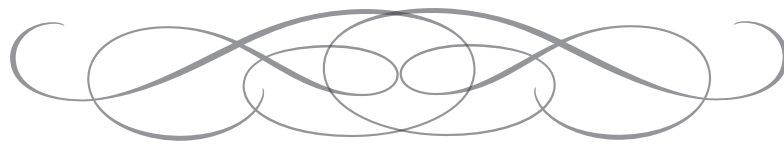


Joint Committee on Pensions



2016 INTERIM REPORT



Annapolis, Maryland
December 2016

Contributing Staff

Writers

Phillip S. Anthony
Dana K. Tagalicod

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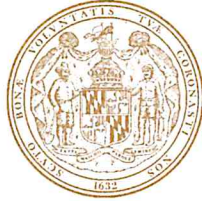
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MARYLAND GENERAL ASSEMBLY
JOINT COMMITTEE ON PENSIONS

December 14, 2016


The Honorable Thomas V. Mike Miller, Jr., Co-Chair
The Honorable Michael E. Busch, Co-Chair
Members of the Legislative Policy Committee

Ladies and Gentlemen:

The Joint Committee on Pensions herewith submits a report of its 2016 interim activities and legislative recommendations. The joint committee met three times during the 2016 interim and addressed three pension topics and nine legislative proposals requested by the Board of Trustees for the State Retirement and Pension System. The joint committee made recommendations on many of these items at its final meeting for the 2016 interim. The joint committee also had its annual briefings on the actuarial valuation of the system and the system's investments.

We thank the joint committee members for their diligence and attention to the work of the committee. Also, on behalf of the committee members, we thank Phillip S. Anthony, Dana K. Tagalicod, Michael C. Rubenstein, and Cathy Kramer of the Department of Legislative Services and the staff of the Maryland State Retirement Agency for their assistance.

Sincerely,


Senator Douglas J.J. Peters
Senate Chair


Delegate Benjamin S. Barnes
House Chair

DJJP:BSB/PSA:DKT/eck

Enclosure

cc: Mr. Warren G. Deschenaux
Mr. Ryan Bishop
Ms. Carol Swan

**Maryland General Assembly
Joint Committee on Pensions
2016 Interim
Membership Roster**

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Benjamin S. Barnes, House Chair**

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Bill Ferguson
Guy J. Guzzone
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Roger P. Manno
Nathaniel J. McFadden
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Delegates

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Keith E. Haynes
Carol L. Krimm
Brooke E. Lierman
Tony McConkey
Barbara Robinson
Pat Young

Committee Staff

Phillip S. Anthony
Dana K. Tagalicod

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Joint Committee on Pensions

2016 Interim Report

Over the course of three meetings during the 2016 interim, the Joint Committee on Pensions addressed three pension topics and nine legislative proposals requested by the Board of Trustees for the State Retirement and Pension System (SRPS). The joint committee also had its annual briefings on the actuarial valuation of the system and the system's investments.

Results of the 2016 Actuarial Valuation and Fiscal 2018 Contribution Rates

From fiscal 2015 to 2016, SRPS's funded status (the ratio of projected actuarial assets to projected actuarial liabilities) improved from 68.6% at the end of fiscal 2015 to 69.5% at the end of fiscal 2016 (these figures exclude funding for local governments that participate in the State plan). Total State liabilities increased from \$61.4 billion to \$62.8 billion, with the unfunded liability decreasing from \$19.3 billion to \$19.1 billion.

Exhibit 1 shows that the employer contribution rate for teachers will decrease from 16.55% in fiscal 2017 to 16.45% in fiscal 2018, and the contribution rate for State employees will increase from 18.93% in fiscal 2017 to 19.22% in fiscal 2018. The aggregate State contribution rate, including contributions for public safety employees and judges, increases from 18.32% in fiscal 2017 to 18.34% in fiscal 2018. Based on projected payroll growth and other factors, the SRPS actuary estimates that total employer pension contributions will increase from \$1.891 billion in fiscal 2017 to \$1.907 billion in fiscal 2018.¹ The funding rates and contribution amounts are inclusive of the required supplemental contributions required by Chapter 489 of 2015 (discussed below). The rates for the fiscal 2017 and 2018 contribution rates are the actuarially determined contribution rates.

Employer contribution rates were subject to multiple influences this year, some exerting upward pressure and others downward pressure. Investment returns over the five-year smoothing period exert upward pressure on the fiscal 2018 contribution rates. Increased membership under the reformed benefits exerts downward pressure on the rates. Chapter 489 eliminated the corridor funding method, which restricted the growth of contribution rates for the Teachers' Combined System and the Employees' Combined System, the two largest plans within SRPS. By eliminating the corridor method, Chapter 489 ensured that the budgeted contribution rate is the actuarially determined rate necessary to fully fund the system.

¹ System contributions are based on the fiscal 2016 system valuation presented to the Joint Committee on Pensions on November 2, 2016, by the system actuary, Gabriel, Roeder, Smith, & Co.

Exhibit 1
State Pension Contributions
Fiscal 2017 and 2018
(\$ in Millions)

<u>Plan</u>	2017		2018	
	<u>Rate</u>	<u>Contribution</u>	<u>Rate</u>	<u>Contribution</u>
Teachers	16.55%	\$1,105.2	16.45%	\$1,122.6
Employees	18.93%	643.1	19.22%	639.1
State Police	82.50%	78.8	81.36%	79.8
Judges	46.56%	21.8	46.45%	21.8
Law Enforcement Officers	40.72%	42.1	40.77%	43.7
Aggregate	18.32%	\$1,890.9	18.34%	\$1,906.9

Note: Except for the Teachers' Combined System (TCS), contribution rates and dollar amounts reflect State funds only, excluding municipal contributions. For TCS, they reflect the combined total of State and local contributions. Figures also reflect the supplemental contributions established by Chapter 489 of 2015.

Source: Gabriel, Roeder, Smith & Co.

In addition to eliminating the corridor method and returning the system to full actuarially determined funding, Chapter 489 also provides a supplemental contribution of \$75.0 million each year until the system is 85% funded. Additionally, Chapter 489 included a sweeper provision, which will direct a portion of unspent general funds to the system as additional supplemental payments in fiscal 2017 through 2020. Since fiscal 2016 ended with an unappropriated fund balance, the Governor is required to include an additional \$50.0 million appropriation for State pension contributions in the fiscal 2018 budget submission. This is the maximum required by Chapter 489.

Under State law, employer contributions to the several systems provide for full funding of the actuarially determined contribution, pay the actuarially determined contribution in full, and additionally provide for regular supplemental payments above the actuarially determined contribution.

State Retirement and Pension System Investment Performance

The SRPS investment return for the fiscal year that ended on June 30, 2016, was 1.16%, which failed to meet the assumed rate of return of 7.55% for the second consecutive year. The

system as a whole underperformed its policy benchmark by 54 basis points. The performance was driven by low public equity returns, which made up 37.4% of the portfolio and returned -4.31% for the fiscal year, 46 basis points below benchmark. Private equity, comprising 9.2% of system assets, had another strong year with a return of 9.94%, significantly outperforming its benchmark of 4.59%. The rate-sensitive asset class returned 9.34%, but was 131 basis points below its benchmark. Real assets and absolute return sustained losses and also underperformed their benchmarks. The strongest performing assets were private equity, real estate, and fixed income.

The system's assets totaled \$45.465 billion as of June 30, 2016, a decrease of \$368 million over fiscal 2015 after accounting for benefit payouts and other expenses. This is the third year in a row that the market value of the fund has exceeded \$45.0 billion but is also the first year since 2012 that the market value of the fund decreased when compared to the prior June 30 value. Total system return for the five-year period ending June 30, 2016, is 5.68%, which is 72 basis points above the plan return benchmark for that period, though below the assumed rate of return.

Board Requested Legislation

References to the Reformed Contributory Pension Benefit

When the Reformed Contributory Pension Benefit (RCPB) was established in 2011, reference to this new benefit tier of the Employees' Pension System (EPS) was inadvertently omitted from various sections in the State Personnel and Pensions Article. State Retirement Agency (SRA) staff identified two provisions addressing eligibility service under § 23-306.2 of the State Personnel and Pensions Article (SPP) to be amended to include reference to RCPB. SRA indicates that there is no cost associated with the proposal.

The joint committee will sponsor the requested legislation.

Purchase of Employment as a Legislative Employee

Section 23-307 of SPP addresses the purchase of service credit by members of EPS. The provision provides that members of EPS may purchase various types of service, provided the member pays one half of the employee cost and one half of the employer cost for the service. One type of service that may be purchased under this section is up to 130 days of employment as an employee of a member of the Maryland Senate or House of Delegates, prior to the individual joining EPS.

Section 23-307 provides different calculations for the purchase of service depending on whether the service was earned before or on or after January 1, 1980. The purchase of service earned prior to January 1, 1980, is set at the amount the member would have been required to contribute for the period of employment, plus interest compounded annually. For employment on or after January 1, 1980, the cost of service equals the amount that the member would have been

required to contribute for that period of employment and the amount that the State would have been required to contribute for the member for that period of employment, plus interest.

SRA indicated that it did not find any member of EPS in the past 10 years who has requested to purchase pre-membership employment with the General Assembly. In 2004, all new legislative employees were required to join EPS as a condition of employment. In 2015, optional membership was reinstituted, but the option to join EPS has to be made at the commencement of employment. As a result, legislative employees commencing employment on or after July 1, 2004, will not have any service with the General Assembly that could be purchased under § 23-307.

The board recognized that, while unlikely, it is still possible for a legislative employee to seek purchase of the 130 days of employment prior to joining EPS. The board recommended amending the purchase provisions as follows:

- for employment before January 1, 1980, the amount that the member would have been required to contribute for that period of employment, plus 5% interest, compounded annually, and
- for employment on or after January 1, 1980, one half of the employee cost and one half of the employer cost for the service.

The board noted that the recommended changes would result in purchases of service at a lower cost than is currently provided for in statute but anticipates any cost to be *de minimus* due to the fact that there have been no purchases in the last 10 years, and each purchase would be limited to a maximum of 130 days of service.

The joint committee will sponsor the requested legislation.

Independent Medical Evaluations – Small Procurement Cap

Independent medical evaluations are required through SRA regulations to be performed on every disability applicant applying for a line-of-duty disability and at the discretion of the medical board for non-line-of-duty disability applications. In order for SRA to stay under the State's small procurement cap, SRA can pay only up to \$25,000 each year to each doctor that performs independent medical evaluations. SRA noted that this amount can be reached quickly through examinations, testifying before the Office of Administrative Hearings, and any appeals that may occur. Once the \$25,000 cap is reached, SRA's options are to find additional doctors willing to do independent medical evaluations or to seek increases in funding through the regular procurement process on a case by case basis. To avoid having to seek out additional doctors to perform the independent medical evaluations and the administrative burden and time delay incurred through the procurement process, the board has recommended expanding the SRPS procurement exemption to include an exemption for the services of physicians provided to the SRPS medical board. The recommended exemption would include independent medical evaluations and any related testimony required of the physicians.

The joint committee will sponsor legislation to increase the small procurement exemption to \$50,000 for independent medical evaluation services.

Membership Elections – Prohibitions

Recent Internal Revenue rulings have raised issues for SRA staff and legal counsel regarding provisions within SPP that allow certain individuals the election to join various plans within SRPS throughout the employment careers of these individuals. Generally, these rulings address impermissible cash or deferred arrangements and limit the circumstances under which one-time, irrevocable membership elections are permissible. Based on its review of these rulings, and on advice of tax counsel for the system, the board recommended changes to several provisions in the Optional Retirement Program (ORP) and plans within SRPS that are in conflict with the rulings.

Presently, individuals employed as faculty or professional employees of the University of Maryland, Morgan State University, St. Mary's College, the Maryland Higher Education Commission, or any community college have the option to join either the Teachers' Pension System (TPS) or ORP within their first year of employment. If no election is made, the individual is enrolled in TPS. The election to join ORP is allowed even if the individual is currently, or previously has been, a member of another plan in the system. Based on review of the recent rulings, tax counsel to SRPS has advised that current and former employees of the State or a participating governmental unit (PGU) who at some point in their careers have been members of one of the several systems may no longer be offered an election to join ORP. SRPS tax counsel has also advised that new employees, with no previous system membership, may be offered only an election to join ORP or TPS at the commencement of employment. The board recommended changes to Title 30 of SPP that would reflect the advice of SRPS tax counsel.

SRPS tax counsel also identified other provisions that provide for optional membership where changes are needed to comply with recent Internal Revenue rulings. Section 23-209 allows the board discretion to make membership in TPS optional for individuals whose compensation is paid only partly by the State or whose employment is temporary or on other than a yearly basis. The board recommended changes requiring optional membership selections to be made at the commencement of employment and to prohibit optional membership if an individual is currently a TPS member at the time the individual accepts employment that would be covered under Section 23-209.

Section 24-203 allows the Secretary of State Police to join either the State Police Retirement System (SPRS) or EPS. To avoid potential issues that would require the Secretary to become a member of EPS due to earlier membership in that system, the board recommended amending § 24-203 to remove the election option. This change would require the Secretary to become a member of SPRS.

The final area identified by SRPS tax counsel regarding optional membership elections concerns elections made by employees of PGUs at the time a new PGU enters the system or an

existing PGU withdraws from the system. Based on the rulings, SRA has been advised that current employees of an enrolling PGU may no longer be offered the option to join the SRPS plan, if at the time PGU joins SRPS, it:

- participates in the “pick-up” program of the SRPS plan it is joining, and prior to joining the SRPS plan, it had its own plan that had a “pick-up” program; and
- the employee contribution rates between the SRPS plan and the PGU plan are different.

The prohibition on elections would also apply if the same criteria are met for a PGU withdrawing from an SRPS plan. If the withdrawing PGU is leaving to start a plan with a different employee contribution rate from the SRPS plan, optional membership elections may not be allowed.

The board recommended making changes to the ORP and SRPS plans to bring the optional membership election provisions into conformity with the Internal Revenue rulings.

The joint committee will sponsor the requested legislation.

Optional Retirement Program – Annuity Contracts

In conducting its review of ORP, Segal Rogerscasey presented the SRA Investment Division staff with several recommendations relating to the board’s ORP agreement with TIAA CREF. Several of the recommendations were predicated on moving from TIAA’s current individual annuity contract structure to a product known as the Retirement Choice contract. In order to implement the recommended Retirement Choice contract, the board recommended amending § 30-206 of SPP to allow the board to enter into a group annuity contract to provide benefits to participating employees. The amendments would clarify that an employee’s rights under an annuity contract are nonforfeitable in accordance with the Internal Revenue Code but would no longer require that annuity contracts purchased under the program “be issued to and become the property of the participating employees.”

The joint committee will sponsor the requested legislation.

Reduction of Accidental Disability Benefits by the Amount of Related Workers’ Compensation Benefits

Maryland law generally prevents a government retiree covered by both workers’ compensation and a government pension or retirement plan from recovering twice for a single injury. Section 29-118 of SPP requires the SRPS board to reduce an accidental or special disability retirement benefit by any related workers’ compensation benefit paid during the same time period. Under § 9-610 of the Labor and Employment Article, a workers’ compensation award to an employee of a government unit or quasi-public corporation is offset by the amount of similar disability payments that are not subject to an offset under § 29-118 of SPP. In short, if an

individual receives a workers' compensation award and an ordinary disability retirement, the workers' compensation award is offset; if an individual receives a workers' compensation and a line-of-duty disability retirement,² the disability retirement is offset.

SRA noted that the complicated statutory scheme for offsets and reductions for workers' compensation and disability retirements has resulted in a process that is disjointed and sometimes inconsistent in its application. SRA has found that administering and monitoring the mandatory reduction of an accidental benefit in many instances can be unduly burdensome. Implementing an offset can be especially complicated when SRA retroactively awards a line-of-duty disability retirement, if an offset by the Workers' Compensation Commission erroneously implements an offset, or when SRA does not receive timely notice of a workers' compensation award.

The board recommended statutory changes so that the offset reduction to a line-of-duty disability would not be implemented by the SRPS board, but instead, the offset would be taken from the workers' compensation award. This would treat offsets for SRPS line-of-duty disability retirements the same as non-line-of-duty awards are currently treated.

The joint committee decided to hold the requested legislation and expressed an interest in legislation that would more broadly address SRPS disability benefits and workers' compensation benefits.

Board of Trustees Budget Authority – Investment Division

Under current law, the Chief Investment Officer (CIO) and the board have authority to incur investment related expenses, but this authority excludes the work of the investment division from the definition of investment management expenses. A review by the CIO has assessed that the current level of staffing could put the system's ability to achieve its return objective at risk, and that the compensation structure contributes to turnover. Additionally, the CIO has assessed that the level and compensation of staff are an impediment to internal management initiatives that are intended to lower system costs and improve investment return potential.

The board requested authority to set compensation levels for staff, create and eliminate positions, and approve investment-related expenditures to preserve and enhance the value of SRPS assets. The requested authority is intended to alleviate resource constraints the Investment Division faces in attracting and retaining qualified personnel. The board notes that an existing statute places a cap on investment management service costs incurred in public markets, and the requested authority could be included in that calculation.

As noted in the *Annual State Retirement and Pension System Investment Overview*, one of the arguments for internal management is that it can reduce fees paid for asset management. The

² Under SPP, a special disability or accidental disability are awarded for service connected disabilities, or "line-of-duty" disabilities.

Department of Legislative Services (DLS) noted that internal management does introduce additional risk factors. SRA has been effective at negotiating favorable fee arrangements with external managers, and external management provides SRPS with options to select asset managers and to diversify the management of assets among multiple managers. When particular managers do not perform well, SRPS is able to terminate the management arrangement and place the funds under management elsewhere. If assets under internal management fail to adequately perform, the investment performance would be an SRA personnel issue, rather than a manager selection issue. Flexibility and diversification in management of assets will need to be balanced with potential cost savings from reduced fees. Additionally, turnover of internal management personnel could affect investment performance continuity.

DLS recommended that if legislation is sponsored, it should include limitations and controls on the expansion of independent budget authority for Investment Division personnel, as well as reporting requirements regarding the use of any additional authority granted by the legislation. DLS noted that this recommendation would be consistent with prior legislation expanding the board's compensation authority for Investment Division personnel under Chapters 561 and 562 of 2012.

The joint committee decided to hold the requested legislation and requested that staff work with SRA to explore possible limitations and reporting requirements on the requested budgetary authority for the Investment Division.

Procurement Exemption for Global Custody Services

In accordance with § 21-124 of SPP, the State Treasurer, as the custodian of the assets of the system, is responsible for making all arrangements for the safe custody of investments and banking services. The procurement of these services is subject to all State procurement laws and regulations. The board noted that the system has implemented more sophisticated investment strategies on a more global scale. Thus, SRPS requires its custodian to assist in opening sub-custodian accounts throughout the world, provide foreign exchange and third party securities lending services, and customized performance reporting and data feeds for system consultants, claims monitors and software providers. The board indicates that these services are essential to the investment operations of the system and are much broader than traditional custody services.

In light of the unique nature of the global custody services required for the system and the significant ties to investment operations and performance, the board recommended that (1) authority for the procurement of global custody services be transferred to SRA under policies established by the Board of Trustees; and (2) the system's procurement exemption under § 11-203 of the State Finance and Procurement Article be expanded to include services for the global custody of system assets. The responsibility for the procurement of traditional operational banking services would remain within the purview of the State Treasurer.

The joint committee will sponsor the requested legislation.

Modification of Employer Surcharge – Non-Contributory Pension Benefit and Contributory Pension Benefit

The 2011 legislative reforms substantially revised the benefit provisions and employee contribution rates for the SRPS Municipal Employees' Combined System. When plan changes such as the 2011 reforms affect different PGUs differently, equity relationships can be affected to the systematic benefit of some and to the systematic detriment of others. The board recommended that legislation be introduced to convert or phase in a more equitable allocation of contribution requirements among PGUs.

The 2011 reforms caused the pooled employer cost to decrease by about 2% of pay. Most of that decrease was due to the increase in employee contribution rates for the Alternate Contributory Pension Selection participants, from 5% to 7%. PGUs with participants subject to the Non-Contributory Pension Benefit (NCPB) or the Employees' Contributory Pension Benefit (ECPB) benefitted from the decrease in employer contributions although there was no offsetting increase in employee contributions from their NCPB and ECPB participants. This was the result of a specific provision included in the 2011 reforms that exempted these nine employers from having to participate in RCPB.

The board recommended establishing a new surcharge of 2% of pay for each of the nine employers participating in NCPB or ECPB. Because of the magnitude of the proposed changes to the employer contribution rate and the impact on these nine PGUs, the board also recommended these changes be implemented over a period of five years. The five-year phase-in would begin with the December 2018 billing and would be fully implemented by the December 2022 billing.

The joint committee decided to hold the requested legislation so that more detailed information on the impact of the legislation can be obtained.

Additional Topics

Death Benefits Study

Chapter 12 of 2016, the Harford County Deputy Sheriffs Dailey and Logsdon Benefits Memorial Act, required DLS and SRA to review SPP and the 2014 Resolution of the General Assembly Compensation Commission relating to death benefits to determine whether any changes should be recommended to the Joint Committee on Pensions. The legislation extended the time during which a surviving beneficiary of a member of the Law Enforcement Officers Pension System (LEOPS) may receive a regular monthly allowance. As the legislation only affected LEOPS, the General Assembly included the review of death benefits available to members of all plans within SRPS to determine whether additional changes to SRPS death benefits are

recommended. The report reviewed the current death benefits available in SRPS and identified areas where changes could be made to achieve parity of available benefits between the different plans within SRPS and between recipients of death benefits. The report noted the following areas of interest to the Joint Committee:

- the age cutoff for benefits for surviving children;
- the selection of the general death benefit as an option when it would provide a greater benefit than a special death benefit allowance;
- the division of a special death benefit allowance to eligible surviving children when a surviving child become ineligible due to age;
- eligibility of dependent parents for survivor allowances; and
- application of the age cutoff to a surviving disabled child.

Chapter 12 also required a review of Legislative Pension Plan (LPP) provisions to determine whether any changes should be made to the death benefits offered under LPP. Changes to LPP are the purview of the General Assembly Compensation Commission, so Chapter 12 instructed that any recommended changes be referred to the commission for consideration. To the extent that any changes are made to the death benefits provided to SRPS members of the systems covered under SPP, any such changes should be referred to the commission for consideration to make the LPP death benefits consistent with the death benefits available in the other SRPS systems.

The joint committee will sponsor legislation to address death benefits for SRPS members.

Climate Change and Investments

At the request of the joint committee, SRA briefed the committee regarding how SRPS factors the growing risk of climate change into the pension fund's investments. SRA investment staff considers environmental, social, and governance issues and risks, along with many other issues and risks, in implementing the board's long term asset allocation policy.

SRA briefed the joint committee for informational purposes only.

Administrative Fees Procedures

On its own initiative, SRA prepared a report and briefed the joint committee regarding the process of billing and collecting SRA's administrative expenses from the State and local participating employers. SRA made recommendations regarding billing and future offsets, reduction of the employer contribution, and billing to local participating employers.

SRA presented this report to the joint committee for informational purposes only. These issues and recommendations will be presented to the budget committees during the 2017 legislative session.



Maryland State Retirement and Pension System

Results of the
June 30, 2016 Actuarial Valuation
For Fiscal 2018
November 2, 2016

Appendix 1

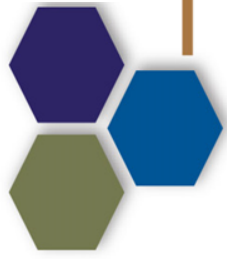


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BACKGROUND



Purpose of the Actuarial Valuation

- ◆ Measure the financial position of MSRPS
- ◆ Provide the Board with State and PGU contribution rates for certification
- ◆ Provide disclosure information for financial reporting
 - ▲ Provided by separate GASB 67 and 68 valuations
- ◆ Analyze aggregate experience over the last year



Funding Objectives Scorecard

1. Intergenerational equity with respect to plan costs.

- ▲ This is a long term goal. Will only know in hindsight if it is achieved. The break with corridor funding was a step in the right direction.

2. Stable or increasing ratio of Assets to Liabilities.

- ▲ Funded ratio improved this year on an actuarial value of assets basis but declined a little on a market value basis.

3. Stable pattern of contribution rates

- ▲ Average State Contribution rate changed only by 0.02% of payroll this year. Pooled rate for Municipal went up by a larger amount due to a change in amortization policy.



2011 Benefit Reform Scorecard

Projected June 30, 2016 Results Based on June 30, 2010 Valuation			Actual Result 2016 Valuation
Before Reforms		After Reforms	
FY 2018 Contribution Rates No Reinvestment			
ECS (State)	20.86%	17.55%	18.56%
TCS	20.87%	17.35%	15.71%
All State Plans	21.76%	18.25%	17.60%
June 30, 2016 Funded Ratio No Reinvestment			
All State Plans	63.1%	63.2%	68.9%
June 30, 2016 Funded Ratio Reinvestment			
All State Plans	63.1%	65.4%	69.5%

2010 Valuation was the basis for the original estimates and projections related to potential effects of the 2011 reforms. Certain changes since implementation of reforms affect the comparability of the figures:

1. Systems are now receiving Actuarially Determined Contributions based on a 25 year closed amortization of UAAL ending in FY 2039. Elimination of the corridor funding method resulted in a large contribution increase for ECS State. The change was very small for TCS.
2. The General Assembly lowered reinvested savings to \$75 Million from the original \$300 Million in two steps beginning in FY 2014.
3. Both demographic and economic assumptions have changed since 2010 acting to increase contributions and decrease funded ratios.
4. There was favorable experience since 2010 which decreased actuarial contribution rates and increased funded ratios.



Reduced Reinvested Savings

Legislation passed in 2015 by the General Assembly further reduced the amount MSRPS would receive in reinvested savings.

Fiscal Year	Original Schedule	2014 Reduced Schedule	2015 Reduced Schedule*
2015	\$300M	\$100M	\$100M
2016	\$300M	\$150M	\$75M
2017	\$300M	\$200M	\$75M
2018	\$300M	\$250M	\$75M
2019 & After	\$300M	\$300M, until the combined funded ratio reaches 85% and the corridor is fully phased out	\$75M, until the combined funded ratio reaches 85%

* Statutory budgeted rate equal to actuarial rate for TCS and ECS beginning in FY 2017.
 There will be possible additional funds in FY 2018 from the sweeper amendment.



Variables Affecting Valuation Results

- ◆ Benefits (Retirement, Disability, Survivor)
- ◆ Actual past experience
- ◆ Legislative Changes
 - ▲ 2016 General Assembly changed amortization policy for Municipal ECS
 - ▲ 2015 General Assembly passed HB 72
 - For FY 2017-2020, 50% of the budget surplus in excess of \$10 million, up to a maximum of \$50 million, would be made as an additional contribution to SRPS
 - ▲ 2011 General Assembly reforms result in a gradually decreasing normal cost rate, also increased participant contribution rates for most people
- ◆ Assumption changes since last valuation
 - ▲ None



Primary Assumptions

- ◆ Actuarial assumptions based on the 2010-2014 experience study (first used in 2015 Valuation)
 - ▶ Economic Assumptions
 - 7.55% investment return; 3.20% payroll growth; 2.70% CPI
 - 2.29% COLA, 2.68% COLA, 2.70% COLA for service where COLA is capped at 3%, 5% or not capped, respectively
 - 1.49% COLA for service earned after July 1, 2011 where COLA is capped at 2.5% in years when the System earns at least the investment assumption or capped at 1% in years when the System earns less than the investment assumption
 - No phase down of assumptions (immediate change with the 2015 valuation)
 - ▶ Demographic Assumptions
 - RP 2014 mortality tables with generational mortality projection using scale MP-2014
 - Calibrated to MSRPS experience
 - Retirement, termination, disability and seniority and merit salary increase rates based on plan experience
- ◆ Reinvested Savings to continue according to current schedule (\$75 Million per year).



Funding Policy

- ◆ Entry Age Actuarial Cost Method
- ◆ 5-year asset smoothing/20% market value collar
- ◆ Amortization policy
 - ▶ State Systems
 - Single period closed amortization ending in FY 2039 (22 years remaining in 2016 valuation)
 - ▶ Municipal Systems
 - ECS: Single period closed amortization period ending in FY 2041. Phased in at 100 years in 2016 valuation grading down to 20 years for the 2022 valuation
 - LEOPS: Single period closed amortization period ending in FY 2040
 - CORS: Single period closed amortization period ending in FY 2047
 - ▶ Level % of payroll (except for first few years of Municipal ECS phase in).
 - ▶ Needs to be reconsidered to control volatility once remaining period falls below about 10-15 years, possibly at time of next experience study.



