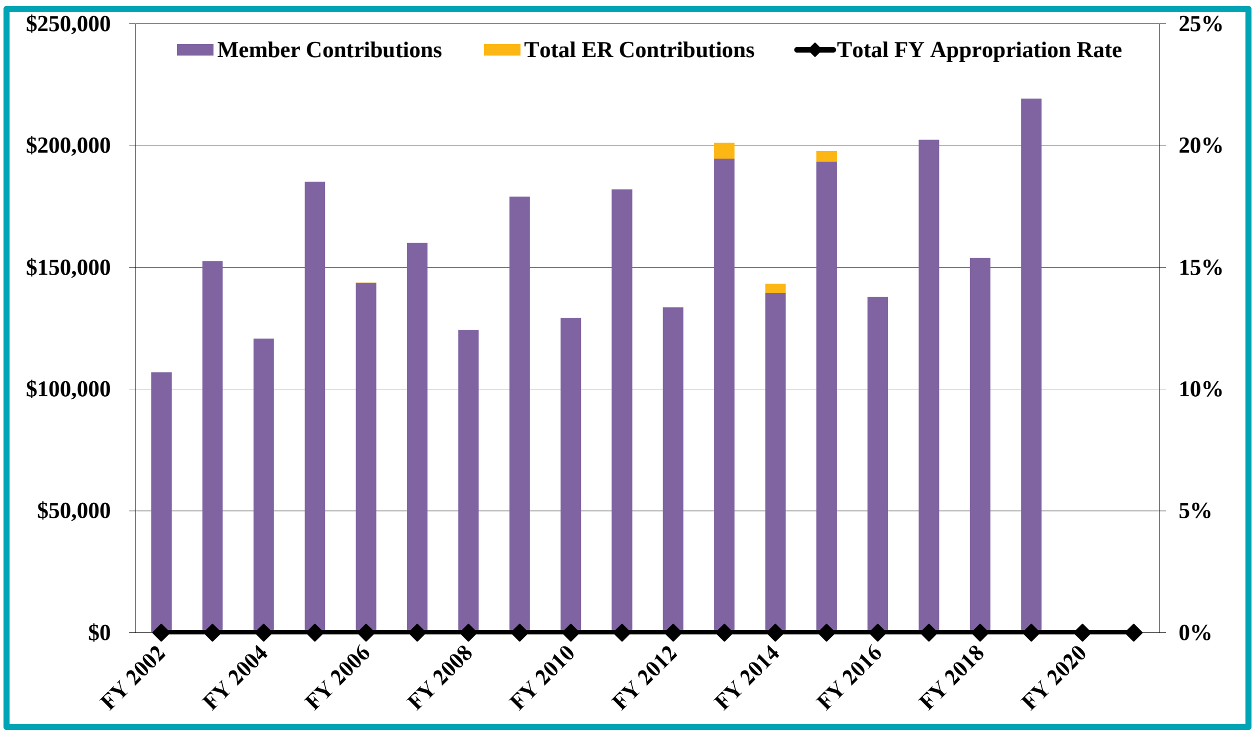


SECTION I – BOARD SUMMARY

Between the 2004 and 2005 valuations, there was a change in funding method used for this Program that resulted in the large drop in stated liabilities between those dates. Plan changes were legislated during 2010 and first reflected in the 2011 valuation, resulting in the reduction in liability seen for that year. As of June 30, 2019, the Program is funded 144.4% based on the AVA funded ratio, which represents a slight decrease from the 146.3% reported in the prior valuation. The 19-year history in the graphs shows that the Program has been fully funded at a 100% or greater funded ratio on an AVA basis over this entire period.

<u>Contributions</u>

The next graph shows the history of contributions to the Program, both as dollar amounts and as percentages of payroll. The bars in this graph show the contributions made by both the employers and the members in dollar terms for each fiscal year (FY) as indicated by the horizontal axis since 2002. These bars are read using the left-hand axis. The black line shows the total appropriated employer contribution rate for the FY indicated as a percentage of payroll and references the right-hand axis. The FY 2020 through FY 2021 contribution rates have already been determined based on the ratemaking process, so two additional years of the contribution rates are shown versus dollars received.



The member contribution rates are set by statute, based on the Plan in which each member participates. The up and down nature of these member contribution amounts is due to the legislative calendar, which includes alternating long and short terms. The total employer contribution rate is set by the ratemaking process on a biennial basis. The contribution rate for FY 2019 was based on a roll-forward of the June 30, 2015 valuation to June 30, 2016, as

SECTION I – BOARD SUMMARY

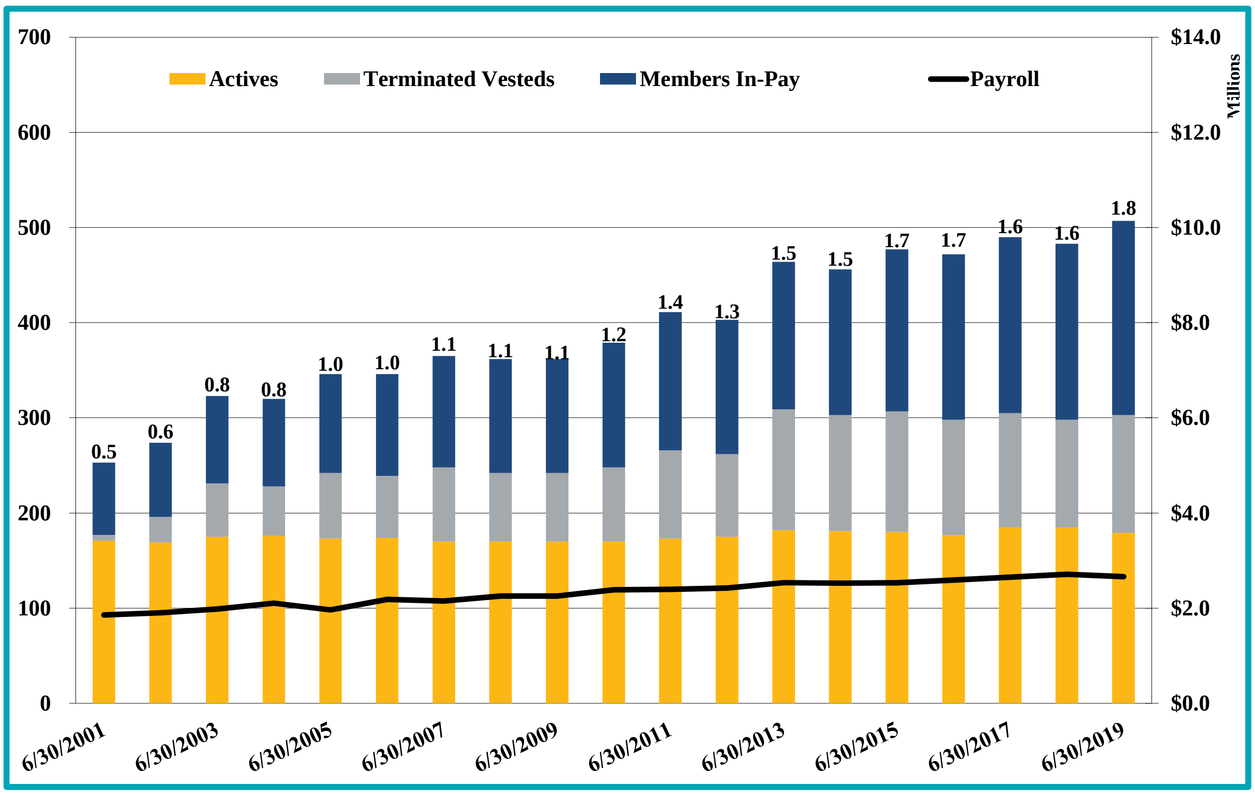
described previously in this Board Summary. For this Program, this employer contribution rate has been 0% of pay since before 2002, so the black line of the total appropriated employer contribution rate is shown as a constant at zero percent. The yellow bars showing employer contributions in dollars represent transfers or one-time cost-of-living adjustment (COLA) payments made during the fiscal year indicated.

