

MARYLAND STATE RETIREMENT AND PENSION SYSTEM
ACTUARIAL VALUATION REPORT
AS OF JUNE 30, 2016

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December 9, 2016

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

Dear Members of the Board:

The results of the *June 30, 2016 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 PGU contribution rates for certification,
- Determine actuarial and statutory contribution rates with reinvested savings, and
- Analyze the aggregate experience of the System over the past year.

Information required by Statements No. 67 and No. 68 of the Governmental Accounting Standards Board (“GASB”) that is for fiscal year 2016 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 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 takes into account 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 2010-2014 after completion of the June 30, 2014 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 actuarial valuation as of June 30, 2015. As a result, an investment return assumption of 7.55% and an inflation assumption of 2.70% were used for the June 30, 2016 valuation. It is our opinion that the actuarial assumptions used for the valuation are reasonable.

New funding methodology set forth by Maryland legislation was first reflected in the June 30, 2015 valuation. The legislation removed the corridor funding method effective with the June 30, 2015 valuation.

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

The benefit provisions valued in the actuarial valuation as of June 30, 2016 are the same as the provisions from the last actuarial valuation as of June 30, 2015. 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%.

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 results associated with benefits described in this report in a manner other than the intended purpose may produce significantly different results.

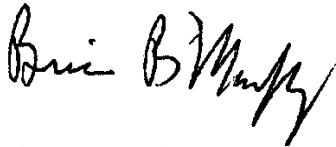
The signing actuaries are independent of the plan sponsor.

This is one of multiple documents comprising the actuarial report. The other documents comprising the actuarial report are the PowerPoint presentation presented to the Board on October 18, 2016 and the PowerPoint presentation presented to the Joint Committee on Pensions on November 2, 2016.

Board of Trustees
Maryland State Retirement and Pension System
December 9, 2016
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Brian B. Murphy, Brad L. Armstrong, and Amy Williams 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,



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



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SECTION I
BOARD SUMMARY

INTRODUCTION

The funding valuation report presents the results of the June 30, 2016 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,
- Assist the Board in determining employer contribution rates (including reinvested savings) necessary to fund the benefits provided by MSRPS, as well as establishing statutory employer contribution rates,
- Indicate trends in the financial progress of the fund, and
- Analyze the experience of the System over the past year.

A summary of the primary funding valuation results as of June 30, 2016 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, 2016 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 System and State's financial report.

A summary of the primary accounting valuation results as of June 30, 2016 is presented in a separate report.

SUMMARY OF VALUATION RESULTS
JUNE 30, 2016
(\$ IN MILLIONS)
(STATE AND MUNICIPAL)

	2016						2015		% Change
	TCS	ECS	State Police	Judges	LEOPS	CORS ¹	Total	Total	
A. Demographic Information									
1. Active Number Counts	105,547	82,625	1,402	298	2,529	93	192,494	193,600	-0.6%
2. Active Payroll	\$ 6,611	\$ 4,245	\$ 93	\$ 45	\$ 156	\$ 5	\$ 11,156	\$ 11,064	0.8%
3. Retired Number Counts	73,582	74,211	2,536	407	1,801	29	152,566	147,850	3.2%
4. Annual Benefits for Retired Members ²	\$ 2,012	\$ 1,227	\$ 118	\$ 31	\$ 61	\$ 1	\$ 3,449	\$ 3,323	3.8%
5. Deferred / Inactive Number Counts	25,298	27,884	84	7	294	1	53,568	52,769	1.5%
6. Total Number Counts	204,427	184,720	4,022	712	4,624	123	398,628	394,219	1.1%
B. Assets									
1. Market Value (MV)	\$ 27,542	\$ 15,311	\$ 1,274	\$ 408	\$ 810	\$ 21	\$ 45,366	\$ 45,790	-0.9%
2. Rate of Return on MV ³							1.10 %	2.66 %	
3. Actuarial Value (AV)	\$ 29,021	\$ 16,130	\$ 1,344	\$ 431	\$ 856	\$ 22	\$ 47,804	\$ 46,171	3.5%
4. Rate of Return on AV							5.59 %	9.20 %	
5. Ratio of AV to MV							105.4%	100.8%	
C. Actuarial Results									
1. Normal Cost as a % of Payroll	11.46%	10.28%	32.20%	38.88%	21.66%	13.75%	11.44%	11.51%	
2. Actuarial Accrued Liability (AAL)									
a. Active	\$ 16,066	\$ 9,050	\$ 404	\$ 176	\$ 434	\$ 10	\$ 26,141	\$ 25,960	0.7%
b. Retired	22,979	13,845	1,709	345	895	12	39,785	38,588	3.1%
c. Deferred/Inactive	890	922	12	2	30	0	1,856	1,733	7.1%
d. Total	\$ 39,934	\$ 23,817	\$ 2,125	\$ 524	\$ 1,359	\$ 22	\$ 67,782	\$ 66,282	2.3%
3. Unfunded AAL (UAAL)	\$ 10,913	\$ 7,687	\$ 781	\$ 93	\$ 503	\$ 1	\$ 19,978	\$ 20,111	-0.7%
4. Funded Ratio	72.67 %	67.73 %	63.26 %	82.18 %	62.97 %	96.91 %	70.53 %	69.66 %	
D. Contribution Rates⁴									
	STATE PORTION ONLY								
	FY 2018						FY 2017	FY 2016⁵	
1. Pension Contributions									
a. Employer Normal Cost	4.47%	3.86%	24.20%	32.39%	14.99%	4.69%	4.77%	5.25%	
b. Member Contribution Rate	6.99%	6.74%	8.00%	6.49%	7.00%	6.92%	6.91%	6.91%	
c. UAAL Contribution Rate	<u>11.24%</u>	<u>14.70%</u>	<u>56.09%</u>	<u>14.06%</u>	<u>24.70%</u>	<u>12.91%</u>	<u>12.81%</u>	<u>12.36%</u>	
d. Total	22.70%	25.30%	88.29%	52.94%	46.69%	24.52%	24.49%	24.52%	
2. Total Actuarial Employer Rate (1.a + 1.c)	15.71%	18.56%	80.29%	46.45%	39.69%	17.60%	17.58%	17.61%	
3. Total Employer Budgeted Rate									
a. Employer Budgeted Rate	15.71%	18.56%	80.29%	46.45%	39.69%	17.60%	17.58%	16.83%	
b. Reinvested Savings Rate	<u>0.74%</u>	<u>0.66%</u>	<u>1.07%</u>	<u>0.00%</u>	<u>1.08%</u>	<u>0.74%</u>	<u>0.74%</u>	<u>0.75%</u>	
c. Total Employer Budgeted Rate	16.45%	19.22%	81.36%	46.45%	40.77%	18.34%	18.32%	17.58%	

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

²Retiree benefit amounts include the cost-of-living-adjustment granted July 1, 2016 and July 1, 2015, respectively.

³Actuarial estimation method shown is expected to differ modestly from figures reported by State Street.

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

⁵Reflects the reduction of reinvested savings from \$150 million to \$75 million passed by the General Assembly.

Totals may not add due to rounding.

ACTUARY'S COMMENTS

For the year ended June 30, 2016, the System's assets earned **1.10%** based on our estimate and **1.16%** as reported by State Street (using a slightly different computation method) on a market value basis and **5.59%** on a smoothed or actuarial value basis. These are both less than the 7.55% assumed rate of investment return. Recognized asset losses from fiscal years 2012, 2015 and 2016 offset recognized asset gains from fiscal years 2013 and 2014 in the actuarial value of assets as of June 30, 2016. This resulted in a loss under the asset smoothing method.

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

	State	Municipal	Total SRPS
Unfunded Actuarial Accrued Liability (UAAL) as of June 30, 2015	\$ 19,260	\$ 851	\$ 20,111
Expected UAAL as of June 30, 2016 before changes	19,377	845	20,222
Changes in benefit provisions	-	-	-
Changes in methods and assumptions	-	-	-
Expected UAAL as of June 30, 2016 after changes	19,377	845	20,222
Actual UAAL as of June 30, 2016	19,121	857	19,978
Net actuarial gain/(loss)	256	(12)	244
Actuarial gain/(loss) by source			
Actuarial investment experience	(820)	(77)	(897)
Actuarial accrued liability experience	1,076	65	1,141

In relative terms, the overall System funded ratio of actuarial value of assets to liabilities increased from 69.66% in 2015 to **70.53%** this year. If market value of assets were the basis for the measurements, the funded ratio would have decreased from 69.08% to 66.93% funded.

The market value of assets exceeds the retiree liabilities by about 14% in total, a decrease from 19% 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 two of the smaller systems. For State Police and LEOPS, the market value of assets is less than the retiree liabilities.

	(\$ in Millions)						Total
	TCS	ECS	State Police	Judges	LEOPS	CORS	
Market Value of Assets (MVA)	\$ 27,542	\$ 15,311	\$ 1,274	\$ 408	\$ 810	\$ 21	\$ 45,366
Retiree Liability	22,979	13,845	1,709	345	895	12	39,785
MVA as % of Retiree Liability	120%	111%	75%	118%	91%	176%	114%

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 (22 years remaining as of the June 30, 2016 valuation, which determines the fiscal year 2018 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 are less than actuarial rates. With the elimination of the corridor effective with the June 30, 2015 valuation report, TCS and ECS will begin 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 assumptions). 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%, and from 4% to 6% in fiscal year 2012 and to 7% in fiscal year 2013 and beyond for LEOPS. In addition, the benefit attributable to service on or after July 1, 2011 is subject to different cost-of-living adjustments (COLAs) that are based on the increase in the Consumer Price Index and capped at 2.5% or 1.0% based on whether the market value investment return from the preceding calendar year was higher or lower than the investment return assumption used in the valuation (currently 7.55%). There were also changes to the provisions for members hired on or after July 1, 2011. The valuation as of June 30, 2012 was the first valuation which included members covered under the Reformed Benefit Plans applicable to 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). Legislation enacted in 2014 reduced 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 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%. 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.

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 (22 years remaining as of June 30, 2016).

The fiscal year 2018 budgeted rates for TCS and ECS 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 2018.

Beginning in fiscal year 2013, local employers contributed a portion of the statutory normal cost contribution for the Teachers Combined System. Normal cost contribution amounts for local employers for fiscal years 2013 through 2016 are defined by the Maryland statutes. Beginning in fiscal year 2017, local employers will contribute the full normal cost contribution on behalf of their employees.

The schedules required under Government Accounting Standards Board Statement (GASB) 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 7.55% 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 majority of the active population is comprised of Reformed Plan members,
- (2) The unfunded actuarial accrued liabilities will be fully amortized after 22 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 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 in detail in Appendix A, annually recognizes 20% of the difference between (a) the expected investment return if the market value of assets had earned the assumed rate of 7.55% during FY 2016, and (b) the actual investment return. 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 (7.55%). Conversely, in periods of returns below the assumed rate, recognition of the losses is deferred. The primary advantage of this smoothing technique is contribution stability. 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, 2016, the System's assets earned **1.10%** based on our estimate and **1.16%** as reported by State Street (using a slightly different computation method) on a market value basis and **5.59%** on a smoothed or actuarial value basis. The System experienced an investment loss of **\$2,925** million on a market value basis and a loss of **\$897** million on an actuarial basis. A reconciliation of market value and actuarial value of assets are presented below.

(STATE AND MUNICIPAL) (\$ in Millions)

	Market Value	Actuarial Value
June 30, 2015 Value	\$ 45,790	\$ 46,171
Employer Contributions	1,871	1,871
Member Contributions	764	764
Benefit Payments and Other Disbursements	(3,557)	(3,557)
Expected Investment Earnings (7.55% in FY2016)	3,423	3,452
Expected Value June 30, 2016	\$ 48,291	\$ 48,701
Investment Gain/(Loss)	(2,925)	(897)
June 30, 2016 Value	\$ 45,366	\$ 47,804

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 2016, 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

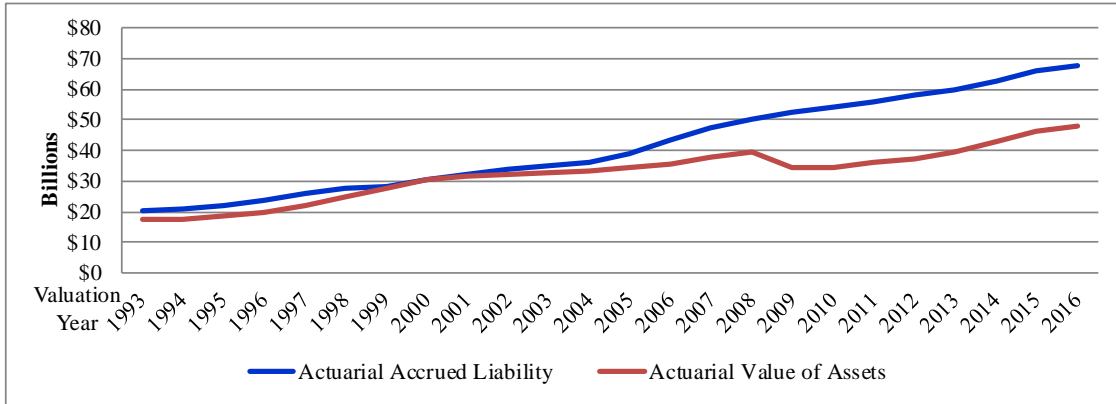


Chart B: Benefits vs. Contributions

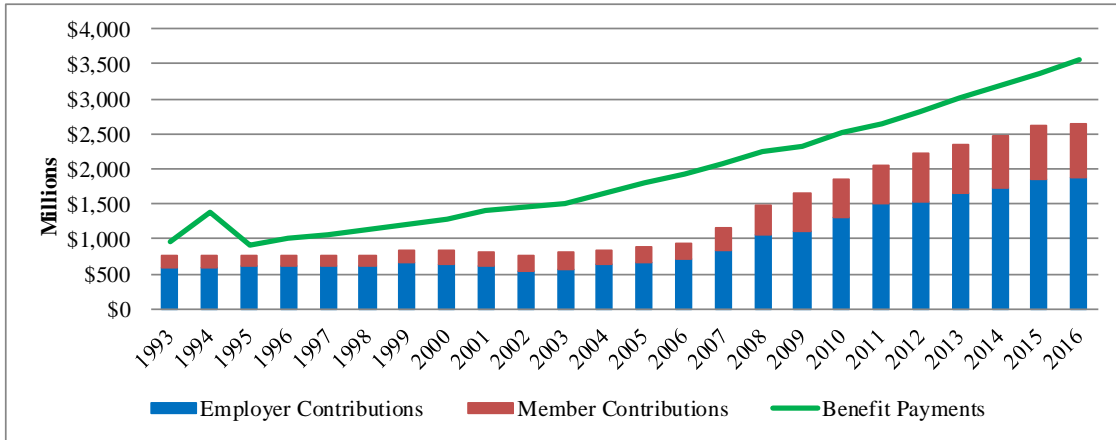
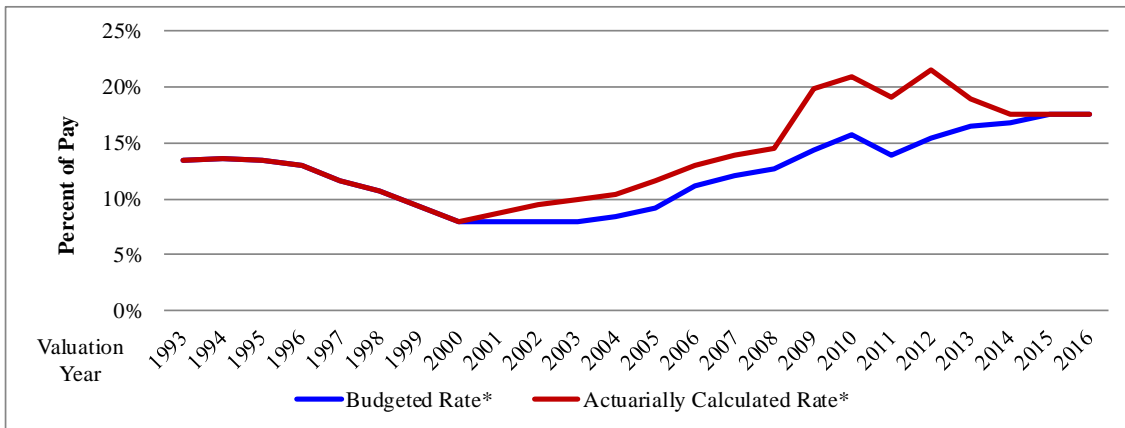


Chart C: State Contribution Rate



* Excludes reinvested savings in valuation years 2011- 2015. 2010 rates are prior to the 2011 GA Reforms.

COMMENTS

Chart A displays a comparison of the actuarial value of assets and the actuarial accrued liability. The difference between the actuarial value of assets and the actuarial accrued liability is the unfunded actuarial accrued liability. The unfunded actuarial accrued liability is about \$20 billion as of June 30, 2016, and decreased by about \$133 million since the last valuation as of June 30, 2015. As of June 30, 2016, the actuarial value of assets under the 5-year asset smoothing method is 105% of the market value of assets, compared with 101% as of June 30, 2015.

Chart B presents non-investment cash flow trend information that can have investment implications. Many statewide retirement systems, with the aging and retirements of the baby boom generation, are seeing payments to retirees on the increase. This is expected for mature retirement systems. Benefit payments, which is 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 excess benefit payments over total contributions comes from investment return or 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. As long as cash into the fund from employer and employee contributions is increasing in a similar manner to benefit payments, the financial objectives of the System will continue to be met. The budgeted rates under the corridor funding method first became less than the actuarial rates in FY 2006 for ECS and in FY 2007 for TCS. 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 are equal to the actuarial rates beginning in 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 1990's decade sustained investment gains, 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. 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, since inception, the corridor method has consistently acted to reduce the State's contributions calculated in valuations between 2000 and 2016.

SECTION II
VALUATION RESULTS

STATE SYSTEMS (EXCLUDES MUNICIPALITIES)

VALUATION RESULTS

The combined State System's (excluding PGU's) unfunded actuarial accrued liability decreased by \$139 million, from \$19,260 million as of June 30, 2015, to \$19,121 million as of June 30, 2016. There was an expected increase in the unfunded actuarial accrued liability of \$117 million, if all actuarial assumptions had been realized. The expected increase reflects the actual contributions made, including a lower amount of reinvested savings contributions made in fiscal year 2016 than previously assumed. The unfunded liability is expected to grow if the total contributions are less than the total normal cost plus interest on the unfunded liability. The member contributions plus the state budgeted contributions are less than the normal cost plus interest on the unfunded liability due to the corridor funding method for Teachers' and Employees' Combined Systems and the current funding policy.

There was a decrease in the unfunded actuarial accrued liability of \$256 million due to favorable plan experience which offset the expected increase in the unfunded actuarial accrued liability. The decrease in the unfunded liability is attributable to slower growth in the actuarial liabilities than in the assets assuming all actuarial assumptions are met and the budgeted contributions are made.

The net gain due to plan experience of \$256 million is comprised of demographic gains on the liabilities of \$1.076 billion and an asset loss (on the actuarial value of assets) of \$820 million.

The combined State System's market value of assets earned 1.10%¹ for the year ended June 30, 2016, which is less than the 7.55% assumed rate of investment return. The actuarial, or smoothed, rate of return measured from this past year was 5.59%, 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 2013 and 2014 combined with losses from FY 2012, 2015 and 2016 were recognized in the actuarial value of assets as of June 30, 2016, under the asset smoothing method, resulting in an overall asset loss of \$820 million.

There were liability gains due to lower retiree COLA increases on average than assumed. COLA increases of 0.119% were granted to eligible retirees who have a COLA cap of 3.00%, 5.00%, or no COLA cap compared to the actuarial assumptions of 2.29%, 2.68% and 2.70%, respectively. All of the State systems experienced gains on active member liabilities as well, caused mainly due to actual increases in salaries compared to the actuarial assumptions.

¹ *The actuarially computed rate of return, excluding municipalities.*

The combined State System funded ratio increased from 68.6% at June 30, 2015 to 69.5% at June 30, 2016.

The actuarially determined contribution rates decreased for each System, except ECS, from those calculated in the June 30, 2015 valuation to those calculated in the June 30, 2016 valuation, which determines the FY2017 and FY2018 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
FY2017 Actuarial Contribution Rate	15.79%	18.28%	81.40%	46.56%	39.60%	17.58%
Change due to Investment Return	0.56%	0.50%	1.87%	1.21%	0.77%	0.56%
Change due to Demographic Experience	-0.60%	-0.94%	-3.10%	-1.91%	-0.68%	-0.74%
Change due to Corridor	0.03%	0.11%	0.00%	0.00%	0.00%	0.05%
Change due to Other	-0.07%	0.61%	0.12%	0.59%	0.00%	0.14%
Change due to Assumption Changes	<u>0.00%</u>	<u>0.00%</u>	<u>0.00%</u>	<u>0.00%</u>	<u>0.00%</u>	<u>0.00%</u>
FY2018 Actuarial Contribution Rate	15.71%	18.56%	80.29%	46.45%	39.69%	17.60%

Each system saw a decrease in the contribution rates due to favorable demographic experience. This was somewhat offset by unfavorable investment experience. There was an increase in the contribution rates for TCS and ECS due to the corridor funding method, as the contribution made for fiscal year 2016 was less than the actuarially determined contribution.

There was a decrease in the contribution rate for all Systems except for Judges due to factors other than those previously described. The normal cost rate decreased 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 lower than expected under the actuarial assumptions (3.20% in FY2016) for all the systems except for LEOPS, which recorded a 3.5% increase in payroll. Total payroll increased by 2.2% for TCS, 2.7% for State Police, and 0.2% for Judges. The outlier in this case was ECS, which saw a 2.1% *decrease* in total payroll. Total payroll growth that is lower than assumed puts upward pressure on the contribution rates because the unfunded liability contribution is spread over a larger payroll base. This is the reason ECS was the only system that saw an increase in their contribution rate for FY2018.

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 FY2015 and FY2016 are recognized in the actuarial value of assets.