PARTICIPANT DATA



Demographic Data

Statistics as of June 30

Number Counts	2016			2015		% Chg
	State	PGU	Total	Total	Total	
Active Members	166,907	25,587	192,494	193,600	193,600	-0.6%
Vested Former Members	46,670	6,898	53,568	52,769	52,769	1.5%
Retired Members	134,975	17,591	152,566	147,850	147,850	3.2%
Total Members	348,552	50,076	398,628	394,219	394,219	1.1%
Total Valuation Payroll (\$ in Millions)	\$10,022.7	\$1,133.2	\$11,155.9	\$11,064.0	\$11,064.0	0.8%
Active Member Averages						
Age	45.9	48.8	46.3	46.2	46.2	0.1%
Service	12.6	11.6	12.5	12.5	12.5	0.0%
Pay	\$ 60,050	\$ 44,289	\$ 57,955	\$ 57,149	\$ 57,149	1.4%
Total Retiree Benefits (\$ in Millions)	\$3,205.4	\$ 243.5	\$ 3,449.0	\$ 3,323.2	\$ 3,323.2	3.8%
Average Retiree Benefit	\$ 23,748	\$ 13,845	\$ 22,606	\$ 22,477	\$ 22,477	0.6%



Active Membership by Benefit Plan

	State				Municipal			
	Count	Payroll	Avg. Age	Avg. Srv.	Count	Payroll	Avg. Age	Avg. Srv.
ERS/TRS	1,181	\$ 102,809,773	64.6	40.2	74	\$ 4,418,951	62.2	39.6
NCPB	236	16,004,057	58.4	32.4	3,089	196,239,688	49.4	13.9
ECPB ₄	-	-			118	4,309,894	46.6	10.1
ACPB	110,146	7,189,865,896	49.3	16.5	13,852	625,221,628	52.4	15.8
RCPB	44,675	2,116,961,444	37.7	2.6	7,409	243,784,426	43.0	2.6
Other	10,669	597,054,222	42.4	11.2	1,045	59,253,538	39.4	10.9
Total	166,907	\$ 10,022,695,392	45.9	12.6	25,587	\$ 1,133,228,125	48.8	11.6

State employees in NCPB are mostly employees of withdrawn employers whose liabilities have been transferred to the state pool.

NCPB: Non Contributory Pension Benefit

ECPB: Contributory Pension Benefit

ACPB: Alternate Contributory Pension Benefit

RCPB: Reformed Contributory Pension Benefit

Other: Includes CORS, Judges, Legislators, LEOPS, and State Police.



Active Membership by PGU Type

(MUNICIPAL ONLY)

	PGU Count	Member Count	Payroll	Avg. Age	Avg. Srv.
Board of Education	19	12,738	\$ 484,899,247	50.2	11.3
City/Town Govt.	58	3,324	158,635,025	46.0	11.1
Community College	9	826	35,588,766	48.5	10.2
County Agency/Authority	14	571	20,592,855	47.0	8.6
County Govt.	16	7,536	414,620,780	47.8	12.8
Library	6	135	5,490,242	47.6	8.6
Other	10	457	13,401,210	50.4	11.5
Total	132	25,587	\$ 1,133,228,125	48.8	11.6



ASSET DATA



Actuarial Value of Assets – (\$ Millions)

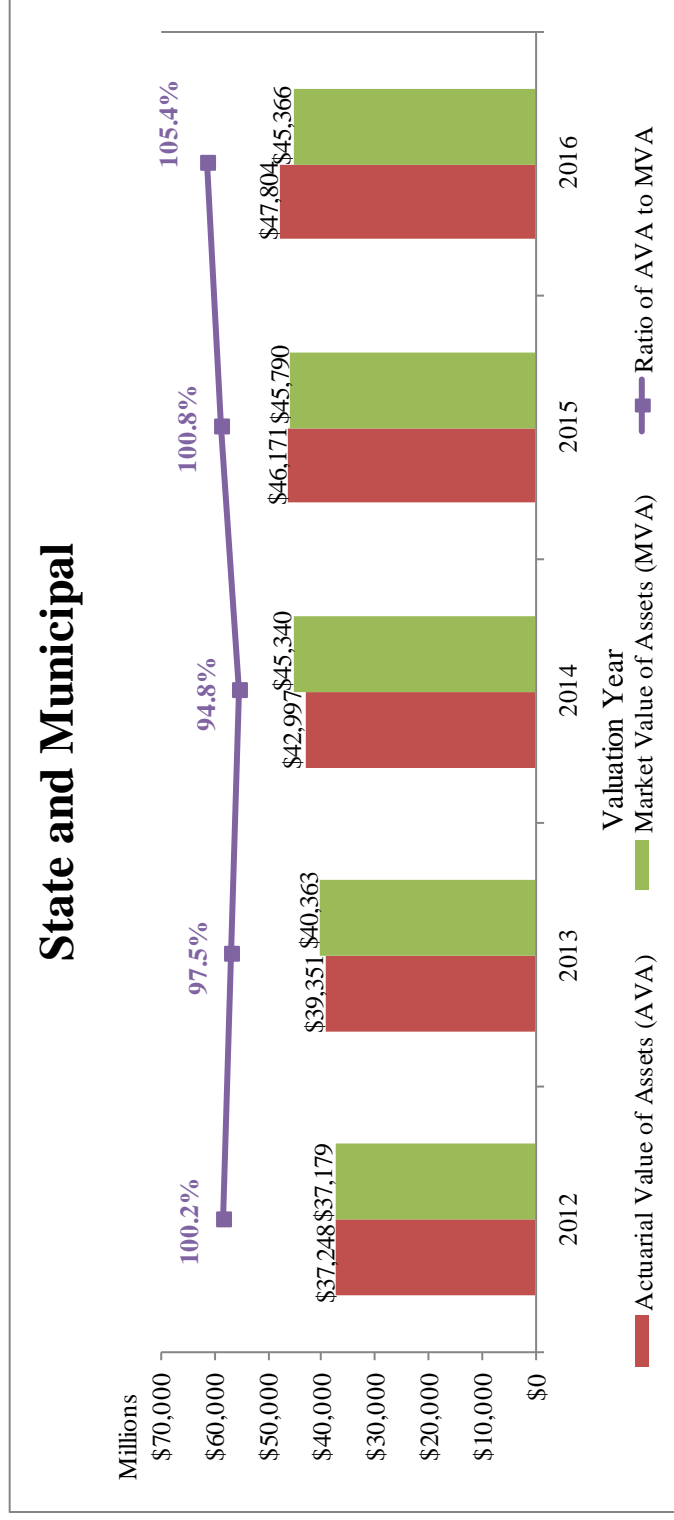
State and Municipal Combined

	<u>Fiscal Year</u>	<u>2016</u>	<u>2017</u>	<u>2018</u>	<u>2019</u>	<u>2020</u>
1. Actuarial Value at July 1, 2015		\$ 46,170.6				
2. Net Cash Flow		(921.4)				
3. Market Investment Return		497.5				
4. Expected Return		3,423.0				
5. Gain or loss (3-4)		(2,925.5)				
6. Amount for full recognition		3,423.0				
7. Phase-in amounts						
7a. From this year		(585.1)				
7b. From one year ago		(448.6)	\$ (585.1)			
7c. From two years ago		525.2	(448.6)	\$ (585.1)		
7d. From three years ago		197.9	525.2	(448.6)	\$ (585.1)	
7e. From four years ago		<u>(557.9)</u>	<u>197.9</u>	<u>525.2</u>	<u>(448.6)</u>	<u>\$ (585.1)</u>
8. Total Phase-ins		(868.5)	(310.6)	(508.5)	(1,033.6)	(585.1)
9. Final Value: 1+2+6+8		47,803.7				

There is a net loss of about \$2.4 Billion to be recognized in the future (\$2.2 Billion State and \$0.2 Billion Municipal)



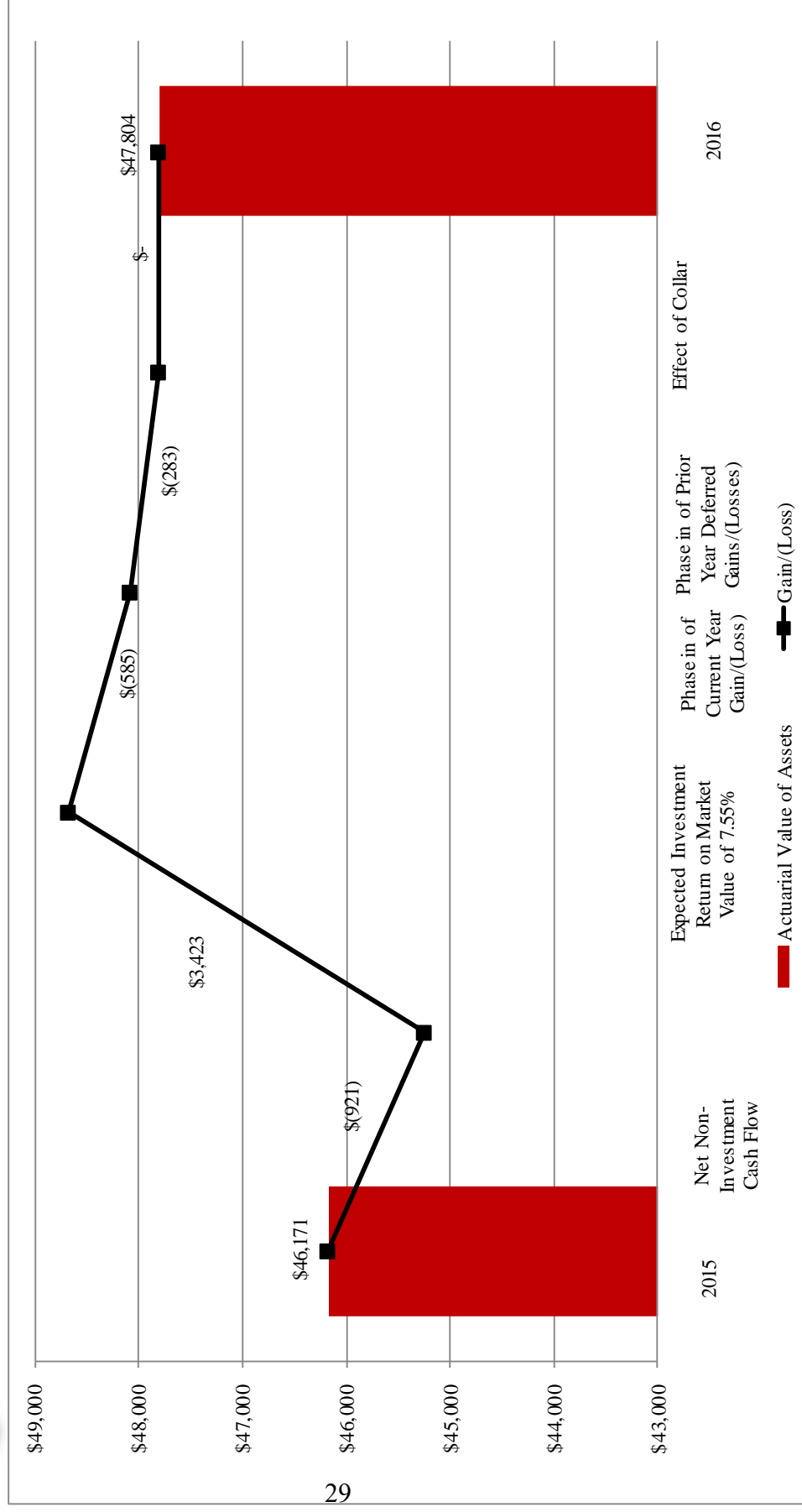
Actuarial Value of Assets - (\$ Millions)



The actuarial valuation is not based directly upon market value, but rather uses a smoothed value of assets that phases in each year's gain or loss above/below the investment return assumption over 5 years.



Actuarial Value of Assets - (\$ Millions)

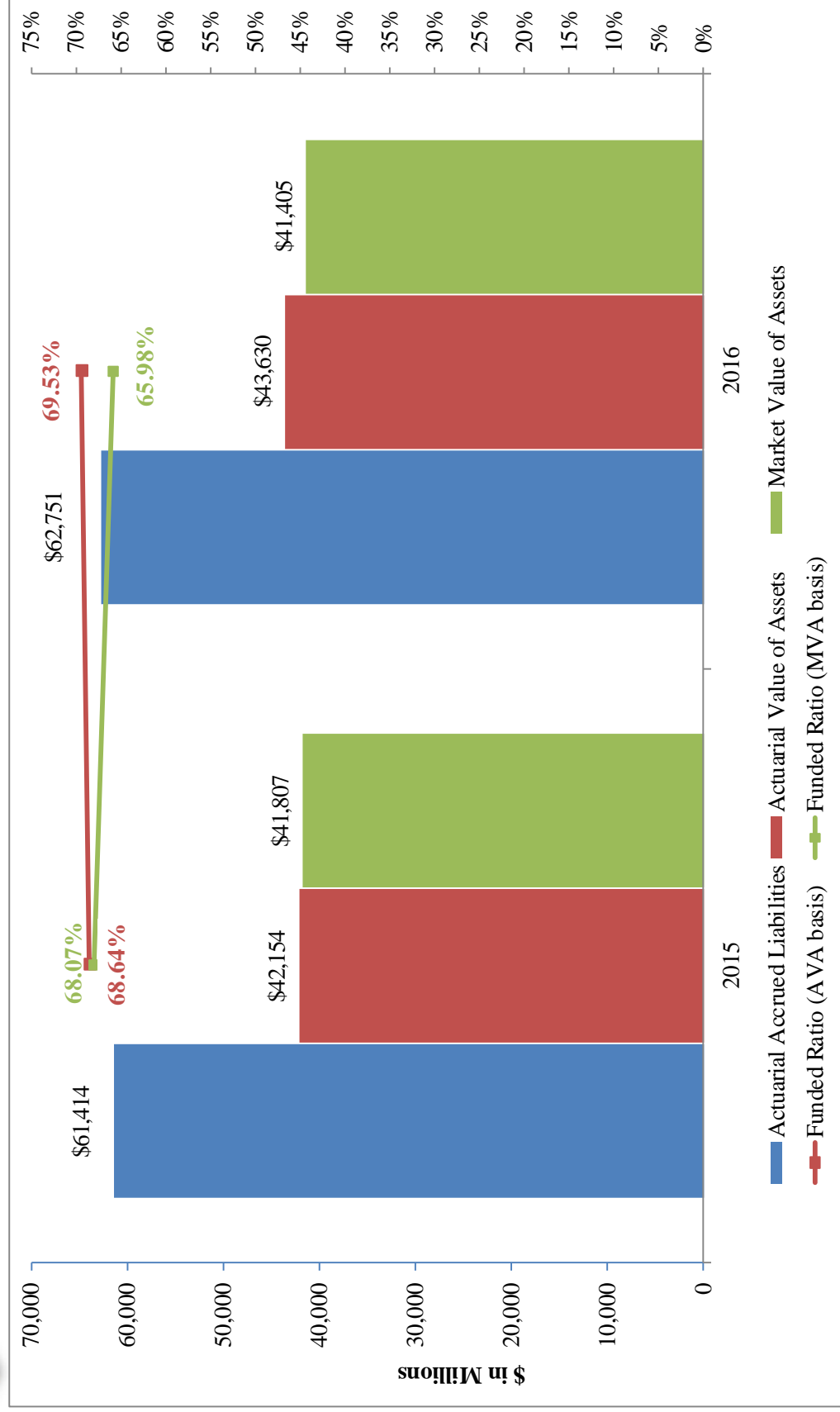




STATE RESULTS



Valuation Results – Combined State Systems (\$ in Millions)





Year to Year Comparison of Results:

STATE Systems

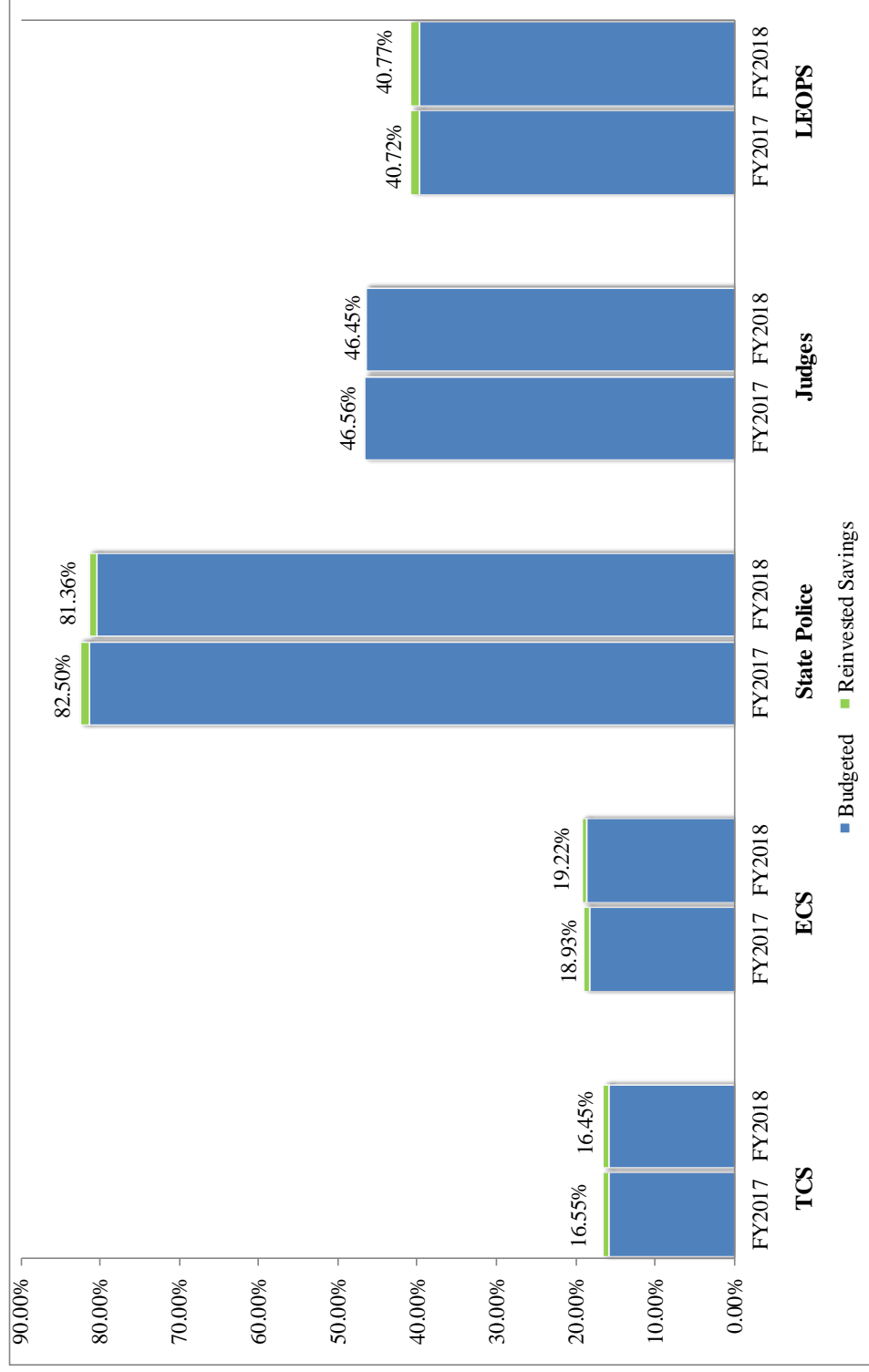
(STATE ONLY except as noted, \$ in Millions)

	Teachers' Combined System			Employees' Combined System			Police	Judges	LEOPS	Total
FY 2018 Contr. Rate (w. Reinv. Savings)	16.45%			19.22%			81.36%	46.45%	40.77%	18.34%
FY 2017 Contr. Rate (w. Reinv. Savings)	16.55%			18.93%			82.50%	46.56%	40.72%	18.32%
FY 2018 Actuarial Contribution Rate	15.71%			18.56%			80.29%	46.45%	39.69%	17.60%
FY 2017 Actuarial Contribution Rate	15.79%			18.28%			81.40%	46.56%	39.60%	17.58%
2016 Actuarial Value of Assets	\$ 29,021	\$	12,221	\$	1,344	\$	431	\$	614	\$ 43,630
2016 Unfunded Actuarial Liability	\$ 10,913	\$	6,958	\$	781	\$	93	\$	376	\$ 19,121
2015 Unfunded Actuarial Liability	\$ 10,939	\$	7,068	\$	789	\$	95	\$	370	\$ 19,260
Funded Ratios										
2016	72.7%		63.7%		63.3%		82.2%		62.1%	69.5%
(Including Municipal)			67.7%						63.0%	70.5%
2015	71.9%		62.6%		62.5%		81.5%		61.4%	68.6%
(Including Municipal)			66.7%						61.8%	69.7%

Municipal Actuarial Value of Assets of \$4,173 Million and Municipal Unfunded Actuarial Liability of \$857 Million are also included in the development of the Total Funded Ratio of 70.5%.



Actuarially Determined Contribution Rates





Reconciliation of Employer Contribution Rates

(STATE ONLY)

	Teachers' Employees'				Judges	LEOPS	Total
	Combined System	Combined System	State Police				
FY2017 Actuarial Contribution Rate	15.79%	18.28%	81.40%		46.56%	39.60%	17.58%
Change due to Investment Return	0.56%	0.50%	1.87%		1.21%	0.77%	0.56%
Change due to Demographic Experience	-0.60%	-0.94%	-3.10%		-1.91%	-0.68%	-0.74%
Change due to Corridor	0.03%	0.11%	0.00%		0.00%	0.00%	0.05%
Change due to Other	-0.07%	0.61%	0.12%		0.59%	0.00%	0.14%
Change due to Assumption Changes	<u>0.00%</u>	<u>0.00%</u>	<u>0.00%</u>		<u>0.00%</u>	<u>0.00%</u>	<u>0.00%</u>
FY2018 Actuarial Contribution Rate	15.71%	18.56%	80.29%		46.45%	39.69%	17.60%
Reinvested Savings Rate	<u>0.74%</u>	<u>0.66%</u>	<u>1.07%</u>		<u>0.00%</u>	<u>1.08%</u>	<u>0.74%</u>
Final FY2018 Total Budgeted Contr. Rate	16.45%	19.22%	81.36%		46.45%	40.77%	18.34%

Contributions for FY 2016 were based upon the June 30, 2014 valuation, which was still based on the corridor funding method. FY 2016 was the final year in which corridor funding applied.

*“Other” includes impact on contribution rate of change in total base payroll.
Sources of change due to demographic experience are described on slide 27.*



Budgeted Employer Contribution Rates Year to Year Comparison

(STATE ONLY)

	Teachers' Combined System		Employees' Combined System		State Police	Judges	LEOPS	Total
FY 2018 Contribution Rates								
Actuarial Contribution Rate	15.71%		18.56%		80.29%	46.45%	39.69%	17.60%
Reinvested Savings Rate [^]	<u>0.74%</u>		<u>0.66%</u>		<u>1.07%</u>	<u>0.00%</u>	<u>1.08%</u>	<u>0.74%</u>
Total Contribution Rate	16.45%		19.22%		81.36%	46.45%	40.77%	18.34%
FY 2017 Contribution Rates								
Actuarial Contribution Rate	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 Contribution Rate	16.55%		18.93%		82.50%	46.56%	40.72%	18.32%
Year over Year Change	-0.10%		0.29%		-1.14%	-0.11%	0.05%	0.02%

[^] Rate calculated based on allocated reinvested dollars and FY 2018 projected payroll. It is our understanding that the Retirement Agency will monitor contributions to ensure that the System receives the proper amount of reinvested savings during Fiscal Year 2018.



Allocation of Contribution to Local Employers (Boards of Education)

Teachers Combined System

FY2018 Contribution (\$ in Millions)				
	<u>% of Pay</u>	<u>Total</u>	<u>Local</u>	
			<u>Employers</u>	<u>State</u>
Employer Normal Cost	4.47%	\$ 305.0	\$ 280.5	\$ 24.5
UAAL Amortization	11.24%	766.8	-	766.8
Reinvested Savings	<u>0.74%</u>	<u>50.8</u>	-	<u>50.8</u>
Total	16.45%	\$ 1,122.6	\$ 280.5	\$ 842.1

FY2017 Contribution (\$ in Millions)				
	<u>% of Pay</u>	<u>Total</u>	<u>Local</u>	
			<u>Employers</u>	<u>State</u>
Employer Normal Cost	4.56%	\$ 304.5	\$ 279.8	\$ 24.7
UAAL Amortization	11.23%	749.9	-	749.9
Reinvested Savings	<u>0.76%</u>	<u>50.8</u>	-	<u>50.8</u>
Total	16.55%	\$ 1,105.2	\$ 279.8	\$ 825.4



Illustrated State \$ Contributions

(STATE ONLY, \$ in Millions)

	Teachers' Combined System		Employees' Combined System		State Police	Judges	LEOPS	Total
% of Total Pension Reform Savings#	67.7%		29.4%		1.4%	0.0%	1.5%	100.0%
Reinvested Savings	\$ 50.8	\$	\$ 22.0	\$	\$ 1.1	\$ -	\$ 1.2	\$ 75.0
FY 2018 Contributions								
Illustrated Dollar Contributions	\$ 1,071.8	\$	\$ 617.1	\$	\$ 78.7	\$ 21.8	\$ 42.5	\$ 1,831.9
TCS Local Employer Contributions	\$ (280.5)	\$	-	\$	\$ -	\$ -	\$ -	\$ (280.5)
Reinvested Savings	\$ 50.8	\$	\$ 22.0	\$	\$ 1.1	\$ -	\$ 1.2	\$ 75.0
State Total Illustrated Contributions	\$ 842.1	\$	\$ 639.1	\$	\$ 79.8	\$ 21.8	\$ 43.7	\$ 1,626.4

FY 2017 Contributions

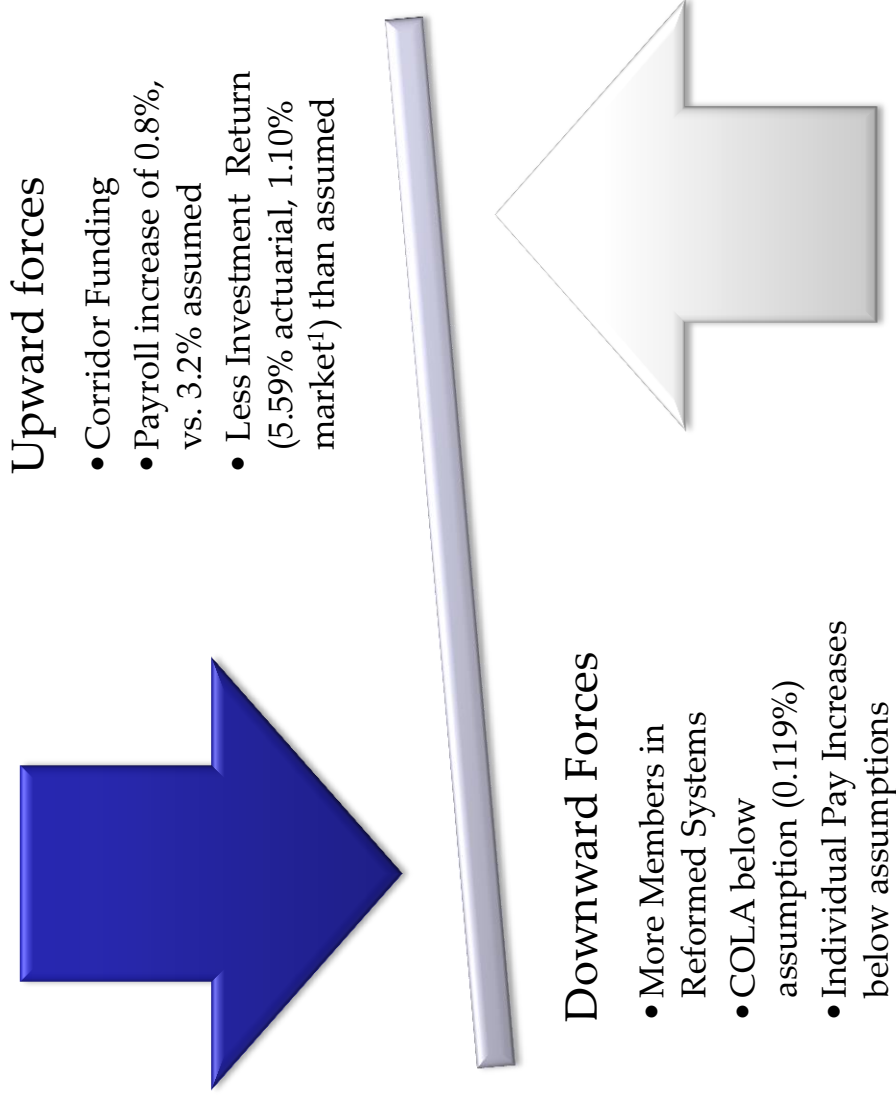
Illustrated Dollar Contributions	\$ 1,054.4	\$	\$ 621.1	\$	\$ 77.7	\$ 21.8	\$ 40.9	\$ 1,815.9
TCS Local Employer Contributions	\$ (279.8)	\$	-	\$	\$ -	\$ -	\$ -	\$ (279.8)
Reinvested Savings	\$ 50.8	\$	\$ 22.0	\$	\$ 1.1	\$ -	\$ 1.2	\$ 75.0
State Total Illustrated Contributions	\$ 825.4	\$	\$ 643.1	\$	\$ 78.8	\$ 21.8	\$ 42.1	\$ 1,611.1
State Year over Year Change	\$ 16.7	\$	\$ (4.0)	\$	\$ 1.0	\$ -	\$ 1.6	\$ 15.3

Based on Calculations from June 30, 2011 Valuation.