Participant Trends

The stacked bars in the graph that follows show the number of active members, terminated vested members, and members in pay status covered by the Program as of June 30 of each year indicated and is read using the left-hand axis of the graph. As with many funds in this country, there has been a steady growth in the number of retired members as the Program has matured.

The labels above each bar show the "support ratio," which is the ratio of inactive members (members in pay status plus terminated vested members) to active members. This ratio has been generally increasing since 2001 for the Program. As this ratio grows, the cash flows (contributions less benefits and expenses) of a pension plan tend to become more negative. The more negative a plan's cash flows, the more sensitive, in terms of contribution volatility, the plan is to volatile investment markets.

The black line in the graph indicates the total covered payroll of actives in the Program and is read using the right-hand axis of the graph. It has been generally slowly increasing since 2001, but has stayed relatively steady in the most recent years.



SECTION I – BOARD SUMMARY

Principal Results Summary

The last section of this Board Summary section of this Actuarial Valuation Report presents a summary of the principal results of the valuation, comparing key results between this year's and last year's valuations for member counts, assets and liabilities, and contribution rates.

Table I-2
Summary of Principal Results
Legislative Retirement Program

Valuation as of:	June 30, 2018	June 30, 2019	% Change
Member Counts			
Active Members	185	179	(3.2)%
Retired Members	148	166	12.2%
Beneficiaries of Retired Members	29	30	3.4%
Survivors of Deceased Members	6	6	0.0%
Disabled Members	2	2	0.0%
Terminated Vested Members	113	124	9.7%
Inactives Due Refunds	107	111	3.7%
Total Membership	590	618	4.7%
Annual Payroll of Active Members	$ 2,710,694	$ 2,659,749	(1.9)%
Annual Payments to Benefit Recipients	$ 391,070	$ 439,364	12.3%
Assets and Liabilities			
Actuarial Liability (AL)	$ 8,559,950	$ 9,066,764	5.9%
Actuarial Value of Assets (AVA)	12,523,131	13,092,938	4.6%
Unfunded Actuarial Liability (UAL)	$ (3,963,181)	$ (4,026,174)	1.6%
AVA Funded Ratio (AVA/AL)	146.3%	144.4%	
MVA Funded Ratio (MVA/AL)	149.0%	146.1%	
Accrued Benefit Liability (PVAB)	$ 8,378,588	$ 8,775,588	4.7%
Market Value of Assets (MVA)	12,755,821	13,248,022	3.9%
Unfunded PVAB	$ (4,377,233)	$ (4,472,434)	2.2%
Accrued Benefit Funded Ratio	152.2%	151.0%	
Contributions as a Percentage of Payroll			
Employer Normal Cost Rate	2.83%	4.94%	
UAL Amortization Rate	(17.83)%	(18.46)%	
Total Employer Rate, Not Less Than Zero	0.00%	0.00%	
From 2016 Ratemaking (FY18/FY19)	0.00%	0.00%	
From 2018 Ratemaking (FY20/FY21)	0.00%	0.00%	

SECTION II – RISK ASSESSMENT AND DISCLOSURE

Introduction

Actuarial Standard of Practice (ASOP) No. 51 was recently published by the Actuarial Standards Board to provide guidance to actuaries on the assessment and disclosure of risks related to the possibility that future pension plan experience will deviate from assumptions. This standard does not introduce new concepts to actuarial work; it simply attempts to provide some codification of the practice. With this ASOP becoming effective for this June 30, 2019 Actuarial Valuation Report, we have taken this as an opportunity to consolidate the information regarding assessment and disclosure of the Program's risks in this section II as well as add a number of additional items helping to communicate and understand these risks.

The Program's actuarial valuation results are dependent on assumptions about future economic and demographic experience. Based on actuarial standards of practice, the assumptions represent a reasonable estimate for future experience. However, actual future experience will never conform exactly to the assumptions and may differ significantly from the assumptions. This deviation is the risk that pension plan sponsors undertake in relying on a pension plan's actuarial valuation results.

This section of this report is intended to identify the primary drivers of these risks, provide background information and assessments about these identified risks, and communicate the significance of these risks to this Program. This section for this Program, as well as the Judicial Program, is limited in comparison to the risk sections for the two larger Programs, the State Employee and Teacher Retirement Program and the Participating Local District Retirement Program. This limitation reflects the relatively smaller nature of these two Programs as well as their robust funded statuses. It is thus our belief that the additional information that is included in the reports for the larger Programs would not be significantly beneficial in improving the Board's understanding of the identified risks for these two smaller Programs.

Identification of Risks

For this Program, the three primary valuation results that can significantly differ from those expected are in the assets, liabilities, and employer contributions. While there are several factors that could lead to these results being different, we believe the primary risks are:

- Investment risk,
- Longevity and other demographic risks,
- Plan change risk, and
- Assumption change risk.

SECTION II – RISK ASSESSMENT AND DISCLOSURE

Other risks that we have not identified may also turn out to be significant.

Investment Risk is the potential for investment returns to deviate from what is expected. When actual investment returns are lower than the investment assumption used in the actuarial valuation, the unfunded liability will increase and will require higher contributions than otherwise anticipated. But, when actual returns exceed the assumption, the resulting unfunded liability measurements and actuarially determined contributions will be lower than anticipated. As seen in the historical section that follows, this has been a significant driver of deviations in the actual measurements for this Program from those expected by the valuations.

Longevity and Other Demographic Risk is the potential for mortality or other demographic experience to be different than expected. Generally, longevity and other demographic risks emerge slowly over time as the actual experience deviates from expected. In addition, the extensive number of assumptions related to longevity and demographic experience often result in offsetting factors contributing to the Program's overall liability experience. As such, these risks are often dwarfed by other risks, particularly those due to the investment returns. However, for small plans like this, there are relatively few members and so the behavior of individual members can have significant impact on the liabilities. The following historical section shows that this is true for this Program, with the magnitude of the gains and losses from liability experience being of a similar magnitude of those from investment experience.

