

Maryland State Retirement and Pension System

Actuarial Valuation Report
As of June 30, 2020



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November 5, 2020

Board of Trustees
Maryland State Retirement and Pension System
120 East Baltimore Street, 16th Floor
Baltimore, MD 21202

Dear Members of the Board:

The results of the **June 30, 2020 annual actuarial valuation** of the Maryland State Retirement and Pension System (“MSRPS”) are presented in this report.

This report was prepared at your request and is intended for use by the Maryland State Retirement Agency (“SRA”) and the Board of Trustees of the MSRPS and those designated or approved by the SRA or the Board. This report may be provided to other parties only in its entirety and only with the permission of the SRA or the Board. GRS is not responsible for unauthorized use of this report.

The purposes of the valuation are as follows:

- Measure the financial position of MSRPS with regard to funding,
- Provide the Board with State and Participating Governmental Unit (“PGU”) contribution rates for certification,
- Determine actuarial and statutory contribution rates with reinvested savings,
- Discuss some of the risks associated with achieving the funding objectives of MSRPS, and
- Analyze the aggregate experience of the State Systems over the past year.

Information required by Statements No. 67 and No. 68 of the Governmental Accounting Standards Board (“GASB”) for fiscal year 2020 is provided in a separate report.

The individual member data required for the valuations was furnished by the SRA, together with pertinent data on financial operations (unaudited). The cooperation and collaboration of SRA staff in furnishing these materials is acknowledged with appreciation. We checked for internal and year-to-year consistency, but did not audit the data. We are not responsible for the accuracy or completeness of the information provided by the SRA.

Actuarial valuations are based upon assumptions regarding future activity in specific risk areas including the rates of investment return and payroll growth, eligibility for the various classes of benefits, and longevity among retired lives. The Board adopts these assumptions after considering the advice of the actuary and other professionals.

Each actuarial valuation considers all prior differences between actual and assumed experience in each risk area and adjusts the contribution rates as needed. GRS performed an experience study of MSRPS for the period 2014-2018 after completion of the June 30, 2018 valuations. Assumptions from the experience study including investment return, inflation, COLA increases, mortality rates, retirement rates, withdrawal rates, disability rates, and rates of salary increase were adopted by the Board for first use in the June 30, 2019 valuation. It is our opinion that the actuarial assumptions used for the valuation are reasonable.

The computed contribution rate shown on page I-2 may be considered as a minimum contribution rate that complies with the funding policy stated in the Statutes. Users of this report should be aware that contributions made at that rate do not guarantee benefit security. Given the importance of benefit security to any retirement system, we suggest that contributions to the System in excess of those presented in this report be considered. This report includes risk metrics on pages II-15 and II-16 but does not include a more robust assessment of the risks of future experience not meeting the actuarial assumptions. Additional assessment of risks was outside the scope of this assignment.

The benefit provisions valued in the actuarial valuation as of June 30, 2020 are the same as the provisions from the last actuarial valuation as of June 30, 2019, with the exception of State Police and LEOPS. Portions of the savings from the 2011 pension reforms passed by the General Assembly are to be reinvested as additional contributions into the Systems. Legislation enacted in 2015 reduced the amount of reinvested savings to \$75 million per year beginning in fiscal year 2016 until the combined funded ratio of the Systems reaches 85% at which point the additional contributions cease.

This valuation assumes the continuing ability of the employer to make the contributions necessary to fund this system. A determination regarding whether or not the employer is actually able to do so is outside our scope of expertise. Consequently, we did not perform such an analysis.

This report was prepared using our proprietary valuation model and related software which in our professional judgment has the capability to provide results that are consistent with the purposes of the valuation. We performed tests to ensure that the model reasonably represents that which is intended to be modeled.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: plan experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the plan's funded status); and changes in plan provisions or applicable law. The actuary did not perform an analysis of the potential range of such future measurements in this actuarial valuation report.



This report has been prepared by actuaries who have substantial experience valuing public employee retirement systems. We certify that, to the best of our knowledge, this report is complete and accurate and has been prepared in accordance with Maryland's Annotated Code and generally recognized and accepted actuarial principles and practices which are consistent with the Code of Professional Conduct and applicable Actuarial Standards of Practice as promulgated by the Actuarial Standards Board.

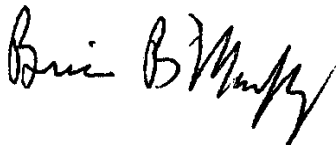
This report should not be relied on for any purpose other than the purposes previously described. Determinations of the financial values associated with benefits described in this report for a purpose other than the intended purpose may produce results that differ significantly from those presented in this report.

The signing actuaries are independent of the plan sponsor.

This is one of multiple documents comprising the actuarial report. Other documents comprising the actuarial report include the PowerPoint presentation presented to the Board in November 2020 and separately to the Joint Committee on Pensions in November 2020. Not all of these documents have been issued as of this date.

Brian B. Murphy, Brad L. Armstrong, and Jeffrey T. Tebeau are Members of the American Academy of Actuaries (MAAA), and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions contained herein.

Respectfully submitted,



Brian B. Murphy, FSA, EA, FCA, MAAA, PhD



Brad L. Armstrong, ASA, EA, FCA, MAAA



Jeffrey T. Tebeau, FSA, EA, MAAA

BBM/BLA/JTT:rmn

SECTION I

BOARD SUMMARY

Introduction

The funding valuation report presents the results of the June 30, 2020 annual actuarial valuation of the Maryland State Retirement and Pension System (MSRPS). The purposes of the annual funding valuations are as follows:

- Measure the financial position of MSRPS with regard to funding,
- Provide the Board with State and Participating Governmental Unit (“PGU”) contribution rates for certification,
- Determine actuarial and statutory contribution rates with reinvested savings,
- Discuss some of the risks associated with achieving the funding objectives of MSRPS, and
- Analyze the aggregate experience of the State Systems over the past year.

A summary of the primary funding valuation results as of June 30, 2020 is presented on the following page.

The Governmental Accounting Standards Board (GASB) No. 67 and No. 68 valuation report presents the results of the June 30, 2020 annual accounting valuation of the Maryland State Retirement and Pension System (MSRPS). The purpose of the annual accounting valuations is as follows:

- Provide actuarial reporting and disclosure information for the MSRPS and State’s financial report.

The accounting valuation results for the year ended June 30, 2020 are presented in a separate report.

Summary of Valuation Results

June 30, 2020

(\$ in Millions)
(State and Municipal)

	2020						2019		% Change
	TCS	ECS	State			Total	Total		
			Police	Judges	LEOPS			CORS ¹	
A. Demographic Information									
1. Active Number Counts	109,597	81,656	1,391	324	2,748	135	195,851	193,458	1.2%
2. Active Payroll	\$ 7,492	\$ 4,638	\$ 116	\$ 52	\$ 195	\$ 8	\$ 12,501	\$ 11,905	5.0%
3. Retired Number Counts	80,439	82,047	2,517	441	2,153	47	167,644	164,892	1.7%
4. Annual Benefits for Retired Members ²	\$ 2,366	\$ 1,524	\$ 132	\$ 38	\$ 80	\$ 1	\$ 4,141	\$ 3,982	4.0%
5. Deferred / Inactive Number Counts	24,026	24,469	87	8	306	6	48,902	50,246	-2.7%
6. Total Number Counts	214,062	188,172	3,995	773	5,207	188	412,397	408,596	0.9%
B. Assets									
1. Market Value (MV)	\$ 33,215	\$ 18,218	\$ 1,536	\$ 497	\$ 1,087	\$ 32	\$ 54,586	\$ 53,943	1.2%
2. Rate of Return on MV ³							3.50 %	6.42 %	
3. Actuarial Value (AV)	\$ 34,229	\$ 18,770	\$ 1,582	\$ 512	\$ 1,121	\$ 33	\$ 56,247	\$ 54,362	3.5%
4. Rate of Return on AV							5.78 %	5.67 %	
5. Ratio of AV to MV							103.0%	100.8%	
C. Actuarial Results									
1. Normal Cost as a % of Payroll	11.17%	9.97%	32.57%	37.52%	23.22%	12.92%	11.23%	11.37%	
2. Actuarial Accrued Liability (AAL)									
a. Active	\$ 18,124	\$ 9,294	\$ 552	\$ 178	\$ 569	\$ 21	\$ 28,738	\$ 27,872	3.1%
b. Retired	25,156	16,911	1,796	407	1,094	18	45,382	44,420	2.2%
c. Deferred/Inactive	1,177	1,118	15	4	37	0	2,351	2,235	5.2%
d. Total	\$ 44,457	\$ 27,323	\$ 2,363	\$ 589	\$ 1,700	\$ 39	\$ 76,471	\$ 74,526	2.6%
3. Unfunded AAL (UAAL)	\$ 10,228	\$ 8,554	\$ 780	\$ 77	\$ 580	\$ 6	\$ 20,224	\$ 20,164	0.3%
4. Funded Ratio	76.99 %	68.69 %	66.97 %	86.89 %	65.91 %	85.79 %	73.55 %	72.94 %	
D. Contribution Rates⁴									
	STATE PORTION ONLY								
	FY 2022						FY 2021	FY 2020	
	TCS	ECS	State			Total	Total	Total	
			Police	Judges	LEOPS				
1. Pension Contributions									
a. Employer Normal Cost	4.17%	3.60%	24.71%	30.53%	16.46%	4.47%	4.61%	4.65%	
b. Member Contribution Rate	7.00%	6.74%	7.86%	6.99%	6.93%	6.93%	6.93%	6.93%	
c. UAAL Contribution Rate	<u>10.50%</u>	<u>16.90%</u>	<u>50.59%</u>	<u>11.39%</u>	<u>25.82%</u>	<u>13.03%</u>	<u>13.14%</u>	<u>13.17%</u>	
d. Total	21.67%	27.24%	83.16%	48.91%	49.21%	24.43%	24.68%	24.75%	
2. Total Actuarial Employer Rate (1.a + 1.c)	14.67%	20.50%	75.30%	41.92%	42.28%	17.50%	17.75%	17.82%	
3. Total Employer Budgeted Rate									
a. Employer Budgeted Rate	14.67%	20.50%	75.30%	41.92%	42.28%	17.50%	17.75%	17.82%	
b. Reinvested Savings Rate	<u>0.66%</u>	<u>0.62%</u>	<u>0.86%</u>	<u>0.00%</u>	<u>0.90%</u>	<u>0.68%</u>	<u>0.71%</u>	<u>0.72%</u>	
c. Total Employer Budgeted Rate	15.33%	21.12%	76.16%	41.92%	43.18%	18.18%	18.46%	18.54%	

¹ Includes CORS Municipal only. State CORS included in ECS.

² Retiree benefit amounts include the cost-of-living adjustment granted July 1, 2020 and July 1, 2019, respectively.

³ Actuarial estimation method used is expected to produce results that differ modestly from figures reported by the System.

⁴ Contribution rates shown in the "Total" column are for informational purposes only and are not used for funding purposes.

Totals may not add due to rounding.



Actuary's Comments

For the year ended June 30, 2020, the System's assets earned **3.50%** based on our estimate and **3.57%** as reported by the System (using a slightly different computation method) on a market value basis and **5.78%** on a smoothed or actuarial value basis. The smoothed rate of return is less than the 7.40% assumed rate of investment return. Recognized asset losses from fiscal years 2016, 2019, and 2020 offset recognized asset gains from fiscal years 2017 and 2018 in the actuarial value of assets as of June 30, 2020. This resulted in a loss under the asset smoothing method.

UAAL and Actuarial Gain/(Loss) (\$ in Millions)

	Municipal	State	Total SRPS
Unfunded Actuarial Accrued Liability (UAAL) as of June 30, 2019	\$ 1,111	\$ 19,053	\$ 20,164
Expected UAAL as of June 30, 2020 before changes	1,112	18,915	20,027
Changes in benefit provisions	(0)	(0)	(0)
Changes in methods and assumptions	-	-	-
Expected UAAL as of June 30, 2020 after changes	1,112	18,915	20,027
Actual UAAL as of June 30, 2020	1,120	19,104	20,224
Net actuarial gain/(loss)	(8)	(189)	(197)
Actuarial gain/(loss) by source			
Actuarial investment experience	(75)	(794)	(869)
Actuarial accrued liability experience	67	605	672

Totals may not add due to rounding.

In relative terms, the overall System funded ratio of actuarial value of assets to liabilities increased from 72.94% in 2019 to **73.55%** this year. If market value of assets were the basis for the measurements, the funded ratio would have decreased from 72.38% to 71.38% funded.

The market value of assets exceeds the retiree liabilities by about 20% in total (or 1.0% if accumulated member contributions of about \$8.8 billion are netted out), a decrease from 21% last year. This is referred to as a short condition test and is demonstrated in the chart at the bottom of this page. It is looking at the current retiree liabilities as the benefits that will be paid the soonest since these benefits are already in pay status. Active liabilities and deferred vested liabilities do not have associated immediate cash flow requirements. Although the market value of assets exceeds the current retiree liabilities in total, this is not true for all of the systems individually. For State Police and LEOPS, the market value of assets is less than the retiree liabilities.

(\$ in Millions)

Short Condition Test	TCS	ECS	State Police	Judges	LEOPS	CORS	Total
Market Value of Assets (MVA)	\$ 33,215	\$ 18,218	\$ 1,536	\$ 497	\$ 1,087	\$ 32	\$ 54,586
Retiree Liability	25,156	16,911	1,796	407	1,094	18	45,382
MVA as % of Retiree Liability	132%	108%	86%	122%	99%	183%	120%



Actuary's Comments

In 2020, the General Assembly passed legislation so that members of the State Police Retirement System and LEOPS cease making member contributions once the member reaches the maximum benefit percentage (28 years of service for State Police and 32.5 years of service for LEOPS). This legislation decreased the actuarial accrued liability by \$49 thousand for State Police, \$27 thousand for LEOPS State and \$18 thousand for LEOPS Municipal. However, the Employer Contribution Rates increased by 0.15% for State Police, 0.07% for LEOPS State and 0.11% for LEOPS Municipal due to the corresponding decrease in the weighted average member contribution rate.

In the 2013 legislative session, the Legislature changed the method used to fund the State Systems of the MSRPS. The unfunded liability for each State System is being amortized over a single closed 25-year period beginning July 1, 2014 and ending June 30, 2039 (18 years remaining as of the June 30, 2020 valuation, which determines the fiscal year 2022 contribution). In addition, the corridor method used by the Teachers' Combined System and the State portion of the Employees' Combined System, which was established in 2001, was being phased-out over a 10-year period. In 2015, the Legislature removed the corridor funding method effective with the June 30, 2015 valuation.

The Teachers' Combined System (TCS) remained out of the corridor since the June 30, 2005 valuation and the State portion of the Employees Combined System (ECS) remained out of the corridor since the June 30, 2004 valuation resulting in contribution rates for TCS and ECS that were less than actuarial rates. With the elimination of the corridor effective with the June 30, 2015 valuation report, TCS and ECS began to contribute based on the actuarially determined rate beginning in fiscal year 2017.

Beginning in fiscal year 2012, employers pay a per-member fee to cover the Retirement Agency's operating expenses (i.e., administrative expenses). The State pays the fee for libraries.

In 2011, the General Assembly enacted pension reforms which were effective July 1, 2011, and affected both current actives and new hires. The member contribution rate was increased for members of the Teachers' Pension System and Employees' Pension System from 5% to 7%. The member contribution rate was increased from 4% to 7% for LEOPS. In addition, the benefit attributable to service on or after July 1, 2011 is subject to cost-of-living adjustments (COLAs) that are based on the increase in the Consumer Price Index and capped at 2.5% or 1.0%. The cap is 2.5% if market value investment return from the preceding calendar year was higher or lower than the investment return assumption used in the valuation (currently 7.40%), and 1.0% otherwise. There were also reforms that affected only those members hired on or after July 1, 2011.

In addition to the benefit provision changes, a portion of the savings from the pension reforms is to be reinvested in certain State Systems (TCS, ECS, State Police, and LEOPS). Reinvested savings of \$191 million was contributed in fiscal year 2013. Legislation enacted in 2014 changed the amount of reinvested savings from \$300 million each year beginning in fiscal year 2014 to \$100 million each year for fiscal years 2014 and 2015, \$150 million for fiscal year 2016, \$200 million for fiscal year 2017, \$250 million for fiscal year 2018, \$300 million each year beginning in fiscal year 2019 and thereafter. The \$300 million would then continue until the later of the combined funded ratio of the Systems reaching 85%, and the corridor funding method being fully phased-out. Legislation enacted in 2015 further reduced the amount of reinvested savings to \$75 million per year beginning in fiscal year 2016 until the combined funded ratio of the Systems reaches 85% at which point the reinvestment ceases. The allocation of reinvested savings by System is in proportion to the savings from the pension reforms as measured in the actuarial valuation as of June 30, 2011.

At the time of this writing, it is not certain that the State will contribute the \$75 million in fiscal year 2021. The figures in this report have been adjusted accordingly.



Actuary's Comments

The actuarially determined rates are equal to the employer normal cost plus the Unfunded Actuarial Accrued Liability contribution rate. The unfunded actuarial contribution rate is equal to the payment resulting from amortizing the remaining unfunded liability as a level percentage of pay over a single 25-year closed period beginning July 1, 2014 and ending June 30, 2039 (18 years remaining as of the June 30, 2020 valuation). The utilization of the 25-year closed period will lead to greater volatility as the period shortens and will eventually need modification to manage contribution volatility. Each year after the current funding policy's adoption, we reminded the Board and the Joint Committee on Pensions (JCP) of this eventuality. We recommend reviewing the current funding policy and making the needed modifications during 2021, if possible, or very shortly thereafter.

The fiscal year 2022 budgeted rates for TCS, ECS, State Police, and LEOPS are equal to the actuarially determined rate. The budgeted rates with reinvested savings are based on a projection of payroll. It is our understanding that the Retirement Agency will monitor contributions to ensure that the System receives the proper amount of reinvested dollar savings during fiscal year 2022. The fiscal year 2022 budgeted rate for Judges is equal to the actuarially determined contribution rate.

Beginning in fiscal year 2013, local employers contributed toward the normal cost for the Teachers Combined System. The required portion of normal cost contribution amounts for local employers for fiscal years 2013 through 2016 was defined by the Maryland statutes. Beginning in fiscal year 2017, local employers contribute the full normal cost contribution on behalf of their employees.

The schedules required under Government Accounting Standards Board (GASB) Statement No. 67 (beginning with fiscal year 2014) and No. 68 (beginning with fiscal year 2015) are provided in a separate report.

Other Observations

General Implications of Contribution Allocation Procedure or Funding Policy on Future Expected System Contributions and Funded Status

Given the System's contribution allocation procedure, if all actuarial assumptions are met (including the assumption of the System earning 7.40% on the actuarial value of assets), it is expected that:

- (1) The employer normal cost as a percentage of pay will decrease to the level of the Reformed Benefit Plan's (i.e., plans for members hired after July 1, 2011) normal cost as time passes and the active population is comprised entirely of Reformed Plan members,
- (2) The unfunded actuarial accrued liabilities will be fully amortized after 18 years (June 30, 2039), and
- (3) The funded status of the plan will increase gradually towards a 100% funded ratio.

Limitations of Funded Status Measurements

Unless otherwise indicated, a funded status measurement presented in this report is based upon the Actuarial Accrued Liability and the actuarial value of assets. Unless otherwise indicated, with regard to any funded status measurements presented in this report:

- (1) The measurement is inappropriate for assessing the sufficiency of System assets to cover the estimated cost of settling the System's benefit obligations, for example, transferring the liability to an unrelated third party in a free market type transaction.
- (2) The measurement is dependent upon the actuarial cost method which, in combination with the System's amortization policy, affects the timing and amounts of future contributions. The amounts of future contributions will most certainly differ from those assumed in this report due to future actual experience differing from assumed experience based upon the actuarial assumptions. A funded status measurement in this report of 100% is not synonymous with no required future contributions. If the funded status were 100%, the System would still require future normal cost contributions (i.e., contributions to cover the cost of the active membership accruing an additional year of service credit).
- (3) The measurement would produce a different result if the market value of assets were used instead of the actuarial value of assets, unless the market value of assets is used in the measurement.

Prior Year Asset Experience

ASSETS (STATE AND MUNICIPAL)

Plan assets for this System are measured on both a market value and an actuarial or smoothed value basis. The actuarial smoothing method, described again on page Appendix A-16, annually recognizes 20% of the difference between (a) the expected investment return if the market value of assets had earned the assumed rate of 7.40% during FY 2020, and (b) the actual investment return. Bear in mind that the expected return for this purpose is based on the assumed return from the prior year's actuarial valuation. In addition, there is a market value collar that constrains the actuarial value to be within 20% of the market value of assets. In periods of high returns, this method defers the amount of asset gains above the assumed return (7.40%). Conversely, in periods of returns below the assumed rate, recognition of the losses is deferred. This method limits the effect of temporary asset value fluctuations on contribution rates. The System does not immediately feel the full impact of lower (or higher) costs when asset values fluctuate dramatically.

For the year ended June 30, 2020, the System's assets earned **3.50%** based on our estimate and **3.57%** as reported by the System (using a slightly different computation method) on a market value basis and **5.78%** on an actuarial value basis. The System experienced an investment loss of **\$2.1 billion** on a market value basis and a loss of **\$869 million** on an actuarial basis. More detail can be found in Section III. Reconciliations of market value and actuarial value of assets are presented below:

(STATE AND MUNICIPAL)
(\$ in Millions)

	Market Value	Actuarial Value
June 30, 2019 Value	\$ 53,943	\$ 54,362
Employer Contributions	2,144	2,144
Member Contributions	850	850
Benefit Payments and Other Disbursements	(4,219)	(4,219)
Expected Investment Earnings (7.40% in FY2020)	3,947	3,978
Expected Value June 30, 2020	\$ 56,667	\$ 57,116
Investment Gain/(Loss)	(2,081)	(869)
June 30, 2020 Value	\$ 54,586	\$ 56,247

Figures may not add exactly due to rounding



Trends (State and Municipal)

One of the best ways to measure or evaluate the financial condition of a pension plan is to examine the historical trends that are evolving. Below are three charts which illustrate trend information from 1993 through the end of 2020, on the System's assets and liabilities, annual cash flows in and out of the fund, and the State contribution rate. Our comments on each follow.

Chart A: Assets/Liabilities

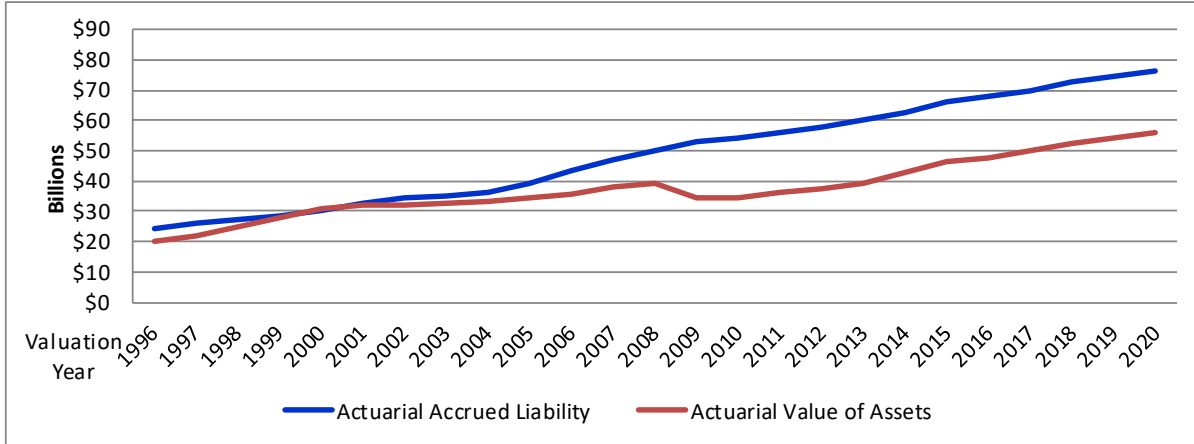


Chart B: Benefits vs. Contributions

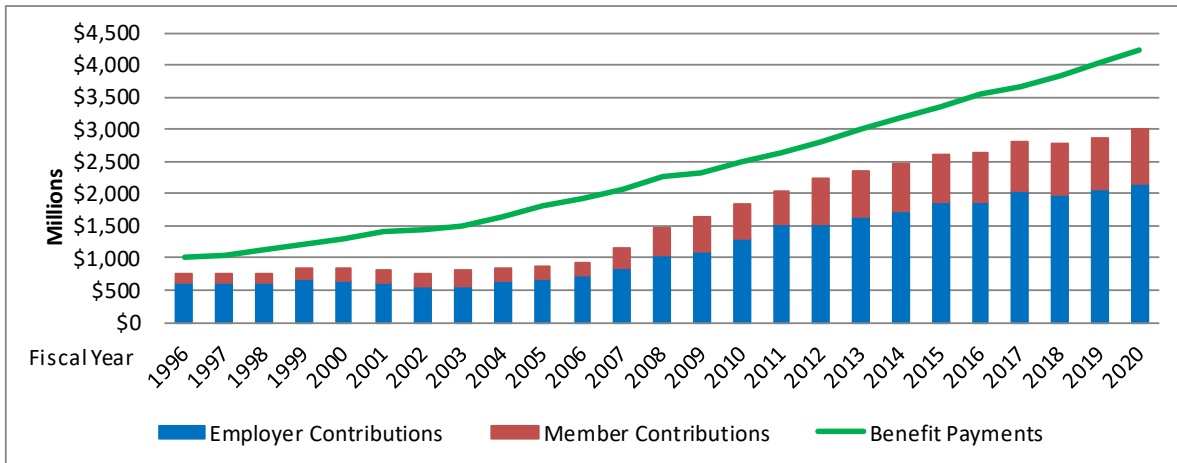
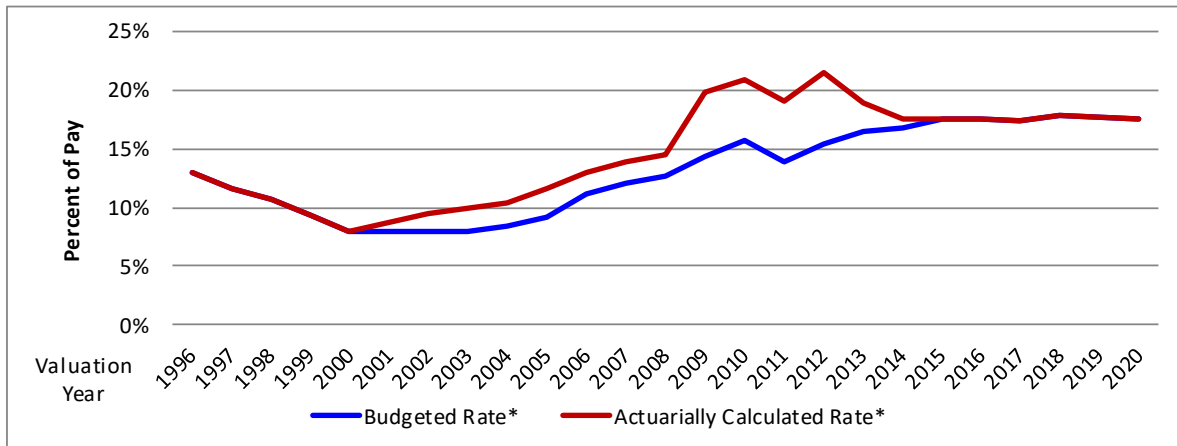


Chart C: State Contribution Rate



* Excludes reinvested savings in valuation years after 2010. 2010 rates are prior to the 2011 GA Reforms.



Trends (State and Municipal)

Chart A displays a comparison of the actuarial value of assets and the Actuarial Accrued Liability (AAL). The difference between the actuarial value of assets and the AAL is the Unfunded Actuarial Accrued Liability. The Unfunded Actuarial Accrued Liability is about \$20 billion as of June 30, 2020, and increased by about \$60 million since the last valuation as of June 30, 2019. As of June 30, 2020, the actuarial value of assets under the five-year asset smoothing method is 103% of the market value of assets, compared with 101% as of June 30, 2019.

Chart B presents non-investment cash flow trend information that can have investment implications. With the aging and retirements of the baby boom generation, MSRPS has seen increases in payments to retirees. This is expected for mature retirement systems such as MSRPS. Benefit payments, which are the total amount below the green line, exceeds the total contributions, which is the total amount below the top of the red bar. The amount needed to pay the excess of benefit payments over total contributions comes from either investment return or liquidation of current assets. If the difference between the total benefit payments and total contributions increases, a larger portion of investment return will be needed to pay benefits and may require a change in asset allocation. The corridor method increased the extent of negative cash flows. The corridor funding method was eliminated first effective with the June 30, 2015 valuation. The budgeted rates have been equal to the actuarial rates since fiscal year 2017.

Finally, Chart C looks at the composite actuarially determined and budgeted State contribution rates. The budgeted contribution rates by System determine the fiscal year State appropriation. It shows the impact of the 1990s sustained investment gains and a continuous lowering of the rate until 2000. Effective with the 2001 valuation, the State appropriations were performed under a corridor funding method for the two largest plans, TCS and ECS. The appropriation remained essentially level for a few years before increasing with the 2004 valuation. Legislation enacted in 2015 removed the corridor funding method for TCS and ECS beginning with the valuation as of June 30, 2015. The budgeted rate is now equal to the actuarial rate for TCS and ECS.

Chart C further illustrates that the corridor method consistently acted to reduce the State's contributions calculated in valuations between 2001 and 2015.

SECTION II

VALUATION RESULTS

State Systems (Excludes Municipalities) Valuation Results

The combined State System's (excluding PGU's) Unfunded Actuarial Accrued Liability increased by \$51 million, from \$19,053 million as of June 30, 2019, to \$19,104 million as of June 30, 2020. There was an expected decrease in the Unfunded Actuarial Accrued Liability of \$138 million, if all actuarial assumptions had been realized. The unfunded liability is expected to decline under the current amortization policy

There was an increase in the Unfunded Actuarial Accrued Liability of \$189 million due to unfavorable plan experience. The net loss due to plan experience of \$189 million is comprised of demographic gains on the liabilities of \$605 million and an asset loss (on the actuarial value of assets) of \$794 million. There was a decrease in the Unfunded Actuarial Accrued Liability of approximately \$76 thousand due to changes in benefit provisions.

The combined State System's market value of assets earned 3.50%¹ for the year ended June 30, 2020, which is less than the 7.40% assumed rate of investment return. The actuarial, or smoothed, rate of return measured from this past year was 5.78%, which fell short of the assumed rate of return on the actuarial value of assets, producing an asset loss. Partial recognition of asset gains from FY 2017 and 2018 combined with losses from FY 2016, 2019 and 2020 were recognized in the actuarial value of assets as of June 30, 2020, under the asset smoothing method, resulting in a recognized asset loss of \$794 million. Reconciliations of market value and actuarial value of assets are presented below:

**(STATE Only)
(\$ in Millions)**

	Market Value	Actuarial Value
June 30, 2019 Value	\$ 49,221	\$ 49,604
Employer Contributions	2,008	2,008
Member Contributions	777	777
Benefit Payments and Other Disbursements	(3,920)	(3,920)
Expected Investment Earnings (7.40% in FY2020)	3,601	3,629
Expected Value June 30, 2020	\$ 51,687	\$ 52,098
Investment Gain/(Loss)	(1,898)	(794)
June 30, 2020 Value	\$ 49,789	\$ 51,305

Figures may not add exactly due to rounding

Liability experience was favorable overall in part due to lower than assumed retiree COLA increases. COLA increases of 1.81% were granted to eligible retirees who have a COLA cap of 3.00%, 5.00%, and no COLA cap compared to the actuarial assumptions of 2.19%, 2.57%, and 2.60%, respectively. A COLA increase of 1.81% was granted to benefits with the reformed cap compared to the actuarial assumption 1.42%, however reformed benefits constitute only approximately 8% of the total retiree liability.

Actual increases in individual salaries that were greater than assumed contributed to losses on active liabilities for each System. However, there were experience gains on active member liabilities other than salary experience that partially offset the losses due to salary increases.

¹ The actuarially computed rate of return, excluding municipalities.



State Systems (Excludes Municipalities)

Valuation Results

The combined State System funded ratio increased from 72.2% at June 30, 2019 to 72.9% at June 30, 2020.

The actuarially determined contribution rates decreased for each System, except Judges, from those calculated in the June 30, 2019 valuation to those calculated in the June 30, 2020 valuation, which determines the FY 2021 and FY 2022 contributions, respectively.

A reconciliation of the actuarial contribution rate (excluding reinvested savings) is shown below:

	(STATE ONLY)					
	Teachers' Combined System	Employees' Combined System	State Police	Judges	LEOPS	Total
FY 2021 Actuarial Contribution Rate	14.96%	20.71%	78.09%	40.27%	42.96%	17.75%
Change due to Investment Return	0.55%	0.51%	1.65%	1.20%	0.74%	0.55%
Change due to Demographic and Non-Inv. Exp.	-0.52%	-0.21%	-1.07%	0.78%	-0.23%	-0.42%
Change due to Benefit Provisions	0.00%	0.00%	0.15%	0.00%	0.08%	0.00%
Change due to Total Payroll Experience	-0.17%	-0.34%	-2.74%	-0.32%	-1.04%	-0.24%
Change due to Other	<u>-0.15%</u>	<u>-0.17%</u>	<u>-0.79%</u>	<u>-0.01%</u>	<u>-0.23%</u>	<u>-0.14%</u>
FY 2022 Actuarial Contribution Rate	14.67%	20.50%	75.30%	41.92%	42.28%	17.50%

Totals may not add due to rounding.

Each System saw an increase in the contribution rates due to unfavorable investment experience. Demographic experience was overall favorable for the System, with only Judges seeing increases due to liability losses while the other Systems saw decreases.

The normal cost rate decreased slightly for most Systems as a result of more active members being covered under the benefit provisions of the reformed benefit plans.

In addition, the increase in total payroll was different than expected under the actuarial assumptions (3.10% in FY 2020) for all the State Systems. Total payroll increased by 4.8% for TCS, 5.2% for ECS, 8.7% for State Police, 6.0% for Judges and 7.3% for LEOPS. Total payroll growth that was greater than assumed puts downward pressure on the contribution rates because the unfunded liability contribution is spread over a larger payroll base. The opposite is true when payroll grows less than assumed.

Funded ratios are expected to progress toward 100% at a slightly lower rate than a static amortization schedule of the current unfunded actuarial accrued liabilities as the deferred investment losses from FY 2019 and FY 2020 are recognized in the actuarial value of assets.



Summary of Valuation Results by System as of June 30, 2020 (State and Municipal)

State Sponsored Plans	Employees				LEOPS	Total State*
	Teachers	(State)	State Police	Judges	(State)	
Actuarial Liability - Active Members	\$ 18,124,076,710	\$ 7,091,097,003	\$ 552,058,572	\$ 178,164,748	\$ 353,053,786	\$ 26,298,450,819
Actuarial Liability - Retirees, Term. Vested, & Inactives	<u>26,332,452,447</u>	<u>14,722,190,707</u>	<u>1,810,684,976</u>	<u>411,134,402</u>	<u>833,758,955</u>	<u>44,110,221,487</u>
Total Actuarial Liability	\$ 44,456,529,157	\$ 21,813,287,710	\$ 2,362,743,548	\$ 589,299,150	\$ 1,186,812,741	\$ 70,408,672,306
Actuarial Value of Assets	<u>34,228,754,250</u>	<u>14,212,473,119</u>	<u>1,582,378,203</u>	<u>512,036,244</u>	<u>768,901,216</u>	<u>51,304,543,031</u>
Unfunded Actuarial Accrued Liability (UAAL)	10,227,774,907	7,600,814,591	780,365,345	77,262,906	417,911,525	19,104,129,275
Funded Ratio	76.99%	65.16%	66.97%	86.89%	64.79%	72.87%
Active Member Payroll	\$ 7,492,465,097	\$ 3,399,919,227	\$ 116,274,059	\$ 51,882,186	\$ 122,266,528	\$ 11,182,807,097
UAAL as a Percent-of-Payroll	136.5%	223.6%	671.1%	148.9%	341.8%	170.8%
<i>Before Reinvested Savings</i>						
Employer Normal Cost Contribution	4.17%	3.60%	24.71%	30.53%	16.46%	4.47%
UAAL Contribution	<u>10.50%</u>	<u>16.90%</u>	<u>50.59%</u>	<u>11.39%</u>	<u>25.82%</u>	<u>13.03%</u>
Total Employer Contribution Without Reinvested Savings	14.67%	20.50%	75.30%	41.92%	42.28%	17.50%
<i>After Reinvested Savings</i>						
Total Employer Contribution Without Reinvested Savings	14.67%	20.50%	75.30%	41.92%	42.28%	17.50%
Reinvested Savings Rate	<u>0.66%</u>	<u>0.62%</u>	<u>0.86%</u>	<u>0.00%</u>	<u>0.90%</u>	<u>0.68%</u>
Total Employer Contribution With Reinvested Savings	15.33%	21.12%	76.16%	41.92%	43.18%	18.18%

Municipal Plans	Employees	LEOPS	CORS	Total Municipal
	(Municipal)	(Municipal)	(Municipal)	
Actuarial Liability - Active Members	\$ 2,203,256,993	\$ 215,582,163	\$ 20,784,278	\$ 2,439,623,434
Actuarial Liability - Retirees, Term. Vested, & Inactives	<u>3,306,914,232</u>	<u>297,705,873</u>	<u>18,119,572</u>	<u>3,622,739,677</u>
Total Actuarial Liability	\$ 5,510,171,225	\$ 513,288,036	\$ 38,903,850	\$ 6,062,363,111
Actuarial Value of Assets	<u>4,557,369,878</u>	<u>351,605,379</u>	<u>33,375,701</u>	<u>4,942,350,958</u>
Unfunded Actuarial Accrued Liability (UAAL)	952,801,347	161,682,657	5,528,149	1,120,012,153
Funded Ratio	82.71%	68.50%	85.79%	81.53%
Active Member Payroll	\$ 1,238,277,518	\$ 72,400,262	\$ 7,937,330	\$ 1,318,615,110
UAAL as a Percent-of-Payroll	76.9%	223.3%	69.6%	84.9%

State and Municipal Sponsored Plans	Teachers	Employees	State Police	Judges	LEOPS	CORS	Total SRPS
Actuarial Liability - Active Members	\$ 18,124,076,710	\$ 9,294,353,996	\$ 552,058,572	\$ 178,164,748	\$ 568,635,949	\$ 20,784,278	\$ 28,738,074,253
Actuarial Liability - Retirees, Term. Vested, & Inactives	<u>26,332,452,447</u>	<u>18,029,104,939</u>	<u>1,810,684,976</u>	<u>411,134,402</u>	<u>1,131,464,828</u>	<u>18,119,572</u>	<u>47,732,961,164</u>
Total Actuarial Liability	\$ 44,456,529,157	\$ 27,323,458,935	\$ 2,362,743,548	\$ 589,299,150	\$ 1,700,100,777	\$ 38,903,850	\$ 76,471,035,417
Actuarial Value of Assets	<u>34,228,754,250</u>	<u>18,769,842,997</u>	<u>1,582,378,203</u>	<u>512,036,244</u>	<u>1,120,506,595</u>	<u>33,375,701</u>	<u>56,246,893,989</u>
Unfunded Actuarial Accrued Liability (UAAL)	10,227,774,907	8,553,615,938	780,365,345	77,262,906	579,594,182	5,528,149	20,224,141,428
Funded Ratio	76.99%	68.69%	66.97%	86.89%	65.91%	85.79%	73.55%
Active Member Payroll	\$ 7,492,465,097	\$ 4,638,196,745	\$ 116,274,059	\$ 51,882,186	\$ 194,666,790	\$ 7,937,330	\$ 12,501,422,207
UAAL as a Percent-of-Payroll	136.5%	184.4%	671.1%	148.9%	297.7%	69.6%	161.8%

* Contribution rates shown in the "Total" column are for informational purposes only and are not used for funding purposes.