FY2018 Contribution based on payroll as of June 30, 2016, projected to FY2017 for TCS and FY2018 for all other systems.
FY2017 Contribution based on payroll as of June 30, 2015, projected to FY2016 for TCS and FY2017 for all other systems. FY
2017 and FY2018 Contributions for TCS would be \$1,139 Million and \$1,157 Million, respectively, if payroll was projected in the
same manner as for the other systems (based on payroll projected one additional year to FY2017 and FY2018, respectively).



Very Slight Net Increase in State Rates



¹ Rate shown is based on actuarial estimation method and differs modestly from figures reported by State Street.



MUNICIPAL RESULTS



Year to Year Comparison of Results: MUNICIPAL Systems

(MUNICIPAL ONLY, \$ in Millions)

	Employees' Combined				CORS	Total
	System	LEOPS				
FY 2018 Basic (Pooled) Contribution Rate	5.03%	30.75%		9.53%		6.28%
FY 2017 Basic (Pooled) Contribution Rate	4.64%	31.18%		9.81%		5.93%
2016 Actuarial Value of Assets	\$ 3,910	\$ 242	\$	22	\$	4,174
2016 Unfunded Actuarial Liability	\$ 729	\$ 128	\$	1	\$	857
2015 Unfunded Actuarial Liability	\$ 720	\$ 131	\$	1	\$	851
Funded Ratios						
2016	84.3%	65.4%		96.9%		83.0%
2015	84.0%	62.8%		96.3%		82.5%

The increase in the ECS pooled rate from FY 2017 to FY 2018 is mostly driven by a legislated change in amortization policy. The change was designed to deal with an otherwise scheduled near doubling of the rate in FY 2022.



Other Components of PGU Contributions

PGU Contributions consist of the pooled rate, certain surcharges as shown below, deficits or credits related to pre-2001 ECS liability, and new entrant and withdrawal payments and credits, all of which are shown in the full report.

Surcharge Group	Surcharge		
	Normal Cost	UAAL	Total Payroll
Retirement System	5.00%	0.00%	5.00% Retirement System
NCPB to ECPB	1.00%	1.42%	2.42% Retirement and Pension System
ECPB to ACPB	-0.40%	1.51%	1.11% Pension System
NCPB to ACPB	0.60%	6.84%	7.44% Pension System
<i>NCPB: Non Contributory Pension Benefit</i>			
<i>ECPB: Contributory Pension Benefit</i>			
<i>ACPB: Alternate Contributory Pension Benefit</i>			
<i>RCPB: Reformed Contributory Pension Benefit</i>			



RISK/MATURITY MEASURES



Risk Measures Summary

State and Municipal (\$ in Millions)

Valuation Date (6/30)	(1) Accrued Liabilities (AAL)	(2) Market Value of Assets	(3) Market Value Unfunded AAL	(4) Valuation Payroll	(5) Market Value Funded Ratio (2)/(1)	(6) Retiree Liabilities (RetLiab)	(7) RetLiab / AAL (6)/(1)	(8) AAL / Payroll (1)/(4)	(9) Assets / Payroll (2)/(4)
2011	\$ 55,918	\$ 37,593	\$ 18,325	\$ 10,479	67.2%	\$ 30,522	54.6%	533.6%	358.8%
2012	57,869	37,179	20,690	10,337	64.2%	32,779	56.6%	559.9%	359.7%
2013	60,060	40,363	19,697	10,478	67.2%	34,498	57.4%	573.2%	385.2%
2014	62,610	45,340	17,270	10,804	72.4%	36,077	57.6%	579.5%	419.7%
2015	66,282	45,790	20,492	11,064	69.1%	38,588	58.2%	599.1%	413.9%
2016	67,782	45,366	22,416	11,156	66.9%	39,785	58.7%	607.6%	406.7%

(5). The Funded ratio is the most widely known measure of a plan's financial strength, but the trend in the funded ratio is much more important than the absolute ratio. The funded ratio should trend to 100%. As it approaches 100%, it is important to re-evaluate the level of investment risk in the portfolio and potentially to re-evaluate the assumed rate of return.

(6) and (7). The ratio of Retiree liabilities to total accrued liabilities gives an indication of the maturity of the system. As the ratio increases, cash flow needs increase, and the liquidity needs of the portfolio change. A ratio on the order of 50% indicates a maturing system.

(8) and (9). The ratios of liabilities and assets to payroll gives an indication of both maturity and volatility. Many systems have ratios between 500% and 700%. Ratios significantly above that range may indicate difficulty in supporting the benefit level as a level % of payroll.



Risk Measures Summary (Cont.)

State and Municipal (\$ in Millions)

Valuation Date (6/30)	(10) Portfolio StdDev	(11) Std Dev % of Pay	(12) Unfunded / Payroll	(13) Non-Investment Cash Flow (NICF)	(14) NICF / Assets (13)/(2)	(15) Market Rate of Return	(16) 5-year Trailing Average
2011			174.9%	\$ (604)	-1.6%	19.8%	
2012			200.2%	(518)	-1.4%	0.3%	
2013			188.0%	(661)	-1.6%	10.4%	
2014			159.9%	(729)	-1.6%	14.3%	11.6%
2015	12.5%	51.7%	185.2%	(748)	-1.6%	2.7%	9.3%
2016	12.0%	48.8%	200.9%	(921)	-2.0%	1.1%	5.6%

(10) and (11). The portfolio standard deviation measures the volatility of investment return. When multiplied by the ratio of assets to payroll it gives the effect of a one standard deviation asset move as a percent of payroll. This figure helps users understand the difficulty of dealing with investment volatility and the challenges volatility brings to sustainability.

(12). The ratio of unfunded liability to payroll gives an indication of the plan sponsor's ability to actually pay off the unfunded liability. A ratio above approximately 300% or 400% may indicate difficulty in discharging the unfunded liability within a reasonable time frame.

(13) and (14). The ratio of Non-Investment Cash Flow to assets is an important measure of sustainability. Negative ratios are common and expected for a maturing system. In the longer term, this ratio should be on the order of approximately -4%. A ratio that is significantly more negative than that for an extended period could be a leading indicator of potential exhaustion of assets.

(15) and (16). Investment return is probably the largest single risk that most systems face. The year-by-year return and the 5-year geometric average both give an indication of the reasonableness of the system's assumed return. Of course past performance is not a guarantee of future results. Market rate shown is based on actuarial estimation method and differs modestly from figures reported by State Street.



CONCLUSION



Recommended Fiscal Year 2018 Budgeted Contributions: STATE

System	Fiscal 2018		Prior Year	
	Budgeted Rate	Illustrated Dollars (Millions)	Budgeted Rate	Illustrated Dollars (Millions)
TCS	15.71%	\$1,072	15.79%	\$1,054
ECS	18.56%	617	18.28%	621
State Police	80.29%	79	81.40%	78
Judges	46.45%	22	46.56%	22
LEOPS	39.69%	42	39.60%	41
Total	17.60%	\$1,832	17.58%	\$1,816
TCS Local Employer Portion		280		280
Total State Only Portion		\$1,551		\$1,536

Reinvested savings of \$75 Million are to be added to the amounts above. The final Illustrated State Total for FY 2018 is therefore \$1,626 Million plus any amounts resulting from the sweeper amendment.



Recommended Fiscal Year 2018 Basic Contributions: MUNICIPAL

System	FY 2018	FY 2017
ECS	5.03%	4.64%
LEOPS	30.75%	31.18%
CORS	9.53%	9.81%

PGU Contributions consist of the basic pooled rate shown above, certain surcharges, deficits or credits related to pre-2001 ECS liability, and new entrant and withdrawal payments and credits, all of which are shown in the full report.



Concluding Comments

- ◆ Experience in total was slightly more favorable than anticipated for the FY 2016 valuation which led to slightly lower FY 2018 illustrative (dollar) contributions than was projected. (The slight increase in average rate was driven by the corridor funding method).
- ◆ Upward pressure on contribution rates expected through FY 2022 due to deferred asset losses.
- ◆ State Systems on a path to reach a 100% funded ratio by 2039.



Conclusion

- ◆ What Is Needed to Sustain MSRPS?
 - ▲ Continued reasonable forecasts of resources and obligations
 - ▲ Continued sound investment program
 - ▲ Continued long-term approach to changes
 - ▲ Continued adherence to funding policy

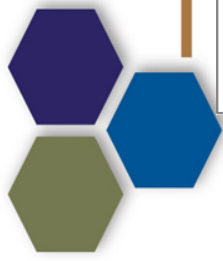


Appendix



State and Municipal Demographic Data



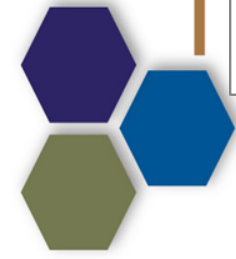


Membership History

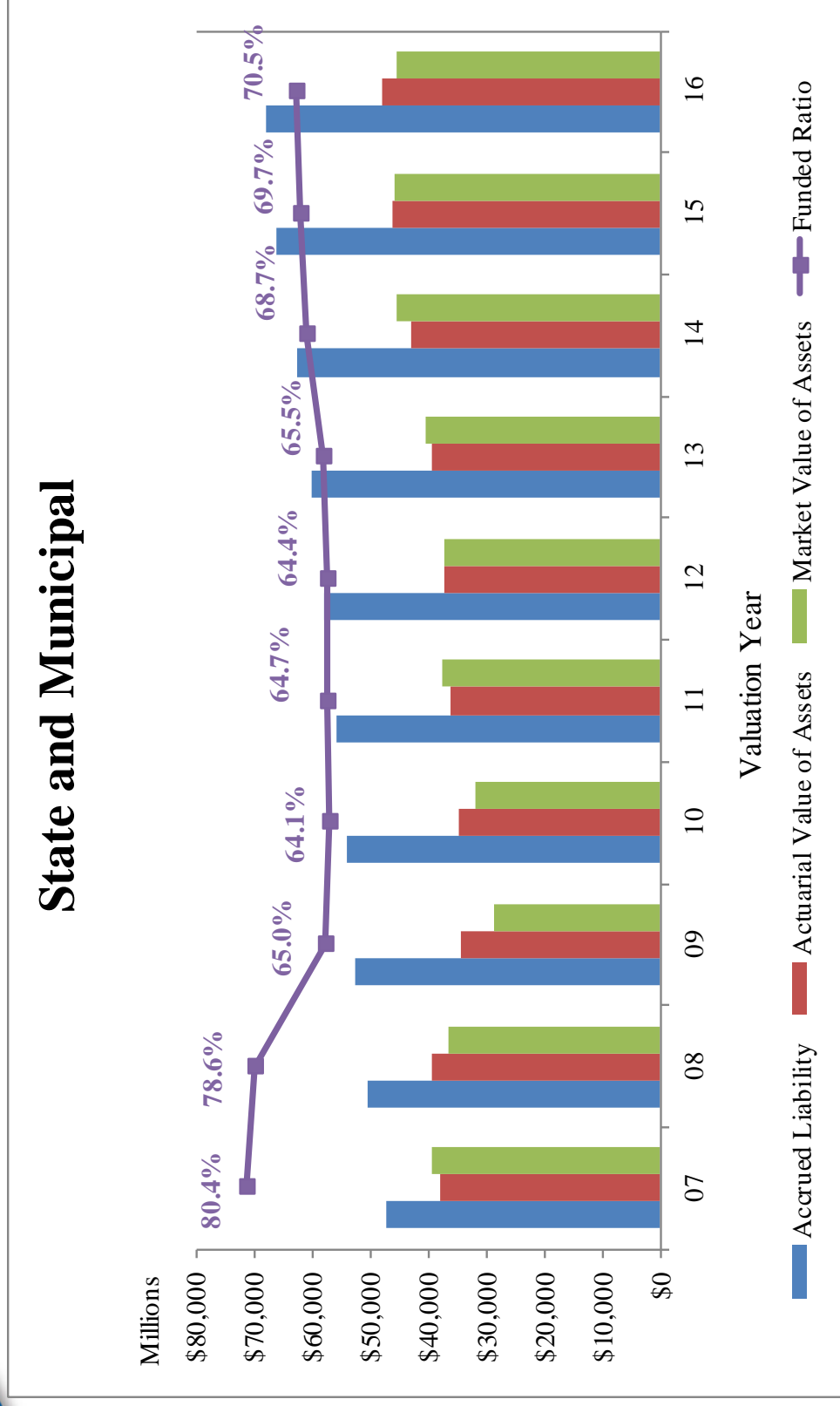
Combined State and Municipal



The ratio of Retirees to Actives gives an indication of the maturity of the system. *Counts exclude terminated vested members.*

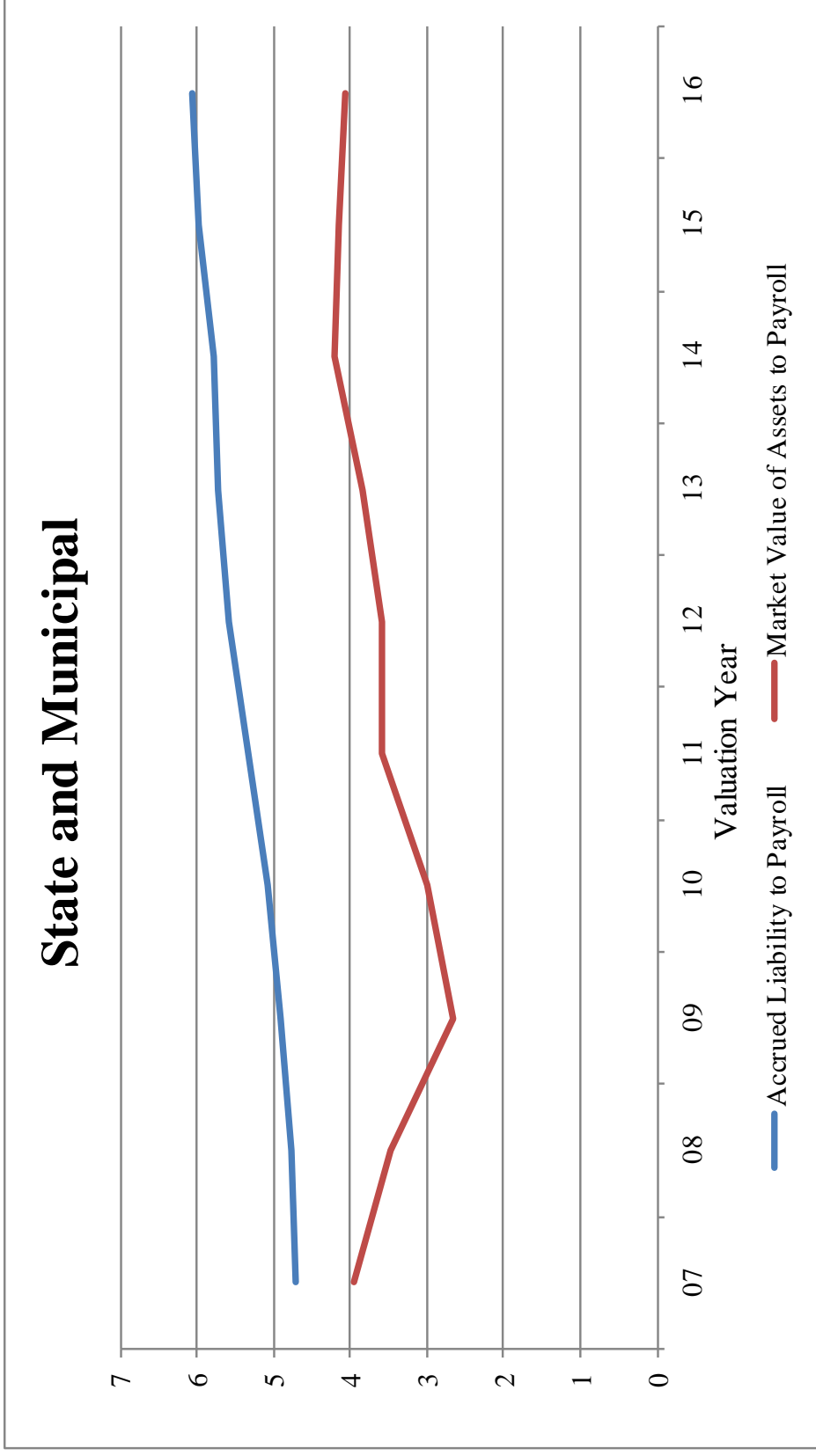


Historical Trends – Change in Funded Status, 2007 to 2016



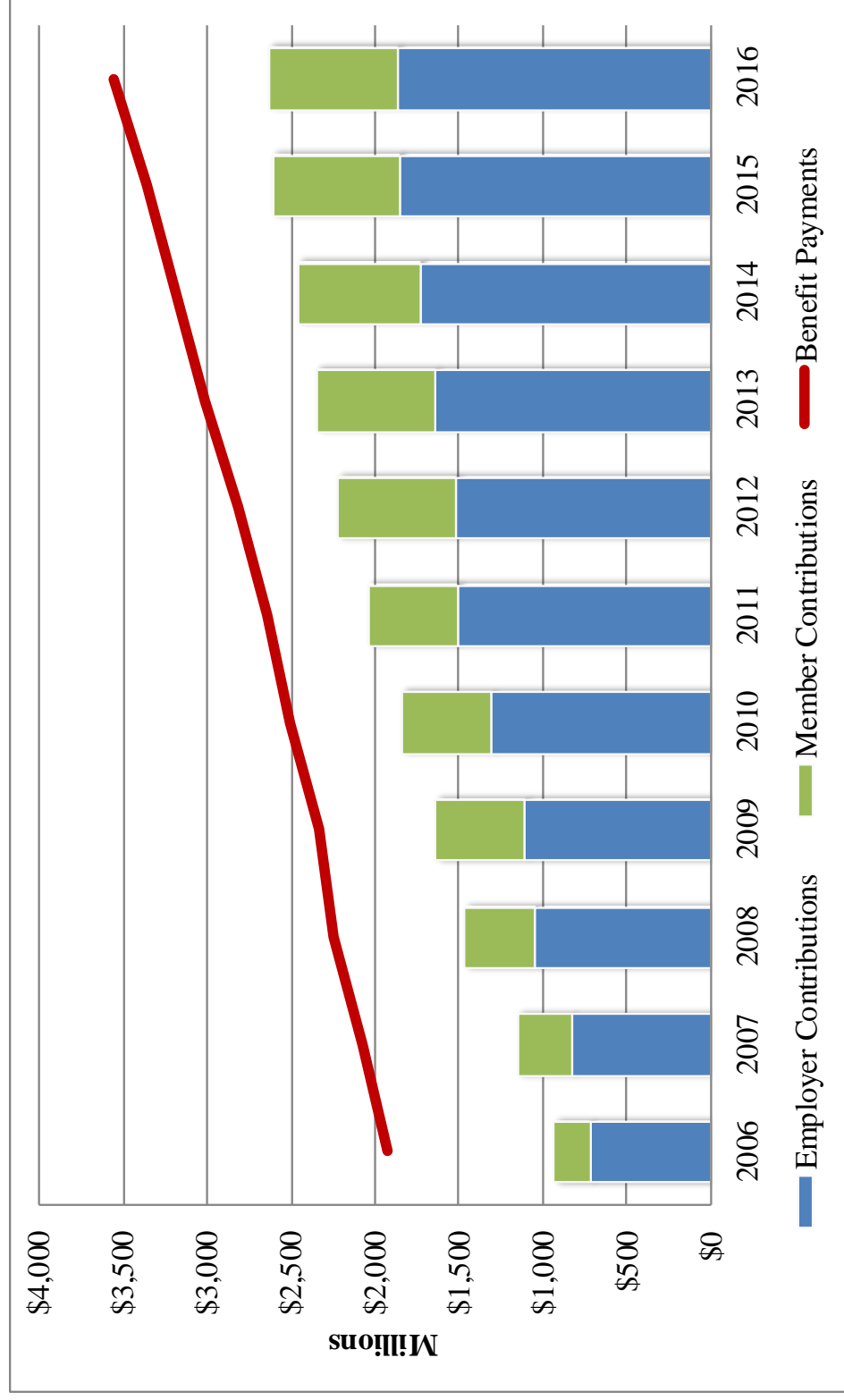


Ratio of Accrued Liability and Market Value of Assets to Payroll



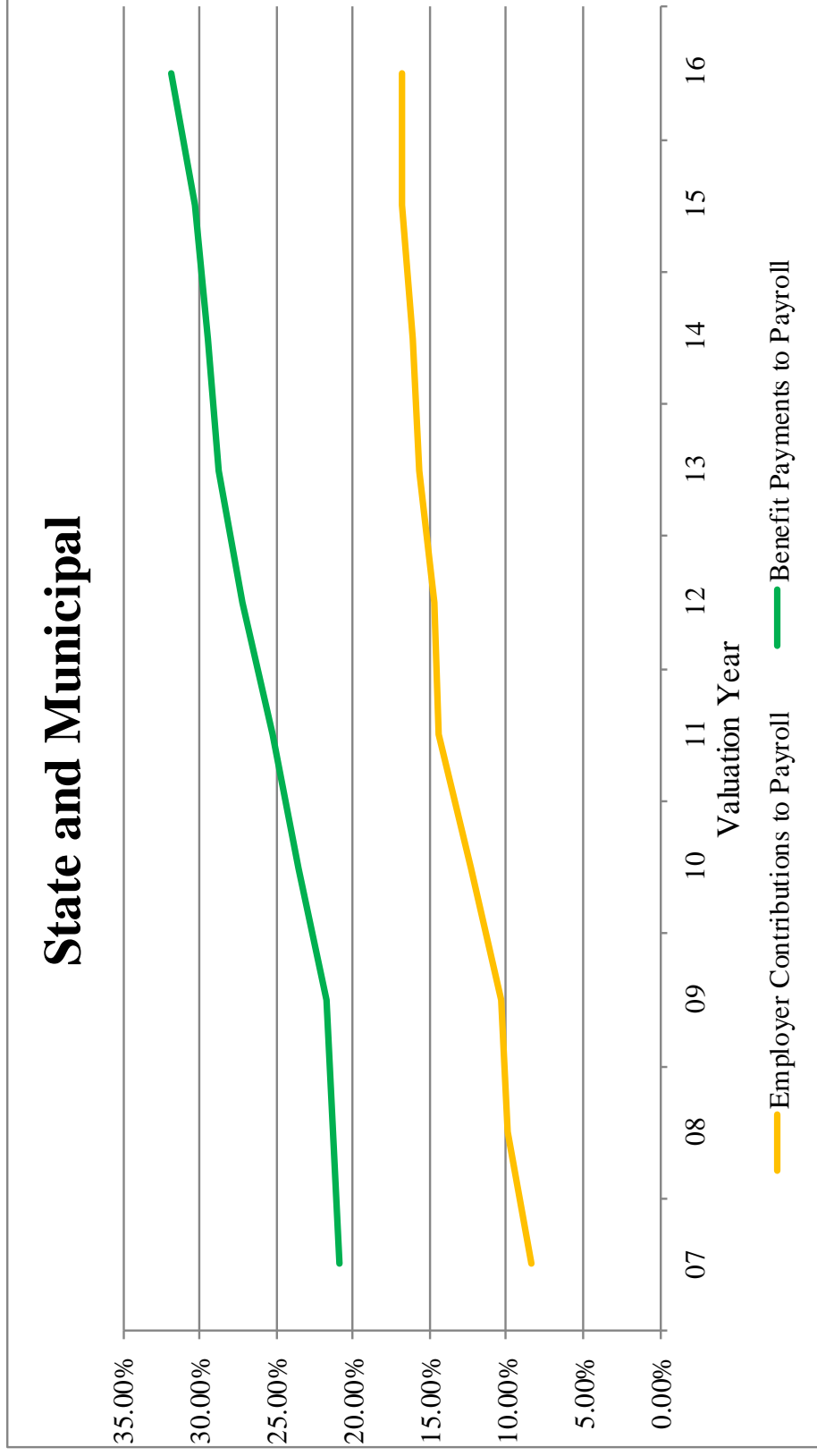


Historical Trends – Non-Investment Cash Flow (State and Municipal)



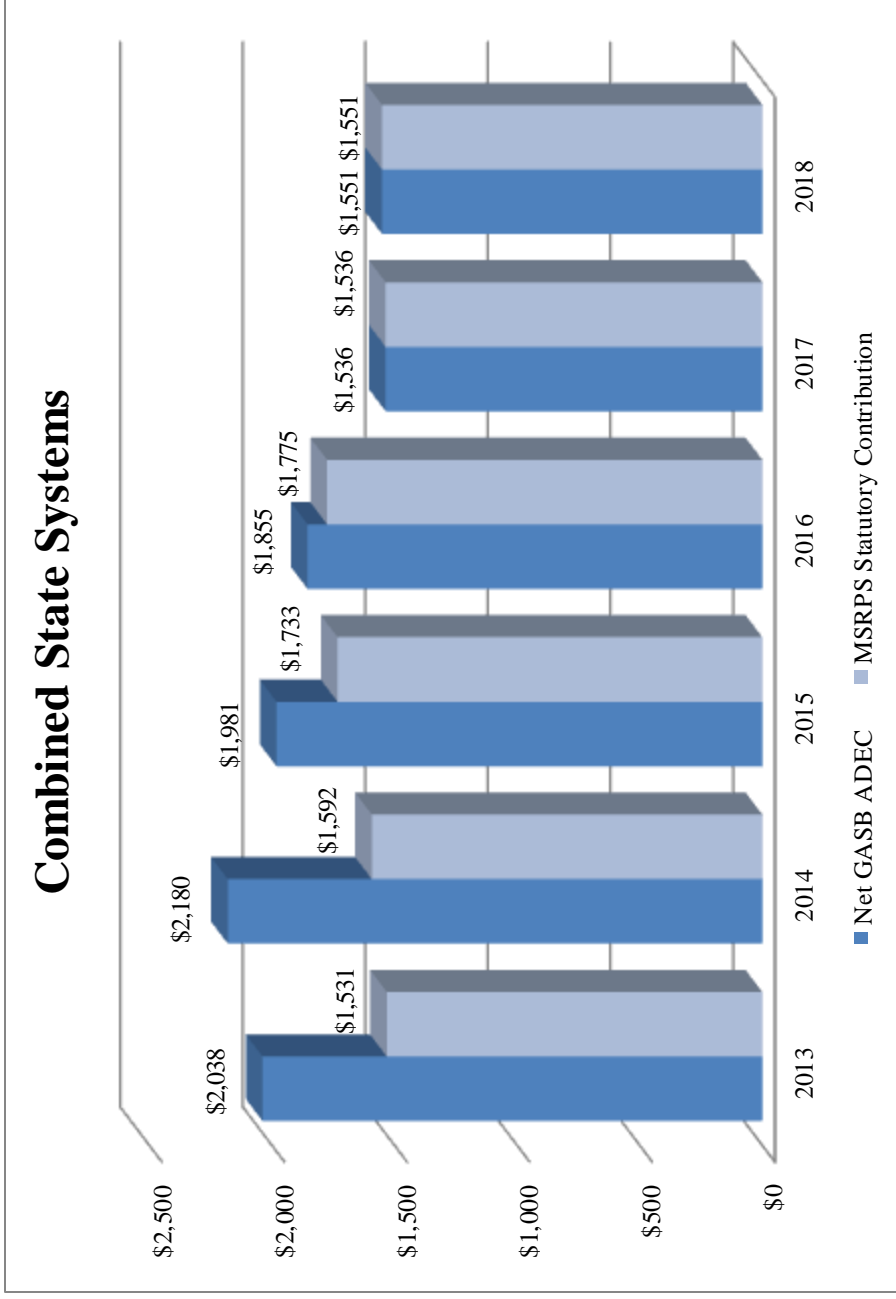


Percent of Employer Contributions and Benefit Payments to Payroll





Statutory Contributions vs. Annual Required Contributions (\$ in Millions)



2015 and 2016 contributions reflect the reduced reinvested savings schedule per new legislation.
Net GASB ADEC based on actuarially determined contributions (without corridor) and maximum 30-year amortization period where applicable (before 2015).