DERIVATION OF EXPERIENCE GAIN/(LOSS)
YEAR ENDED JUNE 30, 2016
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,	
	2016	2015
(1) UAAL* at start of year	\$19,260	\$18,750
(2) Normal cost from last valuation	1,172	1,211
(3) Actual contributions	2,461	2,427
(4) Interest accrual: $[(1) \times .0755 + \{(2)-(3)\} \times \{[1.0755^{.5}]-1\}]$	1,406	1,389
(5) Expected UAAL before changes: (1) + (2) - (3) + (4)	19,377	18,923
(6) Change in benefit provisions	0	0
(7) Changes in methods and assumptions	0	1,392
(8) Expected UAAL after changes: (5) + (6) + (7)	19,377	20,315
(9) Actual UAAL at end of year	19,121	19,260
(10) Gain/(loss): (8) - (9)	\$256	\$1,055
(10a) Portion of gain/(loss) due to Assets	(820)	605
(10b) Portion of gain/(loss) due to Liabilities	1,076	450
(10c) Actuarial accrued liabilities at beginning of year	61,414	58,027
(11) Gain/(loss) as a percent of beginning accrued liabilities	0.4%	1.8%

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

**SUMMARY OF VALUATION RESULTS BY SYSTEM
AS OF JUNE 30, 2016
(STATE AND MUNICIPAL)**

<u>State Sponsored Plans</u>	<u>Employees</u>				<u>LEOPS</u>	<u>Total State*</u>	
	<u>Teachers</u>	<u>(State)</u>	<u>State Police</u>	<u>Judges</u>	<u>(State)</u>		
Actuarial Liability - Active Members	\$ 16,065,545,238	\$ 7,086,827,026	\$ 403,793,552	\$ 176,492,129	\$ 282,025,111	\$ 24,014,683,056	
Actuarial Liability - Retirees, Term. Vested, & Inactives	<u>23,868,580,136</u>	<u>12,091,765,882</u>	<u>1,720,992,197</u>	<u>347,436,390</u>	<u>707,447,700</u>	<u>38,736,222,305</u>	
Total Actuarial Liability	\$ 39,934,125,374	\$ 19,178,592,908	\$ 2,124,785,749	\$ 523,928,519	\$ 989,472,811	\$ 62,750,905,361	
Actuarial Value of Assets	<u>29,020,809,180</u>	<u>12,220,633,519</u>	<u>1,344,162,518</u>	<u>430,563,204</u>	<u>613,970,553</u>	<u>43,630,138,974</u>	
Unfunded Actuarial Accrued Liability (UAAL)	10,913,316,194	6,957,959,389	780,623,231	93,365,315	375,502,258	19,120,766,387	
Funded Ratio	72.67%	63.72%	63.26%	82.18%	62.05%	69.53%	
Active Member Payroll	\$ 6,611,037,839	\$ 3,171,358,688	\$ 93,490,648	\$ 44,711,221	\$ 102,096,996	\$ 10,022,695,392	
UAAL as a Percent-of-Payroll	165.1%	219.4%	835.0%	208.8%	367.8%	190.8%	
<i>Before Reinvested Savings</i>							
Employer Normal Cost Contribution	4.47%	3.86%	24.20%	32.39%	14.99%	4.69%	
UAAL Contribution	<u>11.24%</u>	<u>14.70%</u>	<u>56.09%</u>	<u>14.06%</u>	<u>24.70%</u>	<u>12.91%</u>	
Total Employer Contribution Without Reinvested Savings	15.71%	18.56%	80.29%	46.45%	39.69%	17.60%	
<i>After Reinvested Savings</i>							
Total Employer Contribution Without Reinvested Savings	15.71%	18.56%	80.29%	46.45%	39.69%	17.60%	
Reinvested Savings Rate	<u>0.74%</u>	<u>0.66%</u>	<u>1.07%</u>	<u>0.00%</u>	<u>1.08%</u>	<u>0.74%</u>	
Total Employer Contribution With Reinvested Savings	16.45%	19.22%	81.36%	46.45%	40.77%	18.34%	
<u>Municipal Plans</u>		<u>Employees</u>		<u>LEOPS</u>	<u>CORS</u>	<u>Total Municipal</u>	
		<u>(Municipal)</u>		<u>(Municipal)</u>	<u>(Municipal)</u>		
Actuarial Liability - Active Members		\$ 1,963,640,880		\$ 152,301,271	\$ 10,404,186	\$ 2,126,346,337	
Actuarial Liability - Retirees, Term. Vested, & Inactives		<u>2,675,017,607</u>		<u>217,657,848</u>	<u>11,996,952</u>	<u>2,904,672,407</u>	
Total Actuarial Liability		\$ 4,638,658,487		\$ 369,959,119	\$ 22,401,138	\$ 5,031,018,744	
Actuarial Value of Assets		<u>3,909,804,047</u>		<u>242,026,880</u>	<u>21,709,395</u>	<u>4,173,540,322</u>	
Unfunded Actuarial Accrued Liability (UAAL)		728,854,440		127,932,239	691,743	857,478,422	
Funded Ratio		84.29%		65.42%	96.91%	82.96%	
Active Member Payroll		\$ 1,073,974,587		\$ 54,299,302	\$ 4,954,236	\$ 1,133,228,125	
UAAL as a Percent-of-Payroll		67.9%		235.6%	14.0%	75.7%	
<u>State and Municipal Sponsored Plans</u>	<u>Teachers</u>	<u>Employees</u>	<u>State Police</u>	<u>Judges</u>	<u>LEOPS</u>	<u>CORS</u>	<u>Total SRPS</u>
Actuarial Liability - Active Members	\$ 16,065,545,238	\$ 9,050,467,906	\$ 403,793,552	\$ 176,492,129	\$ 434,326,382	\$ 10,404,186	\$ 26,141,029,393
Actuarial Liability - Retirees, Term. Vested, & Inactives	<u>23,868,580,136</u>	<u>14,766,783,489</u>	<u>1,720,992,197</u>	<u>347,436,390</u>	<u>925,105,548</u>	<u>11,996,952</u>	<u>41,640,894,712</u>
Total Actuarial Liability	\$ 39,934,125,374	\$ 23,817,251,395	\$ 2,124,785,749	\$ 523,928,519	\$ 1,359,431,930	\$ 22,401,138	\$ 67,781,924,105
Actuarial Value of Assets	<u>29,020,809,180</u>	<u>16,130,437,566</u>	<u>1,344,162,518</u>	<u>430,563,204</u>	<u>855,997,433</u>	<u>21,709,395</u>	<u>47,803,679,296</u>
Unfunded Actuarial Accrued Liability (UAAL)	10,913,316,194	7,686,813,829	780,623,231	93,365,315	503,434,497	691,743	19,978,244,809
Funded Ratio	72.67%	67.73%	63.26%	82.18%	62.97%	96.91%	70.53%
Active Member Payroll	\$ 6,611,037,839	\$ 4,245,333,275	\$ 93,490,648	\$ 44,711,221	\$ 156,396,298	\$ 4,954,236	\$ 11,155,923,517
UAAL as a Percent-of-Payroll	165.1%	181.1%	835.0%	208.8%	321.9%	14.0%	179.1%

* 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 2018 Contributions						
Employer Normal Cost Contribution	4.47%	3.86%	24.20%	32.39%	14.99%	4.69%
UAAL Contribution	11.24%	14.70%	56.09%	14.06%	24.70%	12.91%
Total Actuarial Employer Contribution	15.71%	18.56%	80.29%	46.45%	39.69%	17.60%
Total Employer Contribution	15.71%	18.56%	80.29%	46.45%	39.69%	17.60%
Reinvested Saving Rate	0.74%	0.66%	1.07%	0.00%	1.08%	0.74%
Estimated Total Employer Contribution	16.45%	19.22%	81.36%	46.45%	40.77%	18.34%
Projected Payroll	\$ 6,822,591,050	\$ 3,324,795,289	\$ 98,013,910	\$ 46,874,438	\$ 107,036,650	\$ 10,399,311,337
Illustrated Contribution Dollars						
Local Employers' Portion	\$ 280,496,700					\$ 280,496,700
State Portion	791,332,354	\$ 617,082,006	\$ 78,695,368	\$ 21,773,176	\$ 42,482,846	1,551,365,750
Dollar Reinvested Savings	50,772,568	22,019,803	1,050,207	-	1,157,423	75,000,000
Total Illustrated Contribution Dollars	\$ 1,122,601,622	\$ 639,101,809	\$ 79,745,575	\$ 21,773,176	\$ 43,640,269	\$ 1,906,862,450

*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#
7/1/2016 Valuation Results (FY 2018)	Unfunded Actuarial Liability	\$ 10,913,316,194	\$ 6,957,959,389	\$ 780,623,231	\$ 93,365,315	\$ 375,502,258	\$ 19,120,766,387
	Illustrated Contribution Dollars	\$ 1,122,601,622	\$ 639,101,809	\$ 79,745,575	\$ 21,773,176	\$ 43,640,269	\$ 1,906,862,450
	Local Employers' Portion	280,496,700	NA	NA	NA	NA	\$ 280,496,700
	State Portion	\$ 842,104,922	\$ 639,101,809	\$ 79,745,575	\$ 21,773,176	\$ 43,640,269	\$ 1,626,365,750
	Projected Payroll	\$ 6,822,591,050	\$ 3,324,795,289	\$ 98,013,910	\$ 46,874,438	\$ 107,036,650	\$ 10,399,311,337
	Total Contributions as Percentage of Payroll	16.45%	19.22%	81.36%	46.45%	40.77%	18.34%
7/1/2015 Valuation Results (FY 2017)	Unfunded Actuarial Liability	\$ 10,938,982,680	\$ 7,067,560,035	\$ 788,819,378	\$ 94,843,840	\$ 369,641,191	\$ 19,259,847,124
	Illustrated Contribution Dollars	\$ 1,105,192,274	\$ 643,146,067	\$ 78,750,616	\$ 21,776,611	\$ 42,100,532	\$ 1,890,966,099
	Local Employers' Portion	279,755,482	NA	NA	NA	NA	\$ 279,755,482
	State Portion	\$ 825,436,792	\$ 643,146,067	\$ 78,750,616	\$ 21,776,611	\$ 42,100,532	\$ 1,611,210,617
	Projected Payroll	\$ 6,677,768,877	\$ 3,397,846,084	\$ 95,455,048	\$ 46,771,071	\$ 103,391,689	\$ 10,321,232,769
	Total Contributions as Percentage of Payroll	16.55%	18.93%	82.50%	46.56%	40.72%	18.32%

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 1999 TO 2018
(STATE PORTION ONLY)**

Valuation Date June 30,	Fiscal Year	Teachers' Combined	Employees' Combined	State Police	Judges	LEOPS	Total State*
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
2004	2006	9.35	5.76	8.22	41.12	38.47	8.46
2003	2005	9.35	4.73	0.00	36.72	37.73	7.97
2002	2004	9.35	4.73	7.58	43.74	35.13	7.98
2001	2003	9.35	4.73	5.78	43.92	36.10	7.98
2000	2002	9.35	4.73	5.83	42.66	32.41	7.98
1999	2001	10.95	5.71	8.44	46.75	23.38	9.31

* 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 for FY 2016.

DETAILED ACTUARIAL INFORMATION

TEACHERS' COMBINED SYSTEM

	<u>Actuarial Valuation Performed</u>		<u>% Change</u>
	<u>June 30, 2016</u> <u>(for FY 2018)</u>	<u>June 30, 2015</u> <u>(for FY 2017)</u>	
A. Demographic Information			
1. Active Number Count	105,547	105,526	0.0%
2. Retired Member and Beneficiary Count	73,582	71,176	3.4%
3. Vested Former Member Count	25,298	24,541	3.1%
4. Total Number Count	204,427	201,243	1.6%
5. Active Payroll	\$ 6,611,037,839	\$ 6,470,706,276	2.2%
6. Annual Benefits for Retired Members [#]	\$ 2,012,244,463	\$ 1,941,845,919	3.6%
B. Actuarial Results			
1. Present Value of Projected Benefits Attributable to:			
a. Retired and Disabled Members, and Beneficiaries	\$ 22,978,737,182	\$ 22,332,585,293	2.9%
b. Terminated Vested Members	889,842,954	811,243,565	9.7%
c. Active Members	23,608,415,011	23,208,482,303	1.7%
d. Total Present Value	\$ 47,476,995,147	\$ 46,352,311,161	2.4%
2. Less Present Value Total Future Normal Costs	7,542,869,773	7,417,852,025	1.7%
3. Actuarial Accrued Liability (1d – 2)	\$ 39,934,125,374	\$ 38,934,459,136	2.6%
4. Less Actuarial Value of Assets	29,020,809,180	27,995,476,456	3.7%
5. Unfunded Actuarial Accrued Liability (UAAL) (3 - 4)	\$ 10,913,316,194	\$ 10,938,982,680	-0.2%
6. Funded Ratio	72.67%	71.90%	
7. Amortization Payments	\$ 767,033,741	\$ 748,387,228	2.5%
8. Employer Normal Cost	\$ 304,969,820	\$ 304,506,261	0.2%
9. Total Projected Payroll	\$ 6,822,591,050	\$ 6,677,768,877	2.2%
10. Total Normal Cost Rate	11.46%	11.55%	
11. Employee Contribution Rate	6.99%	6.99%	
12. Employers' [@] Normal Cost Rate	4.47%	4.56%	
13. UAAL Amortization Rate*	11.24%	11.23%	
14. Total Actuarial Employer Contribution Rate	15.71%	15.79%	
15. Estimated Employer Rate after Reinvestment of Savings	16.45%	16.55%	

[#] Retiree benefit amounts include the cost-of-living-adjustment granted July 1, 2016 and July 1, 2015, 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)

	<u>Actuarial Valuation Performed</u>		<u>% Change</u>
	<u>June 30, 2016</u> <u>(for FY 2018)</u>	<u>June 30, 2015</u> <u>(for FY 2017)</u>	
A. Demographic Information			
1. Active Number Count	58,083	59,261	-2.0%
2. Retired Member and Beneficiary Count	57,026	55,509	2.7%
3. Vested Former Member Count	21,087	21,100	-0.1%
4. Total Number Count	136,196	135,870	0.2%
5. Active Payroll	\$ 3,171,358,688	\$ 3,241,038,249	-2.1%
6. Annual Benefits for Retired Members [#]	\$ 997,446,819	\$ 958,387,380	4.1%
B. Actuarial Results			
1. Present Value of Projected Benefits Attributable to:			
a. Retired and Disabled Members, and Beneficiaries	\$ 11,350,668,816	\$ 10,963,936,988	3.5%
b. Terminated Vested Members	741,097,066	708,948,908	4.5%
c. Active Members	9,610,323,556	9,843,359,657	-2.4%
d. Total Present Value	\$ 21,702,089,438	\$ 21,516,245,553	0.9%
2. Less Present Value Total Future Normal Costs	2,523,496,530	2,608,890,466	-3.3%
3. Actuarial Accrued Liability (1d - 2)	\$ 19,178,592,908	\$ 18,907,355,087	1.4%
4. Less Actuarial Value of Assets	12,220,633,519	11,839,795,052	3.2%
5. Unfunded Actuarial Accrued Liability (UAAL) (3 - 4)	\$ 6,957,959,389	\$ 7,067,560,035	-1.6%
a. Less Special Liability Payments ^{**}	23,929,235	28,396,985	-15.7%
b. State Portion of UAAL (5 - 6)	6,934,030,154	7,039,163,050	-1.5%
6. Funded Ratio	63.72%	62.62%	
7. Amortization Payments	\$ 487,352,789	\$ 481,582,235	1.2%
8. Employer Normal Cost	\$ 124,357,653	\$ 129,723,969	-4.1%
9. Total Projected Payroll	\$ 3,221,700,861	\$ 3,292,486,516	-2.1%
10. Total Normal Cost Rate	10.60%	10.67%	
11. Employee Contribution Rate	6.74%	6.73%	
12. Employer Normal Cost Rate	3.86%	3.94%	
13. UAAL Amortization Rate [*]	14.70%	14.34%	
14. Total Employer Contribution Rate	18.56%	18.28%	
15. Estimated Employer Rate after Reinvestment of Savings	19.22%	18.93%	

^{**} 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, 2016 and July 1, 2015, respectively.

SPECIAL LIABILITY PAYMENTS

EMPLOYEES' COMBINED SYSTEM (STATE)

Schedule of Special Payments as of June 30, 2016 for December 2017 Billing
(Unless noted, amounts are amortized over 25 years with payments increasing 5% per year)

LOC Number	Municipal Corporation	Outstanding Balance as of 6/30/2016*	December 2016 Payment	December 2017 Payment	Last Payment Year
7012	Caroline County Roads Board	\$ 92,360	\$ 26,620 **	\$ 26,620 **	2019
7716	Harford County Liquor Board	35,986	10,372 **	10,372 **	2019
8006	Montgomery County Public Library	13,025	3,754 **	3,754 **	2019
8028	Interstate Comm. on Potomac River Basin	15,575	4,489 **	4,489 **	2019
8031	Bethesda Fire Department	7,574	2,183 **	2,183 **	2019
8032	Chevy Chase Fire Department	15,509	4,470 **	4,470 **	2019
8712	Wicomico County Roads Board	16,002	4,612 **	4,612 **	2019
6529	Health Systems Agency of Western MD	153,949	41,362	43,430	2019
6611	Anne Arundel County Government	7,609,544	2,044,463	2,146,686	2019
6735	Lexington Market Authority	309,295	83,098	87,253	2019
6740	Univ of MD Medical Systems Corp	1,748,812	611,489 ***	532,497 ***	2019
8002	Montgomery County Board of Education	2,305,049	619,300	650,265	2019
8011	Montgomery County Government	5,120,589	1,375,753	1,444,541	2019
8026	MD Nat. Capital Parks and Planning Comm.	1,725,325	463,545	486,722	2019
8128	Washington Suburban Sanitary Commission	3,546,035	952,716	1,000,352	2019
8325	St. Mary's Nursing Home	405,581	108,968	114,416	2019
8611	Washington County Commission	301,726	81,065	85,118	2019
8612	Washington County Roads Board	243,473	65,414	68,685	2019
8614	Washington County License Commission	1,829	491	516	2019
8626	Washington County Sanitary District	73,488	19,744	20,731	2019
8726	Wicomico Co. Dept. Recreation & Parks	188,509	50,647	53,179	2019
TOTAL		\$ 23,929,235	\$ 6,574,554	\$ 6,790,890	

* The outstanding balance is based on the 7.55% valuation interest rate in order to determine what portion of the total unfunded liability is attributable to the State liability and the special payment liability. The special payment liability is based on the present value of the contributions based on the payment schedule established at entry or withdrawal discounted at the current investment return assumption. Actual payoff amounts will be based on the interest rate in effect when the balance was first established.

** Level dollar payments or credits.

*** Dollar payments decrease each year.

DETAILED ACTUARIAL INFORMATION

STATE POLICE

	<u>Actuarial Valuation Performed</u>		
	<u>June 30, 2016</u> <u>(for FY 2018)</u>	<u>June 30, 2015</u> <u>(for FY 2017)</u>	<u>% Change</u>
A. Demographic Information			
1. Active Number Count	1,402	1,394	0.6%
2. Retired Member and Beneficiary Count	2,536	2,508	1.1%
3. Vested Former Member Count	84	81	3.7%
4. Total Number Count	4,022	3,983	1.0%
5. Active Payroll	\$ 93,490,648	\$ 91,049,875	2.7%
6. Annual Benefits for Retired Members [#]	\$ 117,700,921	\$ 116,339,773	1.2%
B. Actuarial Results			
1. Present Value of Projected Benefits Attributable to:			
a. Retired and Disabled Members, and Beneficiaries	\$ 1,709,028,680	\$ 1,702,268,470	0.4%
b. Terminated Vested Members	11,963,517	11,651,097	2.7%
c. Active Members	621,294,192	605,192,387	2.7%
d. Total Present Value	\$ 2,342,286,389	\$ 2,319,111,954	1.0%
2. Less Present Value Total Future Normal Costs	217,500,640	215,977,570	0.7%
3. Actuarial Accrued Liability (1d – 2)	\$ 2,124,785,749	\$ 2,103,134,384	1.0%
4. Less Actuarial Value of Assets	1,344,162,518	1,314,315,006	2.3%
5. Unfunded Actuarial Accrued Liability (UAAL) (3 - 4)	\$ 780,623,231	\$ 788,819,378	-1.0%
6. Funded Ratio	63.26%	62.49%	
7. Amortization Payments	\$ 54,865,482	\$ 53,966,842	1.7%
8. Employer Normal Cost	\$ 22,983,882	\$ 22,587,328	1.8%
9. Total Projected Payroll	\$ 94,974,719	\$ 92,495,201	2.7%
10. Total Normal Cost Rate	32.20%	32.42%	
11. Employee Contribution Rate	8.00%	8.00%	
12. Employer Normal Cost Rate	24.20%	24.42%	
13. UAAL Amortization Rate*	56.09%	56.98%	
14. Total Employer Contribution Rate	80.29%	81.40%	
15. Estimated Employer Rate after Reinvestment of Savings	81.36%	82.50%	

* 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, 2016 and July 1, 2015, respectively.