Calculation of State Contribution Rates and Illustrated State Contributions (Including Reinvested Savings)

	Teachers	Employees (State)	State Police	Judges	LEOPS (State)	Total State
Percentage of Total Pension Reform Savings*	67.7%	29.4%	1.4%	0.0%	1.5%	100.0%
Reinvested Savings	\$ 50,772,568	\$ 22,019,803	\$ 1,050,207	\$ -	\$ 1,157,423	\$ 75,000,000
FY 2022 Contributions						
Employer Normal Cost Contribution	4.17%	3.60%	24.71%	30.53%	16.46%	4.47%
UAAL Contribution	10.50%	16.90%	50.59%	11.39%	25.82%	13.03%
Total Actuarial Employer Contribution	14.67%	20.50%	75.30%	41.92%	42.28%	17.50%
Total Employer Contribution	14.67%	20.50%	75.30%	41.92%	42.28%	17.50%
Reinvested Saving Rate	0.66%	0.62%	0.86%	0.00%	0.90%	0.68%
Estimated Total Employer Contribution	15.33%	21.12%	76.16%	41.92%	43.18%	18.18%
Projected Payroll	\$ 7,724,731,515	\$ 3,559,234,459	\$ 121,722,491	\$ 54,313,309	\$ 127,995,758	\$ 11,587,997,532
Illustrated Contribution Dollars						
Local Employers' Portion	\$ 296,510,845					\$ 296,510,845
State Portion	836,707,268	\$ 729,643,064	\$ 91,657,036	\$ 22,768,139	\$ 54,116,606	1,734,892,113
Dollar Reinvested Savings	50,772,568	22,019,803	1,050,207	-	1,157,423	75,000,000
Total Illustrated Contribution Dollars	\$ 1,183,990,681	\$ 751,662,867	\$ 92,707,243	\$ 22,768,139	\$ 55,274,029	\$ 2,106,402,958

*Reinvested savings allocated among the State systems based on their proportionate share of the total savings measured as of June 30, 2011. The allocation percentages do not change.



Summary of State Contributions – Including Reinvested Savings (State Portion Only)

		Teachers' Combined	Employees' Combined	State Police	Judges	LEOPS	Total State#
7/1/2020 Valuation Results (FY 2022)	Unfunded Actuarial Liability	\$ 10,227,774,907	\$ 7,600,814,591	\$ 780,365,345	\$ 77,262,906	\$ 417,911,525	\$ 19,104,129,275
	Illustrated Contribution Dollars	\$ 1,183,990,681	\$ 751,662,867	\$ 92,707,243	\$ 22,768,139	\$ 55,274,029	\$ 2,106,402,958
	Local Employers' Portion	296,510,845	NA	NA	NA	NA	\$ 296,510,845
	State Portion	\$ 887,479,836	\$ 751,662,867	\$ 92,707,243	\$ 22,768,139	\$ 55,274,029	\$ 1,809,892,113
	Projected Payroll	\$ 7,724,731,515	\$ 3,559,234,459	\$ 121,722,491	\$ 54,313,309	\$ 127,995,758	\$ 11,587,997,532
	Total Contributions as Percentage of Payroll	15.33%	21.12%	76.16%	41.92%	43.18%	18.18%
7/1/2019 Valuation Results (FY 2021)	Unfunded Actuarial Liability	\$ 10,312,091,499	\$ 7,486,746,558	\$ 778,694,166	\$ 66,272,411	\$ 409,100,034	\$ 19,052,904,669
	Illustrated Contribution Dollars	\$ 1,154,043,905	\$ 722,737,565	\$ 88,503,745	\$ 20,629,440	\$ 52,418,414	\$ 2,038,333,068
	Local Employers' Portion	293,844,577	NA	NA	NA	NA	\$ 293,844,577
	State Portion	\$ 860,199,328	\$ 722,737,565	\$ 88,503,745	\$ 20,629,440	\$ 52,418,414	\$ 1,744,488,491
	Projected Payroll	\$ 7,374,808,400	\$ 3,383,475,434	\$ 111,990,700	\$ 51,227,813	\$ 119,322,605	\$ 11,040,824,952
	Total Contributions as Percentage of Payroll	15.65%	21.36%	79.03%	40.27%	43.93%	18.46%

Contribution rates shown in the "Total" column are for informational purposes only and are not used for funding purposes.



State Budgeted Contribution Rates by System for the Fiscal Years 2007 to 2022 (State Portion Only)

Valuation Date June 30,	Fiscal Year	Teachers' Combined	Employees' Combined	State Police	Judges	LEOPS	Total State*
2020	2022 @	15.33%	21.12%	76.16%	41.92%	43.18%	18.18%
2020	2022 #	14.67%	20.50%	75.30%	41.92%	42.28%	17.50%
2019	2021 @	15.65%	21.36%	79.03%	40.27%	43.93%	18.46%
2019	2021 #	14.96%	20.71%	78.09%	40.27%	42.96%	17.75%
2018	2020 @	16.30%	20.22%	80.58%	44.44%	42.40%	18.54%
2018	2020 #	15.59%	19.56%	79.58%	44.44%	41.37%	17.82%
2017	2019 @	16.16%	19.23%	79.41%	44.53%	40.81%	18.15%
2017	2019 #	15.43%	18.58%	78.41%	44.53%	39.78%	17.42%
2016	2018 @	16.45%	19.22%	81.36%	46.45%	40.77%	18.34%
2016	2018 #	15.71%	18.56%	80.29%	46.45%	39.69%	17.60%
2015	2017 @	16.55%	18.93%	82.50%	46.56%	40.72%	18.32%
2015	2017 #	15.79%	18.28%	81.40%	46.56%	39.60%	17.58%
2014	2016 @^	16.49%	17.04%	80.08%	40.70%	40.95%	17.58%
2014	2016 @	17.27%	17.70%	81.24%	40.70%	42.14%	18.32%
2014	2016 #	15.71%	16.38%	78.91%	40.70%	39.77%	16.83%
2013	2015 @^	16.53%	16.45%	84.73%	42.74%	43.10%	17.44%
2013	2015 @	18.64%	18.30%	88.06%	42.74%	46.56%	19.48%
2013	2015 #	15.47%	15.53%	83.06%	42.74%	41.37%	16.41%
2012	2014 @	17.94%	16.84%	71.85%	50.92%	57.72%	18.54%
2012	2014 #	14.71%	14.05%	66.71%	50.92%	52.47%	15.43%
2011	2013 @	15.30%	14.05%	64.57%	61.18%	50.14%	15.80%
2011	2013 #	13.29%	12.29%	61.21%	61.18%	46.81%	13.85%
2010	2012	15.45%	13.40%	61.01%	60.37%	49.26%	15.67%
2009	2011	14.34%	11.69%	57.03%	59.07%	47.67%	14.33%
2008	2010	13.15%	9.93%	30.79%	48.89%	38.63%	12.62%
2007	2009	11.70%	8.73%	20.53%	43.61%	36.99%	11.14%
2006	2008	11.60%	8.86%	15.44%	44.12%	41.74%	11.10%
2005	2007	9.71%	6.83%	13.83%	42.43%	40.60%	9.18%

* Contribution rates shown in the "Total" column are for informational purposes only and are not used for funding purposes.

@ Includes effect of reinvested savings.

Excludes effect of reinvested savings.

^ Reflects the reduction of reinvested savings passed by the General Assembly from \$300 million to \$100 million for FY 2015 and from \$150 million to \$75 million beginning FY 2016.



Detailed Actuarial Information

Teachers' Combined System

	Actuarial Valuation Performed		% Change
	June 30, 2020 (for FY 2022)	June 30, 2019 (for FY 2021)	
A. Demographic Information			
1. Active Number Count	109,597	107,782	1.7%
2. Retired Member and Beneficiary Count	80,439	79,151	1.6%
3. Vested Former Member Count	24,026	24,474	-1.8%
4. Total Number Count	214,062	211,407	1.3%
5. Active Payroll	\$ 7,492,465,097	\$ 7,153,063,434	4.7%
6. Annual Benefits for Retired Members [#]	\$ 2,366,217,214	\$ 2,287,252,060	3.5%
B. Actuarial Results			
1. Present Value of Projected Benefits Attributable to:			
a. Retired and Disabled Members, and Beneficiaries	\$ 25,155,524,918	\$ 24,800,000,941	1.4%
b. Terminated Vested Members and Former Members Due Refunds of Employee Contributions	1,176,927,529	1,103,856,547	6.6%
c. Active Members	26,203,348,265	25,315,356,005	3.5%
d. Total Present Value	\$ 52,535,800,712	\$ 51,219,213,493	2.6%
2. Less Present Value Total Future Normal Costs	8,079,271,555	7,846,776,249	3.0%
3. Actuarial Accrued Liability (1d – 2)	\$ 44,456,529,157	\$ 43,372,437,244	2.5%
4. Less Actuarial Value of Assets	34,228,754,250	33,060,345,745	3.5%
5. Unfunded Actuarial Accrued Liability (UAAL) (3 - 4)	\$ 10,227,774,907	\$ 10,312,091,499	-0.8%
6. Funded Ratio	76.99%	76.22%	
7. Employer Normal Cost	\$ 322,121,304	\$ 319,329,204	0.9%
8. Total Projected Payroll	\$ 7,724,731,515	\$ 7,374,808,400	4.7%
9. Total Normal Cost Rate	11.17%	11.33%	
10. Employee Contribution Rate	7.00%	7.00%	
11. Employers' [@] Normal Cost Rate	4.17%	4.33%	
12. UAAL Projected to Contribution Period	\$ 10,175,093,450	\$ 10,197,296,733	
13. Amortization Payment	\$ 810,757,350	\$ 783,649,581	
14. UAAL Amortization Rate*	10.50%	10.63%	
15. Total Actuarial Employer Contribution Rate (11 + 14)	14.67%	14.96%	
16. Estimated Employer Rate after Reinvestment of Savings	15.33%	15.65%	

[#] Retiree benefit amounts include the cost-of-living adjustment granted July 1, 2020 and July 1, 2019, respectively.

[@] Employers include the State and local Boards of Education.

^{*} Includes the effects of the one-year lag between the valuation date and the beginning of the contribution period.



Detailed Actuarial Information

Employees' Combined System (State)

	Actuarial Valuation Performed		% Change
	June 30, 2020 (for FY 2022)	June 30, 2019 (for FY 2021)	
A. Demographic Information			
1. Active Number Count	56,734	56,432	0.5%
2. Retired Member and Beneficiary Count	63,054	61,972	1.7%
3. Vested Former Member Count	18,258	18,961	-3.7%
4. Total Number Count	138,046	137,365	0.5%
5. Active Payroll	\$ 3,399,919,227	\$ 3,232,027,368	5.2%
6. Annual Benefits for Retired Members [#]	\$ 1,236,504,947	\$ 1,179,587,395	4.8%
B. Actuarial Results			
1. Present Value of Projected Benefits Attributable to:			
a. Retired and Disabled Members, and Beneficiaries	\$ 13,837,988,849	\$ 13,410,448,332	3.2%
b. Terminated Vested Members and Former Members Due Refunds of Employee Contributions	884,201,858	857,923,385	3.1%
c. Active Members	9,715,758,342	9,537,761,424	1.9%
d. Total Present Value	\$ 24,437,949,049	\$ 23,806,133,141	2.7%
2. Less Present Value Total Future Normal Costs	2,624,661,339	2,523,034,512	4.0%
3. Actuarial Accrued Liability (1d - 2)	\$ 21,813,287,710	\$ 21,283,098,629	2.5%
4. Less Actuarial Value of Assets	14,212,473,119	13,796,352,071	3.0%
5. Unfunded Actuarial Accrued Liability (UAAL) (3 - 4)	\$ 7,600,814,591	\$ 7,486,746,558	1.5%
a. Less Present Value of Special Liability Payments ^{**}	0	7,025,988	-100.0%
b. State Portion of UAAL (5 - 6)	7,600,814,591	7,479,720,570	1.6%
6. Funded Ratio	65.16%	64.82%	
7. Employer Normal Cost	\$ 124,279,768	\$ 122,737,130	1.3%
8. Total Projected Payroll	\$ 3,452,215,770	\$ 3,281,741,449	5.2%
9. Total Normal Cost Rate	10.34%	10.48%	
10. Employee Contribution Rate	6.74%	6.74%	
11. Employers' Normal Cost Rate	3.60%	3.74%	
12. UAAL Projected to Contribution Period	\$ 7,551,135,825	\$ 7,472,361,856	
13. Amortization Payment	\$ 601,678,884	\$ 574,241,722	
14. UAAL Amortization Rate [*]	16.90%	16.97%	
15. Total Actuarial Employer Contribution Rate (11 + 14)	20.50%	20.71%	
16. Estimated Employer Rate after Reinvestment of Savings	21.12%	21.36%	

^{**} For Municipalities that withdrew prior to 1996, and thus are part of the State pool.

^{*} Includes the effects of the one-year lag between the valuation date and the beginning of the contribution period.

[#] Retiree benefit amounts include the cost-of-living adjustment granted July 1, 2020 and July 1, 2019, respectively.



Detailed Actuarial Information

State Police

	Actuarial Valuation Performed		
	June 30, 2020 (for FY 2022)	June 30, 2019 (for FY 2021)	% Change
A. Demographic Information			
1. Active Number Count	1,391	1,364	2.0%
2. Retired Member and Beneficiary Count	2,517	2,505	0.5%
3. Vested Former Member Count	87	89	-2.2%
4. Total Number Count	3,995	3,958	0.9%
5. Active Payroll	\$ 116,274,059	\$ 106,977,874	8.7%
6. Annual Benefits for Retired Members [#]	\$ 131,773,601	\$ 128,577,798	2.5%
B. Actuarial Results			
1. Present Value of Projected Benefits Attributable to:			
a. Retired and Disabled Members, and Beneficiaries	\$ 1,796,059,592	\$ 1,780,278,894	0.9%
b. Terminated Vested Members and Former Members Due Refunds of Employee Contributions	14,625,384	13,238,270	10.5%
c. Active Members	868,208,694	804,310,830	7.9%
d. Total Present Value	\$ 2,678,893,670	\$ 2,597,827,994	3.1%
2. Less Present Value Total Future Normal Costs	316,150,122	296,895,264	6.5%
3. Actuarial Accrued Liability (1d – 2)	\$ 2,362,743,548	\$ 2,300,932,730	2.7%
4. Less Actuarial Value of Assets	1,582,378,203	1,522,238,564	4.0%
5. Unfunded Actuarial Accrued Liability (UAAL) (3 - 4)	\$ 780,365,345	\$ 778,694,166	0.2%
6. Funded Ratio	66.97%	66.16%	
7. Employer Normal Cost	\$ 29,173,257	\$ 27,144,982	7.5%
8. Total Projected Payroll	\$ 118,062,552	\$ 108,623,376	8.7%
9. Total Normal Cost Rate	32.57%	32.99%	
10. Employee Contribution Rate	7.86%	8.00%	
11. Employers' Normal Cost Rate	24.71%	24.99%	
12. UAAL Projected to Contribution Period	\$ 772,800,397	\$ 773,776,809	
13. Amortization Payment	\$ 61,577,184	\$ 59,463,786	
14. UAAL Amortization Rate*	50.59%	53.10%	
15. Total Actuarial Employer Contribution Rate (11 + 14)	75.30%	78.09%	
16. Estimated Employer Rate after Reinvestment of Savings	76.16%	79.03%	

* Includes the effects of the one-year lag between the valuation date and the beginning of the contribution period.

Retiree benefit amounts include the cost-of-living adjustment granted July 1, 2020 and July 1, 2019, respectively.



Detailed Actuarial Information

Judges

	Actuarial Valuation Performed		% Change
	June 30, 2020 (for FY 2022)	June 30, 2019 (for FY 2021)	
A. Demographic Information			
1. Active Number Count	324	315	2.9%
2. Retired Member and Beneficiary Count	441	431	2.3%
3. Vested Former Member Count	8	8	0.0%
4. Total Number Count	773	754	2.5%
5. Active Payroll	\$ 51,882,186	\$ 48,934,800	6.0%
6. Annual Benefits for Retired Members [#]	\$ 37,534,671	\$ 35,371,231	6.1%
B. Actuarial Results			
1. Present Value of Projected Benefits Attributable to:			
a. Retired and Disabled Members, and Beneficiaries	\$ 406,650,164	\$ 387,332,181	5.0%
b. Terminated Vested Members and Former Members Due Refunds of Employee Contributions	4,484,238	3,211,949	39.6%
c. Active Members	306,129,716	290,025,633	5.6%
d. Total Present Value	\$ 717,264,118	\$ 680,569,763	5.4%
2. Less Present Value Total Future Normal Costs	127,964,968	120,259,332	6.4%
3. Actuarial Accrued Liability (1d – 2)	\$ 589,299,150	\$ 560,310,431	5.2%
4. Less Actuarial Value of Assets	512,036,244	494,038,020	3.6%
5. Unfunded Actuarial Accrued Liability (UAAL) (3 - 4)	\$ 77,262,906	\$ 66,272,411	16.6%
6. Funded Ratio	86.89%	88.17%	
7. Employer Normal Cost	\$ 16,083,272	\$ 15,234,188	5.6%
8. Total Projected Payroll	\$ 52,680,222	\$ 49,687,500	6.0%
9. Total Normal Cost Rate	37.52%	37.39%	
10. Employee Contribution Rate	6.99%	6.73%	
11. Employers' Normal Cost Rate	30.53%	30.66%	
12. UAAL Projected to Contribution Period	\$ 77,662,847	\$ 64,080,816	
13. Amortization Payment	\$ 6,188,221	\$ 4,924,531	
14. UAAL Amortization Rate*	11.39%	9.61%	
15. Total Actuarial Employer Contribution Rate (11 + 14)	41.92%	40.27%	

*Includes the effects of the one-year lag between the valuation date and the beginning of the contribution period.

[#]Retiree benefit amounts include the cost-of-living adjustment granted July 1, 2020 and July 1, 2019, respectively.



Detailed Actuarial Information LEOPS (State)

	Actuarial Valuation Performed		
	June 30, 2020 (for FY 2022)	June 30, 2019 (for FY 2021)	% Change
A. Demographic Information			
1. Active Number Count	1,641	1,615	1.6%
2. Retired Member and Beneficiary Count	1,647	1,583	4.0%
3. Vested Former Member Count	186	188	-1.1%
4. Total Number Count	3,474	3,386	2.6%
5. Active Payroll	\$ 122,266,528	\$ 113,981,595	7.3%
6. Annual Benefits for Retired Members [#]	\$ 60,068,957	\$ 56,691,749	6.0%
B. Actuarial Results			
1. Present Value of Projected Benefits Attributable to:			
a. Retired and Disabled Members, and Beneficiaries	\$ 809,247,847	\$ 776,664,359	4.2%
b. Terminated Vested Members and Former Members Due Refunds of Employee Contributions	24,511,108	22,141,821	10.7%
c. Active Members	582,852,342	555,675,344	4.9%
d. Total Present Value	\$ 1,416,611,297	\$ 1,354,481,524	4.6%
2. Less Present Value Total Future Normal Costs	229,798,556	214,847,355	7.0%
3. Actuarial Accrued Liability (1d – 2)	\$ 1,186,812,741	\$ 1,139,634,169	4.1%
4. Less Actuarial Value of Assets	768,901,216	730,534,135	5.3%
5. Unfunded Actuarial Accrued Liability (UAAL) (3 - 4)	\$ 417,911,525	\$ 409,100,034	2.2%
6. Funded Ratio	64.79%	64.10%	
7. Employer Normal Cost	\$ 20,434,628	\$ 19,269,849	6.0%
8. Total Projected Payroll	\$ 124,147,195	\$ 115,734,826	7.3%
9. Total Normal Cost Rate	23.39%	23.65%	
10. Employee Contribution Rate	6.93%	7.00%	
11. Employers' Normal Cost Rate	16.46%	16.65%	
12. UAAL Projected to Contribution Period	\$ 414,742,430	\$ 408,524,638	
13. Amortization Payment	\$ 33,046,917	\$ 31,394,611	
14. UAAL Amortization Rate*	25.82%	26.31%	
15. Total Actuarial Employer Contribution Rate (11 + 14)	42.28%	42.96%	
16. Estimated Employer Rate after Reinvestment of Savings	43.18%	43.93%	

*Includes the effects of the one-year lag between the valuation date and the beginning of the contribution period.

[#]Retiree benefit amounts include the cost-of-living adjustment granted July 1, 2020 and July 1, 2019, respectively.



Risks Associated with Measuring the Accrued Liability and Actuarially Determined Contribution

The determination of the accrued liability and the actuarially determined contribution requires the use of assumptions regarding future economic and demographic experience. Risk measures, as illustrated in this report, are intended to aid in the understanding of the effects of future experience differing from the assumptions used in the course of the actuarial valuation. Risk measures may also help with illustrating the potential volatility in the accrued liability and the actuarially determined contribution that result from the differences between actual experience and the actuarial assumptions.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: plan experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions due to changing conditions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period, or additional cost or contribution requirements based on the System's funded status); and changes in plan provisions or applicable law. The scope of an actuarial valuation does not include an analysis of the potential range of such future measurements.

Examples of risk that may reasonably be anticipated to significantly affect the System's future financial condition include:

1. **Investment Risk** – actual investment returns may differ from the expected returns;
2. **Asset/Liability Mismatch** – changes in asset values may not match changes in liabilities, thereby altering the gap between the accrued liability and assets and consequently altering the funded status and contribution requirements;
3. **Contribution Risk** – actual contributions may differ from expected future contributions. For example, actual contributions may not be made in accordance with the plan's funding policy or material changes may occur in the anticipated number of covered employees, covered payroll, or other relevant contribution base;
4. **Salary and Payroll Risk** – actual salaries and total payroll may differ from expected, resulting in actual future accrued liability and contributions differing from expected;
5. **Longevity Risk** – members may live longer or shorter than expected and receive pensions for a period of time other than assumed; and
6. **Other Demographic Risks** – members may terminate, retire or become disabled at times or with benefits other than assumed resulting in actual future accrued liability and contributions differing from expected.

The effects of certain trends in experience can generally be anticipated. For example, if the investment return since the most recent actuarial valuation is less (or more) than the assumed rate, the cost of the plan can be expected to increase (or decrease). Likewise, if longevity is improving (or worsening), increases (or decreases) in cost can be anticipated.

PLAN MATURITY MEASURES

Risks facing a pension plan evolve over time. A young plan with virtually no investments and paying few benefits may experience little investment risk. An older plan with a large number of members in pay status and a significant trust may be much more exposed to investment risk. Generally accepted plan maturity measures for MSRPS include the following. Additional maturity measures are shown on the following pages.

	2020	2019	2018
Ratio of market value of assets to total payroll	4.37	4.53	4.48
Ratio of actuarial accrued liability to total payroll	6.12	6.26	6.28
Ratio of actives to retirees and beneficiaries	1.17	1.17	1.20
Ratio of net cash flow to market value of assets	-2.2%	-2.2%	-2.0%
Approximate duration of the actuarial accrued liability	12.21	12.18	12.48
Approximate duration of the present value of benefits	15.22	15.18	15.55

RATIO OF MARKET VALUE OF ASSETS TO PAYROLL

The relationship between assets and payroll is a useful indicator of the potential volatility of contributions. For example, if the market value of assets is 2.0 times the payroll, a return on assets 5% different than assumed would equal 10% of payroll. A higher (lower) or increasing (decreasing) level of this maturity measure generally indicates a higher (lower) or increasing (decreasing) volatility in plan sponsor contributions as a percentage of payroll.

RATIO OF ACTUARIAL ACCRUED LIABILITY TO PAYROLL

The relationship between actuarial accrued liability and payroll is a useful indicator of the potential volatility of contributions for a fully funded plan. A funding policy that targets a funded ratio of 100% is expected to result in the ratio of assets to payroll and the ratio of liability to payroll converging over time.

The ratio of liability to payroll may also be used as a measure of sensitivity of the liability itself. For example, if the actuarial accrued liability is 2.5 times the payroll, a change in liability 2% other than assumed would equal 5% of payroll. A higher (lower) or increasing (decreasing) level of this maturity measure generally indicates a higher (lower) or increasing (decreasing) volatility in liability (and also plan sponsor contributions) as a percentage of payroll.

RATIO OF ACTIVES TO RETIREES AND BENEFICIARIES

A young plan with many active members and few retirees will have a high ratio of actives to retirees. A mature open plan may have close to the same number of actives to retirees resulting in a ratio near 1.0. A super-mature or closed plan may have significantly more retirees than actives resulting in a ratio below 1.0.



RATIO OF NET CASH FLOW TO MARKET VALUE OF ASSETS

A positive net cash flow means contributions exceed benefits and expenses. A negative cash flow means existing funds are being used to make payments. A certain amount of negative net cash flow is generally expected to occur when benefits are prefunded through a qualified trust. Large negative net cash flows as a percent of assets may indicate a super-mature plan or a need for additional contributions.

DURATION OF ACTUARIAL ACCRUED LIABILITY

The duration of the actuarial accrued liability may be used to approximate the sensitivity to a 1% change in the assumed rate of return. For example, a duration of 10 indicates that the liability would increase approximately 10% if the assumed rate of return were lowered 1%.

ADDITIONAL RISK ASSESSMENT

Additional risk assessment is outside the scope of the annual actuarial valuation. Additional assessment may include scenario tests, sensitivity tests, stochastic modeling, stress tests, and a comparison of the present value of accrued benefits at low-risk discount rates with the actuarial accrued liability.

Risk Measures Summary

State and Municipal

(\$ in Millions)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
			Market		Market				
	Accrued	Market	Value	Valuation	Funded	Retiree	RetLiab /	AAL /	Assets /
Valuation	Liabilities	Value of	Unfunded	Payroll	Ratio	Liabilities	AAL	Payroll	Payroll
Date (6/30)	(AAL)	Assets	AAL		(2)/(1)	(RetLiab)	(6)/(1)	(1)/(4)	(2)/(4)
2012	\$ 57,869	\$ 37,179	\$ 20,690	\$ 10,337	64.2%	\$ 32,779	56.6%	559.9%	359.7%
2013	60,060	40,363	19,697	10,478	67.2%	34,498	57.4%	573.2%	385.2%
2014	62,610	45,340	17,270	10,804	72.4%	36,077	57.6%	579.5%	419.7%
2015	66,282	45,790	20,492	11,064	69.1%	38,588	58.2%	599.1%	413.9%
2016	67,782	45,366	22,416	11,156	66.9%	39,785	58.7%	607.6%	406.7%
2017	69,987	48,987	20,999	11,419	70.0%	41,112	58.7%	612.9%	429.0%
2018	72,575	51,827	20,747	11,566	71.4%	43,237	59.6%	627.5%	448.1%
2019	74,526	53,943	20,583	11,905	72.4%	44,420	59.6%	626.0%	453.1%
2020	76,471	54,586	21,885	12,501	71.4%	45,382	59.3%	611.7%	436.6%

- (5). The Funded ratio is the most widely known measure of a plan's financial strength, but the trend in the funded ratio is much more important than the absolute ratio. The funded ratio should trend to 100%. As it approaches 100%, it is important to re-evaluate the level of investment risk in the portfolio and potentially to re-evaluate the assumed rate of return.
- (6) and (7). The ratio of Retiree liabilities to total accrued liabilities gives an indication of the maturity of the system. As the ratio increases, cash flow needs increase, and the liquidity needs of the portfolio change. A ratio on the order of 50% indicates a maturing system.
- (8) and (9). The ratios of liabilities and assets to payroll gives an indication of both maturity and volatility. Many systems have ratios between 500% and 700%. Ratios significantly above that range may indicate difficulty in supporting the benefit level as a level % of payroll.

Risk Measures Summary

State and Municipal

(\$ in Millions)

	(10)	(11)	(12)	(13)	(14)	(15)	(16)
				Non- Investment Cash Flow (NICF)	NICF / Assets (13)/(2)	Market Rate of Return	5-Year Trailing Average
Valuation Date (6/30)	Portfolio StdDev	Std Dev % of Pay	Unfunded / Payroll				
2012			200.2%	\$ (518)	-1.4%	0.3%	0.7%
2013			188.0%	(661)	-1.6%	10.4%	3.9%
2014			159.9%	(729)	-1.6%	14.3%	11.6%
2015	12.5%	51.7%	185.2%	(748)	-1.6%	2.7%	9.3%
2016	12.0%	48.8%	200.9%	(921)	-2.0%	1.1%	5.6%
2017	13.3%	57.1%	183.9%	(852)	-1.7%	10.0%	7.6%
2018	13.3%	59.6%	179.4%	(1,059)	-2.0%	8.1%	7.1%
2019	12.6%	57.1%	179.4%	(1,172)	-2.2%	6.4%	5.6%
2020	12.6%	55.0%	175.1%	(1,224)	-2.2%	3.5%	5.8%

- (10) and (11). The portfolio standard deviation measures the volatility of investment return. When multiplied by the ratio of assets to payroll it gives the effect of a one standard deviation asset move as a percent of payroll. This figure helps users understand the difficulty of dealing with investment volatility and the challenges volatility brings to sustainability. This ratio is likely to increase as the plan approaches full funding.
- (12). The ratio of unfunded liability to payroll gives an indication of the plan sponsor's ability to actually pay off the unfunded liability. A ratio above approximately 300% or 400% may indicate difficulty in discharging the unfunded liability within a reasonable time frame.
- (13) and (14). The ratio of Non-Investment Cash Flow to assets is an important measure of sustainability. Negative ratios are common and expected for a maturing system. In the longer term, this ratio should be on the order of approximately -4%. A ratio that is significantly more negative than that for an extended period could be a leading indicator of potential exhaustion of assets.
- (15) and (16). Investment return is probably the largest single risk that most systems face. The year-by-year return and the 5-year geometric average both give an indication of the past relationship between actual return and the system's assumed return. Of course, past performance is not a guarantee of future results. Market rate shown is based on actuarial estimation method and differs modestly from figures reported by the System.

SECTION III

ASSETS

Assets

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

In this section we present detailed information on plan assets including:

- **Disclosure** of plan assets at June 30, 2020 and June 30, 2019;
- Statement of the **changes** in market values during the year;
- Development of the Actuarial Value of Assets; and
- An assessment of **investment performance**.

Disclosure

Market values represent "snapshot" or "cash-out" values which provide the principal basis for measuring financial performance from one year to the next. Market values, however, can fluctuate. As a result, actuaries have traditionally smoothed market fluctuations when developing long range contribution rates.

Current methods employed by this Fund set the actuarial value equal to the expected adjusted market value plus one-fifth of the difference between the actual market value and the expected adjusted market value. In addition, there is a 20% collar limitation which keeps the actuarial value of assets within the range of 80% to 120% of the market value of assets.

Disclosure of Plan Market Value of Assets (State and Municipal) (\$ in Thousands)

	June 30,	
	2020	2019
Assets:		
Cash & Cash Equivalents	\$ 1,539,742	\$ 1,639,447
<i>Receivables</i>		
Contributions		
Employers	40,079	18,968
Employers - Long Term	6,773	12,741
Members	10,424	3,837
Accrued Investment Income	208,963	250,325
Investment Sales Proceeds	727,468	1,670,973
Total Receivables	993,707	1,956,844
<i>Investments</i>		
U.S. Government Obligations	6,578,005	6,441,406
Domestic Corporate Obligations	4,264,696	4,765,438
International Obligations	2,184,755	613,496
Domestic Stocks	8,775,452	9,779,000
International Stocks	10,872,505	9,957,602
Mortgages & Mortgage Related Securities	1,152,454	1,658,341
Alternative Investments	19,943,124	19,297,504
Collateral For Loaned Securities	4,142,148	4,483,334
Total Investments	57,913,139	56,996,121
Total Assets	60,446,588	60,592,412
Liabilities:		
Accounts Payable & Accrued Expenses	64,565	63,403
Investment Commitments Payable	1,653,838	2,102,255
Obligation For Collateral For Loaned Securities	4,142,148	4,483,334
Other Liabilities	-	-
Total Liabilities	5,860,551	6,648,992
Net Assets Held in Trust for Pension Benefits	\$ 54,586,037	\$ 53,943,419

Totals may not add due to rounding.



Changes in Market Values (State and Municipal)

	Teachers	Employees (State)	State Police	Judges	LEOPS (State)	Total State	
State Sponsored Plans							
Market Value of Assets as of 6/30/2019	\$ 32,802,924,135	\$ 13,692,118,603	\$ 1,510,328,194	\$ 490,018,440	\$ 725,210,573	\$ 49,220,599,943	
Employer Contributions	1,170,248,294	675,857,792	91,390,467	22,707,523	48,262,612	2,008,466,688	
Member Contributions	499,884,486	255,674,543	9,276,500	3,453,402	8,875,621	777,164,552	
Investment Returns	1,133,678,856	474,248,737	52,799,521	17,070,764	24,832,340	1,702,630,218	
Disbursements from the Trust	(2,416,468,023)	(1,278,245,985)	(127,735,535)	(36,400,904)	(61,293,619)	(3,920,144,066)	
Net Transfers	24,742,340	(24,915,274)	62,107	-	110,827	-	
Market Value of Assets as of 6/30/2020	\$ 33,215,010,088	\$ 13,794,738,415	\$ 1,536,121,254	\$ 496,849,225	\$ 745,998,353	\$ 49,788,717,335	
		Employees (Municipal)			LEOPS (Municipal)	CORS (Municipal)	Total Municipal
Municipal Plans							
Market Value of Assets as of 6/30/2019		\$ 4,377,736,520			\$ 319,537,333	\$ 25,545,307	\$ 4,722,819,161
Employer Contributions		112,422,310			22,807,194	572,844	135,802,348
Member Contributions		68,083,477			4,646,141	403,871	73,133,489
Investment Returns		151,855,554			11,152,979	1,001,368	164,009,901
Disbursements from the Trust		(279,772,410)			(17,536,352)	(1,136,292)	(298,445,054)
Net Transfers		(6,723,549)			618,072	6,105,477	-
Market Value of Assets as of 6/30/2020		\$ 4,423,601,902			\$ 341,225,367	\$ 32,492,575	\$ 4,797,319,844
	Teachers	Employees (State & Municipal)	State Police	Judges	LEOPS (State & Municipal)	CORS (Municipal)	Total State & Municipal
State and Municipal Sponsored Plans							
Market Value of Assets as of 6/30/2019	\$ 32,802,924,135	\$ 18,069,855,123	\$ 1,510,328,194	\$ 490,018,440	\$ 1,044,747,906	\$ 25,545,307	\$ 53,943,419,104
Employer Contributions	1,170,248,294	788,280,102	91,390,467	22,707,523	71,069,806	572,844	2,144,269,036
Member Contributions	499,884,486	323,758,020	9,276,500	3,453,402	13,521,762	403,871	850,298,041
Investment Returns	1,133,678,856	626,104,290	52,799,521	17,070,764	35,985,319	1,001,368	1,866,640,118
Disbursements from the Trust	(2,416,468,023)	(1,558,018,395)	(127,735,535)	(36,400,904)	(78,829,971)	(1,136,292)	(4,218,589,120)
Net Transfers	24,742,340	(31,638,823)	62,107	-	728,899	6,105,477	-
Market Value of Assets as of 6/30/2020	\$ 33,215,010,088	\$ 18,218,340,317	\$ 1,536,121,254	\$ 496,849,225	\$ 1,087,223,721	\$ 32,492,575	\$ 54,586,037,179

Totals may not add due to rounding.