State Demographic Data by System





State Demographic Data by System





State Demographic Data by System

Active Members

	TCS	ECS	State Police	Judges	LEOPS	Total
2016 Count	105,547	58,083	1,402	298	1,577	166,907
2015 Count	105,526	59,261	1,394	307	1,546	168,034
2014 Count	104,470	60,151	1,351	301	1,543	167,816
% Change 2016/2015	0.0%	-2.0%	0.6%	-2.9%	2.0%	-0.7%
2016 Payroll (\$Mill)	\$6,611.0	\$3,171.4	\$93.5	\$44.7	\$102.1	\$10,022.7
2015 Payroll (\$Mill)	\$6,470.7	\$3,241.0	\$91.1	\$44.6	\$98.6	\$9,946.0
2014 Payroll (\$Mill)	\$6,310.3	\$3,177.7	\$85.7	\$42.3	\$93.0	\$9,709.0
% Change 2016/2015	2.2%	-2.1%	2.6%	0.2%	3.5%	0.8%
2016 Average Pay	\$ 62,636	\$ 54,601	\$ 66,683	\$ 150,034	\$ 64,743	\$ 60,050
2015 Average Pay	\$ 61,319	\$ 54,690	\$ 65,352	\$ 145,277	\$ 63,777	\$ 59,190
2014 Average Pay	\$ 60,403	\$ 52,829	\$ 63,405	\$ 140,576	\$ 60,290	\$ 57,855
% Change 2016/2015	2.1%	-0.2%	2.0%	3.3%	1.5%	1.5%



State Demographic Data by System

Retired Members

	TCS	ECS	State Police	Judges	LEOPS	Total
2016 Count	73,582	57,026	2,536	407	1,424	134,975
2015 Count	71,176	55,509	2,508	397	1,371	130,961
2014 Count	68,929	53,457	2,468	395	1,309	126,558
% Change 2016/2015	3.4%	2.7%	1.1%	2.5%	3.9%	3.1%
2016 Benefits (\$ Mill)	\$2,012.2	\$997.5	\$117.7	\$30.7	\$47.4	\$3,205.4
2015 Benefits (\$ Mill)	\$1,941.8	\$958.4	\$116.3	\$30.0	\$45.5	\$3,092.0
2014 Benefits (\$ Mill)	\$1,850.9	\$895.8	\$113.1	\$28.7	\$43.0	\$2,931.5
% Change 2016/2015	3.6%	4.1%	1.2%	2.3%	4.1%	3.7%

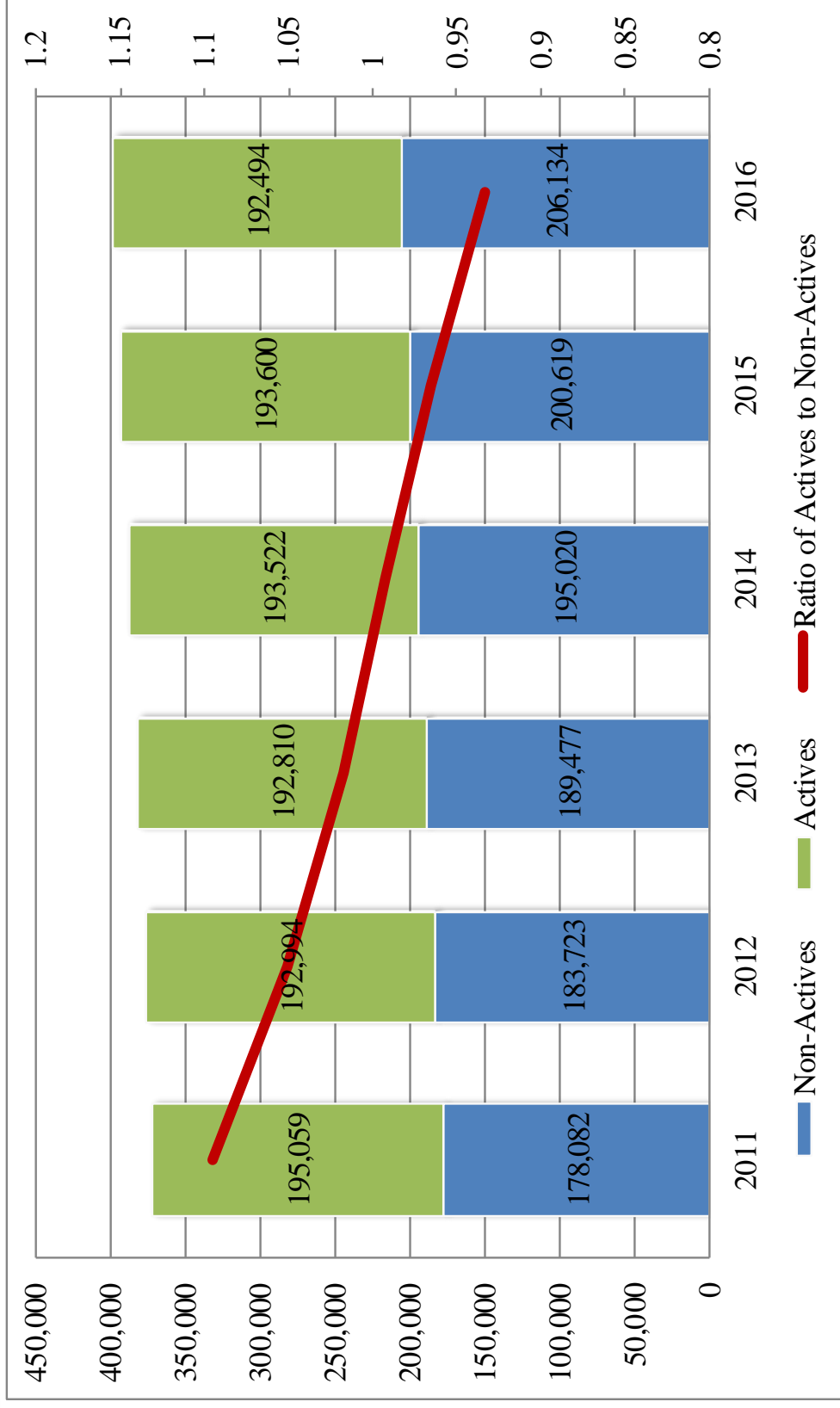
Vested Former Members

2016 Count	25,298	21,087	84	7	194	46,670
2015 Count	24,541	21,100	81	8	193	45,923
2014 Count	24,220	20,914	82	8	192	45,416
% Change 2016/2015	3.1%	-0.1%	3.7%	-12.5%	0.5%	1.6%



Membership History

Combined State and Municipal





Disclosures

- This presentation is intended to be used in conjunction with the June 30, 2016 actuarial valuation report. This presentation should not be relied on for any purpose other than the purpose described in the valuation report.
- This presentation shall not be construed to provide tax advice, legal advice or investment advice.
- The actuaries submitting this presentation (Brian Murphy, Brad Armstrong, Amy Williams, and Jeff Tebeau) are members of the American Academy of Actuaries and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions contained herein.
- The purposes of the actuarial valuation are to measure the financial position of MSRPS, assist the Board in establishing employer contribution rates necessary to fund the benefits provided by MSRPS, and provide actuarial reporting and disclosure information for financial reporting.



Disclosures

- ◆ Future actuarial measurements may differ significantly from the current and projected measurements presented in this presentation 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.
- ◆ This is one of multiple documents comprising the actuarial reports for the combined systems and the municipal corporations. Additional information regarding actuarial assumptions and methods, and important additional disclosures are provided in the Actuarial Valuations as of June 30, 2016.
- ◆ If you need additional information to make an informed decision about the contents of this presentation, or if anything appears to be missing or incomplete, please contact us before relying on this presentation.

Annual State Retirement and Pension System's Investment Overview

**Presented to the
Joint Committee on Pensions**

**Department of Legislative Services
Office of Policy Analysis
Annapolis, Maryland**

December 2016

Annual State Retirement and Pension System's Investment Overview

At the request of the Joint Committee on Pensions, the Department of Legislative Services (DLS) annually reviews the investment performance of the State Retirement and Pension System (SRPS) for the preceding fiscal year. This report is intended to provide an overview of the SRPS performance, a comparison of this performance to its peers, and an identification of issues meriting further comment by the State Retirement Agency (SRA).

State Retirement and Pension System Investment Performance

Asset Allocation

The SRPS Board of Trustees sets the allocation of assets to each investment class, and continuously monitors the appropriateness of the allocation in light of its investment objectives. The SRPS Investment Policy Manual sets forth the investment objectives:

“C. Objectives

The Board desires to balance the goal of higher long-term returns with the goal of minimizing contribution volatility, recognizing that they are often competing goals. This requires taking both assets and liabilities into account when setting investment strategy, as well as an awareness of external factors such as inflation. Therefore, the investment objectives over extended periods of time (generally, ten to twenty years) are to achieve an annualized investment return that:

1. In nominal terms, equals or exceeds the actuarial investment return assumption of the system adopted by the board. The actuarial investment return assumption is a measure of the long-term rate of growth of the System's assets. In adopting the actuarial return assumption, the board anticipates that the investment portfolio may achieve higher returns in some years and lower returns in other years.
2. In real terms, exceeds the U.S. inflation rate by at least 3.0%. The inflation-related objective compares the investment performance against the rate of inflation as measured by the Consumer Price Index (CPI) plus 3.0%. The inflation measure provides a link to the System's liabilities.

3. Meets or exceeds the System's Investment Policy Benchmark. The Investment Policy Benchmark is calculated by using a weighted average of the board-established benchmarks for each asset class. The Policy Benchmark enables comparison of the system's actual performance to a passively managed proxy and measures the contribution of active investment management and policy implementation."

In its annual review of the system's asset allocation in 2015, the board decided to make several changes to the overall strategic asset class targets. The board voted to consolidate its current asset class structure into five categories. The Growth Equity class includes public equity (domestic, global, international, and emerging markets) and private equity investments. The Rate Sensitive class includes fixed income, treasury inflation protected securities, and cash. The Credit class includes high yield bonds and bank loans and emerging market debt. The Real Assets class includes real estate, commodities, and natural resources and infrastructure investments. Absolute Return is the final asset class category and consists of investments that are expected to exceed U.S. treasuries with low correlation to public stocks. Included within these asset classes are sub-asset classes. The board approved adjustments to the asset allocations, and set transitional targets. The board also approved target ranges for sub-asset classes as well as constraints on hedge fund exposure, with total hedge funds capped across all asset classes. **Exhibit 1** shows system asset allocations in relation to the strategic targets.

Exhibit 1 also shows a continuation of a trend that began with significant restructuring of the portfolio in fiscal 2008 and 2009. Most notably, public equity has dropped from 62.8% in fiscal 2008 to 37.4% in fiscal 2016. The overall strategy of diminishing allocations to public equity is part of an approach by the board to decrease risk through diversification in the wake of the 2008 financial crisis. A shift from public equity to alternatives strategies like hedge funds can benefit the fund in turbulent markets. Additionally, increased investment in private equity has resulted in positive returns for the system, with less experienced volatility than public equity. It should be noted that the overall strategy of reducing public equity investments is expected to result in lower returns when public equities are in multi-year growth patterns. However, as public equity has been the most volatile asset class over the past 10 years, a more diverse investment allocation will provide protection when equity markets decline. As of September 30, 2016, the public equity allocation has grown slightly to 38.6%, with domestic public equity increasing from 14.8% to 15.9%. The long-term policy allocation for private equity – one of the system's strongest performing asset classes – increased to 11.0%, with the actual allocation reaching 9.3% as of September 30, 2016.

Exhibit 1
State Retirement and Pension System Asset Allocation

<u>Asset Class</u>	<u>Target Allocation</u>	<u>Actual 6/30/2016</u>	<u>Actual 9/30/2016</u>
Growth/Equity	47.0%	46.6%	47.9%
U.S. Equity	16.0%	14.8%	15.9%
International Equity	12.0%	13.4%	12.8%
Emerging Market Equity	8.0%	9.2%	9.9%
Private Equity	11.0%	9.2%	9.3%
Rate Sensitive	21.0%	22.7%	22.0%
Long-term Government Bonds	10.0%	10.5%	10.5%
Securitized and Corporate Bonds	6.0%	7.0%	7.0%
Inflation-linked Bonds	5.0%	4.1%	4.1%
Cash	0.0%	1.1%	0.5%
Credit	9.0%	9.4%	9.5%
High Yield Bonds & Bank Loans	6.0%	6.6%	6.6%
Emerging Market Debt	3.0%	2.9%	2.9%
Real Assets	15.0%	12.7%	12.6%
Real Estate	10.0%	8.2%	8.3%
Commodities	3.0%	2.8%	2.6%
Natural Resources and Infrastructure	2.0%	1.7%	1.7%
Absolute Return	8.0%	8.6%	8.0%
Total Fund	100.0%	100.0%	100.0%

Source: State Retirement Agency

Investment Performance

The system's investment return for fiscal 2016 was 1.16%, net of management fees, failing to exceed its investment return target for the second consecutive year. The performance was driven primarily by low public equity returns, which made up 37.4% of the portfolio and returned -4.31% for the fiscal year. As shown in **Exhibit 2**, the system's assets totaled \$45.465 billion as of June 30, 2016, a decrease of \$368 million over fiscal 2015 after accounting for benefit payouts and other expenses. This is the third year in a row that the market value of the fund has exceeded \$45.0 billion but is also the first year since 2012 that the market value of the fund decreased when compared to the prior June 30 value. As noted below, the strongest performing asset classes were private equity, real estate, and fixed income.

As shown in **Exhibit 3**, all but two asset classes underperformed their policy benchmarks. Public equity holding returns were 46 basis points under the benchmark. Within public equity, domestic equity returned 0.56%, with international and global equity sustaining losses of -11.11% and -3.96%, respectively. The system's real estate and private equity holdings contributed strong performance, returning 11.16% and 9.94%, respectively, though real estate underperformed its return benchmark.

Exhibit 2
State Retirement and Pension System of Maryland
Fund Investment Performance for Periods Ending June 30, 2016
(\$ in Millions)

			Time Weighted Total Returns		
	<u>Assets</u>	<u>% Total</u>	<u>1 Year</u>	<u>5 Years</u>	<u>10 Years</u>
Growth Equity					
Public Equity	\$17,006	37.4%	-4.31%	6.11%	4.56%
Private Equity	4,169	9.2%	9.94%	12.30%	10.87%
Subtotal	21,175	46.6%	-1.82%	7.05%	5.04%
Rate Sensitive					
Nominal Fixed Income	7,933	17.4%	10.71%	5.70%	6.13%
Inflation-linked Bonds	1,866	4.1%	5.16%	3.41%	n/a
Cash	521	1.1%	2.39%	2.41%	n/a
Subtotal	10,320	22.7%	9.34%	5.00%	6.00%
Credit	4,294	9.4%	2.23%	5.75%	n/a
Real Assets					
Real Estate	3,740	8.2%	11.16%	11.73%	5.90%
Commodities	1,273	2.8%	-13.60%	-8/81%	n/a
Natural Resources and Infrastructure	772	1.7%	-12.61%	5.57%	n/a
Subtotal	5,785	12.7%	-1.66%	0.55%	4.14%
Absolute Return	3,892	8.6%	-3.01%	2.42%	n/a
Total Fund	\$45,465	100.0%	1.16%	5.68%	4.85%

Note: Data presented here includes \$242.1 million invested by the system on behalf of the Maryland Transit Administration. Returns beyond one year are annualized. Returns are net of fees, except for 10-year returns, which are gross of fees. Columns may not add to total due to rounding.

Source: State Street Investment Analytics

Exhibit 3
State Retirement and Pension System of Maryland
Benchmark Performance for Periods Ending June 30, 2016

	<u>Return</u>	<u>Benchmark</u>	<u>Excess</u>
Public Equity	-4.31%	-3.85%	-0.46%
Private Equity	9.94%	4.59%	5.35%
Nominal Fixed Income	10.71%	11.65%	-0.94%
Inflation-linked Bonds	5.16%	5.23%	-0.08%
Cash	2.39%	0.14%	2.25%
Credit	2.23%	2.69%	-0.46%
Real Estate	11.16%	13.23%	-2.06%
Commodities	-13.60%	-13.32%	-0.28%
Natural Resources and Infrastructure	-12.61%	6.05%	-18.66
Absolute Return	-3.01%	-2.56%	-0.45
Total Fund	1.16%	1.69%	-0.54%

Source: State Street Investment Analytics

Appendix 1 presents the fiscal year-end performance by each investment manager for fiscal 2016 and prior periods by asset class and asset sub-class. While overall plan performance and performance in aggregate among the asset classes yielded returns below benchmarks, some asset sub-classes did produce value above benchmarks.

DLS requests SRA to comment on the 2016 return performance in relation to the policy benchmarks and for any asset classes and asset sub-classes that underperformed the benchmark, comment on the factors that led to the underperformance, whether those factors are expected to negatively affect performance in fiscal 2017, and what actions are being taken to mitigate those factors impacting the fiscal 2017 returns.

Performance Relative to Other Systems

One method of evaluating the system's investment performance is to compare the system's investment performance with the performance of other systems. The Trust Universe Comparison Service (TUCS), rankings are useful for providing a big-picture, snapshot assessment of the system's performance relative to other large public pension plans. In the TUCS analysis, the one-hundredth percentile represents the lowest investment return, and the first percentile is the

highest investment return. According to TUCS, the system's fiscal 2016 investment performance was rated in the fifty-seventh percentile among the public pension funds with at least \$25 billion in assets, as shown in **Exhibit 4**. However, the system's plan policy ranking for the period ending June 30, 2016, was the thirty-second percentile, highlighting the system's underperformance of its benchmarks. As the system has a low allocation to equity investments compared to its peers, the system's investment policy will have a low TUCS ranking when equity markets are experiencing strong performance. Up until this year, the system has consistently experienced returns in excess of its benchmarks, resulting in higher actual TUCS rankings. With the exception of the one-year return for fiscal 2016, long-term performance rankings place SRPS in the bottom quartile for every timeframe examined. The TUCS rankings are based on returns gross of fees.

Exhibit 4
TUCS Percentile Rankings for Periods Ending June 30
Fiscal 2013-2016

	<u>2013</u>	<u>2014</u>	<u>2015</u>	<u>2016</u>
1 Year	93	94	81	57
3 Years	87	94	88	95
5 Years	68	84	88	95
10 Years	99	99	91	95

TUCS: Trust Universe Comparison Service

Source: Trust Universe Comparison Service

TUCS rankings on their own offer limited insight into the manner in which a system's asset allocation drives performance. The rankings by themselves offer little by way of explaining why Maryland's performance differs from that of other funds and do not reflect a clear picture of the increased investment volatility risks borne by a system with heavier investment in equity, particularly public equity. A more in-depth examination of asset allocation and returns in comparable state pension plans further illustrates the relationship between allocations to equity and fund performance. Over the last few years, high allocations to public equity resulted in higher returns due to the run-up in those markets. Based on data compiled by SRA, DLS identified four other state pension funds with asset allocations to equity at levels similar to Maryland, and four other funds with a higher share of equity allocations; these are shown in **Exhibit 5**. With the exception of Virginia, the plans shown in Exhibit 5 all decreased allocations of public equity allocations from their fiscal 2015 levels. This is consistent with trends to reduce risk and volatility by lowering allocations to public equity, but could also be related investment performance.

Exhibit 5
Performance and Equity Allocation of Public Pension Fund Peers
As of June 30, 2016

Asset Allocation

	<u>Total Equity Exposure</u>	<u>Public Equity</u>	<u>Private Equity</u>	<u>Real Estate</u>	<u>Fiscal 2016 Performance</u>
Washington	73.3%	36.5%	21.0%	15.8%	2.65%
Virginia	61.6%	40.8%	7.9%	12.9%	1.90%
California Teachers	77.5%	54.9%	8.7%	13.9%	1.40%
Pennsylvania	49.3%	21.9%	16.0%	11.4%	1.29%
Oregon	70.7%	38.0%	20.1%	12.6%	1.21%
Maryland	54.8%	37.4%	9.2%	8.2%	1.16%
North Carolina	57.0%	42.5%	5.0%	9.5%	0.80%
California Employees	70.1%	51.9%	8.9%	9.3%	0.61%
South Carolina	48.2%	31.7%	9.4%	7.1%	-0.39%

California Employees: California Public Employees' Retirement System
California Teachers: California State Teachers' Retirement System
Maryland: Maryland State Retirement and Pension System
North Carolina: North Carolina Retirement System
Oregon: Oregon Public Employees' Retirement System
Pennsylvania: Pennsylvania Public School Employees' Retirement System
North Carolina: North Carolina Retirement System
South Carolina: South Carolina Retirement System
Virginia: Virginia Retirement System
Washington: Washington State Investment Board

Source: State Retirement Agency

While SRPS returns in public equity were well below the assumed rate of return, private equity and real estate generated significant returns in fiscal 2016. Other systems shown in exhibit 5 highlight the strength of private equity and real estate in fiscal 2016. While Washington had a similar public equity allocation to SRPS, it had significantly more assets in private equity and real estate. The Pennsylvania Public School Employees' Retirement System had a lower overall allocation to equity but higher allocations to private equity and real estate. Both systems returns exceeded SRPS.

Regarding public equity, SRPS does not have a bias to domestic equity. While total public equity returns for SRPS were -4.31%, domestic public equity returned 0.56% on the year, with a benchmark of 2.14%. All things being equal, a system with allocations similar to SRPS but a higher allocation in public equity in domestic equity would be expected to have performed better

than SPRS in fiscal 2016. Since the end of the fiscal year, system asset allocations to domestic equity have increased to 15.9% as of September 30, 2016.

TUCS data for fiscal 2016 quarterly performance provide some insight when examining the effect of heavier allocations to public equity. As shown in **Exhibit 6**, Maryland's TUCS rankings are significantly higher when domestic equity has the lowest performance ranking. For the first quarter ending September 30, 2015, the Standard and Poor's (S&P) 500 had the lowest TUCS performance ranking. Conversely, Maryland ranking is in or near the top quartile during that same period. As expected, due to Maryland's comparatively low allocation to public equity, when the S&P 500 has the highest TUCS performance ranking in the second quarter of fiscal 2016, Maryland's ranking falls back into the bottom quartile. These results are reflective of SRPS' cautious approach to avoid losses in market downturns.

The diversification of the system's asset allocation appears to be providing protection against more severe losses in a market downturn. This protection is, as the rankings indicate, at the expense of additional gains when the markets are performing well. However, while additional gains are always welcome, there is prudence in structuring the investment allocation in a manner that limits the severity of a negative return. Less volatility in investment returns will also result in more stable employer contribution rates.

TUCS also provides data on the risk-return profile of its members. The data show that the system's level of risk over the three-year period ending June 30, 2016, was below the median for other public funds with assets greater than \$25 billion. This is consistent with the system's comparatively low allocation to public equity, which is a highly volatile asset class. The system's asset allocation sets the system up to protect against more extreme losses in down markets, which is reflected in the rankings shown in **Exhibit 6**. For the quarter ending September 30, 2015, the system return is -3.61%. However, for that same period, the S&P 500 return is -6.44%. As expected, with the TUCS ranking for the S&P at 100, Maryland's ranking is considerably higher at 25.

Exhibit 6
SRPS TUCS Performance Rankings – Fiscal 2016 Quarterly Performance

	September <u>2015</u>	December <u>2015</u>	March <u>2016</u>	June <u>2016</u>
SRPS Performance	25	91	28	42
S&P 500	100	1	42	5

S & P: Standard and Poor's
SRPS: State Retirement and Pension System
TUCS: Trust Universe Comparison Service

Source: Trust Universe Comparison Service

Investment Management Fees

As shown in **Exhibit 7**, SRPS incurred \$329.7 million in investment management fees during fiscal 2016, a decrease of \$17.4 million over fiscal 2015 fees. Management fees for the plan as a whole have grown substantially since the system adjusted its asset allocation to invest more heavily in alternative asset classes with higher fee structures. The shift of public equity assets to global and emerging market equity managers, which are almost all active managers, contributed significantly to the growth in fees over the past few years.

Exhibit 7
Asset Management Fees Paid by Asset Class
Fiscal 2014-2016
(\$ in Millions)

	<u>2014</u>	<u>2015</u>	<u>2016</u>
Public Equity	\$99.3	\$95.6	\$83.6
Fixed Income	11.8	10.7	10.0
Real Estate	26.4	26.2	32.6
Private Equity	59.1	62.3	81.5
Real Return	26.3	33.8	29.6
Credit and Debt Related	62.9	52.3	36.9
Absolute Return	33.1	58.2	49.2
Currency	6.9	5.0	3.1
Service Providers/Other	3.7	2.8	3.1
Total	\$329.6	\$347.1	\$329.7

Note: Columns may not sum to total due to rounding.

Source: State Retirement Agency

While active management of assets results in higher overall fees, the system has benefited from active management by achieving excess returns over performance benchmarks. Private equity returned 535 basis points in excess of its fiscal 2016 benchmark. While active management of emerging market public equity returned -6.46%, the return was 559 basis points above its benchmark of -12.05%. Similarly, actively managed international developed equity's return of -9.29% was 106 basis points above its benchmark of -10.35%. Commodity hedge fund investments returned 1044 basis points above its benchmark, though for a return of -2.88%. While negative returns are concerning, the system has at least demonstrated an ability to receive value when paying for active management by mitigating the extent of negative returns.

A report presented to the SRPS board of trustees at the August 16, 2016 meeting of the board by CEM Benchmarking, Inc. found that SRPS investments were lower cost compared to its peer group. The report noted that the system had lower costs than would be expected, and also noted that the system paid less than peer systems for similar services.

Private Equity Fees

Private equity investments comprise 9.2% of total system assets as of June 30, 2016. The total private equity investment has increased from 8.0% as of June 30, 2015. The system's private equity program is relatively young, beginning in 2005. As shown in Exhibit 7, management fees for private equity comprise nearly 25.0% of total management fees, despite only constituting 9.2% of system assets in fiscal 2016. The reason for the high amount of fees in private equity involves a substantial degree of active management. Fee structures are similar to those used in hedge funds, with a set management fee, plus a portion of earnings referred to as "carried interest." The management fees in Exhibit 7 only reflect the management fees, not carried interest. Because of the nature of private equity fee arrangements, carried interest fees are tied to performance. When the system pays higher carried interest fees, a higher return on investment is the result. SRA indicates that private equity returns are reported net of management fees and carried interest. Management fees for private equity shown in Exhibit 7 reflect increased investment commitments in fiscal 2016.

While private equity does involve substantial management fees, the system's private equity portfolio was one of the strongest performing asset class in 2016, with a return of 9.94%. This return was 535 basis points above its benchmark, the second consecutive year in which private equity returns exceeded the benchmark by more than 500 basis points. Returns for the one -three- and five-year periods were 9.94%, 14.16%, and 12.30%, respectively. Returns for those same periods also provided significant excess returns over the asset class benchmarks.

Over the past few years, there has been increasing interest and scrutiny over the transparency of fees for private equity investments. Concerns have been raised over lack of transparency over fees and expenses related to private equity investments not being fully disclosed. This increased scrutiny is expected to result in more transparent disclosures in the private equity industry. A fee reporting template designed by the Institutional Limited Partners Association has been receiving increasing support from public systems as well as general partner entities. SRPS has signed on in support of the fee disclosure template. The template is intended to unify and codify the presentation of fees, expenses, and carried interest disclosures by fund managers to limited partners.