DETAILED ACTUARIAL INFORMATION

JUDGES

	Actuarial Valuation Performed		
	June 30, 2016 (for FY 2018)	June 30, 2015 (for FY 2017)	% Change
A. Demographic Information			
1. Active Number Count	298	307	-2.9%
2. Retired Member and Beneficiary Count	407	397	2.5%
3. Vested Former Member Count	7	8	-12.5%
4. Total Number Count	712	712	0.0%
5. Active Payroll	\$ 44,711,221	\$ 44,612,624	0.2%
6. Annual Benefits for Retired Members [#]	\$ 30,682,291	\$ 29,995,284	2.3%
B. Actuarial Results			
1. Present Value of Projected Benefits Attributable to:			
a. Retired and Disabled Members, and Beneficiaries	\$ 345,282,784	\$ 335,706,880	2.9%
b. Terminated Vested Members	2,153,606	3,039,689	-29.2%
c. Active Members	280,173,814	277,915,131	0.8%
d. Total Present Value	\$ 627,610,204	\$ 616,661,700	1.8%
2. Less Present Value Total Future Normal Costs	103,681,685	105,271,251	-1.5%
3. Actuarial Accrued Liability (1d – 2)	\$ 523,928,519	\$ 511,390,449	2.5%
4. Less Actuarial Value of Assets	430,563,204	416,546,609	3.4%
5. Unfunded Actuarial Accrued Liability (UAAL) (3 - 4)	\$ 93,365,315	\$ 94,843,840	-1.6%
6. Funded Ratio	82.18%	81.45%	
7. Amortization Payments	\$ 6,562,107	\$ 6,488,713	1.1%
8. Employer Normal Cost	\$ 14,711,851	\$ 14,602,363	0.7%
9. Total Projected Payroll	\$ 45,420,967	\$ 45,320,805	0.2%
10. Total Normal Cost Rate	38.88%	38.68%	
11. Employee Contribution Rate	6.49%	6.46%	
12. Employer Normal Cost Rate	32.39%	32.22%	
13. UAAL Amortization Rate*	14.06%	14.34%	
14. Total Employer Contribution Rate	46.45%	46.56%	

*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, 2016 and July 1, 2015, respectively.

DETAILED ACTUARIAL INFORMATION

LEOPS (STATE)

	<u>Actuarial Valuation Performed</u>		
	<u>June 30, 2016</u> <u>(for FY 2018)</u>	<u>June 30, 2015</u> <u>(for FY 2017)</u>	<u>% Change</u>
A. Demographic Information			
1. Active Number Count	1,577	1,546	2.0%
2. Retired Member and Beneficiary Count	1,424	1,371	3.9%
3. Vested Former Member Count	194	193	0.5%
4. Total Number Count	<u>3,195</u>	<u>3,110</u>	2.7%
5. Active Payroll	\$ 102,096,996	\$ 98,620,247	3.5%
6. Annual Benefits for Retired Members [#]	\$ 47,351,769	\$ 45,476,518	4.1%
B. Actuarial Results			
1. Present Value of Projected Benefits Attributable to:			
a. Retired and Disabled Members, and Beneficiaries	\$ 686,680,685	\$ 666,871,241	3.0%
b. Terminated Vested Members	20,767,015	19,408,507	7.0%
c. Active Members	<u>439,491,060</u>	<u>425,498,941</u>	3.3%
d. Total Present Value	\$ 1,146,938,760	\$ 1,111,778,689	3.2%
2. Less Present Value Total Future Normal Costs	<u>157,465,949</u>	<u>153,838,794</u>	2.4%
3. Actuarial Accrued Liability (1d – 2)	\$ 989,472,811	\$ 957,939,895	3.3%
4. Less Actuarial Value of Assets	<u>613,970,553</u>	<u>588,298,704</u>	4.4%
5. Unfunded Actuarial Accrued Liability (UAAL) (3 - 4)	\$ 375,502,258	\$ 369,641,191	1.6%
6. Funded Ratio	62.05%	61.41%	
7. Amortization Payments	\$ 26,391,877	\$ 25,288,892	4.4%
8. Employer Normal Cost	\$ 15,547,281	\$ 15,097,992	3.0%
9. Total Projected Payroll	\$ 103,717,685	\$ 100,185,746	3.5%
10. Total Normal Cost Rate	21.99%	22.07%	
11. Employee Contribution Rate	<u>7.00%</u>	<u>7.00%</u>	
12. Employer Normal Cost Rate	14.99%	15.07%	
13. UAAL Amortization Rate*	24.70%	24.53%	
14. Total Employer Contribution Rate	39.69%	39.60%	
15. Estimated Employer Rate after Reinvestment of Savings	40.77%	40.72%	

*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, 2016 and July 1, 2015, respectively.

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, 2016 and June 30, 2015;
- 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 restricts the actuarial value of assets from differing outside 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,	
	2016	2015
Assets:		
Cash & Cash Equivalents	\$ 1,366,155	\$ 1,134,336
<i>Receivables</i>		
Contributions		
Employers	12,710	35,612
Employers - Long Term	27,328	31,254
Members	3,790	11,526
Accrued Investment Income	113,802	212,114
Investment Sales Proceeds	402,910	784,555
Total Receivables	560,540	1,075,061
<i>Investments</i>		
U.S. Government Obligations	6,719,149	4,521,543
Domestic Corporate Obligations	3,233,707	3,688,098
International Obligations	46,289	910,924
Domestic Stocks	6,703,203	8,471,692
International Stocks	9,228,831	7,816,127
Mortgages & Mortgage Related Securities	1,590,173	1,895,887
Real Estate	-	-
Alternative Investments	17,284,686	17,633,283
Collateral For Loaned Securities	2,070,270	1,343,489
Total Investments	46,876,308	46,281,043
Total Assets	48,803,003	48,490,440
Liabilities:		
Accounts Payable & Accrued Expenses	62,311	61,272
Investment Commitments Payable	1,304,496	1,295,840
Obligation For Collateral For Loaned Securities	2,070,270	1,343,488
Other Liabilities	-	-
Total Liabilities	3,437,077	2,700,600
 Net Assets Held in Trust for Pension Benefits	 \$ 45,365,926	 \$ 45,789,840

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 6/30/2015	\$ 27,763,928,268	\$ 11,745,180,022	\$ 1,302,836,963	\$ 412,532,170	\$ 582,037,638	\$ 41,806,515,061
Employer Contributions	1,084,048,970	547,996,995	72,319,699	18,384,427	37,544,155	1,760,294,246
Member Contributions	464,470,457	218,454,723	7,250,827	2,862,992	7,220,787	700,259,786
Investment Returns	301,770,357	127,752,011	13,806,529	4,416,275	6,329,125	454,074,297
Disbursements from the Trust	(2,071,842,572)	(1,038,927,949)	(122,123,069)	(30,532,383)	(52,238,324)	(3,315,664,297)
Net Transfers	(163,012)	(192,137)	41,528	-	313,621	-
Market Value of Assets as of 6/30/2016	\$ 27,542,212,468	\$ 11,600,263,665	\$ 1,274,132,477	\$ 407,663,481	\$ 581,207,002	\$ 41,405,479,093

	Employees (Municipal)	LEOPS (Municipal)	CORS (Municipal)	Total Municipal
Municipal Plans				
Market Value of Assets as of 6/30/2015	\$ 3,745,205,278	\$ 217,714,201	\$ 20,405,374	\$ 3,983,324,853
Employer Contributions	92,435,751	17,414,830	510,036	110,360,617
Member Contributions	60,247,110	3,664,976	242,122	64,154,208
Investment Returns	40,799,963	2,431,941	224,369	43,456,273
Disbursements from the Trust	(228,094,970)	(11,968,008)	(786,075)	(240,849,053)
Net Transfers	-	-	-	-
Market Value of Assets as of 6/30/2016	\$ 3,710,593,132	\$ 229,257,940	\$ 20,595,826	\$ 3,960,446,898

	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 6/30/2015	\$ 27,763,928,268	\$ 15,490,385,300	\$ 1,302,836,963	\$ 412,532,170	\$ 799,751,839	\$ 20,405,374	\$ 45,789,839,914
Employer Contributions	1,084,048,970	640,432,746	72,319,699	18,384,427	54,958,985	510,036	1,870,654,863
Member Contributions	464,470,457	278,701,833	7,250,827	2,862,992	10,885,763	242,122	764,413,994
Investment Returns	301,770,357	168,551,974	13,806,529	4,416,275	8,761,066	224,369	497,530,570
Disbursements from the Trust	(2,071,842,572)	(1,267,022,919)	(122,123,069)	(30,532,383)	(64,206,332)	(786,075)	(3,556,513,350)
Net Transfers	(163,012)	(192,137)	41,528	-	313,621	-	-
Market Value of Assets as of 6/30/2016	\$ 27,542,212,468	\$ 15,310,856,797	\$ 1,274,132,477	\$ 407,663,481	\$ 810,464,942	\$ 20,595,826	\$ 45,365,925,991

SUMMARY OF THE DEVELOPMENT OF THE ACTUARIAL VALUE OF ASSETS JUNE 30, 2016

	Total State	Total Municipal	Total MSRPS
Beginning of Year:			
(1) Market Value of Assets	\$41,806,515,061	\$3,983,324,853	\$45,789,839,914
(2) Actuarial Value of Assets	42,154,431,827	4,016,192,239	46,170,624,066
End of Year:			
(3) Market Value of Assets	41,405,479,093	3,960,446,898	45,365,925,991
(4) Net Cash Flow with Adjustment	(855,110,265)	(66,334,228)	(921,444,493)
(5) Total Investment Income			
=(3)-(1)-(4)	\$ 454,074,297	\$ 43,456,273	\$ 497,530,570
(6) Projected Rate of Return	7.55%	7.55%	7.55%
(7) Projected Investment Income			
=(1)x(6)+([1+(6)] ^{.5} -1)x(4)	\$ 3,124,698,797	\$ 298,282,470	\$ 3,422,981,267
(8) Beginning of Year Asset Adjustment	0	0	0
(9) Investment Income in Excess of Projected Income	(\$2,670,624,500)	(\$254,826,197)	(\$2,925,450,697)
(10) Excess Investment Income Recognized			
This Year (5-year recognition)			
(10a) From This Year	(534,124,901)	(50,965,240)	(585,090,141)
(10b) From One Year Ago	(409,628,622)	(38,923,668)	(448,552,290)
(10c) From Two Years Ago	479,895,493	45,277,522	525,173,015
(10d) From Three Years Ago	180,934,609	16,983,489	197,918,098
(10e) From Four Years Ago	(510,957,964)	(46,972,262)	(557,930,226)
(10f) Total Recognized Investment Gain/(Loss)	(793,881,385)	(74,600,159)	(868,481,544)
(11) Change in Actuarial Value of Assets			
=(4)+(7)+(8)+(10f)	1,475,707,147	157,348,083	1,633,055,230
End of Year:			
(3) Market Value of Assets as of 6/30	41,405,479,093	3,960,446,898	45,365,925,991
(12) Preliminary Actuarial Value of Assets = (2)+(11)	43,630,138,974	4,173,540,322	47,803,679,296
(12a) Upper Collar Limit 120% x (3)	49,686,574,911	4,752,536,277	54,439,111,188
(12b) Lower Collar Limit 80% x (3)	33,124,383,275	3,168,357,519	36,292,740,794
(13) Adjustment to Remain within 20% Collar	0	0	0
(14) Final Actuarial Value of Assets as of 6/30	43,630,138,974	4,173,540,322	47,803,679,296
(15) Difference Between Market & Actuarial Values	(2,224,659,881)	(213,093,424)	(2,437,753,305)
(16) Actuarial Value Rate of Return	5.59%	5.62%	5.59%
(17) Market Value Rate of Return	1.10%	1.10%	1.10%
(18) Ratio of Actuarial Value to Market Value	105%	105%	105%

SUMMARY OF THE DEVELOPMENT OF THE ACTUARIAL VALUE OF ASSETS (STATE PORTION ONLY)

JUNE 30, 2016

	TCS	ECS	State Police	Judges	LEOPS	Total State
Beginning of Year:						
(1) Market Value of Assets	\$27,763,928,268	\$11,745,180,022	\$ 1,302,836,963	\$412,532,170	\$582,037,638	\$41,806,515,061
(2) Actuarial Value of Assets	27,995,476,456	11,839,795,052	1,314,315,006	416,546,609	588,298,704	42,154,431,827
End of Year:						
(3) Market Value of Assets	27,542,212,468	11,600,263,665	1,274,132,477	407,663,481	581,207,002	41,405,479,093
(4) Net Cash Flow with Adjustment	(523,486,157)	(272,668,368)	(42,511,015)	(9,284,964)	(7,159,761)	(855,110,265)
(5) Total Investment Income						
=(3)-(1)-(4)	\$ 301,770,357	\$127,752,011	\$ 13,806,529	\$ 4,416,275	\$ 6,329,125	\$ 454,074,297
(6) Projected Rate of Return	7.55%	7.55%	7.55%	7.55%	7.55%	7.55%
(7) Projected Investment Income						
=(1)x(6)+([1+(6)] ⁻⁵ -1)x(4)	\$ 2,076,774,532	\$ 876,655,140	\$ 96,788,598	\$ 30,802,049	\$ 43,678,478	\$ 3,124,698,797
(8) Beginning of Year Asset Adjustment	0	0	0	0	0	0
(9) Investment Income in Excess of Projected Income	\$(1,775,004,175)	\$(748,903,129)	\$(82,982,069)	\$(26,385,774)	\$(37,349,353)	\$(2,670,624,500)
(10) Excess Investment Income Recognized This Year (5-year recognition)						
(10a) From This Year	(355,000,835)	(149,780,626)	(16,596,414)	(5,277,155)	(7,469,871)	(534,124,901)
(10b) From One Year Ago	(271,625,085)	(115,130,832)	(13,107,124)	(4,050,868)	(5,714,713)	(409,628,622)
(10c) From Two Years Ago	318,173,274	136,116,176	15,071,592	4,482,029	6,052,422	479,895,493
(10d) From Three Years Ago	119,935,340	51,912,796	5,533,803	1,397,446	2,155,224	180,934,609
(10e) From Four Years Ago	(339,438,345)	(146,265,819)	(15,331,928)	(4,051,942)	(5,869,930)	(510,957,964)
(10f) Total Recognized Investment Gain/(Loss)	(527,955,651)	(223,148,305)	(24,430,071)	(7,500,490)	(10,846,868)	(793,881,385)
(11) Change in Actuarial Value of Assets = (4)+(7)+(8)+(10f)	1,025,332,724	380,838,467	29,847,512	14,016,595	25,671,849	1,475,707,147
End of Year:						
(3) Market Value of Assets as of 6/30	27,542,212,468	11,600,263,665	1,274,132,477	407,663,481	581,207,002	41,405,479,093
(12) Preliminary Actuarial Value of Assets = (2)+(11)	29,020,809,180	12,220,633,519	1,344,162,518	430,563,204	613,970,553	43,630,138,974
(12a) Upper Collar Limit 120% x (3)	33,050,654,962	13,920,316,398	1,528,958,972	489,196,177	697,448,402	49,686,574,911
(12b) Lower Collar Limit 80% x (3)	22,033,769,974	9,280,210,932	1,019,305,982	326,130,785	464,965,602	33,124,383,275
(13) Adjustment to Remain within 20% Collar	0	0	0	0	0	0
(14) Final Actuarial Value of Assets as of 6/30	29,020,809,180	12,220,633,519	1,344,162,518	430,563,204	613,970,553	43,630,138,974
(15) Difference Between Market & Actuarial Values	(1,478,596,712)	(620,369,854)	(70,030,041)	(22,899,723)	(32,763,551)	(2,224,659,881)
(16) Actuarial Value Rate of Return	5.58%	5.58%	5.60%	5.66%	5.61%	5.59%
(17) Market Value Rate of Return	1.10%	1.10%	1.08%	1.08%	1.09%	1.10%
(18) Ratio of Actuarial Value to Market Value	105%	105%	105%	106%	106%	105%

DEVELOPMENT OF THE ACTUARIAL VALUE OF ASSETS TEACHERS' COMBINED SYSTEM

	2015	2016	2017	2018	2019	2020
Beginning of Year:						
(1) Market Value of Assets	\$27,491,054,960	\$27,763,928,268				
(2) Actuarial Value of Assets	26,067,576,669	27,995,476,456				
End of Year:						
(3) Market Value of Assets	27,763,928,268	27,542,212,468				
(4) Net of Contributions and Disbursements	(454,984,496)	(523,486,157)				
(5) Total Investment Income						
=(3)-(1)-(4)	727,857,804	301,770,357				
(6) Projected Rate of Return	7.65%	7.55%				
(7) Projected Investment Income						
=(1)x(6)+([1+(6)] ^{.5-1})x(4)	2,085,983,230	2,076,774,532				
(8) Beginning of Year Asset Adjustment	0	0				
(9) Investment Income in						
Excess of Projected Income	(1,358,125,426)	(1,775,004,175)				
(10) Excess Investment Income Recognized						
This Year (5-year recognition)						
(10a) From This Year	(271,625,085)	(355,000,835)				
(10b) From One Year Ago	318,173,274	(271,625,085)	\$ (355,000,835)			
(10c) From Two Years Ago	119,935,340	318,173,274	(271,625,085)	\$ (355,000,835)		
(10d) From Three Years Ago	(339,438,345)	119,935,340	318,173,274	(271,625,085)	\$ (355,000,835)	
(10e) From Four Years Ago	469,855,868	(339,438,345)	119,935,338	318,173,272	(271,625,086)	\$ (355,000,835)
(10f) Total Recognized Investment Gain/(Loss)	296,901,052	(527,955,651)	(188,517,308)	(308,452,648)	(626,625,921)	(355,000,835)
(11) Change in Actuarial Value of Assets						
=(4)+(7)+(8)+(10f)	1,927,899,786	1,025,332,724				
End of Year:						
(3) Market Value of Assets	27,763,928,268	27,542,212,468				
(12) Preliminary Actuarial Value of Assets = (2)+(11)	27,995,476,456	29,020,809,180				
(12a) Upper Collar Limit 120% x (3)	33,316,713,922	33,050,654,962				
(12b) Lower Collar Limit 80% x (3)	22,211,142,614	22,033,769,974				
(13) Adjustment to Remain within 20% Collar	0	0				
(14) Final Actuarial Value of Assets as of 6/30	27,995,476,456	29,020,809,180				
(15) Difference Between Market & Actuarial Values	(231,548,188)	(1,478,596,712)				
(16) Actuarial Value Rate of Return	9.22%	5.58%				
(17) Market Value Rate of Return	2.67%	1.10%				
(18) Ratio of Actuarial Value to Market Value	101%	105%				

DEVELOPMENT OF THE ACTUARIAL VALUE OF ASSETS EMPLOYEES' COMBINED SYSTEM (STATE)

	2015	2016	2017	2018	2019	2020
Beginning of Year:						
(1) Market Value of Assets	\$11,646,774,073	\$11,745,180,022				
(2) Actuarial Value of Assets	11,039,950,378	11,839,795,052				
End of Year:						
(3) Market Value of Assets	11,745,180,022	11,600,263,665				
(4) Net of Contributions and Disbursements	(209,068,588)	(272,668,368)				
(5) Total Investment Income						
=(3)-(1)-(4)	307,474,537	127,752,011				
(6) Projected Rate of Return	7.65%	7.55%				
(7) Projected Investment Income						
=(1)×(6)+([1+(6)] ⁵ -1)×(4)	883,128,699	876,655,140				
(8) Beginning of Year Asset Adjustment	0	0				
(9) Investment Income in Excess of Projected Income	(575,654,162)	(748,903,129)				
(10) Excess Investment Income Recognized						
This Year (5-year recognition)						
(10a) From This Year	(115,130,832)	(149,780,626)				
(10b) From One Year Ago	136,116,176	(115,130,832)	\$ (149,780,626)			
(10c) From Two Years Ago	51,912,796	136,116,176	(115,130,832)	\$ (149,780,626)		
(10d) From Three Years Ago	(146,265,821)	51,912,796	136,116,176	(115,130,832)	\$ (149,780,626)	
(10e) From Four Years Ago	199,152,244	(146,265,819)	51,912,796	136,116,175	(115,130,834)	\$ (149,780,625)
(10f) Total Recognized Investment Gain/(Loss)	125,784,563	(223,148,305)	(76,882,486)	(128,795,283)	(264,911,460)	(149,780,625)
(11) Change in Actuarial Value of Assets						
=(4)+(7)+(8)+(10f)	799,844,674	380,838,467				
End of Year:						
(3) Market Value of Assets	11,745,180,022	11,600,263,665				
(12) Preliminary Actuarial Value of Assets = (2)+(11)	11,839,795,052	12,220,633,519				
(12a) Upper Collar Limit 120% x (3)	14,094,216,026	13,920,316,398				
(12b) Lower Collar Limit 80% x (3)	9,396,144,018	9,280,210,932				
(13) Adjustment to Remain within 20% Collar	0	0				
(14) Final Actuarial Value of Assets as of 6/30	11,839,795,052	12,220,633,519				
(15) Difference Between Market & Actuarial Values	(94,615,030)	(620,369,854)				
(16) Actuarial Value Rate of Return	9.23%	5.58%				
(17) Market Value Rate of Return	2.66%	1.10%				
(18) Ratio of Actuarial Value to Market Value	101%	105%				

DEVELOPMENT OF THE ACTUARIAL VALUE OF ASSETS STATE POLICE

	2015	2016	2017	2018	2019	2020
Beginning of Year:						
(1) Market Value of Assets	\$ 1,306,547,569	\$ 1,302,836,963				
(2) Actuarial Value of Assets	1,241,758,473	1,314,315,006				
End of Year:						
(3) Market Value of Assets	1,302,836,963	1,274,132,477				
(4) Net of Contributions and Disbursements	(36,746,229)	(42,511,015)				
(5) Total Investment Income						
=(3)-(1)-(4)	33,035,623	13,806,529				
(6) Projected Rate of Return	7.65%	7.55%				
(7) Projected Investment Income						
=(1)x(6)+([1+(6)] ^{.5-1})x(4)	98,571,245	96,788,598				
(8) Beginning of Year Asset Adjustment	0	0				
(9) Investment Income in Excess of Projected Income	(65,535,622)	(82,982,069)				
(10) Excess Investment Income Recognized						
This Year (5-year recognition)						
(10a) From This Year	(13,107,124)	(16,596,414)				
(10b) From One Year Ago	15,071,592	(13,107,124)	\$ (16,596,414)			
(10c) From Two Years Ago	5,533,803	15,071,592	(13,107,124)	\$ (16,596,414)		
(10d) From Three Years Ago	(15,331,928)	5,533,803	15,071,592	(13,107,124)	\$ (16,596,414)	
(10e) From Four Years Ago	18,565,174	(15,331,928)	5,533,803	15,071,593	(13,107,126)	\$ (16,596,413)
(10f) Total Recognized Investment Gain/(Loss)	10,731,517	(24,430,071)	(9,098,143)	(14,631,945)	(29,703,540)	(16,596,413)
(11) Change in Actuarial Value of Assets						
=(4)+(7)+(8)+(10f)	72,556,533	29,847,512				
End of Year:						
(3) Market Value of Assets	1,302,836,963	1,274,132,477				
(12) Preliminary Actuarial Value of Assets = (2)+(11)	1,314,315,006	1,344,162,518				
(12a) Upper Collar Limit 120% x (3)	1,563,404,356	1,528,958,972				
(12b) Lower Collar Limit 80% x (3)	1,042,269,570	1,019,305,982				
(13) Adjustment to Remain within 20% Collar	0	0				
(14) Final Actuarial Value of Assets as of 6/30	1,314,315,006	1,344,162,518				
(15) Difference Between Market & Actuarial Values	(11,478,043)	(70,030,041)				
(16) Actuarial Value Rate of Return	8.93%	5.60%				
(17) Market Value Rate of Return	2.56%	1.08%				
(18) Ratio of Actuarial Value to Market Value	101%	105%				