Summary of the Development of the Actuarial Value of Assets

June 30, 2020

	Total State	Total Municipal	Total MSRPS
Beginning of Year:			
(1) Market Value of Assets	\$49,220,599,944	\$4,722,819,160	\$53,943,419,104
(2) Actuarial Value of Assets	49,603,508,534	4,758,460,607	54,361,969,141
End of Year:			
(3) Market Value of Assets	49,788,717,334	4,797,319,844	54,586,037,178
(4) Net of Contributions and Disbursements	(1,134,512,826)	(89,509,217)	(1,224,022,043)
(5) Total Investment Income			
=(3)-(1)-(4)	1,702,630,216	164,009,901	1,866,640,117
(6) Projected Rate of Return	7.40%	7.40%	7.40%
(7) Projected Investment Income			
=(1)x(6)+[(1+(6)) ⁵ -1]x(4)	\$ 3,601,096,525	\$ 346,235,879	\$ 3,947,332,404
(8) Beginning of Year Asset Adjustment	0	0	0
(9) Investment Income in Excess of Projected Income	(1,898,466,309)	(182,225,978)	(2,080,692,287)
(10) Excess Investment Income Recognized This Year (5-year recognition)			
(10a) From This Year	(379,693,262)	(36,445,195)	(416,138,457)
(10b) From One Year Ago	(96,725,141)	(9,284,054)	(106,009,195)
(10c) From Two Years Ago	48,128,675	4,743,653	52,872,328
(10d) From Three Years Ago	196,865,422	19,114,522	215,979,944
(10e) From Four Years Ago	(534,124,896)	(50,965,237)	(585,090,133)
(10f) Total Phase-ins	(765,549,202)	(72,836,311)	(838,385,513)
(11) Change in Actuarial Value of Assets			
=(4)+(7)+(8)+(10f)	1,701,034,497	183,890,351	1,884,924,848
End of Year:			
(3) Market Value of Assets as of 6/30	49,788,717,334	4,797,319,844	54,586,037,178
(12) Preliminary Actuarial Value of Assets = (2)+(11)	51,304,543,031	4,942,350,958	56,246,893,989
(12a) Upper Collar Limit 120% x (3)	59,746,460,802	5,756,783,812	65,503,244,614
(12b) Lower Collar Limit 80% x (3)	39,830,973,867	3,837,855,876	43,668,829,743
(13) Adjustment to Remain within 20% Collar	0	0	0
(14) Final Actuarial Value of Assets as of 6/30	51,304,543,031	4,942,350,958	56,246,893,989
(15) Difference Between Market & Actuarial Values	(1,515,825,697)	(145,031,114)	(1,660,856,811)
(16) Actuarial Value Rate of Return	5.78%	5.80%	5.78%
(17) Market Value Rate of Return	3.50%	3.51%	3.50%
(18) Ratio of Actuarial Value to Market Value	103%	103%	103%



Summary of the Development of the Actuarial Value of Assets (State Portion Only)

June 30, 2020

	TCS	ECS	State Police	Judges	LEOPS	Total State
Beginning of Year:						
(1) Market Value of Assets	\$32,802,924,135	\$13,692,118,603	\$ 1,510,328,194	\$490,018,440	\$725,210,573	\$49,220,599,944
(2) Actuarial Value of Assets	33,060,345,745	13,796,352,071	1,522,238,564	494,038,020	730,534,135	49,603,508,534
End of Year:						
(3) Market Value of Assets	33,215,010,088	13,794,738,415	1,536,121,254	496,849,225	745,998,353	49,788,717,334
(4) Net of Contributions and Disbursements	(721,592,903)	(371,628,924)	(27,006,461)	(10,239,979)	(4,044,559)	(1,134,512,826)
(5) Total Investment Income						
=(3)-(1)-(4)	\$ 1,133,678,856	\$474,248,736	\$ 52,799,521	\$ 17,070,764	\$ 24,832,339	\$ 1,702,630,216
(6) Projected Rate of Return	7.40%	7.40%	7.40%	7.40%	7.40%	7.40%
(7) Projected Investment Income						
=(1)x(6)+([1+(6)]^5-1)x(4)	\$ 2,401,193,907	\$ 999,711,888	\$ 110,782,879	\$ 35,889,247	\$ 53,518,604	\$ 3,601,096,525
(8) Beginning of Year Asset Adjustment	0	0	0	0	0	0
(9) Investment Income in Excess of Projected Income	\$(1,267,515,051)	\$(525,463,152)	\$(57,983,358)	\$(18,818,483)	\$(28,686,265)	\$(1,898,466,309)
(10) Excess Investment Income Recognized This Year (5-year recognition)						
(10a) From This Year	(253,503,010)	(105,092,630)	(11,596,672)	(3,763,697)	(5,737,253)	(379,693,262)
(10b) From One Year Ago	(64,255,432)	(27,170,010)	(2,993,011)	(994,440)	(1,312,248)	(96,725,141)
(10c) From Two Years Ago	31,467,397	14,064,503	1,559,453	466,840	570,482	48,128,675
(10d) From Three Years Ago	130,099,381	56,016,846	5,989,864	1,917,407	2,841,924	196,865,422
(10e) From Four Years Ago	(355,000,835)	(149,780,625)	(16,596,413)	(5,277,154)	(7,469,869)	(534,124,896)
(10f) Total Phase-ins	(511,192,499)	(211,961,916)	(23,636,779)	(7,651,044)	(11,106,964)	(765,549,202)
(11) Change in Actuarial Value of Assets = (4)+(7)+(8)+(10f)	1,168,408,505	416,121,048	60,139,639	17,998,224	38,367,081	1,701,034,497
End of Year:						
(3) Market Value of Assets as of 6/30	33,215,010,088	13,794,738,415	1,536,121,254	496,849,225	745,998,353	49,788,717,334
(12) Preliminary Actuarial Value of Assets = (2)+(11)	34,228,754,250	14,212,473,119	1,582,378,203	512,036,244	768,901,216	51,304,543,031
(12a) Upper Collar Limit 120% x (3)	39,858,012,105	16,553,686,098	1,843,345,505	596,219,070	895,198,024	59,746,460,802
(12b) Lower Collar Limit 80% x (3)	26,572,008,070	11,035,790,732	1,228,897,003	397,479,380	596,798,682	39,830,973,867
(13) Adjustment to Remain within 20% Collar	0	0	0	0	0	0
(14) Final Actuarial Value of Assets as of 6/30	34,228,754,250	14,212,473,119	1,582,378,203	512,036,244	768,901,216	51,304,543,031
(15) Difference Between Market & Actuarial Values	(1,013,744,162)	(417,734,704)	(46,256,949)	(15,187,019)	(22,902,863)	(1,515,825,697)
(16) Actuarial Value Rate of Return	5.78%	5.79%	5.78%	5.78%	5.82%	5.78%
(17) Market Value Rate of Return	3.49%	3.51%	3.53%	3.52%	3.43%	3.50%
(18) Ratio of Actuarial Value to Market Value	103%	103%	103%	103%	103%	103%



Development of the Actuarial Value of Assets Teachers' Combined System

	2019	2020	2021	2022	2023	2024
Beginning of Year:						
(1) Market Value of Assets	\$31,480,451,174	\$32,802,924,135				
(2) Actuarial Value of Assets	31,945,910,198	33,060,345,745				
End of Year:						
(3) Market Value of Assets	32,802,924,135	33,215,010,088				
(4) Net of Contributions and Disbursements	(676,786,036)	(721,592,903)				
(5) Total Investment Income						
=(3)-(1)-(4)	1,999,258,997	1,133,678,856				
(6) Projected Rate of Return	7.45%	7.40%				
(7) Projected Investment Income						
=(1)x(6)+([1+(6)]^5-1)x(4)	2,320,536,158	2,401,193,907				
(8) Beginning of Year Asset Adjustment	0	0				
(9) Investment Income in Excess of Projected Income	(321,277,161)	(1,267,515,051)				
(10) Excess Investment Income Recognized This Year (5-year recognition)						
(10a) From This Year	(64,255,432)	(253,503,010)				
(10b) From One Year Ago	31,467,397	(64,255,432)	\$ (253,503,010)			
(10c) From Two Years Ago	130,099,381	31,467,397	(64,255,432)	\$ (253,503,010)		
(10d) From Three Years Ago	(355,000,835)	130,099,381	31,467,397	(64,255,432)	\$ (253,503,010)	
(10e) From Four Years Ago	(271,625,086)	(355,000,835)	130,099,379	31,467,399	(64,255,433)	\$ (253,503,010)
(10f) Total Phase-ins	(529,314,575)	(511,192,499)	(156,191,666)	(286,291,043)	(317,758,443)	(253,503,010)
(11) Change in Actuarial Value of Assets						
=(4)+(7)+(8)+(10f)	1,114,435,547	1,168,408,505				
End of Year:						
(3) Market Value of Assets	32,802,924,135	33,215,010,088				
(12) Preliminary Actuarial Value of Assets = (2)+(11)	33,060,345,745	34,228,754,250				
(12a) Upper Collar Limit 120% x (3)	39,363,508,961	39,858,012,105				
(12b) Lower Collar Limit 80% x (3)	26,242,339,308	26,572,008,070				
(13) Adjustment to Remain within 20% Collar	0	0				
(14) Final Actuarial Value of Assets as of 6/30	33,060,345,745	34,228,754,250				
(15) Difference Between Market & Actuarial Values	(257,421,610)	(1,013,744,162)				
(16) Actuarial Value Rate of Return	5.67%	5.78%				
(17) Market Value Rate of Return	6.42%	3.49%				
(18) Ratio of Actuarial Value to Market Value	101%	103%				



Development of the Actuarial Value of Assets Employees' Combined System (State)

	2019	2020	2021	2022	2023	2024
Beginning of Year:						
(1) Market Value of Assets	\$13,219,575,645	\$13,692,118,603				
(2) Actuarial Value of Assets	13,409,959,183	13,796,352,071				
End of Year:						
(3) Market Value of Assets	13,692,118,603	13,794,738,415				
(4) Net of Contributions and Disbursements	(363,179,922)	(371,628,924)				
(5) Total Investment Income						
=(3)-(1)-(4)	835,722,880	474,248,736				
(6) Projected Rate of Return	7.45%	7.40%				
(7) Projected Investment Income						
=(1)x(6)+[(1+(6)) ^{.5} -1]x(4)	971,572,931	999,711,888				
(8) Beginning of Year Asset Adjustment	0	0				
(9) Investment Income in Excess of Projected Income	(135,850,051)	(525,463,152)				
(10) Excess Investment Income Recognized						
This Year (5-year recognition)						
(10a) From This Year	(27,170,010)	(105,092,630)				
(10b) From One Year Ago	14,064,503	(27,170,010)	\$ (105,092,630)			
(10c) From Two Years Ago	56,016,846	14,064,503	(27,170,010)	\$ (105,092,630)		
(10d) From Three Years Ago	(149,780,626)	56,016,846	14,064,503	(27,170,010)	\$ (105,092,630)	
(10e) From Four Years Ago	(115,130,834)	(149,780,625)	56,016,844	14,064,502	(27,170,011)	\$ (105,092,632)
(10f) Total Phase-ins	(222,000,121)	(211,961,916)	(62,181,293)	(118,198,138)	(132,262,641)	(105,092,632)
(11) Change in Actuarial Value of Assets						
=(4)+(7)+(8)+(10f)	386,392,888	416,121,048				
End of Year:						
(3) Market Value of Assets	13,692,118,603	13,794,738,415				
(12) Preliminary Actuarial Value of Assets = (2)+(11)	13,796,352,071	14,212,473,119				
(12a) Upper Collar Limit 120% x (3)	16,430,542,324	16,553,686,098				
(12b) Lower Collar Limit 80% x (3)	10,953,694,882	11,035,790,732				
(13) Adjustment to Remain within 20% Collar	0	0				
(14) Final Actuarial Value of Assets as of 6/30	13,796,352,071	14,212,473,119				
(15) Difference Between Market & Actuarial Values	(104,233,468)	(417,734,704)				
(16) Actuarial Value Rate of Return	5.67%	5.79%				
(17) Market Value Rate of Return	6.41%	3.51%				
(18) Ratio of Actuarial Value to Market Value	101%	103%				



Development of the Actuarial Value of Assets State Police

	2019	2020	2021	2022	2023	2024
Beginning of Year:						
(1) Market Value of Assets	\$ 1,446,548,389	\$ 1,510,328,194				
(2) Actuarial Value of Assets	1,468,640,940	1,522,238,564				
End of Year:						
(3) Market Value of Assets	1,510,328,194	1,536,121,254				
(4) Net of Contributions and Disbursements	(27,998,776)	(27,006,461)				
(5) Total Investment Income						
=(3)-(1)-(4)	91,778,581	52,799,521				
(6) Projected Rate of Return	7.45%	7.40%				
(7) Projected Investment Income						
=(1)x(6)+([1+(6)] ⁵ -1)x(4)	106,743,634	110,782,879				
(8) Beginning of Year Asset Adjustment	0	0				
(9) Investment Income in Excess of Projected Income	(14,965,053)	(57,983,358)				
(10) Excess Investment Income Recognized						
This Year (5-year recognition)						
(10a) From This Year	(2,993,011)	(11,596,672)				
(10b) From One Year Ago	1,559,453	(2,993,011)	\$ (11,596,672)			
(10c) From Two Years Ago	5,989,864	1,559,453	(2,993,011)	\$ (11,596,672)		
(10d) From Three Years Ago	(16,596,414)	5,989,864	1,559,453	(2,993,011)	\$ (11,596,672)	
(10e) From Four Years Ago	(13,107,126)	(16,596,413)	5,989,862	1,559,453	(2,993,009)	\$ (11,596,670)
(10f) Total Phase-ins	(25,147,234)	(23,636,779)	(7,040,368)	(13,030,230)	(14,589,681)	(11,596,670)
(11) Change in Actuarial Value of Assets						
=(4)+(7)+(8)+(10f)	53,597,624	60,139,639				
End of Year:						
(3) Market Value of Assets	1,510,328,194	1,536,121,254				
(12) Preliminary Actuarial Value of Assets = (2)+(11)	1,522,238,564	1,582,378,203				
(12a) Upper Collar Limit 120% x (3)	1,812,393,833	1,843,345,505				
(12b) Lower Collar Limit 80% x (3)	1,208,262,555	1,228,897,003				
(13) Adjustment to Remain within 20% Collar	0	0				
(14) Final Actuarial Value of Assets as of 6/30	1,522,238,564	1,582,378,203				
(15) Difference Between Market & Actuarial Values	(11,910,370)	(46,256,949)				
(16) Actuarial Value Rate of Return	5.61%	5.78%				
(17) Market Value Rate of Return	6.41%	3.53%				
(18) Ratio of Actuarial Value to Market Value	101%	103%				



Development of the Actuarial Value of Assets Judges

	2019	2020	2021	2022	2023	2024
Beginning of Year:						
(1) Market Value of Assets	\$470,020,361	\$490,018,440				
(2) Actuarial Value of Assets	477,005,959	494,038,020				
End of Year:						
(3) Market Value of Assets	490,018,440	496,849,225				
(4) Net of Contributions and Disbursements	(9,691,706)	(10,239,979)				
(5) Total Investment Income						
=(3)-(1)-(4)	29,689,785	17,070,764				
(6) Projected Rate of Return	7.45%	7.40%				
(7) Projected Investment Income						
=(1)x(6)+([1+(6)] ^{.5} -1)x(4)	34,661,985	35,889,247				
(8) Beginning of Year Asset Adjustment	0	0				
(9) Investment Income in Excess of Projected Income	(4,972,200)	(18,818,483)				
(10) Excess Investment Income Recognized This Year (5-year recognition)						
(10a) From This Year	(994,440)	(3,763,697)				
(10b) From One Year Ago	466,840	(994,440)	\$ (3,763,697)			
(10c) From Two Years Ago	1,917,407	466,840	(994,440)	\$ (3,763,697)		
(10d) From Three Years Ago	(5,277,155)	1,917,407	466,840	(994,440)	\$ (3,763,697)	
(10e) From Four Years Ago	(4,050,870)	(5,277,154)	1,917,407	466,841	(994,440)	\$ (3,763,696)
(10f) Total Phase-ins	(7,938,218)	(7,651,044)	(2,373,890)	(4,291,296)	(4,758,137)	(3,763,696)
(11) Change in Actuarial Value of Assets						
=(4)+(7)+(8)+(10f)	17,032,061	17,998,224				
End of Year:						
(3) Market Value of Assets	490,018,440	496,849,225				
(12) Preliminary Actuarial Value of Assets = (2)+(11)	494,038,020	512,036,244				
(12a) Upper Collar Limit 120% x (3)	588,022,128	596,219,070				
(12b) Lower Collar Limit 80% x (3)	392,014,752	397,479,380				
(13) Adjustment to Remain within 20% Collar	0	0				
(14) Final Actuarial Value of Assets as of 6/30	494,038,020	512,036,244				
(15) Difference Between Market & Actuarial Values	(4,019,580)	(15,187,019)				
(16) Actuarial Value Rate of Return	5.66%	5.78%				
(17) Market Value Rate of Return	6.38%	3.52%				
(18) Ratio of Actuarial Value to Market Value	101%	103%				



Development of the Actuarial Value of Assets LEOPS (State)

	2019	2020	2021	2022	2023	2024
Beginning of Year:						
(1) Market Value of Assets	\$685,682,057	\$725,210,573				
(2) Actuarial Value of Assets	695,528,805	730,534,135				
End of Year:						
(3) Market Value of Assets	725,210,573	745,998,353				
(4) Net of Contributions and Disbursements	(4,817,336)	(4,044,559)				
(5) Total Investment Income						
=(3)-(1)-(4)	44,345,852	24,832,339				
(6) Projected Rate of Return	7.45%	7.40%				
(7) Projected Investment Income						
=(1)x(6)+([1+(6)] ⁵ -1)x(4)	50,907,091	53,518,604				
(8) Beginning of Year Asset Adjustment	0	0				
(9) Investment Income in Excess of Projected Income	(6,561,239)	(28,686,265)				
(10) Excess Investment Income Recognized						
This Year (5-year recognition)						
(10a) From This Year	(1,312,248)	(5,737,253)				
(10b) From One Year Ago	570,482	(1,312,248)	\$ (5,737,253)			
(10c) From Two Years Ago	2,841,924	570,482	(1,312,248)	\$ (5,737,253)		
(10d) From Three Years Ago	(7,469,871)	2,841,924	570,482	(1,312,248)	\$ (5,737,253)	
(10e) From Four Years Ago	(5,714,712)	(7,469,869)	2,841,925	570,484	(1,312,247)	\$ (5,737,252)
(10f) Total Phase-ins	(11,084,425)	(11,106,964)	(3,637,094)	(6,479,017)	(7,049,500)	(5,737,252)
(11) Change in Actuarial Value of Assets						
=(4)+(7)+(8)+(10f)	35,005,330	38,367,081				
End of Year:						
(3) Market Value of Assets	725,210,573	745,998,353				
(12) Preliminary Actuarial Value of Assets = (2)+(11)	730,534,135	768,901,216				
(12a) Upper Collar Limit 120% x (3)	870,252,688	895,198,024				
(12b) Lower Collar Limit 80% x (3)	580,168,458	596,798,682				
(13) Adjustment to Remain within 20% Collar	0	0				
(14) Final Actuarial Value of Assets as of 6/30	730,534,135	768,901,216				
(15) Difference Between Market & Actuarial Values	(5,323,562)	(22,902,863)				
(16) Actuarial Value Rate of Return	5.75%	5.82%				
(17) Market Value Rate of Return	6.49%	3.43%				
(18) Ratio of Actuarial Value to Market Value	101%	103%				



SECTION IV

GAIN/LOSS EXPERIENCE ANALYSIS

STATE ONLY

Gain/(Loss) Experience Analysis

State Only

Comments

Purpose of Gain/Loss Analysis

Regular actuarial valuations provide valuable information about the composite change in unfunded actuarial accrued liabilities – whether or not the liabilities are increasing or decreasing, and by how much. However, valuations do not show the portion of the change attributable to each risk area within the retirement system financial mechanism: the rate of investment income on plan assets; the rates of withdrawal of active members who leave covered employment; the rates of mortality; the rates of disability; the rates of salary increase; and the assumed ages at actual retirement. In an actuarial valuation, assumptions are made as to what these rates will be for the next year and for decades in the future.

The objective of a gain and loss analysis is to determine the portion of the change in unfunded actuarial accrued liabilities attributable to each risk area.

The fact that actual experience differs from assumed experience is to be expected – the future cannot be predicted with precision. Changes in the valuation assumed experience for a risk area should be made when the differences between assumed and actual experience have been observed to be sizeable and persistent. One year's gain/loss analysis may or may not be indicative of *long-term trends, which are the basis of financial assumptions.*

The expected and actual numbers of retirements, disabilities, deaths, and terminations found on pages IV-5 through IV-11 reflect experience over the 12-month period from June 30, 2019 through June 30, 2020.

Derivation of Experience Gain/(Loss) Year Ended June 30, 2020 State Only (\$ in Millions)

Actual experience will never (except by coincidence) coincide exactly with assumed experience. Gains and losses often offset one another over a period of years, but sizable year-to-year fluctuations are common.

	Fiscal Year Ended June 30,	
	2020	2019
(1) UAAL* at start of year	\$19,053	\$19,038
(2) Normal cost from last valuation	1,292	1,235
(3) Actual contributions	2,786	2,666
(4) Interest accrual: $[(1) \times 0.0740 + \{(2)-(3)\} \times \{1.0740^{.5}-1\}]$	1,356	1,366
(5) Expected UAAL before changes: (1) + (2) - (3) + (4)	18,915	18,973
(6) Change in benefit provisions	(0)	0
(7) Changes in methods and assumptions	0	(754)
(8) Expected UAAL after changes: (5) + (6) + (7)	18,915	18,219
(9) Actual UAAL at end of year	19,104	19,053
(10) Gain/(loss): (8) - (9)	(189)	(834)
(10a) Portion of gain/(loss) due to Assets	(794)	(847)
(10b) Portion of gain/(loss) due to Liabilities	605	13
(10c) Actuarial accrued liabilities at beginning of year	68,656	67,035
(11) Gain/(loss) as a percent of beginning accrued liabilities	(0.3%)	(1.2%)

* *Unfunded Actuarial Accrued Liability.*
Numbers may not add due to rounding.



Summary of System Experience
Year Ended June 30, 2020
State Only
(\$ in Millions)

	2020	
	Total State	% of AAL
Beginning of Year		
1. Total Actuarial Accrued Liabilities (AAL)	\$68,656.41	100.0 %
2. Valuation Assets	49,603.51	72.2 %
3. Unfunded Actuarial Accrued Liabilities	\$19,052.90	27.8 %
2020 Experience Gains (Losses)		
4. Gains (losses) in economic risk areas		
a. Pay increases	\$ (204.46)	(0.3)%
b. Investment return	(793.90)	(1.2)%
c. Total	\$ (998.36)	(1.5)%
5. Gains (losses) from active member decrement experience		
a. Service retirement	\$ (4.35)	0.0 %
b. Disability retirement	44.33	0.1 %
c. Death-in-service	(7.60)	0.0 %
d. Other separations	84.38	0.1 %
e. Total	\$ 116.76	0.2 %
6. Gains (losses) from retiree experience		
a. Mortality	\$ 114.60	0.2 %
b. Benefit related/COLAs	181.95	0.3 %
c. Other/unexpected retirees & beneficiaries	(94.16)	(0.1)%
d. Total	\$ 202.39	0.3 %
7. Gains (losses) from other sources		
a. Actual vs. expected liability for members commencing receipt of benefits	\$ 53.90	0.1 %
b. Deferred members returning to work	(37.74)	(0.1)%
c. Deferred mortality/actual vs. expected liability	10.57	0.0 %
d. Data related	(19.40)	0.0 %
e. All other sources	482.45	0.7 %
f. Total	\$ 489.78	0.7 %
8. Total experience gains (losses) (4c) + (5e) + (6d) + (7f)	\$ (189.43)	(0.3)%
End of Year		
9. Total Actuarial Accrued Liabilities*	\$70,408.75	100.0 %
10. Valuation Assets	51,304.54	72.9 %
11. Unfunded Actuarial Accrued Liabilities	\$19,104.21	27.1 %

* Prior to reflecting changes in assumptions and/or benefit provisions.
Totals may not add due to rounding.



Historical Summary of System Experience State Only (\$ in Millions)

Year	Gain (Loss) During the Year Due To								Total Experience
	Service Retirement	Disability Retirement	Survivor Benefits	Other Turnover	Pay Increases	Investment Return	Retiree Experience	Other Sources	
2017	8.2	19.3	(7.0)	115.6	185.8	(254.0)	408.9	(151.6)	325.1
2018	(44.1)	32.1	(12.3)	167.7	341.0	(305.4)	56.8	(318.1)	(82.3)
2019	(9.5)	30.6	(9.1)	118.5	115.6	(847.2)	(33.3)	(199.0)	(833.6)
2020	(4.4)	44.3	(7.6)	84.4	(204.5)	(793.9)	202.4	489.8	(189.4)

Active Member Population Development Year Ended June 30, 2020 State Only

	Total State	
	Actual	Expected
Beginning Census	167,508	
- Service Retirement	4,467	4,987
- Death	185	181
- Disability Retirement	200	460
- Other Separations	9,608	7,663
- Transfers Out	73	
+ Transfers In	65	
+ New Entrants	16,647	
Ending Census	169,687	

This page reconciles the active member populations reported in connection with the 2019 and 2020 valuations on an actual and expected basis. Assumptions related to population development are a primary focus of the gain/loss analysis. They generally tend to be more stable than economic assumptions, and therefore, measurements have more meaning.

Assumptions used for the pension valuation were established on a population-weighted basis with the exception of the withdrawal assumptions. Therefore, the expected "Other Separations" presented above for these divisions are based upon liability-weighted assumptions. If population-weighted assumptions were used, the expected numbers would be different and probably closer to the actual count than the figure shown.

Salary Increases
for Member Active Both at Beginning and End of Year
During the Year Ended June 30, 2020
State Only

Service Beginning of Year	Number	Salary Increases	
		Actual	Expected
0	903	8.58%	7.38%
1	11,427	8.12%	6.90%
2	9,383	7.53%	6.06%
3	8,513	7.39%	5.81%
4	7,548	7.29%	5.61%
5	7,490	6.98%	5.52%
6	6,914	6.85%	5.54%
7	6,185	6.69%	5.38%
8	5,028	6.34%	5.32%
9	4,679	6.35%	5.28%
Total	68,070		

Age Group	Number	Salary Increases for More than 10 Years of Service	
		Actual	Expected
25-29	26	8.43%	5.48%
30-34	2,906	6.98%	5.33%
35-39	10,085	6.42%	5.07%
40-44	11,964	5.71%	4.59%
45-49	13,998	5.17%	4.24%
50-54	14,900	4.74%	4.01%
55-59	14,363	4.59%	3.92%
60-64	10,802	4.26%	3.85%
65 & Over	5,861	4.00%	3.75%
Total	84,905		

	Total Payroll Growth		
	2020	2019	2018
Actual	4.95%	2.83%	1.06%
Assumed	3.10%	3.10%	3.15%

**Active Members Who Retired with
Retirement Benefits (Unreduced or Reduced)
During the Year Ended June 30, 2020
State Only**

Ages	Male		Female		Total	
	Actual	Expected	Actual	Expected	Actual	Expected
Under 50	56	79	28	35	84	114
50	12	18	8	12	20	30
51	20	16	12	13	32	29
52	19	18	34	25	53	43
53	31	20	46	36	77	56
54	20	23	47	43	67	66
55	33	32	95	86	128	118
56	30	35	94	87	124	122
57	44	37	107	88	151	125
58	26	30	113	100	139	130
59	44	39	127	110	171	149
60	43	43	127	151	170	194
61	58	57	182	173	240	230
62	127	140	456	462	583	602
63	87	93	284	325	371	418
64	54	78	216	247	270	325
65	69	80	230	251	299	331
66	89	86	278	259	367	345
67	68	65	194	176	262	241
68	58	50	132	134	190	184
69	49	44	95	89	144	133
70	39	48	92	81	131	129
71	37	39	58	59	95	98
72	22	25	52	45	74	70
73	16	20	38	36	54	56
74	13	11	29	21	42	32
75 & Over	53	243	76	374	129	617
Totals	1,217	1,469	3,250	3,518	4,467	4,987

Beginning of Year Average for Those Who Retired						
	Male		Female		Total	
Age	62.4	years	63.0	years	62.9	years
Service	27.0	years	26.0	years	26.3	years

**Active Members Who Retired with
Disability Benefits
During the Year Ended June 30, 2020
State Only**

Ages	Male		Female		Total	
	Actual	Expected	Actual	Expected	Actual	Expected
Under 25	1	1	0	0	1	1
25-29	0	3	0	2	0	5
30-34	2	6	1	6	3	12
35-39	1	9	5	11	6	20
40-44	4	12	5	19	9	31
45-49	4	19	13	36	17	55
50-54	12	27	32	63	44	90
55-59	25	30	48	90	73	120
60-64	15	25	20	63	35	88
65-69	2	10	6	19	8	29
70-74	1	3	2	5	3	8
75 and over	1	0	0	0	1	1
Totals	68	145	132	314	200	460

Beginning of Year Average for Those Who Became Disabled						
	Male		Female		Total	
Age	54.4	years	54.1	years	54.2	years
Service	17.9	years	18.6	years	18.3	years

**Active Members Who Left Active Status with a
Deferred Benefit (Payments Beginning at a Later Age)
During the Year Ended June 30, 2020
State Only**

Ages	Male		Female		Total	
	Actual	Expected	Actual	Expected	Actual	Expected
Under 25	0	0	0	0	0	0
25-29	1	1	0	1	1	2
30-34	44	33	171	101	215	134
35-39	94	71	290	193	384	264
40-44	87	67	248	166	335	233
45-49	114	76	336	191	450	267
50-54	100	70	362	193	462	263
55-59	82	30	235	107	317	137
60-64	63	11	118	34	181	45
65-69	13	0	42	1	55	1
70-74	3	0	6	0	9	0
75 and over	0	1	6	0	6	1
Totals	601	360	1,814	987	2,415	1,347

Beginning of Year Average for Those Who Terminated With a Deferred Benefit						
	Male		Female		Total	
Age	47.6	years	47.1	years	47.2	years
Service	13.5	years	11.8	years	12.3	years

**Active Members Who Left Active Status with
No Benefit Payable (Contributions Refunded)
During the Year Ended June 30, 2020
State Only**

Ages	Male		Female		Total	
	Actual	Expected	Actual	Expected	Actual	Expected
Under 25	119	90	283	239	402	329
25-29	442	363	1,168	942	1,610	1,305
30-34	424	339	1,116	839	1,540	1,178
35-39	276	253	703	618	979	871
40-44	189	184	494	483	683	667
45-49	159	163	430	460	589	623
50-54	141	147	326	402	467	549
55-59	118	117	294	298	412	415
60-64	81	85	184	170	265	255
65-69	54	37	107	59	161	96
70-74	25	13	43	15	68	28
75 and over	4	0	13	0	17	0
Totals	2,032	1,791	5,161	4,525	7,193	6,316

Beginning of Year Average for Those Who Terminated and Refunded						
	Male		Female		Total	
Age	38.4	years	38.0	years	38.1	years
Service	3.7	years	3.9	years	3.8	years

Does not include members that died while in active status.

**Comparison of Actual to Expected Deaths
Among Retired Lives
During the Year Ended June 30, 2020
State Only**

Ages	Male			Female			Total		
	Actual	Expected	Exposure	Actual	Expected	Exposure	Actual	Expected	Exposure
Under 50	5	3	784	11	5	796	16	9	1,580
50-54	8	7	1,194	15	11	1,108	23	18	2,302
55-59	26	19	2,180	28	30	3,185	54	49	5,365
60-64	72	46	4,309	101	70	9,526	173	116	13,835
65-69	170	114	8,937	299	179	22,788	469	293	31,725
70-74	270	199	10,863	345	284	23,532	615	484	34,395
75-79	235	216	7,102	391	327	14,886	626	544	21,988
80-84	265	230	4,126	365	350	8,489	630	579	12,615
85-89	305	234	2,381	497	388	5,066	802	623	7,447
90-94	207	159	960	403	345	2,550	610	504	3,510
95-99	48	43	170	193	172	789	241	216	959
100 & Over	6	7	19	43	40	123	49	47	142
Totals	1,617	1,278	43,025	2,691	2,202	92,838	4,308	3,480	135,863

SECTION V

HISTORICAL GASB No. 25 AND No. 27 INFORMATION

GASB Statements No. 67 and No. 68 are the accounting standards which replaced GASB Statements No. 25 and 27. GASB Statement No. 67 is first effective for fiscal year 2014 and GASB Statement No. 68 is first effective for fiscal year 2015. A separate GASB Statements No. 67 and No. 68 report has been issued outside of this report. This section contains historical GASB Statements No. 25 and No. 27 reporting information for prior fiscal years and illustrative information for fiscal year 2015 and after.

Schedule of Funding Progress (State and Municipal) (\$ in Thousands)

Actuarial Valuation Date June 30,	Actuarial Value of Assets (a)	Actuarial Accrued Liability (AAL) (b)	Unfunded AAL (UAAL) (b - a)	Funded Ratio (a / b)	Payroll (c)	UAAL as a Percentage of Payroll [(b - a) / c]
2011	\$ 36,177,656	\$ 55,917,543	\$ 19,739,887	64.70%	\$ 10,478,800	188%
2012	37,248,401	57,869,145	20,620,745	64.37%	10,336,537	199%
2013	39,350,969	60,060,091	20,709,122	65.52%	10,477,544	198%
2014	42,996,957	62,610,194	19,613,237	68.67%	10,803,632	182%
2015	46,170,624	66,281,781	20,111,157	69.66%	11,063,962	182%
2016	47,803,679	67,781,924	19,978,245	70.53%	11,155,924	179%
2017	50,250,465	69,986,576	19,736,111	71.80%	11,418,973	173%
2018	52,586,536	72,574,689	19,988,153	72.46%	11,566,220	173%
2019	54,361,969	74,526,000	20,164,031	72.94%	11,905,463	169%
2020	56,246,894	76,471,035	20,224,141	73.55%	12,501,422	162%

The figures for fiscal years prior to 2015 were applicable for both funding and accounting purposes under GASB Statements 25 and 27. The figures shown for fiscal year 2015 and after are applicable for funding purposes only. Accounting figures under GASB Statements 67 and 68 for fiscal year 2015 and after are shown in a separate report.

Schedule of Funding Progress (\$ in Thousands)

Teachers' Combined System

Actuarial Valuation Date June 30,	Actuarial Value of Assets (a)	Actuarial Accrued Liability (AAL) (b)	Unfunded AAL (UAAL) (b - a)	Funded Ratio (a / b)	Payroll (c)	UAAL as a Percentage of Payroll [(b - a) / c]
2005	\$ 20,801,529	\$ 23,305,198	\$ 2,503,669	89.26%	\$ 4,867,396	51%
2006	21,575,451	25,617,484	4,042,033	84.22%	5,269,185	77%
2007	22,814,760	28,122,575	5,307,815	81.13%	5,709,765	93%
2008	23,784,404	29,868,705	6,084,301	79.63%	6,117,590	99%
2009	20,605,618	31,172,917	10,567,299	66.10%	6,194,734	171%
2010	20,908,149	31,963,421	11,055,272	65.41%	6,254,648	177%
2011	21,868,875	32,985,145	11,116,270	66.30%	6,196,976	179%
2012	22,523,978	34,252,715	11,728,737	65.76%	6,080,603	193%
2013	23,845,618	35,530,441	11,684,823	67.11%	6,185,176	189%
2014	26,067,577	36,882,587	10,815,010	70.68%	6,310,253	171%
2015	27,995,476	38,934,459	10,938,983	71.90%	6,470,706	169%
2016	29,020,809	39,934,125	10,913,316	72.67%	6,611,038	165%
2017	30,500,873	41,198,985	10,698,113	74.03%	6,780,838	158%
2018	31,945,910	42,739,562	10,793,652	74.75%	6,941,097	156%
2019	33,060,346	43,372,437	10,312,091	76.22%	7,153,063	144%
2020	34,228,754	44,456,529	10,227,775	76.99%	7,492,465	137%

The figures for fiscal years prior to 2015 were applicable for both funding and accounting purposes under GASB Statements 25 and 27. The figures shown for fiscal year 2015 and after are applicable for funding purposes only. Accounting figures under GASB Statements 67 and 68 for fiscal year 2015 and after are shown in a separate report.