Internal Asset Management

A number of large public defined benefit pension funds report using internal management for at least a portion of their portfolio. The board has been discussing the exploration of internal management of SRPS assets. The SRPS Investment Policy Manual was amended to clarify the ability of the Chief Investment Officer to develop and implement internal management strategies.

DLS notes that moving to internal management could require substantial increase in staffing and flexibility to provide market rate compensation to investment staff but also has the potential to generate substantial net savings in management costs.

As a shift to internal management would be a significant change in the operation of the SRA Investment Division, DLS notes that a shift to internal management could require significant operational changes. Performance measures would need to be adopted to monitor and evaluate the effectiveness of internal management of system assets compared to external management. Additionally, guidelines and reporting requirements would need to be implemented to track the internal management of system funds, as well as any expansion or reduction of internal management once implemented.

As part of its requests for legislation in 2017, the board of trustees included a request for legislation that would give independent salary setting authority for SRA Investment Division personnel. Independent salary authority would likely be a necessary component of implementing internal management of assets. The board cites “insufficient resources to develop an internal management function” as one of the reasons for the requested legislation. A move to internal management would require SRA to compete with the private sector to recruit and retain asset managers with the experience needed to directly manage assets.

One of the arguments for internal management is that it can reduce fees paid for asset management. However, internal management does introduce additional risk factors. SRA has been effective at negotiating favorable fee arrangements with external managers, and external management provides SRPS with options to select asset managers and to diversify the management of assets among multiple managers. When particular managers do not perform well, SRPS is able to terminate the management arrangement and place the funds under management elsewhere. If assets under internal management fail to adequately perform, the investment performance would be an SRA personnel issue, rather than a manager selection issue. Flexibility and diversification in managements of assets will need to be balanced with potential cost savings from reduced fees. Additionally, turnover of internal management personnel could affect investment performance continuity.

DLS requests SRA to comment on its plans for internal asset management, including the asset classes and sub-asset classes in which SRA plans to directly manage system assets, the amount of assets that would be internally managed, changes to investment division staffing that would be needed to implement internal management of assets, any additional legal or regulatory compliance required as a result of internal asset management, and potential timelines for implementation.

Terra Maria Program

The Terra Maria program, the system’s emerging manager program, continued to add value to the portfolio, but its performance has weakened compared with its early years. Now in its tenth year, the program performed below its benchmark by 265 basis points in fiscal 2016, though

since inception the program has performed 77 basis points above its benchmark. Domestic public equity under Terra Maria managers had a cumulative return of -5.32%, which was 590 basis points below its benchmark. By comparison, the system returned 1.54% in actively managed domestic public equity, which was 160 basis points below the benchmark.

The program has also continued to experience some retrenchment in size. Total assets devoted to the program decreased slightly, from almost \$2.9 billion in fiscal 2015 to \$2.6 billion in fiscal 2016. As a proportion of total assets, Terra Maria dropped from 6.3% of total assets in fiscal 2015 to 5.7% in fiscal 2016. **Exhibit 8** provides an overview of the Terra Maria program by program manager and asset class.

Exhibit 8
Terra Maria Program Performance
Investment Performance for Periods Ending June 30, 2016
(\$ in Millions)

		Performance			
<u>Program Manager</u>	<u>Total Assets</u>	<u>Fiscal 2016 Actual</u>	<u>Fiscal 2016 Benchmark</u>	<u>Inception Actual</u>	<u>Inception Benchmark</u>
Attucks	\$421.5	-2.46%	-1.23%	12.63%	11.95%
Bivium	279.2	-7.46%	-3.64%	10.97%	11.46%
Capital Prospects	446.1	-2.54%	-0.30%	14.88%	14.75%
FIS Group	346.1	-4.63%	-7.20%	11.32%	10.21%
Leading Edge	351.6	-6.78%	-5.17%	11.21%	11.21%
Northern Trust	440.8	-4.47%	-0.06%	4.47%	4.33%
Progress	325.9	4.39%	4.36%	8.01%	7.85%
<u>Asset Class</u>					
U.S. Equity	\$992.2	-5.32%	0.58%	7.13%	7.03%
International Developed Equity	712.9	-8.39%	-10.48%	0.82%	-1.00%
Emerging Market Equity	146.1	7.07%	6.41%	-0.37%	-0.02%
Global Equity	23.1	2.49%	-3.73%	10.12%	10.02%
Rate Sensitive	636.0	4.21%	4.15%	3.56%	3.60%
Credit/Debt	100.9	-4.34%	-0.63%	6.19%	7.23%
Total	\$2,611.2	-4.03%	-1.68%	4.76%	3.99%

Note: Actual returns are net of fees; returns beyond one year are annualized. Total assets may not sum to total due to rounding.

Source: State Retirement Agency

For fiscal 2016, only two of the seven program managers met or exceeded their performance benchmarks, and on the whole, program performance underperformed its benchmark by 235 basis points. Only international and global equity exceeded their benchmarks, and only two asset managers exceeded their individual benchmarks. Despite the underperformance in fiscal 2016, the program as a whole has outperformed its overall composite benchmark by 77 basis points since inception. However, that is down from returns of 118 basis points over the benchmark since inception through fiscal 2015. Among asset classes, domestic equity, international equity, and global equity have exceeded benchmarks since inception. All but one of the seven program managers are beating or meeting their benchmarks since inception.

Despite the overall underperformance, the program did demonstrate its ability to generate value. While international developed equity had a return of -8.39%, this return was 209 basis points above the benchmark. Non-Terra Maria international developed equity that was actively managed had a fiscal year return of -9.62%, exceeding its benchmark by 65 basis points. While US equity underperformed by 590 basis points, global equity Terra Maria returned 2.49%, which exceeded its benchmark by 622 basis points.

One of the Terra Maria program's stated goals is to achieve returns in excess of benchmarks. The program has demonstrated the ability to achieve excess returns over benchmarks, with instances of significant returns over benchmarks at times. Over the past year, there has been discussion at SRPS board meetings of refocusing the program asset management to better utilize the asset diversification the program can bring to SRPS, including exploring expansion into additional asset classes.

DLS requests SRA to comment on its plans regarding the structure and utilization of the Terra Maria program moving forward, including how the amount of funds under management and the distribution of funds among asset classes affects program performance.

Currency Program

Adopted in fiscal 2009, the program is designed to protect against losing value when the dollar appreciates relative to some foreign currencies in countries in which the system holds assets. During periods when the dollar is weak, the currency management program's cost manifests as a slight drag on international equity holdings. However, when the dollar appreciates, the program provides gains that help offset the currency losses generated by the strengthening dollar. During fiscal 2016 the program reduced returns by \$47.7 million. However, as of June 30, 2016, the currency program added value of \$267.1 million since inception. Gains when the dollar is strong should outweigh losses when the dollar is weak, and the system has taken steps to lock in program gains. The primary objective of the program is to lower volatility related to currency fluctuations.

The currency hedging program is only applied to a relatively small portion of the system's total assets. In addition, not all foreign currencies are included in the hedging program. Due to liquidity constraints and higher transaction costs in some currencies, the program is currently limited to the Euro, Japanese Yen, Swedish Krona, Swiss Franc, Canadian Dollar, Australian Dollar, and British Pound.

DLS requests SRA to comment on its process for evaluating utilization of the currency program, and plans for the program moving forward.



SUMMARY OF PERFORMANCE

	Market Value	% of Plan	1 MO	3 MO	YTD	FYTD	1 YR	3 YRS	5 YRS	10 YRS	ITD	Inception Date
TOTAL PLAN	45,465,359,142	100.0	0.89	1.87	3.57	1.16	1.16	5.91	5.68	4.85	8.00	07/01/86
TOTAL PLAN POLICY INDEX ⁽¹⁾			1.20	2.44	4.79	1.69	1.69	5.40	4.96	4.46		07/01/86
<i>Excess</i>			-0.31	-0.57	-1.23	-0.54	-0.54	0.51	0.72	0.39		
TOTAL GROWTH EQUITY	21,174,760,618	46.6	-0.52	0.32	0.72	-1.82	-1.82	7.95	7.05	5.04	5.10	01/01/98
GROWTH EQUITY CUSTOM BENCHMARK ⁽²⁾			-0.06	0.90	1.62							01/01/98
<i>Excess</i>			-0.46	-0.58	-0.90							
TOTAL RATE SENSITIVE	10,319,984,074	22.7	3.58	4.04	9.60	9.34	9.34	5.26	5.00	6.00	7.44	07/01/86
CUSTOM RATE SENSITIVE BENCHMARK ⁽³⁾			3.93	4.26	10.38	10.65	10.65	5.33	4.59	5.36		07/01/86
<i>Excess</i>			-0.35	-0.22	-0.79	-1.31	-1.31	-0.07	0.41	0.63		
TOTAL CREDIT/DEBT STRATEGIES	4,293,631,773	9.4	1.02	2.24	4.81	2.23	2.23	4.19	5.75	10.12		03/01/09
MSRA CUSTOM CREDIT BENCHMARK ⁽⁴⁾			1.93	4.59	9.39	2.69	2.69	2.68	4.30	8.48		03/01/09
<i>Excess</i>			-0.91	-2.35	-4.58	-0.46	-0.46	1.51	1.45	1.64		
TOTAL REAL ASSETS	5,784,973,087	12.7	1.62	3.54	4.65	-1.66	-1.66	-0.08	0.55	4.14	3.79	02/01/06
CUSTOM REAL ASSETS BENCHMARK ⁽⁵⁾			1.66	4.57	7.41	0.87	0.87	-0.04	-0.26	2.98	2.68	02/01/06
<i>Excess</i>			-0.04	-1.03	-2.76	-2.54	-2.54	-0.04	0.81	1.16	1.10	
TOTAL ABSOLUTE RETURN	3,892,009,590	8.6	0.32	1.78	0.28	-3.01	-3.01	1.67	2.42	3.21		04/01/08
CUSTOM ABSOLUTE RETURN BENCHMARK ⁽⁶⁾			-0.29	0.91	-0.94	-2.56	-2.56	2.51	1.99	0.72		04/01/08
<i>Excess</i>			0.60	0.87	1.22	-0.45	-0.45	-0.84	0.43	2.49		



ENDNOTES

[1] Since 07/01/2008: Calculated monthly using transitional weights and asset class benchmarks. Prior to 07/01/2008: MSRA TOTAL PLAN STATIC POLICY.

[2] Benchmark is a dynamic blend of the Public Equity Benchmark and the State Street Private Equity Index based off of sub-asset class weights used in the policy benchmark.

[3] Since 11/01/2015: 50% Barclays Long-Term Government, 15% Barclays Securitized, 15% Barclays Corporate, 20% Barclays U.S. TIPS
From 07/01/2013 to 10/31/2015: 80% BC Aggregate Intermediate, 20% BC Global Aggregate 1-10 Year Hedged
From 07/01/2010 to 06/30/2013: 80% BC Aggregate, 20% BC Global Bond Aggregate Hedged
From 01/01/2010 to 06/30/2010: 80% BC Aggregate, 20% BC Global Bond Aggregate Unhedged
From 07/01/2009 to 12/31/2009: Benchmark is dynamically calculated using Beginning Market Value weights of the underlying portfolios and their benchmarks
Prior to 07/01/2009: Benchmark is BC US Universal.
Formerly named "Custom Fixed Income Benchmark" prior to 11/01/2015.

[4] Since 01/01/2016: 67% US Credit Benchmark, 33% non-U.S. Credit Benchmark
From 11/01/2015 to 12/31/2015: 75% US Credit Benchmark, 25% non-U.S. Credit Benchmark.
From 07/01/2013 to 10/31/2015: 50% BC High Yield / 20% BC Credit / 20% JP Morgan GBI EM Global Diversified/ 10% S&P/LSTA Leveraged Loan Index
From 01/01/2010 to 06/30/2013: 50% BC Credit / 50% BC High Yield
Prior to 01/01/2010: 75% BC Credit / 25% BC High Yield

[5] Since 11/01/2015: Benchmark is dynamically calculated using the beginning market values of the Real Estate, Commodities and Natural Resource/Infrastructure sub-asset classes and their corresponding benchmarks.
From 12/01/2012 to 10/31/2015: 30% - DJ UBS Commodities Index (Total Return), 10% - CPI + 5%; 8% Max, 60% - 50% BC US TIPS Index/50% BC World Inflat-Linked Bond Index
From 07/01/2011 to 11/30/2012: 30% - DJ UBS Commodities Index (Total Return), 10% - CPI + 5%; 8% Max, 60% - 65% BC US TIPS Index/35% BC Global Inflation Linked (USD Hedged) Index
From 07/01/2009 to 06/30/2011: 20% - DJ UBS Commodities Index (Total Return), 20% - CPI + 5%; 8% Max, 60% - 65% BC US TIPS Index/35% BC Global Inflation Linked (USD Hedged) Index
From 07/01/2008 to 06/30/2009: Benchmark is dynamically calculated using Beginning Market Value weights of the underlying portfolios and their benchmarks Prior to 07/01/2008: 100% Barclays US TIPS Index
Prior to 07/01/2008: 100% Barclays US TIPS Index
Formerly named "Custom Real Return Benchmark" prior to 11/01/2015.

[6] Since 11/01/2015: HFRI Fund of Funds Conservative + 100 bps.
From 07/01/2014 to 10/31/2015: HFRI FOF: Conservative Index.
From 07/01/2008 to 06/30/2014: benchmark was HFRI Fund of Funds index.
Prior to 07/01/2008 benchmark was the Citigroup 3-Month T-bill + 500 bps.



SUMMARY OF PERFORMANCE

	Market Value	% of Plan	1 MO	3 MO	YTD	FYTD	1 YR	3 YRS	5 YRS	10 YRS	ITD	Inception Date
GROWTH EQUITY												
<i>U.S. EQUITY</i>												
RHUMBLINE RUSSELL 1000	1,401,733,904	3.1	0.23	2.53	3.72	3.01	3.01	11.47			13.82	11/01/12
Russell 1000			0.23	2.54	3.74	2.93	2.93	11.48			13.83	11/01/12
Excess			-0.00	-0.01	-0.02	0.07	0.07	-0.01			-0.01	
TOTAL US EQUITY PASSIVE												
	1,402,218,867	3.1	0.22	2.52	4.14						2.61	11/01/15
D.E. SHAW ALL CAP CORE ENHANCED												
	535,666,772	1.2	0.01	3.11	3.94	2.65	2.65	11.37			11.49	04/01/13
Russell 3000			0.21	2.63	3.62	2.14	2.14	11.13			11.13	04/01/13
Excess			-0.19	0.48	0.32	0.51	0.51	0.25			0.36	
T. ROWE PRICE ENHANCED												
	488,844,661	1.1	-0.21	2.40	2.68	3.83	3.83	11.85	12.22	7.97	7.53	05/01/06
S&P 500			0.26	2.46	3.84	3.99	3.99	11.66	12.10	7.42	7.00	05/01/06
Excess			-0.47	-0.06	-1.16	-0.17	-0.17	0.20	0.12	0.54	0.52	
ZEVENBERGEN CAPITAL INV.												
	87,649,508	0.2	-2.64	-1.28	-11.02	-13.81	-13.81	8.26	7.24		18.17	12/01/08
Custom Zevenbergen Index ^[1]			-0.40	0.80	1.14	1.88	1.88	12.65	11.78		17.63	12/01/08
Excess			-2.24	-2.08	-12.16	-15.69	-15.69	-4.39	-4.54		0.54	
TOTAL U.S. EQUITY ACTIVE												
	1,113,102,016	2.4	-0.30	2.42	2.14	1.54	1.54	11.10	10.38	5.37		06/01/94
ACTIVE US EQ BM ^[2]			0.18	2.40	3.56	3.14	3.14	11.53	11.84			06/01/94
Excess			-0.48	0.02	-1.42	-1.60	-1.60	-0.43	-1.46			
US EQUITY TERRA MARIA												
	992,167,429	2.2	-0.72	0.70	-0.65	-5.32	-5.32	7.82	8.77		7.13	04/01/07
TERRA MARIA US EQUITY BENCHMARK ^[3]			0.08	2.98	3.60	0.58	0.58	10.34	10.93		7.03	04/01/07
Excess			-0.80	-2.27	-4.25	-5.90	-5.90	-2.52	-2.16		0.10	



SUMMARY OF PERFORMANCE

	Market Value	% of Plan	1 MO	3 MO	YTD	FYTD	1 YR	3 YRS	5 YRS	10 YRS	ITD	Inception Date
TOTAL US EQUITY TM + U.S. EQUITY ACTIVE	2,105,269,445	4.6	-0.50	1.89	1.11	-1.39	-1.39	9.67	9.71		7.98	07/01/08
TM US EQ + ACTIVE US EQ BM ^[2]			0.14	2.67	3.58	1.94	1.94	10.98	11.45		8.96	07/01/08
Excess			-0.64	-0.77	-2.47	-3.33	-3.33	-1.31	-1.74		-0.98	
U.S. EQUITY	3,507,488,313	7.7	-0.21	2.14	2.39	0.56	0.56	10.48	10.64	6.82	8.36	04/01/94
MSRA CUSTOM US EQUITY INDEX ^[4]			0.21	2.63	3.62	2.14	2.14	11.13	11.60	7.45		04/01/94
Excess			-0.42	-0.49	-1.23	-1.58	-1.58	-0.65	-0.95	-0.63		
INTERNATIONAL DEVELOPED MARKETS												
SSGA INTERNATIONAL FUND	1,469,804,416	3.2	-2.96	-0.78	-2.61	-9.38	-9.38	2.25	1.55	2.42	7.81	05/01/03
SSGA INTERNATIONAL CUSTOM INDEX ^[5]			-3.04	-1.05	-2.98	-9.84	-9.84	1.88	1.23	2.10	7.54	05/01/03
Excess			0.08	0.27	0.37	0.47	0.47	0.37	0.32	0.32	0.27	
INTERNATIONAL DEVELOPED EQUITY PASSIVE	1,469,804,416	3.2	-2.96	-0.78	-2.61						-5.82	11/01/15
MSCI WORLD EX US NET (DAILY)			-3.04	-1.05	-2.98						-6.24	11/01/15
Excess			0.08	0.27	0.37						0.42	
ARTISAN PARTNERS, L.P.	485,444,982	1.1	-1.95	-0.55	-3.84	-10.32	-10.32	2.58	5.11	4.86	8.15	11/01/03
ARTISAN CUSTOM BENCHMARK ^[6]			-3.04	-1.05	-2.98	-9.84	-9.84	1.88	1.49	2.58	6.40	11/01/03
Excess			1.09	0.50	-0.86	-0.48	-0.48	0.70	3.61	2.28	1.75	
AQR ENHANCED ACWI EX-US	374,847,344	0.8	-4.76	-2.77	-3.73	-10.61	-10.61				-2.93	12/01/13
AQR Enhanced Custom Benchmark ^[7]			-3.04	-1.05	-1.43	-10.61	-10.61				-3.92	12/01/13
Excess			-1.72	-1.72	-2.31	0.01	0.01				0.99	



SUMMARY OF PERFORMANCE

	Market Value	% of Plan	1 MO	3 MO	YTD	FYTD	1 YR	3 YRS	5 YRS	10 YRS	ITD	Inception Date
BROWN CAPITAL MANAGEMENT INT'L	445,582,664	1.0	-3.28	-3.42	-4.34	-3.89	-3.89	6.86	6.03		12.83	12/01/08
Brown Capital Management International Custom Benchmark ^[8]			-3.24	-2.20	-2.43	-11.00	-11.00	1.13	0.08		7.92	12/01/08
Excess			-0.04	-1.22	-1.91	7.11	7.11	5.73	5.95		4.91	
DFA INTERNATIONAL CORE EQUITY	314,032,159	0.7	-3.97	-1.48	-2.31	-8.23	-8.23	3.62			1.65	05/01/13
MSCI WORLD EX US (NET)			-3.04	-1.05	-2.98	-9.84	-9.84	1.88			-0.16	05/01/13
Excess			-0.93	-0.43	0.67	1.61	1.61	1.74			1.81	
DFA SMALL CAP INTERNATIONAL	179,528,238	0.4	-3.93	-1.13	-0.75	-3.85	-3.85	6.52	3.97	4.26	4.32	03/01/06
DFA Custom Benchmark ^[9]			-4.43	-1.28	-0.69	-3.35	-3.35	6.34	3.85	3.26	3.25	03/01/06
Excess			0.50	0.15	-0.07	-0.51	-0.51	0.17	0.12	1.00	1.07	
INTERNATIONAL DEVELOPED EQUITY ACTIVE ^[10]	1,799,912,812	4.0	-3.42	-1.67	-3.17	-9.62	-9.62	1.92	0.76	1.92		01/01/95
CUSTOM INTL DEV EQ ACTIVE BENCHMARK ^[11]			-3.23	-1.20	-2.25	-10.27	-10.27	1.29	0.08			01/01/95
Excess			-0.19	-0.46	-0.92	0.65	0.65	0.64	0.69			
INTL DEVELOPED EQUITY TERRA MARIA ^[10]	712,942,136	1.6	-3.27	-1.47	-2.01	-8.39	-8.39	2.56	1.60		0.82	11/01/07
TERRA MARIA INTL DEVELOPED EQ BM ^[12]			-2.49	-0.91	-2.09	-10.48	-10.48	1.29	0.19		-1.00	11/01/07
Excess			-0.78	-0.56	0.08	2.09	2.09	1.27	1.41		1.82	
INTL DEVELOPED EQUITY ACTIVE AND TM ^[10]	2,512,854,948	5.5	-3.39	-1.63	-2.86	-9.29	-9.29	2.09	0.95		0.68	07/01/08
TM INTL DEV EQ + ACTIVE INTL DEV EQ BM ^[11]			-3.06	-1.15	-2.24	-10.35	-10.35	1.28	0.12		0.21	07/01/08
Excess			-0.34	-0.47	-0.62	1.06	1.06	0.81	0.83		0.47	
INTL EQUITY TRANSITION ACCOUNT	134,780	0.0										11/01/04



SUMMARY OF PERFORMANCE

	Market Value	% of Plan	1 MO	3 MO	YTD	FYTD	1 YR	3 YRS	5 YRS	10 YRS	ITD	Inception Date
TOTAL INTL DEVELOPED EQUITY EX OVERLAY ^[10]	3,982,794,145	8.8	-3.20	-1.63	-3.05	-10.34	-10.34	1.46	0.48	2.09		01/01/95
MSRA CUSTOM INTERNATIONAL INDEX ^[13]			-3.04	-1.05	-2.98	-11.52	-11.52	0.68	-0.18	1.82		01/01/95
<i>Excess</i>			-0.16	-0.57	-0.07	1.18	1.18	0.77	0.66	0.27		
RECORD CURRENCY MANAGEMENT	-33,042,833	-0.1										05/01/09
TOTAL INTERNATIONAL DEVELOPED EQUITY ^[10]	3,949,751,312	8.7	-3.63	-2.08	-4.30	-11.11	-11.11	2.19	1.22	2.40	5.86	01/01/95
MSRA CUSTOM INTERNATIONAL INDEX ^[13]			-3.04	-1.05	-2.98	-11.52	-11.52	0.68	-0.18	1.82	4.74	01/01/95
<i>Excess</i>			-0.59	-1.02	-1.32	0.41	0.41	1.51	1.41	0.58	1.12	
EMERGING MARKETS												
SSGA EMERGING MARKETS INDEX FUND	596,175,215	1.3	3.90	0.58	6.22	-12.48	-12.48	-1.87			-0.35	06/01/12
MSCI EMERGING MARKETS			4.00	0.66	6.41	-12.05	-12.05	-1.56			0.46	06/01/12
<i>Excess</i>			-0.10	-0.08	-0.19	-0.42	-0.42	-0.30			-0.81	
EMERGING MARKETS EQUITY PASSIVE	596,175,215	1.3	3.90	0.58	6.22						-0.18	11/01/15
MSCI EMERGING MARKETS			4.00	0.66	6.41						-0.02	11/01/15
<i>Excess</i>			-0.10	-0.08	-0.19						-0.16	
GENESIS ASSET MANAGERS LTD	204,876,763	0.5	3.23	3.23	10.03	-7.36	-7.36	-0.25	-1.35		7.08	07/01/09
MSCI EMERGING MARKETS			4.00	0.66	6.41	-12.05	-12.05	-1.56	-3.78		3.79	07/01/09
<i>Excess</i>			-0.77	2.57	3.62	4.70	4.70	1.32	2.44		3.29	
BAILLIE GIFFORD EMERGING MARKETS	477,649,684	1.1	1.72	-0.69	-2.50						-5.30	11/01/15
MSCI EMERGING MARKETS			4.00	0.66	6.41						-0.02	11/01/15
<i>Excess</i>			-2.28	-1.36	-8.91						-5.28	



SUMMARY OF PERFORMANCE

	Market Value	% of Plan	1 MO	3 MO	YTD	FYTD	1 YR	3 YRS	5 YRS	10 YRS	ITD	Inception Date
DFA EMERGING MARKETS	598,388,458	1.3	5.54	2.22							14.97	02/01/16
MSCI EMERGING MARKETS			4.00	0.66							13.80	02/01/16
Excess			1.54	1.56							1.17	
ACADIAN EMRG MKTS MANAGED VOLATILITY EQ	203,200,000	0.4	2.98	0.10							0.10	04/01/16
MSCI EMERGING MARKETS			4.00	0.66							0.66	04/01/16
Excess			-1.02	-0.56							-0.56	
POLUNIN CAPITAL PARTNERS	303,819,963	0.7	3.86	2.16							2.16	04/01/16
MSCI EMERGING MARKETS			4.00	0.66							0.66	04/01/16
Excess			-0.14	1.50							1.50	
AXIOM INTERNATIONAL INVESTORS	305,823,975	0.7	4.22								2.19	05/01/16
MSCI EMERGING MARKETS			4.00								0.12	05/01/16
Excess			0.22								2.07	
FISHER INVESTMENTS	525,392,395	1.2	2.45								0.88	05/01/16
MSCI EMERGING MARKETS			4.00								0.12	05/01/16
Excess			-1.55								0.76	
TRANSITION ACCOUNT EMERGING MARKETS	299,315,027	0.7	4.52								0.69	05/01/16
TOTAL EMERGING MARKET ACTIVE	2,918,466,266	6.4	3.58	0.98	7.68	-6.46	-6.46	-0.71	-4.16		0.37	07/01/10
MSCI EMERGING MARKETS			4.00	0.66	6.41	-12.05	-12.05	-1.56	-3.78		0.88	07/01/10
Excess			-0.41	0.32	1.27	5.59	5.59	0.85	-0.37		-0.51	



SUMMARY OF PERFORMANCE

	Market Value	% of Plan	1 MO	3 MO	YTD	FYTD	1 YR	3 YRS	5 YRS	10 YRS	ITD	Inception Date
EMERGING MARKETS EQUITY TERRA MARIA	146,107,557	0.3	4.15	0.88	7.07						-0.37	11/01/15
MSCI EMERGING MARKETS			4.00	0.66	6.41						-0.02	11/01/15
Excess			0.15	0.22	0.66						-0.35	
EMERGING MARKETS ACTIVE AND TM	3,064,573,823	6.7	3.60	1.01	7.24						2.32	11/01/15
MSCI EMERGING MARKETS			4.00	0.66	6.41						-0.02	11/01/15
Excess			-0.40	0.35	0.83						2.33	
TOTAL EMERGING MARKETS EQUITY	3,660,749,038	8.1	3.65	0.96	6.22						0.48	11/01/15
MSCI EMERGING MARKETS			4.00	0.66	6.41						-0.02	11/01/15
Excess			-0.35	0.30	-0.19						0.50	
GLOBAL EQUITY												
ACADIAN ASSET MGT	483,051,844	1.1	0.86	0.92	2.03	-5.79	-5.79	6.14	6.08	3.66	4.81	10/01/05
MSCI AC WORLD INDEX			-0.61	0.99	1.23	-3.73	-3.73	6.03	5.38	4.26	4.86	10/01/05
Excess			1.46	-0.06	0.80	-2.06	-2.06	0.11	0.70	-0.60	-0.05	
TEMPLETON INVESTMENT MGT	555,953,551	1.2	-3.29	-1.58	-3.99	-10.54	-10.54	4.21	6.14	5.32	5.95	01/01/06
MSCI AC WORLD INDEX			-0.61	0.99	1.23	-3.73	-3.73	6.03	5.38	4.26	4.65	01/01/06
Excess			-2.69	-2.57	-5.22	-6.81	-6.81	-1.82	0.76	1.06	1.30	
BAILLIE GIFFORD	484,129,204	1.1	-1.82	-0.11	-6.16	-2.90	-2.90	14.08	8.86		6.51	02/01/08
MSCI AC WORLD INDEX			-0.61	0.99	1.23	-3.73	-3.73	6.03	5.38		3.16	02/01/08
Excess			-1.22	-1.10	-7.39	0.83	0.83	8.05	3.48		3.35	



