

**MARYLAND STATE RETIREMENT AND PENSION SYSTEM**  
**ACTUARIAL VALUATION REPORT**  
**AS OF JUNE 30, 2015**

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November 6, 2015

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, 2015 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.

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 for fiscal year 2015 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 otherwise 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, 2015 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 benefit provisions valued in the actuarial valuation as of June 30, 2015 are the same as the provisions from the last actuarial valuation as of June 30, 2014. 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.

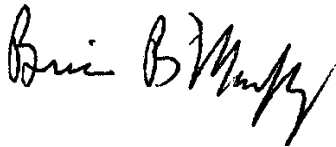
The signing actuaries are independent of the plan sponsor.

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 September 15, 2015, and the PowerPoint presentation presented to the Board on October 20, 2015, the subsequent PowerPoint presentation to the Board and the PowerPoint presentation presented to the Joint Committee on Pensions on November 4, 2015 at separate meetings.

Board of Trustees  
Maryland State Retirement and Pension System  
November 6, 2015  
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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,



Brian B. Murphy, FSA, MAAA



Brad L. Armstrong, ASA, MAAA



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**SECTION I**  
BOARD SUMMARY

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## INTRODUCTION

The funding valuation report presents the results of the June 30, 2015 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, 2015 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, 2015 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's financial report.

A summary of the primary accounting valuation results as of June 30, 2015 is presented in a separate report.

**SUMMARY OF VALUATION RESULTS**  
**JUNE 30, 2015**  
**(\$ IN MILLIONS)**  
**(STATE AND MUNICIPAL)**

	2015						2014		% Change
	TCS	ECS	State Police	Judges	LEOPS	CORS <sup>1</sup>	Total	Total	
<b>A. Demographic Information</b>									
1. Active Number Counts	105,526	83,794	1,394	307	2,488	91	193,600	193,522	0.0%
2. Active Payroll	\$ 6,471	\$ 4,301	\$ 91	\$ 45	\$ 152	\$ 5	\$ 11,064	\$ 10,804	2.4%
3. Retired Number Counts	71,176	72,031	2,508	397	1,711	27	147,850	142,887	3.5%
4. Annual Benefits for Retired Members <sup>2</sup>	\$ 1,942	\$ 1,177	\$ 116	\$ 30	\$ 58	\$ 1	\$ 3,323	\$ 3,148	5.6%
5. Deferred / Inactive Number Counts	24,541	27,846	81	8	293	0	52,769	52,133	1.2%
6. Total Number Counts	201,243	183,671	3,983	712	4,492	118	394,219	388,542	1.5%
<b>B. Assets</b>									
1. Market Value (MV)	\$ 27,764	\$ 15,490	\$ 1,303	\$ 413	\$ 800	\$ 20	\$ 45,790	\$ 45,340	1.0%
2. Rate of Return on MV <sup>3</sup>							2.66 %	14.27 %	
3. Funding Value (FV)	\$ 27,995	\$ 15,615	\$ 1,314	\$ 417	\$ 808	\$ 21	\$ 46,171	\$ 42,997	7.4%
4. Rate of Return on FV							9.20 %	11.22 %	
5. Ratio of FV to MV							100.8%	94.8%	
<b>C. Actuarial Results</b>									
1. Normal Cost as a % of Payroll	11.55%	10.35%	32.42%	38.68%	21.74%	13.93%	11.51%	11.97%	
2. Actuarial Accrued Liability (AAL)									
a. Active	\$ 15,791	\$ 9,176	\$ 389	\$ 173	\$ 421	\$ 10	\$ 25,960	\$ 24,931	4.1%
b. Retired	22,333	13,347	1,702	336	859	11	38,588	36,077	7.0%
c. Deferred/Inactive	811	880	12	3	28	0	1,733	1,602	8.2%
d. Total	\$ 38,934	\$ 23,403	\$ 2,103	\$ 511	\$ 1,309	\$ 21	\$ 66,282	\$ 62,610	5.9%
3. Unfunded AAL (UAAL)	\$ 10,939	\$ 7,788	\$ 789	\$ 95	\$ 500	\$ 1	\$ 20,111	\$ 19,613	2.5%
4. Funded Ratio	71.90 %	66.72 %	62.49 %	81.45 %	61.78 %	96.29 %	69.66 %	68.67 %	
<b>D. Contribution Rates<sup>4</sup></b>									
	<b>STATE PORTION ONLY</b>								
	<b>FY 2017</b>						<b>FY 2016<sup>5</sup></b>	<b>FY 2015<sup>6</sup></b>	
1. Pension Contributions									
a. Employer Normal Cost	4.56%	3.94%	24.42%	32.22%	15.07%	4.77%	5.25%	5.72%	
b. Member Contribution Rate	6.99%	6.73%	8.00%	6.46%	7.00%	6.74%	6.72%	6.70%	
c. UAAL Contribution Rate	<u>11.23%</u>	<u>14.34%</u>	<u>56.98%</u>	<u>14.34%</u>	<u>24.53%</u>	<u>12.81%</u>	<u>12.36%</u>	<u>13.19%</u>	
d. Total	22.78%	25.01%	89.40%	53.02%	46.60%	24.32%	24.33%	25.61%	
2. Total Actuarial Employer Rate (1.a + 1.c)	15.79%	18.28%	81.40%	46.56%	39.60%	17.58%	17.61%	18.91%	
3. Total Employer Budgeted Rate									
a. Employer Budgeted Rate	15.79%	18.28%	81.40%	46.56%	39.60%	17.58%	16.83%	16.41%	
b. Reinvested Savings Rate	<u>0.76%</u>	<u>0.65%</u>	<u>1.10%</u>	<u>0.00%</u>	<u>1.12%</u>	<u>0.74%</u>	<u>0.75%</u>	<u>1.03%</u>	
c. Total Employer Budgeted Rate	16.55%	18.93%	82.50%	46.56%	40.72%	18.32%	17.58%	17.44%	

<sup>1</sup>Includes CORS Municipal only. State CORS included in ECS.

<sup>2</sup>Retiree benefit amounts include the cost-of-living-adjustment granted July 1, 2015 and July 1, 2014, respectively.

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

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

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

<sup>6</sup>Reflects the reduction of reinvested savings from \$300 million to \$100 million passed by the General Assembly.

Totals may not add due to rounding.



## ACTUARY'S COMMENTS

The System's assets earned **2.66%**<sup>1</sup> for the year ended June 30, 2015, which is less than the 7.65% assumed rate of investment return. Recognized asset gains from fiscal years 2011, 2013 and 2014 offset recognized asset losses from fiscal years 2012 and 2015 in the actuarial value of assets as of June 30, 2015. This resulted in a gain 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, 2014	\$ 18,750	\$ 863	\$ 19,613
Expected UAAL as of June 30, 2015 before changes	18,923	855	19,778
Changes in benefit provisions	-	-	-
Changes in methods and assumptions	1,392	85	1,477
Expected UAAL as of June 30, 2015 after changes	20,315	940	21,255
Actual UAAL as of June 30, 2015	19,260	851	20,111
Net actuarial gain/(loss)	1,055	89	1,144
Actuarial gain/(loss) by source			
Actuarial investment experience	605	55	660
Actuarial accrued liability experience	450	34	484

In relative terms, the overall System funded ratio of actuarial value of assets to liabilities increased from 68.67% in 2014 to **69.66%** this year. If market value of assets were the basis for the measurements, the funded ratio would have decreased from 72.42% to 69.08% funded.

The market value of assets exceeds the retiree liabilities by about 19% in total, a decrease from 26% 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)	\$ 27,764	\$ 15,490	\$ 1,303	\$ 413	\$ 800	\$ 20	\$ 45,790
Retiree Liability	22,333	13,347	1,702	336	859	11	38,588
MVA as % of Retiree Liability	124%	116%	77%	123%	93%	178%	119%

<sup>1</sup>Actuarial estimation method shown is expected to differ modestly from figures reported by State Street.

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 (23 years remaining as of the June 30, 2015 valuation, which determines the fiscal year 2017 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 current unfunded liability as a level percentage of pay over a single 25-year closed period as of June 30, 2013 (23 years remaining as of June 30, 2015).

The fiscal year 2017 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 2017.

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 23 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 7.65% during FY 2015, 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 (7.65% for FY 2015 and 7.55% for FY 2016). 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 plan year ending June 30, 2015, the System's assets earned **2.66%**<sup>1</sup> on a market value basis and **9.20%** on a smoothed or actuarial basis. The System experienced an investment loss of **\$2,243** million on a market value basis and a gain of **\$660** million on an actuarial basis. A reconciliation of market value and actuarial value of assets are presented below.

#### (STATE AND MUNICIPAL) (\$ in Millions)

	<b>Market Value</b>	<b>Actuarial Value</b>
June 30, 2014 Value	\$ 45,340	\$ 42,997
Employer Contributions	1,859	1,859
Member Contributions	755	755
Benefit Payments and Other Disbursements	(3,362)	(3,362)
Expected Investment Earnings (7.65% in FY2015)	3,440	3,261
Expected Value June 30, 2015	\$ 48,033	\$ 45,510
<b>Investment Gain/(Loss)</b>	<b>(2,243)</b>	<b>660</b>
June 30, 2015 Value	\$ 45,790	\$ 46,171

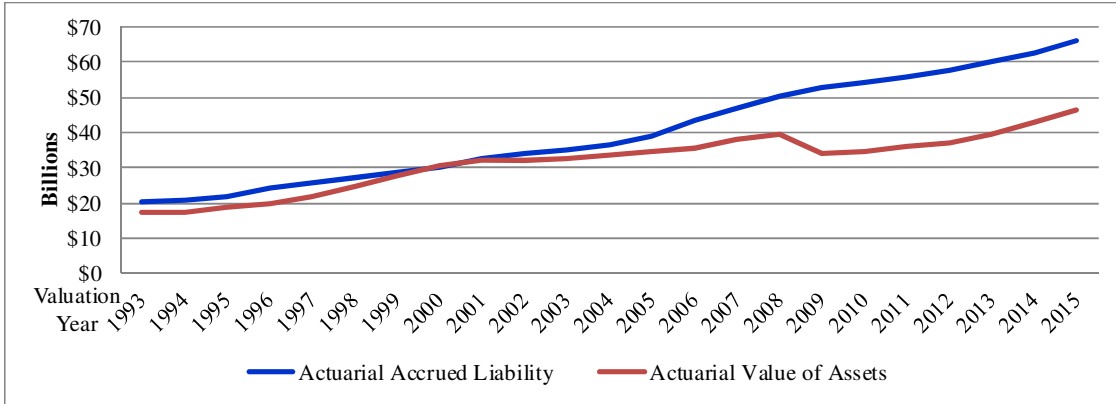
Figures may not add exactly due to rounding

<sup>1</sup> Actuarial estimation method shown is expected to differ modestly from figures reported by State Street.

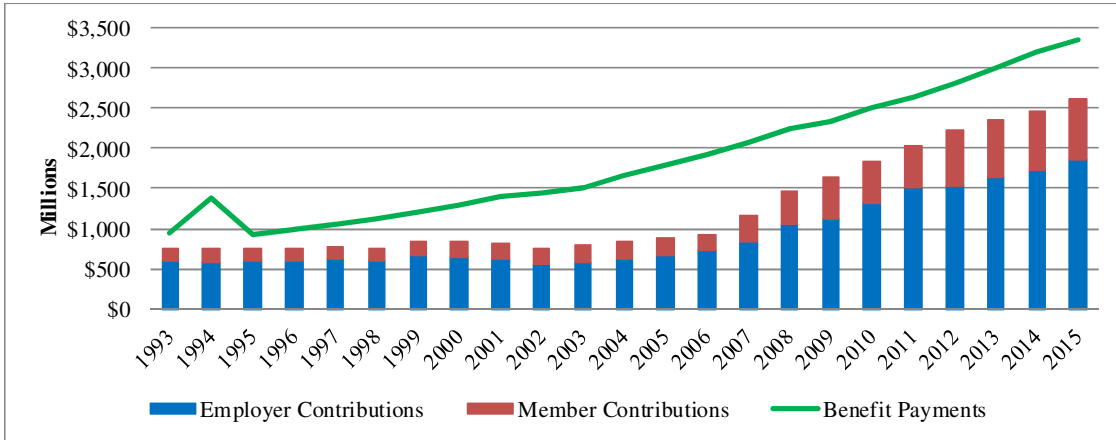
## TRENDS (STATE AND MUNICIPAL)

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 2015, 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.

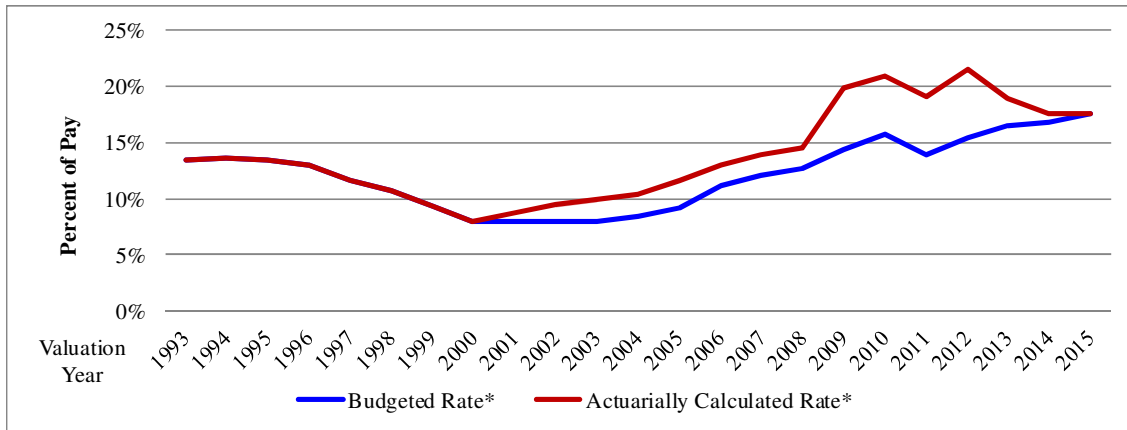
**Chart A: Assets/Liabilities**



**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, 2015, and increased by about \$500 million since the last valuation as of June 30, 2014. As of June 30, 2015, the actuarial value of assets under the 5-year asset smoothing method is 101% of the market value of assets, compared with 95% as of June 30, 2014.

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 will equal 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 2015.