Schedule of Funding Progress (\$ in Thousands)

Employees' Combined System (State and Municipal)

Actuarial Valuation Date June 30,	Actuarial Value of Assets (a)	Actuarial Accrued Liability (AAL) (b)	Unfunded AAL (UAAL) (b - a)	Funded Ratio (a / b)	Payroll (c)	UAAL as a Percentage of Payroll [(b - a) / c]
2005	\$ 11,855,673	\$ 13,671,756	\$ 1,816,083	86.72%	\$ 3,537,602	51%
2006	12,287,942	15,291,091	3,003,149	80.36%	3,793,125	79%
2007	13,026,321	16,385,823	3,359,502	79.50%	4,016,221	84%
2008	13,599,717	17,609,769	4,010,052	77.23%	4,165,013	96%
2009	11,839,115	18,517,486	6,678,371	63.93%	4,249,536	157%
2010	11,937,944	19,009,788	7,071,844	62.80%	4,137,474	171%
2011	12,387,810	19,722,264	7,334,453	62.81%	4,027,810	182%
2012	12,667,592	20,283,028	7,615,436	62.45%	3,998,475	190%
2013	13,326,586	21,046,733	7,720,147	63.32%	4,030,261	192%
2014	14,547,390	22,059,765	7,512,375	65.95%	4,214,981	178%
2015	15,615,327	23,402,850	7,787,524	66.72%	4,300,748	181%
2016	16,130,438	23,817,251	7,686,814	67.73%	4,245,333	181%
2017	16,939,887	24,579,830	7,639,943	68.92%	4,319,053	177%
2018	17,679,888	25,462,497	7,782,609	69.44%	4,301,247	181%
2019	18,207,410	26,641,367	8,433,957	68.34%	4,409,941	191%
2020	18,769,843	27,323,459	8,553,616	68.69%	4,638,197	184%

The figures for fiscal years prior to 2015 were applicable for both funding and accounting purposes under GASB Statements 25 and 27. The figures shown for fiscal year 2015 and after are applicable for funding purposes only. Accounting figures under GASB Statements 67 and 68 for fiscal year 2015 and after are shown in a separate report.



Schedule of Funding Progress (\$ in Thousands)

State Police

Actuarial Valuation Date June 30,	Actuarial Value of Assets (a)	Actuarial Accrued Liability (AAL) (b)	Unfunded AAL (UAAL) (b - a)	Funded Ratio (a / b)	Payroll (c)	UAAL as a Percentage of Payroll [(b - a) / c]
2005	\$ 1,289,345	\$ 1,284,950	\$ (4,395)	100.34%	\$ 76,463	-6%
2006	1,301,877	1,325,875	23,998	98.19%	80,649	30%
2007	1,334,375	1,516,935	182,560	87.97%	83,191	219%
2008	1,343,208	1,601,576	258,367	83.87%	86,464	299%
2009	1,119,766	1,710,356	590,591	65.47%	85,586	690%
2010	1,085,281	1,722,564	637,283	63.00%	81,705	780%
2011	1,090,383	1,759,676	669,293	61.96%	75,551	886%
2012	1,134,511	1,826,546	692,035	62.11%	77,690	891%
2013	1,164,217	1,882,501	718,284	61.84%	79,848	900%
2014	1,241,758	1,966,572	724,814	63.14%	85,660	846%
2015	1,314,315	2,103,134	788,819	62.49%	91,050	866%
2016	1,344,163	2,124,786	780,623	63.26%	93,491	835%
2017	1,408,754	2,198,337	789,583	64.08%	100,384	787%
2018	1,468,641	2,250,699	782,058	65.25%	100,325	780%
2019	1,522,239	2,300,933	778,694	66.16%	106,978	728%
2020	1,582,378	2,362,744	780,365	66.97%	116,274	671%

The figures for fiscal years prior to 2015 were applicable for both funding and accounting purposes under GASB Statements 25 and 27. The figures shown for fiscal year 2015 and after are applicable for funding purposes only. Accounting figures under GASB Statements 67 and 68 for fiscal year 2015 and after are shown in a separate report.



Schedule of Funding Progress (\$ in Thousands)

Judges

Actuarial Valuation Date June 30,	Actuarial Value of Assets (a)	Actuarial Accrued Liability (AAL) (b)	Unfunded AAL (UAAL) (b - a)	Funded Ratio (a / b)	Payroll (c)	UAAL as a Percentage of Payroll [(b - a) / c]
2005	\$ 260,125	\$ 328,033	\$ 67,908	79.30%	\$ 33,074	205%
2006	273,679	352,537	78,858	77.63%	35,939	219%
2007	293,052	371,987	78,936	78.78%	37,638	210%
2008	306,716	406,782	100,066	75.40%	37,943	264%
2009	270,870	421,039	150,169	64.33%	40,266	373%
2010	276,643	426,215	149,572	64.91%	39,961	374%
2011	293,801	433,240	139,439	67.81%	38,810	359%
2012	330,154	421,286	91,132	78.37%	39,955	228%
2013	354,900	438,836	83,937	80.87%	40,001	210%
2014	389,072	459,447	70,375	84.68%	42,313	166%
2015	416,547	511,390	94,844	81.45%	44,613	213%
2016	430,563	523,929	93,365	82.18%	44,711	209%
2017	453,134	535,902	82,768	84.56%	46,876	177%
2018	477,006	556,746	79,740	85.68%	47,498	168%
2019	494,038	560,310	66,272	88.17%	48,935	135%
2020	512,036	589,299	77,263	86.89%	51,882	149%

The figures for fiscal years prior to 2015 were applicable for both funding and accounting purposes under GASB Statements 25 and 27. The figures shown for fiscal year 2015 and after are applicable for funding purposes only. Accounting figures under GASB Statements 67 and 68 for fiscal year 2015 and after are shown in a separate report.



Schedule of Funding Progress (\$ in Thousands)

LEOPS (State and Municipal)

Actuarial Valuation Date June 30,	Actuarial Value of Assets (a)	Actuarial Accrued Liability (AAL) (b)	Unfunded AAL (UAAL) (b - a)	Funded Ratio (a / b)	Payroll (c)	UAAL as a Percentage of Payroll [(b - a) / c]
2005	\$ 310,087	\$ 537,736	\$ 227,648	57.67%	\$ 87,220	261%
2006	352,416	649,826	297,410	54.23%	106,669	279%
2007	414,153	738,549	324,396	56.08%	122,015	266%
2008	465,386	748,005	282,619	62.22%	133,445	212%
2009	441,827	895,099	453,273	49.36%	140,071	324%
2010	471,728	950,236	478,508	49.64%	140,199	341%
2011	526,807	1,002,708	475,900	52.54%	135,177	352%
2012	580,826	1,070,087	489,261	54.28%	135,185	362%
2013	642,678	1,143,154	500,476	56.22%	137,613	364%
2014	732,333	1,222,137	489,804	59.92%	145,673	336%
2015	808,436	1,308,633	500,197	61.78%	151,955	329%
2016	855,997	1,359,432	503,434	62.97%	156,396	322%
2017	924,705	1,449,365	524,660	63.80%	166,561	315%
2018	990,564	1,539,168	548,604	64.36%	170,555	322%
2019	1,052,205	1,623,133	570,928	64.83%	180,963	315%
2020	1,120,507	1,700,101	579,594	65.91%	194,667	298%

The figures for fiscal years prior to 2015 were applicable for both funding and accounting purposes under GASB Statements 25 and 27. The figures shown for fiscal year 2015 and after are applicable for funding purposes only. Accounting figures under GASB Statements 67 and 68 for fiscal year 2015 and after are shown in a separate report.



Schedule of Funding Progress (\$ in Thousands)

CORS

Actuarial Valuation Date June 30,	Actuarial Value of Assets (a)	Actuarial Accrued Liability (AAL) (b)	Unfunded AAL (UAAL) (b - a)	Funded Ratio (a / b)	Payroll (c)	UAAL as a Percentage of Payroll [(b - a) / c]
2010	\$ 8,601	\$ 12,858	\$ 4,257	66.89%	\$ 3,956	108%
2011	9,980	14,511	4,531	68.78%	4,475	101%
2012	11,341	15,483	4,143	73.24%	4,628	90%
2013	16,971	18,426	1,456	92.10%	4,646	31%
2014	18,827	19,685	859	95.64%	4,752	18%
2015	20,523	21,313	790	96.29%	4,890	16%
2016	21,709	22,401	692	96.91%	4,954	14%
2017	23,112	24,157	1,044	95.68%	5,262	20%
2018	24,527	26,017	1,490	94.27%	5,498	27%
2019	25,732	27,820	2,088	92.49%	5,583	37%
2020	33,376	38,904	5,528	85.79%	7,937	70%

The figures for fiscal years prior to 2015 were applicable for both funding and accounting purposes under GASB Statements 25 and 27. The figures shown for fiscal year 2015 and after are applicable for funding purposes only. Accounting figures under GASB Statements 67 and 68 for fiscal year 2015 and after are shown in a separate report.



Schedule of Employer Contributions (State and Municipal)

(\$ in Thousands)

Fiscal Year Ended June 30,	Annual Required Contributions	Actual Contributions	Percentage Contributed
2011	\$ 2,035,401	\$ 1,512,473	74%
2012	2,146,624	1,521,761	71%
2013	2,149,985	1,643,101	76%
2014	2,320,991	1,733,652	75%
2015	2,107,731	1,858,613	88%
2016	1,948,082	1,870,655	96%
2017	2,033,311	2,033,311	100%
2018	1,995,018	1,995,018	100%
2019	2,054,092	2,054,092	100%
2020	2,144,269	2,144,269	100%

The Annual Required Contribution "ARC" was an accounting term defined in GASB Statements 25 and 27 and is no longer applicable for fiscal year 2015 and after. The amounts for fiscal year 2015 and 2016 were calculated in the same manner as the previous years, but are not used under the current accounting standards GASB Statements 67 and 68. For Fiscal Years 2017 and after the employer contribution is based on the actuarially determined contribution as a percent of payroll, therefore, the required and actual contributions are equal.

Schedule of Employer Contributions by System (State and Municipal) (\$ in Thousands)

	Fiscal Year Ended June 30,	Annual Required Contributions	Actual Contributions	Percentage Contributed
Teachers' Combined System	2016	\$ 1,112,989	\$ 1,084,049	97%
	2017	1,137,472	1,137,472	100%
	2018	1,122,986	1,122,986	100%
	2019	1,143,586	1,143,586	100%
	2020	1,170,248	1,170,248	100%
Employees' Combined System	2016	688,920	640,433	93%
	2017	730,028	730,028	100%
	2018	706,693	706,693	100%
	2019	736,742	736,742	100%
	2020	788,280	788,280	100%
State Police	2016	72,320	72,320	100%
	2017	83,000	83,000	100%
	2018	80,241	80,241	100%
	2019	86,173	86,173	100%
	2020	91,390	91,390	100%
Judges	2016	18,384	18,384	100%
	2017	21,861	21,861	100%
	2018	22,465	22,465	100%
	2019	21,737	21,737	100%
	2020	22,708	22,708	100%
LEOPS	2016	54,959	54,959	100%
	2017	60,472	60,472	100%
	2018	62,131	62,131	100%
	2019	65,314	65,314	100%
	2020	71,070	71,070	100%
CORS (Muni)	2016	510	510	100%
	2017	478	478	100%
	2018	501	501	100%
	2019	542	542	100%
	2020	573	573	100%
Total State	2016	1,837,721	1,760,294	96%
	2017	1,924,203	1,924,203	100%
	2018	1,879,141	1,879,141	100%
	2019	1,928,499	1,928,499	100%
	2020	2,008,467	2,008,467	100%
Total Municipal	2016	110,361	110,361	100%
	2017	109,108	109,108	100%
	2018	115,876	115,876	100%
	2019	125,593	125,593	100%
	2020	135,802	135,802	100%

The Annual Required Contribution "ARC" was an accounting term defined in GASB Statements 25 and 27 and is no longer applicable for fiscal year 2015 and after. The amount for fiscal year 2015 and after was calculated in the same manner as the previous years, but is not used under the current accounting standards GASB Statements 67 and 68. For Fiscal Years 2017 and after the employer contribution is based on the actuarially determined contribution as a percent of payroll, therefore, the required and actual contributions are equal.



APPENDIX A

ACTUARIAL ASSUMPTIONS AND METHODS

Brief Summary of Actuarial Assumptions and Methods

Valuation date	June 30, 2020
Contribution Fiscal Year Ended	June 30, 2022
Actuarial cost method	Individual entry age
Amortization method for Unfunded Actuarial Accrued Liabilities (UAAL)	Level percent closed
Amorization period	25-year closed schedule ending June 30, 2039; 18 years remaining
Asset valuation method	5-year smoothed market (max. 120% and min. 80% of market value)
Actuarial assumptions:	
Investment rate of return	7.40%
Inflation	2.60% price; 3.10% wage
Projected salary increases	3.10% - 11.60%
Cost-of-living adjustments	2.19% - 3.10% for service prior to July 1, 2011.* 1.42% - 3.10% for service after June 30, 2011.*
	<i>* Based on System and provisions. See page A-2 and Appendix C for details.</i>
Retirement Age	Experience-based table of rates that are specific to the type of eligibility condition. Last updated for the 2019 valuation pursuant to the 2018 Experience Study for the period July 1, 2014 to June 30, 2018.
Mortality	Various versions of the Pub-2010 Mortality Tables with projected generational mortality improvements based on the MP-2018 fully generational mortality improvement scale. Please see pages A-6 and A-7 for details.



Actuarial Assumptions and Methods

Actuarial assumptions were developed in connection with a study of 2014-2018 experience in the Experience Study report dated August 16, 2019, which includes the rationale for the assumptions. The assumptions were adopted by the Board on August 20, 2019. Actuarial assumptions are based on a combination of future expectations and historical data. Specific assumptions are shown below.

A. ACTUARIAL ASSUMPTIONS

	1. Valuation Interest Rate	2. Annual Rate of Increase in Cost of Living			3. Aggregate Payroll Growth
		Service Before 7/1/11	Service After 7/1/11		
Teachers' Retirement	7.40%	2.60%	2.60%	#	3.10%
Teachers' Pension	7.40%	2.19%	1.42%	***	3.10%
Employees' Retirement					
Regular	7.40%	2.60%	2.60%	#	3.10%
Correctional	7.40%	2.60%	1.42%	***	3.10%
Legislative	7.40%	3.10%	3.10%		3.10%
Employees' Pension	7.40%	2.19%	1.42%	*,***	3.10%
State Police Retirement	7.40%	2.60%	1.42%	***	3.10%
Judges Pension	7.40%	3.10%	3.10%		3.10%
LEOPS	7.40%	2.19%	1.42%	**,***,#	3.10%
CORS Municipal	7.40%	2.60%	1.42%	***	3.10%

* A 2.60% simple rate is applicable for municipal members of these Systems, who do not elect to be covered under the Contributory plan.

** A 2.60% simple rate is applicable for former EPS members.

*** The increase is capped at the lesser of 2.5% and increase in CPI if the most recent calendar year market value rate of return was greater than or equal to the assumed rate (currently 7.45% as approved by the Board of Trustees). The increase is capped at the lesser of 1% and increase in CPI if the market value return was less than the assumed rate of 7.45%.

For groups whose COLA is capped at 5%, a 2.57% COLA was assumed. A 2.60% COLA was assumed for groups with an unlimited COLA, 2.19% is assumed for groups that are capped at 3%.

The valuation interest rate is net of investment expenses. Administrative expenses are assumed to be paid directly by employers external to the plan assets. Price inflation is assumed to be 2.60% and wage inflation (i.e., aggregate payroll growth) is assumed to be 3.10%.



Actuarial Assumptions and Methods

A. ACTUARIAL ASSUMPTIONS

Rates of Salary Increases

Years of Service	Annual Rates of Salary Increases							
	Teachers' Retirement & Pension	Employees' Retirement			Employees' Pension	State Police	Judges	LEOPS
		Regular	Correctional	Legislative*				
0	9.60%	6.85%	8.35%	3.10%	6.85%	11.60%	3.10%	7.35%
1	7.10%	6.60%	7.35%	3.10%	6.60%	10.10%	3.10%	7.35%
2	6.10%	6.10%	3.85%	3.10%	6.10%	9.60%	3.10%	7.10%
3	6.10%	5.35%	3.35%	3.10%	5.35%	9.35%	3.10%	5.60%
4	6.10%	4.85%	3.35%	3.10%	4.85%	6.60%	3.10%	5.60%
5	6.10%	4.60%	3.35%	3.10%	4.60%	6.60%	3.10%	5.60%
6	6.10%	4.60%	3.35%	3.10%	4.60%	6.60%	3.10%	5.60%
7	5.85%	4.60%	3.10%	3.10%	4.60%	6.60%	3.10%	5.60%
8	5.85%	4.60%	3.10%	3.10%	4.60%	6.60%	3.10%	5.60%
9	5.85%	4.35%	3.10%	3.10%	4.35%	6.60%	3.10%	5.60%
10	5.85%	4.35%	3.10%	3.10%	4.35%	6.10%	3.10%	5.60%
11	5.60%	4.35%	3.10%	3.10%	4.35%	6.10%	3.10%	5.60%
12	5.60%	4.35%	3.10%	3.10%	4.35%	6.10%	3.10%	5.60%
13	5.10%	4.35%	3.10%	3.10%	4.35%	6.10%	3.10%	5.60%
14	5.10%	4.10%	3.10%	3.10%	4.10%	6.10%	3.10%	5.60%
15	5.10%	4.10%	3.10%	3.10%	4.10%	6.10%	3.10%	5.60%
16	5.10%	3.60%	3.10%	3.10%	3.60%	6.10%	3.10%	5.60%
17	4.60%	3.60%	3.10%	3.10%	3.60%	6.10%	3.10%	5.60%
18	4.60%	3.60%	3.10%	3.10%	3.60%	6.10%	3.10%	5.60%
19	4.10%	3.60%	3.10%	3.10%	3.60%	6.10%	3.10%	5.60%
20	4.10%	3.60%	3.10%	3.10%	3.60%	5.10%	3.10%	5.10%
21	4.10%	3.60%	3.10%	3.10%	3.60%	5.10%	3.10%	5.10%
22	4.10%	3.60%	3.10%	3.10%	3.60%	5.10%	3.10%	5.10%
23	3.60%	3.60%	3.10%	3.10%	3.60%	5.10%	3.10%	5.10%
24	3.60%	3.60%	3.10%	3.10%	3.60%	5.10%	3.10%	5.10%
25	3.60%	3.60%	3.10%	3.10%	3.60%	5.10%	3.10%	5.10%
26	3.60%	3.60%	3.10%	3.10%	3.60%	5.10%	3.10%	5.10%
27	3.60%	3.60%	3.10%	3.10%	3.60%	5.10%	3.10%	5.10%
28	3.10%	3.60%	3.10%	3.10%	3.60%	5.10%	3.10%	5.10%
29	3.10%	3.60%	3.10%	3.10%	3.60%	5.10%	3.10%	5.10%
30+	3.10%	3.10%	3.10%	3.10%	3.10%	3.60%	3.10%	3.60%

CORS Municipal assumptions were the same as shown for Employees' Retirement Correctional.

* Total increase is scheduled to be 0.0% through 2022 and wage inflation after.



Actuarial Assumptions and Methods

A. ACTUARIAL ASSUMPTIONS

Rates of Withdrawal

Sample Ages	Years of Service	Annual Rates of Withdrawal from Active Service														
		Teachers' Retirement & Pension		Employees' Retirement						Employees' Pension		State Police		Judges	LEOPS	
		Male	Female	Regular		Correctional		Legislative	Male	Female	Male	Female	Male		Female	
				Male	Female	Male	Female									
All	0	19.00%	16.00%	19.00%	19.00%	14.00%	14.00%	*	19.00%	19.00%	14.00%	14.00%	0.00%	14.00%	14.00%	
	1	14.50%	10.50%	14.50%	15.00%	10.00%	14.00%	*	14.50%	15.00%	8.50%	8.50%	0.00%	9.50%	9.50%	
	2	12.00%	10.50%	12.00%	12.50%	8.00%	12.00%	*	12.00%	12.50%	6.00%	6.00%	0.00%	8.00%	8.00%	
	3	10.00%	9.00%	10.50%	11.00%	7.50%	10.00%	*	10.50%	11.00%	4.25%	4.25%	0.00%	8.00%	8.00%	
	4	7.50%	7.75%	9.00%	9.50%	7.00%	10.00%	*	9.00%	9.50%	4.00%	4.00%	0.00%	6.50%	6.50%	
	5	7.00%	6.50%	7.25%	7.00%	5.50%	8.50%	*	7.25%	7.00%	3.00%	3.00%	0.00%	5.00%	5.00%	
	6	6.25%	5.75%	6.50%	7.00%	5.00%	8.50%	*	6.50%	7.00%	2.50%	2.50%	0.00%	4.50%	4.50%	
	7	5.00%	4.75%	6.00%	6.00%	4.00%	6.00%	*	6.00%	6.00%	2.00%	2.00%	0.00%	3.75%	3.75%	
	8	4.00%	4.00%	5.50%	5.50%	3.50%	6.00%	*	5.50%	5.50%	2.00%	2.00%	0.00%	3.50%	3.50%	
	9	3.50%	3.50%	4.50%	4.50%	3.50%	5.00%	*	4.50%	4.50%	1.50%	1.50%	0.00%	3.50%	3.50%	
25	10 & Over	4.00%	3.50%	4.50%	4.50%	3.50%	5.00%	*	4.50%	4.50%	1.00%	1.00%	0.00%	3.50%	3.50%	
30		2.50%	3.00%	4.00%	4.50%	3.00%	4.00%	*	4.00%	4.50%	1.00%	1.00%	0.00%	2.10%	2.10%	
35		2.00%	2.25%	3.50%	3.75%	2.00%	3.50%	*	3.50%	3.75%	1.00%	1.00%	0.00%	1.90%	1.90%	
40		1.50%	1.50%	3.00%	3.00%	2.00%	3.25%	*	3.00%	3.00%	1.00%	1.00%	0.00%	1.75%	1.75%	
45		1.50%	1.50%	3.00%	2.75%	2.00%	3.25%	*	3.00%	2.75%	1.00%	1.00%	0.00%	1.00%	1.00%	
50		1.50%	1.50%	2.50%	2.50%	2.00%	3.25%	*	2.50%	2.50%	1.00%	1.00%	0.00%	1.00%	1.00%	
55		3.00%	3.00%	5.00%	5.00%	2.00%	3.25%	*	5.00%	5.00%	1.00%	1.00%	0.00%	1.00%	1.00%	
60		3.00%	3.00%	5.00%	5.00%	2.00%	3.25%	*	5.00%	5.00%	1.00%	1.00%	0.00%	1.00%	1.00%	
65	3.00%	3.00%	5.00%	5.00%	2.00%	3.25%	*	5.00%	5.00%	1.00%	1.00%	0.00%	1.00%	1.00%		

CORS Municipal assumptions were the same as shown for Employees' Retirement Correctional.

* 20% of legislative members are assumed to withdraw after 8 years and each fourth year thereafter.

For active members of the Teachers Retirement and Pension Systems and Employees' Retirement (Regular) and Pension Systems, the probability of electing a refund upon withdrawal (if eligible for a vested benefit) is 15% upon first becoming vested, grading down to 0% upon reaching first eligibility for retirement. Active members that terminate from the other Systems that are eligible for a deferred vested benefit are assumed to leave their contributions in the plan and 100% are assumed to elect a deferred benefit.



Actuarial Assumptions and Methods

A. ACTUARIAL ASSUMPTIONS

Summary of Mortality Assumptions

Group	Status and Gender	Base Mortality Table	Scale / Multiplier	Set Forward	Projection Base Year	Projection Scale
TCS	Healthy Male Retirees	PubT-2010 Male Healthy Retiree	105%	0	2010	MP-2018
	Healthy Female Retirees	PubT-2010 Female Healthy Retiree	110%	0	2010	MP-2018
	Disabled Male Retirees	PubT-2010 Male Disabled Retiree	105%	0	2010	MP-2018
	Disabled Female Retirees	PubT-2010 Female Disabled Retiree	113%	0	2010	MP-2018
	Active Males	PubT-2010 Male Employee	100%	0	2010	MP-2018
	Active Females	PubT-2010 Female Employee	100%	0	2010	MP-2018
ECS (excluding CORS)	Healthy Male Retirees	PubG-2010 Male Healthy Retiree	111%	0	2010	MP-2018
	Healthy Female Retirees	PubG-2010 Female Healthy Retiree	109%	0	2010	MP-2018
	Disabled Male Retirees	PubG-2010 Male Disabled Retiree	134%	0	2010	MP-2018
	Disabled Female Retirees	PubG-2010 Female Disabled Retiree	99%	0	2010	MP-2018
	Active Males	PubG-2010 Male Employee	100%	0	2010	MP-2018
	Active Females	PubG-2010 Female Employee	100%	0	2010	MP-2018
Judges	Healthy Male Retirees	PubG-2010 Male Above Median Healthy Retiree	97%	0	2010	MP-2018
	Healthy Female Retirees	PubG-2010 Female Above Median Healthy Retiree	99%	0	2010	MP-2018
	Disabled Male Retirees	PubG-2010 Male Above Median Healthy Retiree	97%	0	2010	MP-2018
	Disabled Female Retirees	PubG-2010 Female Above Median Healthy Retiree	99%	0	2010	MP-2018
	Active Males	PubG-2010 Male Above Median Employee	100%	0	2010	MP-2018
	Active Females	PubG-2010 Female Above Median Employee	100%	0	2010	MP-2018
State Police, LEOPS, and CORS	Healthy Male Retirees	PubS-2010 Male Healthy Retiree	108%	0	2010	MP-2018
	Healthy Female Retirees	PubS-2010 Female Healthy Retiree	103%	0	2010	MP-2018
	Disabled Male Retirees	PubS-2010 Male Disabled Retiree	122%	0	2010	MP-2018
	Disabled Female Retirees	PubS-2010 Female Disabled Retiree	121%	0	2010	MP-2018
	Active Males	PubS-2010 Male Employee	100%	0	2010	MP-2018
	Active Females	PubS-2010 Female Employee	100%	0	2010	MP-2018

Actuarial Assumptions and Methods

A. ACTUARIAL ASSUMPTIONS

Healthy Retired Mortality

Sample Ages in 2020	Actuarial Present Value of \$1 Monthly for Life (Without COLA)											
	Teachers' Retirement & Pension		Employees' Retirement & Pension		Employees' Retirement Correctional & Legislative		State Police		Judges		LEOPS	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
50	\$151.91	\$153.88	\$146.80	\$151.22	\$148.25	\$150.92	\$148.25	\$150.92	\$149.59	\$152.48	\$148.25	\$150.92
55	145.63	148.29	139.90	145.52	140.97	144.42	140.97	144.42	143.36	147.10	140.97	144.42
60	137.56	141.22	131.25	137.95	131.63	136.14	131.63	136.14	135.44	139.91	131.63	136.14
65	127.26	132.00	120.55	128.17	120.22	126.05	120.22	126.05	125.45	130.59	120.22	126.05
70	114.27	120.04	107.30	115.97	106.53	113.88	106.53	113.88	112.90	118.87	106.53	113.88
75	98.50	105.05	91.61	101.15	90.55	99.43	90.55	99.43	97.76	104.51	90.55	99.43
80	80.70	87.62	74.27	84.06	73.12	83.18	73.12	83.18	80.68	87.76	73.12	83.18

Sample Ages in 2020	Future Life Expectancy (Years)											
	Teachers' Retirement & Pension		Employees' Retirement & Pension		Employees' Retirement Correctional & Legislative		State Police		Judges		LEOPS	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
50	37.69	39.68	34.66	37.97	35.00	37.56	35.00	37.56	36.78	39.13	35.00	37.56
55	32.54	34.50	29.79	32.98	29.93	32.43	29.93	32.43	31.81	34.10	29.93	32.43
60	27.56	29.51	25.11	28.10	25.06	27.49	25.06	27.49	27.02	29.17	25.06	27.49
65	22.79	24.67	20.67	23.38	20.49	22.84	20.49	22.84	22.43	24.40	20.49	22.84
70	18.26	20.01	16.48	18.92	16.25	18.50	16.25	18.50	18.06	19.86	16.25	18.50
75	14.06	15.61	12.62	14.75	12.39	14.49	12.39	14.49	14.01	15.61	12.39	14.49
80	10.33	11.65	9.23	11.00	9.03	10.92	9.03	10.92	10.40	11.75	9.03	10.92

CORS Municipal assumptions were the same as shown for Employees' Retirement Correctional.



Actuarial Assumptions and Methods

A. ACTUARIAL ASSUMPTIONS

Disabled Retired Mortality

Sample Ages in 2020	Actuarial Present Value of \$1 Monthly for Life (Without COLA)											
	Teachers' Retirement & Pension		Employees' Retirement & Pension		Employees' Retirement Correctional & Legislative		State Police		Judges		LEOPS	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
50	\$124.70	\$128.37	\$117.27	\$131.51	\$143.14	\$145.53	\$143.14	\$145.53	\$149.24	\$152.39	\$143.14	\$145.53
55	117.27	122.36	109.18	125.75	135.23	138.38	135.23	138.38	142.92	146.98	135.23	138.38
60	109.96	115.88	101.49	119.46	125.32	129.80	125.32	129.80	134.90	139.76	125.32	129.80
65	102.13	108.26	93.49	111.98	113.81	119.97	113.81	119.97	124.81	130.40	113.81	119.97
70	92.86	98.28	84.18	102.17	100.39	108.40	100.39	108.40	112.14	118.64	100.39	108.40
75	81.39	85.68	72.75	89.76	84.72	94.49	84.72	94.49	96.89	104.24	84.72	94.49
80	68.26	71.54	59.83	75.71	68.30	78.15	68.30	78.15	79.74	87.46	68.30	78.15

Sample Ages in 2020	Future Life Expectancy (Years)											
	Teachers' Retirement & Pension		Employees' Retirement & Pension		Employees' Retirement Correctional & Legislative		State Police		Judges		LEOPS	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
50	25.65	27.58	22.41	29.21	32.25	34.51	32.25	34.51	36.48	39.04	32.25	34.51
55	22.18	24.16	19.23	25.64	27.45	29.67	27.45	29.67	31.52	34.01	27.45	29.67
60	19.12	20.96	16.49	22.29	22.88	25.12	22.88	25.12	26.75	29.08	22.88	25.12
65	16.29	17.87	13.99	19.05	18.67	20.91	18.67	20.91	22.17	24.32	18.67	20.91
70	13.56	14.76	11.58	15.80	14.80	17.00	14.80	17.00	17.83	19.78	14.80	17.00
75	10.87	11.71	9.19	12.62	11.25	13.33	11.25	13.33	13.80	15.54	11.25	13.33
80	8.36	8.94	6.96	9.72	8.23	9.94	8.23	9.94	10.22	11.69	8.23	9.94

CORS Municipal assumptions were the same as shown for Employees' Retirement Correctional.



Actuarial Assumptions and Methods

ACTUARIAL ASSUMPTIONS

Accidental Death Mortality Rates		
State Police and LEOPS		
Sample Ages in 2020	Male	Female
20	0.0120%	0.0050%
25	0.0122%	0.0068%
30	0.0155%	0.0100%
35	0.0183%	0.0135%
40	0.0205%	0.0164%
45	0.0239%	0.0195%
50	0.0329%	0.0262%
55	0.0508%	0.0386%
60	0.0819%	0.0531%
65	0.1244%	0.0657%
70	0.2162%	0.1232%
75	0.3905%	0.2464%
80	0.7294%	0.5032%

Additional margin for future mortality improvements are included in the projection scale.

Actuarial Assumptions and Methods

A. ACTUARIAL ASSUMPTIONS

Rates of Disability

Sample Ages	Annual Rates of Disability															
	Teachers' Retirement				Teachers' Pension				Employees' Retirement							
	Ordinary		Accidental		Ordinary		Accidental		Ordinary				Accidental			
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
25	0.0252%	0.0352%	0.0015%	0.0016%	0.0252%	0.0352%	0.0015%	0.0016%	0.1131%	0.0703%	0.0817%	0.1040%	0.0360%	0.0172%	0.0595%	0.0780%
30	0.0252%	0.0352%	0.0015%	0.0016%	0.0252%	0.0352%	0.0015%	0.0016%	0.1450%	0.0695%	0.1047%	0.1081%	0.0378%	0.0180%	0.0714%	0.0780%
35	0.0252%	0.0447%	0.0015%	0.0020%	0.0252%	0.0447%	0.0015%	0.0020%	0.1812%	0.1202%	0.1308%	0.1868%	0.0528%	0.0252%	0.0901%	0.0780%
40	0.0828%	0.0779%	0.0051%	0.0035%	0.0828%	0.0779%	0.0051%	0.0035%	0.2400%	0.2219%	0.1734%	0.3452%	0.0693%	0.0323%	0.1139%	0.0867%
45	0.1656%	0.1482%	0.0102%	0.0066%	0.1656%	0.1482%	0.0102%	0.0066%	0.3219%	0.3285%	0.2325%	0.5110%	0.0615%	0.0335%	0.1428%	0.0997%
50	0.2475%	0.2499%	0.0153%	0.0112%	0.2475%	0.2499%	0.0153%	0.0112%	0.4650%	0.5652%	0.3325%	0.7327%	0.0548%	0.0353%	0.2023%	0.1301%
55	0.3303%	0.4199%	0.0204%	0.0188%	0.3303%	0.4199%	0.0204%	0.0188%	0.6571%	0.7241%	0.4275%	1.0148%	0.0516%	0.0345%	0.2499%	0.1821%
60	0.3564%	0.3591%	0.0255%	0.0161%	0.3564%	0.3591%	0.0255%	0.0161%	0.6662%	0.8123%	0.5245%	1.4024%	0.0528%	0.0374%	0.2499%	0.1821%

Sample Ages	Annual Rates of Disability															
	Employees' Pension				State Police				Judges		LEOPS					
	Ordinary		Accidental		Ordinary		Accidental		Male	Female	Ordinary		Accidental			
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female		
25	0.1131%	0.0703%	0.0360%	0.0172%	0.1175%	0.1762%	0.3915%	0.2936%	0.0060%	0.0111%	0.1428%	0.6452%	0.3094%	0.3910%		
30	0.1450%	0.0695%	0.0378%	0.0180%	0.1497%	0.2246%	0.4158%	0.3119%	0.0060%	0.0111%	0.1831%	0.6912%	0.3305%	0.3491%		
35	0.1812%	0.1202%	0.0528%	0.0252%	0.1883%	0.2824%	0.5098%	0.3823%	0.0060%	0.0260%	0.2288%	0.6975%	0.4028%	0.3434%		
40	0.2400%	0.2219%	0.0693%	0.0323%	0.2499%	0.3748%	0.5900%	0.4425%	0.0190%	0.0520%	0.3031%	0.8179%	0.4652%	0.3510%		
45	0.3219%	0.3285%	0.0615%	0.0335%	0.3349%	0.5024%	0.6541%	0.4906%	0.0379%	0.0891%	0.4065%	0.9917%	0.5161%	0.3523%		
50	0.4650%	0.5652%	0.0548%	0.0353%	0.4787%	0.7181%	0.9140%	0.6855%	0.0569%	0.1300%	0.5482%	1.2280%	0.7213%	0.4521%		
55	0.6571%	0.7241%	0.0516%	0.0345%	0.6154%	0.9231%	1.1924%	0.8943%	0.0757%	0.2228%	0.5482%	1.2280%	0.9412%	0.7003%		
60	0.6662%	0.8123%	0.0528%	0.0374%	0.7549%	1.1323%	1.4739%	1.1054%	0.0947%	0.2228%	0.5482%	1.2280%	1.1637%	1.2383%		

CORS Municipal assumptions were the same as shown for Employees' Retirement Correctional.