SUMMARY OF PERFORMANCE

	Market Value	% of Plan	1 MO	3 MO	YTD	FYTD	1 YR	3 YRS	5 YRS	10 YRS	ITD	Inception Date
LONGVIEW PRTNRS GLOBAL EQUITY	498,951,541	1.1	-3.47	-0.32	3.22	-1.23	-1.23	11.65	12.19		12.70	10/01/09
MSCI AC WORLD INDEX			-0.61	0.99	1.23	-3.73	-3.73	6.03	5.38		7.25	10/01/09
Excess			-2.86	-1.31	2.00	2.50	2.50	5.62	6.81		5.45	
BROWN CAPITAL GLOBAL EQUITY	738,938	0.0										01/01/10
AQR CAPITAL - GLOBAL EQUITY	730,443,733	1.6	-1.83	-1.14	-2.20	-6.13	-6.13	6.00	6.26		8.89	08/01/10
MSCI AC WORLD INDEX			-0.61	0.99	1.23	-3.73	-3.73	6.03	5.38		7.85	08/01/10
Excess			-1.23	-2.13	-3.42	-2.40	-2.40	-0.04	0.88		1.03	
D.E. SHAW INV - GLOBAL EQUITY	653,407,076	1.4	-1.44	1.85	-0.06	-2.02	-2.02	7.84	7.76		10.28	08/01/10
MSCI WORLD INDEX			-1.12	1.01	0.66	-2.78	-2.78	6.95	6.63		8.99	08/01/10
Excess			-0.32	0.84	-0.71	0.76	0.76	0.89	1.14		1.29	
SSGA MSCI ACWI MINIMUM VOLATILITY	554,095,591	1.2	4.38	4.63	12.38	15.23	15.23	11.96			12.50	01/01/13
SSgA Minimum Volatility Benchmark ^[14]			-1.12	1.01	1.20	-3.75	-3.75	6.02			6.93	01/01/13
Excess			5.50	3.62	11.18	18.98	18.98	5.93			5.57	
GMO GLOBAL ALL COUNTRY EQUITY ALLOCATION	897,982	0.0	0.71	1.24	1.52	-6.44	-6.44				3.22	09/01/13
MSCI AC WORLD INDEX			-0.61	0.99	1.23	-3.73	-3.73				5.45	09/01/13
Excess			1.32	0.25	0.29	-2.71	-2.71				-2.23	
SCHRODER QEP GLOBAL BLEND	441,069,641	1.0	-0.46	1.19	3.09	-3.06	-3.06				4.95	09/01/13
MSCI AC WORLD INDEX			-0.61	0.99	1.23	-3.73	-3.73				5.45	09/01/13
Excess			0.15	0.20	1.86	0.66	0.66				-0.50	



SUMMARY OF PERFORMANCE

	Market Value	% of Plan	1 MO	3 MO	YTD	FYTD	1 YR	3 YRS	5 YRS	10 YRS	ITD	Inception Date
TOTAL GLOBAL EQUITY ACTIVE	4,402,859,728	9.7	-1.03	0.37	0.37	-2.91	-2.91	7.72	7.00	5.41	5.90	10/01/05
MSCI AC WORLD INDEX			-0.61	0.99	1.23	-3.73	-3.73	6.03	5.38	4.26	4.86	10/01/05
Excess			-0.42	-0.62	-0.86	0.81	0.81	1.69	1.63	1.14	1.05	
GLOBAL EQUITY TERRA MARIA	23,075,454	0.1	0.56	4.39	5.23	2.49	2.49	8.34	5.65		10.12	12/01/08
TERRA MARIA GLOBAL EQ BM ^[15]			-0.61	0.99	1.23	-3.73	-3.73	6.03	5.48		10.02	12/01/08
Excess			1.16	3.40	4.00	6.22	6.22	2.31	0.17		0.10	
MARSHALL WACE EUREKA FUND	363,658,062	0.8	-0.06	2.68	-2.39	1.09	1.09	8.57			11.83	10/01/12
HFRI Equity Hedge (Total) Index			-0.48	1.28	-0.51	-5.11	-5.11	3.01			4.22	10/01/12
Excess			0.42	1.40	-1.88	6.20	6.20	5.56			7.61	
STELLIAM FUND	251,482,000	0.6	-3.14	-1.69	-0.67	-5.66	-5.66	0.57			0.57	07/01/13
HFRI Equity Hedge (Total) Index			-0.48	1.28	-0.51	-5.11	-5.11	3.01			3.01	07/01/13
Excess			-2.65	-2.97	-0.17	-0.55	-0.55	-2.45			-2.45	
CRITERION CAPITAL PARTNERS FD	110,291,400	0.2	-2.65	1.84	-11.08	0.28	0.28				3.52	09/01/13
HFRI Equity Hedge (Total) Index			-0.48	1.28	-0.51	-5.11	-5.11				2.69	09/01/13
Excess			-2.17	0.56	-10.57	5.40	5.40				0.83	
SCOPIA PX LLC	227,344,400	0.5	-4.18	-5.76	-8.46	-10.45	-10.45	1.72			3.26	07/01/12
HFRI Equity Hedge (Total) Index			-0.48	1.28	-0.51	-5.11	-5.11	3.01			4.83	07/01/12
Excess			-3.70	-7.04	-7.95	-5.34	-5.34	-1.29			-1.57	
AMICI QUALIFIED ASSOCIATES LP	27,446,950	0.1	-1.10	-1.51	-12.42	-25.08	-25.08	-6.56			-4.21	09/01/12
HFRI Equity Hedge (Total) Index			-0.48	1.28	-0.51	-5.11	-5.11	3.01			4.65	09/01/12
Excess			-0.61	-2.79	-11.91	-19.96	-19.96	-9.58			-8.87	



SUMMARY OF PERFORMANCE

	Market Value	% of Plan	1 MO	3 MO	YTD	FYTD	1 YR	3 YRS	5 YRS	10 YRS	ITD	Inception Date
HOPLITE ONSHORE	277,470,750	0.6	-1.20	-0.55	-5.24	-6.65	-6.65	2.15	2.15		3.77	02/01/13
HFRI Equity Hedge (Total) Index			-0.48	1.28	-0.51	-5.11	-5.11	3.01	3.01		3.09	02/01/13
Excess			-0.72	-1.83	-4.74	-1.53	-1.53	-0.86	-0.86		0.68	
NEON LIBERTY CAPITAL MANAGEMENT	96,626,400	0.2	0.04	0.02	1.44	-7.82	-7.82	-1.96			-1.05	04/01/13
HFRI Equity Hedge (Total) Index			-0.48	1.28	-0.51	-5.11	-5.11	3.01	3.01		2.76	04/01/13
Excess			0.52	-1.27	1.94	-2.70	-2.70	-4.98	-4.98		-3.81	
INDUS PACIFIC OPPORTUNITIES FUND	125,638,500	0.3	-0.99	1.74	-0.64	-7.42	-7.42	8.32			7.69	06/01/13
HFRI Equity Hedge (Total) Index			-0.48	1.28	-0.51	-5.11	-5.11	3.01	3.01		2.38	06/01/13
Excess			-0.50	0.46	-0.14	-2.30	-2.30	5.31	5.31		5.30	
TOTAL EQUITY HEDGE FUND	1,479,958,462	3.3	-1.74	-0.43	-4.64	-7.25	-7.25	2.22			4.17	07/01/12
HFRI Equity Hedge (Total) Index			-0.48	1.28	-0.51	-5.11	-5.11	3.01	3.01		4.83	07/01/12
Excess			-1.25	-1.71	-4.13	-2.13	-2.13	-0.79	-0.79		-0.66	
TOTAL GLB EQ TM + GLB EQ ACTIVE + HF	5,905,893,644	13.0	-1.20	0.23	-0.75	-3.87	-3.87	6.48	6.12		4.32	07/01/08
TM GLOBAL + ACTIVE GLOBAL BM + EQ HF [2]			-0.68	1.05	0.77	-3.95	-3.95	5.57	5.08		3.51	07/01/08
Excess			-0.53	-0.82	-1.52	0.08	0.08	0.90	1.04		0.81	
GLOBAL EQUITY TRANSITION ACCOUNT	52,643	0.0										06/01/11
TOTAL GLOBAL EQUITY EX OVERLAY	5,905,946,286	13.0	-1.20	0.44	-0.50	-3.71	-3.71	6.54	6.29		5.57	10/01/05
MSRA CUSTOM GLOBAL INDEX [16]			-0.61	0.99	1.23	-3.73	-3.73	6.03	5.38		4.97	10/01/05
Excess			-0.60	-0.54	-1.73	0.02	0.02	0.50	0.91		0.61	
RECORD CURRENCY - GLOBAL	-18,201,700	-0.0										05/01/09



SUMMARY OF PERFORMANCE

	Market Value	% of Plan	1 MO	3 MO	YTD	FYTD	1 YR	3 YRS	5 YRS	10 YRS	ITD	Inception Date
TOTAL GLOBAL EQUITY	5,887,744,587	12.9	-1.33	0.31	-0.89	-3.96	-3.96	6.82	6.60	5.18	5.69	10/01/05
MSRA CUSTOM GLOBAL INDEX ^[16]			-0.61	0.99	1.23	-3.73	-3.73	6.03	5.38	4.38	4.97	10/01/05
Excess			-0.72	-0.68	-2.11	-0.23	-0.23	0.79	1.22	0.79	0.72	
PUBLIC EQUITY												
TOTAL PUBLIC EQUITY	17,005,733,250	37.4	-0.64	0.27	-0.14	-4.31	-4.31	6.60	6.11	4.56		04/01/94
PUBLIC EQ BM 2 ^[17]			-0.11	0.96	1.60	-3.85	-3.85	6.00	5.47			04/01/94
Excess			-0.52	-0.69	-1.74	-0.46	-0.46	0.60	0.64			
PRIVATE EQUITY												
TOTAL PRIVATE EQUITY	4,169,027,369	9.2	-0.00	0.51	4.53	9.94	9.94	14.16	12.30	10.87	7.13	03/01/94
Custom MD/SS PEI Index ^[18]			0.14	0.65	1.77	4.59	4.59	10.10	9.29	9.12		03/01/94
Excess			-0.14	-0.14	2.77	5.35	5.35	4.06	3.01	1.75		
TOTAL GROWTH EQUITY	21,174,760,618	46.6	-0.52	0.32	0.72	-1.82	-1.82	7.95	7.05	5.04	5.10	01/01/98
GROWTH EQUITY CUSTOM BENCHMARK ^[19]			-0.06	0.90	1.62							01/01/98
Excess			-0.46	-0.58	-0.90							
RATE SENSITIVE												
NOMINAL FIXED INCOME												
SSGA PASSIVE FIXED INCOME	668,745,706	1.5	4.53	5.06	11.58	11.11	11.11	5.43	4.60	5.56	4.82	05/01/03
SSgA Aggregate Bond Custom Benchmark ^[20]			4.37	4.88	11.35	11.63	11.63	5.58	4.67			05/01/03
Excess			0.16	0.18	0.23	-0.52	-0.52	-0.15	-0.07			
US NOMINAL FIXED INCOME PASSIVE	668,745,706	1.5	4.53	5.06	11.58						10.18	11/01/15
CUSTOM RATE SENSITIVE BENCHMARK ^[21]			3.93	4.26	10.38						9.50	11/01/15
Excess			0.60	0.80	1.20						0.68	



SUMMARY OF PERFORMANCE

	Market Value	% of Plan	1 MO	3 MO	YTD	FYTD	1 YR	3 YRS	5 YRS	10 YRS	ITD	Inception Date
PIMCO	1,345,677,909	3.0	4.18	4.91	11.23	9.86	9.86	4.91	4.49	5.66		06/01/84
PIMCO Custom Blended Index ^[22]			4.37	4.88	11.35	11.63	11.63	5.58	4.67	5.44		06/01/84
Excess			-0.19	0.03	-0.12	-1.77	-1.77	-0.67	-0.18	0.22		
WESTERN ASSET MANAGEMENT	2,730,970,564	6.0	4.54	5.25	12.32	11.41	11.41	6.19	5.67	7.08	6.71	09/01/03
WESTERN ASSET MANAGEMENT CUSTOM BM ^[23]			4.37	4.88	11.35	11.41	11.41	5.51	4.63	5.42	5.05	09/01/03
Excess			0.18	0.37	0.98	-0.01	-0.01	0.68	1.04	1.66	1.66	
FIDELITY INSTITUTIONAL ASSET	473,941,564	1.0	4.40	4.83	11.05	11.01	11.01	5.42	4.82		5.64	02/01/08
Custom BC Agg Int/BC Agg/US Universal BM ^[24]			4.37	4.88	11.35	12.03	12.03	5.71	4.74		4.90	02/01/08
Excess			0.03	-0.05	-0.30	-1.02	-1.02	-0.29	0.08		0.73	
ABERDEEN ASSET MGMT, INC	681,171,573	1.5	4.41	5.11	11.02	11.13	11.13	5.82	5.31		5.49	04/01/08
Custom BC Agg Int/BC Agg/US Universal BM ^[24]			4.37	4.88	11.35	12.03	12.03	5.71	4.74		4.98	04/01/08
Excess			0.04	0.24	-0.33	-0.90	-0.90	0.11	0.56		0.51	
GOLDMAN SACHS FI CORE PLUS	466,417,199	1.0	4.28	5.05	11.23	11.63	11.63	5.72	5.16		6.40	03/01/09
Custom BC Agg Int/BC Agg/US Universal BM ^[24]			4.37	4.88	11.35	12.03	12.03	5.71	4.74		5.67	03/01/09
Excess			-0.09	0.18	-0.12	-0.40	-0.40	0.01	0.41		0.72	
DODGE & COX - FI CORE	477,313,135	1.0	3.78	5.10	11.50	11.36	11.36	6.12	5.35		6.78	03/01/09
CORE BOND CUSTOM BENCHMARK ^[25]			4.37	4.88	11.35	12.03	12.03	5.71	4.74		5.49	03/01/09
Excess			-0.58	0.23	0.15	-0.67	-0.67	0.42	0.61		1.29	
PRINCIPAL CORE BOND	469,440,368	1.0	4.34	4.93	11.32	11.57	11.57	5.73	4.94		5.93	07/01/09
CORE BOND CUSTOM BENCHMARK ^[25]			4.37	4.88	11.35	12.03	12.03	5.71	4.74		5.29	07/01/09
Excess			-0.03	0.06	-0.03	-0.46	-0.46	0.02	0.20		0.64	



SUMMARY OF PERFORMANCE

	Market Value	% of Plan	1 MO	3 MO	YTD	FYTD	1 YR	3 YRS	5 YRS	10 YRS	ITD	Inception Date
US NOMINAL FIXED INCOME ACTIVE	6,644,932,312	14.6	4.36	5.09	11.67	11.28	11.28	5.75	5.15		5.98	07/01/08
CUSTOM NOMINAL FIXED INCOME BENCHMARK ^[26]			4.37	4.88	11.35	11.65	11.65	5.64	4.77		5.22	07/01/08
Excess			-0.01	0.21	0.32	-0.37	-0.37	0.10	0.37		0.76	
US NOMINAL FIXED INCOME TERRA MARIA ^[27]	597,451,496	1.3	1.20	1.61	3.95	4.15	4.15	3.38	3.66		6.42	11/01/08
TERRA MARIA FI BENCHMARK ^[15]			1.25	1.50	3.88	4.45	4.45	3.27	3.28		7.59	11/01/08
Excess			-0.05	0.10	0.06	-0.30	-0.30	0.11	0.38		-1.17	
TOTAL US NOMINAL FI ACTIVE + TM	7,242,383,808	15.9	4.09	4.79	10.99	10.67	10.67	5.54	5.02		5.88	07/01/08
CUSTOM NOMINAL FIXED INCOME BENCHMARK ^[26]			4.37	4.88	11.35	11.65	11.65	5.64	4.77		5.22	07/01/08
Excess			-0.28	-0.08	-0.36	-0.99	-0.99	-0.10	0.24		0.66	
US NOMINAL FIXED INCOME	7,911,129,514	17.4	4.13	4.81	11.04	10.73	10.73	5.54	4.96		6.02	07/01/08
US NOMINAL FIXED INCOME BENCHMARK ^[28]			4.37	4.88	11.35	11.63	11.63	5.58	4.67		5.34	07/01/08
Excess			-0.24	-0.06	-0.31	-0.90	-0.90	-0.04	0.29		0.68	
WESTERN ASSET - ISRAEL BD	21,763,266	0.0	0.09	-0.01	0.44	0.60	0.60	1.84	1.60		2.85	06/01/05
WESTERN ASSET ISRAEL BOND INDEX			1.02	1.78	4.14	4.17	4.17	3.38	3.11		1.42	06/01/05
Excess			-0.93	-1.79	-3.71	-3.57	-3.57	-1.54	-1.51		1.43	2.01
TOTAL GLOBAL FIXED INCOME	21,775,391	0.0	0.09	-0.08	0.44	2.82	2.82	3.69	4.85		5.09	07/01/08
CUSTOM GLOBAL FIXED INCOME BM ^[29]			1.03	1.34	3.38	4.37	4.37	3.51	3.77			07/01/08
Excess			-0.94	-1.42	-2.93	-1.55	-1.55	0.19	1.08			
NOMINAL FIXED INCOME	7,932,904,905	17.4	4.11	4.80	11.00	10.71	10.71	5.70	5.26		7.49	07/01/86
CUSTOM NOMINAL FIXED INCOME BENCHMARK ^[26]			4.37	4.88	11.35	11.65	11.65	5.64	4.77		5.46	07/01/86
Excess			-0.25	-0.08	-0.34	-0.94	-0.94	0.06	0.48		0.67	



SUMMARY OF PERFORMANCE

	Market Value	% of Plan	1 MO	3 MO	YTD	FYTD	1 YR	3 YRS	5 YRS	10 YRS	ITD	Inception Date
INFLATION SENSITIVE												
SSGA PASSIVE US TIPS	1,826,321,163	4.0	2.23	1.87	6.70	4.67	4.67	2.53			-0.45	12/01/12
Barclays US TIPS Index			2.18	1.80	6.55	4.59	4.59	2.50			-0.41	12/01/12
Excess			0.05	0.07	0.14	0.07	0.07	0.03			-0.04	
TOTAL U.S. TIPS												
CUSTOM US TIPS MD BM ^[30]	1,826,321,163	4.0	2.23	1.87	6.70	4.67	4.67	2.53	2.58	5.04	4.65	02/01/06
Excess			0.05	0.07	0.14	0.07	0.07	0.03	-0.05	0.29	0.27	
NEW CENTURY ADVISORS (NT)												
BC [®] World Inflat-Linked Bond Index-Hedged	38,562,012	0.1	3.98	4.40	8.47	7.79	7.79	5.53	4.72		6.26	12/01/08
Excess			4.15	4.14	8.44	7.39	7.39	5.03	4.41		6.14	12/01/08
			-0.16	0.26	0.03	0.40	0.40	0.50	0.31		0.12	
TOTAL GILB												
BC World Inflat-Linked Bond Index-Hedged	39,357,542	0.1	3.79	2.13	5.51	9.44	9.44	5.80	4.90		6.30	12/01/08
Excess			4.15	4.14	8.44	7.39	7.39	5.03	4.41		6.14	12/01/08
			-0.35	-2.02	-2.93	2.05	2.05	0.77	0.49		0.16	
INFLATION SENSITIVE FIXED INCOME												
CUSTOM INFLATION SENSITIVE BENCHMARK ^[31]	1,865,678,705	4.1	2.27	1.88	6.67	5.16	5.16	3.51	3.41		4.43	07/01/08
Excess			2.18	1.80	6.55	5.23	5.23	3.51	3.47		4.12	07/01/08
			0.08	0.07	0.12	-0.08	-0.08	-0.01	-0.05		0.31	
CASH												
MARYLAND CASH ACCOUNT	521,095,948	1.1	0.85	1.41	2.30	2.37	2.37	1.72	2.38			09/01/94
CITIGROUP 3 MONTH T-BILL			0.02	0.06	0.12	0.14	0.14	0.07	0.06			09/01/94
Excess			0.83	1.35	2.18	2.23	2.23	1.65	2.31			



SUMMARY OF PERFORMANCE

	Market Value	% of Plan	1 MO	3 MO	YTD	FYTD	1 YR	3 YRS	5 YRS	10 YRS	ITD	Inception Date
SELF LIQUIDATING ACCOUNT	304,517	0.0	0.57	2.90	11.32	13.90	13.90	32.22	25.26	26.27		06/01/84
CITIGROUP 3 MONTH T-BILL			0.02	0.06	0.12	0.14	0.14	0.07	0.06	0.96		06/01/84
Excess			0.55	2.83	11.20	13.76	13.76	32.15	25.20	25.30		
TOTAL CASH AGGREGATE	521,400,465	1.1	0.85	1.41	2.30	2.39	2.39	1.76	2.41		2.67	07/01/08
CITIGROUP 3 MONTH T-BILL			0.02	0.06	0.12	0.14	0.14	0.07	0.06		0.17	07/01/08
Excess			0.83	1.35	2.18	2.25	2.25	1.70	2.34		2.50	
TOTAL RATE SENSITIVE	10,319,984,074	22.7	3.58	4.04	9.60	9.34	9.34	5.26	5.00	6.00	7.44	07/01/86
CUSTOM RATE SENSITIVE BENCHMARK ^[21]			3.93	4.26	10.38	10.65	10.65	5.33	4.59	5.36		07/01/86
Excess			-0.35	-0.22	-0.79	-1.31	-1.31	-0.07	0.41	0.63		
CREDIT/DEBT												
US CREDIT												
KKR BANK LOANS	450,509,167	1.0	-0.38	2.13	3.06	0.31	0.31	3.56	5.15		5.70	09/01/10
KKR S&P LSTA Leveraged Loan ^[32]			0.02	2.92	4.51	0.55	0.55	3.22	4.60		5.54	09/01/10
Excess			-0.40	-0.79	-1.45	-0.24	-0.24	0.34	0.55		0.16	
NEUBERGER BERMAN HIGH YIELD	367,005,057	0.8	0.59	3.78	6.83	2.27	2.27	3.84	6.24		5.78	10/01/10
NB 80% BC US Corp HY; 20% S&P LSTA Leveraged ^[33]			0.74	5.00	8.14	3.04	3.04	4.23	5.24		5.42	10/01/10
Excess			-0.15	-1.22	-1.31	-0.77	-0.77	-0.39	0.99		0.36	
MACKAY SHIELDS HIGH YIELD	283,826,151	0.6	0.66	3.36	6.11	0.82	0.82				2.58	09/01/13
MacKay 80% BC US Corp HY; 20% S&P LSTA Leveraged ^[34]			0.74	5.00	8.14	4.71	4.71				4.63	09/01/13
Excess			-0.08	-1.64	-2.03	-3.89	-3.89				-2.06	
CREDIT/DEBT TRANSITION ACCOUNT	0	0.0										02/01/09



SUMMARY OF PERFORMANCE

	Market Value	% of Plan	1 MO	3 MO	YTD	FYTD	1 YR	3 YRS	5 YRS	10 YRS	ITD	Inception Date
CREDIT/DEBT TERRA MARIA ^[27]	100,931,106	0.2	-0.19	2.44	1.59	-4.34	-4.34	3.02	4.40		6.19	01/01/10
TERRA MARIA CREDIT/DEBT BENCHMARK ^[3]			0.64	4.42	4.89	-0.63	-0.63	4.94	5.54		7.23	01/01/10
Excess			-0.83	-1.98	-3.30	-3.71	-3.71	-1.92	-1.14		-1.04	
HIGH YIELD/BANK LOAN	1,202,271,482	2.6	0.17	2.94	4.71						1.98	11/01/15
HIGH YIELD CUSTOM BENCHMARK ^[35]			0.74	5.00	8.14						3.67	11/01/15
Excess			-0.57	-2.05	-3.43						-1.69	
TOTAL DISTRESSED DEBT	809,972,171	1.8	-0.13	1.34	1.68	2.16	2.16	8.51	7.39		8.39	01/01/10
TOTAL MEZZANINE DEBT	549,799,883	1.2	-0.12	1.25	2.75	6.71	6.71	7.20	8.25		7.46	01/01/10
PERELLA WEINBERG	120,708,355	0.3	0.61	-2.30	-3.57	-4.28	-4.28	6.41	9.02		9.04	07/01/10
HFRI ED: Distressed/Restructuring Index			0.34	5.18	3.49	-5.35	-5.35	0.10	2.16		3.71	07/01/10
Excess			0.27	-7.49	-7.05	1.07	1.07	6.31	6.86		5.33	
ANCHORAGE CAPITAL GROUP	160,083,560	0.4	-0.29	1.57	-1.12	-3.39	-3.39	6.10			9.02	11/01/11
HFRI ED: Distressed/Restructuring Index			0.34	5.18	3.49	-5.35	-5.35	0.10			3.58	11/01/11
Excess			-0.63	-3.62	-4.61	1.96	1.96	6.00			5.44	
KING STREET CAPITAL	142,528,300	0.3	0.46	1.75	1.69	0.24	0.24	3.50			5.72	12/01/11
HFRI ED: Distressed/Restructuring Index			0.34	5.18	3.49	-5.35	-5.35	0.10			3.80	12/01/11
Excess			0.12	-3.43	-1.80	5.59	5.59	3.40			1.92	
TOTAL CREDIT HEDGE FUND	423,320,215	0.9	0.07	0.32	-0.75	-2.42	-2.42	4.99	7.35		7.65	07/01/10
HFRI ED: Distressed/Restructuring Index			0.34	5.18	3.49	-5.35	-5.35	0.10	2.16		3.71	07/01/10
Excess			-0.27	-4.87	-4.24	2.93	2.93	4.89	5.19		3.94	



SUMMARY OF PERFORMANCE

	Market Value	% of Plan	1 MO	3 MO	YTD	FYTD	1 YR	3 YRS	5 YRS	10 YRS	ITD	Inception Date
US CREDIT	2,985,363,751	6.6	0.01	1.80	2.75	1.54	1.54	5.23	6.63		9.82	03/01/09
U.S. CREDIT CUSTOM BENCHMARK ^[36]			0.74	5.00	8.14	2.29	2.29	4.05	5.14		9.07	03/01/09
Excess			-0.73	-3.20	-5.39	-0.75	-0.75	1.18	1.50		0.74	
NON US CREDIT												
SSGA EMERGING MARKET DEBT	213,695,323	0.5	5.86	2.68	13.95	1.48	1.48	-4.06	-2.48		-1.20	10/01/10
JP Morgan GBI EM Global Diversified			5.89	2.71	14.02	1.99	1.99	-3.57	-2.23		-0.87	10/01/10
Excess			-0.03	-0.02	-0.07	-0.50	-0.50	-0.49	-0.24		-0.33	
SSGA EMERGING MARKET HARD CURRENCY BOND	217,133,744	0.5	2.57	4.31	8.56						8.56	01/01/16
SSGA Emerging Market Blended Benchmark ^[37]			2.71	4.58	9.45						9.45	01/01/16
Excess			-0.13	-0.28	-0.89						-0.89	
STONE HARBOR BLENDED EMD ^[38]	572,338,953	1.3	4.52	3.84	12.69	-0.44	-0.44				-5.67	10/01/13
NON-U.S. CREDIT CUSTOM BENCHMARK ^[39]			4.30	3.69	11.81	1.38	1.38				-3.95	10/01/13
Excess			0.22	0.15	0.88	-1.82	-1.82				-1.73	
LOGAN CIRCLE PARTNERS BLENDED EMD	305,100,000	0.7										06/01/16
NON US CREDIT	1,308,268,021	2.9	3.55	2.94	11.23	-0.69	-0.69	-5.23	-3.20		-1.83	10/01/10
NON-U.S. CREDIT CUSTOM BENCHMARK ^[39]			4.30	3.69	11.81	1.38	1.38	-3.76	-2.35		-0.97	10/01/10
Excess			-0.75	-0.75	-0.58	-2.07	-2.07	-1.47	-0.85		-0.86	
TOTAL CREDIT/DEBT STRATEGIES	4,293,631,773	9.4	1.02	2.24	4.81	2.23	2.23	4.19	5.75		10.12	03/01/09
MSRA CUSTOM CREDIT BENCHMARK ^[40]			1.93	4.59	9.39	2.69	2.69	2.68	4.30		8.48	03/01/09
Excess			-0.91	-2.35	-4.58	-0.46	-0.46	1.51	1.45		1.64	