DEVELOPMENT OF THE ACTUARIAL VALUE OF ASSETS JUDGES

	2015	2016	2017	2018	2019	2020
Beginning of Year:						
(1) Market Value of Assets	\$408,882,813	\$412,532,170				
(2) Actuarial Value of Assets	389,071,868	416,546,609				
End of Year:						
(3) Market Value of Assets	412,532,170	407,663,481				
(4) Net of Contributions and Disbursements	(7,108,930)	(9,284,964)				
(5) Total Investment Income						
=(3)-(1)-(4)	10,758,287	4,416,275				
(6) Projected Rate of Return	7.65%	7.55%				
(7) Projected Investment Income						
=(1)x(6)+[(1+(6))^5-1]x(4)	31,012,629	30,802,049				
(8) Beginning of Year Asset Adjustment	0	0				
(9) Investment Income in Excess of Projected Income	(20,254,342)	(26,385,774)				
(10) Excess Investment Income Recognized						
This Year (5-year recognition)						
(10a) From This Year	(4,050,868)	(5,277,155)				
(10b) From One Year Ago	4,482,029	(4,050,868)	\$ (5,277,155)			
(10c) From Two Years Ago	1,397,446	4,482,029	(4,050,868)	\$ (5,277,155)		
(10d) From Three Years Ago	(4,051,944)	1,397,446	4,482,029	(4,050,868)	\$ (5,277,155)	
(10e) From Four Years Ago	5,794,379	(4,051,942)	1,397,446	4,482,027	(4,050,870)	\$ (5,277,154)
(10f) Total Recognized Investment Gain/(Loss)	3,571,042	(7,500,490)	(3,448,548)	(4,845,996)	(9,328,025)	(5,277,154)
(11) Change in Actuarial Value of Assets						
=(4)+(7)+(8)+(10f)	27,474,741	14,016,595				
End of Year:						
(3) Market Value of Assets	412,532,170	407,663,481				
(12) Preliminary Actuarial Value of Assets = (2)+(11)	416,546,609	430,563,204				
(12a) Upper Collar Limit 120% x (3)	495,038,604	489,196,177				
(12b) Lower Collar Limit 80% x (3)	330,025,736	326,130,785				
(13) Adjustment to Remain within 20% Collar	0	0				
(14) Final Actuarial Value of Assets as of 6/30	416,546,609	430,563,204				
(15) Difference Between Market & Actuarial Values	(4,014,439)	(22,899,723)				
(16) Actuarial Value Rate of Return	8.97%	5.66%				
(17) Market Value Rate of Return	2.65%	1.08%				
(18) Ratio of Actuarial Value to Market Value	101%	106%				

DEVELOPMENT OF THE ACTUARIAL VALUE OF ASSETS LEOPS (STATE)

	2015	2016	2017	2018	2019	2020
Beginning of Year:						
(1) Market Value of Assets	\$565,797,638	\$582,037,638				
(2) Actuarial Value of Assets	538,907,415	588,298,704				
End of Year:						
(3) Market Value of Assets	582,037,638	581,207,002				
(4) Net of Contributions and Disbursements	1,474,678	(7,159,761)				
(5) Total Investment Income						
=(3)-(1)-(4)	14,765,322	6,329,125				
(6) Projected Rate of Return	7.65%	7.55%				
(7) Projected Investment Income						
=(1)x(6)+([1+(6)] ^{.5-1})x(4)	43,338,886	43,678,478				
(8) Beginning of Year Asset Adjustment	0	0				
(9) Investment Income in Excess of Projected Income	(28,573,564)	(37,349,353)				
(10) Excess Investment Income Recognized						
This Year (5-year recognition)						
(10a) From This Year	(5,714,713)	(7,469,871)				
(10b) From One Year Ago	6,052,422	(5,714,713)	\$ (7,469,871)			
(10c) From Two Years Ago	2,155,224	6,052,422	(5,714,713)	\$ (7,469,871)		
(10d) From Three Years Ago	(5,869,932)	2,155,224	6,052,422	(5,714,713)	\$ (7,469,871)	
(10e) From Four Years Ago	7,954,724	(5,869,930)	2,155,225	6,052,422	(5,714,712)	\$ (7,469,869)
(10f) Total Recognized Investment Gain/(Loss)	4,577,725	(10,846,868)	(4,976,937)	(7,132,162)	(13,184,583)	(7,469,869)
(11) Change in Actuarial Value of Assets						
=(4)+(7)+(8)+(10f)	49,391,289	25,671,849				
End of Year:						
(3) Market Value of Assets	582,037,638	581,207,002				
(12) Preliminary Actuarial Value of Assets = (2)+(11)	588,298,704	613,970,553				
(12a) Upper Collar Limit 120% x (3)	698,445,166	697,448,402				
(12b) Lower Collar Limit 80% x (3)	465,630,110	464,965,602				
(13) Adjustment to Remain within 20% Collar	0	0				
(14) Final Actuarial Value of Assets as of 6/30	588,298,704	613,970,553				
(15) Difference Between Market & Actuarial Values	(6,261,066)	(32,763,551)				
(16) Actuarial Value Rate of Return	8.88%	5.61%				
(17) Market Value Rate of Return	2.61%	1.09%				
(18) Ratio of Actuarial Value to Market Value	101%	106%				

SECTION IV

HISTORICAL GASB NO. 25 AND NO. 27 INFORMATION

GASB Statement No. 67 and No. 68 are the accounting standards which replaced Statement 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 Statement No. 67 and No. 68 report has been issued outside of this report. This section contains historical GASB Statement 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]
2001	\$ 31,914,778	\$ 32,469,942	\$ 555,164	98.29%	\$7,255,036	8%
2002	32,323,263	34,131,284	1,808,021	94.70%	7,867,794	23%
2003	32,631,465	34,974,601	2,343,136	93.30%	8,134,419	29%
2004	33,484,657	36,325,704	2,841,047	92.18%	8,069,481	35%
2005	34,519,500	39,133,450	4,613,949	88.21%	8,603,761	54%
2006	35,795,025	43,243,492	7,448,467	82.78%	9,287,576	80%
2007	37,886,936	47,144,354	9,257,418	80.36%	9,971,012	93%
2008	39,504,284	50,244,047	10,739,763	78.62%	10,542,806	102%
2009	34,284,569	52,729,171	18,444,603	65.02%	10,714,241	172%
2010	34,688,346	54,085,081	19,396,735	64.14%	10,657,944	182%
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%

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]
2001	\$ 19,182,749	\$ 20,126,943	\$ 944,194	95.31%	\$ 3,994,201	24%
2002	19,424,000	21,117,047	1,693,047	91.98%	4,323,054	39%
2003	19,626,676	21,152,063	1,525,387	92.79%	4,522,202	34%
2004	20,155,415	21,724,178	1,568,764	92.78%	4,543,444	35%
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%

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]
2001	\$ 11,021,958	\$ 10,789,907	\$ (232,051)	102.15%	\$ 3,084,859	-8%
2002	11,162,265	11,385,749	223,484	98.04%	3,356,671	7%
2003	11,244,008	12,083,197	839,189	93.05%	3,424,054	25%
2004	11,514,655	12,621,578	1,106,923	91.23%	3,337,543	33%
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%

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]
2001	\$ 1,305,556	\$ 993,847	\$ (311,710)	131.36%	\$ 79,383	-393%
2002	1,300,402	1,030,575	(269,827)	126.18%	83,142	-325%
2003	1,285,201	1,062,383	(222,818)	120.97%	80,839	-276%
2004	1,287,981	1,200,605	(87,376)	107.28%	76,445	-114%
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%

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]
2001	\$ 229,022	\$ 254,913	\$ 25,891	89.84%	\$ 30,554	85%
2002	234,558	267,532	32,974	87.67%	31,824	104%
2003	240,208	279,008	38,801	86.09%	33,169	117%
2004	250,272	312,285	62,013	80.14%	32,937	188%
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%

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]
2001	\$ 165,478	\$ 290,504	\$ 125,026	56.96%	\$ 60,438	207%
2002	191,100	312,058	120,958	61.24%	65,916	184%
2003	225,111	382,287	157,176	58.89%	69,470	226%
2004	271,587	454,815	183,228	59.71%	77,369	237%
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%

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]
2009	\$ 7,373	\$ 12,273	\$ 4,900	60.08%	\$ 4,048	121%
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%

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
2001	\$ 634,309	\$ 634,309	100%
2002	574,019	574,019	100%
2003	654,578	602,212	92%
2004	710,632	632,462	89%
2005	805,564	668,618	83%
2006	874,079	716,745	82%
2007	1,025,972	831,037	81%
2008	1,183,765	1,053,551	89%
2009	1,313,560	1,109,564	84%
2010	1,519,980	1,308,920	86%
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%

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.

**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	2012	\$ 1,288,886	\$ 917,564	71%
	2013	1,265,418	981,004	78%
	2014	1,358,991	1,000,192	74%
	2015	1,189,318	1,063,763	89%
	2016	1,112,989	1,084,049	97%
Employees' Combined System	2012	721,776	475,403	66%
	2013	741,003	526,532	71%
	2014	812,206	591,747	73%
	2015	766,239	642,676	84%
	2016	688,920	640,433	93%
State Police	2012	54,452	47,283	87%
	2013	59,329	51,330	87%
	2014	64,325	56,244	87%
	2015	76,057	76,057	100%
	2016	72,320	72,320	100%
Judges	2012	24,077	24,077	100%
	2013	24,062	24,062	100%
	2014	21,109	21,109	100%
	2015	19,028	19,028	100%
	2016	18,384	18,384	100%
LEOPS	2012	56,624	56,624	100%
	2013	55,272	55,272	100%
	2014	63,923	63,923	100%
	2015	56,546	56,546	100%
	2016	54,959	54,959	100%
CORS (Muni)	2012	809	809	100%
	2013	4,901	4,901	100%
	2014	437	437	100%
	2015	543	543	100%
	2016	510	510	100%
Total State	2012	2,019,096	1,394,232	69%
	2013	2,037,989	1,531,106	75%
	2014	2,179,715	1,592,376	73%
	2015	1,983,742	1,734,624	87%
	2016	1,837,721	1,760,294	96%
Total Municipal	2012	127,528	127,528	100%
	2013	111,995	111,995	100%
	2014	141,276	141,276	100%
	2015	123,989	123,989	100%
	2016	110,361	110,361	100%
Total MSRPS	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%

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.

APPENDIX A

ACTUARIAL ASSUMPTIONS AND METHODS

BRIEF SUMMARY OF ACTUARIAL ASSUMPTIONS AND METHODS

Valuation date	June 30, 2016
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; 22 years remaining
Asset valuation method	5-year smoothed market (max. 120% and min. 80% of market value)
Actuarial assumptions:	
Investment rate of return	7.55%
Inflation	2.90% general; 3.20% wage
Projected salary increases	3.20% - 9.20%
Cost-of-living adjustments	2.29% - 3.20% for service prior to July 1, 2011.* 1.49% - 3.20% for service after June 30, 2011.* * Based on System and provisions. See page A-1 and Appendix C for details.
Retirement Age	Experience-based table of rates that are specific to the type of eligibility condition. Last updated for the 2015 valuation pursuant to the 2015 Experience Study for the period July 1, 2010 to June 30, 2014.
Mortality	RP-2014 Mortality Tables with projected generational mortality improvements based on the MP-2014 2-dimensional mortality improvement scale.

ACTUARIAL ASSUMPTIONS AND METHODS

Actuarial assumptions were developed in connection with a study of 2010-2014 experience in the Experience Study report dated May 21, 2015, which includes the rationale for the assumptions. The assumptions were adopted by the Board on May 21, 2015. All actuarial assumptions are based on future expectations, not market measures. 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	7.55%	2.70%	2.70%	#	3.20%
Teachers' Pension	7.55%	2.29%	1.49%	***	3.20%
Employees' Retirement					
Regular	7.55%	2.70%	2.70%	#	3.20%
Correctional	7.55%	2.70%	1.49%	***	3.20%
Legislative	7.55%	3.20%	3.20%		3.20%
Employees' Pension	7.55%	2.29%	1.49%	*,***	3.20%
State Police Retirement	7.55%	2.70%	1.49%	***	3.20%
Judges Pension	7.55%	3.20%	3.20%		3.20%
LEOPS	7.55%	2.29%	1.49%	**,***,#	3.20%
CORS Municipal	7.55%	2.70%	1.49%	***	3.20%

* A 2.70% simple rate is applicable for municipal members of these Systems, who do not elect to be covered under the Contributory plan.

** A 2.70% 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 7.55% 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 7.55%.

For groups whose COLA is capped at 5%, a 2.68% COLA was assumed. A 2.70% COLA was assumed for groups with an unlimited COLA, 2.29% 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 2.7% and wage inflation (i.e., aggregate payroll growth) is assumed to be 3.2%.

ACTUARIAL ASSUMPTIONS AND METHODS

A. ACTUARIAL ASSUMPTIONS

Rates of Salary Increases

Years of Service	Annual Rates of Salary Increases for First 10 Years of Service							
	Teachers' Retirement & Pension	Employees' Retirement			Employees' Pension	State Police	Judges	LEOPS
		Regular	Correctional	Legislative				
0	8.70%	6.20%	8.95%	3.20%	6.20%	6.20%	3.20%	7.20%
1	7.20%	6.45%	7.20%	3.20%	6.45%	8.70%	3.20%	6.95%
2	5.70%	5.95%	3.45%	3.20%	5.95%	9.20%	3.20%	6.20%
3	5.70%	4.95%	3.45%	3.20%	4.95%	8.95%	3.20%	4.70%
4	5.70%	4.45%	3.45%	3.20%	4.45%	5.20%	3.20%	4.70%
5	5.70%	4.45%	3.95%	3.20%	4.45%	5.20%	3.20%	4.45%
6	5.70%	4.45%	3.95%	3.20%	4.45%	5.20%	3.20%	4.45%
7	5.70%	4.45%	3.70%	3.20%	4.45%	4.45%	3.20%	4.20%
8	5.70%	4.20%	3.45%	3.20%	4.20%	4.45%	3.20%	4.20%
9	5.70%	4.20%	3.45%	3.20%	4.20%	4.45%	3.20%	4.20%

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

ACTUARIAL ASSUMPTIONS AND METHODS

A. ACTUARIAL ASSUMPTIONS

Rates of Salary Increases

Sample Ages	Annual Rates of Salary Increases for Sample Ages with 10 or More Years of Service							
	Teachers' Retirement & Pension	Employees' Retirement			Employees' Pension	State Police	Judges	LEOPS
		Regular	Correctional	Legislative				
25	5.70%	4.45%	4.20%	3.20%	4.45%	4.45%	3.20%	4.20%
30	5.45%	4.20%	3.95%	3.20%	4.20%	4.45%	3.20%	4.20%
35	5.20%	3.95%	3.70%	3.20%	3.95%	4.20%	3.20%	4.20%
40	4.95%	3.95%	3.70%	3.20%	3.95%	4.20%	3.20%	3.95%
45	4.70%	3.70%	3.70%	3.20%	3.70%	4.20%	3.20%	3.95%
50	4.20%	3.45%	3.20%	3.20%	3.45%	3.95%	3.20%	3.70%
55	3.70%	3.45%	3.20%	3.20%	3.45%	3.20%	3.20%	3.20%
60	3.20%	3.20%	3.20%	3.20%	3.20%	3.20%	3.20%	3.20%
65	3.20%	3.20%	3.20%	3.20%	3.20%	3.20%	3.20%	3.20%

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

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	20.00%	16.00%	21.00%	20.00%	16.00%	18.00%	*	21.00%	20.00%	13.00%	13.00%	0.00%	17.00%	17.00%
	1	16.00%	12.50%	15.00%	15.00%	12.00%	16.00%	*	15.00%	15.00%	9.00%	9.00%	0.00%	10.00%	10.00%
	2	14.00%	12.00%	13.00%	13.00%	9.00%	12.00%	*	13.00%	13.00%	7.00%	7.00%	0.00%	8.50%	8.50%
	3	11.00%	9.00%	10.50%	11.00%	8.00%	10.00%	*	10.50%	11.00%	4.25%	4.25%	0.00%	7.00%	7.00%
	4	8.00%	7.75%	8.50%	9.00%	6.00%	10.00%	*	8.50%	9.00%	4.00%	4.00%	0.00%	6.00%	6.00%
	5	6.50%	6.00%	7.25%	6.50%	5.50%	8.50%	*	7.25%	6.50%	3.50%	3.50%	0.00%	5.50%	5.50%
	6	5.75%	5.50%	6.50%	6.00%	5.00%	8.00%	*	6.50%	6.00%	2.50%	2.50%	0.00%	5.00%	5.00%
	7	4.75%	4.75%	5.50%	5.25%	4.00%	7.00%	*	5.50%	5.25%	2.00%	2.00%	0.00%	4.50%	4.50%
	8	3.75%	4.00%	5.00%	4.75%	3.50%	6.00%	*	5.00%	4.75%	2.00%	2.00%	0.00%	3.50%	3.50%
	9	3.00%	3.50%	4.50%	4.00%	3.50%	5.00%	*	4.50%	4.00%	1.50%	1.50%	0.00%	3.50%	3.50%
25	10	4.00%	3.50%	4.00%	4.00%	3.00%	3.75%	*	4.00%	4.00%	1.00%	1.00%	0.00%	3.50%	3.50%
30	& Over	2.00%	2.75%	3.50%	4.00%	3.00%	3.75%	*	3.50%	4.00%	1.00%	1.00%	0.00%	2.50%	2.50%
35		1.75%	2.00%	2.75%	3.25%	3.00%	3.75%	*	2.75%	3.25%	1.00%	1.00%	0.00%	2.00%	2.00%
40		1.50%	1.75%	2.25%	2.50%	3.00%	3.75%	*	2.25%	2.50%	1.00%	1.00%	0.00%	1.75%	1.75%
45		1.50%	1.25%	2.00%	2.25%	3.00%	3.75%	*	2.00%	2.25%	1.00%	1.00%	0.00%	1.75%	1.75%
50		1.50%	1.00%	2.00%	2.00%	3.00%	3.75%	*	2.00%	2.00%	1.00%	1.00%	0.00%	1.75%	1.75%
55		1.50%	1.00%	2.00%	2.00%	3.00%	3.75%	*	2.00%	2.00%	1.00%	1.00%	0.00%	1.75%	1.75%
60		1.50%	1.00%	2.00%	2.00%	3.00%	3.75%	*	2.00%	2.00%	1.00%	1.00%	0.00%	1.75%	1.75%
65		1.50%	1.00%	2.00%	2.00%	3.00%	3.75%	*	2.00%	2.00%	1.00%	1.00%	0.00%	1.75%	1.75%

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

	<u>Healthy Retiree (Non-Disabled) Mortality Assumption</u>			<u>Pre-Retirement Mortality Assumption</u>	
	<u>RP 2014 Healthy Annuitant Mortality Tables with Generational Projection Using MP-2014</u>	<u>Future Life Expectancy Age 65 (Birth Year 1951)</u>		<u>RP 2014 Employee Mortality Tables with Generational Projection Using MP-2014</u>	
	<u>Collar</u>	<u>Year Projected to in 2014</u>	<u>Life Expectancy</u>	<u>Collar</u>	<u>Year Projected to in 2014</u>
Teachers' Combined System					
Male	Male White Collar Annuitant Table	2012	22.89	Male White Collar Employee Table	2014
Female	Female White Collar Annuitant Table	2016	25.28	Female White Collar Employee Table	2014
Employees' Combined System					
Male	Male Blue Collar Annuitant Table	2010	20.10	Male Blue Collar Employee Table	2014
Female	Female Blue Collar Annuitant Table	2012	23.03	Female Blue Collar Employee Table	2014
State Police					
Male	Male Combined Annuitant Table	2014	21.77	Male Combined Employee Table	2014
Female	Female Combined Annuitant Table	2014	23.95	Female Combined Employee Table	2014
Judges					
Male	Male White Collar Annuitant Table	2012	22.89	Male White Collar Employee Table	2014
Female	Female White Collar Annuitant Table	2016	25.28	Female White Collar Employee Table	2014
LEOPS					
Male	Male Combined Annuitant Table	2014	21.77	Male Combined Employee Table	2014
Female	Female Combined Annuitant Table	2014	23.95	Female Combined Employee Table	2014

ACTUARIAL ASSUMPTIONS AND METHODS

A. ACTUARIAL ASSUMPTIONS

Summary of Mortality Assumptions

Disabled Mortality Assumption			
	RP 2014 Disabled Annuitant Mortality Tables with no projection (static tables)		Future Life Expectancy Age 65 (Birth Year 1951)
	Collar	Set Forward	Life Expectancy
Teachers' Combined System			
Male	Male Disabled Annuitant Table	1	14.38
Female	Female Disabled Annuitant Table	0	17.45
Employees' Combined System			
Male	Male Disabled Annuitant Table	2	13.85
Female	Female Disabled Annuitant Table	3	15.55
Judges			
Male	Male Disabled Annuitant Table	1	14.38
Female	Female Disabled Annuitant Table	0	17.45
RP 2014 Healthy Annuitant Mortality Tables with Generational Projection Using MP-2014			
	Collar	Year Projected to in 2014	Future Life Expectancy Age 65 (Birth Year 1951)
State Police			
Male	Male Blue Collar Annuitant Table	2014	20.71
Female	Female Blue Collar Annuitant Table	2014	23.39
LEOPS			
Male	Male Blue Collar Annuitant Table	2014	20.71
Female	Female Blue Collar Annuitant Table	2014	23.39