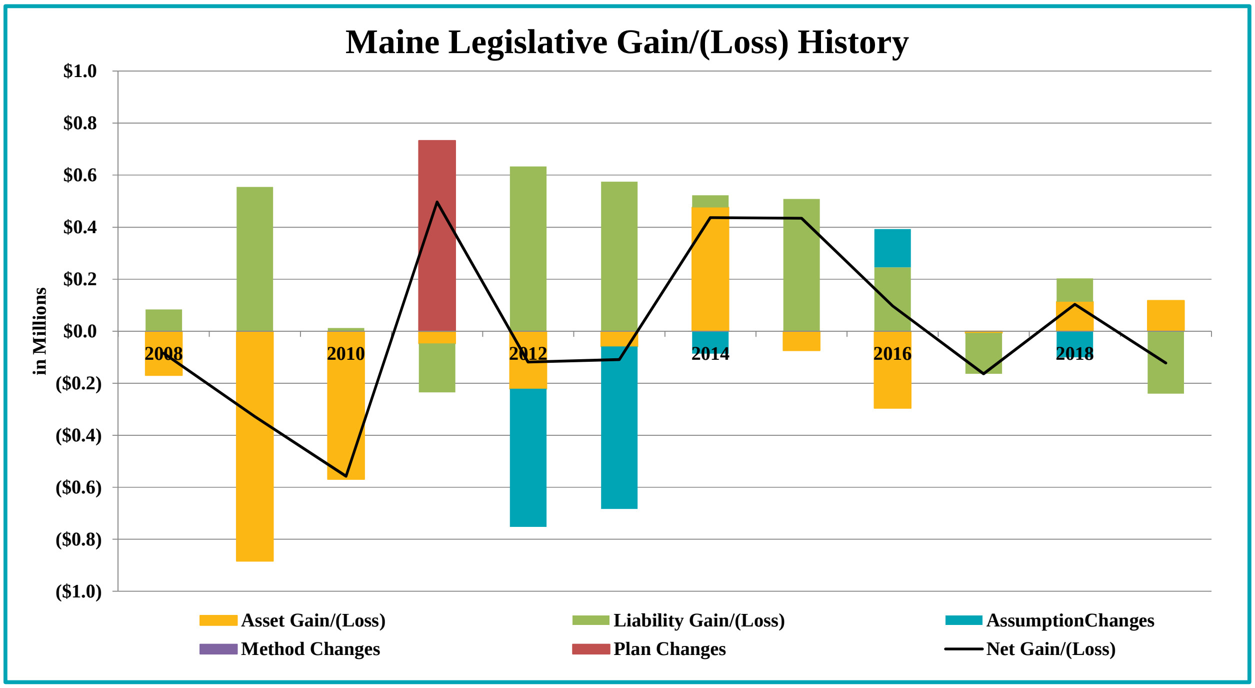
Assumption Change Risk is the potential for the environment to change such that future valuation assumptions are adjusted to be different than the current assumptions. For example, declines in interest rates over time may result in a change in the assumed rates of return used in the valuation. A healthier workforce may result in changes in employee behavior such that retirement rates are adjusted to reflect employees working longer. Assumption change risk is an extension of the risks previously identified, but rather than capturing the risk as it is experienced, it captures the cost of recognizing a change in the environment when the current assumption is no longer reasonable. The historical review section will show that assumption change risk has been a relatively significant risk for this Program.

Plan Change Risk is the potential for the provisions of the Program to be changed such that the funding or benefits are changed materially. In addition to the actual payments to and from the Program being changed, future valuation measurements can also be impacted, with Program changes leading to deviations between actual future measurements and those expected by the current valuation. The historical review section will show that plan change risk has been a relatively significant driver of deviations in the actual measurements for this Program from those expected by the valuations.

SECTION II – RISK ASSESSMENT AND DISCLOSURE

Historical Experience Deviations

In understanding the impact of some of these risks, it is useful to look at past experience deviations. These deviations are commonly referred to as actuarial gains and losses. The following graph shows the gains/(losses) at each valuation date between the actual and expected experience broken down by cause.



As described previously and is evident in this graph, assumption changes, asset gains and losses, and liability gains and losses have been the most significant risks for the Program. Plan changes have also been a source of experience deviations.

Plan Maturity Measures

As pension plans become more mature, the primary risks of adverse investments, demographic deviations, plan changes, and assumption change experience become of more significant concern. As a result, it has become increasingly important to examine measures that indicate a pension plan's maturity level. With shrinking workforces, aging Baby Boomers, and retirees living longer, plans pay out more in benefits than they receive in contributions – leading to negative cash flows, excluding investment income.

When plans with negative cash flows suffer investment losses, they need to liquidate enough assets to pay for benefits in excess of contributions. That means these plans will need to earn higher returns to rebuild their assets to the previous levels. Plans with negative cash flows exceeding six percent of assets are especially vulnerable to asset losses.

SECTION II – RISK ASSESSMENT AND DISCLOSURE

The balance of this section discloses and examines four maturity measures: the asset leverage ratio, the liability leverage ratio, the support ratio, and the net cash flow ratio.

Asset Leverage Ratio

One of the more important plan maturity measures is the asset leverage ratio – the market value of assets divided by the plan's payroll. As a plan matures, its assets increase. Once a plan is fully funded, contributions will decrease. The greater the plan's assets are relative to payroll, the more vulnerable the plan is to investment volatility.

As an example, here are two plans that both experience a 10% investment loss equaling $500 million. Plan A's asset leverage ratio is 10 and Plan B's ratio is 5 – this means that Plan A has to spread, or amortize, that loss over a payroll that is half as large as Plan B's.

	($ in millions)	
	Plan A	**Plan B**
Plan Assets	**$ 5,000**	**$ 5,000**
Payroll	**$ 500**	**$ 1,000**
Asset Leverage Ratio	**10.0**	**5.0**
10% investment loss	**$ 500.0**	**$ 500.0**

This Program's asset leverage ratio has been generally increasing over the last decade and is currently just below 5.0. As a result of the increasing of this ratio, investment losses are equivalent to a greater portion of payroll.

Liability Leverage Ratio

Another leverage ratio that can be examined is the Liability Leverage Ratio – the ratio of actuarial liabilities to payroll. The greater the plan's liabilities are relative to payroll, the more vulnerable the plan is to investment volatility. As previously discussed, the small nature of this Program means that the magnitude of liability gains and losses are often greater relative to the liabilities compared to what larger plans experience, so it is valuable to be aware of this ratio. For this Program, this metric has also been generally increasing over the last decade, and is currently at approximately 3.4.

Support Ratios

A commonly used measure of plan maturity is the Support Ratio – the ratio of retired and inactive members or those receiving benefits or entitled to a deferred benefit to the number of active members or those currently accruing benefits in the plan. The greater this ratio, the more likely the plan will have or develop negative cash flows.

A graph of this ratio was shown in the prior section, which showed that this ratio has been generally increasing for this Program in recent years and is currently at 1.8 inactives for each active member.

SECTION III – ASSETS

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

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

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

- Disclosure of total MainePERS DB assets at June 30, 2018 and June 30, 2019;
- Statement of changes in total MainePERS DB market values during the year;
- Development of the total MainePERS DB actuarial value of assets;
- Allocation of the total actuarial value to MainePERS DB Programs;
- Assessment of the total MainePERS DB investment performance; and
- Projection of expected cash flows for the Program 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 that develops the contributions. Therefore, a smoothed, actuarial value is developed for use in this process and for evaluating the Program's ongoing ability to meet its obligations. The actuarial value of the total MainePERS DB assets are then allocated to each Program. This section discloses the market and actuarial values of the MainePERS DB assets both in total and for each Program.