SUMMARY OF PERFORMANCE

REAL ASSETS	Market Value	% of Plan	1 MO	3 MO	YTD	FYTD	1 YR	3 YRS	5 YRS	10 YRS	ITD	Inception Date
REAL ESTATE												
SSGA GLOBAL REAL ESTATE	210,796,065	0.5	3.66	3.62	9.36	12.46	12.46				7.94	05/01/14
FTSE EPRA/NAREIT Developed Net Index			3.61	3.46	8.87	11.58	11.58				7.15	05/01/14
Excess			0.04	0.16	0.49	0.88	0.88				0.79	
MORGAN STANLEY GLOBAL REIT												
FTSE EPRA/NAREIT Developed Net Index	447,127,723	1.0	2.40	1.66	6.36	7.95	7.95				6.57	05/01/14
Excess			-1.21	-1.80	-2.51	-3.63	-3.63				-0.58	
TOTAL REITS EX OVERLAY												
CUSTOM MD REIT BM ^[41]	657,937,718	1.4	2.80	2.29	7.36	9.50	9.50	7.99	7.68	4.20		04/01/94
Excess			-0.81	-1.18	-1.51	-2.09	-2.09	-0.26	-0.40	0.03		04/01/94
RECORD CURRENCY MANAGEMENT-REITS												
	-3,575,250	-0.0										07/01/11
TOTAL REITS												
CUSTOM MD REIT BM ^[41]	654,362,469	1.4	2.56	1.99	6.74	9.05	9.05	8.31	8.20	4.45		04/01/94
Excess			-1.05	-1.47	-2.13	-2.53	-2.53	0.05	0.11	0.28		04/01/94
TOTAL PRIVATE REAL ESTATE												
CUSTOM MD PRIVATE REAL ESTATE BM ^[42]	3,085,975,868	6.8	1.31	2.99	5.86	11.63	11.63	13.53	12.77	6.48	9.31	03/01/94
Excess			0.80	0.81	0.26	-2.05	-2.05	-0.10	-0.19	-1.62	-0.49	03/01/94
MSIM Cus FTSE EPRA NAREIT Dev ex US(Net) ^[43]			3.61	3.45	8.87	11.59	11.59	8.07	7.09			11/01/06
WILSHIRE RESI			6.51	5.99	11.60	23.55	23.55	14.07	12.61	7.01		01/01/78



SUMMARY OF PERFORMANCE

	Market Value	% of Plan	1 MO	3 MO	YTD	FYTD	1 YR	3 YRS	5 YRS	10 YRS	ITD	Inception Date
TOTAL REAL ESTATE	3,740,338,337	8.2	1.52	2.82	6.03	11.16	11.16	12.47	11.73	5.90	6.80	07/01/87
REAL ESTATE CUSTOM INDEX ⁽⁴⁴⁾			1.03	2.38	6.16	13.23	13.23	12.43	11.84	6.67	8.28	07/01/87
Excess			0.49	0.44	-0.13	-2.06	-2.06	0.04	-0.11	-0.77	-1.48	
COMMODITIES												
GRESHAM INVESTMENT MGMT, LLC	356,278,960	0.8	4.12	12.30	13.00	-12.60	-12.60	-10.40	-10.44		-3.51	09/01/09
Bloomberg Commodity Index TR			4.13	12.78	13.25	-13.32	-13.32	-10.55	-10.82		-4.87	09/01/09
Excess			-0.01	-0.48	-0.25	0.72	0.72	0.15	0.38		1.36	
CCM DIVERSIFIED I												
CCM DIVERSIFIED I	434,218,130	1.0	4.42	13.00	13.44	-13.45	-13.45	-10.51			-10.51	07/01/13
Bloomberg Commodity Index TR			4.13	12.78	13.25	-13.32	-13.32	-10.55			-10.55	07/01/13
Excess			0.29	0.22	0.19	-0.13	-0.13	0.05			0.05	
VERMILLION/CELADON COMMODITIES												
VERMILLION/CELADON COMMODITIES	116,802,037	0.3	0.17	-18.12	-21.50	-37.31	-37.31	-17.82	-16.81		-10.81	04/01/10
Bloomberg Commodity Index TR			4.13	12.78	13.25	-13.32	-13.32	-10.55	-10.82		-6.07	04/01/10
Excess			-3.96	-30.90	-34.75	-23.99	-23.99	-7.27	-5.99		-4.73	
EDESIA DYNAMIC AGRICULTURE FUND												
EDESIA DYNAMIC AGRICULTURE FUND	26,610,115	0.1	3.41	13.68	18.75	4.44	4.44	-4.92			-7.54	01/01/13
Bloomberg Agriculture Sub-Index TR			1.78	12.67	13.47	-3.01	-3.01	-6.95			-8.07	01/01/13
Excess			1.63	1.01	5.28	7.45	7.45	2.03			0.53	
COMMODITY ACTIVE INDEX MANAGER												
COMMODITY ACTIVE INDEX MANAGER	933,909,242	2.1	3.72	7.13	6.75	-17.05	-17.05	-11.44	-11.71		-5.06	09/01/09
Bloomberg Commodity Index TR			4.13	12.78	13.25	-13.32	-13.32	-10.55	-10.82		-4.87	09/01/09
Excess			-0.41	-5.65	-6.50	-3.73	-3.73	-0.88	-0.89		-0.19	



SUMMARY OF PERFORMANCE

	Market Value	% of Plan	1 MO	3 MO	YTD	FYTD	1 YR	3 YRS	5 YRS	10 YRS	ITD	Inception Date
ASTENBECK COMMODITIES FUND III	100,130,768	0.2	-2.18	21.12	22.43	-22.61	-22.61	-4.90			-4.60	09/01/12
HFEX Macro: Commodity-Index			1.84	2.35	3.76	2.87	2.87	-1.94			-2.22	09/01/12
Excess			-4.02	18.76	18.67	-25.48	-25.48	-2.96			-2.38	
KOPPENBERG MACRO COMMODITY FUND LP	113,748,306	0.3	1.67	8.77	6.71	1.67	1.67	4.28			4.64	10/01/12
HFEX Macro: Commodity-Index			1.84	2.35	3.76	2.87	2.87	-1.94			-2.00	10/01/12
Excess			-0.17	6.42	2.95	-1.20	-1.20	6.22			6.65	
TAYLOR WOODS PARTNERS L.P.	125,033,800	0.3	-2.94	-5.75	-9.85	12.61	12.61	7.12			8.87	06/01/13
HFEX Macro: Commodity-Index			1.84	2.35	3.76	2.87	2.87	-1.94			-1.67	06/01/13
Excess			-4.78	-8.10	-13.61	9.73	9.73	9.06			10.54	
COMMODITY HEDGE FUND	338,912,874	0.7	-1.21	5.94	3.62	-2.88	-2.88	0.29	0.76		-0.50	12/01/09
Bloomberg Commodity Index TR			4.13	12.78	13.25	-13.32	-13.32	-10.55	-10.82		-6.23	12/01/09
Excess			-5.34	-6.84	-9.63	10.44	10.44	10.84	11.58		5.74	
TOTAL COMMODITIES	1,272,822,116	2.8	2.36	6.80	5.91	-13.60	-13.60	-8.55	-8.81		-3.45	09/01/09
Bloomberg Commodity Index TR			4.13	12.78	13.25	-13.32	-13.32	-10.55	-10.82		-4.87	09/01/09
Excess			-1.77	-5.99	-7.34	-0.28	-0.28	2.00	2.01		1.42	
NATURAL RESOURCE AND INFRASTRUCTURE												
TORTOISE CAPITAL DOMESTIC EQ	76,418,829	0.2	5.21	16.96	9.95	-15.31	-15.31	0.09	8.50		14.33	08/01/09
S&P MLP Total Return Index			5.26	22.44	14.68	-18.93	-18.93	-5.44	3.36		10.47	08/01/09
Excess			-0.05	-5.47	-4.73	3.62	3.62	5.54	5.14		3.86	



SUMMARY OF PERFORMANCE

	Market Value	% of Plan	1 MO	3 MO	YTD	FYTD	1 YR	3 YRS	5 YRS	10 YRS	ITD	Inception Date
HARVEST FUND ADVISORS	72,945,108	0.2	5.54	20.89	12.61	-17.70	-17.70	0.54	9.60		16.12	11/01/09
S&P MLP Total Return Index			5.26	22.44	14.68	-18.93	-18.93	-5.44	3.36		10.24	11/01/09
Excess			0.27	-1.55	-2.07	1.23	1.23	5.98	6.24		5.88	
TOTAL ENERGY FUNDS	342,557,509	0.8	-0.09	-3.27	-11.83	-20.85	-20.85	-4.62	2.95		4.58	01/01/10
TOTAL INFRASTRUCTURE	57,083,077	0.1	0.00	1.19	2.89	8.75	8.75	11.48	6.97		6.13	10/01/09
TIMBER LP FUNDS	222,808,111	0.5	0.00	0.96	1.13	1.53	1.53	3.01	4.15		8.22	05/01/10
NATURAL RESOURCE AND INFRASTRUCTURE	771,812,634	1.7	0.96	2.01	-3.31	-12.61	-12.61	-0.39	5.57		10.45	08/01/09
OP + 5%; 10% Max ^[45]			0.74	2.46	4.42	6.05	6.05	6.11	6.38		6.62	08/01/09
Excess			0.22	-0.45	-7.73	-18.66	-18.66	-6.50	-0.82		3.84	
TOTAL REAL ASSETS	5,784,973,087	12.7	1.62	3.54	4.65	-1.66	-1.66	-0.08	0.55	4.14	3.79	02/01/06
CUSTOM REAL ASSETS BENCHMARK ^[46]			1.66	4.57	7.41	0.87	0.87	-0.04	-0.26	2.98	2.68	02/01/06
Excess			-0.04	-1.03	-2.76	-2.54	-2.54	-0.04	0.81	1.16	1.10	
ABSOLUTE RETURN												
BRIDGEWATER PURE ALPHA	557,601,915	1.2	-2.46	-2.84	-7.76	-10.01	-10.01	2.25	2.45		4.51	05/01/08
CUSTOM ABSOLUTE RETURN BENCHMARK ^[47]			-0.29	0.91	-0.94	-2.56	-2.56	2.51	1.99		0.67	05/01/08
Excess			-2.17	-3.75	-6.82	-7.45	-7.45	-0.26	0.46		3.84	
MELLON GLOBAL ALPHA II	214,632,994	0.5	1.79	2.95	0.14	1.97	1.97	2.38	1.35		1.16	07/01/08
CUSTOM ABSOLUTE RETURN BENCHMARK ^[47]			-0.29	0.91	-0.94	-2.56	-2.56	2.51	1.99		0.55	07/01/08
Excess			2.08	2.04	1.08	4.53	4.53	-0.13	-0.64		0.61	



SUMMARY OF PERFORMANCE

	Market Value	% of Plan	1 MO	3 MO	YTD	FYTD	1 YR	3 YRS	5 YRS	10 YRS	ITD	Inception Date
GRAHAM TACTICAL TREND	247,794,411	0.5	7.03	3.61	0.15	-0.88	-0.88				-0.88	07/01/15
CUSTOM ABSOLUTE RETURN BENCHMARK ⁽⁴⁷⁾			-0.29	0.91	-0.94	-2.56	-2.56				-2.56	07/01/15
Excess			7.31	2.70	1.09	1.67	1.67				1.67	
GLOBAL MACRO/GTAA STRATEGIES	1,020,029,320	2.2	0.59	-0.15	-4.33	-5.65	-5.65	-0.20	0.24		2.40	04/01/08
CUSTOM ABSOLUTE RETURN BENCHMARK ⁽⁴⁷⁾			-0.29	0.91	-0.94	-2.56	-2.56	2.51	1.99		0.72	04/01/08
Excess			0.88	-1.05	-3.39	-3.09	-3.09	-2.72	-1.75		1.67	
NEPHILA PALMETTO FUND	218,497,620	0.5	0.30	1.09	1.32	5.65	5.65				5.19	01/01/14
CUSTOM ABSOLUTE RETURN BENCHMARK ⁽⁴⁷⁾			-0.29	0.91	-0.94	-2.56	-2.56				0.88	01/01/14
Excess			0.59	0.18	2.26	8.21	8.21				4.31	
OPPORTUNISTIC	218,497,620	0.5	0.30	1.09	1.32	5.65	5.65				5.19	01/01/14
CUSTOM ABSOLUTE RETURN BENCHMARK ⁽⁴⁷⁾			-0.29	0.91	-0.94	-2.56	-2.56				0.88	01/01/14
Excess			0.59	0.18	2.26	8.21	8.21				4.31	
CARLSON DOUBLE BLACK DIAMOND	366,801,400	0.8	-1.58	2.34	-0.25	-1.60	-1.60				2.42	01/01/14
CUSTOM ABSOLUTE RETURN BENCHMARK ⁽⁴⁷⁾			-0.29	0.91	-0.94	-2.56	-2.56				0.88	01/01/14
Excess			-1.30	1.43	0.69	0.96	0.96				1.54	
PINE RIVER FUND	337,619,100	0.7	-2.13	2.05	-3.29	-9.41	-9.41				-1.51	04/01/14
CUSTOM ABSOLUTE RETURN BENCHMARK ⁽⁴⁷⁾			-0.29	0.91	-0.94	-2.56	-2.56				0.72	04/01/14
Excess			-1.85	1.14	-2.35	-6.85	-6.85				-2.23	
HUTCHIN HILL DIVERSIFIED ALPHA	344,726,900	0.8	-0.27	0.13	0.82	-4.84	-4.84				-0.20	05/01/14
CUSTOM ABSOLUTE RETURN BENCHMARK ⁽⁴⁷⁾			-0.29	0.91	-0.94	-2.56	-2.56				1.04	05/01/14
Excess			0.02	-0.77	1.77	-2.28	-2.28				-1.24	



SUMMARY OF PERFORMANCE

	Market Value	% of Plan	1 MO	3 MO	YTD	FYTD	1 YR	3 YRS	5 YRS	10 YRS	ITD	Inception Date
HUDSON BAY FUND	292,216,200	0.6	0.20	1.02	2.04	-0.04	-0.04				-1.69	10/01/14
CUSTOM ABSOLUTE RETURN BENCHMARK ^[47]			-0.29	0.91	-0.94	-2.56	-2.56				-0.09	10/01/14
Excess			0.49	0.11	2.98	2.52	2.52				-1.60	
ARISTEIA CAPITAL	243,456,000	0.5	1.65	6.00	4.94	-0.57	-0.57				-1.67	12/01/14
CUSTOM ABSOLUTE RETURN BENCHMARK ^[47]			-0.29	0.91	-0.94	-2.56	-2.56				0.00	12/01/14
Excess			1.93	5.09	5.88	1.99	1.99				-1.67	
ARISTEIA CO-INVEST	15,533,610	0.0	1.75	0.69							3.56	03/01/16
CUSTOM ABSOLUTE RETURN BENCHMARK ^[47]			-0.29	0.91							1.15	03/01/16
Excess			2.03	-0.22							2.40	
GARDA FIRVO	200,656,569	0.4	-0.70	0.33							0.33	04/01/16
CUSTOM ABSOLUTE RETURN BENCHMARK ^[47]			-0.29	0.91							0.91	04/01/16
Excess			-0.41	-0.58							-0.58	
INVESTCORP DYNAMIC ALT BETA	200,000,000	0.4										06/01/16
RELATIVE VALUE STRATEGIES	2,001,009,779	4.4	-0.54	1.93	0.30	-3.83	-3.83				0.84	01/01/14
CUSTOM ABSOLUTE RETURN BENCHMARK ^[47]			-0.29	0.91	-0.94	-2.56	-2.56				0.88	01/01/14
Excess			-0.25	1.03	1.25	-1.27	-1.27				-0.03	
BRIDGEWATER ALL WEATHER	526,239,237	1.2	3.66	5.90	8.42	0.56	0.56	4.43	5.70		8.90	07/01/09
CUSTOM BRIDGEWATER BENCHMARK ^[48]			-0.29	0.91	-0.94	-2.56	-2.56	2.16	3.90		5.92	07/01/09
Excess			3.94	4.99	9.36	3.12	3.12	2.26	1.80		2.98	



SUMMARY OF PERFORMANCE

	Market Value	% of Plan	1 MO	3 MO	YTD	FYTD	1 YR	3 YRS	5 YRS	10 YRS	ITD	Inception Date
DGAM DIVERSIFIED STRATEGIES FUND	42,891,575	0.1	0.90	2.44	2.64	1.87	1.87	3.17	3.53		3.52	01/01/11
CUSTOM ABSOLUTE RETURN BENCHMARK ^[47]			-0.29	0.91	-0.94	-2.56	-2.56	2.51	1.99		1.75	01/01/11
Excess			1.19	1.53	3.58	4.42	4.42	0.66	1.54		1.77	
ROCK CREEK POTOMAC FUND LTD	83,342,058	0.2	-2.84	0.24	-5.06	-6.95	-6.95	1.77	2.90		3.44	02/01/10
CUSTOM ABSOLUTE RETURN BENCHMARK ^[47]			-0.29	0.91	-0.94	-2.56	-2.56	2.51	1.99		2.44	02/01/10
Excess			-2.56	-0.66	-4.12	-4.39	-4.39	-0.74	0.91		1.00	
MULTI ASSET	652,472,870	1.4	2.60	4.93	6.55	1.95	1.95	3.64	4.16		4.01	02/01/10
CUSTOM ABSOLUTE RETURN BENCHMARK ^[47]			-0.29	0.91	-0.94	-2.56	-2.56	2.51	1.99		2.44	02/01/10
Excess			2.88	4.02	7.49	4.51	4.51	1.13	2.17		1.57	
TOTAL ABSOLUTE RETURN	3,892,009,590	8.6	0.32	1.78	0.28	-3.01	-3.01	1.67	2.42		3.21	04/01/08
CUSTOM ABSOLUTE RETURN BENCHMARK ^[47]			-0.29	0.91	-0.94	-2.56	-2.56	2.51	1.99		0.72	04/01/08
Excess			0.60	0.87	1.22	-0.45	-0.45	-0.84	0.43		2.49	
TOTAL PLAN	45,465,359,142	100.0	0.89	1.87	3.57	1.16	1.16	5.91	5.68	4.85	8.00	07/01/86
TOTAL PLAN POLICY INDEX ^[49]			1.20	2.44	4.79	1.69	1.69	5.40	4.96	4.46		07/01/86
Excess			-0.31	-0.57	-1.23	-0.54	-0.54	0.51	0.72	0.39		
TOTAL PLAN CUSTOM STATIC INDEX ^[50]			1.15	2.45	4.73	1.87	1.87	5.55	5.27			07/01/08



ENDNOTES

[1] Since 07/01/2012: 100% Russell 3000 Growth
 From 10/01/2010 to 06/30/2012: 100% Russell 3000
 Prior to 10/01/2010: 100% Russell 2500 Growth

[2] Benchmark is dynamically calculated using Beginning Market Value weights of the underlying portfolios and their benchmarks

[3] Since 11/01/2008: Benchmark is dynamically calculated using Average Balance (BMV+ Weighted Net Cash Flows) weights of the underlying portfolios and their corresponding indices. From 09/01/2008 - 10/31/2008: Benchmark was dynamically calculated based on the beginning weights of the underlying portfolios and their corresponding indices From 05/01/2008 - 08/31/2008: 11.1% S&P 500; 13.3% Russell 1000 Value; 33.3% Russell 1000 Growth; 16.7% Russell Mid Cap Growth; 25.6% Russell 2000 Value 11/01/2007 - 04/30/2008: 10.9% S&P 500; 13.1% Russell 1000 Value; 33.3% Russell 1000 Growth; 17.2% Russell Mid Cap Growth; 25.6 Russell 2000 Value Prior to 11/01/2007: 11% S&P 500; 13.1% Russell 1000 Value; 32% Russell 1000 Growth; 27.4% Russell 2000 Value

[4] Since 07/01/2008: 100% Russell 3000
 From 01/01/2005 to 6/30/2008: 100% Dow Jones Willshire 5000
 Prior to 01/01/2005: 100% Russell 3000

[5] Since 09/01/2009: 100% MSCI EAFE + CANADA (NET)
 From 01/01/2005 to 08/31/2009: 100% MSCI AC WORLD ex US (NET)
 From 05/01/2003 to 12/31/2004: 100% MSCI EAFE (NET)

[6] From 11/01/2003: 100% of MSCI AC WORLD ex US (NET)
 From 07/01/2012: 100% of MSCI WORLD EX US (NET)

[7] Since 04/01/2016: 100% MSCI WORLD EX US (NET).
 From 01/01/2013 to 03/31/2016: 100% MSCI AC World ex US Net.

[8] Since 06/01/2016: 100% MSCI World Ex US IMI Net
 From 12/01/2008 to 05/31/2016: 100% MSCI All Country World ex US IMI Net

[9] From 03/01/2006 to 06/30/2012: 100% MSCI EAFE SMALL CAP(G)
 Since 07/01/2012: 100% MSCI WORLD EX US SMALL CAP (NET)

[10] Returns for periods prior to 11/01/2015 also included Emerging Market Equity portfolios.

[11] Benchmark is dynamically calculated using Beginning Market Value weights of the underlying portfolios and their benchmarks. Returns for periods prior to 11/01/2015 also included Emerging Market Equity portfolios.

[12] Since 11/01/2008: Benchmark is dynamically calculated using Average Balance (BMV+ Weighted Net Cash Flows) weights. Prior to 11/01/2008: 100% MSCI EAFE (net).

Returns for periods prior to 11/01/2015 also included Emerging Market Equity portfolios.

[13] Since 11/01/2015: 100% MSCI WORLD EX US (NET)
 From 07/01/2010 to 10/31/2015: 100% MSCI All Country World ex. U.S.
 From 07/01/2009 to 06/30/2010: 100% MSCI All Country World ex. U.S. IMI Net
 From 01/01/2003 to 06/30/2009: 100% MSCI All Country World ex. U.S.
 Prior to 01/01/2003: 100% MSCI EAFE

[14] Since 03/23/2016: 100% MSCI WORLD NET.
 From 01/01/2013 to 03/22/2016: 100% MSCI AC WORLD (NET).

[15] Benchmark is dynamically calculated based on the Average Balance (BMV + Weighted Net Cash Flows) weights of the underlying portfolios and their corresponding indices



ENDNOTES

- [16] Since 07/1/2010: 100% MSCI AC WORLD NET
From 07/01/2009 to 06/30/2010: 100% MSCI ACWI IMI NET
Prior to 07/01/2009: 100% MSCI AC WORLD NET
- [17] Since 01/01/2016: Weighted off Transitional Targets; 45.946% Russell 3000, 37.838% MSCI World ex. U.S. (Net), 16.216% MSCI EM
Since 11/01/2015: Weighted off Transitional Targets; 47.369% Russell 3000, 42.105% MSCI World ex. U.S. (Net), 10.526% MSCI EM
Prior to 11/01/2015: Benchmark is dynamically calculated using the weights of the US Equity, International Equity, and Global Equity aggregates and the corresponding asset class benchmarks
- [18] The Private Equity benchmark is the State Street Private Equity Index (1 quarter lag). However, in non-quarter end months, the actual Private Equity return will be applied. In the third month of the quarter, the return will be calculated so that when geometrically linked with months 1 and 2, the three month return equals the published SS PEI (1 quarter lag).
- [19] Benchmark is a dynamic blend of the Public Equity Benchmark and the State Street Private Equity Index based off of sub-asset class weights used in the policy benchmark.
- [20] Since 11/01/2015: 62.50% Barclays US Government Long Bond Index, 18.75% Barclays US Investment Grade Corporate Index, 18.75% Barclays US Securitized Index
From 07/01/2013 to 10/31/2015: 100% Barclays US Intermediate Aggregate Index
Prior 07/01/2013: 100% Barclays Aggregate Bond
- [21] Since 11/01/2015: 50% Barclays Long-Term Government, 15% Barclays Securitized, 15% Barclays Corporate, 20% Barclays U.S. TIPS
From 07/01/2013 to 10/31/2015: 80% BC Aggregate Intermediate, 20% BC Global Aggregate 1-10 Year Hedged
From 07/01/2010 to 06/30/2013: 80% BC Aggregate, 20% BC Global Bond Aggregate Hedged
From 01/01/2010 to 06/30/2010: 80% BC Aggregate, 20% BC Global Bond Aggregate Unhedged
From 07/01/2009 to 12/31/2009: Benchmark is dynamically calculated using Beginning Market Value weights of the underlying portfolios and their benchmarks
Prior to 07/01/2009: Benchmark is BC US Universal.
Formerly named "Custom Fixed Income Benchmark" prior to 11/01/2015.
- [22] Since 11/01/2015: 62.50% Barclays US Government Long Bond Index, 18.75% Barclays US Investment Grade Corporate Index, 18.75% Barclays US Securitized Index
From 07/01/2013 to 10/31/2015: 100% Barclays US Intermediate Aggregate Index
07/01/2009 to 06/30/2013: 100% Barclays Aggregate Bond
11/01/2003 to 06/30/2009: 100% Barclays US Universal Index
Prior to 11/01/2003: 100% Citigroup BIG
- [23] Since 10/01/2015: 62.50% Barclays US Government Long Bond Index, 18.75% Barclays US Investment Grade Corporate Index, 18.75% Barclays US Securitized Index
07/01/2013 to 09/30/2015: 100% Barclays US Intermediate Aggregate Index
07/01/2009 to 06/30/2013: 100% Barclays Aggregate Bond Index
Prior to 07/01/2009: 100% Barclays US Universal Index
- [24] Since 12/01/2015: 62.50% Barclays US Government Long Bond Index, 18.75% Barclays US Investment Grade Corporate Index, 18.75% Barclays US Securitized Index
From 07/01/2013 to 11/30/2015: 100% Barclays US Intermediate Aggregate Index
From 07/01/2009 to 06/30/2013: 100% BC Aggregate Prior to 07/01/2009: 100% BC U.S. Universal Index
- [25] Since 12/01/2015: 62.50% Barclays US Government Long Bond Index, 18.75% Barclays US Investment Grade Corporate Index, 18.75% Barclays US Securitized Index
From 07/01/2013 to 11/31/2015: 100% Barclays US Intermediate Aggregate Index
Prior 07/01/2013: 100% Barclays Aggregate Bond
- [26] Since 11/01/2015: 62.50% Barclays US Government Long Bond Index, 18.75% Barclays US Investment Grade Corporate Index, 18.75% Barclays US Securitized Index
From 07/01/2013 to 10/31/2015: 80% BC Aggregate Intermediate, 20% BC Global Aggregate 1-10 Year Hedged
From 07/01/2010 to 06/30/2013: 80% BC Aggregate, 20% BC Global Bond Aggregate Hedged
From 01/01/2010 to 06/30/2010: 80% BC Aggregate, 20% BC Global Bond Aggregate Unhedged
From 07/01/2009 to 12/31/2009: Benchmark is dynamically calculated using Beginning Market Value weights of the underlying portfolios and their benchmarks
Prior to 07/01/2009: Benchmark is BC US Universal



ENDNOTES

[27] As of 01/01/2010 all high yield and convertible managers were moved out of the Fixed Income asset class and into the Credit/Debt asset class. Historical returns for high yield and convertible managers remain in Fixed Income composite.