ACTUARIAL ASSUMPTIONS AND METHODS

A. ACTUARIAL ASSUMPTIONS

Healthy Retired Mortality

Sample Ages in 2016	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	\$147.68	\$150.66	\$142.37	\$147.20	\$142.37	\$147.20	\$144.53	\$148.42	\$147.68	\$150.66	\$144.53	\$148.42
55	142.12	145.78	135.56	141.50	135.56	141.50	138.46	143.10	142.12	145.78	138.46	143.10
60	134.84	139.20	127.07	134.10	127.07	134.10	130.89	136.07	134.84	139.20	130.89	136.07
65	125.24	130.59	116.47	124.61	116.47	124.61	121.32	127.01	125.24	130.59	121.32	127.01
70	113.05	119.67	103.81	112.85	103.81	112.85	109.49	115.69	113.05	119.67	109.49	115.69
75	98.33	106.20	89.23	98.97	89.23	98.97	95.29	102.11	98.33	106.20	95.29	102.11
80	81.50	90.44	73.41	83.43	73.41	83.43	79.19	86.54	81.50	90.44	79.19	86.54

Sample Ages in 2016	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	37.23	40.02	33.70	37.30	33.70	37.30	35.49	38.34	37.23	40.02	35.49	38.34
55	32.32	35.00	28.95	32.39	28.95	32.39	30.72	33.41	32.32	35.00	30.72	33.41
60	27.54	30.07	24.42	27.62	24.42	27.62	26.15	28.60	27.54	30.07	26.15	28.60
65	22.89	25.28	20.10	23.03	20.10	23.03	21.77	23.95	22.89	25.28	21.77	23.95
70	18.45	20.71	16.08	18.69	16.08	18.69	17.60	19.53	18.45	20.71	17.60	19.53
75	14.33	16.41	12.44	14.70	12.44	14.70	13.74	15.44	14.33	16.41	13.74	15.44
80	10.64	12.51	9.25	11.15	9.25	11.15	10.27	11.74	10.64	12.51	10.27	11.74

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 2016	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	\$117.42	\$129.59	\$116.35	\$126.18	\$116.35	\$126.18	\$143.25	\$147.56	\$117.42	\$129.59	\$143.25	\$147.56
55	111.73	123.72	110.45	119.66	110.45	119.66	136.56	141.97	111.73	123.72	136.56	141.97
60	104.70	116.61	103.10	111.45	103.10	111.45	128.32	134.76	104.70	116.61	128.32	134.76
65	95.95	107.59	94.00	101.20	94.00	101.20	118.11	125.46	95.95	107.59	118.11	125.46
70	85.58	96.60	83.34	89.32	83.34	89.32	105.87	113.87	85.58	96.60	105.87	113.87
75	73.92	84.29	71.47	76.62	71.47	76.62	91.59	100.13	73.92	84.29	91.59	100.13
80	61.43	71.49	58.90	63.89	58.90	63.89	75.85	84.69	61.43	71.49	75.85	84.69

Sample Ages in 2016	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	22.35	27.30	21.82	25.28	21.82	25.28	34.40	37.67	22.35	27.30	34.40	37.67
55	19.70	23.96	19.17	22.00	19.17	22.00	29.61	32.76	19.70	23.96	29.61	32.76
60	17.04	20.69	16.51	18.74	16.51	18.74	25.04	27.99	17.04	20.69	25.04	27.99
65	14.38	17.45	13.85	15.55	13.85	15.55	20.71	23.39	14.38	17.45	20.71	23.39
70	11.79	14.32	11.29	12.55	11.29	12.55	16.67	19.02	11.79	14.32	16.67	19.02
75	9.38	11.44	8.92	9.89	8.92	9.89	12.96	14.99	9.38	11.44	12.96	14.99
80	7.20	8.93	6.80	7.62	6.80	7.62	9.70	11.41	7.20	8.93	9.70	11.41

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

ACTUARIAL ASSUMPTIONS AND METHODS

A. ACTUARIAL ASSUMPTIONS

Accidental Death Mortality Rates		
State Police and LEOPS		
Sample Ages	Male	Female
20	0.0122%	0.0049%
25	0.0145%	0.0052%
30	0.0136%	0.0065%
35	0.0157%	0.0086%
40	0.0188%	0.0119%
45	0.0292%	0.0197%
50	0.0506%	0.0331%
55	0.0836%	0.0502%
60	0.1406%	0.0733%
65	0.2483%	0.1109%
70	0.4156%	0.1893%
75	0.6956%	0.3230%
80	1.1643%	0.5514%

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

The RP-2014 tables used in the valuation were extended in order that no zero rates exist in the tables. For Annuitant tables, ages 1-17 were populated using RP-2014 Juvenile rates, ages 18-19 were populated with Employee rates, and ages 20-49 were derived using a cubic spline. For Employee tables, ages 1-17 were populated using RP-2014 Juvenile rates, ages 81-94 were derived using a cubic spline, and ages 95-120 were populated with Annuitant rates.

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			
									Regular		Correctional		Regular		Correctional	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
25	0.0053%	0.0096%	0.0007%	0.0015%	0.0280%	0.0370%	0.0012%	0.0019%	0.0267%	0.0245%	0.1257%	0.1156%	0.0096%	0.0088%	0.1041%	0.1607%
30	0.0053%	0.0096%	0.0007%	0.0015%	0.0280%	0.0370%	0.0012%	0.0019%	0.0263%	0.0242%	0.1611%	0.1201%	0.0100%	0.0092%	0.1250%	0.1607%
35	0.0053%	0.0226%	0.0007%	0.0035%	0.0280%	0.0470%	0.0012%	0.0024%	0.0455%	0.0423%	0.2013%	0.2076%	0.0140%	0.0130%	0.1577%	0.1607%
40	0.0167%	0.0450%	0.0022%	0.0069%	0.0920%	0.0820%	0.0041%	0.0041%	0.0862%	0.0779%	0.2667%	0.3836%	0.0184%	0.0167%	0.1993%	0.1785%
45	0.0335%	0.0772%	0.0045%	0.0119%	0.1840%	0.1560%	0.0082%	0.0078%	0.1093%	0.1156%	0.3577%	0.5678%	0.0163%	0.0173%	0.2499%	0.2053%
50	0.0502%	0.1126%	0.0067%	0.0173%	0.2750%	0.2630%	0.0122%	0.0132%	0.1320%	0.1656%	0.5115%	0.8141%	0.0145%	0.0182%	0.3540%	0.2678%
55	0.0668%	0.1931%	0.0089%	0.0297%	0.3670%	0.4420%	0.0163%	0.0221%	0.1763%	0.2293%	0.6577%	1.1276%	0.0137%	0.0178%	0.4373%	0.3749%
60	0.0802%	0.1931%	0.0111%	0.0297%	0.3960%	0.3780%	0.0204%	0.0189%	0.2304%	0.3170%	0.8069%	1.582%	0.0140%	0.0193%	0.4373%	0.3749%

Sample Ages	Annual Rates of Disability													
	Employees' Pension				State Police				Judges		LEOPS			
	Ordinary		Accidental		Ordinary		Accidental				Ordinary		Accidental	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
25	0.1257%	0.0781%	0.0403%	0.0212%	0.1566%	0.4860%	0.5742%	1.7820%	0.0060%	0.0111%	0.1714%	0.5161%	0.3237%	0.6256%
30	0.1611%	0.0772%	0.0423%	0.0223%	0.1996%	0.5207%	0.6098%	1.5912%	0.0060%	0.0111%	0.2197%	0.5530%	0.3458%	0.5586%
35	0.2013%	0.1335%	0.0591%	0.0312%	0.2511%	0.5254%	0.7477%	1.5652%	0.0060%	0.0260%	0.2746%	0.5580%	0.4214%	0.5494%
40	0.2667%	0.2466%	0.0776%	0.0399%	0.3332%	0.6113%	0.8653%	1.5877%	0.0190%	0.0520%	0.3637%	0.6543%	0.4867%	0.5616%
45	0.3577%	0.3650%	0.0689%	0.0414%	0.4466%	0.7443%	0.9593%	1.5991%	0.0379%	0.0891%	0.4878%	0.7933%	0.5399%	0.5636%
50	0.5167%	0.6280%	0.0613%	0.0436%	0.6383%	0.9770%	1.3405%	2.0515%	0.0569%	0.1300%	0.6578%	0.9824%	0.7546%	0.7234%
55	0.7301%	0.8046%	0.0578%	0.0426%	0.8205%	1.4919%	1.7489%	3.1797%	0.0757%	0.2228%	0.6578%	0.9824%	0.9846%	1.1204%
60	0.7402%	0.9026%	0.0591%	0.0462%	1.0065%	2.6214%	2.1617%	5.6299%	0.0947%	0.2228%	0.6578%	0.9824%	1.2174%	1.9812%

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%	10.0%	9.0%			17.0%	16.0%			12.0%	11.0%		
46	15.0%	15.0%	10.0%	9.0%			17.0%	16.0%			12.0%	11.0%		
47	15.0%	15.0%	10.0%	9.0%			17.0%	16.0%			12.0%	11.0%		
48	15.0%	15.0%	10.0%	9.0%			17.0%	16.0%			12.0%	11.0%		
49	15.0%	15.0%	10.0%	9.0%			17.0%	16.0%			12.0%	11.0%		
50	15.0%	15.0%	10.0%	9.0%			10.0%	11.0%			9.0%	11.0%		
51	15.0%	15.0%	10.0%	9.0%			10.0%	11.0%			9.0%	11.0%		
52	15.0%	15.0%	10.0%	9.0%			10.0%	11.0%			9.0%	11.0%		
53	15.0%	15.0%	10.0%	9.0%			10.0%	11.0%			9.0%	11.0%		
54	15.0%	15.0%	10.0%	9.0%			10.0%	11.0%			9.0%	11.0%		
55	15.0%	15.0%	10.0%	10.0%			11.0%	13.0%			9.0%	10.0%		
56	15.0%	15.0%	10.0%	10.0%			11.0%	13.0%			9.0%	10.0%		
57	15.0%	15.0%	10.0%	10.0%			11.0%	13.0%			9.0%	10.0%		
58	15.0%	15.0%	10.0%	10.0%			11.0%	13.0%			9.0%	10.0%		
59	15.0%	15.0%	10.0%	11.0%			11.0%	13.0%			9.0%	10.0%		
60	15.0%	18.0%	13.0%	15.0%			13.0%	13.0%	10.0%	10.0%	10.0%	14.0%		
61	15.0%	18.0%	16.0%	18.0%			15.0%	18.0%	10.0%	10.0%	13.0%	14.0%		
62	28.0%	25.0%	25.0%	25.0%	14.0%	21.0%	27.0%	22.0%	10.0%	10.0%	25.0%	28.0%	16.0%	18.0%
63	23.0%	20.0%	23.0%	23.0%	14.0%	16.0%	23.0%	22.0%	10.0%	10.0%	23.0%	24.0%	13.0%	16.0%
64	20.0%	20.0%	19.0%	23.0%	14.0%	16.0%	19.0%	22.0%	10.0%	10.0%	18.0%	20.0%	13.0%	14.0%
65	20.0%	25.0%	25.0%	25.0%	16.0%	18.0%	20.0%	22.0%	30.0%	30.0%	17.0%	20.0%	13.0%	16.0%
66	20.0%	25.0%	25.0%	25.0%	16.0%	22.0%	25.0%	25.0%	30.0%	30.0%	25.0%	25.0%	18.0%	18.0%
67	20.0%	20.0%	20.0%	25.0%	16.0%	20.0%	25.0%	22.0%	30.0%	30.0%	25.0%	22.0%	16.0%	17.0%
68	20.0%	18.0%	20.0%	25.0%	16.0%	18.0%	18.0%	22.0%	30.0%	30.0%	18.0%	22.0%	14.0%	15.0%
69	20.0%	18.0%	20.0%	25.0%	16.0%	18.0%	18.0%	22.0%	30.0%	30.0%	18.0%	18.0%	14.0%	15.0%
70	20.0%	18.0%	25.0%	25.0%	16.0%	20.0%	20.0%	20.0%	35.0%	35.0%	22.0%	22.0%	16.0%	18.0%
71	15.0%	18.0%	25.0%	25.0%	16.0%	20.0%	20.0%	20.0%	35.0%	35.0%	22.0%	20.0%	13.0%	15.0%
72	15.0%	18.0%	25.0%	25.0%	16.0%	15.0%	20.0%	20.0%	35.0%	35.0%	22.0%	20.0%	13.0%	15.0%
73	15.0%	18.0%	25.0%	25.0%	16.0%	15.0%	20.0%	20.0%	35.0%	35.0%	22.0%	20.0%	13.0%	15.0%
74	15.0%	18.0%	25.0%	25.0%	16.0%	15.0%	20.0%	20.0%	35.0%	35.0%	22.0%	20.0%	13.0%	15.0%
75 & Over	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	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	23.0%	23.0%			25.0%	25.0%					40.0%	40.0%		
41	18.0%	18.0%			25.0%	25.0%					40.0%	40.0%		
42	18.0%	18.0%			30.0%	30.0%					40.0%	40.0%		
43	16.0%	16.0%			30.0%	30.0%					40.0%	40.0%		
44	16.0%	16.0%			35.0%	35.0%					40.0%	40.0%		
45	15.0%	15.0%			35.0%	35.0%					36.0%	36.0%		
46	14.0%	14.0%			35.0%	35.0%					36.0%	36.0%		
47	14.0%	14.0%			35.0%	35.0%					36.0%	36.0%		
48	13.0%	13.0%			35.0%	35.0%					36.0%	36.0%		
49	13.0%	13.0%			35.0%	35.0%					36.0%	36.0%		
50	13.0%	13.0%			30.0%	30.0%	10.0%	10.0%			32.0%	32.0%	5.0%	5.0%
51	12.0%	12.0%			30.0%	30.0%	10.0%	10.0%			32.0%	32.0%	5.0%	5.0%
52	12.0%	12.0%			30.0%	30.0%	10.0%	10.0%			32.0%	32.0%	5.0%	5.0%
53	12.0%	12.0%			30.0%	30.0%	10.0%	10.0%			20.0%	20.0%	5.0%	5.0%
54	12.0%	12.0%			30.0%	30.0%	10.0%	10.0%			25.0%	25.0%	5.0%	5.0%
55	12.0%	12.0%	4.5%	4.5%	35.0%	35.0%	15.0%	15.0%			23.0%	23.0%	5.0%	5.0%
56	11.0%	11.0%	4.5%	4.5%	35.0%	35.0%	15.0%	15.0%			23.0%	23.0%	5.0%	5.0%
57	11.0%	11.0%	4.5%	4.5%	35.0%	35.0%	15.0%	15.0%			23.0%	23.0%	5.0%	5.0%
58	11.0%	11.0%	4.5%	4.5%	35.0%	35.0%	15.0%	15.0%			23.0%	23.0%	5.0%	5.0%
59	11.0%	11.0%	4.5%	4.5%	35.0%	35.0%	15.0%	15.0%			18.0%	18.0%	5.0%	5.0%
60	11.0%	11.0%	4.5%	4.5%	100.0%	100.0%	100.0%	100.0%	8.0%	15.0%	23.0%	23.0%	8.0%	8.0%
61	13.0%	13.0%	4.5%	4.5%					8.0%	10.0%	23.0%	23.0%	8.0%	8.0%
62	30.0%	30.0%	12.0%	12.0%					8.0%	10.0%	30.0%	30.0%	15.0%	15.0%
63	30.0%	30.0%	12.0%	12.0%					8.0%	10.0%	30.0%	30.0%	15.0%	15.0%
64	20.0%	20.0%	12.0%	12.0%					8.0%	10.0%	30.0%	30.0%	15.0%	15.0%
65	30.0%	30.0%	12.0%	12.0%					8.0%	10.0%	50.0%	50.0%	50.0%	50.0%
66	30.0%	30.0%	25.0%	25.0%					10.0%	15.0%	50.0%	50.0%	50.0%	50.0%
67	30.0%	30.0%	20.0%	20.0%					10.0%	15.0%	50.0%	50.0%	50.0%	50.0%
68	30.0%	30.0%	20.0%	20.0%					10.0%	15.0%	50.0%	50.0%	50.0%	50.0%
69	30.0%	30.0%	20.0%	20.0%					15.0%	20.0%	50.0%	50.0%	50.0%	50.0%
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	33.0%	30.0%			35.0%	35.0%		
56	26.0%	23.0%			28.0%	28.0%		
57	19.0%	17.0%			21.0%	21.0%		
58	11.0%	9.0%			14.0%	14.0%		
59	2.0%	1.0%			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%	15.0%	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			
	Male	Female	Non-Reformed		Reformed				Non-Reformed		Reformed	
			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%	1.5%	2.0%			5.0%	5.0%	2.0%	2.0%		
56	5.0%	5.0%	1.5%	2.5%			5.0%	5.0%	1.5%	2.5%		
57	5.0%	5.0%	1.5%	3.0%			5.0%	5.0%	2.0%	2.5%		
58	5.0%	5.0%	2.5%	3.0%			5.0%	5.0%	2.0%	3.0%		
59	5.0%	5.0%	3.5%	3.5%			5.0%	5.0%	2.5%	3.0%		
60			3.5%	5.0%	8.0%	12.5%			4.0%	4.5%	9.5%	11.5%
61			6.5%	7.0%	6.5%	7.0%			6.0%	5.5%	6.0%	5.5%
62					7.0%	7.5%					6.5%	6.0%
63					7.5%	8.0%					7.0%	6.5%
64					8.0%	8.5%					7.5%	7.0%

* 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 3.20% per annum compounded increase in the 2016 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 3.20% per annum compounded increase in the 2016 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 3.20% per annum compounded increase in the 2016 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. As of June 30, 2007, the calculation of market gains or losses included the difference between market and actuarial assets as of June 30, 2006.

For the Employees' Retirement & 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 (22 years remaining as of June 30, 2016) 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 2017 are equal to the budgeted contributions developed in the valuation as of June 30, 2015, plus the proportionate share of reinvested savings allocated to each System for fiscal year 2017 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, 2016
MISCELLANEOUS AND TECHNICAL ASSUMPTIONS

Marriage Assumption:	75% of males and females are assumed to be married for purposes of death-in-service 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 an additional 5 months of service at retirement attributable to sick leave.
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, females are assumed to be 4 years younger than males.
Option Elections:	It was assumed optional forms of payment were actuarially equivalent to the normal form of payment.
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.

SUMMARY OF ASSUMPTIONS USED

JUNE 30, 2016

MISCELLANEOUS AND TECHNICAL ASSUMPTIONS

**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:

An additional liability was added to the aggregate results for Teachers' and Employees' Pension Systems to reflect that the past service benefits would be calculated based on the full time salary equivalent for part-time members. The additional liability amounts are \$192,350,000 for TPS and \$47,480,000 for EPS state.

For State Police and LEOPS, the value of the DROP interest credits of 4% to 6% vs. the valuation interest rate of 7.55% 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 3.88 years for State Police and 4.72 years for LEOPS, based on the average projected DROP period of current DROP members in the 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	0.9924	0.9889
Liabilities for Members in the DROP	0.9941	0.9924
DROP Account Balances	0.9335	0.9276

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.

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, 2016
(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	156	\$ 16,993,924							
	Vested	156	\$ 16,993,924							
	Non-vested	0	\$ -	3,739	\$ 134,334,251	\$ 2,994	79.3	61.1	109	4,004
Teachers' Pension - STATE	Total	8,958	\$ 513,526,521							
	Vested	5,906	\$ 371,634,512							
	Non-vested	3,052	\$ 141,892,009	5,345	\$ 86,552,137	\$ 1,349	72.2	62.6	3,047	17,350
Teachers' Retirement - LOCAL	Total	568	\$ 51,500,107							
	Vested	568	\$ 51,500,107							
	Non-vested	0	\$ -	23,813	\$ 890,262,036	\$ 3,115	76.5	57.6	218	24,599
Teachers' Pension - LOCAL	Total	95,865	\$ 6,029,017,287							
	Vested	69,225	\$ 4,769,575,603							
	Non-vested	26,640	\$ 1,259,441,684	40,685	\$ 901,096,038	\$ 1,846	69.6	60.8	21,924	158,474
Employees' Retirement	Total	7,923	\$ 395,490,050							
	Vested	6,011	\$ 314,010,776							
	Non-vested	1,912	\$ 81,479,274	21,172	\$ 476,968,108	\$ 1,877	73.4	57.2	826	29,921
Employees' Pension	Total	74,702	\$ 3,849,843,225							
	Vested	51,070	\$ 2,828,167,583							
	Non-vested	23,632	\$ 1,021,675,642	53,039	\$ 749,800,913	\$ 1,178	69.4	62.1	27,058	154,799
State Police	Total	1,402	\$ 93,490,648							
	Vested	1,013	\$ 74,826,959							
	Non-vested	389	\$ 18,663,689	2,536	\$ 117,700,921	\$ 3,868	63.0	47.9	84	4,022
Judges	Total	298	\$ 44,711,221							
	Vested	222	\$ 33,461,513							
	Non-vested	76	\$ 11,249,708	407	\$ 30,682,291	\$ 6,282	77.1	65.0	7	712
LEOPS	Total	2,529	\$ 156,396,298							
	Vested	1,772	\$ 118,023,293							
	Non-vested	757	\$ 38,373,005	1,801	\$ 60,783,678	\$ 2,812	59.6	52.5	294	4,624
CORS	Total	93	\$ 4,954,236							
	Vested	66	\$ 3,722,941							
	Non-vested	27	\$ 1,231,295	29	\$ 786,075	\$ 2,259	58.1	56.2	1	123
Total Systems	Total	192,494	\$ 11,155,923,517							
	Vested	136,009	\$ 8,581,917,211							
	Non-vested	56,485	\$ 2,574,006,306	152,566	\$ 3,448,966,450	\$ 1,884	71.3	60.5	53,568	398,628

* Includes normal and early service retirees only. #Retiree benefit amounts include the cost-of-living-adjustment granted July 1, 2016.