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**SECTION II**  
VALUATION RESULTS

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## STATE SYSTEMS (EXCLUDES MUNICIPALITIES) VALUATION RESULTS

The combined State System's (excluding PGU's) unfunded actuarial accrued liability increased by \$510 million, from \$18,750 million as of June 30, 2014, to \$19,260 million as of June 30, 2015. There was an expected increase in the unfunded actuarial accrued liability of \$173 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 2014 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 an additional increase of \$1,392 million from assumption changes.

There was a decrease in the unfunded actuarial accrued liability of \$1,055 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 \$1,055 million is comprised of demographic gains on the liabilities of \$450 million and an asset gain (on the actuarial value of assets) of \$605 million.

The combined State System's market value of assets earned 2.66%<sup>1</sup> for the year ended June 30, 2015, which is less than the 7.65% assumed rate of investment return. The actuarial, or smoothed, rate of return measured from this past year was 9.21%, which exceeded the assumed rate of return on the actuarial value of assets, producing an asset gain. Partial recognition of asset gains from FY 2011, 2013 and 2014 compared to the actuarial assumption of 7.65%, were recognized in the actuarial value of assets as of June 30, 2015, under the asset smoothing method, resulting in an overall asset gain of \$605 million.

There were liability gains due to lower retiree COLA increases on average than assumed. COLA increases of 1.62% 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 2.65%, 2.88% and 2.90%, respectively. TCS, ECS, and State Police experienced gains, and Judges and LEOPS experienced losses, due to actual increases in salaries compared to the actuarial assumptions.

<sup>1</sup> *The actuarially computed rate of return, excluding municipalities.*

The combined State System funded ratio increased from 67.7% at June 30, 2014 to 68.6% at June 30, 2015.

The actuarially determined contribution rates decreased for each System from those calculated in the June 30, 2014 valuation to those calculated in the June 30, 2015 valuation, which determines the FY2016 and FY2017 contributions, respectively.

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

**(STATE ONLY)**

	<b>Teachers' Combined System</b>	<b>Employees' Combined System</b>	<b>State Police</b>	<b>Judges</b>	<b>LEOPS</b>	<b>Total</b>
<b>Actuarially Determined Calculations</b>						
FY2016 Contribution Rate	16.15%	17.89%	78.91%	40.70%	39.77%	17.61%
Change due to Investment Return	-0.41%	-0.35%	-1.15%	-0.76%	-0.45%	-0.40%
Change due to Demographic Experience	-0.42%	-0.07%	-0.73%	0.28%	0.20%	-0.30%
Change due to Corridor	0.13%	0.26%	0.00%	0.00%	0.00%	0.17%
Change due to Other	-0.24%	-0.13%	-2.15%	0.11%	-0.75%	-0.20%
Change due to Assumption Changes	<u>0.58%</u>	<u>0.68%</u>	<u>6.52%</u>	<u>6.23%</u>	<u>0.83%</u>	<u>0.70%</u>
<b>FY2017 Contribution Rate</b>	<b>15.79%</b>	<b>18.28%</b>	<b>81.40%</b>	<b>46.56%</b>	<b>39.60%</b>	<b>17.58%</b>

There was a decrease in the contribution rates due to favorable investment return and demographic experience and the method changes for TCS and ECS. 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 2015 was less than the actuarially determined contribution. There was an increase in the contribution rate due to the assumption changes.

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 higher than expected under the actuarial assumptions (3.40% in FY2015) for State Police, Judges and LEOPS, while TCS and ECS experienced lower than expected payroll growth. Total payroll increased by 2.5% for TCS, 2.0% for ECS, 6.3% for State Police, 5.4% for Judges, and 6.0% for LEOPS. Total payroll growth that was higher than assumed put downward pressure on the contribution rates because the unfunded liability contribution is spread over a larger payroll base.

Funded ratios are expected to progress toward 100% at a slightly lower rate as the deferred investment losses from FY2012 and FY2015 are recognized in the actuarial value of assets.

**DERIVATION OF EXPERIENCE GAIN/(LOSS)**  
**YEAR ENDED JUNE 30, 2015**  
**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.

	<b>Fiscal Year Ended June 30,</b>	
	<b>2015</b>	<b>2014</b>
(1) UAAL* at start of year	\$18,750	\$19,716
(2) Normal cost from last valuation	1,211	1,226
(3) Actual contributions	2,427	2,258
(4) Interest accrual: $[(1) \times .0765 + \{(2)-(3)\} \times \{[1.0765^{.5}]-1\}]$	1,389	1,479
(5) Expected UAAL before changes: (1) + (2) - (3) + (4)	18,923	20,163
(6) Change in benefit provisions	0	0
(7) Changes in methods and assumptions	1,392	298
(8) Expected UAAL after changes: (5) + (6) + (7)	20,315	20,461
(9) Actual UAAL at end of year	19,260	18,750
(10) Gain/(loss): (8) - (9)	\$1,055	\$1,711
(10a) Portion of gain/(loss) due to Assets	605	1,259
(10b) Portion of gain/(loss) due to Liabilities	450	452
(10c) Actuarial accrued liabilities at beginning of year	58,027	55,707
(11) Gain/(loss) as a percent of beginning accrued liabilities	1.8%	3.1%

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

**SUMMARY OF VALUATION RESULTS BY SYSTEM  
AS OF JUNE 30, 2015  
(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	\$ 15,790,630,278	\$ 7,234,469,191	\$ 389,214,817	\$ 172,643,880	\$ 271,660,147	\$ 23,858,618,313	
Actuarial Liability - Retirees, Term. Vested, & Inactives	<u>23,143,828,858</u>	<u>11,672,885,896</u>	<u>1,713,919,567</u>	<u>338,746,569</u>	<u>686,279,748</u>	<u>37,555,660,638</u>	
Total Actuarial Liability	\$ 38,934,459,136	\$ 18,907,355,087	\$ 2,103,134,384	\$ 511,390,449	\$ 957,939,895	\$ 61,414,278,951	
Actuarial Value of Assets	<u>27,995,476,456</u>	<u>11,839,795,052</u>	<u>1,314,315,006</u>	<u>416,546,609</u>	<u>588,298,704</u>	<u>42,154,431,827</u>	
Unfunded Actuarial Accrued Liability (UAAL)	10,938,982,680	7,067,560,035	788,819,378	94,843,840	369,641,191	19,259,847,124	
Funded Ratio	71.90%	62.62%	62.49%	81.45%	61.41%	68.64%	
Active Member Payroll	\$ 6,470,706,276	\$ 3,241,038,249	\$ 91,049,875	\$ 44,612,624	\$ 98,620,247	\$ 9,946,027,271	
UAAL as a Percent-of-Payroll	169.1%	218.1%	866.4%	212.6%	374.8%	193.6%	
<i>Before Reinvested Savings</i>							
Employer Normal Cost Contribution	4.56%	3.94%	24.42%	32.22%	15.07%	4.77%	
UAAL Contribution	<u>11.23%</u>	<u>14.34%</u>	<u>56.98%</u>	<u>14.34%</u>	<u>24.53%</u>	<u>12.81%</u>	
Total Employer Contribution Without Reinvested Savings	15.79%	18.28%	81.40%	46.56%	39.60%	17.58%	
<i>After Reinvested Savings</i>							
Total Employer Contribution Without Reinvested Savings	15.79%	18.28%	81.40%	46.56%	39.60%	17.58%	
Reinvested Savings Rate	<u>0.76%</u>	<u>0.65%</u>	<u>1.10%</u>	<u>0.00%</u>	<u>1.12%</u>	<u>0.74%</u>	
Total Employer Contribution With Reinvested Savings	16.55%	18.93%	82.50%	46.56%	40.72%	18.32%	
<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		\$ 1,941,834,547			\$ 149,717,147	\$ 9,850,322	\$ 2,101,402,016
Actuarial Liability - Retirees, Term. Vested, & Inactives		<u>2,553,660,802</u>			<u>200,975,992</u>	<u>11,463,119</u>	<u>2,766,099,913</u>
Total Actuarial Liability		\$ 4,495,495,349			\$ 350,693,139	\$ 21,313,441	\$ 4,867,501,929
Actuarial Value of Assets		<u>3,775,531,516</u>			<u>220,137,251</u>	<u>20,523,472</u>	<u>4,016,192,239</u>
Unfunded Actuarial Accrued Liability (UAAL)		719,963,833			130,555,888	789,969	851,309,690
Funded Ratio		83.98%			62.77%	96.29%	82.51%
Active Member Payroll		\$ 1,059,709,482			\$ 53,334,820	\$ 4,890,091	\$ 1,117,934,393
UAAL as a Percent-of-Payroll		67.9%			244.8%	16.2%	76.2%
<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	\$ 15,790,630,278	\$ 9,176,303,738	\$ 389,214,817	\$ 172,643,880	\$ 421,377,294	\$ 9,850,322	\$ 25,960,020,329
Actuarial Liability - Retirees, Term. Vested, & Inactives	<u>23,143,828,858</u>	<u>14,226,546,698</u>	<u>1,713,919,567</u>	<u>338,746,569</u>	<u>887,255,740</u>	<u>11,463,119</u>	<u>40,321,760,551</u>
Total Actuarial Liability	\$ 38,934,459,136	\$ 23,402,850,436	\$ 2,103,134,384	\$ 511,390,449	\$ 1,308,633,034	\$ 21,313,441	\$ 66,281,780,880
Actuarial Value of Assets	<u>27,995,476,456</u>	<u>15,615,326,568</u>	<u>1,314,315,006</u>	<u>416,546,609</u>	<u>808,435,955</u>	<u>20,523,472</u>	<u>46,170,624,066</u>
Unfunded Actuarial Accrued Liability (UAAL)	10,938,982,680	7,787,523,868	788,819,378	94,843,840	500,197,079	789,969	20,111,156,814
Funded Ratio	71.90%	66.72%	62.49%	81.45%	61.78%	96.29%	69.66%
Active Member Payroll	\$ 6,470,706,276	\$ 4,300,747,731	\$ 91,049,875	\$ 44,612,624	\$ 151,955,067	\$ 4,890,091	\$ 11,063,961,664
UAAL as a Percent-of-Payroll	169.1%	181.1%	866.4%	212.6%	329.2%	16.2%	181.8%

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

## CALCULATION OF CONTRIBUTION RATE ATTRIBUTABLE TO REINVESTMENT AMOUNTS (STATE ONLY)

	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
<b>FY 2017 Contributions</b>						
Employer Normal Cost Contribution	4.56%	3.94%	24.42%	32.22%	15.07%	4.77%
UAAL Contribution	11.23%	14.34%	56.98%	14.34%	24.53%	12.81%
Total Actuarial Employer Contribution	15.79%	18.28%	81.40%	46.56%	39.60%	17.58%
Total Employer Contribution	15.79%	18.28%	81.40%	46.56%	39.60%	17.58%
Reinvested Saving Rate	0.76%	0.65%	1.10%	0.00%	1.12%	0.74%
Estimated Total Employer Contribution	16.55%	18.93%	82.50%	46.56%	40.72%	18.32%
Projected Payroll	\$ 6,677,768,877	\$ 3,397,846,084	\$ 95,455,048	\$ 46,771,071	\$ 103,391,689	\$ 10,321,232,769
Illustrated Contribution Dollars						
Local Employers' Portion	\$ 279,755,482					\$ 279,755,482
State Portion	774,664,224	\$ 621,126,264	\$ 77,700,409	\$ 21,776,611	\$ 40,943,109	1,536,210,617
Dollar Reinvested Savings	50,772,568	22,019,803	1,050,207	-	1,157,423	75,000,000
Total Illustrated Contribution Dollars	\$ 1,105,192,274	\$ 643,146,067	\$ 78,750,616	\$ 21,776,611	\$ 42,100,532	\$ 1,890,966,099

\*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)

		Corridor Rates						
		Teachers’ Combined	Employees’ Combined	State Police	Judges	LEOPS	Total State#	
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%	
	Corridor Percentage of Actuarially Determined Rate	100.00%	100.00%	NA	NA	NA	NA	
7/1/2014 Valuation Results (FY 2016)	Unfunded Actuarial Liability	\$ 10,815,009,988	\$ 6,783,056,945	\$ 724,813,949	\$ 70,375,354	\$ 356,781,699	\$ 18,750,037,935	
	Illustrated Contribution Dollars	\$ 1,075,818,964	\$ 569,297,552	\$ 72,120,966	\$ 18,107,275	\$ 40,057,002	\$ 1,775,401,758	
<i>After Reduction in Reinvested Savings</i>	Local Employers’ Portion	254,754,591	NA	NA	NA	NA	\$ 254,754,591	
	State Portion	\$ 821,064,373	\$ 569,297,552	\$ 72,120,966	\$ 18,107,275	\$ 40,057,002	\$ 1,520,647,167	
	Projected Payroll	\$ 6,524,802,009	\$ 3,341,134,000	\$ 90,065,592	\$ 44,489,618	\$ 97,811,362	\$ 10,098,302,581	
	Total Contributions as Percentage of Payroll*	16.49%	17.04%	80.08%	40.70%	40.95%	17.58%	
	Corridor Percentage of Actuarially Determined Rate	97.40%	91.86%	NA	NA	NA	NA	

\* The FY 2016 contribution rate would be 16.93% for Teachers, 18.55% for Employees, and 18.36% for the Total State if the corridor method were not in effect.  
 # 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 2017  
(STATE PORTION ONLY)**

Valuation Date June 30,	Fiscal Year	Teachers' Combined	Employees' Combined	State Police	Judges	LEOPS	Total State*
<b>2015</b>	<b>2017 @</b>	<b>16.55%</b>	<b>18.93%</b>	<b>82.50%</b>	<b>46.56%</b>	<b>40.72%</b>	<b>18.32%</b>
<b>2015</b>	<b>2017 #</b>	<b>15.79%</b>	<b>18.28%</b>	<b>81.40%</b>	<b>46.56%</b>	<b>39.60%</b>	<b>17.58%</b>
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
1998	2000	12.54	7.15	1.26	48.18	22.96	10.70
1997	1999	13.99	7.13	10.91	52.12	25.60	11.67