SECTION III – ASSETS

Table III-1 that follows develops the change in the market value of assets for the total MainePERS DB assets during FY 2019.

Table III-1
Changes in Market Value of Total MainePERS Defined Benefit (DB) Assets

Market Value of Total MainePERS DB Assets – June 30, 2018		**$ 14,569,405,260**
Additions		
Contributions:		
Employer Contributions	$ 414,682,379	
Member Contributions	201,855,646	
Transfers	(225,354)	
Total Contributions	$ 616,312,671	
Investment Income:		
Net Appreciation (Depreciation) in Fair Value of Investments	$ 1,081,164,176	
Interest on Bank Balances	1,422,767	
Total Investment Income	$ 1,082,586,943	
Investment Activity Expenses:		
Management Fees	$ (111,281,450)	
Investment Related Expense	(5,736,147)	
Banking Fees	(29,783)	
Total Investment Activity Expenses	$ (117,047,380)	
Net Income from Investing Activities	$ 965,539,563	
Total Additions		$ 1,581,852,234
Deductions		
Retirement Benefits	$ (943,958,705)	
Disability Benefits	(30,669,902)	
Survivor Benefits	(24,140,215)	
Refunds	(25,818,720)	
Administrative Expenses	(14,004,118)	
Total Deductions		$ (1,038,591,660)
Total		
Net Increase (Decrease)		$ 543,260,574
Market Value of Total MainePERS DB Assets – June 30, 2019		**$ 15,112,665,834**

SECTION III – ASSETS

Table III-2 below develops the actuarial value of assets for the total MainePERS DB assets as of June 30, 2019 using the adopted actuarial valuation methodology.

Table III-2
Development of Actuarial Value of Total MainePERS Defined Benefit (DB) Assets as of June 30, 2019

1.	Actuarial Value of Total MainePERS DB Assets at June 30, 2018	$ 14,303,631,662
2.	Amount in (1) with Interest to June 30, 2019	15,269,126,799
3.	Employer and Member Contributions for FY 2019	616,312,671
4.	Interest on Contributions in (3), Assuming Received Uniformly throughout FY 2019	20,460,913
5.	Total Disbursements without Administrative Expenses for FY 2019	(1,024,587,542)
6.	Interest on Disbursements in (5), Assuming Payments made Uniformly throughout FY 2019	(34,015,196)
7.	Expected Value of Total MainePERS DB Assets at June 30, 2019 = (2) + (3) + (4) + (5) + (6)	$ 14,847,297,645
8.	Actual Market Value of Total MainePERS DB Assets at June 30, 2019	15,112,665,834
9.	Excess of (8) Over (7)	265,368,189
10.	Actuarial Value of Total MainePERS DB Assets at June 30, 2019 = (7) + [33⅓% of (9)]	$ 14,935,753,708

Actuarial Value of Total MainePERS DB Assets

As discussed in the disclosure portion of this section, the actuarial value of assets for the Program represents a “smoothed” value developed by the actuary to reduce, or eliminate, volatility in contribution rates that could develop from short-term fluctuations in the market value of assets. Current actuarial methods employed in this Program use an allocated portion of the total actuarial value of assets based on 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, 6.75% for this valuation. The previous table, Table III-2, illustrates the calculation of the actuarial value of assets for the total MainePERS DB assets as of June 30, 2019.

SECTION III – ASSETS

Allocation of Actuarial Value of Assets to the Program

The assets for all of the defined benefit (DB) Programs 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, 2019 valuation as shown in Table III-2 above is 0.988294 (14,935,753,708 ÷ 15,112,665,834). 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.

Table III-3
Allocation of Actuarial Value of Total MainePERS DB Assets
as of June 30, 2019

Program	Market Value	Actuarial Value
Teachers	$ 8,003,297,686	$ 7,909,609,357
State (Regular & Special)	4,032,265,361	3,985,062,793
Judicial	73,637,441	72,775,425
Legislative	13,248,022	13,092,938
Participating Local Districts (Consolidated & Non-Consolidated)	2,990,217,324	2,955,213,195
Total	$ 15,112,665,834	$ 14,935,753,708

Investment Performance

The market value of assets for the total MainePERS DB assets returned a positive 6.62% during FY 2019. This is less than the assumed return of 6.75% for FY 2019. The equivalent market value returns for the total MainePERS DB assets for FY 2018 and FY 2017 were positive 9.95% and positive 12.72%, respectively.

On an actuarial value of assets basis, the return for FY 2019 was a positive 7.38% for the total MainePERS DB assets. This return is greater than the return on a market value basis, and is higher than the 6.75% assumption for FY 2019. Therefore, this return gave rise to an investment gain on the total MainePERS DB assets this year.

SECTION III – ASSETS

Cash Flow Projections

Table III-4
Projection of Legislative Program
Benefit Payments and Contributions

FY Ending June 30,	Expected Benefit Payments	Expected Employer Contributions	Expected Member Contributions	Total Expected Contributions
2020	$ 546,400	$ 0	$ 142,450	$ 142,450
2021	698,900	0	209,100	209,100
2022	588,700	0	150,360	150,360
2023	718,600	0	220,700	220,700
2024	659,200	0	158,760	158,760
2025	733,900	0	233,000	233,000
2026	695,700	0	167,580	167,580
2027	778,500	0	246,000	246,000
2028	734,800	0	176,960	176,960
2029	793,600	0	259,700	259,700

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

The expected benefit payments in Table III-4 were developed using the data currently included in this valuation and on the assumption that the actuarial assumptions disclosed in Appendix C will be exactly met. Actual benefit payments will vary if members retire sooner or later than assumed, if salary increases and 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 Program participants, whose experience will eventually lead to increased benefit payments. However, we do not feel this exclusion will materially impact the projections for the time period shown.

Expected employer contributions in this table use the budgeted contributions for FY 2020 through FY 2021. Future contributions beyond that point are assumed to continue at the FY 2021 rate and include an assumption that payroll grows at 2.75% per year. However, since that FY 2021 rate is zero percent, the payroll assumption is moot for the employer contributions.

The expected member contributions are similarly based on a 2.75% per year assumed increase in covered payroll multiplied by the current average aggregate member contribution rate of 7.65% for FY 2019.

SECTION IV – LIABILITIES

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

- Disclosure of the Program's liabilities as of June 30, 2018 and June 30, 2019; 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 Program, this represents the amount of money needed today to fully fund all future benefits of the Program, assuming active members continue to earn salary increases and accrue benefits under their current Program provisions and assuming all actuarial assumptions are exactly met, including the 6.75% per year investment return.

- Actuarial Liability (AL): Used for funding calculations and GASB disclosures, this liability is calculated taking PVB above and subtracting the value of accruals that are assigned to future years on a person-by-person basis. This offset is equal to the present value of future member contributions and future employer normal cost contributions under an acceptable actuarial funding method. For this Program and the other MainePERS Defined Benefit Programs, this method is referred to as the entry age normal (EAN) funding method, which is the only acceptable actuarial funding method for GASB disclosures.

- Present Value of Accrued Benefits (PVAB): Used for communicating the liabilities for benefits accrued as of the valuation date.