STATE RETIREMENT AND PENSION SYSTEM
SUMMARY OF MEMBERSHIP DATA AS OF JUNE 30, 2016
(STATE 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
Teachers' Retirement - STATE	Total	156	\$ 16,993,924							
	Vested	156	\$ 16,993,924							
	Non-vested	0	\$ -	3,739	\$ 134,334,251	\$ 2,994	79.3	61.1	109	4,004
Teachers' Pension - STATE	Total	8,958	\$ 513,526,521							
	Vested	5,906	\$ 371,634,512							
	Non-vested	3,052	\$ 141,892,009	5,345	\$ 86,552,137	\$ 1,349	72.2	62.6	3,047	17,350
Teachers' Retirement - LOCAL	Total	568	\$ 51,500,107							
	Vested	568	\$ 51,500,107							
	Non-vested	0	\$ -	23,813	\$ 890,262,036	\$ 3,115	76.5	57.6	218	24,599
Teachers' Pension - LOCAL	Total	95,865	\$ 6,029,017,287							
	Vested	69,225	\$ 4,769,575,603							
	Non-vested	26,640	\$ 1,259,441,684	40,685	\$ 901,096,038	\$ 1,846	69.6	60.8	21,924	158,474
Employees' Retirement	Total	7,849	\$ 391,071,099							
	Vested	5,937	\$ 309,591,825							
	Non-vested	1,912	\$ 81,479,274	18,000	\$ 414,096,286	\$ 1,917	72.5	56.7	793	26,642
Employees' Pension	Total	50,234	\$ 2,780,287,589							
	Vested	34,908	\$ 2,046,614,997							
	Non-vested	15,326	\$ 733,672,592	39,026	\$ 583,350,533	\$ 1,246	69.3	61.6	20,294	109,554
State Police	Total	1,402	\$ 93,490,648							
	Vested	1,013	\$ 74,826,959							
	Non-vested	389	\$ 18,663,689	2,536	\$ 117,700,921	\$ 3,868	63.0	47.9	84	4,022
Judges	Total	298	\$ 44,711,221							
	Vested	222	\$ 33,461,513							
	Non-vested	76	\$ 11,249,708	407	\$ 30,682,291	\$ 6,282	77.1	65.0	7	712
LEOPS	Total	1,577	\$ 102,096,996							
	Vested	1,081	\$ 75,729,259							
	Non-vested	496	\$ 26,367,737	1,424	\$ 47,351,769	\$ 2,771	60.7	52.6	194	3,195
Total Systems	Total	166,907	\$ 10,022,695,392							
	Vested	119,016	\$ 7,749,928,699							
	Non-vested	47,891	\$ 2,272,766,693	134,975	\$ 3,205,426,264	\$ 1,979	71.3	60.3	46,670	348,552

* Includes normal and early service retirees only.

Retiree benefit amounts include the cost-of-living-adjustment granted July 1, 2016.

STATE RETIREMENT AND PENSION SYSTEM
SUMMARY OF MEMBERSHIP DATA AS OF JUNE 30, 2016
(MUNICIPAL ONLY)

		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.*	Number	
Employees' Retirement	Total	74	\$ 4,418,951							
	Vested	74	\$ 4,418,951							
	Non-vested	0	\$ -	3,172	\$ 62,871,822	\$ 1,652	78.4	59.9	33	3,279
Employees' Pension	Total	24,468	\$ 1,069,555,636							
	Vested	16,162	\$ 781,552,586							
	Non-vested	8,306	\$ 288,003,050	14,013	\$ 166,450,380	\$ 990	69.7	63.2	6,764	45,245
LEOPS	Total	952	\$ 54,299,302							
	Vested	691	\$ 42,294,034							
	Non-vested	261	\$ 12,005,268	377	\$ 13,431,908	\$ 2,969	55.4	52.2	100	1,429
CORS	Total	93	\$ 4,954,236							
	Vested	66	\$ 3,722,941							
	Non-vested	27	\$ 1,231,295	29	\$ 786,075	\$ 2,259	58.1	56.2	1	123
Total Systems	Total	25,587	\$ 1,133,228,125							
	Vested	16,993	\$ 831,988,512							
	Non-vested	8,594	\$ 301,239,613	17,591	\$ 243,540,186	\$ 1,154	71.0	62.4	6,898	50,076

* Includes normal and early service retirees only.

Retiree benefit amounts include the cost-of-living-adjustment granted July 1, 2016.

ACTIVE MEMBERSHIP INFORMATION

Maryland State Retirement and Pension System Active Membership Statistics June 30, 2016				
System	Number	Average Age	Average Credited Service	Average Salary
Teachers' Retirement	724	65.2	40.1	\$ 94,605
Teachers' Pension	104,823	44.8	11.8	62,415
Employees' Retirement – State	457	63.7	40.2	75,089
Employees' Retirement – Municipal	74	62.2	39.6	59,716
Employees' Retirement – Legislators	188	54.9	9.1	47,064
Employees' Retirement – Correctional Officers	7,204	42.8	11.4	48,294
Employees' Retirement – Total	7,923	44.5	13.2	49,917
Employees' Pension – State	50,234	48.3	12.7	55,347
Employees' Pension – Municipal	24,468	49.2	10.8	43,712
Employees' Pension – Total	74,702	48.6	12.1	51,536
State Police	1,402	35.5	11.1	66,684
Judges	298	58.3	9.0	150,038
LEOPS – State	1,577	42.2	10.6	64,741
LEOPS – Municipal	952	39.2	10.7	57,037
LEOPS – Total	2,529	41.1	10.6	61,841
CORS	93	41.5	9.5	53,271
TOTAL SYSTEMS	192,494	46.3	12.1	57,955
	Teachers' Retirement		Employees' Retirement	
	Number	Earnings	Number	Earnings
Unlimited COLA	425	\$ 41,321,108	327	\$ 23,775,843
5% COLA Cap	187	17,338,248	158	11,629,481
Bifurcate	112	9,834,675	46	3,329,369
	<u>724</u>	<u>\$ 68,494,031</u>	<u>531</u>	<u>\$ 38,734,693</u>

ACTIVE MEMBERSHIP – AGE & SERVICE DISTRIBUTION JUNE 30, 2016

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	9							9	\$ 110,154
20-24	2,281	5						2,286	93,874,043
25-29	8,422	2,110	15					10,547	491,847,706
30-34	4,121	6,058	2,706	11				12,896	706,301,870
35-39	2,798	2,685	5,751	1,741	4			12,979	809,915,391
40-44	2,493	2,056	2,979	4,330	918	5		12,781	870,776,211
45-49	2,597	2,239	2,555	3,049	3,073	795	5	14,313	983,370,984
50-54	1,963	2,063	2,374	2,266	1,538	2,003	556	12,763	842,577,986
55-59	1,166	1,605	2,424	2,456	1,480	1,395	1,587	12,113	790,256,711
60	182	232	412	476	308	266	416	2,292	155,851,116
61	143	206	348	446	298	270	386	2,097	143,022,358
62	124	165	341	414	331	246	415	2,036	140,072,542
63	122	157	291	310	258	213	376	1,727	119,328,639
64	96	122	212	251	217	212	384	1,494	108,744,627
65	79	119	190	217	188	149	337	1,279	89,963,942
66	67	89	164	153	125	102	256	956	68,715,744
67	56	69	112	126	75	82	182	702	47,202,830
68	38	50	76	99	80	56	132	531	35,888,483
69	29	49	92	61	43	47	129	450	30,486,540
70	21	35	51	53	36	35	105	336	22,697,573
71	20	25	42	32	21	17	50	207	13,031,514
72	13	23	31	30	12	23	54	186	11,872,528
73	12	16	19	23	12	9	42	133	9,098,677
74	12	4	25	19	5	8	41	114	7,050,610
75	5	5	13	17	8	9	28	85	5,234,652
76	5	7	12	6	6	7	21	64	3,753,791
77	3	7	8	7	1	2	15	43	2,943,455
78	6	4	4	7	3	2	10	36	1,659,680
79+	1	12	10	17	8	8	36	92	5,387,482
Totals	26,884	20,217	21,257	16,617	9,048	5,961	5,563	105,547	\$6,611,037,839

**ACTIVE MEMBERSHIP – AGE & SERVICE DISTRIBUTION
JUNE 30, 2016**

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	17							17	\$ 392,880
20-24	1,215	19						1,234	39,202,895
25-29	4,169	987	79					5,235	207,660,821
30-34	3,680	2,510	987	28				7,205	324,202,756
35-39	3,258	2,141	1,851	672	23			7,945	386,156,275
40-44	2,450	1,950	1,742	1,782	392	19		8,335	427,961,568
45-49	2,635	2,119	1,940	2,152	1,291	808	78	11,023	581,198,019
50-54	2,371	2,273	2,068	2,264	1,371	1,703	1,030	13,080	703,917,127
55-59	2,027	2,036	1,916	2,109	1,351	1,669	2,204	13,312	731,989,857
60	358	358	315	371	241	290	512	2,445	137,652,360
61	265	306	334	399	211	243	500	2,258	126,807,914
62	225	294	328	311	197	238	459	2,052	116,620,603
63	185	215	244	234	136	166	376	1,556	89,883,145
64	149	224	195	204	112	146	291	1,321	74,968,221
65	106	178	187	178	102	112	276	1,139	65,603,672
66	106	150	138	159	80	92	221	946	53,591,332
67	83	114	156	109	66	62	144	734	39,391,617
68	67	108	95	107	58	46	140	621	34,032,354
69	47	65	86	87	49	39	99	472	24,934,304
70	57	53	75	60	30	32	61	368	18,665,968
71	42	38	45	34	28	29	54	270	13,297,213
72	36	41	45	42	21	18	43	246	11,747,300
73	23	28	32	30	17	16	21	167	8,002,556
74	28	24	31	27	10	16	25	161	7,329,211
75	24	20	21	14	9	8	23	119	5,110,937
76	20	21	18	14	8	10	13	104	4,038,724
77	10	7	12	8	7	6	12	62	2,648,939
78	8	5	11	9	11	8	12	64	2,886,904
79+		19	22	37	13	13	30	134	5,437,803
Totals	23,661	16,303	12,973	11,441	5,834	5,789	6,624	82,625	\$4,245,333,275

ACTIVE MEMBERSHIP – AGE & SERVICE DISTRIBUTION JUNE 30, 2016

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	13							13	\$ 331,526
20-24	108	8						116	5,083,092
25-29	170	105	8					283	14,975,711
30-34	55	105	113	11				284	17,541,708
35-39	17	32	72	90	10			221	15,659,972
40-44	8	12	42	76	85	1		224	18,060,379
45-49	6	10	24	39	85	17		181	15,047,005
50-54	1	1	12	14	23	11	5	67	5,668,969
55-59			3	4	2		3	12	1,049,079
60				1				1	73,207
Totals	378	273	274	235	205	29	8	1,402	\$93,490,648

**ACTIVE MEMBERSHIP – AGE & SERVICE DISTRIBUTION
JUNE 30, 2016**

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	1							1	\$ 141,333
40-44	13	1						14	2,057,262
45-49	14	6	1					21	3,072,793
50-54	19	9	10	5				43	6,406,219
55-59	26	18	19	16				79	11,916,207
60	7	2	4	6				19	2,829,427
61	3	3	5	5				16	2,366,128
62	2	3	6	3				14	2,131,662
63	1	2	2	5				10	1,514,230
64	2	6	6	2				16	2,432,728
65	3	1	2	2				8	1,285,364
66	1	1	4	7				13	1,951,029
67	1		4	10				15	2,250,407
68		1	3	7				11	1,643,038
69	1	4	2	8				15	2,276,295
70			3					3	437,099
Totals	94	57	71	76	0	0	0	298	\$44,711,221

ACTIVE MEMBERSHIP – AGE & SERVICE DISTRIBUTION JUNE 30, 2016

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	83	7						90	\$ 4,037,924
25-29	219	124	10					353	17,366,023
30-34	119	160	90	3				372	20,140,301
35-39	57	82	135	74	4			352	20,836,895
40-44	41	49	85	101	53	3		332	21,683,088
45-49	61	53	67	113	148	26	2	470	32,496,740
50-54	44	57	38	37	55	38	12	281	19,728,674
55-59	30	31	23	15	29	9	11	148	10,726,770
60	3	4	8	3	2	1	2	23	1,668,540
61	1	10	7		4	1	5	28	1,897,154
62		1	9	1	1	1	2	15	1,057,345
63	4	3	4	1	3		2	17	1,162,742
64		2	2	1	1		1	7	400,968
65		1	5	2	3		3	14	1,226,778
66		2		2	1		1	6	507,649
67	2	2	1	1	1			7	468,004
68		1	5	2			2	10	692,134
69				1	1			2	174,744
73				1				1	38,613
75					1			1	85,212
Totals	664	589	489	358	307	79	43	2,529	\$156,396,298

**ACTIVE MEMBERSHIP – AGE & SERVICE DISTRIBUTION
JUNE 30, 2016**

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	2							2	\$ 86,444
25-29	7	4						11	504,941
30-34	9	6	1					16	759,305
35-39	1	6	3	2				12	626,664
40-44	3	5	3	6	3			20	1,106,906
45-49	1	4	1	2	1			9	485,805
50-54		3	1	2				6	305,803
55-59	1	3	3	2	2		3	14	937,011
60	1	1						2	90,043
66			1					1	51,314
Totals	25	32	13	14	6	0	3	93	\$4,954,236

RETIRED MEMBERSHIP STATISTICS
JUNE 30, 2016
(STATE AND MUNICIPAL)

System	Number	Average Age	Average Credited Service*	Average Final Average Salary*	Average Benefit
Teachers' Retirement	27,552	76.8	28.6	\$ 51,232	\$ 37,188
Teachers' Pension	46,030	69.9	21.9	56,995	21,457
Employees' Retirement – State	18,000	72.5	24.3	\$ 37,949	\$ 23,005
Employees' Retirement – Municipal	<u>3,172</u>	78.4	24.7	30,272	19,821
Employees' Retirement – Total	21,172	73.4	24.3	36,799	22,528
Employees' Pension – State	39,026	69.3	20.8	\$ 43,732	\$ 14,948
Employees' Pension – Municipal	<u>14,013</u>	69.7	17.7	37,432	11,878
Employees' Pension – Total	53,039	69.4	19.9	42,068	14,137
State Police	2,536	63.0	22.6	\$ 50,365	\$ 46,412
Judges	407	77.1	13.8	\$ 147,806	\$ 75,386
LEOPS – State	1,424	60.7	22.2	\$ 56,568	\$ 33,253
LEOPS – Municipal	<u>377</u>	55.4	22.0	63,038	35,628
LEOPS – Total	1,801	59.6	22.2	57,922	33,750
CORS – Municipal	29	58.1	21.1	\$ 65,107	\$ 27,106
Total - State	134,975	71.3	23.2	\$ 49,589	\$ 23,748
Total - Municipal	17,591	71.0	19.0	36,735	13,845
TOTAL SYSTEMS	152,566	71.3	22.8	48,107	22,606

* Only non-zero values included in averages.

RETIRED MEMBERSHIP STATISTICS –BY TYPE
JUNE 30, 2016
(STATE AND MUNICIPAL)

System	Service Retirees		Disabilities		Beneficiaries	
	Number	Average Age	Number	Average Age	Number	Average Age
Teachers' Retirement	24,355	76.6	749	76.0	2,448	79.4
Teachers' Pension	40,982	70.5	3,712	63.2	1,336	70.9
Employees' Retirement – State	13,848	72.8	1,646	61.3	2,506	78.5
Employees' Retirement – Municipal	<u>2,367</u>	78.3	<u>224</u>	75.9	<u>581</u>	79.6
Employees' Retirement – Total	16,215	73.6	1,870	63.1	3,087	78.7
Employees' Pension – State	31,398	70.3	5,446	62.7	2,182	70.7
Employees' Pension – Municipal	<u>10,700</u>	71.6	<u>2,581</u>	62.0	<u>732</u>	70.4
Employees' Pension – Total	42,098	70.6	8,027	62.5	2,914	70.6
State Police	1,598	63.9	625	55.9	313	72.1
Judges	293	75.1	3	68.6	111	82.5
LEOPS – State	1,037	62.7	303	53.0	84	63.6
LEOPS – Municipal	<u>275</u>	58.0	<u>89</u>	48.5	<u>13</u>	48.8
LEOPS – Total	1,312	61.7	392	52.0	97	61.6
CORS – Municipal	24	60.0	5	49.1		
Total - State	113,511	71.9	12,484	62.9	8,980	75.4
Total - Municipal	<u>13,366</u>	72.5	<u>2,899</u>	62.6	<u>1,326</u>	74.3
TOTAL SYSTEMS	126,877	71.9	15,383	62.9	10,306	75.3

RETIRED MEMBERSHIP – ATTAINED AGE
JUNE 30, 2016
(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#	Number	Annual Benefits
Under 30	10	\$ 121,743	43	\$ 551,024	3	\$ 83,739	-	-	8	\$ 147,773	-	-	64	\$ 904,279
30-34	27	760,058	58	1,060,728	12	468,520	-	-	13	451,054	-	-	110	2,740,360
35-39	54	1,574,333	133	2,632,103	27	1,009,246	-	-	31	1,035,495	-	-	245	6,251,177
40-44	116	3,410,928	347	7,660,509	86	3,935,738	-	-	55	1,982,897	-	-	604	16,990,071
45-49	216	6,295,994	934	20,174,816	251	12,215,686	-	-	147	5,486,977	3	\$ 41,188	1,551	44,214,661
50-54	485	13,643,606	2,423	52,690,361	370	17,691,130	-	-	318	11,174,593	5	131,037	3,601	95,330,728
55-59	1,983	59,025,821	5,085	107,779,812	316	15,443,419	2	70,667	347	12,425,262	11	341,890	7,744	195,086,871
60-64	9,149	277,233,491	11,124	215,670,777	339	16,373,105	28	2,173,261	346	11,892,862	5	99,934	20,991	523,443,431
65-69	20,955	590,940,220	18,198	307,520,028	407	18,577,227	62	5,328,035	304	9,600,626	4	97,953	39,930	932,064,089
70-74	16,157	430,447,086	13,683	212,406,334	300	13,583,319	88	6,981,342	138	4,037,602	1	74,073	30,367	667,529,756
75-79	10,176	261,676,391	9,367	129,785,633	228	9,109,840	81	6,468,652	58	1,648,412	-	-	19,910	408,688,928
80-84	7,202	186,761,153	6,618	88,258,352	119	5,010,955	67	4,673,543	27	702,293	-	-	14,033	285,406,296
85-89	4,550	118,729,071	3,935	51,787,308	51	2,308,963	48	3,011,153	8	173,702	-	-	8,592	176,010,197
90-94	1,910	46,949,347	1,741	22,524,071	22	1,469,066	20	1,225,650	1	24,128	-	-	3,694	72,192,261
95-99	524	12,569,364	453	5,409,377	2	127,985	9	604,289	-	-	-	-	988	18,711,015
100-104	62	1,997,064	67	845,062	3	292,982	2	145,700	-	-	-	-	134	3,280,807
105-109	6	108,795	2	12,728	-	-	-	-	-	-	-	-	8	121,522
	73,582	\$ 2,012,244,463	74,211	\$ 1,226,769,022	2,536	\$ 117,700,921	407	\$ 30,682,291	1,801	\$ 60,783,678	29	\$ 786,075	152,566	\$ 3,448,966,450

Retiree benefit amounts include the cost-of-living-adjustment granted July 1, 2016.