Actuarial Assumptions and Methods

A. ACTUARIAL ASSUMPTIONS

Rates of Normal Retirement

Ages	Annual Rates of Normal Retirement													
	Teachers' Retirement		Teachers' Pension				Employees' Retirement		Legislators*		Employees' Pension			
	All Years of Service		At Least 30 Years		Less Than 30 Years		All Years of Service		All Years of Service		At Least 30 Years		Less Than 30 Years	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
45	15.0%	15.0%	12.0%	10.0%			17.0%	16.0%			12.0%	11.0%		
46	15.0%	15.0%	12.0%	10.0%			17.0%	16.0%			12.0%	11.0%		
47	15.0%	15.0%	12.0%	10.0%			17.0%	16.0%			12.0%	11.0%		
48	15.0%	15.0%	12.0%	10.0%			17.0%	16.0%			12.0%	13.0%		
49	15.0%	15.0%	12.0%	10.0%			17.0%	16.0%			10.0%	11.0%		
50	15.0%	15.0%	12.0%	10.0%			10.0%	11.0%			10.0%	11.0%		
51	15.0%	15.0%	12.0%	10.0%			10.0%	11.0%			10.0%	11.0%		
52	15.0%	15.0%	12.0%	10.0%			10.0%	11.0%			10.0%	11.0%		
53	15.0%	15.0%	12.0%	10.0%			10.0%	10.0%			10.0%	11.0%		
54	15.0%	20.0%	12.0%	10.0%			8.0%	10.0%			10.0%	11.0%		
55	15.0%	20.0%	12.0%	11.0%			13.0%	10.0%			10.0%	11.0%		
56	15.0%	20.0%	12.0%	11.0%			8.0%	10.0%			10.0%	11.0%		
57	15.0%	15.0%	12.0%	11.0%			8.0%	10.0%			10.0%	11.0%		
58	20.0%	15.0%	12.0%	11.0%			8.0%	13.0%			10.0%	11.0%		
59	10.0%	18.0%	12.0%	13.0%			11.0%	13.0%			10.0%	11.0%		
60	15.0%	20.0%	13.0%	16.0%			13.0%	13.0%	20.0%	20.0%	10.0%	14.0%		
61	20.0%	18.0%	16.0%	19.0%			11.0%	13.0%	20.0%	20.0%	13.0%	14.0%		
62	20.0%	25.0%	28.0%	26.0%	16.0%	20.0%	27.0%	25.0%	20.0%	20.0%	23.0%	26.0%	16.0%	18.0%
63	20.0%	25.0%	21.0%	23.0%	13.0%	17.0%	23.0%	22.0%	20.0%	20.0%	23.0%	22.0%	13.0%	16.0%
64	20.0%	20.0%	19.0%	21.0%	13.0%	16.0%	19.0%	22.0%	20.0%	20.0%	18.0%	20.0%	13.0%	14.0%
65	25.0%	25.0%	25.0%	25.0%	16.0%	19.0%	20.0%	22.0%	30.0%	30.0%	17.0%	20.0%	13.0%	16.0%
66	25.0%	30.0%	25.0%	30.0%	20.0%	24.0%	25.0%	22.0%	35.0%	35.0%	25.0%	25.0%	18.0%	19.0%
67	25.0%	25.0%	22.0%	27.0%	20.0%	22.0%	25.0%	25.0%	35.0%	35.0%	25.0%	25.0%	16.0%	19.0%
68	20.0%	25.0%	20.0%	27.0%	17.0%	19.0%	18.0%	25.0%	35.0%	35.0%	20.0%	22.0%	16.0%	18.0%
69	20.0%	25.0%	22.0%	25.0%	15.0%	18.0%	18.0%	25.0%	35.0%	35.0%	18.0%	22.0%	16.0%	18.0%
70	20.0%	25.0%	25.0%	27.0%	20.0%	20.0%	20.0%	20.0%	35.0%	35.0%	22.0%	22.0%	16.0%	18.0%
71	20.0%	25.0%	22.0%	27.0%	16.0%	19.0%	20.0%	20.0%	35.0%	35.0%	20.0%	22.0%	16.0%	18.0%
72	20.0%	25.0%	30.0%	22.0%	16.0%	17.0%	20.0%	20.0%	35.0%	35.0%	25.0%	22.0%	17.0%	18.0%
73	20.0%	25.0%	22.0%	25.0%	20.0%	17.0%	20.0%	20.0%	50.0%	50.0%	22.0%	25.0%	17.0%	18.0%
74	15.0%	18.0%	22.0%	27.0%	18.0%	15.0%	20.0%	20.0%	50.0%	50.0%	22.0%	25.0%	17.0%	18.0%
75	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	18.0%	18.0%
76													18.0%	18.0%
77 & Over													100.0%	100.0%

* Retirement rates for Legislative members are assumed to apply every four years to members eligible for retirement (beginning with the year ending June 30, 2015, and each fourth year thereafter).



Actuarial Assumptions and Methods

A. ACTUARIAL ASSUMPTIONS

Rates of Normal Retirement

Ages	Annual Rates of Normal Retirement													
	Correctional Officers				State Police *				Judges		LEOPS			
	At Least 20 Years		Less Than 20 Years		At Least 22 Years		Less Than 22 Years		All Years of Service		At Least 25 Years		Less Than 25 Years	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
40	25.0%	25.0%			10.0%	10.0%					40.0%	40.0%		
41	18.0%	18.0%			15.0%	15.0%					40.0%	40.0%		
42	18.0%	18.0%			20.0%	20.0%					40.0%	40.0%		
43	18.0%	18.0%			25.0%	25.0%					40.0%	40.0%		
44	18.0%	18.0%			20.0%	20.0%					40.0%	40.0%		
45	15.0%	15.0%			30.0%	30.0%					40.0%	40.0%		
46	15.0%	15.0%			25.0%	25.0%					40.0%	40.0%		
47	15.0%	15.0%			25.0%	25.0%					40.0%	40.0%		
48	13.0%	13.0%			25.0%	25.0%					40.0%	40.0%		
49	13.0%	13.0%			30.0%	30.0%					40.0%	40.0%		
50	13.0%	13.0%			35.0%	35.0%	7.0%	7.0%			25.0%	25.0%	5.0%	5.0%
51	12.0%	12.0%			20.0%	20.0%	7.0%	7.0%			25.0%	25.0%	5.0%	5.0%
52	12.0%	12.0%			20.0%	20.0%	7.0%	7.0%			25.0%	25.0%	5.0%	5.0%
53	12.0%	12.0%			35.0%	35.0%	7.0%	7.0%			20.0%	20.0%	4.0%	4.0%
54	12.0%	12.0%			20.0%	20.0%	7.0%	7.0%			30.0%	30.0%	4.0%	4.0%
55	12.0%	12.0%	3.0%	3.0%	40.0%	40.0%	7.0%	7.0%			30.0%	30.0%	4.0%	4.0%
56	11.0%	11.0%	3.0%	3.0%	35.0%	35.0%	15.0%	15.0%			30.0%	30.0%	5.0%	5.0%
57	11.0%	11.0%	3.0%	3.0%	35.0%	35.0%	15.0%	15.0%			20.0%	20.0%	5.0%	5.0%
58	11.0%	11.0%	3.0%	3.0%	35.0%	35.0%	15.0%	15.0%			20.0%	20.0%	5.0%	5.0%
59	11.0%	11.0%	3.0%	3.0%	50.0%	50.0%	15.0%	15.0%			20.0%	20.0%	5.0%	5.0%
60	11.0%	11.0%	3.0%	3.0%	100.0%	100.0%	100.0%	100.0%	7.0%	10.0%	25.0%	25.0%	6.0%	6.0%
61	13.0%	13.0%	3.0%	3.0%					7.0%	10.0%	25.0%	25.0%	6.0%	6.0%
62	35.0%	35.0%	10.0%	10.0%					7.0%	15.0%	30.0%	30.0%	15.0%	15.0%
63	25.0%	25.0%	5.0%	5.0%					7.0%	10.0%	30.0%	30.0%	15.0%	15.0%
64	25.0%	25.0%	12.0%	12.0%					7.0%	10.0%	30.0%	30.0%	15.0%	15.0%
65	30.0%	30.0%	12.0%	12.0%					7.0%	10.0%	30.0%	30.0%	30.0%	30.0%
66	30.0%	30.0%	20.0%	20.0%					7.0%	10.0%	50.0%	50.0%	30.0%	30.0%
67	30.0%	30.0%	15.0%	15.0%					7.0%	10.0%	50.0%	50.0%	30.0%	30.0%
68	30.0%	30.0%	10.0%	10.0%					10.0%	15.0%	70.0%	70.0%	30.0%	30.0%
69	35.0%	35.0%	20.0%	20.0%					10.0%	15.0%	70.0%	70.0%	30.0%	30.0%
70 & Over	100.0%	100.0%	100.0%	100.0%					100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

* 50% of participants are expected to elect DROP participation.



Actuarial Assumptions and Methods

A. ACTUARIAL ASSUMPTIONS

Rates of Normal Retirement

Ages	Additional Rates to Add to Annual Rates of Normal Retirement at Age of First Eligibility							
	Teachers' Pension Reformed				Employees' Pension Reformed			
	At Least 30 Years		Less Than 30 Years		At Least 30 Years		Less Than 30 Years	
	Male	Female	Male	Female	Male	Female	Male	Female
55 and Under	39.0%	33.0%			35.0%	35.0%		
56	32.0%	26.0%			28.0%	28.0%		
57	24.0%	19.0%			21.0%	21.0%		
58	15.0%	11.0%			14.0%	14.0%		
59	4.0%	2.0%			7.0%	7.0%		
60	0.0%	0.0%			0.0%	0.0%		
61	0.0%	0.0%			0.0%	0.0%		
62	0.0%	0.0%			0.0%	0.0%		
63	0.0%	0.0%			0.0%	0.0%		
64	0.0%	0.0%			0.0%	0.0%		
65+	0.0%	0.0%	20.0%	16.0%	0.0%	0.0%	25.0%	25.0%

State Police Reformed: Add additional 20% to annual rate at age of first eligibility if under age 50.

Actuarial Assumptions and Methods

A. ACTUARIAL ASSUMPTIONS

Rates of Early Retirement

Ages	Annual Rates of Early Retirement *											
	Teachers' Retirement		Teachers' Pension				Employees' Retirement		Employees' Pension			
			Non-Reformed		Reformed				Non-Reformed		Reformed	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
40	5.0%	5.0%					5.0%	5.0%				
41	5.0%	5.0%					5.0%	5.0%				
42	5.0%	5.0%					5.0%	5.0%				
43	5.0%	5.0%					5.0%	5.0%				
44	5.0%	5.0%					5.0%	5.0%				
45	5.0%	5.0%					5.0%	5.0%				
46	5.0%	5.0%					5.0%	5.0%				
47	5.0%	5.0%					5.0%	5.0%				
48	5.0%	5.0%					5.0%	5.0%				
49	5.0%	5.0%					5.0%	5.0%				
50	5.0%	5.0%					5.0%	5.0%				
51	5.0%	5.0%					5.0%	5.0%				
52	5.0%	5.0%					5.0%	5.0%				
53	5.0%	5.0%					5.0%	5.0%				
54	5.0%	5.0%					5.0%	5.0%				
55	10.0%	10.0%	2.0%	2.5%			5.0%	5.0%	1.8%	2.2%		
56	5.0%	5.0%	2.0%	2.5%			5.0%	5.0%	1.5%	2.5%		
57	5.0%	5.0%	2.5%	2.5%			5.0%	5.0%	1.5%	2.5%		
58	5.0%	5.0%	2.0%	3.0%			5.0%	5.0%	1.5%	3.5%		
59	5.0%	5.0%	4.0%	4.0%			5.0%	5.0%	2.0%	3.0%		
60			3.5%	6.0%	10.0%	13.5%			3.0%	4.5%	7.8%	11.7%
61			6.5%	7.0%	6.5%	7.0%			5.0%	5.0%	5.0%	5.0%
62					7.0%	7.5%					5.5%	5.5%
63					7.5%	8.0%					6.0%	6.0%
64					8.0%	8.5%					6.5%	6.5%

* Divisions without early retirement eligibility are not shown.



Actuarial Assumptions and Methods

A. ACTUARIAL ASSUMPTIONS

Social Security Covered Compensation

Teachers' Retirement	Not applicable
Teachers' Pension	Future covered compensation levels, used to estimate member contributions and retirement allowances, were calculated using a 3.10% per annum compounded increase in the 2020 Social Security Maximum Taxable Wage Base.
Employees' Retirement	Not applicable
Employees' Pension	Future covered compensation levels, used to estimate member contributions and retirement allowances, were calculated using a 3.10% per annum compounded increase in the 2020 Social Security Maximum Taxable Wage Base.
State Police Retirement	Not applicable
Judges' Pension	Not applicable
LEOPS	Future covered compensation levels, used to estimate member contributions and retirement allowances, were calculated using a 3.10% per annum compounded increase in the 2020 Social Security Maximum Taxable Wage Base.
Correctional Officers' Retirement System	Not applicable

Actuarial Assumptions and Methods

B. ACTUARIAL PROCEDURES

1. Asset Valuation Method

All six Systems use a method based on the principle that the difference between actual and expected investment returns should be subject to partial recognition to smooth out fluctuations in the total return achieved by the fund from year to year. Under this method, the actuarial value of assets reflects annually one-fifth of the market value gains or losses for the five prior years. The resulting value is restricted to be not less than 80% of market value nor greater than 120% of market value.

For the Employees' Retirement and Pension System and for LEOPS, assets must be allocated between State and Municipal Corporation members. Beginning July 1, 1984, this allocation is based upon actual cash flows and shared investment results.

Actuarial Assumptions and Methods

B. ACTUARIAL PROCEDURES

2. Funding Method

All six Systems use the individual entry age normal method to determine costs. Under this funding method, a total contribution rate is determined which consists of two elements, the normal cost rate and the Unfunded Actuarial Liability (UAL) rate.

The individual Entry Age Normal cost rate is determined as the value, as of age at entry into the plan, of the member's projected future benefits, and divided by the value, also as of the member's entry age, of the member's expected future salary. For purposes of calculating the normal cost rate, the same benefit accrual rates used to calculate the present value of future benefits are used to calculate the normal cost. The benefit provisions applicable to each member are used in developing his/her individual normal cost rate.

In addition to contributions required to meet the System's normal cost, contributions will be required to fund the System's unfunded actuarial liability. Actuarial liability is defined as the present value of future benefits less the present value of future normal costs. The unfunded actuarial liability for all members is the actuarial liability less the actuarial value of the System's assets.

The System's unfunded actuarial liability is funded over a 25-year closed amortization period ending June 30, 2039 (18 years remaining as of the June 30, 2020 valuation date) as a level percentage of payroll.

There is an additional component in the Unfunded Actuarial Accrued Liability amortization contribution rate that accounts for the effects of the lag between the valuation date and when the contribution is made. This calculation assumes the contributions that would be received in fiscal year 2021 are equal to the budgeted contributions developed in the valuation as of June 30, 2019, plus the proportionate share of reinvested savings allocated to each System for fiscal year 2021 (which is assumed to be \$0) under the pension reforms.

A portion of the savings from the 2011 pension reforms passed by the General Assembly are to be reinvested as additional contributions into the Systems. Beginning in fiscal year 2016, \$75 million of additional contributions are to be reinvested each year until the combined System reaches 85% funded.



Summary of Assumptions Used

June 30, 2020

Miscellaneous and Technical Assumptions

Marriage Assumption:	100% of males and females are assumed to be married for purposes of death-in-service benefits; 80% of healthy males and females, and 65% of disabled males and females, are assumed to be married for purposes of post-retirement death benefits.
Pay Increase Timing:	Teachers' Systems assume beginning of (Fiscal) year. This is equivalent to assuming that reported pays represent amounts paid to members during the year ended on the valuation date. All other Systems assume middle of (Fiscal) year. This is equivalent to assuming that reported pays represent the annualized rate of pay at the beginning of the (Fiscal) year.
Decrement Timing:	Decrements of all types are assumed to occur mid-year, except for Teachers' Systems which assumed beginning of year (i.e., July 1) for retirement and termination.
Eligibility Testing:	Eligibility for benefits is determined based upon the age nearest birthday and rounded integer service on the date the decrement is assumed to occur.
Benefit Service:	Exact fractional service is used to determine the amount of benefit payable.
Decrement Operation:	Mortality and disability operate during retirement eligibility.
Incidence of Contributions:	Contributions are assumed to be received continuously throughout the year based upon the computed percent of payroll shown in this report, and the actual payroll payable at the time contributions are made. New entrant normal cost contributions are applied to the funding of new entrant benefits.
Unused Sick Leave:	Each member is assumed to have the following months of service at retirement attributable to sick leave. Correctional Officers: 2 months Employees' and Teachers' Retirement: 10 months Judges and Legislators: 0 months Employees' and Teachers' Pension: 4 and 5 months, respectively LEOPS and State Police: 6 months and 7 months, respectively
Unknown Data for Participants:	Average characteristics of the group as a whole are used to fill in the unknown data.
Age of Spouse:	In the absence of complete data, female retirees are assumed to be 2 years younger than male spouses, and male retirees are assumed to be 3 years older than female spouses.



Summary of Assumptions Used

June 30, 2020

Miscellaneous and Technical Assumptions

Option Elections: It was assumed optional forms of payment were actuarially equivalent to the normal form of payment.

Actuarial Equivalence:
TCS, ECS, & Judges 5.85% interest, RP 2014 Combined Annuitant Mortality, 50% Unisex, 2.29% COLA pre-reform, 1.49% COLA post-reform

State Police & LEOPS 5.85% interest, RP 2014 Combined Annuitant Mortality, 85% Unisex, 2.46% COLA pre-reform, 1.49% COLA post-reform.

Reinvested Savings Allocation: Total savings from the 2011 pension reforms that are to be reinvested in each of the Systems as additional contributions are allocated between the Systems in proportion to the savings as measured in the actuarial valuation as of June 30, 2011.

Vested Deferred Benefit Commencement: Active members assumed to terminate with a vested benefit, current vested deferred, and inactive members are assumed to commence receiving benefits at the following ages:

Correctional Officers: Age 55

Employees' and Teachers' Retirement, Judges, and Legislators: Age 60

Employees' and Teachers' Pension: Age 62 or age 55 if the member has at least 15 years of service

Employees' and Teachers' Pension Reformed: Age 65 or age 60 if the member has at least 15 years of service

LEOPS and State Police: Age 50

Liability Adjustments: For State Police and LEOPS, the value of the 4% DROP interest credits compared to the valuation interest rate of 7.40% was accounted for through the use of certain load factors as shown in the table below. The assumed length of time members would stay in the DROP was 4.73 years for State Police and 4.86 years for LEOPS, based on the average projected DROP period of DROP members in the valuation data provided by the SRA.

<u>Load Applied to</u>	<u>Load Factor</u>	
	<u>State Police</u>	<u>LEOPS</u>
Active Normal Retirement Decrement	0.9896	0.9887
Liabilities for Members in the DROP	0.9928	0.9895
DROP Account Balances	0.9284	0.9145



Definitions of Technical Terms

Accrued Service

Service credited under the system which was rendered before the date of the actuarial valuation.

Actuarial Accrued Liability

The difference between the actuarial present value of system benefits and the actuarial present value of future normal costs. Also referred to as "past service liability."

Actuarial Assumptions

Estimates of future experience with respect to rates of mortality, disability, turnover, retirement, rate or rates of investment income and salary increases. Decrement assumptions (rates of mortality, disability, turnover and retirement) are generally based on past experience, often modified for projected changes in conditions. Economic assumptions (salary increases and investment income) consist of an underlying rate in an inflation-free environment plus a provision for a long-term average rate of inflation.

Actuarial Cost Method

A mathematical budgeting procedure for allocating the dollar amount of the "actuarial present value of future benefits" between future normal costs and Actuarial Accrued Liability. Sometimes referred to as the "actuarial funding method."

Actuarial Equivalent

One series of payments is said to be actuarially equivalent to another series of payments if the two series have the same actuarial present value.

Actuarial Gain (Loss)

The difference between actual unfunded actuarial accrued liabilities and anticipated unfunded actuarial accrued liabilities -- during the period between two valuation dates. It is a measurement of the difference between actual and expected experience.

Actuarial Present Value

The amount of funds currently required to provide a payment or series of payments in the future. It is determined by discounting future payments at predetermined rates of interest, and by probabilities of payments.

Amortization

Paying off an interest-discounted amount with periodic payments of interest and (generally) principal -- as opposed to paying off with a lump sum payment.



Definitions of Technical Terms

Normal Cost

The portion of the actuarial present value of future benefits that is assigned to the current year by the actuarial cost method. Sometimes referred to as "current service cost."

Projected Benefit Obligation

The portion of a member's projected benefit attributable to service before the valuation date - allocated based on the ratio of accrued service to projected total service and based on anticipated future compensation.

Unfunded Actuarial Accrued Liabilities

The difference between actuarial accrued liabilities and valuation assets. Sometimes referred to as "unfunded past service liability" or "unfunded supplemental present value."

Most retirement systems have unfunded actuarial accrued liabilities. They arise each time new benefits are added and each time an actuarial loss occurs.

The existence of unfunded actuarial accrued liabilities is not in itself bad, any more than a mortgage on a house is bad. Unfunded actuarial accrued liabilities do not represent a debt that is payable today. What is important is the ability to amortize the unfunded actuarial accrued liabilities and the trend in their amount (after due allowance for devaluation of the dollar).

APPENDIX B

MEMBERSHIP INFORMATION

State Retirement and Pension System Summary of Membership Data as of June 30, 2020 (State and Municipal)

		Active Members		Retirees and Beneficiaries					Vested Former Members (Includes Inactives)	Total Number
		Number	Salary	Number	Benefits#	Avg. Monthly Benefit	Avg. Age	Avg. Age at Ret.*		
Teachers' Retirement - STATE	Total	88	\$ 11,203,228							
	Vested	88	\$ 11,203,228							
	Non-vested	0	\$ -	3,218	\$ 129,086,297	\$ 3,343	81.1	62.2	47	3,353
Teachers' Pension - STATE	Total	9,080	\$ 584,489,974							
	Vested	4,421	\$ 323,638,379							
	Non-vested	4,659	\$ 260,851,595	6,452	\$ 119,378,955	\$ 1,542	73.5	63.5	2,886	18,418
Teachers' Retirement - LOCAL	Total	173	\$ 16,472,704							
	Vested	173	\$ 16,472,704							
	Non-vested	0	\$ -	20,640	\$ 865,592,272	\$ 3,495	78.4	58.2	72	20,885
Teachers' Pension - LOCAL	Total	100,256	\$ 6,880,299,191							
	Vested	56,055	\$ 4,506,963,339							
	Non-vested	44,201	\$ 2,373,335,852	50,129	\$ 1,252,159,690	\$ 2,082	71.3	62.0	21,021	171,406
Employees' Retirement^	Total	8,032	\$ 434,681,795							
	Vested	4,978	\$ 289,347,189							
	Non-vested	3,054	\$ 145,334,606	19,464	\$ 499,504,611	\$ 2,139	71.0	63.2	750	28,246
Employees' Pension	Total	73,624	\$ 4,203,514,950							
	Vested	35,950	\$ 2,300,118,399							
	Non-vested	37,674	\$ 1,903,396,551	62,583	\$ 1,024,766,986	\$ 1,365	70.9	62.2	23,719	159,926
State Police	Total	1,391	\$ 116,274,059							
	Vested	843	\$ 82,016,899							
	Non-vested	548	\$ 34,257,160	2,517	\$ 131,773,601	\$ 4,363	64.9	47.8	87	3,995
Judges	Total	324	\$ 51,882,186							
	Vested	208	\$ 33,375,558							
	Non-vested	116	\$ 18,506,628	441	\$ 37,534,671	\$ 7,093	77.8	65.4	8	773
LEOPS	Total	2,748	\$ 194,666,790							
	Vested	1,394	\$ 114,333,959							
	Non-vested	1,354	\$ 80,332,831	2,153	\$ 79,592,891	\$ 3,081	61.6	52.8	306	5,207
CORS Municipal	Total	135	\$ 7,937,330							
	Vested	70	\$ 4,698,953							
	Non-vested	65	\$ 3,238,377	47	\$ 1,246,509	\$ 2,210	60.3	56.4	6	188
Total Systems	Total	195,851	\$ 12,501,422,207							
	Vested	104,180	\$ 7,682,168,607							
	Non-vested	91,671	\$ 4,819,253,600	167,644	\$ 4,140,636,484	\$ 2,058	72.3	60.8	48,902	412,397

^ Includes CORS (State) and Legislators. See page B-3 for the summary for each subgroup.

* Includes normal and early service retirees only.

#Retiree benefit amounts include the cost-of-living adjustment granted July 1, 2020.



State Retirement and Pension System Summary of Membership Data as of June 30, 2020 (State Only)

		Active Members		Retirees and Beneficiaries				Vested Former Members (Includes Inactives)	Total Number
		Number	Salary	Number	Benefits#	Avg. Monthly Benefit	Avg. Age		
Teachers' Retirement - STATE	Total	88	\$ 11,203,228						
	Vested	88	\$ 11,203,228						
	Non-vested	0	\$ -	3,218	\$ 129,086,297	\$ 3,343	81.1	62.2	47
Teachers' Pension - STATE	Total	9,080	\$ 584,489,974						
	Vested	4,421	\$ 323,638,379						
	Non-vested	4,659	\$ 260,851,595	6,452	\$ 119,378,955	\$ 1,542	73.5	63.5	2,886
Teachers' Retirement - LOCAL	Total	173	\$ 16,472,704						
	Vested	173	\$ 16,472,704						
	Non-vested	0	\$ -	20,640	\$ 865,592,272	\$ 3,495	78.4	58.2	72
Teachers' Pension - LOCAL	Total	100,256	\$ 6,880,299,191						
	Vested	56,055	\$ 4,506,963,339						
	Non-vested	44,201	\$ 2,373,335,852	50,129	\$ 1,252,159,690	\$ 2,082	71.3	62.0	21,021
Employees' Retirement^	Total	7,999	\$ 432,468,715						
	Vested	4,945	\$ 287,134,109						
	Non-vested	3,054	\$ 145,334,606	16,955	\$ 440,304,740	\$ 2,164	72.6	56.8	735
Employees' Pension	Total	48,735	\$ 2,967,450,512						
	Vested	24,169	\$ 1,612,732,604						
	Non-vested	24,566	\$ 1,354,717,908	46,099	\$ 796,200,207	\$ 1,439	70.8	61.8	17,523
State Police	Total	1,391	\$ 116,274,059						
	Vested	843	\$ 82,016,899						
	Non-vested	548	\$ 34,257,160	2,517	\$ 131,773,601	\$ 4,363	64.9	47.8	87
Judges	Total	324	\$ 51,882,186						
	Vested	208	\$ 33,375,558						
	Non-vested	116	\$ 18,506,628	441	\$ 37,534,671	\$ 7,093	77.8	65.4	8
LEOPS	Total	1,641	\$ 122,266,528						
	Vested	820	\$ 70,749,439						
	Non-vested	821	\$ 51,517,089	1,647	\$ 60,068,957	\$ 3,039	62.8	52.9	186
Total Systems	Total	169,687	\$ 11,182,807,097						
	Vested	91,722	\$ 6,944,286,259						
	Non-vested	77,965	\$ 4,238,520,838	148,098	\$ 3,832,099,392	\$ 2,156	72.4	60.6	42,565

^ Includes CORS (State) and Legislators. See page B-3 for the summary for each subgroup.

* Includes normal and early service retirees only.

#Retiree benefit amounts include the cost-of-living adjustment granted July 1, 2020.



State Retirement and Pension System Summary of Membership Data as of June 30, 2020 (State Only - Employees' Retirement Subgroups)

		Active Members		Retirees and Beneficiaries					Vested Former Members (Includes Inactives)	Total
		Number	Salary	Number	Benefits#	Avg. Monthly Benefit	Avg. Age	Avg. Age at Ret.*	Number	Number
Employees' Retirement	Total	192	\$ 15,387,208							
	Vested	192	\$ 15,387,208							
	Non-vested	0	\$ -	10,315	\$ 289,735,131	\$ 2,341	78.5	58.5	93	10,600
Legislators	Total	188	\$ 9,492,122							
	Vested	71	\$ 3,603,512							
	Non-vested	117	\$ 5,888,610	317	\$ 5,828,244	\$ 1,532	76.5	63.1	49	554
CORS State	Total	7,619	\$ 407,589,385							
	Vested	4,682	\$ 268,143,389							
	Non-vested	2,937	\$ 139,445,996	6,323	\$ 144,741,366	\$ 1,908	62.7	52.4	593	14,535
Total Employees' Retirement State	Total	7,999	\$ 432,468,715							
	Vested	4,945	\$ 287,134,109							
	Non-vested	3,054	\$ 145,334,606	16,955	\$ 440,304,740	\$ 2,164	72.6	56.8	735	25,689

* Includes normal and early service retirees only.

Retiree benefit amounts include the cost-of-living adjustment granted July 1, 2020.



State Retirement and Pension System Summary of Membership Data as of June 30, 2020 (Municipal Only)

		Active Members		Retirees and Beneficiaries				Vested Former Members (Includes Inactives)	Total	
		Number	Salary	Number	Benefits#	Avg. Monthly Benefit	Avg. Age	Avg. Age at Ret.*	Number	Number
Employees' Retirement	Total	33	\$ 2,213,080							
	Vested	33	\$ 2,213,080							
	Non-vested	0	\$ -	2,509	\$ 59,199,871	\$ 1,966	79.7	59.7	15	2,557
Employees' Pension	Total	24,889	\$ 1,236,064,438							
	Vested	11,781	\$ 687,385,795							
	Non-vested	13,108	\$ 548,678,643	16,484	\$ 228,566,778	\$ 1,155	71.0	63.2	6,196	47,569
LEOPS	Total	1,107	\$ 72,400,262							
	Vested	574	\$ 43,584,520							
	Non-vested	533	\$ 28,815,742	506	\$ 19,523,934	\$ 3,215	57.6	52.5	120	1,733
CORS Municipal	Total	135	\$ 7,937,330							
	Vested	70	\$ 4,698,953							
	Non-vested	65	\$ 3,238,377	47	\$ 1,246,509	\$ 2,210	60.3	56.4	6	188
Total Systems	Total	26,164	\$ 1,318,615,110							
	Vested	12,458	\$ 737,882,348							
	Non-vested	13,706	\$ 580,732,762	19,546	\$ 308,537,093	\$ 1,315	71.7	62.5	6,337	52,047

* Includes normal and early service retirees only.

#Retiree benefit amounts include the cost-of-living adjustment granted July 1, 2020.



Active Membership Information

Maryland State Retirement and Pension System				
Active Membership Statistics				
June 30, 2020				
System	Number	Average Age	Average Credited Service	Average Salary
Teachers' Retirement	261	69.5	44.0	\$ 106,038
Teachers' Pension	109,336	45.0	11.9	68,274
Employees' Retirement – State	192	67.6	44.1	80,142
Employees' Retirement – Municipal	33	65.0	43.5	67,063
Employees' Retirement – Legislators	188	53.4	7.9	50,490
Employees' Retirement – Correctional Officers	7,619	44.7	12.3	53,496
Employees' Retirement – Total	8,032	45.6	13.1	54,119
Employees' Pension – State	48,735	48.1	11.7	60,890
Employees' Pension – Municipal	24,889	49.3	10.5	49,663
Employees' Pension – Total	73,624	48.5	11.3	57,094
State Police	1,391	36.5	12.3	83,590
Judges	324	57.5	8.0	160,130
LEOPS – State	1,641	42.1	10.6	74,507
LEOPS – Municipal	1,107	39.2	10.6	65,402
LEOPS – Total	2,748	40.9	10.6	70,839
CORS – Municipal	135	41.6	11.7	58,795
TOTAL SYSTEMS	195,851	46.3	11.8	63,831
	Teachers' Retirement		Employees' Retirement	
	Number	Earnings	Number	Earnings
Unlimited COLA	160	\$ 17,787,562	137	\$ 10,695,975
5% COLA Cap	61	6,094,010	63	5,190,829
Bifurcate	40	3,794,360	25	1,713,484
	<u>261</u>	<u>\$ 27,675,932</u>	<u>225</u>	<u>\$ 17,600,288</u>



Active Membership – Age & Service Distribution

June 30, 2020

Teachers' Combined System

Age Nearest Birthday	Nearest Whole Years of Service on the Valuation Date							Totals	
	0-4	5-9	10-14	15-19	20-24	25-29	30 Plus	No.	Valuation Payroll
Under 20	12							12	\$ 210,559
20-24	2,304	10						2,314	99,968,953
25-29	7,629	2,533	4					10,166	505,229,496
30-34	4,826	6,208	1,660	13				12,707	725,929,883
35-39	3,320	2,942	5,645	2,112	6			14,025	939,860,633
40-44	2,911	2,290	2,718	4,906	1,461	2		14,288	1,051,299,105
45-49	2,568	2,194	2,133	2,635	4,112	842	8	14,492	1,123,986,844
50-54	2,299	2,196	2,219	2,228	2,606	2,692	644	14,884	1,140,838,010
55-59	1,476	1,620	2,043	2,057	1,933	1,270	1,653	12,052	872,520,553
60	203	245	371	408	382	241	314	2,164	151,447,794
61	165	173	315	403	390	226	310	1,982	139,740,846
62	178	208	296	360	360	225	331	1,958	138,264,497
63	131	167	255	318	288	183	280	1,622	113,526,819
64	125	161	201	237	243	143	284	1,394	100,209,485
65	111	118	161	229	211	123	232	1,185	81,767,895
66	57	96	118	178	191	116	189	945	67,461,622
67	61	96	101	135	133	82	167	775	54,959,341
68	49	60	65	95	87	73	156	585	43,760,146
69	32	53	74	71	79	53	123	485	34,453,715
70	35	55	47	63	48	39	82	369	26,703,425
71	17	40	47	37	33	25	67	266	17,340,427
72	11	29	31	28	44	18	58	219	15,541,368
73	18	26	25	32	23	15	58	197	12,651,345
74	10	13	14	22	16	8	34	117	7,718,842
75	17	10	14	9	11	7	27	95	6,010,713
76	9	7	9	13	9	4	26	77	5,353,884
77	3	8	8	11	5	4	23	62	4,749,222
78	1	5	1	7	4	3	23	44	3,472,918
79+		14	17	16	17	8	44	116	7,486,757
Totals	28,578	21,577	18,592	16,623	12,692	6,402	5,133	109,597	\$7,492,465,097



Active Membership – Age & Service Distribution

June 30, 2020

Employees' Combined System

Age Nearest Birthday	Nearest Whole Years of Service on the Valuation Date							Totals	
	0-4	5-9	10-14	15-19	20-24	25-29	30 Plus	No.	Valuation Payroll
Under 20	27							27	\$ 697,286
20-24	1,194	22						1,216	44,367,316
25-29	4,062	727	14					4,803	209,659,973
30-34	4,439	2,544	765	47				7,795	386,350,725
35-39	4,112	2,411	1,879	607	22			9,031	489,206,494
40-44	2,882	2,006	1,693	1,490	544	14		8,629	498,136,166
45-49	2,512	1,741	1,694	1,528	1,438	360	36	9,309	551,758,964
50-54	2,582	2,006	1,865	1,650	1,716	1,044	704	11,567	691,146,507
55-59	2,277	1,888	1,989	1,763	1,732	1,165	1,832	12,646	765,224,314
60	360	344	369	312	341	234	427	2,387	144,995,928
61	381	346	352	280	303	223	472	2,357	143,102,711
62	308	333	310	275	316	183	450	2,175	130,911,983
63	249	297	286	261	215	138	337	1,783	107,788,209
64	211	278	247	197	194	110	321	1,558	95,822,603
65	144	198	189	212	155	90	270	1,258	77,796,406
66	128	173	166	165	121	72	254	1,079	67,273,742
67	104	137	115	116	71	58	203	804	48,741,563
68	94	121	106	75	59	43	128	626	38,768,579
69	79	84	98	79	66	39	121	566	34,446,789
70	47	80	72	56	52	22	101	430	24,969,915
71	46	59	66	54	36	24	63	348	18,690,517
72	33	49	50	42	33	13	59	279	16,066,349
73	25	29	38	33	30	18	47	220	13,131,256
74	32	33	23	33	13	9	35	178	9,633,324
75	31	19	17	20	9	9	36	141	7,490,895
76	10	23	20	20	15	9	14	111	5,689,022
77	15	13	11	12	7	7	12	77	3,908,338
78	12	11	10	11	10	3	16	73	3,535,485
79+	4	34	31	30	26	10	48	183	8,885,386
Totals	26,400	16,006	12,475	9,368	7,524	3,897	5,986	81,656	\$4,638,196,745



Active Membership – Age & Service Distribution

June 30, 2020

State Police

Age Nearest Birthday	Nearest Whole Years of Service on the Valuation Date							Totals	
	0-4	5-9	10-14	15-19	20-24	25-29	30 Plus	No.	Valuation Payroll
Under 20	7							7	\$ 190,393
20-24	106	1						107	4,980,450
25-29	134	90	10					234	14,983,874
30-34	36	151	74	9				270	20,540,955
35-39	15	50	95	106	5			271	23,699,527
40-44	4	21	27	69	76	2		199	19,474,374
45-49	1	6	13	39	79	31		169	18,157,396
50-54	1	6	10	23	34	23	8	105	11,103,041
55-59		1	1	7	6	4	9	28	3,008,867
60							1	1	135,182
Totals	304	326	230	253	200	60	18	1,391	\$116,274,059



Active Membership – Age & Service Distribution

June 30, 2020

Judges

Age Nearest Birthday	Nearest Whole Years of Service on the Valuation Date							Totals	
	0-4	5-9	10-14	15-19	20-24	25-29	30 Plus	No.	Valuation Payroll
35-39								0	\$ 0
40-44	12	2						14	2,157,962
45-49	29	12	2					43	6,842,819
50-54	25	19	8					52	8,276,516
55-59	27	21	15	9				72	11,479,076
60	5	6	5	3				19	3,043,427
61	2	2	1	3				8	1,320,464
62	4	7	5	5				21	3,370,593
63	2	6	3	7				18	2,916,594
64	6	3	3	2				14	2,258,862
65	1	4	6	5				16	2,526,128
66	1	3	2	5				11	1,804,563
67		1	2	5				8	1,285,364
68	1	4	7	2				14	2,302,862
69	1	3	1	2				7	1,178,931
70		1		4				5	809,065
71				1				1	162,646
72				1				1	146,314
Totals	116	94	60	54	0	0	0	324	\$51,882,186



Active Membership – Age & Service Distribution

June 30, 2020

LEOPS

Age Nearest Birthday	Nearest Whole Years of Service on the Valuation Date							Totals	
	0-4	5-9	10-14	15-19	20-24	25-29	30 Plus	No.	Valuation Payroll
20-24	110	3						113	\$ 5,533,028
25-29	250	124	8					382	21,256,517
30-34	168	193	108	6				475	29,722,552
35-39	62	87	141	69	4			363	25,472,929
40-44	40	44	86	131	52	2		355	26,736,233
45-49	45	38	52	87	114	23	1	360	28,441,738
50-54	63	61	39	59	79	44	13	358	29,318,956
55-59	34	44	32	25	31	14	15	195	16,004,975
60	3	7	6	1	4		3	24	1,986,226
61	1	5	5	4	1		4	20	1,702,955
62	3	5	7	1	1	2	2	21	1,614,376
63	1	2	3	4	2	2	2	16	1,424,144
64	1	2	2	6	1		3	15	1,392,989
65	1	1	5	2	1	4		14	1,142,914
66		2	3	3	1			9	740,279
67	1	3	1				1	6	423,248
68				2				2	162,308
69	1		2	2			1	6	509,941
70			1	1	1		1	4	415,964
71		2	1		1			4	281,266
72	1	1			1			3	146,153
73				1	1	1		3	237,099
Totals	785	624	502	404	295	92	46	2,748	\$194,666,790



Active Membership – Age & Service Distribution

June 30, 2020

CORS

Age Nearest Birthday	Nearest Whole Years of Service on the Valuation Date							Totals	
	0-4	5-9	10-14	15-19	20-24	25-29	30 Plus	No.	Valuation Payroll
20-24	3	1						4	\$ 179,646
25-29	16	3						19	908,671
30-34	7	8	3					18	927,402
35-39	10	7	8	1				26	1,404,467
40-44	2	3	4	2	1			12	696,668
45-49	1	4	5	4	7			21	1,351,245
50-54	1		3	5	1	1	1	12	721,821
55-59	1		2	1	1	2	5	12	884,021
60					1		1	2	166,004
61			2					2	122,533
62		1	1				2	4	290,238
63						1	1	2	134,135
69							1	1	150,479
Totals	41	27	28	13	11	4	11	135	\$7,937,330



Retired Membership Statistics June 30, 2020 (State and Municipal)

System	Number	Average Age	Average Credited Service*	Average Final Average Salary*	Average Benefit
Teachers' Retirement	23,858	78.8	29.4	\$ 54,856	\$ 41,692
Teachers' Pension	56,581	71.6	22.0	60,474	24,240
Employees' Retirement – State	16,955	72.6	24.8	42,326	25,969
Employees' Retirement – Municipal	<u>2,509</u>	79.7	25.1	33,855	23,595
Employees' Retirement – Total	19,464	73.5	24.8	41,234	25,663
Employees' Pension – State	46,099	70.8	21.1	47,156	17,272
Employees' Pension – Municipal	<u>16,484</u>	71.0	17.8	40,856	13,866
Employees' Pension – Total	62,583	70.9	20.2	45,496	16,375
State Police	2,517	64.9	23.4	55,572	52,353
Judges	441	77.8	14.0	164,815	85,113
LEOPS – State	1,647	62.8	22.3	61,334	36,472
LEOPS – Municipal	<u>506</u>	57.6	22.0	66,251	38,585
LEOPS – Total	2,153	61.6	22.3	62,490	36,968
CORS – Municipal	47	60.3	19.6	65,193	26,521
Total - State	148,098	72.4	23.2	53,583	25,875
Total - Municipal	19,546	71.7	18.9	40,673	15,785
TOTAL SYSTEMS	167,644	72.3	22.7	52,077	24,699

* Only non-zero values included in averages.