\* 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, 2015</u> <u>(for FY 2017)</u>	<u>June 30, 2014</u> <u>(for FY 2016)</u>	
<b>A. Demographic Information</b>			
1. Active Number Count	105,526	104,470	1.0%
2. Retired Member and Beneficiary Count	71,176	68,929	3.3%
3. Vested Former Member Count	24,541	24,220	1.3%
4. Total Number Count	201,243	197,619	1.8%
5. Active Payroll	\$ 6,470,706,276	\$ 6,310,253,394	2.5%
6. Annual Benefits for Retired Members <sup>#</sup>	\$ 1,941,845,919	\$ 1,850,897,041	4.9%
<b>B. Actuarial Results</b>			
1. Present Value of Projected Benefits Attributable to:			
a. Retired and Disabled Members, and Beneficiaries	\$ 22,332,585,293	\$ 21,097,666,150	5.9%
b. Terminated Vested Members	811,243,565	749,488,602	8.2%
c. Active Members	23,208,482,303	23,126,386,072	0.4%
d. Total Present Value	\$ 46,352,311,161	\$ 44,973,540,824	3.1%
2. Less Present Value Total Future Normal Costs	7,417,852,025	8,090,954,167	-8.3%
3. Actuarial Accrued Liability (1d - 2)	\$ 38,934,459,136	\$ 36,882,586,657	5.6%
4. Less Actuarial Value of Assets	27,995,476,456	26,067,576,669	7.4%
5. Unfunded Actuarial Accrued Liability (UAAL) (3 - 4)	\$ 10,938,982,680	\$ 10,815,009,988	1.1%
6. Funded Ratio	71.90%	70.68%	
7. Amortization Payments	\$ 748,387,228	\$ 714,900,534	4.7%
8. Employer Normal Cost	\$ 304,506,261	\$ 334,069,863	-8.8%
9. Total Projected Payroll	\$ 6,677,768,877	\$ 6,524,802,009	2.3%
10. Total Normal Cost Rate	11.55%	12.11%	
11. Employee Contribution Rate	6.99%	6.99%	
12. Employers' <sup>@</sup> Normal Cost Rate	4.56%	5.12%	
13. UAAL Amortization Rate <sup>*</sup>	11.23%	11.03%	
14. Total Actuarial Employer Contribution Rate	15.79%	16.15%	
<b>C. Corridor Results</b>			
15. Prior Year Corridor Rate	NA	15.47%	
16. 36% of Difference between Preliminary Funding Rate and Prior year Corridor Rate (14 - 15) x 36%	NA	0.24%	
17. Employer Corridor Contribution Rate	NA	15.71%	
18. Estimated Employer Rate after Reinvestment of Savings <sup>^</sup>	16.55%	16.49%	

<sup>#</sup> Retiree benefit amounts include the cost-of-living-adjustment granted July 1, 2015 and July 1, 2014, respectively.

<sup>@</sup> Employers include the State and local Boards of Education.

<sup>\*</sup> Includes the effects of the one year lag between the valuation date and the beginning of the contribution period.

<sup>^</sup> FY 2016 Employer Rate was 17.27% before the reduction of reinvested savings from \$150 million to \$75 million.



# DETAILED ACTUARIAL INFORMATION

## EMPLOYEES' COMBINED SYSTEM (STATE)

	<u>Actuarial Valuation Performed</u>		<u>% Change</u>
	<u>June 30, 2015</u> <u>(for FY 2017)</u>	<u>June 30, 2014</u> <u>(for FY 2016)</u>	
<b>A. Demographic Information</b>			
1. Active Number Count	59,261	60,151	-1.5%
2. Retired Member and Beneficiary Count	55,509	53,457	3.8%
3. Vested Former Member Count	21,100	20,914	0.9%
4. Total Number Count	<u>135,870</u>	<u>134,522</u>	1.0%
5. Active Payroll	\$ 3,241,038,249	\$ 3,177,701,403	2.0%
6. Annual Benefits for Retired Members <sup>#</sup>	\$ 958,387,380	\$ 895,790,605	7.0%
<b>B. Actuarial Results</b>			
1. Present Value of Projected Benefits Attributable to:			
a. Retired and Disabled Members, and Beneficiaries	\$ 10,963,936,988	\$ 10,064,688,318	8.9%
b. Terminated Vested Members	708,948,908	656,509,829	8.0%
c. Active Members	9,843,359,657	9,764,720,906	0.8%
d. Total Present Value	<u>\$ 21,516,245,553</u>	<u>\$ 20,485,919,053</u>	5.0%
2. Less Present Value Total Future Normal Costs	<u>2,608,890,466</u>	<u>2,662,911,730</u>	-2.0%
3. Actuarial Accrued Liability (1d - 2)	\$ 18,907,355,087	\$ 17,823,007,323	6.1%
4. Less Actuarial Value of Assets	<u>11,839,795,052</u>	<u>11,039,950,378</u>	7.2%
5. Unfunded Actuarial Accrued Liability (UAAL) (3 - 4)	\$ 7,067,560,035	\$ 6,783,056,945	4.2%
a. Less Special Liability Payments <sup>**</sup>	<u>28,396,985</u>	<u>32,308,798</u>	-12.1%
b. State Portion of UAAL (5 - 6)	7,039,163,050	6,750,748,147	4.3%
6. Funded Ratio	62.62%	61.94%	
7. Amortization Payments	\$ 481,582,235	\$ 446,242,163	7.9%
8. Employer Normal Cost	\$ 129,723,969	\$ 139,590,898	-7.1%
9. Total Projected Payroll	\$ 3,292,486,516	\$ 3,231,270,793	1.9%
10. Total Normal Cost Rate	10.67%	11.04%	
11. Employee Contribution Rate	<u>6.73%</u>	<u>6.72%</u>	
12. Employer Normal Cost Rate	3.94%	4.32%	
13. UAAL Amortization Rate <sup>*</sup>	14.34%	13.57%	
14. Total Employer Contribution Rate	18.28%	17.89%	
<b>C. Corridor Results</b>			
15. Prior Year Corridor Rate	NA	15.53%	
16. 36% of Difference between Preliminary Funding Rate and Prior year Corridor Rate (14 - 15) x 36%	<u>NA</u>	<u>0.85%</u>	
17. Employer Corridor Contribution Rate	NA	16.38%	
18. Estimated Employer Rate after Reinvestment of Savings <sup>^</sup>	18.93%	17.04%	

<sup>\*\*</sup> For Municipalities that withdrew prior to 1996, and thus are part of the State pool.

<sup>\*</sup> Includes the effects of the one year lag between the valuation date and the beginning of the contribution period.

<sup>#</sup> Retiree benefit amounts include the cost-of-living-adjustment granted July 1, 2015 and July 1, 2014, respectively.

<sup>^</sup> FY 2016 Employer Rate was 17.70% before the reduction of reinvested savings from \$150 million to \$75 million.

## SPECIAL LIABILITY PAYMENTS

### EMPLOYEES' COMBINED SYSTEM (STATE)

**Schedule of Special Payments as of June 30, 2015 for December 2016 Billing**  
**(Unless noted, amounts are amortized over 25 years with payments increasing 5% per year)**

LOC Number	Municipal Corporation	Outstanding Balance as of 6/30/2015*	December 2016 Payment	Last Payment Year
7012	Caroline County Roads Board	\$ 111,545	\$ 26,620 **	2019
7716	Harford County Liquor Board	43,461	10,372 **	2019
8006	Montgomery County Public Library	15,730	3,754 **	2019
8028	Interstate Comm. on Potomac River Basin	18,810	4,489 **	2019
8031	Bethesda Fire Department	9,147	2,183 **	2019
8032	Chevy Chase Fire Department	18,731	4,470 **	2019
8712	Wicomico County Roads Board	19,326	4,612 **	2019
6529	Health Systems Agency of Western MD	181,126	41,362	2019
6611	Anne Arundel County Government	8,952,875	2,044,463	2019
6735	Lexington Market Authority	363,895	83,098	2019
6740	Univ of MD Medical Systems Corp	2,294,886	611,489 ***	2019
8002	Montgomery County Board of Education	2,711,965	619,300	2019
8011	Montgomery County Government	6,024,539	1,375,753	2019
8026	MD Nat. Capital Parks and Planning Comm.	2,029,901	463,545	2019
8128	Washington Suburban Sanitary Commission	4,172,025	952,716	2019
8325	St. Mary's Nursing Home	477,179	108,968	2019
8611	Washington County Commission	354,990	81,065	2019
8612	Washington County Roads Board	286,454	65,414	2019
8614	Washington County License Commission	2,152	491	2019
8626	Washington County Sanitary District	86,461	19,744	2019
8726	Wicomico Co. Dept. Recreation & Parks	221,787	50,647	2019
	TOTAL	\$ 28,396,985	\$ 6,574,554	

\* *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, 2015</u> <u>(for FY 2017)</u>	<u>June 30, 2014</u> <u>(for FY 2016)</u>	<u>% Change</u>
<b>A. Demographic Information</b>			
1. Active Number Count	1,394	1,351	3.2%
2. Retired Member and Beneficiary Count	2,508	2,468	1.6%
3. Vested Former Member Count	81	82	-1.2%
4. Total Number Count	3,983	3,901	2.1%
5. Active Payroll	\$ 91,049,875	\$ 85,660,006	6.3%
6. Annual Benefits for Retired Members <sup>#</sup>	\$ 116,339,773	\$ 113,133,192	2.8%
<b>B. Actuarial Results</b>			
1. Present Value of Projected Benefits Attributable to:			
a. Retired and Disabled Members, and Beneficiaries	\$ 1,702,268,470	\$ 1,595,644,082	6.7%
b. Terminated Vested Members	11,651,097	11,189,780	4.1%
c. Active Members	605,192,387	563,376,029	7.4%
d. Total Present Value	\$ 2,319,111,954	\$ 2,170,209,891	6.9%
2. Less Present Value Total Future Normal Costs	215,977,570	203,637,469	6.1%
3. Actuarial Accrued Liability (1d - 2)	\$ 2,103,134,384	\$ 1,966,572,422	6.9%
4. Less Actuarial Value of Assets	1,314,315,006	1,241,758,473	5.8%
5. Unfunded Actuarial Accrued Liability (UAAL) (3 - 4)	\$ 788,819,378	\$ 724,813,949	8.8%
6. Funded Ratio	62.49%	63.14%	
7. Amortization Payments	\$ 53,966,842	\$ 47,912,104	12.6%
8. Employer Normal Cost	\$ 22,587,328	\$ 22,263,796	1.5%
9. Total Projected Payroll	\$ 92,495,201	\$ 87,104,054	6.2%
10. Total Normal Cost Rate	32.42%	33.56%	
11. Employee Contribution Rate	8.00%	8.00%	
12. Employer Normal Cost Rate	24.42%	25.56%	
13. UAAL Amortization Rate*	56.98%	53.35%	
14. Total Employer Contribution Rate	81.40%	78.91%	
15. Estimated Employer Rate after Reinvestment of Savings <sup>^</sup>	82.50%	80.08%	

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

<sup>#</sup> Retiree benefit amounts include the cost-of-living-adjustment granted July 1, 2015 and July 1, 2014, respectively.

<sup>^</sup> FY 2016 Employer Rate was 81.24% before the reduction of reinvested savings from \$150 million to \$75 million.

# DETAILED ACTUARIAL INFORMATION

## JUDGES

	Actuarial Valuation Performed		
	June 30, 2015 (for FY 2017)	June 30, 2014 (for FY 2016)	% Change
<b>A. Demographic Information</b>			
1. Active Number Count	307	301	2.0%
2. Retired Member and Beneficiary Count	397	395	0.5%
3. Vested Former Member Count	8	8	0.0%
4. Total Number Count	712	704	1.1%
5. Active Payroll	\$ 44,612,624	\$ 42,313,395	5.4%
6. Annual Benefits for Retired Members <sup>#</sup>	\$ 29,995,284	\$ 28,712,353	4.5%
<b>B. Actuarial Results</b>			
1. Present Value of Projected Benefits Attributable to:			
a. Retired and Disabled Members, and Beneficiaries	\$ 335,706,880	\$ 308,116,460	9.0%
b. Terminated Vested Members	3,039,689	2,195,310	38.5%
c. Active Members	277,915,131	245,448,006	13.2%
d. Total Present Value	\$ 616,661,700	\$ 555,759,776	11.0%
2. Less Present Value Total Future Normal Costs	105,271,251	96,312,554	9.3%
3. Actuarial Accrued Liability (1d – 2)	\$ 511,390,449	\$ 459,447,222	11.3%
4. Less Actuarial Value of Assets	416,546,609	389,071,868	7.1%
5. Unfunded Actuarial Accrued Liability (UAAL) (3 - 4)	\$ 94,843,840	\$ 70,375,354	34.8%
6. Funded Ratio	81.45%	84.68%	
7. Amortization Payments	\$ 6,488,713	\$ 4,651,996	39.5%
8. Employer Normal Cost	\$ 14,602,363	\$ 13,024,185	12.1%
9. Total Projected Payroll	\$ 45,320,805	\$ 43,026,710	5.3%
10. Total Normal Cost Rate	38.68%	36.55%	
11. Employee Contribution Rate	6.46%	6.28%	
12. Employer Normal Cost Rate	32.22%	30.27%	
13. UAAL Amortization Rate*	14.34%	10.43%	
14. Total Employer Contribution Rate	46.56%	40.70%	

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

<sup>#</sup>Retiree benefit amounts include the cost-of-living-adjustment granted July 1, 2015 and July 1, 2014, respectively.

# DETAILED ACTUARIAL INFORMATION

## LEOPS (STATE)

	<u>Actuarial Valuation Performed</u>		
	<u>June 30, 2015</u> <u>(for FY 2017)</u>	<u>June 30, 2014</u> <u>(for FY 2016)</u>	<u>% Change</u>
<b>A. Demographic Information</b>			
1. Active Number Count	1,546	1,543	0.2%
2. Retired Member and Beneficiary Count	1,371	1,309	4.7%
3. Vested Former Member Count	193	192	0.5%
4. Total Number Count	3,110	3,044	2.2%
5. Active Payroll	\$ 98,620,247	\$ 93,026,889	6.0%
6. Annual Benefits for Retired Members <sup>#</sup>	\$ 45,476,518	\$ 42,974,947	5.8%
<b>B. Actuarial Results</b>			
1. Present Value of Projected Benefits Attributable to:			
a. Retired and Disabled Members, and Beneficiaries	\$ 666,871,241	\$ 619,789,532	7.6%
b. Terminated Vested Members	19,408,507	17,405,777	11.5%
c. Active Members	425,498,941	402,003,719	5.8%
d. Total Present Value	\$ 1,111,778,689	\$ 1,039,199,028	7.0%
2. Less Present Value Total Future Normal Costs	153,838,794	143,509,914	7.2%
3. Actuarial Accrued Liability (1d – 2)	\$ 957,939,895	\$ 895,689,114	7.0%
4. Less Actuarial Value of Assets	588,298,704	538,907,415	9.2%
5. Unfunded Actuarial Accrued Liability (UAAL) (3 - 4)	\$ 369,641,191	\$ 356,781,699	3.6%
6. Funded Ratio	61.41%	60.17%	
7. Amortization Payments	\$ 25,288,892	\$ 23,584,206	7.2%
8. Employer Normal Cost	\$ 15,097,992	\$ 14,785,218	2.1%
9. Total Projected Payroll	\$ 100,185,746	\$ 94,595,128	5.9%
10. Total Normal Cost Rate	22.07%	22.63%	
11. Employee Contribution Rate	7.00%	7.00%	
12. Employer Normal Cost Rate	15.07%	15.63%	
13. UAAL Amortization Rate*	24.53%	24.14%	
14. Total Employer Contribution Rate	39.60%	39.77%	
15. Estimated Employer Rate after Reinvestment of Savings <sup>^</sup>	40.72%	40.95%	

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

<sup>#</sup>Retiree benefit amounts include the cost-of-living-adjustment granted July 1, 2015 and July 1, 2014, respectively.