Table IV-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 the Program's assets yields, for each respective type, a net surplus or an unfunded liability. For the PVB measure, it is compared to the market value of assets plus the expected future value of contributions to the Plan. The future contributions are calculated assuming the current employer and member rates will be continued for all future years along with the expected future payroll as of that date. 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 and indicates the size of the Program's stored gains or losses that remain outside of the valuation process currently.

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

SECTION IV – LIABILITIES

Table IV-1
Disclosure of Liabilities

	June 30, 2018	June 30, 2019
Present Value of Benefits (PVB)		
Active Member Benefits	$ 3,137,118	$ 3,297,490
Retired, Disabled, Survivor, and Beneficiary Benefits	3,813,531	4,198,596
Terminated (Vested & Nonvested) Benefits	2,463,544	2,705,020
Total PVB	**$ 9,414,193**	**$ 10,201,106**
Market Value of Assets (MVA)	$ 12,755,821	$ 13,248,022
Future Member Contributions	649,205	719,135
Future Employer Contributions	0	0
Projected (Surplus)/Shortfall	(3,990,833)	(3,766,051)
Total Resources	**$ 9,414,193**	**$ 10,201,106**
Actuarial Liability (AL)		
Present Value of Benefits (PVB)	$ 9,414,193	$ 10,201,106
Present Value of Future Normal Costs (PVFNC)		
Employer Portion	205,038	415,207
Member Portion	649,205	719,135
Actuarial Liability (AL = PVB – PVFNC)	**$ 8,559,950**	**$ 9,066,764**
Actuarial Value of Assets (AVA)	12,523,131	13,092,938
Net (Surplus)/Unfunded (AL – AVA)	**$ (3,963,181)**	**$ (4,026,174)**
Present Value of Accrued Benefits		
Present Value of Future Benefits (PVB)	$ 9,414,193	$ 10,201,106
Present Value of Future Benefit Accruals (PVFBA)	1,035,605	1,425,518
Accrued Liability (PVAB = PVB – PVFBA)	**$ 8,378,588**	**$ 8,775,588**
Market Value of Assets (MVA)	12,755,821	13,248,022
Net (Surplus)/Unfunded (PVAB – MVA)	**$ (4,377,233)**	**$ (4,472,434)**

SECTION IV – 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 program members since the last valuation
- Benefits accrued since the last valuation
- Program amendments changing benefits since the last valuation
- Passage of time, which adds interest to the prior liability
- Benefits paid to members since the last valuation
- Members retiring, terminating, or dying at rates different than expected since the last valuation
- Salaries changing at rates different than expected since the last valuation
- A change in actuarial assumptions since the last valuation
- A change in the actuarial funding method since the last valuation

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

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

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

Table IV-2

	Present Value of Future Benefits	Actuarial Liability	Present Value of Accrued Benefits
Liability Measurement – June 30, 2018	$ 9,414,193	$ 8,559,950	$ 8,378,588
Liability Measurement – June 30, 2019	10,201,106	9,066,764	8,775,588
Liability Measurement Increase/ (Decrease) Due to:	$ 786,913	$ 506,814	$ 397,000
Program Amendment	$ 0	$ 0	$ 0
Assumption Change	0	0	0
Actuarial (Gain)/Loss	N/C	238,611	N/C
Benefits Accumulated and Other Sources	$ 786,913	$ 268,203	$ 397,000

N/C = Not calculated

SECTION V – CONTRIBUTIONS

In this section, we present detailed information on employer contribution rates as developed in this June 30, 2019 valuation for the Program, including development of the employer contribution rate, comprised of the employer normal cost rate and the unfunded actuarial liability (UAL) amortization rate (UAL rate).

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

Description of Rate Components

For this Program, the funding methodology employed to determine the employer contribution rates is the entry age normal (EAN) funding method. Under this method, there are two components to the total employer contribution rate: the employer normal cost rate (NC rate) and the UAL amortization rate (UAL rate).

An individual EAN cost rate is determined for each active member. The normal cost is determined by the following steps. First, an individual normal cost rate for each member is determined by taking the value of their projected future benefits, as of entry age, into the Program. Second, this value is then divided by the value, also at entry age, of the member's expected future salary. Finally, the resulting total normal cost rate is reduced by the member contribution rate to produce the employer normal cost rate for the member. These rates are then multiplied by each member's salary as of the valuation date and added together to get the total employer normal cost dollars as of the valuation date for the Program, which is then divided by the total payroll at the valuation date for the Program to get the employer normal cost rate for the Program.

The unfunded actuarial liability under the EAN funding method equals the present value, at the time of valuation, of the future benefit payments less the present value of future employer normal cost contributions, future member contributions, and current assets. The UAL amortization rate determined is the percentage that applied to member payroll, which is assumed to increase 2.75% per year, is expected to amortize the UAL according to the Program's amortization policy, which is an open 10-year period for the Program.

Contribution Calculations

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

Table V-1
Legislative Total Employer Rate

Valuation Date	**June 30, 2018**	**June 30, 2019**
Employer NC Rate	2.83%	4.94%
UAL Amortization Rate	(17.83)%	(18.46)%
Total Employer Rate*	(15.00)%	(13.52)%

*Limited to 0% for actual contributions

SECTION V – CONTRIBUTIONS

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

SECTION VI – FINANCIAL DISCLOSURE INFORMATION

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

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

- Table VI-1: Accrued Benefits Information

The Governmental Accounting Standards Board (GASB) Statement 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 VI-2: Schedule of Changes in Net Pension Liability and Related Ratios
- Table VI-3: Sensitivity of Net Pension Liability to Changes in Discount Rate
- Table VI-4: Schedule of Employer Contributions
- Table VI-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 VI-5 included in this section is only applicable to GASB No. 68.

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 VI-6: Analysis of Financial Experience
- Table VI-7: Schedule of Funded Liabilities by Type

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

SECTION VI – FINANCIAL DISCLOSURE INFORMATION

actuarial assumptions. Liabilities as of June 30, 2019 are discounted at the assumed valuation interest rate of 6.75% per annum in all of these disclosures.

Table VI-1 below includes the relevant amounts as of June 30, 2018 and June 30, 2019 as well as reconciliation between the two dates under FASB ASC Topic 960.

Table VI-1
Accrued Benefits Information

	June 30, 2018	June 30, 2019
FASB ASC Topic 960 Basis		
1. Present Value of Benefits Accrued to Date (PVAB)		
a. Members Currently Receiving Payments	$ 3,813,531	$ 4,198,596
b. Terminated Vested Members	2,463,544	2,705,020
c. Active Members	2,101,513	1,871,972
d. Total PVAB	$ 8,378,588	$ 8,775,588
2. Market Value of Assets (MVA)	12,755,821	13,248,022
3. Unfunded Present Value of Accrued Benefits, But Not Less Than Zero	$ 0	$ 0
4. Ratio of MVA to PVAB (2)/(1)(d)	152.2%	151.0%

Change in Present Value of Benefits Accrued to Date during FY 2019

Increase/(Decrease) during Year Attributable to:	
Passage of Time	$ 545,408
Benefits Paid	(606,841)
Assumption Changes	0
Program Changes	0
Benefits Accrued, Other Gains/Losses	458,433
Net Increase (Decrease)	$ 397,000

Table VI-2 that follows shows the changes in the total pension liability (TPL), the Program's fiduciary net position (FNP) (i.e., fair value of the Program's net assets), and the net pension liability (NPL) during the measurement year ending June 30, 2019 as well as related ratios calculated under the provisions of GASB Statement No. 67 for the Program.