RETIRED MEMBERSHIP* – BY CALENDAR YEAR OF RETIREMENT
JUNE 30, 2016
(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 1986	3,289	\$ 87,002,170	2,800	\$ 42,363,855	320	\$ 12,997,867	35	\$ 1,678,835	-	-	-	-	6,444	\$ 144,042,727
1986	671	17,381,831	542	7,758,371	48	1,799,034	4	189,479	-	-	-	-	1,265	27,128,715
1987	599	15,243,963	601	9,000,685	46	1,771,777	9	536,285	-	-	-	-	1,255	26,552,710
1988	701	19,414,723	715	11,259,863	43	1,516,366	6	332,026	-	-	-	-	1,465	32,522,978
1989	856	23,218,692	752	11,969,645	56	2,342,730	8	388,763	-	-	-	-	1,672	37,919,830
1990	866	24,365,772	816	12,505,133	48	1,906,231	10	602,661	10	233,095	-	-	1,750	39,612,892
1991	1,091	33,238,569	1,042	16,758,796	45	2,020,830	3	187,505	17	431,525	-	-	2,198	52,637,225
1992	1,622	51,370,516	1,251	19,157,049	98	4,426,521	5	278,311	21	593,005	-	-	2,997	75,825,402
1993	1,328	37,919,807	1,189	16,798,399	64	2,754,216	6	302,808	13	369,626	-	-	2,600	58,144,856
1994	1,416	37,241,131	1,280	18,106,414	71	3,151,650	7	453,104	11	334,541	-	-	2,785	59,286,841
1995	1,600	41,134,075	1,494	21,471,570	60	2,641,865	14	930,588	13	397,767	-	-	3,181	66,575,865
1996	1,788	47,408,087	2,576	43,245,499	81	3,477,509	14	967,570	14	408,726	-	-	4,473	95,507,392
1997	1,878	50,446,022	1,782	27,703,887	61	2,537,674	7	479,988	15	334,648	-	-	3,743	81,502,219
1998	2,053	57,338,674	1,638	22,127,458	62	2,635,951	10	619,022	24	516,198	-	-	3,787	83,237,304
1999	2,543	71,706,801	1,753	25,091,988	63	3,142,654	10	926,969	32	710,008	-	-	4,401	101,578,420
2000	2,539	69,990,671	1,908	25,977,545	138	7,037,939	11	987,932	76	2,189,803	-	-	4,672	106,183,891
2001	2,491	67,889,987	2,024	29,266,419	95	4,964,483	13	924,913	99	3,414,618	-	-	4,722	106,460,421
2002	2,630	70,130,128	2,299	33,986,907	90	4,888,761	15	1,092,655	92	3,096,293	-	-	5,126	113,194,744
2003	2,656	72,457,653	2,721	43,268,826	106	5,969,821	10	882,955	92	3,562,894	-	-	5,585	126,142,148
2004	3,029	83,596,433	3,078	50,609,991	102	5,198,655	14	1,122,151	81	2,899,678	-	-	6,304	143,426,908
2005	3,066	79,899,023	3,280	54,227,382	116	5,675,438	14	1,248,132	96	3,472,254	-	-	6,572	144,522,229
2006	2,701	71,096,969	2,969	48,381,630	87	4,204,175	17	1,323,678	90	3,054,445	-	-	5,864	128,060,897
2007	3,001	82,896,618	3,266	56,743,657	97	4,447,936	22	1,900,365	94	2,991,715	-	-	6,480	148,980,291
2008	3,082	82,391,349	3,399	57,961,922	83	3,795,776	13	1,145,210	99	3,490,519	-	-	6,676	148,784,775
2009	2,971	74,340,849	3,496	57,559,172	69	3,424,478	17	1,467,630	123	4,345,759	1	13,781	6,677	141,151,670
2010	3,517	98,358,609	4,126	73,912,436	77	4,285,772	16	1,407,220	100	3,658,645	7	190,351	7,843	181,813,032
2011	4,289	124,921,494	4,409	80,419,626	84	3,768,277	16	1,385,611	121	4,309,122	3	180,278	8,922	214,984,408
2012	3,587	97,430,008	3,631	60,953,703	54	2,612,224	14	1,255,247	120	4,215,227	3	98,424	7,409	166,564,833
2013	3,626	100,627,755	3,879	69,372,124	61	2,939,756	22	1,708,935	119	4,136,867	6	169,377	7,713	178,954,813
2014	3,624	101,098,115	3,366	59,033,430	43	2,064,540	16	1,518,904	83	2,729,736	6	92,085	7,138	166,536,810
2015	3,738	103,559,237	4,436	87,050,317	49	2,385,767	18	1,526,042	110	3,709,640	2	29,716	8,353	198,260,719
2016	734	17,128,733	1,693	32,725,321	19	914,247	11	910,799	36	1,177,321	1	12,063	2,494	52,868,485
	73,582	\$ 2,012,244,463	74,211	\$ 1,226,769,022	2,536	\$ 117,700,921	407	\$ 30,682,291	1,801	\$ 60,783,678	29	\$ 786,075	152,566	\$ 3,448,966,450

* Retiree benefit amounts include the cost-of-living-adjustment granted July 1, 2016.

APPENDIX C
SUMMARY OF PLAN PROVISIONS

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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 includes any teacher, helping teacher, principal, supervisor, superintendent, or clerk employed in public day school within the State of Maryland, or 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 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.

3. 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 – ten 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 Teachers' Non-Contributory Pension System.

TEACHERS' RETIREMENT SYSTEM OF THE STATE OF MARYLAND

4. Early Retirement Allowance

Eligibility: 25 years of eligibility service.

Allowance: Service Retirement allowance reduced by .005 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. The maximum reduction is 30%.

Plan C: For creditable service before election date, the amount determined by the service retirement formula for Teachers' Retirement System with a maximum reduction of 30%; for creditable service after election date, the amount determined by the service retirement formula for the Teachers' Pension System with a .005 reduction for each month retirement occurs prior to age 62 (maximum reduction of 42%).

5. 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.

Allowance: The benefit is 66 2/3% 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.

TEACHERS' RETIREMENT SYSTEM OF THE STATE OF MARYLAND

6. Death Benefits

Eligibility: One year of eligibility service.

Benefit: One time lump sum payment of member's annual earnable compensation at time of death plus accumulated contributions. If member dies prior to accruing one year of service, payment is only the return of accumulated member contributions.

Spouse Law

Eligibility: Surviving spouse designated as the sole primary beneficiary and the deceased member was eligible to retire or was age 55 with at least 15 years of eligibility service.

Benefit: Surviving spouse may elect a one-time lump sum payment of member's annual earnable compensation at time of death plus accumulated member contributions, or a monthly allowance under Option 2 (100% survivor benefit).

Special Death Benefit

Eligibility: Killed in line of duty.

Benefit: 66 2/3% of average final compensation for the three highest years as a member payable to a surviving spouse, dependent children or dependent parents. Accumulated member contributions are paid to the designated beneficiary(ies).

Note: Death benefits outlined above are payable upon death of an active member. If member is not active, only accumulated member contributions are payable at time of death.

7. Vested Retirement Allowance

Eligibility: Five years of eligibility service.

Allowance: Accrued retirement allowance payable at age 60, provided member does not withdraw accumulated contributions.

8. Cost-of-Living Adjustments (COLA)

Retirement allowances may be adjusted based on the Consumer Price Index. The adjustments are effective July 1 for all benefits which have been in payment for one year.

- Plan A: Unlimited and compounded.
- Plan B: Capped at 5% and compounded.
- Plan C: Combination of COLA for Plan A or Plan B - depending on member election prior to electing Plan C - for benefit calculated under the Teachers' Retirement System, plus capped 3% compounded COLA on benefit calculated under the Teachers' Pension System.

TEACHERS' RETIREMENT SYSTEM OF THE STATE OF MARYLAND

In years in which COLAs would be less than zero due to a decline in the Consumer Price Index, 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.

9. Optional Forms of Payment

Normal service allowance is a single life annuity.

Option 1: Cash refund equal to excess of present value of retirement allowance at date of retirement over total amount of payments made to date of death.

Option 2: 100% joint and survivor annuity. Your named beneficiary cannot be more than 10 years younger than you unless the beneficiary is your spouse or disabled child.

Option 3: 50% joint and survivor annuity.

Option 4: This option guarantees a return of accumulated member contributions remaining at date of death.

Option 5: 100% "pop-up" joint and survivor annuity with adjustment to maximum benefit if beneficiary predeceases retiree. Your named beneficiary cannot be more than 10 years younger than you unless the beneficiary is your spouse or disabled child.

Option 6: 50% "pop-up" joint and survivor annuity with adjustment to maximum benefit if beneficiary predeceases retiree.

For Option 5 and 6 – If the designated beneficiary predeceases the retiree, a new beneficiary may be named. However, the retirement allowance will be re-calculated.

Retirees who are to receive a service retirement, early service retirement, disability benefit, or 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.

10. Reduction for Benefits Payable under Workers' Compensation

Disability retirement allowances, excluding annuity reserves, are reduced for workers' compensation benefits 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 for the same period of time for which the retirement benefits are paid.

11. Change in Benefits

None.

TEACHERS' PENSION SYSTEM OF THE STATE OF MARYLAND

1. Membership

Membership is a condition of employment for all teachers hired on or after January 1, 1980. Certain eligible higher education employees may elect to join an optional defined contribution program provided by the State. Included in the definition of teacher is any teacher, helping teacher, principal, supervisor, superintendent, or clerk employed in public day school within the State of Maryland, or controlled by the State; any faculty employee of an educational institution supported or 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.

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 few 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.

3. Service Retirement Allowance

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

- Age 62 with 5 years of eligibility service.
- Age 63 with 4 years of eligibility service.
- Age 64 with 3 years of eligibility service.
- Age 65 and older with 2 years of eligibility service.

RCPB Eligibility: Combined age and eligibility service of at least 90 years or age 65 after 10 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 an employee 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 an employee up to the Social Security integration level plus 1.5% of average final compensation over the integration level 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 an employee for each year of creditable service after June 30, 1998.

The Social Security integration level (SSIL) is the average of all Social Security Wage Bases over the thirty –five (35) calendar years prior to your retirement. Eligibility service is given based on a full normal working time in one year equal to ten months.

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-18) as in effect of January 1, 1980 except for COLA benefits. The COLAs are capped at a maximum of 3% compounded annually.

4. Early Retirement Allowance

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

ACPS Allowance: Service retirement allowance computed as of early retirement date, reduced by .005 for each month that early retirement date precedes age 62 (maximum reduction is 42%).

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

RCPB Allowance: Service retirement allowance computed as of early retirement date, reduced by .005 for each month that early retirement date precedes age 65 (maximum reduction is 30%).

5. 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 the service retirement allowance computed on the basis that service continues until age 62 without any change in rate of earnable compensation. If disability occurs after age 62, 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.

Allowance: The benefit is 66 2/3% of average final compensation for the three highest consecutive years as a member plus the annuity provided by accumulated member contributions. The maximum benefit cannot be greater than the average final compensation.

6. Death Benefits

Eligibility: One year of eligibility service.

Benefit: One time lump sum payment of member's annual earnable compensation at time of death plus accumulated member contributions. If member dies prior to accruing one year of service, payment is only the return of accumulated member contributions.

Spouse Law

Eligibility: Surviving spouse designated as the sole primary beneficiary and the deceased member was eligible to retire or had at least 25 years of eligibility service, or was at least 55 years old with at least 15 years of eligibility service.

Benefit: Surviving spouse may elect one time lump sum payment of member's annual earnable compensation at time of death plus accumulated member contributions or a monthly allowance under Option 2 (100% survivor benefit).

Special Death Benefit

Eligibility: Killed in line of duty.

Benefit: 66 2/3% of average final compensation for the three highest consecutive years as a member payable to a surviving spouse, dependent children or dependent parents. Accumulated contributions are paid to the designated beneficiary(ies).

Note: Death benefits outlined above are payable upon death of an active member. If member is not active, only accumulated member contributions are payable at time of death.

7. Vested Retirement Allowance

ACPS Eligibility: Five years of eligibility service.

TEACHERS' PENSION SYSTEM OF THE STATE OF MARYLAND

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 .005 for each month that benefit commencement date precedes age 62.

If member does not commence to receive benefit payments, and dies before attaining age 62, only accumulated member contributions are returned.

RCPB Eligibility: Ten years of eligibility service.

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 .005 for each month that benefit commencement date precedes age 65.

If member does not commence to receive benefit payments, and dies before attaining age 65, only accumulated member contributions are returned.

8. Cost-of-Living Adjustments (COLA)

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

For benefits attributable to service on or after July 1, 2011, the Cost-of-living adjustment is capped at the lesser of 2.5% or the increase in CPI if the most recent calendar year market value rate of return was greater than or equal to the assumed rate of investment return from the most recent actuarial valuation. The adjustment is capped at the lesser of 1% or the increase in CPI if the most recent calendar year market value rate of return was less than the assumed rate of investment return from the most recent actuarial valuation.

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.

9. Optional Forms of Payment

Normal service allowance is a single life annuity.

Option 1: Cash refund equal to excess of present value of retirement allowance at date of retirement over total amount of payments made to date of death.

TEACHERS' PENSION SYSTEM OF THE STATE OF MARYLAND

- Option 2: 100% joint and survivor annuity. Your named beneficiary cannot be more than 10 years younger than you unless the beneficiary is your spouse or disabled child.
- Option 3: 50% joint and survivor annuity.
- Option 4: This option guarantees a return of accumulated member contributions remaining at date of death.
- Option 5: 100% "pop-up" joint and survivor annuity with adjustment to maximum benefit if beneficiary predeceases retiree. Your named beneficiary cannot be more than 10 years younger than you unless the beneficiary is your spouse or disabled child.
- Option 6: 50% "pop-up" joint and survivor annuity with adjustment to maximum benefit if beneficiary predeceases retiree.

For Option 5 and 6 – If the designated beneficiary predeceases the retiree, a new beneficiary may be named. However, the retirement allowance will be re-calculated.

Retirees who are to receive a service retirement, early service retirement, disability benefit, or 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.

10. Reduction for Benefits Payable under Workers' Compensation

Disability retirement allowances, excluding annuity reserves and COLA, are reduced for workers' compensation benefits 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 for the same period of time for which the retirement benefits are paid.

11. Change in Benefits

None.

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 includes employees of the State and approximately 121 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: (Plan C provides a two-part benefit based on benefits of the Employees' Retirement System and the Employees' Non-Contributory Pension System). Employee contributions, if any, are based on participation of the employer in one of the three plans under the Employees' Pension System (refer to summary of Employees' Pension System).

Interest earned on all employee contributions is 4% per year.

3. 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.

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 Employees' Non-Contributory Pension System under which the employer participates.

EMPLOYEES' RETIREMENT SYSTEM OF THE STATE OF MARYLAND

4. Early Retirement Allowance

Eligibility: 25 years of eligibility service.

Allowance: Service retirement allowance reduced by .005 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. The maximum reduction is 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 Employees' Non-Contributory Pension System under which the employer participates with a .005 reduction for each month retirement occurs prior to age 62 (maximum reduction of 42%).

5. 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 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.

Allowance: The benefit is $66 \frac{2}{3}\%$ 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.

EMPLOYEES' RETIREMENT SYSTEM OF THE STATE OF MARYLAND

6. Death Benefits

Eligibility: One year of eligibility service.

Benefit: One time lump sum payment of member's annual earnable compensation at time of death plus accumulated member contributions. If member dies prior to accruing one year of service, payment is only the return of accumulated member contributions.

Spouse Law

Eligibility: Surviving spouse designated as the sole primary beneficiary and the deceased member was eligible to retire or was at least age 55 with at least 15 years of eligibility service.

Benefit: Surviving spouse may elect a one-time lump sum payment of member's annual earnable compensation at time of death plus accumulated member contributions, or a monthly allowance under Option 2 (100% survivor benefit).

Special Death Benefit

Eligibility: Killed in line of duty.

Benefit: 66 2/3% of average final compensation for the three highest years as a member payable to a surviving spouse, dependent children or dependent parents. Accumulated member contributions are paid to the designated beneficiary(ies).

Note: Death benefits outlined above are payable upon death of an active member. If member is not active, only accumulated member contributions are payable at time of death.

7. Vested Retirement Allowance

Eligibility: Five years of eligibility service.

Allowance: Accrued retirement allowance payable at age 60, provided member does not withdraw accumulated member contributions.

EMPLOYEES' RETIREMENT SYSTEM OF THE STATE OF MARYLAND

8. Cost-of-Living Adjustments (COLA)

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

- Plan A: Unlimited and compounded.
- Plan B: Capped at 5% and compounded.
- Plan C: Combination of COLA for either Plan A or Plan B - (depending on member selection prior to electing Plan C) - for benefit calculated under the Employees' Retirement System, plus capped at 3% compounded COLA on benefit calculated under the Employees' Non-Contributory Pension System.

In years in which COLAs would be less than zero due to a decline in the Consumer Price Index, 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.

9. Optional Forms of Payment

Normal service allowance is a single life annuity.

Option 1: Cash refund equal to excess of present value of retirement allowance at date of retirement over total amount of payments made to date of death.

Option 2: 100% joint and survivor annuity. Your named beneficiary cannot be more than 10 years younger than you unless the beneficiary is your spouse or disabled child.

Option 3: 50% joint and survivor annuity.

Option 4: This option guarantees a return of accumulated member contributions remaining at date of death.

Option 5: 100% "pop-up" joint and survivor annuity with adjustment to maximum benefit if beneficiary predeceases retiree. Your named beneficiary cannot be more than 10 years younger than you unless the beneficiary is your spouse or disabled child.

Option 6: 50% "pop-up" joint and survivor annuity with adjustment to maximum benefit if beneficiary predeceases retiree.

Retirees who are to receive a service retirement, early service retirement, disability benefit, or 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.

For Option 5 and 6 – If the designated beneficiary predeceases the retiree, a new beneficiary may be named. However, the retirement allowance will be re-calculated.

EMPLOYEES' RETIREMENT SYSTEM OF THE STATE OF MARYLAND

10. Reduction for Benefits Payable Under Workers' Compensation

Disability retirement allowances, excluding annuity reserves and COLA, are reduced for workers' compensation benefits 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 for the same period of time for which the retirement benefits are paid.

11. Miscellaneous Provisions

For Members of the General Assembly

For individuals who are members of the Legislative Pension Plan on or before December 31, 2014, the retirement allowance is equal to 3.00% of current legislative salary for each year of creditable service (maximum 22 years, 3 months) upon attainment of age 60 and at least eight years of creditable service. Reduced benefits are payable upon attainment of age 50 and completion of 8 years of creditable service. The benefit is reduced by .005 for each month between ages 50 and 60 that the early retirement date precedes age 60.

An individual who is a member of the Legislative Pension Plan on or before December 31, 2014, with eight years of creditable service who has not attained age 60 may leave contributions in the system and receive a retirement allowance at age 60, or a reduced benefit on or after age 50. If termination occurs before the completion of eight years of creditable service, the member may make contributions equal to the member's and the State's required contributions until the member would have completed eight years of eligibility service, (and receive 24% of creditable compensation at age 60 or a reduced benefit on or after age 50).

For individuals who join the Legislative Pension Plan on or after January 1, 2015, the retirement allowance is equal to 3.00% of current legislative salary for each year of creditable service (maximum 22 years, 3 months) upon attainment of age 62 and at least eight years of creditable service. Reduced benefits are payable upon attainment of age 55 and completion of 8 years of creditable service. The benefit is reduced by .005 for each month between ages 55 and 62 that the early retirement date precedes age 62.

An individual who joins the Legislative Pension Plan on or after January 1, 2015, accrues eight years of creditable service, and who has not attained age 62 may leave contributions in the system and receive a retirement allowance at age 62, or a reduced benefit on or after age 55. If termination occurs before the completion of eight years of creditable service, the member may make contributions equal to the member's and the State's required contributions until the member would have completed eight years of eligibility service, (and receive 24% of creditable compensation at age 62 or a reduced benefit on or after age 55).

A member who is certified as disabled by the Medical Board and approved by the Board of Trustees for a disability retirement benefit after attaining at least 8 years of creditable service may resign from the General Assembly and immediately receive a retirement allowance based on their creditable service.

EMPLOYEES' RETIREMENT SYSTEM OF THE STATE OF MARYLAND

The **member's surviving spouse receives 50% of the member's retirement allowance** if the member i) is retired, ii) is eligible for a deferred vested benefit, or iii) is active and has eight years of creditable service. The surviving spouse of a member who had accrued less than eight years of creditable service and dies in office shall receive a lump sum death benefit of accumulated contributions plus an amount equal to the deceased's annual earnable compensation at the time of death.

Members contribute 5% (7% beginning January 1, 2015) of their earnable compensation during their first 22 years, 3 months of service with contributions earning interest at 4% per year.

All retirement allowances are recalculated each time the salaries for current members of the General Assembly are increased.

For Correctional Officers

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, a Correctional Dietary, Maintenance or Supply Officer, Maryland Correctional Enterprise Officers and Trainees, Plant Supervisors, Plant Managers, and Regional Managers and Laundry Officers participate under this System. Effective July 1, 2006, Maryland counties may elect to participate on behalf of their detention center officers. Additionally, beginning July 1, 2016, individuals serving as correctional case management specialists will participate in this System.

The retirement allowance for an individual who is a correctional officer on or before June 30, 2011, is 1/55th of average final compensation for the three highest years as a member for each year of creditable service. The retirement allowance for an individual who is a correctional officer on or after July 1, 2011, is 1/55th of average final compensation for the five highest years as a member for each year of creditable service.

An immediate service retirement allowance is payable to a correctional officer if, on or before the retirement, the officer has completed 20 years of eligibility service. For individuals who are members of this System on June 30, 2011, the vested retirement allowance of a member who has accrued at least 5 years of eligibility service commences at age 55. For individuals who become members on or after July 1, 2011, the vested retirement allowance for a member who has accrued at least 10 years of eligibility service commences at age 55.

For benefits attributable to service on or after July 1, 2011, the cost-of-living adjustment for Correctional Officers is capped at the lesser of 2.5% or the increase in CPI if the most recent calendar year market value rate of return was greater than or equal to the assumed rate of investment return from the most recent actuarial valuation. The adjustment is capped at the lesser of 1% or the increase in CPI if the most recent calendar year market value rate of return was less than the assumed rate of investment return from the most recent actuarial valuation.

EMPLOYEES' RETIREMENT SYSTEM OF THE STATE OF MARYLAND

12. Changes in Benefits for Employees' Retirement System and Correctional Officers

Beginning July 1, 2016, individuals serving as correctional case management specialists will participate in the Correctional Officers' Retirement System. In addition, normal retirement age was reduced from age 60 to age 55 for maximum security attendants at Clifton T. Perkins Hospital Center.

EMPLOYEES' PENSION SYSTEM OF THE STATE OF MARYLAND

1. Membership

Membership is 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, 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 or the Alternate Contributory Pension Selection.
- 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.
- 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 participating in the NCPS or ECPS who in enroll in the Employees' Pension System on or after July 1, 2011.

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.

3. Service Retirement Allowance

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

- Age 62 with 5 years of eligibility service
- Age 63 with 4 years of eligibility service

EMPLOYEES' PENSION SYSTEM OF THE STATE OF MARYLAND

Age 64 with 3 years of eligibility service

Age 65 or older with 2 years of eligibility service

NCPS Allowance:

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;

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 an employee 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 an employee 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 an employee 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 an employee for each year of creditable service after June 30, 1998.

The Social Security Integration Level (SSIL) is the average of all Social Security Wage Bases over the thirty –five (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. The COLAs are capped at a maximum of 3% compounded annually.

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 an employee for each year of creditable service on or after July 1, 2011.

EMPLOYEES' PENSION SYSTEM OF THE STATE OF MARYLAND

4. Early Retirement Allowance

NCPS, ECPS, and ACPS Eligibility: Attainment of 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 .005 for each month that early retirement date precedes age 62 (maximum reduction is 42%).

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

RCPB Allowance: Service retirement allowance computed as of early retirement date, reduced by .005 for each month that early retirement date precedes age 65 (maximum reduction is 30%).

5. 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 the service retirement allowance computed on the basis that service continues until age 62 without any change in the rate of earnable compensation. If disability occurs on or after age 62, 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.

Allowance: The benefit is 66 2/3% of average final compensation for the three highest consecutive years as a member, plus the annuity provided by accumulated member contributions. The maximum benefit cannot be greater than the average final compensation.

6. Death Benefits

Eligibility: One year of eligibility service.