<sup>^</sup>FY 2016 Employer Rate was 42.14% before the reduction of reinvested savings from \$150 million to \$75 million.

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**SECTION III**  
ASSETS

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## 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, 2015 and June 30, 2014;
- 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,	
	2015	2014
<b>Assets:</b>		
Cash & Cash Equivalents	\$ 1,134,336	\$ 2,054,181
<i>Receivables</i>		
Contributions		
Employers	35,612	19,971
Employers - Long Term	31,254	34,806
Members	11,526	11,003
Accrued Investment Income	212,114	57,800
Investment Sales Proceeds	784,555	725,188
Total Receivables	1,075,061	848,768
<i>Investments</i>		
U.S. Government Obligations	4,521,543	3,422,824
Domestic Corporate Obligations	3,688,098	3,803,260
International Obligations	910,924	1,870,144
Domestic Stocks	8,471,692	8,344,356
International Stocks	7,816,127	8,057,309
Mortgages & Mortgage Related Securities	1,895,887	1,926,733
Real Estate	-	-
Alternative Investments	17,633,283	16,358,754
Collateral For Loaned Securities	1,343,489	2,490,916
Total Investments	46,281,043	46,274,296
<b>Total Assets</b>	<b>48,490,440</b>	<b>49,177,245</b>
<b>Liabilities:</b>		
Accounts Payable & Accrued Expenses	61,272	60,964
Investment Commitments Payable	1,295,840	1,285,377
Obligation For Collateral For Loaned Securities	1,343,488	2,490,916
Other Liabilities	-	-
<b>Total Liabilities</b>	<b>2,700,600</b>	<b>3,837,257</b>
 <b>Net Assets Held in Trust for Pension Benefits</b>	 <b>\$ 45,789,840</b>	 <b>\$ 45,339,988</b>



## CHANGES IN MARKET VALUES (STATE AND MUNICIPAL)

	Employees				LEOPS	Total State
	Teachers	(State)	State Police	Judges	(State)	
<b>State Sponsored Plans</b>						
Market Value of Assets as of 6/30/2014	\$ 27,491,054,960	\$ 11,646,774,073	\$ 1,306,547,569	\$ 408,882,813	\$ 565,797,638	\$ 41,419,057,053
Employer Contributions	1,063,763,116	535,676,274	76,056,685	19,027,869	40,099,717	1,734,623,661
Member Contributions	454,769,784	220,825,089	7,204,805	2,813,046	6,936,951	692,549,675
Investment Returns	727,857,804	307,474,537	33,035,623	10,758,287	14,765,322	1,093,891,573
Disbursements from the Trust	(1,973,826,511)	(965,034,746)	(120,007,334)	(28,944,541)	(45,793,769)	(3,133,606,901)
Net Transfers	309,115	(535,205)	(385)	(5,304)	231,779	-
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

	Employees	LEOPS	CORS	Total Municipal
	(Municipal)	(Municipal)	(Municipal)	
<b>Municipal Plans</b>				
Market Value of Assets as of 6/30/2014	\$ 3,698,394,546	\$ 202,691,392	\$ 19,845,805	\$ 3,920,931,743
Employer Contributions	106,999,413	16,446,438	543,160	123,989,011
Member Contributions	59,064,538	3,585,872	243,475	62,893,885
Investment Returns	97,842,078	5,407,940	529,080	103,779,098
Disbursements from the Trust	(217,095,297)	(10,417,441)	(756,146)	(228,268,884)
Net Transfers	-	-	-	-
Market Value of Assets as of 6/30/2015	\$ 3,745,205,278	\$ 217,714,201	\$ 20,405,374	\$ 3,983,324,853

	Employees				LEOPS	CORS	Total State & Municipal
	Teachers	(State & Municipal)	State Police	Judges	(State & Municipal)	(Municipal)	
<b>State and Municipal Sponsored Plans</b>							
Market Value of Assets as of 6/30/2014	\$ 27,491,054,960	\$ 15,345,168,619	\$ 1,306,547,569	\$ 408,882,813	\$ 768,489,030	\$ 19,845,805	\$ 45,339,988,796
Employer Contributions	1,063,763,116	642,675,687	76,056,685	19,027,869	56,546,155	543,160	1,858,612,672
Member Contributions	454,769,784	279,889,627	7,204,805	2,813,046	10,522,823	243,475	755,443,560
Investment Returns	727,857,804	405,316,615	33,035,623	10,758,287	20,173,262	529,080	1,197,670,671
Disbursements from the Trust	(1,973,826,511)	(1,182,130,043)	(120,007,334)	(28,944,541)	(56,211,210)	(756,146)	(3,361,875,785)
Net Transfers	309,115	(535,205)	(385)	(5,304)	231,779	-	-
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

# SUMMARY OF THE DEVELOPMENT OF THE ACTUARIAL VALUE OF ASSETS

## JUNE 30, 2015

	Total State	Total Municipal	Total MSRPS
Beginning of Year:			
(1) Market Value of Assets	\$41,419,057,053	\$3,920,931,743	\$45,339,988,796
(2) Actuarial Value of Assets	39,277,264,804	3,719,691,722	42,996,956,526
End of Year:			
(3) Market Value of Assets	41,806,515,061	3,983,324,853	45,789,839,914
(4) Net Cash Flow with Adjustment	(706,433,565)	(41,385,988)	(747,819,553)
(5) Total Investment Income			
=(3)-(1)-(4)	\$ 1,093,891,573	\$ 103,779,098	\$ 1,197,670,671
(6) Projected Rate of Return	7.65%	7.65%	7.65%
(7) Projected Investment Income			
=(1)x(6)+([1+(6)] <sup>.5-1</sup> )x(4)	\$ 3,142,034,689	\$ 298,397,434	\$ 3,440,432,123
(8) Beginning of Year Asset Adjustment	0	0	0
(9) Investment Income in Excess of Projected Income	(\$2,048,143,116)	(\$194,618,336)	(\$2,242,761,452)
(10) Excess Investment Income Recognized			
This Year (5-year recognition)			
(10a) From This Year	(409,628,622)	(38,923,668)	(448,552,290)
(10b) From One Year Ago	479,895,493	45,277,522	525,173,015
(10c) From Two Years Ago	180,934,609	16,983,489	197,918,098
(10d) From Three Years Ago	(510,957,970)	(46,972,266)	(557,930,236)
(10e) From Four Years Ago	701,322,389	63,123,994	764,446,383
(10f) Total Recognized Investment Gain/(Loss)	441,565,899	39,489,071	481,054,970
(11) Change in Actuarial Value of Assets			
=(4)+(7)+(8)+(10f)	2,877,167,023	296,500,517	3,173,667,540
End of Year:			
<b>(3) Market Value of Assets as of 6/30</b>	<b>41,806,515,061</b>	<b>3,983,324,853</b>	<b>45,789,839,914</b>
(12) Preliminary Actuarial Value of Assets = (2)+(11)	42,154,431,827	4,016,192,239	46,170,624,066
(12a) Upper Collar Limit 120% x (3)	50,167,818,074	4,779,989,824	54,947,807,898
(12b) Lower Collar Limit 80% x (3)	33,445,212,048	3,186,659,882	36,631,871,930
(13) Adjustment to Remain within 20% Collar	0	0	0
<b>(14) Final Actuarial Value of Assets as of 6/30</b>	<b>42,154,431,827</b>	<b>4,016,192,239</b>	<b>46,170,624,066</b>
(15) Difference Between Market & Actuarial Values	(347,916,766)	(32,867,386)	(380,784,152)
(16) Actuarial Value Rate of Return	9.21%	9.13%	9.20%
(17) Market Value Rate of Return	2.66%	2.66%	2.66%
(18) Ratio of Actuarial Value to Market Value	101%	101%	101%

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

## JUNE 30, 2015

	TCS	ECS	State Police	Judges	LEOPS	Total State
Beginning of Year:						
(1) Market Value of Assets	\$27,491,054,960	\$11,646,774,073	\$ 1,306,547,569	\$408,882,813	\$565,797,638	\$41,419,057,053
(2) Actuarial Value of Assets	26,067,576,669	11,039,950,378	1,241,758,473	389,071,868	538,907,415	39,277,264,804
End of Year:						
(3) 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
(4) Net Cash Flow with Adjustment	(454,984,496)	(209,068,588)	(36,746,229)	(7,108,930)	1,474,678	(706,433,565)
(5) Total Investment Income						
=(3)-(1)-(4)	\$ 727,857,804	\$307,474,537	\$ 33,035,623	\$ 10,758,287	\$ 14,765,322	\$ 1,093,891,573
(6) Projected Rate of Return	7.65%	7.65%	7.65%	7.65%	7.65%	7.65%
(7) Projected Investment Income						
=(1)x(6)+([1+(6)] <sup>5</sup> -1)x(4)	\$ 2,085,983,230	\$ 883,128,699	\$ 98,571,245	\$ 31,012,629	\$ 43,338,886	\$ 3,142,034,689
(8) Beginning of Year Asset Adjustment	0	0	0	0	0	0
(9) Investment Income in Excess of Projected Income	\$(1,358,125,426)	\$(575,654,162)	\$(65,535,622)	\$(20,254,342)	\$(28,573,564)	\$(2,048,143,116)
(10) Excess Investment Income Recognized						
This Year (5-year recognition)						
(10a) From This Year	(271,625,085)	(115,130,832)	(13,107,124)	(4,050,868)	(5,714,713)	(409,628,622)
(10b) From One Year Ago	318,173,274	136,116,176	15,071,592	4,482,029	6,052,422	479,895,493
(10c) From Two Years Ago	119,935,340	51,912,796	5,533,803	1,397,446	2,155,224	180,934,609
(10d) From Three Years Ago	(339,438,345)	(146,265,821)	(15,331,928)	(4,051,944)	(5,869,932)	(510,957,970)
(10e) From Four Years Ago	469,855,868	199,152,244	18,565,174	5,794,379	7,954,724	701,322,389
(10f) Total Recognized Investment Gain/(Loss)	296,901,052	125,784,563	10,731,517	3,571,042	4,577,725	441,565,899
(11) Change in Actuarial Value of Assets						
=(4)+(7)+(8)+(10f)	1,927,899,786	799,844,674	72,556,533	27,474,741	49,391,289	2,877,167,023
End of Year:						
<b>(3) Market Value of Assets as of 6/30</b>	<b>27,763,928,268</b>	<b>11,745,180,022</b>	<b>1,302,836,963</b>	<b>412,532,170</b>	<b>582,037,638</b>	<b>41,806,515,061</b>
(12) Preliminary Actuarial Value of Assets = (2)+(11)	27,995,476,456	11,839,795,052	1,314,315,006	416,546,609	588,298,704	42,154,431,827
(12a) Upper Collar Limit 120% x (3)	33,316,713,922	14,094,216,026	1,563,404,356	495,038,604	698,445,166	50,167,818,074
(12b) Lower Collar Limit 80% x (3)	22,211,142,614	9,396,144,018	1,042,269,570	330,025,736	465,630,110	33,445,212,048
(13) Adjustment to Remain within 20% Collar	0	0	0	0	0	0
<b>(14) Final Actuarial Value of Assets as of 6/30</b>	<b>27,995,476,456</b>	<b>11,839,795,052</b>	<b>1,314,315,006</b>	<b>416,546,609</b>	<b>588,298,704</b>	<b>42,154,431,827</b>
(15) Difference Between Market & Actuarial Values	(231,548,188)	(94,615,030)	(11,478,043)	(4,014,439)	(6,261,066)	(347,916,766)
(16) Actuarial Value Rate of Return	9.22%	9.23%	8.93%	8.97%	8.88%	9.21%
(17) Market Value Rate of Return	2.67%	2.66%	2.56%	2.65%	2.61%	2.66%
(18) Ratio of Actuarial Value to Market Value	101%	101%	101%	101%	101%	101%

## DEVELOPMENT OF THE ACTUARIAL VALUE OF ASSETS TEACHERS' COMBINED SYSTEM

	2014	2015	2016	2017	2018	2019
Beginning of Year:						
(1) Market Value of Assets	\$24,469,625,324	\$27,491,054,960				
(2) Actuarial Value of Assets	23,845,618,271	26,067,576,669				
End of Year:						
(3) Market Value of Assets	27,491,054,960	27,763,928,268				
(4) Net of Contributions and Disbursements	(437,082,246)	(454,984,496)				
(5) Total Investment Income						
=(3)-(1)-(4)	3,458,511,882	727,857,804				
(6) Projected Rate of Return	7.70%	7.65%				
(7) Projected Investment Income						
=(1)x(6)+[(1+(6))^5-1]x(4)	1,867,645,514	2,085,983,230				
(8) Beginning of Year Asset Adjustment	0	0				
(9) Investment Income in Excess of Projected Income	1,590,866,368	(1,358,125,426)				
(10) Excess Investment Income Recognized						
This Year (5-year recognition)						
(10a) From This Year	318,173,274	(271,625,085)				
(10b) From One Year Ago	119,935,340	318,173,274	\$ (271,625,085)			
(10c) From Two Years Ago	(339,438,345)	119,935,340	318,173,274	\$ (271,625,085)		
(10d) From Three Years Ago	469,855,870	(339,438,345)	119,935,340	318,173,274	\$ (271,625,085)	
(10e) From Four Years Ago	222,868,991	469,855,868	(339,438,345)	119,935,338	318,173,272	\$ (271,625,086)
(10f) Total Recognized Investment Gain/(Loss)	791,395,130	296,901,052	(172,954,816)	166,483,527	46,548,187	(271,625,086)
(11) Change in Actuarial Value of Assets						
=(4)+(7)+(8)+(10f)	2,221,958,398	1,927,899,786				
End of Year:						
<b>(3) Market Value of Assets</b>	<b>27,491,054,960</b>	<b>27,763,928,268</b>				
(12) Preliminary Actuarial Value of Assets = (2)+(11)	26,067,576,669	27,995,476,456				
(12a) Upper Collar Limit 120% x (3)	32,989,265,952	33,316,713,922				
(12b) Lower Collar Limit 80% x (3)	21,992,843,968	22,211,142,614				
(13) Adjustment to Remain within 20% Collar	0	0				
<b>(14) Final Actuarial Value of Assets as of 6/30</b>	<b>26,067,576,669</b>	<b>27,995,476,456</b>				
(15) Difference Between Market & Actuarial Values	1,423,478,291	(231,548,188)				
(16) Actuarial Value Rate of Return	11.25%	9.22%				
(17) Market Value Rate of Return	14.26%	2.67%				
(18) Ratio of Actuarial Value to Market Value	95%	101%				