As of the June 30, 2019 valuation, the fiduciary net position for this Program was projected to be available to make all projected future benefit payments for current program members. As such, the long-term expected rate of return on the Program's investments was applied to all periods of projected benefit payments in determining the total pension liability under GASB Nos. 67 and 68. The projection of cash flows used to determine the discount rate assumed that member contributions will be made at the current contribution rate and the employer contributions will be made according to the actuarial calculations developed in the biennial budgeting process.

SECTION VI – FINANCIAL DISCLOSURE INFORMATION

Table VI-2
Schedule of Changes in Net Pension Liability and Related Ratios
FY 2019

Total Pension Liability (TPL)	
Service Cost (SC)	$ 297,324
Interest (includes Interest on SC)	577,720
Changes of Benefit Terms	0
Differences Between Actual and Expected Experience	238,611
Changes of Assumptions	0
Benefit Payments, including Refunds of Member Contributions	(606,841)
Net Change in TPL	**506,814**
Beginning of Year (BOY) TPL	**8,559,950**
End of Year (EOY) TPL	**$ 9,066,764**
Program Fiduciary Net Position (FNP)	
Employer Contributions	$ 0
Member Contributions	220,611
Transfers	45,285
Net Investment Income	845,408
Benefit Payments, including Refunds of Member Contributions	(606,841)
Administrative Expense	(12,262)
Net Change in FNP	$ 492,201
BOY FNP	**12,755,821**
EOY FNP	**$ 13,248,022**
EOY Net Pension Liability (NPL)	**$ (4,181,258)**
FNP as a Percentage of TPL	146.1%
Covered Payroll (Payroll)*	$ 2,659,749
NPL as a Percentage of Payroll	(157.2)%

*For FY 2019

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

None.

SECTION VI – FINANCIAL DISCLOSURE INFORMATION

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 the 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, 2019, we have not included such a note in the *Notes to Schedule of Changes in Net Pension Liability and Related Ratios* above. However, it is our expectation that System staff will make the final determination regarding any notes needed for this schedule and are available to provide any information they may need for this purpose.

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

Table VI-3
Sensitivity of Net Pension Liability to Changes in Discount Rate
FY 2019

	1% Decrease 5.75%	**Discount Rate** **6.75%**	**1% Increase** **7.75%**
Total Pension Liability (TPL)	$ 9,987,700	$ 9,066,764	$ 8,270,001
Program Fiduciary Net Position (FNP)	13,248,022	13,248,022	13,248,022
Net Pension Liability (NPL)	$ (3,260,322)	$ (4,181,258)	$ (4,978,021)
FNP as a Percentage of TPL	132.6%	146.1%	160.2%

A one percent decrease in the discount rate increases the TPL by approximately 10% and increases the NPL by approximately 22%. A one percent increase in the discount rate decreases the TPL by approximately 9% and decreases the NPL by approximately 19%.

Table VI-4 that follows provides information relating to the employer contributions for the Program. Under GASB Statement No. 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 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.

SECTION VI – FINANCIAL DISCLOSURE INFORMATION

The Program's rates set in the ratemaking process meet the definition of an ADC, so for this Program, this schedule should be developed on that basis. Based on GASB guidance, a full ten years of information should be shown in this schedule if it is available, but this ten-year history can be built one year at a time following implementation. We have shown only the current 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 such a note is not needed to indicate the change in assumptions that were recognized in the 2015 valuation that was the basis of this ADC since it was already reflected in the FY 2018 rate, but it is our expectation that the System's staff will make the final determination regarding any notes needed for this schedule and are available to provide any additional information that they may need for this purpose.

Table VI-4
Schedule of Employer Contributions
FY 2019

Actuarially Determined Contribution (ADC)	$ 0
Contributions in Relation to the ADC	0
Contribution Deficiency/(Excess)	$ 0
Covered Payroll (Payroll)	$ 2,659,749
Contributions as a Percentage of Payroll	0.00%

Notes to Schedule of Employer Contributions

Valuation Date: June 30, 2015

Timing: June 30, 2019 ADC rates are calculated based on 2016 liabilities developed as a roll-forward of the 2015 valuation liability, adjusted for expected experience and any assumption or methodology changes during FY 2016 using preliminary actual assets as of June 30, 2016.

Key Methods and Assumptions Used to Determine Contribution Rates

Actuarial Cost Method: Entry age normal

Asset Valuation Method: Three-year smoothed market

Amortization Method: Level percentage of payroll, open 10-year amortization

Discount Rate: 6.875%

SECTION VI – FINANCIAL DISCLOSURE INFORMATION

Amortization Growth Rate:	2.75%
Price Inflation:	2.75%
Salary Increases:	2.75%
Mortality:	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 MP_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.

A complete description of the methods and assumptions used to determine contribution rates for the year ending June 30, 2019 can be found in the June 30, 2016 Actuarial Valuation Report.

Other Information

None.

Table VI-5 that follows was provided in this report at the request of MainePERS staff, showing the development of the average remaining service life for the Program. GASB Statement No. 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, 2019, these values are thus developed as of June 30, 2018. 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.

Table VI-5
Average Expected Remaining Service Lives
For Measurement Year Ending June 30, 2019

Status	Total Expected Future Service	Count	Average Remaining Service Lives
Actives	671	185	4
In-Pay Members	0	185	0
Terminated Vested Members	0	113	0
Inactives Due Refunds	0	107	0
Total Membership	671	590	1

SECTION VI – FINANCIAL DISCLOSURE INFORMATION

Table VI-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.

Table VI-6
Analysis of Financial Experience
Gain and Loss in Actuarial Liability During Fiscal Years Ended June 30
Resulting from Differences Between Assumed Experience and Actual Experience

Type of Activity	Gain (or Loss) For Fiscal Year Ended June 30, 2014	Gain (or Loss) For Fiscal Year Ended June 30, 2015	Gain (or Loss) For Fiscal Year Ended June 30, 2016	Gain (or Loss) For Fiscal Year Ended June 30, 2017	Gain (or Loss) For Fiscal Year Ended June 30, 2018	Gain (or Loss) For Fiscal Year Ended June 30, 2019
Investment Income	$ 475,733	$ (73,732)	$ (295,325)	$ (6,238)	$ 112,650	$ 115,981
Combined Liability Experience	46,483	508,125	245,867	(157,775)	90,816	(238,611)
Gain (or Loss) during Year from Financial Experience	522,216	434,393	(49,458)	(164,013)	203,466	(122,630)
Non-Recurring Items	(85,783)	(4,418)	146,529	0	(99,915)	0
Composite Gain (or Loss) During Year	**$ 436,433**	**$ 429,975**	**$ 97,071**	**$ (164,013)**	**$ 103,551**	**$ (122,630)**

SECTION VI – FINANCIAL DISCLOSURE INFORMATION

Table VI-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 Schedule of Funded Liabilities by Type 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 such a note is needed for the measurement year ending June 30, 2019, but it is our expectation that the System's staff will make the final determination regarding any notes needed for this schedule