Retired Membership Statistics –by Type
June 30, 2020
(State and Municipal)

System	Service Retirees		Disabilities		Beneficiaries	
	Number	Average Age	Number	Average Age	Number	Average Age
Teachers' Retirement	20,815	78.6	562	78.0	2,481	80.7
Teachers' Pension	50,753	72.0	3,999	64.9	1,829	72.9
Employees' Retirement – State	12,977	72.8	1,593	61.7	2,385	78.5
Employees' Retirement – Municipal	1,837	79.8	157	78.7	515	79.7
Employees' Retirement – Total	14,814	73.7	1,750	63.2	2,900	78.7
Employees' Pension – State	37,913	71.5	5,403	64.8	2,783	72.6
Employees' Pension – Municipal	12,918	72.3	2,671	64.0	895	72.2
Employees' Pension – Total	50,831	71.7	8,074	64.5	3,678	72.5
State Police	1,542	65.3	615	58.4	360	74.2
Judges	325	75.9	4	69.5	112	83.9
LEOPS – State	1,186	64.4	339	55.9	122	66.8
LEOPS – Municipal	368	60.0	117	51.1	21	52.6
LEOPS – Total	1,554	63.4	456	54.7	143	64.7
CORS – Municipal	36	61.6	9	54.3	2	63.3
Total - State	125,511	72.9	12,515	64.5	10,074	76.1
Total - Municipal	15,159	72.9	2,954	64.3	1,431	74.6
TOTAL SYSTEMS	140,670	72.9	15,469	64.4	11,505	75.9



Retired Membership – Attained Age June 30, 2020 (State and Municipal)

Age at Valuation Date	Teachers'		Employees		State Police		Judges		LEOPS		CORS (Municipal)		Total	
	Number	Annual Benefits#	Number	Annual Benefits#	Number	Annual Benefits#	Number	Annual Benefits#	Number	Annual Benefits#	Number	Annual Benefits#	Annual Benefits	
Under 30	8	\$ 66,885	31	\$ 286,039	3	\$ 113,090	-	-	7	\$ 168,417	-	-	49	\$ 634,431
30-34	17	280,498	63	1,193,924	14	562,304	-	-	6	204,228	-	-	100	2,240,953
35-39	63	2,000,206	119	2,611,354	15	605,596	-	-	27	993,439	-	-	224	6,210,596
40-44	102	3,451,420	261	5,613,171	45	2,020,007	-	-	49	1,807,375	2	\$ 55,097	459	12,947,070
45-49	211	7,014,001	791	19,103,244	169	9,050,321	-	-	136	5,750,383	2	40,946	1,309	40,958,895
50-54	522	18,899,104	1,896	47,473,880	354	19,845,385	-	-	335	13,059,137	6	92,575	3,113	99,370,082
55-59	1,922	63,964,729	4,590	113,301,301	363	19,757,971	1	\$ 52,111	395	15,191,338	11	397,308	7,282	212,664,758
60-64	6,645	199,434,660	10,330	229,393,299	295	16,232,177	22	2,113,864	393	15,078,555	16	375,902	17,701	462,628,456
65-69	17,909	533,109,733	18,905	354,439,905	342	19,071,803	46	4,421,748	371	13,029,978	7	172,328	37,580	924,245,495
70-74	21,785	655,265,251	18,417	336,194,118	363	18,407,941	120	10,936,469	268	9,206,145	2	32,455	40,955	1,030,042,379
75-79	14,574	416,515,857	12,165	201,103,713	281	13,561,068	88	7,613,180	99	3,061,438	1	79,899	27,208	641,935,154
80-84	8,386	234,143,215	7,563	114,120,345	171	7,632,686	67	5,813,177	45	1,429,930	-	-	16,232	363,139,354
85-89	5,141	145,560,622	4,332	62,879,156	70	3,042,968	53	4,009,205	20	578,787	-	-	9,616	216,070,739
90-94	2,391	66,404,860	1,998	29,046,609	21	1,030,365	34	1,934,280	2	33,741	-	-	4,446	98,449,855
95-99	667	17,552,998	513	6,653,238	10	748,583	9	597,397	-	-	-	-	1,199	25,552,216
100-104	87	2,174,776	67	826,509	-	-	1	43,241	-	-	-	-	155	3,044,525
105-110+	9	378,399	6	31,790	1	91,337	-	-	-	-	-	-	16	501,526
	80,439	\$ 2,366,217,214	82,047	\$ 1,524,271,597	2,517	\$ 131,773,601	441	\$ 37,534,671	2,153	\$ 79,592,891	47	\$ 1,246,509	167,644	\$ 4,140,636,484

Retiree benefit amounts include the cost-of-living-adjustment granted July 1, 2020.



Retired Membership* – By Calendar Year of Retirement

June 30, 2020

(State and Municipal)

Year of Retirement	Teachers'		Employees		State Police		Judges		LEOPS		CORS (Municipal)		Total	
	Number	Annual Benefits#	Number	Annual Benefits#	Number	Annual Benefits#	Number	Annual Benefits#	Number	Annual Benefits#	Number	Annual Benefits#	Number	Annual Benefits#
Before 1990	3,796	\$ 108,162,263	3,347	\$ 56,094,689	431	\$ 17,855,354	39	\$ 1,793,587	-	-	-	-	7,613	\$ 183,905,893
1990	630	19,540,670	585	9,934,668	40	1,808,940	9	608,370	8	\$ 197,169	-	-	1,272	32,089,817
1991	853	28,543,269	771	13,711,353	43	2,123,412	2	92,050	15	402,715	-	-	1,684	44,872,800
1992	1,282	44,421,154	890	15,402,288	94	4,659,421	5	255,522	18	579,710	-	-	2,289	65,318,094
1993	1,032	31,881,089	877	14,377,731	60	2,903,944	5	223,591	12	369,426	-	-	1,986	49,755,782
1994	1,160	33,377,030	984	15,572,040	68	3,288,689	6	470,834	11	342,335	-	-	2,229	53,050,928
1995	1,344	37,925,200	1,183	18,845,693	58	2,793,327	12	902,364	12	357,108	-	-	2,609	60,823,692
1996	1,523	44,380,162	2,169	40,934,157	74	3,577,809	10	669,893	14	406,805	-	-	3,790	89,968,827
1997	1,625	47,524,537	1,490	26,057,555	56	2,719,904	6	427,439	15	349,730	-	-	3,192	77,079,165
1998	1,839	56,384,664	1,386	20,803,652	56	2,762,351	9	589,511	23	544,957	-	-	3,313	81,085,135
1999	2,340	72,051,230	1,504	23,945,254	59	3,375,754	10	953,835	32	743,055	-	-	3,945	101,069,128
2000	2,307	69,642,641	1,640	24,781,345	133	7,591,479	11	1,025,204	72	2,219,058	-	-	4,163	105,259,728
2001	2,287	68,903,391	1,775	28,658,298	90	5,356,285	13	961,769	96	3,549,071	-	-	4,261	107,428,814
2002	2,438	71,368,205	2,044	33,052,014	84	5,233,620	15	1,200,538	83	3,150,227	-	-	4,664	114,004,604
2003	2,485	73,731,244	2,455	43,053,871	100	6,409,269	9	680,408	86	3,626,894	-	-	5,135	127,501,686
2004	2,831	85,230,728	2,788	50,959,045	95	5,596,196	13	1,180,391	78	3,062,233	-	-	5,805	146,028,592
2005	2,884	82,100,098	3,015	54,679,814	105	6,050,563	12	1,123,860	93	3,625,759	-	-	6,109	147,580,094
2006	2,573	73,541,026	2,717	48,878,154	82	4,534,839	16	1,369,493	80	3,088,085	-	-	5,468	131,411,598
2007	2,885	86,203,653	3,060	57,510,454	91	4,787,044	22	2,086,759	87	3,148,506	-	-	6,145	153,736,416
2008	2,977	85,939,625	3,226	59,255,418	78	4,056,224	13	1,258,179	96	3,683,592	-	-	6,390	154,193,038
2009	2,881	76,939,467	3,334	58,667,334	67	3,693,818	16	1,443,717	117	4,602,264	1	\$ 14,865	6,416	145,361,465
2010	3,403	102,241,962	3,938	75,917,853	74	4,622,853	16	1,490,008	97	3,902,517	6	205,322	7,534	188,380,515
2011	4,188	130,988,356	4,217	83,266,272	78	4,079,402	17	1,527,770	119	4,571,875	3	194,448	8,622	224,628,122
2012	3,538	102,157,920	3,567	63,505,909	51	2,760,098	13	1,380,403	114	4,371,564	3	106,103	7,286	174,281,997
2013	3,715	106,479,690	4,017	73,101,981	59	3,155,169	21	1,783,278	113	4,284,692	6	182,393	7,931	188,987,204
2014	3,833	107,971,584	3,615	62,755,074	42	2,237,681	16	1,667,837	82	2,907,640	6	98,966	7,594	177,638,782
2015	3,961	110,011,000	4,773	93,016,906	50	2,724,785	17	1,679,987	111	4,053,347	3	37,098	8,915	211,523,122
2016	3,636	101,554,255	4,030	75,334,618	41	2,061,074	16	1,554,699	101	3,811,080	3	44,546	7,827	184,360,273
2017	3,407	100,928,164	4,045	85,125,018	54	2,874,347	22	1,982,793	89	2,978,037	3	98,122	7,620	193,986,482
2018	3,162	97,440,317	3,681	82,615,689	42	2,563,265	27	2,771,293	122	5,072,934	2	49,004	7,036	190,512,502
2019	3,042	93,573,130	3,606	83,061,418	46	2,533,472	17	1,772,559	107	3,660,045	6	114,852	6,824	184,715,476
2020	582	15,079,492	1,318	31,396,029	16	983,213	6	606,729	50	1,930,459	5	100,791	1,977	50,096,714
	80,439	\$ 2,366,217,214	82,047	\$ 1,524,271,597	2,517	\$ 131,773,601	441	\$ 37,534,671	2,153	\$ 79,592,891	47	\$ 1,246,509	167,644	\$ 4,140,636,484

* Retiree benefit amounts include the cost-of-living-adjustment granted July 1, 2020.



APPENDIX C

SUMMARY OF PLAN PROVISIONS

This guide provides a general summary of certain features of the Maryland State Retirement and Pension System (“MSRPS”). The MSRPS is governed by law, including Division II of the State Personnel and Pensions Article of the Annotated Code of Maryland, and Title 22 of the Code of Maryland Regulations. If there is a conflict between the law and this guide, the law prevails.

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CITATIONS

All citations "SPP" are to the State Personnel and Pensions Article of the Annotated Code of Maryland.



Teachers' Retirement System of the State of Maryland

1. Membership

System closed to new members hired on or after January 1, 1980. Members on December 31, 1979 continue to be members unless they elected to transfer into the Teachers' Pension System (established January 1, 1980) prior to January 1, 2005.

Membership generally includes any teacher, helping teacher, principal, supervisor, superintendent, attendance officer or clerk employed in public day school within the State of Maryland, or supported and controlled by the State; any librarian or clerical employee of a library established or operated under the Education Article; any professional or clerical employee of a community college established or operated under the Education Article; or staff employee of the University System of Maryland, Morgan State University or St. Mary's College who is a member as of January 1, 1998.

2. Member Contributions

Retirement System members participate under one of three elections (effective July 1, 1984):

- Plan A: Generally, 7% of earnable compensation to maintain all benefits, including unlimited compounded cost-of-living adjustments.
- Plan B: Generally, 5% of earnable compensation to maintain all benefits, except the compounded cost-of-living adjustments which are capped at 5%.
- Plan C: 5% of earnable compensation as determined under the employee contribution for the Teachers' Pension System (Plan C provides a two-part benefit based on benefits of the Teachers' Retirement System and the Teachers' Pension System).

Interest earned on all employee contributions is 4% per year, compounded annually, until retirement, withdrawal of accumulated contributions, death, or the end of membership for former members who are not entitled to receive a vested allowance.

3. Normal Retirement Age

Normal retirement age is age 60.

4. Normal Service Retirement Allowance

Eligibility: 30 years of eligibility service or attainment of age 60.

Allowance: $1/55^{\text{th}}$ of average final compensation for the three highest years as a member for each year of creditable service. Creditable service is based on a full normal working time for teachers – 10 months equals one year.

Plan C: For creditable service before election date, the amount determined by the service retirement formula for Teachers' Retirement System; for creditable service after election date, the amount determined by the service retirement formula for the applicable component of the Teachers' Pension System.



Teachers' Retirement System of the State of Maryland

5. Early Retirement Allowance

Eligibility: 25 years of eligibility service and less than 60 years old.

Allowance: Service Retirement allowance reduced by 0.5% for each month that date of retirement precedes the earlier of age 60 or the date the member would have completed 30 years of eligibility service (maximum reduction of 30%).

Plan C: For creditable service before election date, the amount determined by the service retirement formula for Teachers' Retirement System (maximum reduction of 30%); for creditable service after election date, the amount determined by the service retirement formula for the applicable component of the Teachers' Pension System for each month retirement occurs prior to age 62 (maximum reduction of 42%).

6. Disability Retirement Allowance

Ordinary

Eligibility: Five years of eligibility service and certification of the medical board designated by the Board of Trustees that member is mentally or physically incapacitated from the performance of the normal duties of the member's position, and that incapacity is permanent.

Allowance: The benefit is $1/55^{\text{th}}$ of average final compensation for the three highest years as a member for each year of creditable service. The minimum benefit is 25% of average final compensation; the maximum benefit can be no greater than $1/55^{\text{th}}$ of average final compensation for each year of creditable service the member would have accrued if employment continued to age 60.

Plan C: The benefit is the greater of the Teachers' Retirement System allowance noted above, or the ordinary disability benefit of the Teachers' Pension System.

Accidental

Eligibility: Certification of the medical board designated by the Board of Trustees that member is totally and permanently incapacitated from the performance of the normal duties of the member's position as the natural and proximate result of an accident that occurred in the actual performance of duty at a definite time and place without willful negligence by the member.

Allowance: The benefit is 66.67% of average final compensation for the three highest years as a member, plus the annuity provided by accumulated member contributions. The maximum benefit cannot be greater than the average final compensation, including any annuitized accumulated contributions.



Teachers' Retirement System of the State of Maryland

7. Death Benefits

Ordinary Death Benefit for Active Member with Less Than One Year of Service

Eligibility: Less than one year of eligibility service and not eligible for a special death benefit

Benefit: Return of accumulated contributions

Ordinary Death Benefit for Active Member with One Or More Years of Service

Eligibility: One or more years of eligibility service and not eligible for a special death benefit

Benefit:

Members who at the time of death are younger than age 55 or have less than 15 years of service.
One-time lump sum payment of member's annual earnable compensation at time of death plus accumulated contributions to the member's designated beneficiary.

Members who at the time of death are eligible to retire and are age 55 or older with at least 15 years of service.

The surviving spouse of a deceased member may elect to receive: (1) a one-time lump sum payment of the member's annual earnable compensation at the time of death plus the member's accumulated contributions; or (2) a monthly allowance under Option 2 (100% survivor benefit). In cases where a deceased member is not survived by a spouse, the decedent's children may elect to receive: (1) a one-time lump sum payment of the member's annual earnable compensation at the time of death plus the member's accumulated contributions; or (2) an allowance equal to 50% of the basic allowance that would have been paid to the deceased member, prorated equally among the eligible children. A child is eligible for a prorated share of the annuity until reaching age 26. The annuity shall be reallocated among the remaining eligible children. If any child is disabled, the benefit will continue for that child as long as the child remains disabled, regardless of age. In cases where a deceased member is not survived by a spouse or children, the member's designated beneficiary shall receive a one-time lump sum payment consisting of the member's accumulated contributions and the member's annual compensation at the time of death.

Special Death Benefit for Active Member

Eligibility: Death arising out of or in the course of the actual performance of duty without willful negligence by the member.

Benefit: 66.67% of average final compensation for the three highest years as a member payable to a surviving spouse, decedent's children or dependent parents. Accumulated member contributions are paid to the designated beneficiary. Children of deceased members receiving a special death benefit will continue to receive this benefit, prorated equally among the eligible children. A child is eligible for a prorated share of the annuity until reaching age 26. The annuity shall be reallocated among the remaining eligible children. Disabled children receiving a special death benefit may receive a special death benefit as long as they remain disabled, regardless of age.



Teachers' Retirement System of the State of Maryland

Death Benefit for Vested Former Member

If member is not active, but is eligible for a vested allowance, the member's designated beneficiary or estate is eligible to receive only accumulated member contributions at time of death.

8. Vested Allowance

Eligibility: Five years of eligibility service and separation from employment other than by death or retirement.

Allowance: Vested allowance payable at normal retirement age, provided member does not withdraw accumulated contributions.

If member dies before payment of the vested allowance starts, only accumulated member contributions are returned.

9. Cost-of-Living Adjustments (COLA)

Retirement allowances may be adjusted each year based on the Consumer Price Index (CPI). Any COLAs are effective July 1 for all allowances which have been in payment for one year.

- Selection A (Additional Member Contributions): Uncapped and compounded.
- Selection B (Limited COLA): Capped at 5% and compounded.
- Selection C (Combination Formula): For creditable service on or after the effective date of Selection C, generally, with limited exceptions, COLA is capped at 3% and compounded. For creditable service before the effective date of Selection C, COLA is calculated based on the applicable component (A or B) to which the member was subject prior to electing Section C.

In years in which COLAs would be less than zero due to a decline in the CPI, retirement allowances will not be adjusted. COLAs in succeeding years are adjusted until the difference between the negative COLA that would have applied and the zero COLA is fully recovered.

10. Optional Forms of Payment

Basic service allowance is a single life annuity.

- Option 1: Lump-sum refund equal to excess of present value of basic retirement allowance at date of retirement minus total amount of payments made to date of death excluding any cost of living adjustments for retirees before July 1, 2017.
- Option 2: 100% joint and survivor annuity, which pays the retiree's surviving designated beneficiary 100% of the retiree's reduced allowance for the life of the designated beneficiary. The designated beneficiary cannot be more than 10 years younger than the retiree unless the beneficiary is the retiree's spouse or disabled child.
- Option 3: 50% joint and survivor annuity, which pays the retiree's surviving designated beneficiary 50% of the retiree's reduced allowance for the life of the designated beneficiary.



Teachers' Retirement System of the State of Maryland

- Option 4: Lump-sum refund equal to value of accumulated member contributions minus total portion of monthly payments attributed to member contributions made to date of death, excluding any cost of living adjustments for retirees before July 1, 2017.
- Option 5: 100% "pop-up" joint and survivor annuity, which pays the designated beneficiary 100% of the retiree's reduced allowance after the retiree's death or returns the retiree's benefit to the unreduced basic allowance if beneficiary predeceases retiree. The designated beneficiary cannot be more than 10 years younger than the retiree unless the beneficiary is the retiree's spouse or disabled child.
- Option 6: 50% "pop-up" joint and survivor annuity, which pays the designated beneficiary 50% of the retiree's reduced allowance after the retiree's death or returns the retiree's benefit to the unreduced basic allowance if beneficiary predeceases retiree.

Retirees who have selected Options 2, 3, 5, or 6 and change their designated beneficiary after they retire, will have their retirement allowance re-calculated to reflect the age of the new designated beneficiary. Retirees who elect to change their beneficiary under Options 2, 3, 5, and 6, may rescind their request to change their designated beneficiary before the second monthly allowance is paid. Retirees who rescind the change of beneficiary, will have their benefit payment amount for the next payment restored to the amount paid before the change in beneficiary was made.

Vested former members who are eligible to receive a vested allowance of less than \$50 a month may elect to receive a lump-sum payment equal to the present value in lieu of a monthly benefit.

11. Reduction for Benefits Payable under Workers' Compensation

Disability retirement allowances, excluding annuity reserves, are reduced for workers' compensation benefits paid or payable after retirement from injury occurring during employment by the State if the workers' compensation benefits are for the same injury for which disability retirement was granted and are paid or payable for the same period of time for which the retirement benefits are paid. Teachers' Retirement System retirees receiving an accidental disability payment are subject to an offset if they are getting a workers' compensation payment for the same injury or illness, subject to specified limits. Offsets do not include any calculation of cost-of-living benefits that are paid on the original benefit amount. Conversely, workers' compensation payments are subject to an offset by the Workers' Compensation Commission if a recipient is receiving an ordinary disability payment from the Teachers' Retirement System for the same injury or illness. Any offset taken for an accidental disability from the Teachers' Retirement System will be adjusted if the retiree was originally awarded an ordinary disability retirement benefit that was later converted to an accidental disability benefit. The adjusted offset shall reflect any offset awarded to the retiree's employer by the Workers' Compensation Commission.



Teachers' Pension System of the State of Maryland

1. Membership

Membership is generally a condition of employment for those teachers, faculty members, and educational employees, specified in SPP § 23-206 of the Annotated Code of Maryland, hired on or after January 1, 1980. Certain eligible higher education employees may elect to join an optional defined contribution retirement program provided by the State, known as the Optional Retirement Program (ORP). The ORP is separate and distinctive from the supplemental program administered by the Maryland Supplemental Retirement Plan.

All individuals who are members of the Teacher's Pension System on or before June 30, 2011, participate in the Alternate Contributory Pension Selection (ACPS) except for the members who transferred from the Teachers' Retirement System after April 1, 1998 or former vested members who terminated employment prior to July 1, 1998.

All individuals who enroll in the Teachers' Pension System on or after July 1, 2011, participate in the Reformed Contributory Pension Benefit (RCPB).

2. Member Contributions

Members of both the ACPS and the RCPB are required to make contributions of 7% of earnable compensation.

Contributions earn interest at 5% per year, compounded annually, until retirement, withdrawal of accumulated contributions, death, or the end of membership for former members who are not entitled to receive a vested allowance.

3. Normal Retirement Age

For members of the Alternate Contributory Pension Selection, normal retirement age is age 62.

For members of the Reformed Contributory Pension Benefit, normal retirement age is age 65.

4. Normal Service Retirement Allowance

ACPS Eligibility - 30 years of eligibility service or attainment of one of the following:

- Age 62 with five years of eligibility service.
- Age 63 with four years of eligibility service.
- Age 64 with three years of eligibility service.
- Age 65 and older with two years of eligibility service.

ACPS Allowance - The greater of (i) or (ii), plus (iii), as described below:

- (i) 1.2% of average final compensation for the three highest consecutive years as a member for each year of creditable service on or before June 30, 1998;



Teachers' Pension System of the State of Maryland

- (ii) 0.8% of average final compensation for the three highest consecutive years as a member up to the Social Security Integration Level (SSIL) plus 1.5% of average final compensation over the integration level for each year of creditable service on or before June 30, 1998;
- (iii) the number of years of the member's creditable service on or after July 1, 1998 multiplied by 1.8% of the member's average final compensation for the three highest consecutive years as a member.

RCPB Eligibility: Combined age and eligibility service of at least 90 years or age 65 after 10 years of eligibility service.

RCPB Allowance: 1.5% of average final compensation for the five highest consecutive years as a member for each year of creditable service on or after July 1, 2011.

The SSIL is the average of all Social Security Wage Bases over the 35 calendar years prior to your retirement.

Note: Members who transferred into the Teachers' Pension System, on or after April 1, 1998, receive benefits based on the provisions of the NCPS (refer to page C-28) in effect as of January 1, 1980, except for COLA benefits.

5. Early Retirement Allowance

ACPS Eligibility: Age 55 with at least 15 years of eligibility service.

ACPS Allowance: Service retirement allowance computed as of early retirement date, reduced by 0.5% for each month that early retirement date precedes age 62 (maximum reduction of 42%).

RCPB Eligibility: Age 60 with at least 15 years of eligibility service.

RCPB Allowance: Service retirement allowance computed as of early retirement date, reduced by 0.5% for each month that early retirement date precedes age 65 (maximum reduction of 30%).

6. Disability Retirement Allowance

Ordinary

Eligibility: Five years of eligibility service and certification of the medical board designated by the Board of Trustees that member is mentally or physically incapacitated from the performance of the normal duties of the member's position, and that incapacity is likely to be permanent.

Allowance: The benefit is the service retirement allowance computed on the basis that service continues until normal retirement age. If disability occurs after age 62 (age 65 for RCPB), the benefit is based on creditable service at time of retirement.



Teachers' Pension System of the State of Maryland

Accidental

Eligibility: Certification of the medical board designated by the Board of Trustees that member is totally and permanently incapacitated from the performance of the normal duties of the member's position as the natural and proximate result of an accident that occurred in the actual performance of duty without willful negligence by the member.

Allowance: The benefit is 66.67% of average final compensation for the three highest consecutive years (five highest for RCPB) as a member plus the annuity provided by accumulated member contributions. The maximum benefit cannot be greater than the average final compensation including any annuitized accumulated contributions.

7. Death Benefits

Ordinary Death Benefit for Active Member with Less Than One Year of Service

Eligibility: Less than one year of eligibility service and not eligible for a special death benefit.

Benefit: Return of accumulated contributions

Ordinary Death Benefit for Active Member with One Or More Years of Service

Eligibility: One or more years of eligibility service and not eligible for a special death benefit

Benefit:

Members who at the time of death are not members of the Reformed Contributory Pension Benefit, are younger than age 55 and have less than 15 years of service or are members of the Reformed Contributory Pension Benefit, are younger than age 60 and have less than 15 years of service.

One-time lump sum payment of member's annual earnable compensation at time of death plus accumulated contributions to the member's designated beneficiary.

Members who at the time of death: (1) are eligible to retire; (2) have accrued at least 25 years of eligibility service; (3) are not members of the Reformed Contributory Pension Benefit and are age 55 or older with at least 15 years of service; or (4) are members of the Reformed Contributory Pension Benefit and are age 60 or older with at least 15 years of service.

The surviving spouse of a deceased member may elect to receive: (1) a one-time lump sum payment of the member's annual earnable compensation at the time of death plus the member's accumulated contributions; or (2) a monthly allowance under Option 2 (100% survivor benefit). In cases where a deceased member is not survived by a spouse, the decedent's children may elect to receive: (1) a one-time lump sum payment of the member's annual earnable compensation at the time of death plus the member's accumulated contributions; or (2) an allowance equal to 50% of the basic allowance that would have been paid to the deceased member, prorated equally among the eligible children. A child is eligible for a prorated share of the annuity until reaching age 26. The annuity shall be reallocated among the remaining eligible children. If any child is disabled, the benefit will continue for that child as long as the child remains disabled, regardless of age. In cases where a deceased member is not



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survived by a spouse or children, the member's designated beneficiary shall receive a one-time lump sum payment consisting of the member's accumulated contributions and the member's annual compensation at the time of death.

Special Death Benefit for Active Member

Eligibility: Death arising out of or in the course of the actual performance of duty without willful negligence by the member.

Benefit: 66.67% of average final compensation for the three highest consecutive years as a member, except for member's participating in the RCPB component for which the average final compensation is the five highest consecutive years as a member, payable to a surviving spouse, decedent's children or dependent parents. Accumulated contributions are paid to the designated beneficiary. Children of deceased members receiving a special death benefit will continue to receive this benefit prorated equally among the eligible children. A child is eligible for a prorated share of the annuity until reaching age 26. The annuity shall be reallocated among the remaining eligible children. Disabled children receiving a special death benefit may receive a special death benefit as long as they remain disabled, regardless of age.

Death Benefit for Vested Former Member

If a member is not active, but is eligible for a vested allowance, the member's designated beneficiary or estate is eligible to receive only accumulated member contributions at time of death.

8. Vested Allowance

ACPS Eligibility: Five years of eligibility service and separation from employment other than by death or retirement.

ACPS Allowance: Accrued retirement allowance payable at age 62 provided member does not withdraw accumulated contributions. A member who has completed 15 years of eligibility service may begin to receive benefit payments at any time on or after attainment of age 55, reduced by 0.5% for each month that benefit commencement date precedes age 62 (maximum reduction of 42%.)

If member dies before payment of the vested allowance starts, only accumulated member contributions are returned.

RCPB Eligibility: 10 years of eligibility service and separation from employment other than by death or retirement

RCPB Allowance: Accrued retirement allowance payable at age 65 provided member does not withdraw accumulated contributions. A member who has completed 15 years of eligibility service may begin to receive benefit payments at any time on or after attainment of age 60, reduced by 0.5% for each month that benefit commencement date precedes age 65 (maximum reduction of 30%.)



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If member dies before payment of the vested allowance starts, only accumulated member contributions are returned.

9. Cost-of-Living Adjustments (COLA)

Retirement allowances may be adjusted each year based on the Consumer Price Index (CPI). Effective July 1, 1998, and for an allowance based on creditable service before July 1, 2011, the adjustment is capped at a maximum of 3% compounded and is applied to all allowances which have been in payment for one year.

For an allowance based on creditable service earned on or after July 1, 2011, the COLA adjustment is capped at 2.5% if, for the calendar year ending December 31 in the previous fiscal year, the several systems' total investment performance was greater than or equal to the assumed rate of investment return established by the Board of Trustees and in effect as of December 31 of the preceding fiscal year. The adjustment is capped at 1% if, for the calendar year ending December 31 in the previous fiscal year, the several systems' total investment performance was less than the assumed rate of investment return established by the Board of Trustees and in effect as of December 31 of the preceding fiscal year.

In years in which COLAs would be less than zero due to a decline in the CPI, retirement allowances will not be adjusted. COLAs in succeeding years are adjusted until the difference between the negative COLA that would have applied and the zero COLA is fully recovered.

Any adjustments are effective July 1.

10. Optional Forms of Payment

Basic service allowance is a single life annuity.

- Option 1: Lump-sum refund equal to excess of present value of basic retirement allowance at date of retirement minus total amount of payments made to date of death excluding any cost of living adjustments for retirees before July 1, 2017.
- Option 2: 100% joint and survivor annuity, which pays the retiree's surviving designated beneficiary 100% of the retiree's reduced allowance for the life of the designated beneficiary. The designated beneficiary cannot be more than 10 years younger than the retiree unless the beneficiary is the retiree's spouse or disabled child.
- Option 3: 50% joint and survivor annuity, which pays the retiree's surviving designated beneficiary 50% of the retiree's reduced allowance for the life of the designated beneficiary.
- Option 4: Lump-sum refund equal to value of accumulated member contributions minus total portion of monthly payments attributed to member contributions made to date of death, excluding any cost of living adjustments for retirees before July 1, 2017.



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- Option 5: 100% "pop-up" joint and survivor annuity, which pays the designated beneficiary 100% of the retiree's reduced allowance after the retiree's death or returns the retiree's benefit to the unreduced basic allowance if beneficiary predeceases retiree. The designated beneficiary cannot be more than 10 years younger than the retiree unless the beneficiary is the retiree's spouse or disabled child.
- Option 6: 50% "pop-up" joint and survivor annuity, which pays the designated beneficiary 50% of the retiree's reduced allowance after the retiree's death or returns the retiree's benefit to the unreduced basic allowance if beneficiary predeceases retiree.

Retirees who have selected Options 2, 3, 5, or 6 and change their designated beneficiary after they retire, will have their retirement allowance re-calculated to reflect the age of the new designated beneficiary. Retirees who elect to change their beneficiary under Options 2, 3, 5, and 6, may rescind their request to change their designated beneficiary before the second monthly allowance is paid. Retirees who rescind the change of beneficiary, will have their benefit payment amount for the next payment restored to the amount paid before the change in beneficiary was made.

Vested former members who are eligible to receive a vested allowance of less than \$50 a month may elect to receive a lump-sum payment equal to the present value in lieu of a monthly benefit.

11. Reduction for Benefits Payable under Workers' Compensation

Disability retirement allowances, excluding annuity reserves, are reduced for workers' compensation benefits paid or payable after retirement from injury occurring during employment by the State if the workers' compensation benefits are for the same injury for which disability retirement was granted and are paid or payable for the same period of time for which the retirement benefits are paid. Teachers' Pension System retirees receiving an accidental disability payment are subject to an offset if they are getting a workers' compensation payment for the same injury or illness, subject to specified limits. Offsets do not include any calculation of cost-of-living benefits that are paid on the original benefit amount. Conversely, workers' compensation payments are subject to an offset by the Workers' Compensation Commission if a recipient is receiving an ordinary disability payment from the Teachers' Pension System for the same injury or illness. Any offset taken for an accidental disability from the Teachers' Pension System will be adjusted if the retiree was originally awarded an ordinary disability retirement benefit that was later converted to an accidental disability benefit. The adjusted offset shall reflect any offset awarded to the retiree's employer by the Workers' Compensation Commission.

Employees' Retirement System of the State of Maryland

1. Membership

System closed to new members hired on or after January 1, 1980. Members on December 31, 1979 continue to be members unless they elected to transfer into the Employees' Pension System (established January 1, 1980) prior to January 1, 2005.

Membership generally includes employees of the State and other eligible participating employers.

2. Member Contributions

- Plan A: Generally, 7% of earnable compensation to maintain all benefits, including unlimited compounded cost-of-living adjustments.
- Plan B: Generally, 5% of earnable compensation to maintain all benefits, except the compounded cost-of-living adjustments which are capped at 5%.
- Plan C: Provides a two-part benefit based on benefits of the Employees' Retirement System and the Employees' Pension System. Employee contributions, if any, are based on participation of the employer in the applicable component of the Employees' Pension System. (refer to summary of Employees' Pension System).

Interest earned on all employee contributions is 4% per year, compounded annually, until retirement, withdrawal of accumulated contributions, death, or the end of membership for former members who are not entitled to receive a vested allowance.

3. Normal Retirement Age

Normal retirement age is age 60.

4. Normal Service Retirement Allowance

Eligibility: 30 years of eligibility service or attainment of age 60.

Allowance: 1/55th of average final compensation for the three highest years as a member for each year of creditable service.

Plan C: For creditable service before election date, the amount determined by the service retirement formula for Employees' Retirement System; for creditable service after election date, the amount determined by the service retirement formula for the applicable component of the Employees' - Pension System under which the employer and member participates.

5. Early Retirement Allowance

Eligibility: 25 years of eligibility service and less than 60 years old.



Employees' Retirement System of the State of Maryland

Allowance: Service retirement allowance reduced by 0.5% for each month that date of retirement precedes the earlier of age 60 or the date the member would have completed 30 years of eligibility service (maximum reduction of 30%).

Plan C: For creditable service before election date, the amount determined by the service retirement formula for Employees' Retirement System with a maximum reduction of 30%; for creditable service after election date, the amount determined by the service retirement formula for the applicable component of the Employees' Pension System under which the employer participates with a 0.5% reduction for each month retirement occurs prior to age 62 (maximum reduction of 42%).

6. Disability Retirement Allowance

Ordinary

Eligibility: Five years of eligibility service and certification of the medical board designated by the Board of Trustees that member is mentally or physically incapacitated from the performance of the normal duties of the member's position, and that incapacity is permanent.