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

	2014	2015	2016	2017	2018	2019
Beginning of Year:						
(1) Market Value of Assets	\$10,413,059,081	\$11,646,774,073				
(2) Actuarial Value of Assets	10,149,146,082	11,039,950,378				
End of Year:						
(3) Market Value of Assets	11,646,774,073	11,745,180,022				
(4) Net of Contributions and Disbursements	(239,617,234)	(209,068,588)				
(5) Total Investment Income						
=(3)-(1)-(4)	1,473,332,226	307,474,537				
(6) Projected Rate of Return	7.70%	7.65%				
(7) Projected Investment Income						
=(1)x(6)+([1+(6)]^.5-1)x(4)	792,751,347	883,128,699				
(8) Beginning of Year Asset Adjustment	0	0				
(9) Investment Income in Excess of Projected Income	680,580,879	(575,654,162)				
(10) Excess Investment Income Recognized						
This Year (5-year recognition)						
(10a) From This Year	136,116,176	(115,130,832)				
(10b) From One Year Ago	51,912,796	136,116,176	\$ (115,130,832)			
(10c) From Two Years Ago	(146,265,821)	51,912,796	136,116,176	\$ (115,130,832)		
(10d) From Three Years Ago	199,152,245	(146,265,821)	51,912,796	136,116,176	\$ (115,130,832)	
(10e) From Four Years Ago	96,754,787	199,152,244	(146,265,819)	51,912,796	136,116,175	\$ (115,130,834)
(10f) Total Recognized Investment Gain/(Loss)	337,670,183	125,784,563	(73,367,679)	72,898,140	20,985,343	(115,130,834)
(11) Change in Actuarial Value of Assets						
=(4)+(7)+(8)+(10f)	890,804,296	799,844,674				
End of Year:						
<b>(3) Market Value of Assets</b>	<b>11,646,774,073</b>	<b>11,745,180,022</b>				
(12) Preliminary Actuarial Value of Assets = (2)+(11)	11,039,950,378	11,839,795,052				
(12a) Upper Collar Limit 120% x (3)	13,976,128,888	14,094,216,026				
(12b) Lower Collar Limit 80% x (3)	9,317,419,258	9,396,144,018				
(13) Adjustment to Remain within 20% Collar	0	0				
<b>(14) Final Actuarial Value of Assets as of 6/30</b>	<b>11,039,950,378</b>	<b>11,839,795,052</b>				
(15) Difference Between Market & Actuarial Values	606,823,695	(94,615,030)				
(16) Actuarial Value Rate of Return	11.27%	9.23%				
(17) Market Value Rate of Return	14.31%	2.66%				
(18) Ratio of Actuarial Value to Market Value	95%	101%				

## DEVELOPMENT OF THE ACTUARIAL VALUE OF ASSETS STATE POLICE

	2014	2015	2016	2017	2018	2019
Beginning of Year:						
(1) Market Value of Assets	\$ 1,188,562,609	\$ 1,306,547,569				
(2) Actuarial Value of Assets	1,164,217,327	1,241,758,473				
End of Year:						
(3) Market Value of Assets	1,306,547,569	1,302,836,963				
(4) Net of Contributions and Disbursements	(47,112,138)	(36,746,229)				
(5) Total Investment Income						
=(3)-(1)-(4)	165,097,098	33,035,623				
(6) Projected Rate of Return	7.70%	7.65%				
(7) Projected Investment Income						
=(1)x(6)+([1+(6)] <sup>5</sup> -1)x(4)	89,739,137	98,571,245				
(8) Beginning of Year Asset Adjustment	0	0				
(9) Investment Income in Excess of Projected Income	75,357,961	(65,535,622)				
(10) Excess Investment Income Recognized						
This Year (5-year recognition)						
(10a) From This Year	15,071,592	(13,107,124)				
(10b) From One Year Ago	5,533,803	15,071,592	\$ (13,107,124)			
(10c) From Two Years Ago	(15,331,928)	5,533,803	15,071,592	\$ (13,107,124)		
(10d) From Three Years Ago	18,565,176	(15,331,928)	5,533,803	15,071,592	\$ (13,107,124)	
(10e) From Four Years Ago	11,075,504	18,565,174	(15,331,928)	5,533,803	15,071,593	\$ (13,107,126)
(10f) Total Recognized Investment Gain/(Loss)	34,914,147	10,731,517	(7,833,657)	7,498,271	1,964,469	(13,107,126)
(11) Change in Actuarial Value of Assets						
=(4)+(7)+(8)+(10f)	77,541,146	72,556,533				
End of Year:						
<b>(3) Market Value of Assets</b>	<b>1,306,547,569</b>	<b>1,302,836,963</b>				
(12) Preliminary Actuarial Value of Assets = (2)+(11)	1,241,758,473	1,314,315,006				
(12a) Upper Collar Limit 120% x (3)	1,567,857,083	1,563,404,356				
(12b) Lower Collar Limit 80% x (3)	1,045,238,055	1,042,269,570				
(13) Adjustment to Remain within 20% Collar	0	0				
<b>(14) Final Actuarial Value of Assets as of 6/30</b>	<b>1,241,758,473</b>	<b>1,314,315,006</b>				
(15) Difference Between Market & Actuarial Values	64,789,096	(11,478,043)				
(16) Actuarial Value Rate of Return	10.93%	8.93%				
(17) Market Value Rate of Return	14.17%	2.56%				
(18) Ratio of Actuarial Value to Market Value	95%	101%				

## DEVELOPMENT OF THE ACTUARIAL VALUE OF ASSETS JUDGES

	2014	2015	2016	2017	2018	2019
Beginning of Year:						
(1) Market Value of Assets	\$362,332,458	\$408,882,813				
(2) Actuarial Value of Assets	354,899,502	389,071,868				
End of Year:						
(3) Market Value of Assets	408,882,813	412,532,170				
(4) Net of Contributions and Disbursements	(3,622,507)	(7,108,930)				
(5) Total Investment Income						
=(3)-(1)-(4)	50,172,862	10,758,287				
(6) Projected Rate of Return	7.70%	7.65%				
(7) Projected Investment Income						
=(1)x(6)+([1+(6)] <sup>.5</sup> -1)x(4)	27,762,719	31,012,629				
(8) Beginning of Year Asset Adjustment	0	0				
(9) Investment Income in Excess of Projected Income	22,410,143	(20,254,342)				
(10) Excess Investment Income Recognized						
This Year (5-year recognition)						
(10a) From This Year	4,482,029	(4,050,868)				
(10b) From One Year Ago	1,397,446	4,482,029	\$ (4,050,868)			
(10c) From Two Years Ago	(4,051,944)	1,397,446	4,482,029	\$ (4,050,868)		
(10d) From Three Years Ago	5,794,379	(4,051,944)	1,397,446	4,482,029	\$ (4,050,868)	
(10e) From Four Years Ago	2,410,244	5,794,379	(4,051,942)	1,397,446	4,482,027	\$ (4,050,870)
(10f) Total Recognized Investment Gain/(Loss)	10,032,154	3,571,042	(2,223,335)	1,828,607	431,159	(4,050,870)
(11) Change in Actuarial Value of Assets						
=(4)+(7)+(8)+(10f)	34,172,366	27,474,741				
End of Year:						
<b>(3) Market Value of Assets</b>	<b>408,882,813</b>	<b>412,532,170</b>				
(12) Preliminary Actuarial Value of Assets = (2)+(11)	389,071,868	416,546,609				
(12a) Upper Collar Limit 120% x (3)	490,659,376	495,038,604				
(12b) Lower Collar Limit 80% x (3)	327,106,250	330,025,736				
(13) Adjustment to Remain within 20% Collar	0	0				
<b>(14) Final Actuarial Value of Assets as of 6/30</b>	<b>389,071,868</b>	<b>416,546,609</b>				
(15) Difference Between Market & Actuarial Values	19,810,945	(4,014,439)				
(16) Actuarial Value Rate of Return	10.70%	8.97%				
(17) Market Value Rate of Return	13.92%	2.65%				
(18) Ratio of Actuarial Value to Market Value	95%	101%				

## DEVELOPMENT OF THE ACTUARIAL VALUE OF ASSETS LEOPS (STATE)

	2014	2015	2016	2017	2018	2019
Beginning of Year:						
(1) Market Value of Assets	\$488,317,833	\$565,797,638				
(2) Actuarial Value of Assets	478,028,132	538,907,415				
End of Year:						
(3) Market Value of Assets	565,797,638	582,037,638				
(4) Net of Contributions and Disbursements	9,267,056	1,474,678				
(5) Total Investment Income						
=(3)-(1)-(4)	68,212,749	14,765,322				
(6) Projected Rate of Return	7.70%	7.65%				
(7) Projected Investment Income						
=(1)x(6)+([1+(6)] <sup>5</sup> -1)x(4)	37,950,639	43,338,886				
(8) Beginning of Year Asset Adjustment	0	0				
(9) Investment Income in Excess of Projected Income	30,262,110	(28,573,564)				
(10) Excess Investment Income Recognized						
This Year (5-year recognition)						
(10a) From This Year	6,052,422	(5,714,713)				
(10b) From One Year Ago	2,155,224	6,052,422	\$	(5,714,713)		
(10c) From Two Years Ago	(5,869,932)	2,155,224	6,052,422	\$	(5,714,713)	
(10d) From Three Years Ago	7,954,722	(5,869,932)	2,155,224	6,052,422	\$	(5,714,713)
(10e) From Four Years Ago	3,369,152	7,954,724	(5,869,930)	2,155,225	6,052,422	\$
(10f) Total Recognized Investment Gain/(Loss)	13,661,588	4,577,725	(3,376,997)	2,492,934	337,709	(5,714,712)
(11) Change in Actuarial Value of Assets						
=(4)+(7)+(8)+(10f)	60,879,283	49,391,289				
End of Year:						
<b>(3) Market Value of Assets</b>	<b>565,797,638</b>	<b>582,037,638</b>				
(12) Preliminary Actuarial Value of Assets = (2)+(11)	538,907,415	588,298,704				
(12a) Upper Collar Limit 120% x (3)	678,957,166	698,445,166				
(12b) Lower Collar Limit 80% x (3)	452,638,110	465,630,110				
(13) Adjustment to Remain within 20% Collar	0	0				
<b>(14) Final Actuarial Value of Assets as of 6/30</b>	<b>538,907,415</b>	<b>588,298,704</b>				
(15) Difference Between Market & Actuarial Values	26,890,223	(6,261,066)				
(16) Actuarial Value Rate of Return	10.69%	8.88%				
(17) Market Value Rate of Return	13.84%	2.61%				
(18) Ratio of Actuarial Value to Market Value	95%	101%				



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## **SECTION IV**

### **HISTORICAL GASB NO. 25 AND NO. 27 INFORMATION**

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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.

**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%

*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 are applicable for funding purposes only. The fiscal year 2015 accounting figures under GASB Statements 67 and 68 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%

*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 are applicable for funding purposes only. The fiscal year 2015 accounting figures under GASB Statements 67 and 68 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%

*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 are applicable for funding purposes only. The fiscal year 2015 accounting figures under GASB Statements 67 and 68 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%

*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 are applicable for funding purposes only. The fiscal year 2015 accounting figures under GASB Statements 67 and 68 are shown in a separate report.*

**SCHEDULE OF FUNDING PROGRESS  
(IN THOUSANDS)**

**JUDGES**

<b>Actuarial Valuation Date June 30,</b>	<b>Actuarial Value of Assets (a)</b>	<b>Actuarial Accrued Liability (AAL) (b)</b>	<b>Unfunded AAL (UAAL) (b - a)</b>	<b>Funded Ratio (a / b)</b>	<b>Payroll (c)</b>	<b>UAAL as a Percentage of Payroll [(b - a) / c ]</b>
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%

*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 are applicable for funding purposes only. The fiscal year 2015 accounting figures under GASB Statements 67 and 68 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%

*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 are applicable for funding purposes only. The fiscal year 2015 accounting figures under GASB Statements 67 and 68 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%

*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 are applicable for funding purposes only. The fiscal year 2015 accounting figures under GASB Statements 67 and 68 are shown in a separate report.*



**SCHEDULE OF EMPLOYER CONTRIBUTIONS  
(STATE AND MUNICIPAL)  
(IN THOUSANDS)**

<b>Fiscal Year Ended June 30,</b>	<b>Annual Required Contributions</b>	<b>Actual Contributions</b>	<b>Percentage Contributed</b>
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%

*The Annual Required Contribution "ARC" was an accounting term defined in GASB Statements 25 and 27 and is no longer applicable for fiscal years 2015 and after. The amount for fiscal year 2015 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
<b>Teachers' Combined System</b>	2011	\$ 1,224,606	\$ 919,313	75%
	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%
<b>Employees' Combined System</b>	2011	677,783	466,525	69%
	2012	721,776	475,403	66%
	2013	741,003	526,532	71%
	2014	812,206	591,747	73%
	2015	766,239	642,676	84%
<b>State Police</b>	2011	51,292	44,915	88%
	2012	54,452	47,283	87%
	2013	59,329	51,330	87%
	2014	64,325	56,244	87%
	2015	76,057	76,057	100%
<b>Judges</b>	2011	23,854	23,854	100%
	2012	24,077	24,077	100%
	2013	24,062	24,062	100%
	2014	21,109	21,109	100%
	2015	19,028	19,028	100%
<b>LEOPS</b>	2011	57,070	57,070	100%
	2012	56,624	56,624	100%
	2013	55,272	55,272	100%
	2014	63,923	63,923	100%
	2015	56,546	56,546	100%
<b>CORS (Muni)</b>	2011	796	796	100%
	2012	809	809	100%
	2013	4,901	4,901	100%
	2014	437	437	100%
	2015	543	543	100%
<b>Total State</b>	2011	1,901,320	1,378,392	72%
	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%
<b>Total Municipal</b>	2011	134,080	134,080	100%
	2012	127,528	127,528	100%
	2013	111,995	111,995	100%
	2014	141,276	141,276	100%
	2015	123,989	123,989	100%
<b>Total MSRPS</b>	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%