Table VI-7
Schedule of Funded Liabilities by Type

	Aggregate Actuarial Liabilities for:				Portion of Actuarial Liabilities Covered by Reported Assets		
Valuation Date June 30,	(1) Active Member Contributions	(2) Retirees, Vested Terms, Beneficiaries	(3) Active Members (Employer Financed Portion)	Reported Assets*	(1)	(2)	(3)
2019	$ 2,667,308	$ 6,903,616	$ (504,160)	$ 13,092,938	100%	100%	100%
2018	2,591,378	6,277,075	(308,503)	12,523,131	100	100	100
2017	2,516,620	6,172,223	(525,533)	11,908,009	100	100	100
2016	2,505,647	5,795,917	(622,106)	11,405,769	100	100	100
2015	2,444,638	5,581,571	(467,916)	11,219,880	100	100	100
2014	2,464,847	5,073,388	(33,042)	10,775,701	100	100	100
2013	2,363,217	4,965,686	(456,289)	9,771,955	100	100	100
2012	2,321,819	3,895,976	25,844	9,322,419	100	100	100
2011	2,228,233	4,002,993	(506,033)	9,040,180	100	100	100
2010	2,099,683	3,680,940	292,741	8,634,635	100	100	100

* 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 Program.

APPENDIX A – MEMBERSHIP INFORMATION

Active Member Data as of June 30, 2019	
Count	179
Average Current Age	57.4
Average Benefit Service	4.7
Average Vesting Service	6.1
Average Valuation Pay	$14,859

Non-Active Member Data as of June 30, 2019

	Count	Average Age	Total Annual Benefit	Average Annual Benefit
Retired	166	76.5	$348,264	$ 2,098
Retired – Concurrent Beneficiary	6	73.2	2,424	404
Disability	2	64.4	15,093	7,547
Beneficiary of Above	24	78.1	35,253	1,469
Pre-Retirement Death Beneficiary	6	64.8	38,331	6,389
Terminated Vested	124	56.5	246,545	1,988
Inactive Due Refund	111	NA	NA	NA

	Active Members	Retired Members	Beneficiaries of Retired Members	Survivors of Deceased Members	Disabled Members[1]	Deferred Vested Members[2]
As of June 30, 2018	**185**	**148**	**29**	**6**	**2**	**113**
New hires	49					
Rehires	9	(3)				(2)
Movement between plans	(1)					
New retirees	(15)	22				(7)
New beneficiaries due to retirements			1			
New deferred vested members	(22)					23
Non-vested terminations	(21)					
Refunds	(4)					(3)
Deaths, no future benefits	(1)	(2)		(1)		
Deaths with a survivor or beneficiary						
Benefits expired						
Data correction		1		1		
As of June 30, 2019	**179**	**166**	**30**	**6**	**2**	**124**

1. Former disabled retirees who have changed to service retirement as mandated by the Plan are still included as disabled members.
2. Deferred vested members includes those indicated to us in the data who have terminated and are eligible for a future annuity.

APPENDIX B – SUMMARY OF PROGRAM PROVISIONS

1. Membership

Except as provided by statute, membership is mandatory for every legislator in service in the Legislature on or after December 3, 1986, and optional for those who were members of the Retirement System on December 2, 1986.

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

2. Member Contributions

Members are required to contribute 7.65% of earnable compensation. Member contributions earn annual interest at the rate adopted by the Board of Trustees each February.

3. Average Final Compensation

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

4. Creditable Service

Creditable service includes the following:

A. All legislative service as a member after December 2, 1986;

B. All legislative service before December 3, 1986, for which contributions have been made to the Retirement System at the applicable rate, including appropriate interest;

C. Service credited while receiving disability benefits under the Program; and

D. All service creditable under the Retirement System as a State Employee provided the member elects to have the member's and the employer's contributions on behalf of such service transferred to the Legislative Program.

5. Service Retirement Benefits

Eligibility:

A. Eligibility for Members with at Least Ten Years of Creditable Service on July 1, 1993

i. Eligibility for members in active service and inactive members:

25 years of creditable service.

APPENDIX B – SUMMARY OF PROGRAM PROVISIONS

ii. Eligibility alternative for members in active service:

Attainment of age 60.

iii. Eligibility for members not in active service at retirement, and not in active service on or after October 1, 1999:

Attainment of age 60 and ten years of creditable service.

iv. Eligibility for members not in active service at retirement, but in active service on or after October 1, 1999:

Attainment of age 60 and five years of creditable service.

B. Eligibility for Members with Less Than Ten Years of Creditable Service on July 1, 1993

i. Eligibility for members in active service and inactive members:

25 years of creditable service.

ii. Eligibility alternative for members in active service:

Attainment of age 62.

iii. Eligibility for members not in active service at retirement, and not in active service on or after October 1, 1999:

Attainment of age 62 with ten years of creditable service.

iv. Eligibility for members not in active service at retirement, but in active service on or after October 1, 1999:

Attainment of age 62 and five years of creditable service.

C. Eligibility for Members with Less Than Five Years of Creditable Service on July 1, 2011

i. Eligibility for members in active service and inactive members:

25 years of creditable service.

APPENDIX B – SUMMARY OF PROGRAM PROVISIONS

ii. Eligibility alternative for members in active service:

Attainment of age 65.

iii. Eligibility for members not in active service at retirement, and not in active service on or after October 1, 1999:

Attainment of age 65 with ten years of creditable service.

iv. Eligibility for members not in active service at retirement, but in active service on or after October 1, 1999:

Attainment of age 65 and five years of creditable service.

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

The benefit is reduced for retirement before age 60 at the approximate rates listed in the table below, for members with at least ten years creditable service on July 1, 1993.

Age	Reduction	Age	Reduction
45	29.3%	53	16.6%
46	28.0	54	14.6
47	26.6	55	12.5
48	25.2	56	10.3
49	23.6	57	7.9
50	22.0	58	5.4
51	20.3	59	2.8
52	18.5	60	0.0

The benefit is reduced for retirement before age 62 by 6% for each year the member's age is less than age 62, if less than ten years creditable service on July 1, 1993, but at least five years creditable service on July 1, 2011.

The benefit is reduced for retirement before age 65 by 6% for each year the member's age is less than age 65, if less than five years creditable service on July 1, 2011.

Minimum benefit $100 per month if at least ten years of creditable service.

Form of Payment: Life annuity.

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

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

Benefit: 66⅔% of average final compensation, reduced by employment earnings over the specified statutory limit, and to the extent that the benefit, in combination with Workers' Compensation and Social Security, exceeds 80% of average final compensation.

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

Conversion to Service Retirement: During the period of disability, service is credited and average final compensation is increased at same rate as any cost-of-living adjustments for which the member is eligible (not subject to a cap) (see item 12). On the date when service benefits reach a level of 66⅔% of average final compensation or ten years after the normal retirement date, if earlier, the disability converts to a service retirement benefit based on service and average final compensation at that time.

7. No Age Disability Retirement Benefits

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

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

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

Conversion to Service Retirement: During the period of disability, service is credited and average final compensation is increased at the same rate as any cost-of-living adjustments for which the member is eligible (not subject to a cap) (see item 12). 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 time.