Allowance: The benefit is 1/55th of average final compensation for the three highest years as a member for each year of creditable service. The minimum benefit is 25% of average final compensation; the maximum benefit can be no greater than 1/55th of average final compensation for each year of creditable service the member would have accrued if employment continued to age 60.

Plan C: The benefit is the greater of the Employees' Retirement System allowance noted above, or the ordinary disability benefit of the Employees' Pension System.

Accidental

Eligibility: Certification of the medical board designated by the Board of Trustees that member is totally and permanently incapacitated from the performance of the normal duties of the member's position as the natural and proximate result of an accident that occurred in the actual performance of duty at a definite time and place without willful negligence by the member.

Allowance: The benefit is 66.67% of average final compensation for the three highest years as a member, plus the annuity provided by accumulated member contributions. The maximum benefit cannot be greater than the average final compensation, including any annuitized accumulated contributions.

7. Death Benefits

Ordinary Death Benefit for Active Member with Less Than One Year of Service

Eligibility: Less than one year of eligibility service and not eligible for a special death benefit.



Employees' Retirement System of the State of Maryland

Benefit: Return of accumulated contributions

Ordinary Death Benefit for Active Member with One or More Years of Service

Eligibility: One or more years of eligibility service and not eligible for a special death benefit.

Benefit:

Members who at the time of death are younger than age 55 or have less than 15 years of service.

One-time lump sum payment of member's annual earnable compensation at time of death plus accumulated contributions to the member's designated beneficiary.

Members who at the time of death are eligible to retire and are age 55 or older with at least 15 years of service.

The surviving spouse of a deceased member may elect to receive: (1) a one-time lump sum payment of the member's annual earnable compensation at the time of death plus the member's accumulated contributions; or (2) a monthly allowance under Option 2 (100% survivor benefit). In cases where a deceased member is not survived by a spouse, the decedent's children may elect to receive: (1) a one-time lump sum payment of the member's annual earnable compensation at the time of death plus the member's accumulated contributions; or (2) an allowance equal to 50% of the basic allowance that would have been paid to the deceased member, prorated equally among the eligible children. A child is eligible for a prorated share of the annuity until reaching age 26. The annuity shall be reallocated among the remaining eligible children. If any child is disabled, the benefit will continue for that child as long as the child remains disabled, regardless of age. In cases where a deceased member is not survived by a spouse or children, the member's designated beneficiary shall receive a one-time lump sum payment consisting of the member's accumulated contributions and the member's annual compensation at the time of death.

Special Death Benefit for Active Member

Eligibility: Death arising out of or in the course of the actual performance of duty without willful negligence by the member.

Benefit: 66.67% of average final compensation for the three highest years as a member payable to a surviving spouse, decedent's children or dependent parents. Accumulated member contributions are paid to the designated beneficiary. Children of deceased members receiving a special death benefit will continue to receive this benefit, prorated equally among the eligible children. A child is eligible for a prorated share of the annuity until reaching age 26. The annuity shall be reallocated among the remaining eligible children. Disabled children receiving a special death benefit may receive a special death benefit as long as they remain disabled, regardless of age.

Death Benefit for Vested Former Member

If member is not active, but is eligible for a vested allowance, the member's designated beneficiary or estate is eligible to receive only accumulated member contributions at time of death.



Employees' Retirement System of the State of Maryland

8. Vested Allowance

Eligibility: Five years of eligibility service and separation from employment other than by death or retirement.

Allowance: Vested allowance payable at normal retirement age, provided member does not withdraw accumulated member contributions.

9. Cost-of-Living Adjustments (COLA)

Retirement allowances may be adjusted each year based on the Consumer Price Index (CPI). Any COLAs are effective July 1 for all allowances which have been in payment for one year.

- Selection A (Additional Member Contributions): Uncapped and compounded.
- Selection B (Limited COLA): Capped at 5% and compounded.
- Selection C (Combination Formula): For creditable service on or after the effective date of Selection C, generally, with limited exceptions, COLA is capped at 3% and compounded. For creditable service before the effective date of Selection C, COLA is calculated based on the applicable component (A or B) to which the member was subject prior to electing Selection C.

In years in which COLAs would be less than zero due to a decline in the CPI, retirement allowances will not be adjusted. COLAs in succeeding years are adjusted until the difference between the negative COLA that would have applied and the zero COLA is fully recovered.

10. Optional Forms of Payment

Basic service allowance is a single life annuity.

Option 1: Lump-sum refund equal to excess of present value of basic retirement allowance at date of retirement minus total amount of payments made to date of death excluding any cost of living adjustments for retirees before July 1, 2017.

Option 2: 100% joint and survivor annuity, which pays the retiree's surviving designated beneficiary 100% of the retiree's reduced allowance for the life of the designated beneficiary. The designated beneficiary cannot be more than 10 years younger than the retiree unless the beneficiary is the retiree's spouse or disabled child.

Option 3: 50% joint and survivor annuity, which pays the retiree's surviving designated beneficiary 50% of the retiree's reduced allowance for the life of the designated beneficiary.

Option 4: Lump-sum refund equal to value of accumulated member contributions minus total portion of monthly payments attributed to member contributions made to date of death, excluding any cost of living adjustments for retirees before July 1, 2017.



Employees' Retirement System of the State of Maryland

- Option 5: 100% “pop-up” joint and survivor annuity, which pays the designated beneficiary 100% of the retiree’s reduced allowance after the retiree’s death or returns the retiree’s benefit to the unreduced basic allowance if beneficiary predeceases retiree. The designated beneficiary cannot be more than 10 years younger than the retiree unless the beneficiary is the retiree’s spouse or disabled child.
- Option 6: 50% “pop-up” joint and survivor annuity, which pays the designated beneficiary 50% of the retiree’s reduced allowance after the retiree’s death or returns the retiree’s benefit to the unreduced basic allowance if beneficiary predeceases retiree.

Retirees who have selected Options 2, 3, 5, or 6 and change their designated beneficiary after they retire, will have their retirement allowance re-calculated to reflect the age of the new designated beneficiary. Retirees who elect to change their beneficiary under Options 2, 3, 5, and 6, may rescind their request to change their designated beneficiary before the second monthly allowance is paid. Retirees who rescind the change of beneficiary, will have their benefit payment amount for the next payment restored to the amount paid before the change in beneficiary was made.

Vested former members who are eligible to receive a vested allowance of less than \$50 a month may elect to receive a lump-sum payment equal to the present value in lieu of a monthly benefit.

11. Reduction for Benefits Payable Under Workers’ Compensation

Disability retirement allowances, excluding annuity reserves, are reduced for workers’ compensation benefits paid or payable after retirement from injury occurring during employment by the State if the workers’ compensation benefits are for the same injury for which disability retirement was granted and are paid or payable for the same period of time for which the retirement benefits are paid. Employees’ Retirement System retirees receiving an accidental disability payment are subject to an offset if they are getting a workers’ compensation payment for the same injury or illness, subject to specified limits. Offsets do not include any calculation of cost-of-living benefits that are paid on the original benefit amount. Conversely, workers’ compensation payments are subject to an offset by the Workers’ Compensation Commission if a recipient is receiving an ordinary disability payment from the Employees’ Retirement System for the same injury or illness. Any offset taken for an accidental disability from the Employees’ Retirement System will be adjusted if the retiree was originally awarded an ordinary disability retirement benefit that was later converted to an accidental disability benefit. The adjusted offset shall reflect any offset awarded to the retiree’s employer by the Workers’ Compensation Commission.



Correctional Officers Retirement System

1. Membership

Membership is generally a condition of employment for correctional officers serving in the first six job classifications, individuals serving as a security chief, a facility administrator, and assistant warden or a warden, maximum security attendants at Clifton T. Perkins Hospital Center, and employees of the State as provided in SPP § 25-201. This includes participating governmental units who elect to have their detention center officers participate in the Correctional Officers' Retirement System.

2. Member Contributions

Members are required to make contributions of 5% of earnable compensation.

Interest earned on all employee contributions is 4% per year, compounded annually, until retirement, withdrawal of accumulated contributions, death, or the end of membership for former members who are not entitled to receive a vested allowance.

3. Normal Retirement Age

Normal retirement age is age 55 for service retirement, age 60 for disability retirement.

4. Normal Service Retirement Allowance

Eligibility: For individuals who are members on or before June 30, 2011, either age 55 with at least 5 years of eligibility service credit or 20 years of eligibility service, regardless of age. For individuals who are members on or after July 1, 2011, either age 55 with at least 10 years of eligibility service credit, or 20 years of eligibility service, regardless of age.

Allowance: For individuals who are members on or before June 30, 2011, 1/55th of average final compensation for the three highest years as a member for each year of creditable service. For individuals who are members on or after July 1, 2011, 1/55th of average final compensation for the five highest years as a member for each year of creditable service.

5. Early Retirement Allowance

Not applicable to the Correctional Officers' Retirement System, except for certain Baltimore City Jail employees who may retire with 10 years of creditable service., as specified in SPP § 25-401.1.

6. Disability Retirement Allowance

Ordinary

Eligibility: Five years of eligibility service and certification of the medical board designated by the Board of Trustees that member is mentally or physically incapacitated from the performance of the normal duties of the member's position, and that incapacity is likely to be permanent.



Correctional Officers Retirement System

Allowance: The benefit is 1/55th of the average final compensation for the three highest years as a member (five highest for members enrolled on or after July 1, 2011). The minimum benefit is 25% of average final compensation; the maximum benefit can be no greater than 1/55th of average final compensation for each year of creditable service the member would have accrued if employment continued to age 60.

Accidental

Eligibility: Certification of the medical board designated by the Board of Trustees that member is totally and permanently incapacitated from the performance of the normal duties of the member's position as the natural and proximate result of an accident that occurred in the actual performance of duty at a definite time and place without willful negligence by the member.

Allowance: The benefit is 66.67% of average final compensation for the three highest years as a member (five highest for members enrolled on or after July 1, 2011), plus the annuity provided by accumulated member contributions. The maximum benefit cannot be greater than the average final compensation, including any annuitized accumulated contributions.

7. Death Benefits

Ordinary Death Benefit for Active Member with Less Than One Year of Service

Eligibility: Less than one year of eligibility service and not eligible for a special death benefit.

Benefit: Return of accumulated contributions

Ordinary Death Benefit for Active Members with One Or More Years of Service

Eligibility: One or more years of eligibility service and not eligible for a special death benefit.

Benefit:

Members who at the time of death are younger than age 55 or have less than 15 years of service

One-time lump sum payment of member's annual earnable compensation at time of death plus accumulated contributions to the member's designated beneficiary.

Members who at the time of death are eligible to retire and are age 55 or older with at least 15 years of service

The surviving spouse of a deceased member may elect to receive: (1) a one-time lump sum payment of the member's annual earnable compensation at the time of death plus the member's accumulated contributions; or (2) a monthly allowance under Option 2 (100% survivor benefit). In cases where a deceased member is not survived by a spouse, the decedent's children may elect to receive: (1) a one-time lump sum payment of the member's annual earnable compensation at the time of death plus the member's accumulated contributions; or (2) an allowance equal to 50% of the basic allowance that would have been paid to the deceased member, prorated equally among the eligible children. A child is eligible for a prorated share of the annuity until reaching age 26. The annuity shall be reallocated



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among the remaining eligible children. If any child is disabled, the benefit will continue for that child past age 26 as long as the child remains disabled, regardless of age. In cases where a deceased member is not survived by a spouse or children, the member's designated beneficiary shall receive a one-time lump sum payment consisting of the member's accumulated contributions and the member's annual compensation at the time of death.

Special Death Benefit for Active Member

Eligibility: Death arising out of or in the course of the actual performance of duty without willful negligence by the member.

Benefit: 66.67% of average final compensation for the three highest years as a member payable to a surviving spouse, the decedent's children or dependent parents. Accumulated member contributions are paid to the designated beneficiary. Children of deceased members receiving a special death benefit will continue to receive this benefit, prorated equally among the eligible children. A child is eligible for a prorated share of the annuity until reaching age 26. The annuity shall be reallocated among the remaining eligible children. Disabled children receiving a special death benefit may receive a special death benefit as long as they remain disabled, regardless of age.

Death Benefit for Vested Former Member

If member is not active, but is eligible for a vested allowance, the member's designated beneficiary or estate is eligible to receive only accumulated member contributions at time of death.

8. Vested Allowance

Eligibility: For individuals who are members on or before June 30, 2011, five years of eligibility service. For individuals who become member on or after July 1, 2011, 10 years of eligibility service. Member must also be separated from employment other than by death or retirement.

Allowance: Service retirement allowance payable at age 55 provided the member does not withdraw the member's accumulated contributions.

9. Cost-of-Living Adjustments (COLA)

Retirement allowances may be adjusted each year based on the Consumer Price Index (CPI). Any COLAs are effective July 1 for all allowances which have been in payment for one year.

Uncapped compounded COLAs are applied to all benefits attributable to creditable service earned on or before June 30, 2011.

For an allowance based on creditable service earned on or after July 1, 2011, the COLA is capped at 2.5% if, for the calendar year ending December 31 in the previous fiscal year the several systems' total investment performance was greater than or equal to the assumed rate of investment return established by the Board of Trustees and in effect as of December 31 of the preceding fiscal year. The adjustment is capped at 1% if, for the calendar year ending December 31 in the previous fiscal year, the several systems' total investment performance was less than the assumed rate of investment



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return established by the Board of Trustees and in effect as of December 31 of the preceding fiscal year.

In years in which COLAs would be less than zero due to a decline in the CPI, retirement allowances will not be adjusted. COLAs in succeeding years are adjusted until the difference between the negative COLA that would have applied and the zero COLA is fully recovered.

10. Optional Forms of Payment

Basic service allowance is a single life annuity.

Option 1: Lump-sum refund equal to excess of present value of basic retirement allowance at date of retirement minus total amount of payments made to date of death excluding any cost of living adjustments for retirees before July 1, 2017.

Option 2: 100% joint and survivor annuity, which pays the retiree's surviving designated beneficiary 100% of the retiree's reduced allowance for the life of the designated beneficiary. The designated beneficiary cannot be more than 10 years younger than the retiree unless the beneficiary is the retiree's spouse or disabled child.

Option 3: 50% joint and survivor annuity, which pays the retiree's surviving designated beneficiary 50% of the retiree's reduced allowance for the life of the designated beneficiary.

Option 4: Lump-sum refund equal to value of accumulated member contributions minus total portion of monthly payments attributed to member contributions made to date of death, excluding any cost of living adjustments for retirees before July 1, 2017.

Option 5: 100% "pop-up" joint and survivor annuity, which pays the designated beneficiary 100% of the retiree's reduced allowance after the retiree's death or returns the retiree's benefit to the unreduced basic allowance if beneficiary predeceases retiree. The designated beneficiary cannot be more than 10 years younger than the retiree unless the beneficiary is the retiree's spouse or disabled child.

Option 6: 50% "pop-up" joint and survivor annuity, which pays the designated beneficiary 50% of the retiree's reduced allowance after the retiree's death or returns the retiree's benefit to the unreduced basic allowance if beneficiary predeceases retiree.

Retirees who have selected Options 2, 3, 5, or 6 and change their designated beneficiary after they retire, will have their retirement allowance re-calculated to reflect the age of the new designated beneficiary. Retirees who elect to change their beneficiary under Options 2, 3, 5, and 6, may rescind their request to change their designated beneficiary before the second monthly allowance is paid. Retirees who rescind the change of beneficiary, will have their benefit payment amount for the next payment restored to the amount paid before the change in beneficiary was made.



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Vested former members who are eligible to receive a vested allowance of less than \$50 a month may elect to receive a lump-sum payment equal to the present value in lieu of a monthly benefit.

11. Reduction for Benefits Payable Under Workers' Compensation

Disability retirement allowances, excluding annuity reserves, are reduced for workers' compensation benefits paid or payable after retirement from injury occurring during employment by the State if the workers' compensation benefits are for the same injury for which disability retirement was granted and are paid or payable for the same period of time for which the retirement benefits are paid. Correctional Officers' Retirement System retirees receiving an accidental disability payment are subject to an offset if they are getting a workers' compensation payment for the same injury or illness, subject to specified limits. Offsets do not include any calculation of cost-of-living benefits that are paid on the original benefit amount. Conversely, workers' compensation payments are subject to an offset by the Workers' Compensation Commission if a recipient is receiving an ordinary disability payment from the Correctional Officers' Retirement System for the same injury or illness. Any offset taken for an accidental disability from the Correctional Officers' Retirement System will be adjusted if the retiree was originally awarded an ordinary disability retirement benefit that was later converted to an accidental disability benefit. The adjusted offset shall reflect any offset awarded to the retiree's employer by the Workers' Compensation Commission.

Legislative Pension Plan

1. Membership

Membership is generally a condition of employment for members of the Maryland General Assembly during the 2019-2022 term of office.

2. Member Contributions

Members are required to contribute 7% of annual salary up to 22 years and three months of creditable service.

Interest earned on all employee contributions is 4% per year, compounded annually, until retirement or withdrawal of accumulated contributions.

3. Normal Retirement Age

For members who have creditable service prior to January 14, 2015, normal retirement age is age 60.

For members who do not have creditable service prior to January 14, 2015, normal retirement age is age 62.

4. Service Retirement Allowance

Eligibility: For individuals who have creditable service in the Legislative Pension Plan before January 14, 2015, age 60 with eight years of creditable service. For individuals who have no creditable service in the Legislative Pension Plan before January 14, 2015, age 62 with eight years of creditable service.

Allowance: 3% of salary of an active legislator for each year of service, multiplied by the number of years of creditable service. The maximum benefit available for a member is 66.67% of salary payable to an active legislator.

5. Reduced Service Retirement Allowance

Eligibility: For individuals who have creditable service in the Legislative Pension Plan before January 14, 2015, age 50 with eight years of creditable service. For individuals who have no creditable service in the Legislative Pension Plan before January 14, 2015, age 55 with eight years of creditable service.

Allowance: For individuals who have creditable service in the Legislative Pension Plan before January 14, 2015, a service retirement allowance computed as of early retirement date, reduced by 0.5% for each month under age 60 (maximum reduction of 60%). For individuals who have no creditable service in the Legislative Pension Plan before January 14, 2015, a service retirement allowance computed as of early retirement date, reduced by 0.5% for each month under age 62 (maximum reduction of 42%).



Legislative Pension Plan

6. Disability Retirement Allowance

Eligibility: Eight years of creditable service, regardless of age, and certification of the medical board designated by the Board of Trustees that the member is mentally or physically incapacitated from further performance of duty as a legislator, and that incapacity is likely to be permanent.

Allowance: Service retirement allowance, regardless of age.

7. Death Benefits

Death of A Member With At Least Eight Years of Creditable Service

Eligibility: At least eight years of creditable service

Beneficiary: Payment of the benefit shall be made to the member's surviving spouse. If there is no surviving spouse at the time of the member's death, the benefit shall be prorated equally among the eligible children. A child is eligible for a prorated share of the annuity until reaching age 26. If any child is disabled, the benefit will continue as long as the child remains disabled, regardless of age. In cases where a deceased member is not survived by a spouse or children, payment will be made to the member's designated beneficiary.

Benefit: The member's beneficiary (surviving spouse, children, or designated beneficiary) may elect to receive: (1) a return of the member's accumulated contributions plus the member's annual salary, if any, at the time of death; or (2) an annuity equal to 50% of the retirement allowance that would have been paid at the member's death, regardless of the member's age. The surviving spouse or children will begin receiving the death benefit at the time of the member's death. A designated beneficiary who elects to receive the annuity may not begin receiving the benefit until the beneficiary reaches age 60, if the deceased member had creditable service in the Legislative Pension Plan before January 14, 2015, or age 62, if the deceased member did not have creditable service before January 14, 2015. The designated beneficiary may elect to begin receiving a reduced annuity at age 50, if the deceased member had creditable service before January 14, 2015, or age 55 if the deceased member did not have creditable service before January 14, 2015.

Death of A Member with Less Than Eight Years of Creditable Service

Eligibility: A member currently serving in the legislature with less than eight years of creditable service

Beneficiary: Payment of the benefit shall be made to the member's surviving spouse. If there is no surviving spouse at the time of the member's death, the benefit shall be prorated equally among the eligible children. A child is eligible for a prorated share if the child is under age 26 or the child is disabled, regardless of age. In cases where a deceased member is not survived by a spouse or children, payment will be made to the member's designated beneficiary. If a member designates more than one beneficiary, the benefit shall be prorated equally among each beneficiary.



Legislative Pension Plan

Benefit: A lump-sum benefit equal to the member's accumulated contributions plus the member's annual salary at the time of death.

Death of A Member with No Beneficiary

On death of a member who is not survived by a spouse, children, or designated beneficiary, the Board of Trustees shall pay the member's accumulated contributions to the estate of the member.

Death of Retiree

Upon the death of a retiree, a survivor allowance equal to 50% of the retiree's retirement allowance is payable to the retiree's surviving spouse for the spouse's life. If the retiree has no surviving spouse and the retiree has creditable service before January 14, 2015, the full survivor allowance is payable to the designated beneficiary for life beginning at age 60 or an optional reduced survivor allowance is payable to the designated beneficiary for life beginning at age 50. If the retiree has no surviving spouse and the retiree has no creditable service before January 14, 2015, the full survivor allowance is payable to the designated beneficiary for life beginning at age 62 or an optional reduced survivor allowance is payable to the designated beneficiary for life beginning at age 55.

8. Vested Allowance

Eligibility: Eight years of creditable service and separation from employment other than by death or retirement.

Allowance: For individuals who have creditable service in the Legislative Pension Plan before January 14, 2015, a service retirement allowance payable at age 60, provided the member has not withdrawn the member's accumulated contributions. For individuals who have no creditable service in the Legislative Pension Plan before January 14, 2015, a service retirement allowance payable at age 62, provided the member has not withdrawn the member's accumulated contributions.

9. Cost-of-Living Adjustments

Generally, allowances are recalculated each time the salary for a sitting legislator increases.

10. Optional Forms of Payment

Basic Allowance: Normal service allowance with a 50% joint and survivor annuity to the retiree's surviving spouse. If there is no surviving spouse, to the retiree's designated beneficiary. A surviving spouse will begin receiving the death benefit at the time of the retiree's death. A designated beneficiary may not begin receiving the benefit until the beneficiary reaches age 60, if the deceased retiree had creditable service in the Legislative Pension Plan before January 14, 2015, or age 62, if the deceased retiree did not have creditable service before January 14, 2015. The designated beneficiary may elect to begin receiving a reduced annuity at age 50, if the deceased retiree had creditable service before January 14, 2015, or age 55 if the deceased retiree did not have creditable service before January 14, 2015.



Legislative Pension Plan

Option 1: 100% joint and survivor annuity. If, at the time of retirement the member is married and elects to receive Option 1, the member's spouse must be the designated beneficiary. The designated beneficiary may not be more than 10 years younger than the member unless the beneficiary is the member's spouse or disabled child.

Employees' Pension System of the State of Maryland

1. Membership

Membership is generally a condition of employment for all regular employees of the State of Maryland hired on or after January 1, 1980, excluding those eligible for the Teachers' Retirement System, Teachers' Pension System, State Police Retirement System, certain judges, correctional officers, Law Enforcement Officers Pension System, and members of the General Assembly. Certain governmental units also have elected to participate in the System.

There are four plans under the Employees' Pension System.

- Noncontributory Pension System (**NCPS**) - The original pension system established on January 1, 1980 that only applies to certain participating governmental units that did not elect to participate in the Contributory Pension System, Alternate Contributory Pension Selection, or Reformed Contributory Pension Benefit.
- Employees' Contributory Pension System (**ECPS**) – The ECPS established July 1, 1998 that only applies to certain participating governmental units that elected the ECPS but did not elect to participate in the Alternate Contributory Pension Selection, or Reformed Contributory Pension Benefit.
- Alternate Contributory Pension Selection (**ACPS**) - Applies to all State employees and employees of participating governmental units that are members of the ACPS on or before June 30, 2011.
- Reformed Contributory Pension Benefit (**RCPB**) – Applies to all State employees and employees of participating governmental units enrolling in the Employees' Pension System on or after July 1, 2011. It does not apply to employees of participating governmental units that did not elect to participate in the ACPS or RCPB.

2. Member Contributions

NCPS: Members are only required to make contributions of 5% on earnable compensation that exceeds the Social Security Taxable Wage Base.

ECPS: Members are required to make contributions of 2% of earnable compensation.

ACPS: Members are required to make contributions of 7% of earnable compensation.

RCPB: Members are required to make contributions of 7% of earnable compensation.

Contributions earn interest at 5% per year, compounded annually, until retirement, withdrawal of accumulated contributions, death, or the end of membership for former members who are not entitled to receive a vested allowance.



Employees' Pension System of the State of Maryland

3. Normal Retirement Age

For members of the Non-Contributory, Contributory, or Alternate Contributory Pension Selection, normal retirement age is age 62.

For members of the Reformed Contributory Pension Benefit, normal retirement age is age 65.

4. Normal Service Retirement Allowance

NCPS, ECPS, and ACPS Eligibility - 30 years of eligibility service or attainment of one of the following:

- Age 62 with five years of eligibility service
- Age 63 with four years of eligibility service
- Age 64 with three years of eligibility service
- Age 65 or older with two years of eligibility service

NCPS Allowance:

0.8% of average final compensation up to the Social Security Integration Level (SSIL) for the three highest consecutive years as a member plus 1.5% of average final compensation over the SSIL for each year of creditable service;

ECPS Allowance: The greater of (i) or (ii), plus (iii), as described below:

- (i) 1.2% of average final compensation for the three highest consecutive years as a member for each year of creditable service on or before June 30, 1998;
- (ii) 0.8% of average final compensation up to the SSIL for the three highest consecutive years as a member plus 1.5% of average final compensation over the SSIL for each year of creditable service on or before June 30, 1998;
- (iii) 1.4% of average final compensation for the three highest consecutive years as a member for each year of creditable service after June 30, 1998.

ACPS Allowance: The greater of (i) or (ii), plus (iii), as described below:

- (i) 1.2% of average final compensation for the three highest consecutive years as a member for each year of creditable service on or before June 30, 1998;
- (ii) 0.8% of average final compensation up to the SSIL for the three highest consecutive years as a member plus 1.5% of average final compensation over the SSIL for each year of creditable service on or before June 30, 1998;
- (iii) 1.8% of average final compensation for the three highest consecutive years as a member for each year of creditable service after June 30, 1998.



Employees' Pension System of the State of Maryland

RCPB Eligibility - Combined age and eligibility service of at least 90 years or age 65 with 10 or more years of eligibility service.

RCPB Allowance: 1.5% of average final compensation for the five highest consecutive years as a member for each year of creditable service on or after July 1, 2011.

SSIL is the average of all Social Security Wage Bases over the 35 calendar years prior to your retirement.

Note: Members who transferred into the Employees' Pension System, on or after April 1, 1998, receive benefits based on the provisions of the NCPS as in effect on January 1, 1980 except for COLA benefits.

5. Early Retirement Allowance

NCPS, ECPS, and ACPS Eligibility: Age 55 and at least 15 years of eligibility service.

NCPS, ECPS, and ACPS Allowance: Service retirement allowance computed as of early retirement date, reduced by 0.5% for each month that early retirement date precedes age 62 (maximum reduction is 42%).

RCPB Eligibility: Age 60 with at least 15 years of eligibility service.

RCPB Allowance: Service retirement allowance computed as of early retirement date, reduced by 0.5% for each month that early retirement date precedes age 65 (maximum reduction is 30%).

6. Disability Retirement Allowance

Ordinary

Eligibility: Five years of eligibility service and certification of the medical board designated by the Board of Trustees that member is mentally or physically incapacitated from the performance of the normal duties of the member's position, and that incapacity is likely to be permanent.

Allowance: The benefit is the service retirement allowance computed on the basis that service continues until normal retirement age. If disability occurs on or after age 62 (age 65 for RCPB), the benefit is based on creditable service at time of retirement.

Accidental

Eligibility: Certification of the medical board designated by the Board of Trustees that member is totally and permanently incapacitated from the performance of the normal duties of the member's position as the natural and proximate result of an accident that occurred in the actual performance of duty without willful negligence by the member.



Employees' Pension System of the State of Maryland

Allowance: The benefit is 66.67% of average final compensation for the three highest consecutive years (five highest for RCPB) as a member, plus the annuity provided by accumulated member contributions. The maximum benefit cannot be greater than the average final compensation including any annuitized accumulated contributions.

7. Death Benefits

Ordinary Death Benefit for Active Member with Less Than One Year of Service

Eligibility: Less than one year of eligibility service and not eligible for a special death benefit.

Benefit: Return of accumulated contributions

Ordinary Death Benefit for Active Member with One Or More Years of Service

Eligibility: One or more years of eligibility service and not eligible for a special death benefit.

Benefit:

Members who at the time of death are not members of the Reformed Contributory Pension Benefit, are younger than age 55, and have less than 15 years of service or are members of the Reformed Contributory Pension Benefit, are younger than age 60, and have less than 15 years of service.

One-time lump sum payment of member's annual earnable compensation at time of death plus accumulated contributions to the member's designated beneficiary.

Members who at the time of death: (1) are eligible to retire; (2) have accrued at least 25 years of eligibility service; (3) are not members of the Reformed Contributory Pension Benefit and are age 55 or older with at least 15 years of service; or (4) are members of the Reformed Contributory Pension Benefit and are age 60 or older with at least 15 years of service.

The surviving spouse of a deceased member may elect to receive: (1) a one-time lump sum payment of the member's annual earnable compensation at the time of death plus the member's accumulated contributions; or (2) a monthly allowance under Option 2 (100% survivor benefit). In cases where a deceased member is not survived by a spouse, the decedent's children may elect to receive: (1) a one-time lump sum payment of the member's annual earnable compensation at the time of death plus the member's accumulated contributions; or (2) an allowance equal to 50% of the basic allowance that would have been paid to the deceased member, prorated equally among the eligible children. A child is eligible for a prorated share of the annuity until reaching age 26. The annuity shall be reallocated among the remaining eligible children. If any child is disabled, the benefit will continue for that child as long as the child remains disabled, regardless of age. In cases where a deceased member is not survived by a spouse or children, the member's designated beneficiary shall receive a one-time lump sum payment consisting of the member's accumulated contributions and the member's annual compensation at the time of death.

Special Death Benefit for Active Member

Eligibility: Death arising out of or in the course of the actual performance of duty without willful negligence by the member.



Employees' Pension System of the State of Maryland

Benefit: 66.67% of average final compensation for the three highest consecutive years as a member, except for member's participating in the RCPB component for which the average final compensation is the five highest consecutive years as a member, payable to a surviving spouse, the decedent's children or dependent parents. Accumulated member contributions are paid to the designated beneficiary. Children of deceased members receiving a special death benefit will continue to receive this benefit, prorated equally among the eligible children. A child is eligible for a prorated share of the annuity until reaching age 26. The annuity shall be reallocated among the remaining eligible children. Disabled children receiving a special death benefit may receive a special death benefit as long as they remain disabled, regardless of age.

Death Benefit for Vested Former Member

If a member is not active, but is eligible for a vested allowance, the member's designated beneficiary or estate is eligible to receive only accumulated member contributions at time of death.

8. Vested Allowance

NCPS, ECPS, and ACPS Eligibility: Five years of eligibility service and separation from employment other than by death or retirement.

NCPS, ECPS, and ACPS Allowance: Accrued retirement allowance payable at age 62. A member who has completed 15 years of eligibility service may begin to receive benefit payments at any time on or after attainment of age 55, reduced by 0.5% for each month that benefit commencement date precedes age 62 (maximum reduction of 42%).

If member dies before payment of the vested allowance starts, only accumulated member contributions are returned.

RCPB Eligibility: 10 years of eligibility service and separation from employment other than by death or retirement.

RCPB Allowance: Accrued retirement allowance payable at age 65 provided member does not withdraw accumulated contributions. A member who has completed 15 years of eligibility service may begin to receive benefit payments at any time on or after attainment of age 60, reduced by 0.5% for each month that benefit commencement date precedes age 65 (maximum reduction of 30%).

If member dies before payment of the vested allowance starts, only accumulated member contributions are returned.

9. Cost-of-Living Adjustments (COLA)

Retirement allowances may be adjusted each year based on the Consumer Price Index (CPI). Generally, effective July 1, 1998, and for an allowance based on creditable service earned before July 1, 2011, the adjustment is capped at a maximum of 3% compounded and is applied to all allowances which have been in payment for one year.



Employees' Pension System of the State of Maryland

Generally, for an allowance based on creditable service earned on or after July 1, 2011, the COLA is capped at 2.5% if, for the calendar year ending December 31 in the previous fiscal year, the several systems' total investment performance was greater than or equal to the assumed rate of investment return established by the Board of Trustees and in effect as of December 31 of the preceding fiscal year. The adjustment is capped at 1% if, for the calendar year ending December 31 in the previous fiscal year the several systems' total investment performance was less than the assumed rate of investment return established by the Board of Trustees and in effect as of December 31 of the preceding fiscal year.

For certain individuals, such as employees of a participating governmental unit that has not elected the contributory pension benefit or the Alternate Contributory Pension Selection for its members, or their surviving beneficiaries, the allowance is subject to a simple COLA capped at 3%.

In years in which COLAs would be less than zero due to a decline in the CPI, retirement allowances will not be adjusted. COLAs in succeeding years are adjusted until the difference between the negative COLA that would have applied and the zero COLA is fully recovered.

10. Optional Forms of Payment

Basic service allowance is in a single life annuity.

- Option 1: Lump-sum refund equal to excess of present value of basic retirement allowance at date of retirement minus total amount of payments made to date of death excluding any cost of living adjustments for retirees before July 1, 2017.
- Option 2: 100% joint and survivor annuity, which pays the retiree's surviving designated beneficiary 100% of the retiree's reduced allowance for the life of the designated beneficiary. The designated beneficiary cannot be more than 10 years younger than the retiree unless the beneficiary is the retiree's spouse or disabled child.
- Option 3: 50% joint and survivor annuity, which pays the retiree's surviving designated beneficiary 50% of the retiree's reduced allowance for the life of the designated beneficiary.
- Option 4: Lump-sum refund equal to value of accumulated member contributions minus total portion of monthly payments attributed to member contributions made to date of death, excluding any cost of living adjustments for retirees before July 1, 2017.
- Option 5: 100% "pop-up" joint and survivor annuity, which pays the designated beneficiary 100% of the retiree's reduced allowance after the retiree's death or returns the retiree's benefit to the unreduced basic allowance if beneficiary predeceases retiree. The designated beneficiary cannot be more than 10 years younger than the retiree unless the beneficiary is the retiree's spouse or disabled child.



Employees' Pension System of the State of Maryland

Option 6: 50% “pop-up” joint and survivor annuity, which pays the designated beneficiary 50% of the retiree’s reduced allowance after the retiree’s death or returns the retiree’s benefit to the unreduced basic allowance if beneficiary predeceases retiree.

Retirees who have selected Options 2, 3, 5, or 6 and change their designated beneficiary after they retire, will have their retirement allowance re-calculated to reflect the age of the new designated beneficiary. Retirees who elect to change their beneficiary under Options 2, 3, 5, and 6, may rescind their request to change their designated beneficiary before the second monthly allowance is paid. Retirees who rescind the change of beneficiary, will have their benefit payment amount for the next payment restored to the amount paid before the change in beneficiary was made.

Vested former members who are eligible to receive a vested allowance of less than \$50 a month may elect to receive a lump-sum payment equal to the present value in lieu of a monthly benefit.

11. Reduction for Benefits Payable Under Workers’ Compensation

Disability retirement allowances, excluding annuity reserves, are reduced for workers’ compensation benefits paid or payable after retirement from injury occurring during employment by the State if the workers’ compensation benefits are for the same injury for which disability retirement was granted and are paid or payable for the same period of time for which the retirement benefits are paid. Employees’ Pension System retirees receiving an accidental disability payment are subject to an offset if they are getting a workers’ compensation payment for the same injury or illness, subject to specified limits. Offsets do not include any calculation of cost-of-living benefits that are paid on the original benefit amount. Conversely, workers’ compensation payments are subject to an offset by the Workers’ Compensation Commission if a recipient is receiving an ordinary disability payment from the

Employees’ Pension System for the same injury or illness. Any offset taken for an accidental disability from the Employees’ Pension System will be adjusted if the retiree was originally awarded an ordinary disability retirement benefit that was later converted to an accidental disability benefit. The adjusted offset shall reflect any offset awarded to the retiree’s employer by the Workers’ Compensation Commission.

State Police Retirement System of the State of Maryland

1. Membership

Membership is a condition of employment for all officers of the Maryland State Police.

2. Member Contributions

Members are required to contribute 8% of earnable compensation, up to 28 years of service.

Contributions earn interest at 4% per year, compounded annually, until retirement, withdrawal of the accumulated contributions, or the end of membership for former members who are not entitled to receive a vested allowance.

3. Normal Retirement Age

Normal retirement age is age 50.

4. Normal Service Retirement Allowance

Eligibility: For individuals who are members on or before June 30, 2011, 22 years of eligibility service or attainment of age 50. For individuals who become members on or after July 1, 2011, 25 years of eligibility service or attainment of age 50. Retirement at age 60 is mandatory for all but the Secretary of State Police.

Allowance: For individuals who are members on or before June 30, 2011, 2.55% of average final compensation for the three highest years as a member. For individuals who become members on or after July 1, 2011, 2.55% of average final compensation for the five highest years as a member. Maximum benefit is 71.4% of average final compensation.