*The Annual Required Contribution "ARC" was an accounting term defined in GASB Statements 25 and 27 and is no longer applicable for fiscal years 2015 and after. The amount for fiscal year 2015 was calculated in the same manner as the previous years, but is not used under the current accounting standards GASB Statements 67 and 68.*

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## **APPENDIX A**

### ACTUARIAL ASSUMPTIONS AND METHODS

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## BRIEF SUMMARY OF ACTUARIAL ASSUMPTIONS AND METHODS

Valuation date	June 30, 2015
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; 23 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%	#
Teachers' Pension	7.55%	2.29%	1.49%	***
Employees' Retirement				
Regular	7.55%	2.70%	2.70%	#
Correctional	7.55%	2.70%	1.49%	***
Legislative	7.55%	3.20%	3.20%	
Employees' Pension	7.55%	2.29%	1.49%	*,***
State Police Retirement	7.55%	2.70%	1.49%	***
Judges Pension	7.55%	3.20%	3.20%	
LEOPS	7.55%	2.29%	1.49%	**,***,#
CORS Municipal	7.55%	2.70%	1.49%	***

\* 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						Male		
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</u>		<u>RP 2014 Employee Mortality Tables with Generational Projection Using MP-2014</u>	<u>Year Projected</u>
		<u>Year Projected</u>	<u>Expectancy Age 65 (Birth Year 1950)</u>		
<b>Teachers' Combined System</b>	<u>Collar</u>	<u>to in 2014</u>	<u>Life Expectancy</u>	<u>Collar</u>	<u>to in 2014</u>
<b>Male</b>	Male White Collar Annuitant Table	2012	22.81	Male White Collar Employee Table	2014
<b>Female</b>	Female White Collar Annuitant Table	2016	25.20	Female White Collar Employee Table	2014
<b>Employees' Combined System</b>					
<b>Male</b>	Male Blue Collar Annuitant Table	2010	20.03	Male Blue Collar Employee Table	2014
<b>Female</b>	Female Blue Collar Annuitant Table	2012	22.94	Female Blue Collar Employee Table	2014
<b>State Police</b>					
<b>Male</b>	Male Combined Annuitant Table	2014	21.68	Male Combined Employee Table	2014
<b>Female</b>	Female Combined Annuitant Table	2014	23.86	Female Combined Employee Table	2014
<b>Judges</b>					
<b>Male</b>	Male White Collar Annuitant Table	2012	22.81	Male White Collar Employee Table	2014
<b>Female</b>	Female White Collar Annuitant Table	2016	25.20	Female White Collar Employee Table	2014
<b>LEOPS</b>					
<b>Male</b>	Male Combined Annuitant Table	2014	21.68	Male Combined Employee Table	2014
<b>Female</b>	Female Combined Annuitant Table	2014	23.86	Female Combined Employee Table	2014

## ACTUARIAL ASSUMPTIONS AND METHODS

### A. ACTUARIAL ASSUMPTIONS

#### Summary of Mortality Assumptions

<b>Disabled Mortality Assumption</b>			
<b>Teachers' Combined System</b>	<b>RP 2014 Disabled Annuitant Mortality Tables with no projection (static tables)</b>		<b>Future Life Expectancy Age 65 (Birth Year 1950)</b>
	<b>Collar</b>	<b>Set Forward</b>	<b>Life Expectancy</b>
<b>Male</b>	Male Disabled Annuitant Table	1	14.38
<b>Female</b>	Female Disabled Annuitant Table	0	17.45
<b>Employees' Combined System</b>			
<b>Male</b>	Male Disabled Annuitant Table	2	13.85
<b>Female</b>	Female Disabled Annuitant Table	3	15.55
<b>Judges</b>			
<b>Male</b>	Male Disabled Annuitant Table	1	14.38
<b>Female</b>	Female Disabled Annuitant Table	0	17.45
<b>RP 2014 Healthy Annuitant Mortality Tables with Generational Projection Using MP-2014</b>			<b>Future Life Expectancy Age 65 (Birth Year 1950)</b>
	<b>Collar</b>	<b>Year Projected to in 2014</b>	<b>Life Expectancy</b>
	<b>Male</b>	Male Blue Collar Annuitant Table	2014
<b>Female</b>	Female Blue Collar Annuitant Table	2014	23.29
<b>LEOPS</b>			
<b>Male</b>	Male Blue Collar Annuitant Table	2014	20.62
<b>Female</b>	Female Blue Collar Annuitant Table	2014	23.29

# ACTUARIAL ASSUMPTIONS AND METHODS

## A. ACTUARIAL ASSUMPTIONS

### Healthy Retired Mortality

Sample Ages in 2015	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	\$147.57	\$150.57	\$142.27	\$147.09	\$142.27	\$147.09	\$144.37	\$148.31	\$147.57	\$150.57	\$144.37	\$148.31
55	141.98	145.66	135.44	141.36	135.44	141.36	138.28	142.97	141.98	145.66	138.28	142.97
60	134.68	139.05	126.92	133.93	126.92	133.93	130.69	135.90	134.68	139.05	130.69	135.90
65	125.05	130.38	116.31	124.38	116.31	124.38	121.09	126.78	125.05	130.38	121.09	126.78
70	112.79	119.40	103.65	112.56	103.65	112.56	109.18	115.39	112.79	119.40	109.18	115.39
75	98.02	105.88	89.11	98.64	89.11	98.64	94.90	101.76	98.02	105.88	94.90	101.76
80	81.15	90.06	73.35	83.07	73.35	83.07	78.76	86.14	81.15	90.06	78.76	86.14

Sample Ages in 2015	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	37.13	39.93	33.61	37.20	33.61	37.20	35.38	38.24	37.13	39.93	35.38	38.24
55	32.23	34.91	28.87	32.29	28.87	32.29	30.63	33.32	32.23	34.91	30.63	33.32
60	27.45	29.98	24.34	27.53	24.34	27.53	26.06	28.51	27.45	29.98	26.06	28.51
65	22.81	25.20	20.03	22.94	20.03	22.94	21.68	23.86	22.81	25.20	21.68	23.86
70	18.37	20.62	16.03	18.60	16.03	18.60	17.52	19.44	18.37	20.62	17.52	19.44
75	14.26	16.33	12.39	14.62	12.39	14.62	13.65	15.35	14.26	16.33	13.65	15.35
80	10.57	12.43	9.22	11.08	9.22	11.08	10.19	11.66	10.57	12.43	10.19	11.66

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 2015	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	\$143.09	\$147.45	\$117.42	\$129.59	\$143.09	\$147.45
55	111.73	123.72	110.45	119.66	110.45	119.66	136.38	141.84	111.73	123.72	136.38	141.84
60	104.70	116.61	103.10	111.45	103.10	111.45	128.11	134.58	104.70	116.61	128.11	134.58
65	95.95	107.59	94.00	101.20	94.00	101.20	117.86	125.22	95.95	107.59	117.86	125.22
70	85.58	96.60	83.34	89.32	83.34	89.32	105.54	113.56	85.58	96.60	105.54	113.56
75	73.92	84.29	71.47	76.62	71.47	76.62	91.18	99.76	73.92	84.29	91.18	99.76
80	61.43	71.49	58.90	63.89	58.90	63.89	75.40	84.27	61.43	71.49	75.40	84.27

Sample Ages in 2015	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	34.29	37.57	22.35	27.30	34.29	37.57
55	19.70	23.96	19.17	22.00	19.17	22.00	29.50	32.66	19.70	23.96	29.50	32.66
60	17.04	20.69	16.51	18.74	16.51	18.74	24.95	27.90	17.04	20.69	24.95	27.90
65	14.38	17.45	13.85	15.55	13.85	15.55	20.62	23.29	14.38	17.45	20.62	23.29
70	11.79	14.32	11.29	12.55	11.29	12.55	16.58	18.93	11.79	14.32	16.58	18.93
75	9.38	11.44	8.92	9.89	8.92	9.89	12.88	14.91	9.38	11.44	12.88	14.91
80	7.20	8.93	6.80	7.62	6.80	7.62	9.62	11.33	7.20	8.93	9.62	11.33

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			
	Male		Female		Male		Female		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%	1.5582%	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
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			
			Non-Reformed		Reformed				Non-Reformed		Reformed	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
40	5.0%	5.0%					5.0%	5.0%				
41	5.0%	5.0%					5.0%	5.0%				
42	5.0%	5.0%					5.0%	5.0%				
43	5.0%	5.0%					5.0%	5.0%				
44	5.0%	5.0%					5.0%	5.0%				
45	5.0%	5.0%					5.0%	5.0%				
46	5.0%	5.0%					5.0%	5.0%				
47	5.0%	5.0%					5.0%	5.0%				
48	5.0%	5.0%					5.0%	5.0%				
49	5.0%	5.0%					5.0%	5.0%				
50	5.0%	5.0%					5.0%	5.0%				
51	5.0%	5.0%					5.0%	5.0%				
52	5.0%	5.0%					5.0%	5.0%				
53	5.0%	5.0%					5.0%	5.0%				
54	5.0%	5.0%					5.0%	5.0%				
55	10.0%	10.0%	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

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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 2015 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 2015 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 2015 Social Security Maximum Taxable Wage Base.
Correctional Officers' Retirement System	Not applicable

# ACTUARIAL ASSUMPTIONS AND METHODS

## B. ACTUARIAL PROCEDURES

### 1. Asset Valuation Method

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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

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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 (23 years remaining as of June 30, 2015) 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 2016 are equal to the budgeted contributions developed in the valuation as of June 30, 2014, plus the proportionate share of reinvested savings allocated to each System for fiscal year 2016 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, 2015**  
**MISCELLANEOUS AND TECHNICAL ASSUMPTIONS**

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<b>Marriage Assumption:</b>	75% of males and females are assumed to be married for purposes of death-in-service benefits.
<b>Pay Increase Timing:</b>	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.
<b>Decrement Timing:</b>	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.
<b>Eligibility Testing:</b>	Eligibility for benefits is determined based upon the age nearest birthday and rounded integer service on the date the decrement is assumed to occur.
<b>Benefit Service:</b>	Exact fractional service is used to determine the amount of benefit payable.
<b>Decrement Operation:</b>	Mortality and disability operate during retirement eligibility.
<b>Incidence of Contributions:</b>	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.
<b>Unused Sick Leave:</b>	Each member is assumed to have an additional 5 months of service at retirement attributable to sick leave.
<b>Unknown Data for Participants:</b>	Average characteristics of the group as a whole are used to fill in the unknown data.
<b>Age of Spouse:</b>	In the absence of complete data, females are assumed to be 4 years younger than males.
<b>Option Elections:</b>	It was assumed optional forms of payment were actuarially equivalent to the normal form of payment.
<b>Reinvested Savings Allocation:</b>	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, 2015

### MISCELLANEOUS AND TECHNICAL ASSUMPTIONS

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**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 \$186,770,000 for TPS and \$48,160,000 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 3.84 years for State Police and 4.83 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	0.9929	0.9890
Liabilities for Members in the DROP	0.9943	0.9958
DROP Account Balances	0.9329	0.9361

## **DEFINITIONS OF TECHNICAL TERMS**

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**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).

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## **APPENDIX B**

### MEMBERSHIP INFORMATION

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**STATE RETIREMENT AND PENSION SYSTEM**  
**SUMMARY OF MEMBERSHIP DATA AS OF JUNE 30, 2015**  
**(STATE AND MUNICIPAL)**

		Active Members		Retirees and Beneficiaries			Vested Former Members (Includes Inactives)	Total Number
		Number	Salary	Number	Benefits#	Ave. Age		
Teachers' Retirement - STATE	Total	199	\$ 21,301,287					
	Vested	199	\$ 21,301,287					
	Non-vested	0	\$ -	3,803	\$ 135,784,796	78.7	62.0	127
Teachers' Pension - STATE	Total	8,965	\$ 504,648,558					
	Vested	6,220	\$ 382,020,754					
	Non-vested	2,745	\$ 122,627,804	5,087	\$ 80,790,967	71.8	63.2	2,948
Teachers' Retirement - LOCAL	Total	787	\$ 70,095,275					
	Vested	787	\$ 70,095,275					
	Non-vested	0	\$ -	24,328	\$ 899,521,393	75.9	58.3	259
Teachers' Pension - LOCAL	Total	95,575	\$ 5,874,661,156					
	Vested	73,487	\$ 4,871,584,330					
	Non-vested	22,088	\$ 1,003,076,826	37,958	\$ 825,748,763	69.2	61.6	21,207
Employees' Retirement	Total	8,566	\$ 429,223,262					
	Vested	6,268	\$ 331,636,930					
	Non-vested	2,298	\$ 97,586,332	21,571	\$ 479,178,930	73.3	57.8	804
Employees' Pension	Total	75,228	\$ 3,871,524,469					
	Vested	54,458	\$ 2,981,868,229					
	Non-vested	20,770	\$ 889,656,240	50,460	\$ 697,478,112	69.0	61.1	27,042
State Police	Total	1,394	\$ 91,049,875					
	Vested	988	\$ 71,878,418					
	Non-vested	406	\$ 19,171,457	2,508	\$ 116,339,773	62.4	47.9	81
Judges	Total	307	\$ 44,612,624					
	Vested	243	\$ 35,473,024					
	Non-vested	64	\$ 9,139,600	397	\$ 29,995,284	77.0	65.0	8
LEOPS	Total	2,488	\$ 151,955,067					
	Vested	1,840	\$ 120,077,653					
	Non-vested	648	\$ 31,877,414	1,711	\$ 57,653,994	59.0	52.4	293
CORS	Total	91	\$ 4,890,091					
	Vested	65	\$ 3,709,377					
	Non-vested	26	\$ 1,180,714	27	\$ 756,146	57.4	56.1	0
Total Systems	Total	193,600	\$ 11,063,961,664					
	Vested	144,555	\$ 8,889,645,277					
	Non-vested	49,045	\$ 2,174,316,387	147,850	\$ 3,323,248,158	71.0	60.4	52,769

\* Includes normal and early service retirees only.