8. Pre-Retirement Ordinary Death Benefits

Eligibility: Death while active, inactive eligible to retire, or disabled not resulting from an injury received in the line-of-duty.

Benefit: Designated beneficiary, spouse, children, or parents entitled to benefit calculated as if deceased member had retired under Option 2 (see item 13); however, beneficiary may elect survivor benefits payable to a surviving spouse, dependent children, 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, children, older parents, or estate.

9. Pre-Retirement Accidental Death Benefits

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

Benefit:

- If the member leaves no dependent children, two-thirds of the member's average final compensation to the surviving spouse until death.
- If the member is survived by a spouse who has the care of dependent children 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 children. 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 children, the surviving spouse and dependent children 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 children 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".

10. Termination Benefit

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

11. Refund of Contributions

Eligibility: Termination of service other than by retirement or death with less than five years of creditable service.

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

12. Cost-of-Living Adjustments

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

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

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

2014 - $20,000.00
2015 - $20,420.00
2016 - $20,940.71
2017 - $21,474.70
2018 - $21,818.30
2019 - $22,451.03

APPENDIX B – SUMMARY OF PROGRAM PROVISIONS

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

13. 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.

14. Program Changes since Prior Valuation

None.

This Appendix B is intended to be a brief summary of provisions. In the event of a dispute, applicable statutes and administrative policy supersede this report description.

APPENDIX C – ACTUARIAL ASSUMPTIONS AND METHODS

A. Actuarial Assumptions

1. Annual Rate of Investment Return

Legislative	6.75%

Rate is net of both administrative and investment expense.

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

Legislative	2.20%

3. Annual Rate of Individual Salary Increase

Legislative	2.75%

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

Service	Termination Rate
0	0%
1	0
2	30
3	30
4	25
5	25
6	10
7	10
8	50
9	50
10	25
11	25
12	25
13	25
14	25
15	25
16+	50

The rates shown are only applicable in the fiscal years ending in odd years while zero terminations are assumed in the fiscal years ending in even years.

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

APPENDIX C – ACTUARIAL ASSUMPTIONS AND METHODS

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)**

	Showing values in 2019	
Age	Male	Female
50	40	31
55	57	42
60	77	62
65	110	94
70	170	152
75	277	249
80	467	421
85	815	747
90	1,447	1,345
95	2,299	2,228

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, 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 Healthy Lives at Selected Ages (number of deaths per 10,000 members)***

	Showing values in 2019	
Age	Male	Female
20	4	2
25	4	2
30	4	2
35	5	3
40	6	5
45	9	7
50	17	12
55	28	20
60	47	29
65	83	43

**5% of deaths assumed to arise out of and in the course of employment*

APPENDIX C – ACTUARIAL ASSUMPTIONS AND METHODS

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.

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

	Showing values in 2019	
Age	Male	Female
25	81	24
30	78	30
35	92	42
40	110	57
45	171	90
50	209	118
55	242	148
60	275	176
65	329	214
70	425	291

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	Fiscal Years Ending Even	Fiscal Years Ending Odd
57-69	0	250
70+	0	1,000

Note that the all retirement rates are only applied once the member is eligible to retire, so those in with 62 or 65 normal retirement ages are not assumed to retire until eligible. No retirements are assumed prior to age 57, regardless of service amount.

APPENDIX C – ACTUARIAL ASSUMPTIONS AND METHODS

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

Age	Disability Rate
25	0
30	0
35	0
40	0
45	0
50	0
55	0
60	0

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% assumed for all future years

COLA Timing: September 1

12. Rationale for Actuarial Assumptions

The assumptions were adopted by the Board of Trustees at their July 14, 2016 meeting. The demographic assumptions adopted are based on an experience study covering the period from June 30, 2012 through June 30, 2015 and the economic assumptions are based on this experience study along with advice of the MainePERS investment consultants. The Board continuously reviews the investment return assumption and adopted a reduced rate of 6.75% effective with the 2018 valuation, at the advice of its investment consultant.

13. Changes since Last Valuation

None.

14. Rationale for Change in Actuarial Assumptions

N/A.

B. Actuarial Methods

1. Funding Method

The entry age normal actuarial funding method is used to determine costs. Under this funding method, the total employer contribution rate consists of two elements: the employer normal cost rate and the unfunded actuarial liability (UAL) rate.

Under this method, the actuarial present value of the projected benefits of each active included in the valuation is allocated on a level basis over the earnings of the individual between entry age and assumed exit age(s). The portion of this actuarial present value allocated to the year beginning on the valuation date is called the normal cost. For each active, the normal cost is determined by taking the value, as of entry age into the Program, of the member's projected benefits, reduced by the value of future member contributions, and then dividing it by the value, also as of the member's entry age, of the member's expected future salary. This rate is then multiplied by the member's salary at the valuation date to produce the normal cost for each member, which are then aggregated across all members to get the total normal cost for the Program. This total normal cost is then divided by the total salary for the Program at the valuation date to get the normal cost rate for the Program.

The portion of the actuarial present value not provided for at the valuation date by the actuarial present value of the future normal costs is called the actuarial liability. The unfunded actuarial liability is defined as the total actuarial liability at the valuation date less the actuarial value of the Program's assets at the valuation date. Contributions are made to fund this unfunded actuarial liability (UAL). The UAL rate for this Program is developed by amortizing the unfunded liability over an open ten-year period, assuming these amortization payments increase over the previous year at a rate of 2.75% per year. The resulting amortization for the year beginning on the valuation date is then divided by the total payroll for the Program to develop the UAL rate.

The total rate for the Program is produced by adding the normal cost rate and the UAL rate, subject to the requirement that the total rate cannot be less than 0%.

APPENDIX C – ACTUARIAL ASSUMPTIONS AND METHODS

By using an open amortization period, this funding method results in the expectation that any unfunded liability in the Program as of a valuation date will never be fully reduced to zero if all of the valuation assumptions are exactly met.

2. Asset Valuation Method

For purposes of determining the State contribution to the Program and the Program's funded ratio, we use an actuarial value of assets. The asset adjustment method dampens the volatility in asset values that could occur because of fluctuations in market conditions. Use of an asset smoothing method is consistent with the long-term nature of the actuarial valuation process.

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

3. Changes since Last Valuation

None.

APPENDIX D – GLOSSARY OF GASB TERMS

1. Actuarially Determined Contribution

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

2. Actuarial Valuation Date

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

3. Deferred Inflow of Resources

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

4. Deferred Outflow of Resources

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

5. Entry Age Actuarial Cost Method

The actuarial cost method required for GASB 67 and 68 calculations. Under this method, the actuarial present value of the projected benefits of each individual, included in an actuarial valuation, is allocated on a level basis over the earnings of the individual between entry age and assumed exit ages. The portion of this actuarial present value allocated to a valuation year is called the Service Cost. The portion of this actuarial present value not provided for at a valuation date by the actuarial present value of future service costs is called the Total Pension Liability.

6. Measurement Date

The date as of which the Total Pension Liability and Program 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 Program.

APPENDIX D – GLOSSARY OF GASB TERMS

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 Program Fiduciary Net Position.

8. Program Fiduciary Net Position

The fair or market value of assets.

9. Reporting Date

The last day of the Program 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.