5. Early Retirement Allowance

Not applicable to the State Police Retirement System.

6. Disability Retirement Allowance

Ordinary

Eligibility: Five years of eligibility service and certification of the medical board designated by the Board of Trustees that member is mentally or physically incapacitated from the performance of the normal duties of the member's position, and that incapacity is likely to be permanent.

Allowance: The allowance is the greater of a normal service retirement allowance (as described above) or 35% of the member's average final compensation.



State Police Retirement System of the State of Maryland

Special (Accidental)

Eligibility: Total and permanent incapacity for duty as certified by the medical board arising out of or in the course of the actual performance of duty without willful negligence by the member.

Allowance: For members who are under normal retirement age, the benefit is the lesser of either the member's average final compensation, or the sum of 66.67% of the member's average final compensation and an annuity that is actuarially equivalent to the member's accumulated contributions. Members who are at least normal retirement age are entitled either to the benefit as calculated for members under normal retirement age, or a normal service retirement allowance, whichever is greater.

7. Death Benefits

Normal Death Benefit – Return of Accumulated Contributions

Eligibility: Death while employed as a member and less than one year of eligibility service. A normal death benefit may be not paid if a special death benefit is paid for that death.

Benefit: Lump sum payment of member's accumulated member contributions to the member's designated beneficiary or, if there is no designated beneficiary, to the member's estate.

Normal Death Benefit – Return of Accumulated Contributions and Annual Earnable Compensation

Eligibility: Death while employed as a member and at least one year of eligibility service. A normal death benefit may not be paid if a special death benefit is paid for that death.

Benefit: Lump sum payment of member's accumulated contributions and an amount equal to the member's annual earnable compensation at the time of death to the member's designated beneficiary or, if there is no designated beneficiary, to the member's estate.

Special Death Benefit for Death While Employed and Not in Performance of Duty

Eligibility: Death while employed as a member, without member's willful negligence, and not in the performance of duty. Member has more than two years of eligibility service. The member is survived by a spouse, a child under the age of 26, a disabled child, or a dependent parent.

Benefit: Accumulated member contributions plus an allowance equal to 50% of the member's average final compensation.

Beneficiary: Payment of the member's accumulated member contributions shall be paid to the member's designated beneficiary, or otherwise to the member's estate. An allowance equal to 50% of the member's average final compensation shall be made to the surviving spouse; however, if there is no surviving spouse or spouse dies before youngest child reaches age 26, 50% of average final compensation continues prorated equally among the eligible children. A child is eligible for a prorated share of the annuity until reaching age 26. If the child is disabled, the benefit will continue as long as



State Police Retirement System of the State of Maryland

the child remains disabled, regardless of age. In cases where a deceased member is not survived by a spouse or children, payment is made to dependent parents. If none of the above conditions is met, the normal death benefit is paid to the designated beneficiary.

Special Death Benefit for Death in The Performance of Duty

Eligibility: Death while employed as a member, without member's willful negligence, and in the performance of duty. The member is survived by a spouse, a child under the age of 26, a disabled child, or a dependent parent.

Benefit: Accumulated member contributions plus an allowance equal to 66.67% of the member's average final compensation.

Beneficiary: Payment of the member's accumulated member contributions shall be paid to the member's designated beneficiary, or otherwise to the member's estate. An allowance equal to 66.67% of the member's average final compensation shall be made to the surviving spouse; however, if there is no surviving spouse or spouse dies before youngest child reaches age 26, 66.67% of average final compensation continues prorated equally among the eligible children. A child is eligible for a prorated share of the annuity until reaching age 26. If the child is disabled, the benefit will continue as long as the child remains disabled, regardless of age. In cases where a deceased member is not survived by a spouse or children, payment is made to dependent parents. If none of the above conditions is met, the normal death benefit is paid to the designated beneficiary.

Waiver of Special Death Benefit

Before the payment of any special death benefit is made under this section, if all individuals eligible for a special death benefit elect to waive the payment of the special death benefit, a normal death benefit is paid to the member's designated beneficiary, or otherwise to the member's estate.

Death Benefit for Vested Former Member

If a member is not active, but is eligible for a vested allowance, the member's designated beneficiary or estate is eligible to receive only accumulated member contributions at time of death.

8. Vested Allowance

Eligibility: For individuals who became members on or before June 30, 2011, five years of eligibility service and separation from employment other than by death or retirement. For individuals who become members on or after July 1, 2011, 10 years of eligibility service and separation from employment other than by death or retirement.

Allowance: Service retirement allowance payable at normal retirement age, provided the member does not withdraw the member's accumulated contributions.



State Police Retirement System of the State of Maryland

9. Cost-of-Living Adjustments (COLA)

Retirement allowances may be adjusted each year based on the Consumer Price Index (CPI). Any COLAs are effective July 1, for all allowances which have been in payment for one year.

Uncapped compounded COLAs are applied to all benefits attributable to creditable service earned on or before June 30, 2011.

For an allowance based on creditable service earned on or after July 1, 2011, the COLA adjustment is capped at 2.5% if, for the calendar year ending December 31 in the previous fiscal year, the several systems' total investment performance was greater than or equal to the assumed rate of investment return established by the Board of Trustees and in effect as of December 31 of the preceding fiscal year. The adjustment is capped at 1% if, for the calendar year ending December 31 in the previous fiscal year, the several systems' total investment performance was less than the assumed rate of investment return established by the Board of Trustees and in effect as of December 31 of the preceding fiscal year.

In years in which COLAs would be less than zero due to a decline in the CPI, retirement allowances will not be adjusted. COLAs in succeeding years are adjusted until the difference between the negative COLA that would have applied and the zero COLA is fully recovered.

Retirees and beneficiaries receiving a retirement allowance on or before June 30, 1999, who receive an annual adjustment to their benefit ranging from \$1,200 to \$2,100 receive separate COLAs on this adjustment commencing effective July 1, 2000.

10. Optional Forms of Payment

If, at the time of death, the retiree is married, the retiree's spouse is entitled to receive a survivor benefit consisting of 80% of the retiree's retirement allowance. If there is no surviving spouse or upon the death of the surviving spouse, payment of the survivor benefit is divided equally among any children of the deceased retiree under the age of 18 years, until each child dies or becomes age 18. If the child is disabled, the benefit will continue as long as the child remains disabled, regardless of age. If there is no spouse at time of retirement, member may select an optional allowance.

Option 1: Lump-sum refund equal to excess of present value of basic retirement allowance at date of retirement minus total amount of payments made to date of death excluding any cost of living adjustments for retirees before July 1, 2017.

Option 2: 100% joint and survivor annuity, which pays the retiree's surviving designated beneficiary 100% of the retiree's reduced allowance for the life of the designated beneficiary. The designated beneficiary cannot be more than 10 years younger than the retiree unless the beneficiary is the retiree's spouse or disabled child.

Option 3: 50% joint and survivor annuity, which pays the retiree's surviving designated beneficiary 50% of the retiree's reduced allowance for the life of the designated beneficiary.



State Police Retirement System of the State of Maryland

- Option 4: Lump-sum refund equal to value of accumulated member contributions minus total portion of monthly payments attributed to member contributions made to date of death, excluding any cost of living adjustments for retirees before July 1, 2017.
- Option 5: 100% “pop-up” joint and survivor annuity, which pays the designated beneficiary 100% of the retiree’s reduced allowance after the retiree’s death or returns the retiree’s benefit to the unreduced basic allowance if beneficiary predeceases retiree. The designated beneficiary cannot be more than 10 years younger than the retiree unless the beneficiary is the retiree’s spouse or disabled child.
- Option 6: 50% “pop-up” joint and survivor annuity, which pays the designated beneficiary 50% of the retiree’s reduced allowance after the retiree’s death or returns the retiree’s benefit to the unreduced basic allowance if beneficiary predeceases retiree.

Retirees who have selected Options 2, 3, 5, or 6 and change their designated beneficiary after they retire, will have their retirement allowance re-calculated to reflect the age of the new designated beneficiary. Retirees who elect to change their beneficiary under Options 2, 3, 5, and 6, may rescind their request to change their designated beneficiary before the second monthly allowance is paid. Retirees who rescind the change of beneficiary, will have their benefit payment amount for the next payment restored to the amount paid before the change in beneficiary was made.

11. Reduction for Benefits Payable Under Workers’ Compensation

Disability retirement allowances, excluding annuity reserves, are reduced for workers’ compensation benefits paid or payable after retirement from injury occurring during employment by the State if the workers’ compensation benefits are for the same injury for which disability retirement was granted and are paid or payable for the same period of time for which the retirement benefits are paid. State Police Retirement System retirees receiving an accidental disability payment are subject to an offset if they are getting a workers’ compensation payment for the same injury or illness, subject to specified limits. Offsets do not include any calculation of cost-of-living benefits that are paid on the original benefit amount. Conversely, workers’ compensation payments are subject to an offset by the Workers’ Compensation Commission if a recipient is receiving an ordinary disability payment from the State Police Retirement System for the same injury or illness. Any offset taken for an accidental disability from the State Police Retirement System will be adjusted if the retiree was originally awarded an ordinary disability retirement benefit that was later converted to an accidental disability benefit. The adjusted offset shall reflect any offset awarded to the retiree’s employer by the Workers’ Compensation Commission.

12. Deferred Retirement Option Program (DROP)

Eligibility: Members who joined the State Police Retirement System on or before June 30, 2011 are eligible to participate in the DROP if they are less than 60 years old and have at least 22 but less than 30 years of eligibility service. Members who join the State Police System on or after July 1, 2011 are eligible to participate in the DROP if they are less than 60 years old and have at least 25 but less than 30 years of eligibility service.



State Police Retirement System of the State of Maryland

Participation: An eligible member may participate in the DROP for the lesser of 5 years, the difference between 30 years and the member's creditable service, the difference between 60 years and the member's age on date of election to participate, or a term selected by the member. Participation also ends if the participant dies, is terminated from employment, accepts a special disability retirement allowance, or submits a binding letter of resignation or notice of intent to terminate employment. Members who participate in the DROP are retired and cease making member contributions, and cease accruing service credit and additional benefits.

Allowance: For members who entered the DROP on or before June 30, 2011, the service retirement allowance, with COLAs, is credited to an account earning interest at the rate of 6% per year, compounded monthly. For members who enter DROP on or after July 1, 2011, the service retirement allowance, with COLAs, is credited to an account earning interest at the rate of 4% per year, compounded annually. When the DROP period ends, members terminate employment and begin receiving their monthly allowance plus the lump sum payment from their DROP account. During the DROP period, members remain eligible for Special Disability benefits if incapacitated while in DROP.

Judges' Retirement System of the State of Maryland

1. Membership

Membership is a condition of employment for a judge of the Court of Appeals, Court of Special Appeals, Circuit Court, or District Court of Maryland and members of the State Workers' Compensation Commission. Membership ends if the member is separated from employment for more than four years, withdraws the member's accumulated contributions, retires, or dies.

2. Member Contributions

Members are required to make contributions of 8% of salary until they have completed 16 years of service as a member.

Contributions earn interest at 4% per year, compounded annually, until retirement or withdrawal of accumulated contributions. Non-vested members who became members of the Judges' Retirement System on or after July 1, 2012 shall not receive interest after membership ends.

3. Normal Retirement Age

Normal retirement age is age 60.

4. Retirement Allowance

Eligibility: An individual who is a member of the Judges' Retirement System before July 1, 2012 is entitled to a retirement allowance: (1) on termination of service if the member is at least age 60; (2) on resignation for disability and recommendation of the medical board, (3) when retired by order of the Court of Appeals, or (4) at the age of 60 years. An individual who becomes a member of the Judges' Retirement System on or after July 1, 2012 is entitled to a retirement allowance: (1) on termination of service if the member is at least 60 and has at least 5 years of eligibility service; (2) on resignation for disability and recommendation of the medical board, (3) when retired by order of the Court of Appeals if the member has at least 5 years of eligibility service; (4) at the mandatory retirement age required by the Maryland Constitution with less than five years of service, if the member has eligibility service equal to the mandatory retirement age minus the member's age when the member joined the Judges' Retirement System; or (5) at the age of 60, if the former member's termination of service occurred earlier and the former member had at least five years of eligibility service when the former member terminated service.

Allowance: Generally, the retirement allowance equals 66.67% of salary payable in that fiscal year to member holding same level of judicial position that retiree held on termination of service. For members with less than 16 years of service credit, the benefit is reduced based on the ratio of years of service credit to 16.

5. Early Retirement Allowance

Not applicable to the Judges' Retirement System.



Judges' Retirement System of the State of Maryland

6. Disability Retirement Allowance

Eligibility: Certification of the medical board designated by the Board of Trustees that member is incapacitated for the performance of duty, and that incapacity is likely to be permanent.

Allowance: A retirement allowance payable immediately. However, if a judge has at least three years of service credit as a member, the allowance will be at least .333% of the judge's salary at the time of retirement.

7. Death Benefits

Monthly Allowance

Eligibility: Death of a judge or former judge at any age, leaving a surviving spouse or children under the age of 26, or a child who is disabled, regardless of age.

Allowance: 50% of the pension that would have been payable to the judge or former judge as of the date of death, as if the judge or former judge was eligible to receive a retirement allowance, is payable to surviving spouse. If there is no spouse, payment is divided equally among the eligible children. A child is eligible for a prorated share of the annuity until reaching age 26. If the child is disabled, the benefit will continue as long as the child remains disabled, regardless of age.

Lump Sum

On death of a member who is not survived by a spouse or children, the Board of Trustees shall pay the member's accumulated contributions and an amount equal to the member's annual salary at time of death to the member's designated beneficiary. If the member has designated more than one beneficiary, this lump-sum death benefit shall be divided equally among the beneficiaries. If a member's service is terminated by death and the member leaves no spouse, child under the age of 18 years, or designated beneficiary, the member's accumulated contributions shall be paid to the member's estate.

8. Vested Allowance

Eligibility: Individuals who became members before July 1, 2012, are eligible once they have both separated from service and reached age 60 years. Individuals who become members on or after July 1, 2012, are eligible once they have separated from service, reached age 60 years, and earned five years of eligibility service. Also eligible are individuals who became members on or after July 1, 2012 who are required to retire due to mandatory retirement and have less than 5 years of service at that time, if they have an amount of eligibility service equal to constitutional mandatory retirement age minus the member's age when the individuals first become members of the System.

Allowance: Same as allowance payable at age 60.



Judges' Retirement System of the State of Maryland

In lieu of a deferred vested allowance pension, a former judge may elect to withdraw accumulated contributions following the judge's termination of service.

9. Cost-of-Living Adjustments (COLA)

Generally, allowances are recalculated each time the salary for a sitting judge from the Court from which the judge retired increases.

NOTE: Magistrates who retire from the Judges' Retirement System receive COLA allowances equal to the percentage increase in salary provided to judges of the Circuit Court.

10. Optional Forms of Payment

For survivor allowance payable to a member's surviving spouse, children under age 26, or disabled children, see Death Benefits section above. A judge or former judge, who at the time of retirement, does not have a spouse or child under the age of 18 years, may elect one of the following optional forms of payment:

- Option 1: Lump-sum equal to excess of present value of basic retirement allowance at date of retirement minus total amount of payments made to date of death excluding any cost of living adjustments for retirees before July 1, 2017.
- Option 2: 100% joint and survivor annuity, which pays the retiree's surviving designated beneficiary 100% of the retiree's reduced allowance for the life of the designated beneficiary. The designated beneficiary cannot be more than 10 years younger than the retiree unless the beneficiary is the retiree's spouse or disabled child.
- Option 3: 50% joint and survivor annuity, which pays the retiree's surviving designated beneficiary 50% of the retiree's reduced allowance for the life of the designated beneficiary.
- Option 4: Lump-sum equal to value of accumulated member contributions minus total portion of monthly payments attributed to member contributions made to date of death, excluding any cost of living adjustments for retirees before July 1, 2017.
- Option 5: 100% "pop-up" joint and survivor annuity, which pays the designated beneficiary 100% of the retiree's reduced allowance after the retiree's death or returns the retiree's benefit to the unreduced basic allowance if beneficiary predeceases retiree. The designated beneficiary cannot be more than 10 years younger than the retiree unless the beneficiary is the retiree's spouse or disabled child.
- Option 6: 50% "pop-up" joint and survivor annuity, which pays the designated beneficiary 50% of the retiree's reduced allowance after the retiree's death or returns the retiree's benefit to the unreduced basic allowance if beneficiary predeceases retiree.

A retiree who has elected one of these optional forms of allowance may not change the designated beneficiary.



Law Enforcement Officers' Pension System of the State of Maryland

A. Pension Provisions

1. Membership

Membership generally is a condition of employment for all law enforcement officers who are employees of the State as provided in SPP § 26-201, or whose employers are participating governmental units who elect to have their law enforcement officers or firefighters/paramedics participate in the Law Enforcement Officers' Pension System.

2. Member Contributions

Members are required to contribute 7% of earnable compensation, up to 32 years and six months of service.

Contributions earn interest at 5% per year, compounded annually, until retirement, withdrawal of accumulated contributions, death, or the end of membership for former members who are not entitled to receive a vested allowance.

3. Normal Retirement Age

Normal retirement age is age 50.

4. Normal Service Retirement Allowance

Eligibility: 25 years of eligibility service or attainment of age 50.

Allowance: For individuals who became members on or before June 30, 2011, 2.0% of average final compensation for the three highest consecutive years as a member. For individuals who became members on or after July 1, 2011, 2.0% of average compensation for the five highest consecutive years as a member. For members who retired before July 1, 2018, the maximum benefit was 60% of average final compensation. For members who retire on or after July 1, 2018, the maximum benefit is 65% of average final compensation.

5. Early Retirement Allowance

Not applicable to the Law Enforcement Officers' Retirement System.

6. Disability Retirement Allowance

Ordinary

Eligibility: Five years of eligibility service and certification of the medical board designated by the Board of Trustees that member is incapacitated for the performance of duty, and that incapacity is likely to be permanent.



Law Enforcement Officers Pension System of the State of Maryland

Allowance: Service retirement allowance computed on the basis that service continues until age 50 without any change in rate of earnable compensation. If disability occurs after age 50, the benefit is based on creditable service at time of retirement.

Accidental

Eligibility: Total and permanent incapacity for duty as certified by the medical board arising out of or in the course of the actual performance of duty, without willful negligence.

Allowance: The benefit is 66.7% of average final compensation plus an annuity provided by accumulated member contributions. The maximum benefit cannot be greater than the average final compensation.

7. Death Benefits

Normal Death Benefit – Return of Accumulated Contributions

Eligibility: Death while employed as a member and less than one year of eligibility service. A normal death benefit may not be paid if a special death benefit is paid for that death.

Benefit: Lump sum payment of member's accumulated member contributions to the member's designated beneficiary or, if there is no designated beneficiary, to the member's estate.

Normal Death Benefit – Return of Accumulated Contributions and Annual Earnable Compensation

Eligibility: Death while employed as a member and at least one year of eligibility service. A normal death benefit may not be paid if a special death benefit is paid for that death.

Benefit: Lump sum payment of member's accumulated member contributions and an amount equal to the member's annual earnable compensation at the time of death to the member's designated beneficiary or, if there is no designated beneficiary, to the member's estate.

Special Death Benefit for Death While Employed and Not in Performance of Duty

Eligibility: Death while employed as a member, without the member's willful negligence, and not in the performance of duty. The member is survived by a spouse, a child under the age of 26, a disabled child, or a dependent parent.

Benefit: Accumulated member contributions plus an allowance equal to 50% of the ordinary disability allowance the member would have received at the time of the member's death.



Law Enforcement Officers Pension System of the State of Maryland

Beneficiary: Payment of the member's accumulated member contributions shall be paid to the member's designated beneficiary, or otherwise to the member's estate. An allowance equal to 50% of the ordinary disability allowance the member would have received at the time of the member's death shall be made to the surviving spouse; however, if there is no surviving spouse or spouse dies before youngest child reaches age 26, 50% of average final compensation continues prorated equally among the eligible children. A child is eligible for a prorated share of the annuity until reaching age 26. If the child is disabled, the benefit will continue as long as the child remains disabled, regardless of age. In cases where a deceased member is not survived by a spouse or children, payment is made to dependent parents. If none of the above conditions is met, the normal death benefit is paid to the designated beneficiary.

Special Death Benefit for Death in The Performance of Duty

Eligibility: Death while employed as a member, without the member's willful negligence, and not in the performance of duty. The member is survived by a spouse, a child under the age of 26, a disabled child, or a dependent parent.

Benefit: Accumulated member contributions plus an allowance equal to 66.67% of the member's average final compensation.

Beneficiary: Payment of the member's accumulated member contributions shall be paid to the member's designated beneficiary, or otherwise to the member's estate. An allowance equal to 66.67% of the member's average final compensation be made to the surviving spouse; however, if there is no surviving spouse or spouse dies before youngest child reaches age 26, 66.67% of average final compensation continues prorated equally among the eligible children. A child is eligible for a prorated share of the annuity until reaching age 26. If the child is disabled, the benefit will continue as long as the child remains disabled, regardless of age. In cases where a deceased member is not survived by a spouse or children, payment is made to dependent parents. If none of the above conditions is met, the normal death benefit is paid to the designated beneficiary.

Waiver of Special Death Benefit

Before the payment of any special death benefit is made under this section, if all individuals eligible for a special death benefit elect to waive the payment of the special death benefit, a normal death benefit is paid to the member's designated beneficiary, or otherwise to the member's estate.

Death Benefit for Vested Former Member

If a member is not active, but is eligible for a vested allowance, the member's designated beneficiary or estate is eligible to receive only accumulated member contributions at time of death.



Law Enforcement Officers Pension System of the State of Maryland

8. Vested Allowance

Eligibility: For individuals who are members on or before June 30, 2011, five years of eligibility service. For individuals who become members on or after July 1, 2011, 10 years of eligibility service.

Allowance: Accrued retirement allowance payable at age 50 if the member does not withdraw the member's accumulated member contributions.

9. Cost-of-Living Adjustments (COLA)

Retirement allowances may be adjusted each year based on the Consumer Price Index (CPI). Any COLAs are effective July 1, for allowances which have been in payment for one year. Effective July 1, 2000, for an allowance based on creditable service earned before July 1, 2011, the adjustment is capped at a maximum 3% compounded and is applied to all allowances which have been in payment for one year.

For an allowance based on creditable service earned on or after July 1, 2011, the COLA adjustment is capped at 2.5% if, for the calendar year ending December 31 in the previous fiscal year, the several systems' total investment performance was greater than or equal to the assumed rate of investment return established by the Board of Trustees and in effect as of December 31 of the preceding fiscal year. The adjustment is capped at 1% if, for the calendar year ending December 31 in the previous fiscal year, the several systems' total investment performance was less than the assumed rate of investment return established by the Board of Trustees and in effect as of December 31 of the preceding fiscal year.

In years in which COLAs would be less than zero due to a decline in the CPI, retirement allowances will not be adjusted. COLAs in succeeding years are adjusted until the difference between the negative COLA that would have been applied and the zero COLA is fully recovered.

10. Optional Forms of Payment

If, at the time of death, the retiree is married, the retiree's spouse is entitled to receive a survivor benefit consisting of 50% of the retiree's basic allowance. If there is no surviving spouse or upon the death of the surviving spouse, payment of the survivor benefit is divided equally among any children of the deceased retiree under the age of 26 years, until each child dies or becomes age 26. If the child is disabled, the benefit will continue as long as the child remains disabled, regardless of age. If there is no spouse at time of retirement, member may select an optional allowance.

Option 1: Lump-sum refund equal to excess of present value of basic retirement allowance at date of retirement minus total amount of payments made to date of death excluding any cost of living adjustments for retirees before July 1, 2017.



Law Enforcement Officers Pension System of the State of Maryland

- Option 2: 100% joint and survivor annuity, which pays the retiree's surviving designated beneficiary 100% of the retiree's reduced allowance for the life of the designated beneficiary. The designated beneficiary cannot be more than 10 years younger than the retiree unless the beneficiary is the retiree's spouse or disabled child.
- Option 3: 50% joint and survivor annuity, which pays the retiree's surviving designated beneficiary 50% of the retiree's reduced allowance for the life of the designated beneficiary.
- Option 4: Lump-sum refund equal to value of accumulated member contributions minus total portion of monthly payments attributed to member contributions made to date of death, excluding any cost of living adjustments for retirees before July 1, 2017.
- Option 5: 100% "pop-up" joint and survivor annuity, which pays the designated beneficiary 100% of the retiree's reduced allowance after the retiree's death or returns the retiree's benefit to the unreduced basic allowance if beneficiary predeceases retiree. The designated beneficiary cannot be more than 10 years younger than the retiree unless the beneficiary is the retiree's spouse or disabled child.
- Option 6: 50% "pop-up" joint and survivor annuity, which pays the designated beneficiary 50% of the retiree's reduced allowance after the retiree's death or returns the retiree's benefit to the unreduced basic allowance if beneficiary predeceases retiree.

Retirees who have selected Options 2, 3, 5, or 6 and change their designated beneficiary after they retire, will have their retirement allowance re-calculated to reflect the age of the new designated beneficiary. Retirees who elect to change their beneficiary under Options 2, 3, 5, and 6, may rescind their request to change their designated beneficiary before the second monthly allowance is paid. Retirees who rescind the change of beneficiary, will have their benefit payment amount for the next payment restored to the amount paid before the change in beneficiary was made.

11. Reduction for Benefits Payable under Workers' Compensation

Disability retirement allowances, excluding annuity reserves, are reduced for workers' compensation benefits paid or payable after retirement from injury occurring during employment by the State if the workers' compensation benefits are for the same injury for which disability retirement was granted and are paid or payable for the same period of time for which the retirement benefits are paid. Law Enforcement Officers' Pension System retirees receiving an accidental disability payment are subject to an offset if they are getting a workers' compensation payment for the same injury or illness, subject to specified limits. Offsets do not include any calculation of cost-of-living benefits that are paid on the original benefit amount. Conversely, workers' compensation payments are subject to an offset by the Workers' Compensation Commission if a recipient is receiving an ordinary disability payment from the Law Enforcement Officers' Pension System for the same injury or illness. Any offset taken for an accidental disability



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from the Law Enforcement Officers' Pension System will be adjusted if the retiree was originally awarded an ordinary disability retirement benefit that was later converted to an accidental disability benefit. The adjusted offset shall reflect any offset awarded to the retiree's employer by the Workers' Compensation Commission.

12. Deferred Retirement Option Plan (DROP)

Eligibility: Members are eligible to participate in the DROP if they have at least 25 and less than 30 years of creditable service.

Participation: An eligible member may participate in the DROP for the lesser of 5 years, the difference between 30 years and the member's creditable service, or a term selected by the member. Participation also ends if the participant dies, is terminated from employment, accepts an accidental disability retirement allowance, or submits a binding letter of resignation or notice of intent to terminate employment. Members who participate in the DROP are retired and cease making member contributions, and cease accruing service credit and additional benefits.

Allowance: For members who entered the DROP on or before June 30, 2011, the service retirement allowance, with annual COLAs, is credited to an account earning interest at the rate of 6% per year, compounded monthly. For members who enter DROP on or after July 1, 2011, the service retirement allowance, with annual COLAs, is credited to an account earning interest at the rate of 4% per year, compounded annually. When the DROP period ends, members terminate employment and begin receiving their monthly allowance plus the lump sum payment from their DROP account. During the DROP period, members remain eligible for accidental disability benefits if incapacitated while in DROP.

B. Members Transferring from the Employees' Retirement System¹

1. Membership

The retirement tier was closed to new participants effective January 1, 2005.

2. Member Contributions

Members who transferred from Employees' Retirement System (Plan A) are required to contribute 7% of earnable compensation. Members who transferred from the Employees' Retirement System (Plan B) contribute 5% of earnable compensation.

¹ This Section B outlines the provisions applicable to members of LEOPS who transferred from the Employees' Retirement System before January 1, 2005 and were subject to Selection A or Selection B and did not elect to participate in the contributory law enforcement officers' modified benefit.



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Contributions earn interest at 4% per year, compounded annually, until retirement, withdrawal of accumulated contributions, death, or the end of membership for former members who are not entitled to receive a vested allowance.

3. Normal Retirement Age

Normal retirement age is age 50.

4. Normal Service Retirement Allowance

Eligibility: 25 years of eligibility service or attainment of age 50.

Allowance: 2.3% of average final compensation for the three highest years as a member for each of the first 30 years of creditable service, plus 1.0% of average final compensation for each additional year.

5. Early Retirement Allowance

Not applicable to this System.

6. Disability Retirement Allowance

Ordinary

Eligibility: Five years of eligibility service and certification of the medical board designated by the Board of Trustees that member is incapacitated for the performance of duty, and that incapacity is likely to be permanent.

Allowance: The greater of normal service retirement allowance or 25% of average final compensation.

Accidental

Eligibility: Total and permanent incapacity for duty as certified by the medical board arising out of or in the course of the actual performance of duty, without willful negligence.

Allowance: The benefit is 66.7% of average final compensation plus an annuity that is the actuarial equivalent of accumulated contributions. The maximum benefit cannot be greater than the average final compensation.



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7. Death Benefits

Normal Death Benefit – Return of Accumulated Contributions

Eligibility: Death while employed as a member and less than one year of eligibility service. A normal death benefit may not be paid if a special death benefit is paid for that death.

Benefit: Lump sum payment of member's accumulated member contributions to the member's designated beneficiary or, if there is no designated beneficiary, to the member's estate.

Normal Death Benefit – Return of Accumulated Contributions and Annual Earnable Compensation

Eligibility: Death while employed as a member and at least one year of eligibility service. A normal death benefit may not be paid if a special death benefit is paid for that death.

Benefit: Lump sum payment of member's accumulated member contributions and an amount equal to the member's annual earnable compensation at the time of death to the member's designated beneficiary or, if there is no designated beneficiary, to the member's estate.

Special Death Benefit for Death While Employed and Not in Performance of Duty

Eligibility: Death while employed as a member, without the member's willful negligence, and not in the performance of duty. The member is survived by a spouse, a child under the age of 26, a disabled child, or a dependent parent.

Benefit: Accumulated member contributions plus an allowance equal to 50% of the ordinary disability allowance the member would have received at the time of the member's death.

Beneficiary: Payment of the member's accumulated member contributions shall be paid to the member's designated beneficiary, or otherwise to the member's estate. An allowance equal to 50% of the ordinary disability allowance the member would have received at the time of the member's death shall be made to the surviving spouse; however, if there is no surviving spouse or spouse dies before youngest child reaches age 26, 50% of average final compensation continues prorated equally among the eligible children. A child is eligible for a prorated share of the annuity until reaching age 26. If the child is disabled, the benefit will continue as long as the child remains disabled, regardless of age. In cases where a deceased member is not survived by a spouse or children, payment is made to dependent parents. If none of the above conditions is met, the normal death benefit is paid to the designated beneficiary.



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Special Death Benefit for Death in The Performance of Duty

Eligibility: Death while employed as a member, without the member's willful negligence, and not in the performance of duty. The member is survived by a spouse, a child under the age of 26, a disabled child, or a dependent parent.

Benefit: Accumulated member contributions paid plus an allowance equal to 66.67% of the member's average final compensation.

Beneficiary: Payment of the member's accumulated member contributions shall be paid to the member's designated beneficiary, or otherwise to the member's estate. An allowance equal to 66.67% of the member's average final compensation be made to the surviving spouse; however, if there is no surviving spouse or spouse dies before youngest child reaches age 26, 66.67% of average final compensation continues prorated equally among the eligible children. A child is eligible for a prorated share of the annuity until reaching age 26. If the child is disabled, the benefit will continue as long as the child remains disabled, regardless of age. In cases where a deceased member is not survived by a spouse or children, payment is made to dependent parents. If none of the above conditions is met, the normal death benefit is paid to the designated beneficiary.

Waiver of Special Death Benefit

Before the payment of any special death benefit is made under this section, if all individuals eligible for a special death benefit elect to waive the payment of the special death benefit, a normal death benefit is paid to the member's designated beneficiary, or otherwise to the member's estate.

Death Benefit for Vested Former Member

If a member is not active, but is eligible for a vested allowance, the member's designated beneficiary or estate is eligible to receive only accumulated member contributions at time of death.

8. Vested Allowance

Eligibility: Five years of eligibility service and separation from employment other than by death or retirement.

Allowance: Service retirement allowance payable at normal retirement age if the member does not withdraw the member's accumulated member contributions.



Law Enforcement Officers' Pension System of the State of Maryland

9. Cost-of-Living Adjustments (COLA)

Retirement allowances may be adjusted each year based on the Consumer Price Index (CPI). Any COLAs are effective July 1, for all allowances which have been in payment for one year.

For an allowance for members that elected Selection A (contributing 7% of earnable compensation), uncapped COLA is compounded annually. For an allowance for members that elected Selection B (contributing 5% of earnable compensation), the COLA is capped at a maximum 5% compounded annually.

In years in which COLAs would be less than zero due to a decline in the CPI, retirement allowances will not be adjusted. COLAs in succeeding years are adjusted until the difference between the negative COLA that would have applied and the zero COLA is fully recovered.

10. Optional Forms of Payment

If, at the time of death, the retiree is married, the retiree's spouse is entitled to receive a survivor benefit consisting of 50% of the retiree's basic allowance. If there is no surviving spouse or upon the death of the surviving spouse, payment of the survivor benefit is divided equally among any children of the deceased retiree under the age of 26 years, until each child dies or becomes age 26. If the child is disabled, the benefit will continue as long as the child remains disabled, regardless of age. If there is no spouse at time of retirement, member may select an optional allowance.

- Option 1: Lump-sum refund equal to excess of present value of basic retirement allowance at date of retirement minus total amount of payments made to date of death excluding any cost of living adjustments for retirees before July 1, 2017.
- Option 2: 100% joint and survivor annuity, which pays the retiree's surviving designated beneficiary 100% of the retiree's reduced allowance for the life of the designated beneficiary. The designated beneficiary cannot be more than 10 years younger than the retiree unless the beneficiary is the retiree's spouse or disabled child.
- Option 3: 50% joint and survivor annuity, which pays the retiree's surviving designated beneficiary 50% of the retiree's reduced allowance for the life of the designated beneficiary.
- Option 4: Lump-sum refund equal to value of accumulated member contributions minus total portion of monthly payments attributed to member contributions made to date of death, excluding any cost of living adjustments for retirees before July 1, 2017.
- Option 5: 100% "pop-up" joint and survivor annuity, which pays the designated beneficiary 100% of the retiree's reduced allowance after the retiree's death or returns the retiree's benefit to the unreduced basic allowance if beneficiary predeceases retiree.



Law Enforcement Officers Pension System of the State of Maryland

The designated beneficiary cannot be more than 10 years younger than the retiree unless the beneficiary is the retiree's spouse or disabled child.

Option 6: 50% "pop-up" joint and survivor annuity, which pays the designated beneficiary 50% of the retiree's reduced allowance after the retiree's death or returns the retiree's benefit to the unreduced basic allowance if beneficiary predeceases retiree.

Retirees who have selected Options 2, 3, 5, or 6 and change their designated beneficiary after they retire, will have their retirement allowance re-calculated to reflect the age of the new designated beneficiary. Retirees who elect to change their beneficiary under Options 2, 3, 5, and 6, may rescind their request to change their designated beneficiary before the second monthly allowance is paid. Retirees who rescind the change of beneficiary, will have their benefit payment amount for the next payment restored to the amount paid before the change in beneficiary was made.

11. Reduction for Benefits Payable under Workers' Compensation

Disability retirement allowances, excluding annuity reserves, are reduced for workers' compensation benefits paid or payable after retirement from injury occurring during employment by the State if the workers' compensation benefits are for the same injury for which disability retirement was granted and are paid or payable for the same period of time for which the retirement benefits are paid. Law Enforcement Officers' Pension System retirees receiving an accidental disability payment are subject to an offset if they are getting a workers' compensation payment for the same injury or illness, subject to specified limits. Offsets do not include any calculation of cost-of-living benefits that are paid on the original benefit amount. Conversely, workers' compensation payments are subject to an offset by the Workers' Compensation Commission if a recipient is receiving an ordinary disability payment from the Law Enforcement Officers' Pension System for the same injury or illness. Any offset taken for an accidental disability from the Law Enforcement Officers' Pension System will be adjusted if the retiree was originally awarded an ordinary disability retirement benefit that was later converted to an accidental disability benefit. The adjusted offset shall reflect any offset awarded to the retiree's employer by the Workers' Compensation Commission.

12. Deferred Retirement Option Program (DROP)

Eligibility: Members are eligible to participate in the DROP if they have at least 25 and less than 30 years of creditable service.

Participation: An eligible member may participate in the DROP for the lesser of 5 years, the difference between 30 years and the member's creditable service, or a term selected by the member. Participation also ends if the participant dies, is terminated from employment, accepts an accidental disability retirement allowance, or submits a binding letter of resignation or notice of intent to terminate employment. Members who participate in the DROP are retired and cease making member contributions, and cease accruing service credit and additional benefits.



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Allowance: For members who entered the DROP on or before June 30, 2011, the service retirement allowance, with annual COLAs, is credited to an account earning interest at the rate of 6% per year, compounded monthly. For members who enter DROP on or after July 1, 2011, the service retirement allowance, with annual COLAs, is credited to an account earning interest at the rate of 4% per year, compounded annually. When the DROP period ends, members terminate employment and begin receiving their monthly allowance plus the lump sum payment from their DROP account. During the DROP period, members remain eligible for Accidental Disability benefits if incapacitated while in DROP.