#Retiree benefit amounts include the cost-of-living-adjustment granted July 1, 2015.

**STATE RETIREMENT AND PENSION SYSTEM**  
**SUMMARY OF MEMBERSHIP DATA AS OF JUNE 30, 2015**  
**(STATE ONLY)**

		Active Members		Retirees and Beneficiaries				Vested Former Members (Includes Inactives)	Total Number
		Number	Salary	Number	Benefits#	Ave. Age	Avg. Age at Ret.*		
Teachers' Retirement - STATE	Total	199	\$ 21,301,287						
	Vested	199	\$ 21,301,287						
	Non-vested	0	\$ -	3,803	\$ 135,784,796	78.7	62.0	127	4,129
Teachers' Pension - STATE	Total	8,965	\$ 504,648,558						
	Vested	6,220	\$ 382,020,754						
	Non-vested	2,745	\$ 122,627,804	5,087	\$ 80,790,967	71.8	63.2	2,948	17,000
Teachers' Retirement - LOCAL	Total	787	\$ 70,095,275						
	Vested	787	\$ 70,095,275						
	Non-vested	0	\$ -	24,328	\$ 899,521,393	75.9	58.3	259	25,374
Teachers' Pension - LOCAL	Total	95,575	\$ 5,874,661,156						
	Vested	73,487	\$ 4,871,584,330						
	Non-vested	22,088	\$ 1,003,076,826	37,958	\$ 825,748,763	69.2	61.6	21,207	154,740
Employees' Retirement	Total	8,466	\$ 423,385,043						
	Vested	6,168	\$ 325,798,711						
	Non-vested	2,298	\$ 97,586,332	18,248	\$ 414,643,778	72.4	56.8	769	27,483
Employees' Pension	Total	50,795	\$ 2,817,653,206						
	Vested	37,207	\$ 2,173,532,457						
	Non-vested	13,588	\$ 644,120,749	37,261	\$ 543,743,602	68.9	61.5	20,331	108,387
State Police	Total	1,394	\$ 91,049,875						
	Vested	988	\$ 71,878,418						
	Non-vested	406	\$ 19,171,457	2,508	\$ 116,339,773	62.4	47.9	81	3,983
Judges	Total	307	\$ 44,612,624						
	Vested	243	\$ 35,473,024						
	Non-vested	64	\$ 9,139,600	397	\$ 29,995,284	77.0	65.0	8	712
LEOPS	Total	1,546	\$ 98,620,247						
	Vested	1,120	\$ 76,738,098						
	Non-vested	426	\$ 21,882,149	1,371	\$ 45,476,518	60.1	52.6	193	3,110
Total Systems	Total	168,034	\$ 9,946,027,271						
	Vested	126,419	\$ 8,028,422,354						
	Non-vested	41,615	\$ 1,917,604,917	130,961	\$ 3,092,044,875	71.0	60.1	45,923	344,918

\* Includes normal and early service retirees only.

\*Retiree benefit amounts include the cost-of-living-adjustment granted July 1, 2015.

**STATE RETIREMENT AND PENSION SYSTEM**  
**SUMMARY OF MEMBERSHIP DATA AS OF JUNE 30, 2015**  
**(MUNICIPAL ONLY)**

		<u>Active Members</u>		<u>Retirees and Beneficiaries</u>				<u>Vested Former Members (Includes Inactives)</u>	<u>Total Number</u>
		<u>Number</u>	<u>Salary</u>	<u>Number</u>	<u>Benefits#</u>	<u>Avg. Age</u>	<u>Avg. Age at Ret.*</u>	<u>Number</u>	
Employees' Retirement	Total	100	\$ 5,838,219						
	Vested	100	\$ 5,838,219						
	Non-vested	0	\$ -	3,323	\$ 64,535,152	78.1	63.2	35	3,458
Employees' Pension	Total	24,433	\$ 1,053,871,263						
	Vested	17,251	\$ 808,335,772						
	Non-vested	7,182	\$ 245,535,491	13,199	\$ 153,734,510	69.4	60.0	6,711	44,343
LEOPS	Total	942	\$ 53,334,820						
	Vested	720	\$ 43,339,555						
	Non-vested	222	\$ 9,995,265	340	\$ 12,177,475	54.8	51.9	100	1,382
CORS	Total	91	\$ 4,890,091						
	Vested	65	\$ 3,709,377						
	Non-vested	26	\$ 1,180,714	27	\$ 756,146	57.4	56.1	0	118
Total Systems	Total	25,566	\$ 1,117,934,393						
	Vested	18,136	\$ 861,222,923						
	Non-vested	7,430	\$ 256,711,470	16,889	\$ 231,203,283	70.8	62.3	6,846	49,301

\* Includes normal and early service retirees only.

#Retiree benefit amounts include the cost-of-living-adjustment granted July 1, 2015.

## ACTIVE MEMBERSHIP INFORMATION

Maryland State Retirement and Pension System Active Membership Statistics June 30, 2015				
System	Number	Average Age	Average Credited Service	Average Salary
Teachers' Retirement	986	64.5	39.3	\$ 92,694
Teachers' Pension	104,540	44.9	11.7	61,023
Employees' Retirement – State	554	62.9	39.3	74,236
Employees' Retirement – Municipal	100	62.2	38.6	58,382
Employees' Retirement – Legislators	188	54.1	8.4	45,351
Employees' Retirement – Correctional Officers	7,724	42.1	10.7	48,386
Employees' Retirement – Total	<u>8,566</u>	<u>44.0</u>	<u>12.8</u>	<u>50,108</u>
Employees' Pension – State	50,795	48.2	12.7	55,471
Employees' Pension – Municipal	24,433	49.2	10.9	43,133
Employees' Pension – Total	<u>75,228</u>	<u>48.5</u>	<u>12.1</u>	<u>51,464</u>
State Police	1,394	35.3	10.9	65,316
Judges	307	58.1	8.9	145,318
LEOPS – State	1,546	42.0	10.5	63,791
LEOPS – Municipal	942	39.1	10.7	56,619
LEOPS – Total	<u>2,488</u>	<u>40.9</u>	<u>10.6</u>	<u>61,075</u>
CORS	91	41.5	9.2	53,737
<b>TOTAL SYSTEMS</b>	<b>193,600</b>	<b>46.2</b>	<b>12.1</b>	<b>57,149</b>
	<b>Teachers' Retirement</b>		<b>Employees' Retirement</b>	
	<b>Number</b>	<b>Earnings</b>	<b>Number</b>	<b>Earnings</b>
Unlimited COLA	597	\$ 56,738,756	410	\$ 29,368,400
5% COLA Cap	235	21,196,472	187	13,563,346
Bifurcate	154	13,461,334	57	4,032,956
	<u>986</u>	<u>\$ 91,396,562</u>	<u>654</u>	<u>\$ 46,964,702</u>

**ACTIVE MEMBERSHIP – AGE & SERVICE DISTRIBUTION  
JUNE 30, 2015**

**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	11							11	\$ 172,843
20-24	2,435	5						2,440	98,568,068
25-29	8,082	2,288	16					10,386	475,597,947
30-34	3,684	6,927	2,513	8				13,132	706,647,905
35-39	2,528	3,108	5,437	1,554	2			12,629	775,637,463
40-44	2,365	2,419	2,885	4,315	889	8		12,881	855,799,161
45-49	2,415	2,528	2,471	2,812	2,791	755	9	13,781	911,669,090
50-54	1,762	2,382	2,427	2,197	1,422	1,927	503	12,620	803,162,528
55-59	1,129	1,841	2,363	2,387	1,470	1,468	1,747	12,405	800,057,913
60	152	252	388	450	306	300	407	2,255	151,710,910
61	141	222	374	455	333	257	473	2,255	152,904,179
62	153	231	336	404	298	306	511	2,239	153,781,923
63	106	170	250	305	267	260	465	1,823	131,327,105
64	78	176	208	264	211	196	391	1,524	106,421,173
65	76	139	180	190	173	152	322	1,232	88,426,736
66	63	115	140	151	120	127	249	965	65,709,798
67	44	82	95	122	89	94	186	712	48,484,732
68	37	67	96	73	63	73	154	563	38,253,126
69	24	49	70	63	42	51	128	427	28,739,846
70	25	33	57	40	22	32	76	285	18,081,349
71	14	32	40	30	19	24	74	233	15,244,953
72	11	21	29	30	16	7	61	175	11,781,472
73	9	10	26	27	8	12	46	138	8,377,011
74	7	12	16	17	8	7	38	105	6,444,330
75	11	11	12	7	6	7	26	80	4,455,050
76	3	11	10	7	1	3	19	54	3,698,860
77	8	4	5	6	4	2	13	42	1,929,057
78	2	4	4	9	1		6	26	1,214,742
79+	3	14	11	15	6	9	50	108	6,407,006
<b>Totals</b>	<b>25,378</b>	<b>23,153</b>	<b>20,459</b>	<b>15,938</b>	<b>8,567</b>	<b>6,077</b>	<b>5,954</b>	<b>105,526</b>	<b>\$6,470,706,276</b>

**ACTIVE MEMBERSHIP – AGE & SERVICE DISTRIBUTION  
JUNE 30, 2015**

**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	25							25	\$ 611,706
20-24	1,324	20						1,344	42,952,875
25-29	4,320	1,130	57					5,507	220,666,105
30-34	3,774	2,673	725	23				7,195	325,308,194
35-39	3,048	2,290	1,763	638	15			7,754	379,972,445
40-44	2,467	2,231	1,798	1,756	451	48		8,751	448,289,253
45-49	2,620	2,361	1,964	2,022	1,197	1,043	71	11,278	590,883,247
50-54	2,449	2,507	2,091	2,136	1,379	1,922	1,101	13,585	730,797,636
55-59	2,031	2,127	1,820	1,996	1,363	1,762	2,292	13,391	737,647,225
60	295	343	361	367	239	277	501	2,383	133,931,695
61	248	338	347	316	233	277	489	2,248	127,427,673
62	216	289	308	245	204	235	459	1,956	111,942,007
63	193	245	213	215	149	167	341	1,523	86,189,515
64	136	229	186	211	120	144	315	1,341	76,469,236
65	129	189	181	169	106	121	264	1,159	65,346,995
66	95	169	180	121	86	84	184	919	49,694,969
67	87	129	110	122	71	56	171	746	41,018,465
68	55	102	91	103	63	58	120	592	32,012,238
69	64	76	92	62	41	47	78	460	23,847,761
70	40	46	64	40	38	38	67	333	16,862,678
71	42	48	58	45	27	21	49	290	14,155,031
72	25	45	39	35	23	22	32	221	10,637,200
73	24	29	33	27	15	18	33	179	8,688,969
74	21	20	21	19	13	14	30	138	6,309,357
75	24	24	25	17	9	14	12	125	4,692,847
76	14	12	17	12	7	6	15	83	3,277,382
77	10	11	14	10	11	9	19	84	3,650,091
78	1	7	11	14	2	7	10	52	2,316,130
79+	4	25	22	26	15	16	24	132	5,148,806
<b>Totals</b>	<b>23,781</b>	<b>17,715</b>	<b>12,591</b>	<b>10,747</b>	<b>5,877</b>	<b>6,406</b>	<b>6,677</b>	<b>83,794</b>	<b>\$4,300,747,731</b>



# ACTIVE MEMBERSHIP – AGE & SERVICE DISTRIBUTION JUNE 30, 2015

## 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	4							4	\$ 102,008
20-24	124	10						134	5,626,128
25-29	186	88	6					280	14,430,142
30-34	57	123	95	4				279	16,964,091
35-39	21	31	78	79	3			212	14,876,632
40-44	7	22	37	93	77			236	18,614,854
45-49	6	15	24	47	79	12		183	14,845,994
50-54	1	2	9	9	20	9	2	52	4,384,993
55-59			2	4	4	1	3	14	1,205,033
<b>Totals</b>	<b>406</b>	<b>291</b>	<b>251</b>	<b>236</b>	<b>183</b>	<b>22</b>	<b>5</b>	<b>1,394</b>	<b>\$91,049,875</b>

**ACTIVE MEMBERSHIP – AGE & SERVICE DISTRIBUTION  
JUNE 30, 2015**

**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	2							2	\$ 273,000
40-44	12	2						14	2,002,700
45-49	19	10						29	4,111,800
50-54	21	15	8	1				45	6,506,800
55-59	25	18	16	17				76	11,067,200
60	4	6	3	6				19	2,711,400
61	3	2	6	4				15	2,165,660
62	1	2	3	6				12	1,752,000
63	4	8	3	1				16	2,355,400
64	3	1	2	4				10	1,545,900
65	1	2	5	7				15	2,174,300
66	1	1	5	9				16	2,329,508
67	1	1	3	6				11	1,590,956
68	1	4	2	8				15	2,203,800
69		4	1	4				9	1,342,200
70		1	1	1				3	480,000
<b>Totals</b>	<b>98</b>	<b>77</b>	<b>58</b>	<b>74</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>307</b>	<b>\$44,612,624</b>

# ACTIVE MEMBERSHIP – AGE & SERVICE DISTRIBUTION JUNE 30, 2015

## 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	105	8						113	\$ 5,020,172
25-29	214	118	6					338	16,331,235
30-34	101	158	73	4				336	18,035,155
35-39	51	108	143	50	3			355	20,639,229
40-44	46	67	90	118	61	1		383	24,606,710
45-49	62	56	71	102	132	22		445	30,672,936
50-54	43	44	31	38	43	36	11	246	17,267,054
55-59	25	37	28	13	21	7	14	145	10,344,730
60	1	11	5		5	1	5	28	1,904,806
61	2	5	6	1	1	1	2	18	1,239,544
62	5	5	3	4	2		3	22	1,593,013
63		2	4	2			1	9	522,342
64		2	4	3	3		3	15	1,291,152
65		3	1	2	1	1	1	9	686,600
66	2	2	1	1	2	1		9	636,829
67	1	1	4	2			2	10	682,437
68				1	1			2	169,277
69					1			1	80,297
72			1			1		2	109,395
74			1		1			2	122,154
<b>Totals</b>	<b>658</b>	<b>627</b>	<b>472</b>	<b>341</b>	<b>277</b>	<b>71</b>	<b>42</b>	<b>2,488</b>	<b>\$151,955,067</b>