Benefit: One time lump sum payment of member's annual earnable compensation at time of death plus accumulated member contributions. If member dies prior to accruing one year of service, payment is only the return of accumulated member contributions.

EMPLOYEES' PENSION SYSTEM OF THE STATE OF MARYLAND

Spouse Law

Eligibility: Surviving spouse designated as the sole primary beneficiary and the deceased member was eligible to retire or had at least 25 years of eligibility service, or was at least 55 years old with at least 15 years of eligibility service.

Benefit: Surviving spouse may elect one time lump sum payment of member's annual earnable compensation at time of death plus accumulated member contributions or a monthly allowance under Option 2 (100% survivor benefit).

Special Death Benefit

Eligibility: Killed in line of duty.

Benefit: 66 2/3% of average final compensation for the three highest consecutive years as a member payable to a surviving spouse, dependent children or dependent parents. Accumulated member contributions are paid to the designated beneficiary(ies).

Note: Death benefits outlined above are payable upon death of an active member. If member is not active, only accumulated member contributions are payable at time of death.

7. Vested Retirement Allowance

NCPS, ECPS, and ACPS Eligibility: Five years of eligibility service.

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 .005 for each month that benefit commencement date precedes age 62.

If member does not commence to receive benefit payments, and dies before attaining age 62, only accumulated member contributions are returned.

RCPB Eligibility: Ten years of eligibility service.

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 .005 for each month that benefit commencement date precedes age 65.

If member does not commence to receive benefit payments, and dies before attaining age 65, only accumulated member contributions are returned.

EMPLOYEES' PENSION SYSTEM OF THE STATE OF MARYLAND

8. Cost-of-Living Adjustments (COLA)

Retirement allowances may be adjusted each year based on the Consumer Price Index (CPI). Effective July 1, 1998, the adjustment is capped at a maximum of 3% compounded COLA, and is applied to all benefits which have been in payment for one year. All adjustments are effective July 1.

Retirement allowances of NCPS retirees (retirees of participating employers who did not elect the ECPS or ACPS) have a COLA that is capped at a maximum of 3% of the initial benefit. The COLA is applied to all benefits which have been in payment for one year. All adjustments are effective July 1.

For benefits attributable to service on or after July 1, 2011, the Cost-of-living adjustment is capped at the lesser of 2.5% or the increase in CPI if the most recent calendar year market value rate of return was greater than or equal to the assumed rate of investment return from the most recent actuarial valuation. The adjustment is capped at the lesser of 1% or the increase in CPI if the most recent calendar year market value rate of return was less than the assumed rate of investment return from the most recent actuarial valuation.

9. Optional Forms of Payment

Normal service allowance is in a single life annuity.

- Option 1: Cash refund equal to excess of present value of retirement allowance at date of retirement over total amount of payments made to date of death.
- Option 2: 100% joint and survivor annuity. Your named beneficiary cannot be more than 10 years younger than you unless the beneficiary is your spouse or disabled child.
- Option 3: 50% joint and survivor annuity.
- Option 4: This option guarantees a return of accumulated member contributions remaining at date of death.
- Option 5: 100% “pop-up” joint and survivor annuity with adjustment to maximum benefit if beneficiary predeceases retiree. Your named beneficiary cannot be more than 10 years younger than you unless the beneficiary is your spouse or disabled child.
- Option 6: 50% “pop-up” joint and survivor annuity with adjustment to maximum benefit if beneficiary predeceases retiree.

For Option 5 and 6 – If the designated beneficiary predeceases the retiree, a new beneficiary may be named. However, the retirement allowance will be re-calculated.

EMPLOYEES' PENSION SYSTEM OF THE STATE OF MARYLAND

Retirees who are to receive a service retirement, early service retirement, disability benefit, or 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.

10. Reduction for Benefits Payable Under Workers' Compensation

Disability retirement allowances, excluding annuity reserves and COLA, are reduced for workers' compensation benefits 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 for the same period of time for which the retirement benefits are paid.

11. Change in Benefits

None.

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. The Superintendent of the Maryland State Police may elect membership in this System or the Employees' Pension System.

2. Member Contributions

Members are required to contribute 8% of earnable compensation.

Contributions earn interest at 4% per year.

3. 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 Superintendent.

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 each of the first 28 years of creditable service. 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 for each of the first 29 years of creditable service. Maximum benefit is 71.4% of average final compensation.

4. Early Retirement Allowance

Not applicable to this System.

5. 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: 2.55% of average final compensation for the three highest years as a member for each of the first 28 years of creditable service. Minimum payable is 35% of average final compensation.

Special (Accidental)

Eligibility: Total and permanent disability as certified by the medical board arising out of or in the course of the actual performance of duty.

STATE POLICE RETIREMENT SYSTEM OF THE STATE OF MARYLAND

Allowance: The benefit is 66 2/3% of average final compensation plus the annuity provided by accumulated member contributions with a maximum of average final compensation.

6. Death Benefits

Normal

Eligibility: 1 through 2 years of eligibility service and not eligible for special death benefit as noted below.

Benefit: One time lump sum payment of member's annual earnable compensation at time of death plus accumulated member contributions. If member dies prior to accruing one year of service, payment is only the return of accumulated member contributions.

Special Death Benefit

Eligibility: Two or more years of eligibility service or death in the performance of duty.

Benefit: Accumulated member contributions paid to designated beneficiary plus an allowance of one-half (two-thirds if death arises out of or in the course of the actual performance of duty) of the member's average final compensation. Payment is made to the surviving spouse; however, if there is no surviving spouse or spouse dies before youngest child reaches age 18, one-half of average final compensation continues until the youngest child reaches age 18. If there is no surviving spouse or children under the age of 18, payment is made to dependent parents. If none of the above conditions are met, the normal death benefit is paid to the designated beneficiary (ies).

Note: Death benefits outlined above are payable upon death of an active member. If member is not active, only accumulated member contributions are payable at time of death, unless benefit payment has commenced.

7. Vested Retirement Allowance

Eligibility: For individuals who are members on or before June 30, 2011, 5 years of eligibility service. For individuals who become member on or after July 1, 2011, 10 years of eligibility service

Allowance: Service retirement allowance payable at age 50.

8. Cost-of-Living Adjustments (COLA)

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

STATE POLICE RETIREMENT SYSTEM OF THE STATE OF MARYLAND

For benefits attributable to service on or after July 1, 2011, the Cost-of-living adjustment is capped at the lesser of 2.5% or the increase in CPI if the most recent calendar year market value rate of return was greater than or equal to the assumed rate of investment return from the most recent actuarial valuation. The adjustment is capped at the lesser of 1% or the increase in CPI if the most recent calendar year market value rate of return was less than the assumed rate of investment return from the most recent actuarial valuation.

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 may receive separate COLAs on this adjustment commencing effective July 1, 2000.

9. Optional Forms of Payment

Normal service allowance is 80% joint and survivor annuity with spouse, if any. If there is no surviving spouse or upon the death of the surviving spouse, payment is made to any children of the deceased retiree under the age of 18 years, until each child becomes age 18. If there is no spouse at time of retirement, member may select an optional allowance.

Option 1: Cash refund equal to excess of present value of retirement allowance at date of retirement over total amount of payments made to date of death.

Option 2: 100% joint and survivor annuity. Your named beneficiary cannot be more than 10 years younger than you unless the beneficiary is your spouse or disabled child.

Option 3: 50% joint and survivor annuity.

Option 4: This option guarantees a return of accumulated member contributions remaining at date of death.

Option 5: 100% “pop-up” joint and survivor annuity with adjustment to maximum benefit if beneficiary predeceases retiree. Your named beneficiary cannot be more than 10 years younger than you unless the beneficiary is your spouse or disabled child.

Option 6: 50% “pop-up” joint and survivor annuity with adjustment to maximum benefit if beneficiary predeceases retiree.

For Option 5 and 6 – If the designated beneficiary predeceases the retiree, a new beneficiary may be named. However, the retirement allowance will be re-calculated

STATE POLICE RETIREMENT SYSTEM OF THE STATE OF MARYLAND

10. Reduction for Benefits Payable Under Workers' Compensation

Disability retirement allowances, excluding annuity reserves and COLA, are reduced for workers' compensation benefits payable after retirement from injury occurring during employment if the workers' compensation benefits are for the same injury for which disability retirement was granted and are paid for the same period of time for which the retirement benefits are paid.

11. Deferred Retirement Option Program (DROP)

For members who are less than 60 years old and who enter DROP on or before June 30, 2011, DROP participation is the lesser of 4 years or the difference between 28 years and the member's creditable service. For members who are less than 60 years old and who enter DROP on or after July 1, 2011, DROP participation is the lesser of 4 years or the difference between 29 years and the member's creditable service. Members who enter DROP are retired and cease making member contributions, and cease accruing service credit and additional benefits. For members who enter 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.

12. Changes in Benefits

None.

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. Members of the State Workers' Compensation Commission also participate.

2. Member Contributions

Members are required to make contributions of 6% of salary until they have accrued 16 years of service credit. Beginning July 1, 2012, members are required to make contributions of 8% of salary until they have accrued 16 years of service credit.

Contributions earn interest at 4% per year.

3. Service Retirement Allowance

Eligibility: Attainment of age 60, or retired by order of the Court of Appeals.

Allowance: $66 \frac{2}{3}\%$ of current judicial salary for 16 years of service. With less than 16 years, the benefit is prorated based on the ratio of years of service to 16.

4. Early Retirement Allowance

Not applicable to this System.

5. 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 permanent.

Allowance: Same as service allowance payable immediately. However, if a judge has at least three years of service, the pension will not be less than $\frac{1}{3}$ of the judge's salary.

** This summary includes provisions of the contributory plan only, as all members currently belong to that plan.*

JUDGES RETIREMENT SYSTEM OF THE STATE OF MARYLAND

6. Death Benefits

Monthly Allowance

Eligibility: Death of a judge or former judge at any age, leaving a surviving spouse or dependent children under the age of 18.

Allowance: 50% of the pension that would have been payable to the judge or former judge at 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 paid to children until age 18.

Lump Sum

Eligibility: Termination of service by death of a judge leaving no spouse, or children under age 18.

Allowance: Annual salary at time of death plus return of accumulated member contributions paid to designated beneficiary.

7. Deferred Vested Allowance

Eligibility: For individuals who are members before July 1, 2012, termination of service prior to age 60. For individuals who join the Judges' Retirement System on or after July 1, 2012, five years of eligibility service. For individuals joining the Judges' Retirement System 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, eligibility service equal to 70 minus the member's age when the individuals first become members of the System.

Allowance: Same as service allowance payable at age 60.

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

8. Cost-of-Living Adjustments

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

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

JUDGES RETIREMENT SYSTEM OF THE STATE OF MARYLAND

9. Optional Forms of Payment

Normal service allowance is 50% joint and survivor annuity with spouse. However, a judge or former judge, who at the time of retirement, does not have a spouse or eligible minor children, may elect one of the following optional forms of payment:

Option 1: Cash refund equal to excess of present value of retirement allowance at date of retirement over total amount of payments made to date of death.

Option 2: 100% joint and survivor annuity. Your named beneficiary cannot be more than 10 years younger than you unless the beneficiary is your spouse or disabled child.

Option 3: 50% joint and survivor annuity.

Option 4: This option guarantees a return of accumulated member contributions remaining at date of death.

Option 5: 100% “pop-up” joint and survivor annuity with adjustment to maximum benefit if beneficiary predeceases retiree. Your named beneficiary cannot be more than 10 years younger than you unless the beneficiary is your spouse or disabled child.

Option 6: 50% “pop-up” joint and survivor annuity with adjustment to maximum benefit if beneficiary predeceases retiree.

For Option 5 and 6 – If the designated beneficiary predeceases the retiree, a new beneficiary may be named. However, the retirement allowance will be re-calculated

Special note: After retirement neither the option nor designation of beneficiary may be changed.

10. Change in Benefits

None.

**LAW ENFORCEMENT OFFICERS PENSION SYSTEM
OF THE STATE OF MARYLAND
(RETIREMENT PLAN)**

A. Retirement System Provisions

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.

Contributions earn interest at 4% per year.

3. 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.

4. Early Retirement Allowance

Not applicable to this System.

5. 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 permanent.

Allowance: Service retirement allowance with a minimum of 25% of average final compensation.

Accidental

Eligibility: Total and permanent disability as certified by the medical board arising out of or in the course of the actual performance of duty.

**LAW ENFORCEMENT OFFICERS PENSION SYSTEM
OF THE STATE OF MARYLAND
(RETIREMENT PLAN)**

Allowance: The benefit is 66 2/3% of average final compensation plus an annuity provided by accumulated contributions with a maximum of average final compensation.

6. Death Benefits

Ordinary

Eligibility: 1 through 2 years of eligibility service and not eligible for special death benefit.

Benefit: Member's annual earnable compensation at time of death plus accumulated contributions.

Regardless of length of service, members' accumulated contributions are paid.

Special Benefit

Eligibility: Two or more years of eligibility service.

Benefit: Accumulated contributions paid to designated beneficiary plus an allowance of 50% of the ordinary disability benefit. Payment is made to the surviving spouse; however if there is no surviving spouse or spouse dies before youngest child reaches age 26, one-half of average final compensation continues until the youngest child reaches age 26. If none of the above conditions are met, the ordinary death benefit is paid to the designated beneficiary(ies).

Eligibility: Death arises out of or in the course of the actual performance of duty.

Benefit: Accumulated contributions paid to designated beneficiary plus an allowance of 66 2/3% of the member's average final compensation. Payment is made to the surviving spouse; however if there is no surviving spouse or spouse dies before youngest child reaches age 26, one-half of average final compensation continues until the youngest child reaches age 26. If none of the above conditions are met, the ordinary death benefit is paid to the designated beneficiary(ies).

Note: Death benefits outlined above are payable upon death of an active member. If member is not active, only member accumulated contributions and interest are payable at time of death, unless benefit payment has commenced.

**LAW ENFORCEMENT OFFICERS PENSION SYSTEM
OF THE STATE OF MARYLAND
(RETIREMENT PLAN)**

7. Vested Retirement Allowance

Eligibility: Five years of eligibility service.

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

8. Cost-of-Living Adjustments (COLA)

Retirement allowances may be adjusted each year based on the Consumer Price Index (CPI). COLAs are effective July 1 and are applied to all benefits which have been in payment for one year. For members contributing 7% of earnable compensation, unlimited COLA is compounded annually. For members contributing 5% of earnable compensation, the cost-of-living adjustment 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.

9. Optional Forms of Payment

The normal service allowance is a 50% joint and survivor annuity with spouse, if any; or if there is no surviving spouse or upon the death of the surviving spouse, to any children of the deceased under the age of 18 years, until every child dies or becomes 18 years.

Other forms of payment may be elected if there is no spouse at time of retirement.

Option 1: Cash refund equal to excess of present value of retirement allowance at date of retirement over total amount of payments made to date of death.

Option 2: 100% joint and survivor annuity. Your named beneficiary cannot be more than 10 years younger than you unless the beneficiary is your spouse or disabled child.

Option 3: 50% joint and survivor annuity.

Option 4: This option guarantees a return of accumulated member contributions remaining at date of death.

Option 5: 100% "pop-up" joint and survivor annuity with adjustment to maximum benefit if beneficiary predeceases retiree. Your named beneficiary cannot be more than 10 years younger than you unless the beneficiary is your spouse or disabled child.

**LAW ENFORCEMENT OFFICERS PENSION SYSTEM
OF THE STATE OF MARYLAND
(RETIREMENT PLAN)**

Option 6: 50% “pop-up” joint and survivor annuity with adjustment to maximum benefit if beneficiary predeceases retiree.

For Option 5 and 6 – If the designated beneficiary predeceases the retiree, a new beneficiary may be named. However, the retirement allowance will be re-calculated

10. Reduction for Benefits Payable under Workers’ Compensation

Disability retirement allowances, excluding the annuity reserves and COLA, are reduced for workers’ compensation benefits payable after retirement from injury occurring during employment with the State, if the workers’ compensation benefits are for the same injury for which disability retirement was granted and are paid for the same period of time for which the retirement benefits are paid.

11. Deferred Retirement Option Program (DROP)

Members with 25 years of eligibility service, but less than 30 years of eligibility service, may elect to enter the DROP program for no more than five years. Members who enter DROP are retired and cease making member contributions, and cease accruing service credit and additional benefits. For members who enter 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 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.

12. Change in Benefit

The maximum age is increased from 18 years to 26 years at which minor children are no longer eligible to receive a special death benefit on behalf of a deceased parent.

LAW ENFORCEMENT OFFICERS PENSION SYSTEM OF THE STATE OF MARYLAND

B. Pension System Provisions

1. Membership

Membership is a condition of employment for all law enforcement officers who are employees of the State as provided in the Annotated Code of Maryland, State Personnel and Pensions Article, Title 26, Section 26-201. This includes participating governmental units who elect to have their law enforcement officers or firefighters/paramedics participate in the System.

2. Member Contributions

Beginning July 1, 2011, members are required to make contributions of 6% of earnable compensation. Beginning July 1, 2012, member contributions will increase to 7% of earnable compensation.

Contributions earn interest at 5% per year.

3. Service Retirement Allowance

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

Allowance: For individuals who are members on or before June 30, 2011, 2.0% of average final compensation for the three highest consecutive years as an employee for each of the first 30 years of creditable service. For individuals who are members on or after July 1, 2011, 2.0% of average compensation for the five highest consecutive years as an employee for each of the first 30 years of creditable service. Maximum benefit is 60% of average final compensation.

4. Early Retirement Allowance

Not applicable to this System.

5. 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 permanent.

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.

LAW ENFORCEMENT OFFICERS PENSION SYSTEM OF THE STATE OF MARYLAND

Accidental

Eligibility: Total and permanent disability as certified by the medical board arising out of or in the course of the actual performance of duty.

Allowance: The benefit is 66 2/3% of average final compensation plus an annuity provided by accumulated member contributions with a maximum of average final compensation.

6. Death Benefits

Normal

Eligibility: 1 through 2 years of eligibility service and not eligible for special death benefit as noted below.

Benefit: One time lump sum payment of member's annual earnable compensation at time of death plus accumulated member contributions. If member dies prior to accruing one year of service, payment is only the return of accumulated member contributions.

Special Death Benefit

Eligibility: Two or more years of eligibility service.

Benefit: Accumulated member contributions paid to designated beneficiary plus an allowance of 50% of the ordinary disability benefit. Payment is made to the surviving spouse; however if there is no surviving spouse or spouse dies before youngest child reaches age 26, one-half of average final compensation continues until the youngest child reaches age 26. If none of the above conditions are met, the ordinary death benefit is paid to the designated beneficiary(ies).

Eligibility: Death arises out of or in the course of the actual performance of duty.

Benefit: Accumulated member contributions paid to designated beneficiary plus an allowance of 66 2/3% of the member's average final compensation. Payment is made to the surviving spouse; however if there is no surviving spouse or spouse dies before youngest child reaches age 26, one-half of average final compensation continues until the youngest child reaches age 26. If none of the above conditions are met, the ordinary death benefit is paid to the designated beneficiary(ies).

Note: Death benefits outlined above are payable upon death of an active member. If member is not active, only accumulated member contributions are payable at time of death, unless benefit payment has commenced.

LAW ENFORCEMENT OFFICERS PENSION SYSTEM OF THE STATE OF MARYLAND

7. Vested Retirement Allowance

Eligibility: For individuals who are members on or before June 30, 2011, 5 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 their accumulated member contributions.

8. Cost-of-Living Adjustments (COLA)

Retirement allowances may be adjusted each year based on the Consumer Price Index (CPI). Effective July 1, 2000, the adjustment is capped at a maximum 3% compounded and is applied to all benefits which have been in payment for one year. All adjustments are effective July 1.

For benefits attributable to service on or after July 1, 2011, the Cost-of-living adjustment is capped at the lesser of 2.5% or the increase in CPI if the most recent calendar year market value rate of return was greater than or equal to the assumed rate of investment return from the most recent actuarial valuation. The adjustment is capped at the lesser of 1% or the increase in CPI if the most recent calendar year market value rate of return was less than the assumed rate of investment return from the most recent actuarial valuation.

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.

9. Optional Forms of Payment

The normal service allowance is a 50% joint and survivor annuity with spouse, if any; or if there is no surviving spouse or upon the death of the surviving spouse, to any children of the deceased under the age of 18 years, until every child attains 18 years of age.

Other forms of payment may be elected if there is no spouse at time of retirement.

Option 1: Cash refund equal to excess of present value of retirement allowance at date of retirement over total amount of payments made to date of death.

Option 2: 100% joint and survivor annuity. Your named beneficiary cannot be more than 10 years younger than you unless the beneficiary is your spouse or disabled child.

Option 3: 50% joint and survivor annuity.

Option 4: This option guarantees a return of accumulated member contributions remaining at date of death.

LAW ENFORCEMENT OFFICERS PENSION SYSTEM OF THE STATE OF MARYLAND

Option 5: 100% “pop-up” joint and survivor annuity with adjustment to maximum benefit if beneficiary predeceases retiree. Your named beneficiary cannot be more than 10 years younger than you unless the beneficiary is your spouse or disabled child.

Option 6: 50% “pop-up” joint and survivor annuity with adjustment to maximum benefit if beneficiary predeceases retiree.

For Option 5 and 6 – If the designated beneficiary predeceases the retiree, a new beneficiary may be named. However, the retirement allowance will be re-calculated.

10. Reduction for Benefits Payable under Workers’ Compensation

Disability retirement allowances, excluding the annuity reserves and COLA, are reduced for workers’ compensation benefits payable after retirement from injury occurring during employment with the State if the workers’ compensation benefits are for the same injury for which disability retirement was granted and are paid for the same period of time for which the retirement benefits are paid.

11. Deferred Retirement Option Plan (DROP)

DROP participation is the lesser of 5 years or the difference between 30 years and the member’s creditable service. Members who enter DROP are retired and cease making member contributions, and cease accruing service credit and additional benefits. For members who enter 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.

12. Changes in Benefits

The maximum age is increased from 18 years to 26 years at which minor children are no longer eligible to receive a special death benefit on behalf of a deceased parent.