**ACTIVE MEMBERSHIP – AGE & SERVICE DISTRIBUTION  
JUNE 30, 2015**

**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	\$ 87,714
25-29	7	3						10	450,882
30-34	7	7	1					15	721,491
35-39	3	4	2	2				11	574,268
40-44	4	5	5	8				22	1,220,829
45-49	1	4	1	1	1			8	415,896
50-54		3	3	1	1		1	9	563,802
55-59	2	5	1	2			2	12	744,386
60				1				1	59,509
65			1					1	51,314
<b>Totals</b>	<b>26</b>	<b>31</b>	<b>14</b>	<b>15</b>	<b>2</b>	<b>0</b>	<b>3</b>	<b>91</b>	<b>\$4,890,091</b>

**RETIRED MEMBERSHIP STATISTICS**  
**JUNE 30, 2015**  
**(STATE AND MUNICIPAL)**

<b>System</b>	<b>Number</b>	<b>Average Age</b>	<b>Average Credited Service*</b>	<b>Average Final Average Salary*</b>	<b>Average Benefit</b>
Teachers' Retirement	28,131	76.3	28.6	\$ 50,336	\$ 36,803
Teachers' Pension	43,045	69.5	21.9	55,872	21,060
Employees' Retirement – State	18,248	72.4	24.5	\$ 37,014	\$ 22,723
Employees' Retirement – Municipal	3,323	78.1	24.7	29,453	19,421
Employees' Retirement – Total	<u>21,571</u>	73.3	24.5	35,850	22,214
Employees' Pension – State	37,261	68.9	20.8	\$ 42,767	\$ 14,593
Employees' Pension – Municipal	13,199	69.4	17.6	36,697	11,647
Employees' Pension – Total	<u>50,460</u>	69.0	19.9	41,179	13,822
State Police	2,508	62.4	23.8	\$ 49,664	\$ 46,387
Judges	397	77.0	14.0	\$ 148,267	\$ 75,555
LEOPS – State	1,371	60.1	22.9	\$ 55,798	\$ 33,170
LEOPS – Municipal	340	54.8	22.5	62,469	35,816
LEOPS – Total	<u>1,711</u>	59.0	22.8	57,124	33,696
CORS – Municipal	27	57.4	22.6	\$ 65,981	\$ 28,005
Total - State	130,961	71.0	23.4	\$ 48,487	\$ 23,610
Total - Municipal	16,889	70.8	19.1	35,838	13,690
<b>TOTAL SYSTEMS</b>	<b>147,850</b>	<b>71.0</b>	<b>22.9</b>	<b>47,042</b>	<b>22,477</b>

\* Only non-zero values included in averages.

**RETIRED MEMBERSHIP STATISTICS –BY TYPE**  
**JUNE 30, 2015**  
**(STATE AND MUNICIPAL)**

System	Service Retirees		Disabilities		Beneficiaries	
	Number	Average Age	Number	Average Age	Number	Average Age
Teachers' Retirement	24,918	76.1	788	75.4	2,425	78.9
Teachers' Pension	38,255	70.2	3,580	62.8	1,210	70.3
Employees' Retirement – State	14,046	72.6	1,644	61.4	2,558	78.3
Employees' Retirement – Municipal	2,494	78.0	239	75.3	590	79.6
Employees' Retirement – Total	<u>16,540</u>	73.4	<u>1,883</u>	63.2	<u>3,148</u>	78.6
Employees' Pension – State	29,825	69.9	5,380	62.2	2,056	70.3
Employees' Pension – Municipal	10,018	71.3	2,495	61.5	686	69.8
Employees' Pension – Total	<u>39,843</u>	70.3	<u>7,875</u>	62.0	<u>2,742</u>	70.2
State Police	1,598	63.5	621	55.3	289	71.7
Judges	283	75.3	3	67.6	111	81.7
LEOPS – State	1,002	62.1	291	52.4	78	62.2
LEOPS – Municipal	245	57.3	85	47.7	10	54.4
LEOPS – Total	<u>1,247</u>	61.2	<u>376</u>	51.3	<u>88</u>	61.3
CORS – Municipal	23	58.9	4	48.7		
Total - State	109,927	71.6	12,307	62.5	8,727	75.2
Total - Municipal	<u>12,780</u>	72.3	<u>2,823</u>	62.3	<u>1,286</u>	74.2
<b>TOTAL SYSTEMS</b>	<u>122,707</u>	71.7	<u>15,130</u>	62.5	<u>10,013</u>	75.0

# Retiree benefit amounts include the cost-of-living-adjustment granted July 1, 2015.

**RETIRED MEMBERSHIP – ATTAINED AGE**  
**JUNE 30, 2015**  
**(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	9	\$ 106,357	43	\$ 571,774	7	\$ 188,003	-	-	5	\$ 73,193	-	-	64	\$ 939,328
30-34	22	558,050	61	1,196,704	7	283,941	-	-	18	622,545	-	-	108	2,661,240
35-39	53	1,516,946	125	2,448,275	26	965,718	-	-	29	950,468	-	-	233	5,881,407
40-44	118	3,287,763	382	8,490,703	93	4,249,699	-	-	61	2,216,106	-	-	654	18,244,270
45-49	226	6,501,230	976	20,835,315	291	14,221,012	-	-	162	5,990,676	4	\$ 64,440	1,659	47,612,673
50-54	482	13,336,314	2,499	53,157,115	351	16,859,242	1	\$ 47,111	304	10,789,211	7	226,467	3,644	94,415,460
55-59	2,085	62,903,267	5,262	111,352,169	299	14,518,959	1	23,556	333	12,032,380	7	210,548	7,987	201,040,879
60-64	10,056	307,661,880	11,360	214,832,407	356	17,103,156	25	2,030,413	331	10,883,600	6	150,614	22,134	552,662,071
65-69	19,935	554,684,688	17,099	285,241,079	389	17,689,777	62	5,244,998	278	8,690,282	2	30,092	37,765	871,580,917
70-74	15,090	397,402,678	12,899	193,710,337	294	13,219,965	90	7,027,968	105	3,070,696	1	73,985	28,479	614,505,630
75-79	9,546	245,307,902	8,976	123,098,776	216	8,791,325	71	5,791,658	56	1,584,910	-	-	18,865	384,574,571
80-84	6,890	178,996,037	6,358	83,605,970	109	4,351,061	69	4,995,555	23	630,539	-	-	13,449	272,579,162
85-89	4,297	111,261,661	3,844	51,187,389	46	2,218,820	48	2,706,829	5	95,285	-	-	8,240	167,469,985
90-94	1,861	45,323,096	1,666	20,969,420	20	1,327,706	21	1,432,406	1	24,101	-	-	3,569	69,076,729
95-99	443	10,787,974	421	5,414,246	2	194,121	7	549,091	-	-	-	-	873	16,945,432
100-104	58	2,103,010	58	532,650	2	157,269	2	145,700	-	-	-	-	120	2,938,629
105-109	5	107,064	2	12,713	-	-	-	-	-	-	-	-	7	119,777
	<b>71,176</b>	<b>\$ 1,941,845,919</b>	<b>72,031</b>	<b>\$ 1,176,657,042</b>	<b>2,508</b>	<b>\$ 116,339,773</b>	<b>397</b>	<b>\$ 29,995,284</b>	<b>1,711</b>	<b>\$ 57,653,994</b>	<b>27</b>	<b>\$ 756,146</b>	<b>147,850</b>	<b>\$ 3,323,248,158</b>

# Retiree benefit amounts include the cost-of-living-adjustment granted July 1, 2015.

**RETIRED MEMBERSHIP\* – BY CALENDAR YEAR OF RETIREMENT**  
**JUNE 30, 2015**  
**(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 1985	3,093	\$ 83,142,552	2,653	\$ 39,882,835	274	\$ 11,450,259	28	\$ 1,145,642	-	-	-	-	6,048	\$ 135,621,288
1985	573	14,099,486	521	7,788,373	57	2,096,267	9	657,520	-	-	-	-	1,160	24,641,646
1986	719	18,614,034	590	8,408,922	49	1,811,662	5	230,949	-	-	-	-	1,363	29,065,568
1987	646	16,459,501	660	10,003,746	47	1,823,236	9	583,396	-	-	-	-	1,362	28,869,879
1988	738	20,393,909	779	12,113,003	43	1,517,972	7	383,503	-	-	-	-	1,567	34,408,387
1989	900	24,399,867	804	12,679,928	56	2,339,947	8	388,759	-	-	-	-	1,768	39,808,501
1990	925	25,679,785	883	13,323,922	49	1,954,777	12	743,292	10	232,819	-	-	1,879	41,934,595
1991	1,146	35,116,791	1,126	17,864,428	46	2,061,032	3	187,505	17	445,648	-	-	2,338	55,675,403
1992	1,698	53,707,228	1,327	20,085,604	99	4,491,776	7	425,178	21	592,309	-	-	3,152	79,302,094
1993	1,371	38,919,348	1,245	17,616,562	64	2,758,667	6	302,808	13	369,192	-	-	2,699	59,966,577
1994	1,471	38,348,950	1,342	18,801,507	72	3,220,007	7	507,648	12	353,114	-	-	2,904	61,231,227
1995	1,644	42,297,164	1,556	22,321,635	60	2,670,101	14	962,761	14	427,209	-	-	3,288	68,678,869
1996	1,839	48,396,054	2,660	44,209,942	81	3,473,379	14	967,570	14	408,243	-	-	4,608	97,455,188
1997	1,926	51,321,798	1,829	28,128,772	61	2,534,659	8	634,420	15	334,251	-	-	3,839	82,953,900
1998	2,102	58,285,624	1,682	22,636,028	62	2,649,867	10	619,022	24	508,900	-	-	3,880	84,699,442
1999	2,583	72,894,494	1,807	25,708,516	62	3,080,872	10	926,969	33	721,240	-	-	4,495	103,332,092
2000	2,582	70,665,043	1,952	26,519,685	139	7,066,701	12	1,097,021	78	2,228,529	-	-	4,763	107,576,978
2001	2,514	68,314,415	2,053	29,650,240	95	4,958,582	13	924,913	99	3,410,581	-	-	4,774	107,258,731
2002	2,662	70,694,464	2,345	34,443,496	90	4,918,748	15	1,092,655	92	3,108,864	-	-	5,204	114,258,228
2003	2,681	72,958,846	2,780	44,194,434	106	5,998,408	10	930,066	92	3,560,699	-	-	5,669	127,642,452
2004	3,063	84,342,283	3,119	51,116,523	102	5,192,476	14	1,122,151	82	2,921,584	-	-	6,380	144,695,017
2005	3,099	80,472,792	3,333	54,759,740	116	5,668,735	14	1,248,132	96	3,495,760	-	-	6,658	145,645,159
2006	2,728	71,755,553	3,011	48,785,053	87	4,199,177	17	1,323,678	90	3,050,824	-	-	5,933	129,114,285
2007	3,015	83,378,570	3,307	57,173,809	97	4,442,649	22	1,900,365	95	3,014,427	-	-	6,536	149,909,820
2008	3,102	82,989,728	3,433	58,397,344	83	3,791,265	13	1,145,210	98	3,455,306	-	-	6,729	149,778,853
2009	3,000	74,900,403	3,536	58,096,980	71	3,429,684	17	1,467,630	124	4,357,585	1	13,765	6,749	142,266,048
2010	3,526	98,414,864	4,160	74,343,957	76	4,280,678	16	1,407,220	100	3,654,260	7	190,124	7,885	182,291,104
2011	4,308	125,528,799	4,430	80,955,877	84	3,784,526	16	1,385,611	121	4,304,020	3	180,063	8,962	216,138,896
2012	3,586	97,855,436	3,627	61,234,350	54	2,578,187	14	1,255,247	120	4,210,230	3	98,307	7,404	167,231,758
2013	3,602	100,621,441	3,886	69,903,229	61	2,936,262	21	1,699,301	119	4,113,274	6	169,175	7,695	179,442,682
2014	3,600	101,152,411	3,328	59,015,136	43	2,042,118	17	1,613,126	81	2,699,023	6	91,976	7,075	166,613,790
2015	734	15,724,285	2,267	46,493,464	22	1,117,097	9	716,016	51	1,676,103	1	12,735	3,084	65,739,700
	<b>71,176</b>	<b>\$ 1,941,845,919</b>	<b>72,031</b>	<b>\$ 1,176,657,042</b>	<b>2,508</b>	<b>\$ 116,339,773</b>	<b>397</b>	<b>\$ 29,995,284</b>	<b>1,711</b>	<b>\$ 57,653,994</b>	<b>27</b>	<b>\$ 756,146</b>	<b>147,850</b>	<b>\$ 3,323,248,158</b>

\*Retiree benefit amounts include the cost-of-living-adjustment granted July 1, 2015.



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**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-17) 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 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, 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, 2014, individuals serving as a security chief, a facility administrator, an assistant warden or a warden will participate in this System.

The retirement allowance for an individual who is a correctional officer on or before June 30, 2011, is 1/55<sup>th</sup> 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 1/55<sup>th</sup> 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 correctional officers on June 30, 2011, the vested retirement allowance of a correctional officer who has accrued at least 5 years of eligibility service in the first six job classifications commences at age 55; for the security attendant it commences at age 60. For individuals who become correctional officers on or after July 1, 2011, the vested retirement allowance for a correctional officer who has accrued at least 10 years of eligibility service in the first six job classifications commences at age 55; for the security attendant it commences at age 60.

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**

For members that join the Legislative Pension Plan on or after January 1, 2015, the retirement allowance is payable upon attaining age 62. A reduced early retirement allowance is available between ages 55 and 62. All Legislative Pension Plan members will contribute 7% of earnable compensation beginning January 1, 2015.

Beginning July 1, 2014, individuals serving as a security chief, a facility administrator, an assistant warden or a warden will participate in this System.

# 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 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 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 18, one-half of average final compensation continues until the youngest child reaches age 18. 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 18, one-half of average final compensation continues until the youngest child reaches age 18. 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**

Beginning July 1, 2015, employees of the Warrant Apprehension Unit of the Division of Parole and Probation in the Department of Public Safety and Correctional Services who have the powers granted to a peace officer or police officer under § 6–106 of the Correctional Services Article of the Annotated Code of Maryland are members of the Law Enforcement Officers’ Pension System.

# 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 18, one-half of average final compensation continues until the youngest child reaches age 18. 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 18, one-half of average final compensation continues until the youngest child reaches age 18. 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**

None.