[28] Since 11/01/2015: 62.50% Barclays US Government Long Bond Index, 18.75% Barclays US Investment Grade Corporate Index, 18.75% Barclays US Securitized Index
 From 07/01/2013 to 10/31/2015: 100% Barclays US Intermediate Aggregate Index
 Prior 07/01/2013: 100% Barclays Aggregate Bond

[29] Since 07/01/2013: 100% BC Global Aggregate 1-10 Year Hedged Index
 From 07/01/2010 to 06/30/2013: 100% BC Global Aggregate Hedged
 Prior to 07/01/2010: 100% BC Global Aggregate Unhedged

[30] As of 12/01/2012: 100% of Barclays US TIPS Index, B Series
 From 02/01/2006 to 11/30/2012: 100% of Barclays Global Inflation Linked:US TIPS, L Series

[31] Since 11/01/2015: 100% Barclays US TIPS Index
 From 12/01/2012 to 10/31/2015: 50% Barclays Global Inflation Linked:US TIPS; 50% Barclays World Inflat-Linked Bond Index
 Prior to 11/30/2012: 65% Barclays Global Inflation Linked:US TIPS; 35% Barclays World Inflat-Linked Bond Index

[32] Since 11/01/2015: 100% S&P/LSTA Leveraged Loan Index

From 09/01/2010 to 10/31/2015: 50% S&P/LSTA & 50% B of A ML High Yield Master II

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[33] Since 11/01/2015: 80% BC US Corp HY, 20% S&P LSTA Leveraged

From 10/01/2010 to 10/31/2015: 50% BC CREDIT & 50% BC HIGH YIELD

[34] Since 11/01/2015: 80% BC US Corp HY, 20% S&P LSTA Leveraged

From 09/01/2013 to 10/31/2015: Barclays Credit

[35] 80% Barclays US High Yield, 20% S&P/LSTA Leveraged Loan

[36] Since 11/01/2015: 80% Barclays US High Yield, 20% S&P/LSTA Leveraged Loan.

From 07/01/2013 to 10/31/2015: 62.5% Barclays US High Yield, 25% Barclays Credit, 12.5% S&P/LSTA Leveraged Loan.

From 01/01/2010 to 06/30/2013: 50% Barclays Credit, 50% Barclays Corp High Yield.

From 03/01/2009 to 12/31/2009: 75% Barclays Credit, 25% Barclays Corp High Yield.

[37] 50% JPM EMBI GLOBAL DIVERSIFIED INDEX / 50% JPM CEMBI BROAD

[38] Historical data prior to 02/01/2016 is M4ID Stone Harbor Emerging Market Debt.

[39] Since 11/01/2015: 50% JP Morgan GBI EM Global Diversified, 25% JP Morgan EMBI Global Diversified, 25% JPMorgan CEMBI Broad.
 Prior to 11/01/2015: 100% JP Morgan GBI EM Global Diversified.

[40] Since 01/01/2016: 67% US Credit Benchmark, 33% non-U.S Credit Benchmark.

From 11/01/2015 to 12/31/2015: 75% US Credit Benchmark, 25% non-U.S Credit Benchmark.

From 07/01/2013 to 10/31/2015: 50% BC High Yield / 20% BC Credit / 20% JP Morgan GBI EM Global Diversified/ 10% S&P/LSTA Leveraged Loan Index

From 01/01/2010 to 06/30/2013: 50% BC Credit / 50% BC High Yield

Prior to 01/01/2010: 75% BC Credit / 25% BC High Yield



ENDNOTES

[41] From 11/01/2006: Benchmark is dynamically calculated using BMV weights of the underlying portfolios and their benchmarks.
From 04/01/1994: 100% of LaSalle REIT Benchmark

[42] The Private Real Estate benchmark is the NCREIF ODCE (1 quarter lag) since 07/01/2013. However, in non-quarter end months, the actual Maryland Private Real Estate return will be applied. In the third month of the quarter, the return will be calculated so that when geometrically linked with months 1 and 2, the three month return equals the published NCREIF ODCE (1 quarter lag).
Prior 07/01/2013, the Private Real Estate benchmark is the NCREIF PROPERTY INDEX QTR LAG.

[43] Since 11/2007 benchmark is 100% FTSE EPRA NAREIT Developed Ex US (Net) index. Prior to 11/2007, the net version of the index was calculated by and provided to State Street by MSIM

[44] Since 05/01/2014, a dynamic blend of the NCREIF ODCE (one qtr lag), and the FTSE EPRA/NAREIT Developed Net Index.
Prior to 05/01/2014, a dynamic blend of the Wilshire RESI, NCREIF ODCE (one qtr lag), and the MSIM Custom EPRA/NAREIT Global ex US
Prior 07/01/2013, a dynamic blend of the Wilshire RESI, NCREIF Property (one qtr lag), and the MSIM Custom EPRA/NAREIT Global ex US
Prior to 07/01/2008: 50% Wilshire RESI & 50% NCREIF Property (one qtr lag)

[45] Since 11/01/2015: CPI-U + 500 bp (capped at 10%).
Prior 11/01/2015: CPI-U + 500 bp (capped at 8%).
Formerly named "CPI + 5%; 8% Max" prior to 11/01/2015.

[46] Since 11/01/2015: Benchmark is dynamically calculated using the beginning market values of the Real Estate, Commodities and Natural Resource/Infrastructure sub-asset classes and their corresponding benchmarks.

From 12/01/2012 to 10/31/2015: 30% - DJ UBS Commodities Index (Total Return), 10% - CPI + 5%; 8% Max, 60% - 50% BC US TIPS Index/50% BC World Inflat-Linked Bond Index
From 07/01/2011 to 11/30/2012: 30% - DJ UBS Commodities Index (Total Return), 10% - CPI + 5%; 8% Max, 60% - 65% BC US TIPS Index/35% BC Global Inflation Linked (USD Hedged) Index
From 07/01/2009 to 06/30/2011: 20% - DJ UBS Commodities Index (Total Return), 20% - CPI + 5%; 8% Max, 60% - 65% BC US TIPS Index/35% BC Global Inflation Linked (USD Hedged) Index
07/01/2008 to 06/30/2009: Benchmark is dynamically calculated using Beginning Market Value weights of the underlying portfolios and their benchmarks Prior to 07/01/2008: 100% Barclays US TIPS Index
Prior to 07/01/2008: 100% Barclays US TIPS Index
Formerly named "Custom Real Return Benchmark" prior to 11/01/2015.

[47] Since 11/01/2015: HFRI Fund of Funds Conservative + 100 bps.
From 07/01/2014 to 10/31/2015: HFRI FOF: Conservative Index.
From 07/01/2008 to 06/30/2014 benchmark was HFRI Fund of Funds index.
Prior to 07/01/2008 benchmark was the Citigroup 3-Month T-bill + 500 bps.

[48] Since 07/01/2014 Benchmark is 100% of Custom Absolute Return Benchmark.
From 07/01/2011 to 06/30/2014 Benchmark is composed of 100% 3 month T-Bill + 6.5%
From 07/01/2009 to 06/30/2011 Benchmark is composed of 75% Barclays Capital US TIPS, 10% DJ-AIG Commodities Total Return Index and 15% MSCI ACWI.

[49] Since 07/01/2008: Calculated monthly using transitional weights and asset class benchmarks. Prior to 07/01/2008: MSRA TOTAL PLAN STATIC POLICY.

[50] Calculated monthly using the strategic target weights and asset class benchmarks.

DLS requests SRA to comment on the 2016 return performance in relation to the policy benchmarks, and for any asset classes and asset sub-classes that underperformed the benchmark, comment on the factors that led to the underperformance, whether those factors are expected to negatively affect performance in fiscal 2017, and what actions are being taken to mitigate those factors impacting the fiscal 2017 returns.

The policy benchmark is the weighted average of each of the individual asset class benchmarks, and represents what the fund would have returned if benchmark returns were achieved. With the exception of private equity and international developed equity, each asset class underperformed its benchmark for the year. While staff has been able to generate significant value over the policy benchmark over time, a number of factors led the negative performance for the fiscal year period. In fiscal year 2016, the portfolio underperformed its policy benchmark by 54 basis points.

Benchmark misfit accounted for more than 20 basis points of the underperformance. While the Board and general consultant attempt to establish fair and appropriate benchmarks by which to evaluate staff performance, this is not always possible, particularly in the short-term when evaluating private market assets. For example, in fiscal year 2016, the Natural Resources and Infrastructure portion of the portfolio was benchmarked to the Consumer Price Index (CPI) plus 5%. This benchmark is a long term expectation for this segment, but is not a good measure of performance of the asset class over the short term as CPI plus 5% will likely never produce negative returns. An index of public market equivalents performed much more like this component for the fiscal year. In May 2016, the Board approved the creation of an implementation benchmark and a policy benchmark. The implementation benchmark is comprised of market-based indices that are expected to converge to the policy index components over time. For example, in this instance, an index of public market infrastructure and natural resources equities should produce a return similar to the CPI plus 5% over time, but may deviate in line with the portfolio's assets for shorter periods. The creation of the implementation benchmark will mitigate this issue going forward by representing more accurately the performance of the underlying assets.

Fiscal year 2016 was a transition year in terms of implementing asset allocation. In September 2016, the Board authorized a change in asset allocation that impacted approximately 30% of the System's assets. The major components included an increase in the allocation to emerging markets equity and debt, and an extension of the duration of the fixed income portfolio to provide better deflation protection and higher income. Several aspects of this asset allocation change detracted from relative performance.

Transactions costs associated with the asset allocation transition contributed to the relative underperformance. Direct transactions costs from commissions and spread between bid and ask prices accounted for roughly 8 basis points, while indirect transactions costs resulted in another 12 basis points. Because we were funding managers directly and at uncertain times, the System maintained a 1-2% cash balance through much of the transition period. That cash was sourced from the fixed income portfolio and represented a drag on portfolio returns. With the rebalancing tools available at the time, most of these costs would have been incurred regardless of the transition strategy. The alternative was to conduct twice as many transitions, first to index products to achieve the asset allocation, then a second transition to fund the managers. The engagement of the overlay manager will permit more timely and cost-effective

rebalancing. The Board's asset allocation adopted in June of 2016 resulted in only small changes to asset class weights and should therefore not create this transaction cost hurdle for the current fiscal year.

To allow the managers to maintain a marketable product, the Terra Maria fixed income portfolio did not shift to the new, customized benchmark when we made the move to a long duration benchmark. With the strong returns in long duration fixed income, this structural mismatch detracted 12 basis points. The system began work to engage with an overlay manager to convert excess cash positions into a liquid representation of the policy portfolio, and permit staff to better manage the beta exposures of the portfolio through the use of exchange traded funds and derivatives. The engagement of the external firm will permit the duration mismatch to be removed through a futures overlay.

The fixed timing of the benchmark change for emerging markets debt as of January 1, 2016 also detracted from performance. Staff experienced delays in establishing the appropriate investment vehicle for one of the emerging market debt managers due to legal requirements and contract negotiations. This delay led to a persistent underweight to emerging market debt during a period of strong performance, and detracted about 8 basis points from return. This situation can be avoided in the future with the assistance of an overlay program that would enable staff to more efficiently control asset allocation weightings.

The currency overlay program detracted approximately 11 basis points from performance as the dollar generally weakened over the course of the year, but experienced periods of strength that caused hedges to be applied and then removed at a loss as the dollar re-weakened. This program will incur costs similar to this when currencies are volatile but directionless, but provide substantial protection when the dollar shows persistent strength.

Overall, most of the System's managers underperformed. However, the significant outperformance of private equity would have offset all of the other asset classes had it not been for these structural, one-time issues that collectively resulted in the relative underperformance.

In addition to the structural items referenced above that had a major impact on relative performance, active management generally struggled during the fiscal year. Public equity lagged its benchmark for the year. Managers in the international and global sectors performed well, but the U.S. Terra Maria program and the long /short equity managers within the global portfolio underperformed significantly. Staff is in the process of restructuring the Terra Maria program to address the negative impact of this program in recent years, particularly in the larger company portion (see below).

Fixed income managers produced modest underperformance for the fiscal year in the range of negative 30 to 40 basis points. Some of the negative performance can be attributed to direct and indirect costs of the transition to the new benchmark. Staff does not anticipate the underperformance to be persistent.

The credit asset class underperformed based on a number of factors. The portfolio is constructed to protect value in poor performing markets. In fact, it was ahead of its benchmark through January. The portfolio is likely to lag in very strong markets, which was the experience from February to the end of the fiscal year. Through January 2016, the benchmark had performance of -6.04% and the credit portfolio was -2.47%, an outperformance of 3.57%. However, credit markets recovered rapidly and ended the year with a +2.69% return and the System earned 0.46% less. The long-term prospects for performance to be better than the index remain high.

The real estate benchmark is a combination of publicly-traded REITs and open-end, core real estate funds on a gross of fee performance basis. The portfolio is a mixture of these two types of assets, as well as closed-end fund investments in value-add and opportunistic real estate which carry the potential for higher returns. There are no benchmarks for these two additional real estate strategies. To account for their inclusion in the portfolio, the benchmark is calculated on a gross-of-fees basis. The value-add and opportunistic investments are anticipated to produce higher returns over time, but have return patterns that are very different than the open-end core funds. For this period, the underperformance was a result of poor relative performance in the REITs and below benchmark performance for the core real estate portfolio. Over time, the combination of assets is anticipated to add a small amount of excess return over the benchmark.

The absolute return portfolio underperformed its benchmark for the year. The primary driver of the underperformance was over-concentration in relative value strategies that tend to perform similarly during extreme market movements, such as that experienced in fiscal year 2016. Staff is working to add more diversity to the strategy types to reduce this risk going forward.

Cash appears to have outperformed its benchmark, but the performance is attributable to the income generated from the securities lending portfolio being allocated to the cash account. This is likely to continue going forward.

In summary, much of the underperformance for the year came from structural issues relating to the large asset allocation change or benchmark misfit. These items should be more isolated in nature and not have a persistent impact on performance. Staff believes that manager performance will return to its long term trend of outperformance, and actions taken by the Board and staff to improve our process will provide additional enhancements.

DLS requests SRA to comment on its plans for internal asset management, including the asset classes and sub-asset classes in which SRA plans to directly manage system assets, the amount of assets that would be internally managed, changes to investment division staffing that would be needed to implement internal management of assets, any additional legal or regulatory compliance required as a result of internal management, and potential timelines for implementation.

The investment management model employed by the System for the past several years is external management, whereby external asset management firms are hired to manage the assets. Even before that, most of the assets were externally managed. There is a growing trend among large public pension funds to manage more assets internally. The primary reason for this movement is cost savings garnered from in-house investment management that lead to improved investment returns. Another benefit internal management provides is greater control over the assets, which allows internal investment staffs to position portfolios to express broad macroeconomic views. An in-house management capability would improve the entire investment process by making the Investment Division more engaged and informed on matters relating to capital markets and the economy. This enhanced insight would also improve the way

the investment staff monitors and evaluates external managers, and strengthen staff's ability to assess broader investment opportunities. Internal management would also improve the way the Board monitors and evaluates staff as it shares in the related education and insight.

While the Investment Division has been exploring the possibility and prerequisites for internal management over the past year, we are not far enough along in the process to provide definitive responses regarding targeted asset classes and amounts. However, publicly-traded passive mandates are typically targeted as logical starting points for internal management. As of October 31, 2016, passively-managed assets totaled roughly \$6.6 billion, or 14.4% of plan assets. While these strategies tend to have the lowest external management costs, and would not have a significant impact on the total amount of fees paid by the System, it would provide the infrastructure to engage in more active strategies should opportunities present themselves at some point in the future.

The focus of staff's internal management planning effort up to this point has been portfolio level overlay strategies that are not as resource-intensive and generally conducive for internal management, like risk management and rebalancing. Rebalancing the portfolio to active targets within the asset allocation ranges in order to take advantage of a perceived opportunity is an example where internal management may be effective. In addition, unintended concentration risks that arise in portfolios could be successfully managed and diversified away on an internal basis.

While the process of establishing an internal management capability will be gradual and likely evolve over time, the ultimate potential for cost savings could be significant with the appropriate level of resources. As an example, assume an appropriately-resourced Investment Division would cost \$3 million annually in excess of the current Investment Division budget. This might allow for internal management of the currency hedging program, all of the existing externally-managed passive mandates and a ten percent target allocation to private equity co-investment opportunities. Based on conservative assumptions, this amount of internal management would result in annual savings in excess of \$13 million. This savings amount would increase to the extent private market co-investing could be applied to other asset classes; and active management strategies for traditional asset classes could be brought in-house. In addition to the cost savings, to the extent the additional staff and resources improved the investment performance by as little as one basis point (0.01%); this would translate into roughly \$4.5 million in additional value – more than offsetting the additional expense.

The successful implementation of an effective internal management capability is predicated on building a stable investment team guided by a sustainable culture. The Board of Trustees has requested legislation that would grant it the authority and flexibility to both determine the appropriate investment resource and staffing levels for the Investment Division, as well as set salaries that are commensurate with experience, skills and industry peers. In addition, the Board has included increased staffing levels and salaries in its fiscal year 2018 budget request. These requests are partially in anticipation of internal management initiatives, but are primarily to address risks to the System of the existing practice and structure.

DLS requests SRA to comment on its plans regarding the structure and utilization of the Terra Maria program moving forward, including how the amount of funds under management and the distribution of funds among asset classes affect program performance.

After a detailed and comprehensive review of the Terra Maria program, SRA plans to restructure the way the assets are allocated to improve performance and efficiency. Currently, there are multiple program managers. Each manager has a similar broad assignment spanning most of the public equity markets. The result has been an over-diversification of managers. Too many managers investing in the same markets have diluted the ability of the group as a whole to perform. Going forward, the Terra Maria program will be more focused with fewer overlapping assignments and with individual manager allocations large enough to be meaningful for the System and the manager. Additionally, a reduced number of program managers will be utilized to prevent over-diversification, as well as to create more accountability for each program manager. The System has made changes to its asset allocation over the past year. The anticipated changes to the Terra Maria program will fit within this new structure.

The number of program managers in domestic public equity will be reduced from six to two. In international developed public equity, the number of program managers will be cut from five to two. A new dedicated emerging markets mandate will be added and managed by one program manager. Also, a new dedicated international small cap mandate will be added, to be managed by one program manager. Fixed income will be reduced from four program managers to one. Terra Maria mandates in the asset classes of credit and real assets will be exited due to poor performance and a dearth of smaller managers operating in these areas. As a result of these changes, the overall number of underlying managers utilized will be reduced, allowing for a more concentrated program. This concentration will increase the potential for generating excess returns. While the number of managers will be scaled back, the asset base of the Terra Maria program will remain relatively the same once the restructuring has been fully implemented.

As one of the most efficient asset classes, U.S. equity has been particularly challenging for active managers to outperform passive benchmarks. Like most managers in this asset class, the System's Terra Maria managers have struggled to generate excess returns over the last several years. As a result, Terra Maria assets will be meaningfully reduced in domestic equity, and will initially focus on small capitalization stocks. However, staff will encourage program managers to recommend large cap managers for consideration in an effort to maintain coverage and keep abreast of the emerging managers in this asset class. This reduction in domestic equity assets will be moved to the less efficient asset classes of emerging markets and international small cap, where there are greater opportunities for active managers to add value. The international developed asset class will remain at a similar asset size, as this component of the program has reliably added value over time. Following the restructuring of the public markets Terra Maria program, hedge funds will be evaluated for program fit. Separately and in parallel, staff continues to build out its private equity Terra Maria program, which is implemented through Staff and consultants.

DLS requests SRA to comment on its process for evaluating utilization of the currency program, and plans for the program moving forward.

The objective of the currency overlay program is to provide some protection against a strengthening U.S. dollar and reduce the volatility of the currency portion of the Agency's non-U.S. equity investments over the long term. Strong foreign currencies relative to the U.S. dollar provide a tailwind to non-dollar investments and enhance returns. Any currency hedging program applied in this environment would act as a drag and detract from returns. This is what occurred in fiscal year 2016 as foreign currencies generally strengthened versus the dollar, particularly the Japanese Yen. Alternatively, when foreign currencies are weak and the dollar is strong, the currency exposure acts as a headwind to performance. It is during these periods that currency hedging programs can help offset some of those losses. This is what has happened since the end of fiscal year 2016, as the dollar has rebounded sharply in the wake of the U.S. elections in November. From June 30, 2016 through December 1, 2016, the currency program has produced gains of roughly \$65 million, bringing the since inception total value added to \$332.3 million. While the value added by the program has fluctuated, with some years generating gains and others losses, its risk reducing qualities have been persistent over all time periods.

Given the meaningful size of the System's exposure to foreign assets, staff continues to believe that having an ability to hedge currency makes sense. As of June 30, 2016, the System's foreign equity holdings totaled roughly \$10 billion, or about 23 percent of the total fund. In addition, the volatility and impact of currency fluctuations have magnified over the last several years as global central banks have instituted unconventional monetary policy in an effort to stimulate growth. The currency effect can be demonstrated by comparing the recent returns of an index of non-U.S. stocks against its hedged version. The chart below shows this comparison as of June 30, 2016.

	3 Years Annualized	5 Years Annualized
MSCI World Ex-U.S.	1.88%	1.23%
MSCI World Ex-U.S. Hedged	5.78%	5.86%

While the currency hedging program has been in place since 2009, its mandate and implementation have not been unmanaged. The currency manager, in consultation with investment staff, has applied several adjustments to the normal hedging process over the course of the mandate to dynamically manage risk. For example, the proportions of currency exposures included in the currency program (hedgeable currency exposures) have been modified on several occasions in an effort to lock-in gains, limit downside risks and save on management fees. Also, the strike prices of the currency forward contracts have been scaled up or down for defensive or offensive measures. Staff will continue to monitor the System's exposure to currency risks to determine the appropriate hedging needs going forward, and whether these needs are best met by an external manager, or an internal effort.

MSRPS Response to JCP Letter on the Impact of Climate Change on the Investment Portfolio and Process

October 19, 2016

**STATE RETIREMENT AGENCY
INVESTMENT DIVISION
MEMORANDUM**

TO: Board of Trustees and Members of the Investment Committee

FROM: Andrew Palmer, Chief Investment Officer

DATE: September 16, 2016 [Survey Data updated and Appendices added 10/17/2016]

SUBJECT: Climate Change Inquiry from the Joint Committee on Pensions

The Joint Committee on Pensions (JCP) has inquired about “how the State Retirement and Pension System (SRPS) factors the growing risk of climate change into the pension fund’s investments.” Specifically, what are the System’s current practices regarding climate change and how do they impact investments made by the System. Investment Staff considers environmental, social and governance (ESG) issues and risks, along with many other issues and risks, in implementing the Board’s long term asset allocation policy. On an ongoing basis, Investment Staff seeks to identify and evaluate best practices in all aspects of managing the investment portfolio of the SRPS.

The potential impact of climate change on the System’s investments is addressed in several ways within current processes and procedures. The tools that are currently available to Staff are climate change education, proxy voting, manager and company engagement, integrating ESG risk awareness into the investment process, and targeted investments. The following are examples of these tools being utilized:

- Proxy Voting: MSRPS Investment Policy Manual (updated May 2016): Section II. Corporate Governance and Policy Voting, part F. Social/Environmental Issues, number 3. Climate Change and the Environment. The System will generally vote for proposals requesting reports on the level of greenhouse gas (GHG) emissions from the company’s operations and products, and will generally vote for shareholder proposals requesting the company adopt GHG reduction policies and/or emissions reduction goals.
- Engagement: MSRPS is a UNPRI signatory (joined April 2008). Staff encourages equity managers, general partners and consultants to become signatories. UNPRI is a leading independent proponent of responsible investment.
- Engagement: MSRPS joined the Investor Network on Climate Risk (INCR) and the Ceres Coalition in 2008. This network and organization are advocates of sustainable business practices and solutions to build a healthy global economy.
- Process: Private Energy Investments – Investment Staff requires potential energy managers to complete an ESG DDQ which questions the managers’ ESG-related policies and procedures in depth. In the System’s side letter, energy managers are asked to include ESG guidelines in their investment process and provide Staff with annual

updates on ESG issues (both positive and negative). ESG language has been included in the side letter of several of the System's energy managers' most recent funds.

- Process: Public Equity Managers (includes MLP's and REIT's) – managers are required to complete an annual DDQ. One of the questions asks “how are environmental, social and governance factors and risks integrated into the firm's security analysis and investment process?”
- Process: Public Managers (separate accounts and commingles funds) – managers are required to complete an Annual Compliance Questionnaire. One of the questions asks for details regarding how ESG is integrated into the investment process.
- Process: Real Estate – in 2014, Staff engaged PCA to develop a survey on environmental certifications for the System's real estate portfolio.
- Process: All four consultants utilized by Staff (Meketa, Altius, Albourne and PCA) consider ESG as part of their investment due diligence process.
- Education: Board of Trustees Education Session May 2012 – First Reserve Corporation – presentation on energy investing in a dynamic global environment.
- Education: Board of Trustees Education Session May 2016 – Morgan Stanley Global Sustainable Finance – as part of four hours of presentation on climate change and Fiduciary Responsibility.
- Targeted Investment: In July 2009, Goldman Sachs Asset Management was hired to manage an active global sustainable equity mandate. In April 2015, this mandate was terminated as a result of personnel changes and the high cost structure for index-like performance.
- Targeted Investment: In January 2010, the System committed \$25 million to the North Sky Clean Tech Fund IV. Through March 31, 2016, the fund has generated a 1.2x net multiple and a 4% net IRR.
- Targeted Investment: \$200 million committed to timber funds – typically managers follow sustainable investment practices.
- Targeted Investment: Various investments within the System's energy and infrastructure funds target and have invested in renewable energy investments.

These practices contribute to increased transparency, greater awareness and improved monitoring of risks, and increased dialogue and collaboration.

On December 12, 2015, 195 countries, including the U.S., adopted the Paris Agreement in a new and coordinated effort to tackle climate change. The agreement establishes a framework for cooperative action on climate change and replaces the 1997 Kyoto Protocol. Key points to the agreement include:

- The first comprehensive climate agreement with all countries expected to participate.
- Limit the increase in the global average temperature to well below 2° Celsius above pre-industrial levels, with a further goal to limit the increase to 1.5° Celsius. Countries should reach the global peaking of greenhouse gas emissions as soon as possible (goal of carbon-neutral world between 2050 and 2100).
- Developed nations to give poorer nations \$100B annually to help them combat climate change and foster greener economies.

- Countries are required to monitor, verify and report their greenhouse gas emissions using the same global system. Starting in 2023, and every 5 years after that, countries will be evaluated on how they are doing in cutting emissions relative to their national plans.

Several consultants have studied the potential impact climate change could have on investments. In 2015, Mercer conducted a study to help raise investors' awareness of climate change risk exposure. The study examines the impact of three scenarios: the Paris Accord is effective and the global temperature increase is held below 2°C, there is partial adoption and the global temperature increase is 3°C, and current practices are allowed to run their course and the global temperature rises 4°C. Some of the key findings from their study are listed below:

- Climate change will have an impact on investment returns regardless of the scenario (whether the rise in global temperature is 2, 3 or 4 degrees Celsius).
- Potential investment return impacts will vary by sector. Most negatively impacted by ratification of the Paris Accord are likely coal, oil, utilities, and materials. Most positively impacted are likely renewables, nuclear, and information technology.
- A 2°C increase scenario may not negatively impact the total returns of diversified portfolios out to 2050. Investments that may be expected to benefit in this scenario include emerging market equities and debt, real estate, infrastructure, timber and agriculture.

Measurement of an organization's existing level of carbon emissions is a first step in establishing its targets for future emissions. In order to properly measure the carbon footprint of a company or of an investment portfolio, timely and accurate disclosures are necessary. There are currently many transparency-related initiatives regarding climate change on a global basis. As mentioned above, MSRPS is a member of UNPRI, the Investor Network on Climate Risk, and the Ceres Coalition. There are several other organizations that encourage investors to help improve the level of disclosure for climate change risks and develop best practices, including the Asset Owners Disclosure Project, the Carbon Disclosure Project and the Global Reporting Initiative. Firms such as Moody's and MSCI rate equity and fixed income issuers based on ESG risk factors.

Climate change risk data, models and information providers continue to evolve, so any conclusions drawn from these sources must be tested. A recent study conducted by MSCI showed that a model commonly used by investors to estimate carbon emissions overstated such emissions by 208% on average when using carbon emissions disclosures for 2013. In addition, only 20% of companies in the MSCI ACWI IMI currently disclose their emissions, so investors continue to use estimates to complete their analysis. MSRPS may review these organizations, their objectives, and the data they supply to determine whether or not engagement would be beneficial to the System.

Larger state pension plans, especially CalPERS and CalSTRS, have included climate change in their investment policies and have allocated significant resources to ESG related issues. Listed below are some examples:

- **CalSTRS - \$186B AUM; 140 Investment Staff**

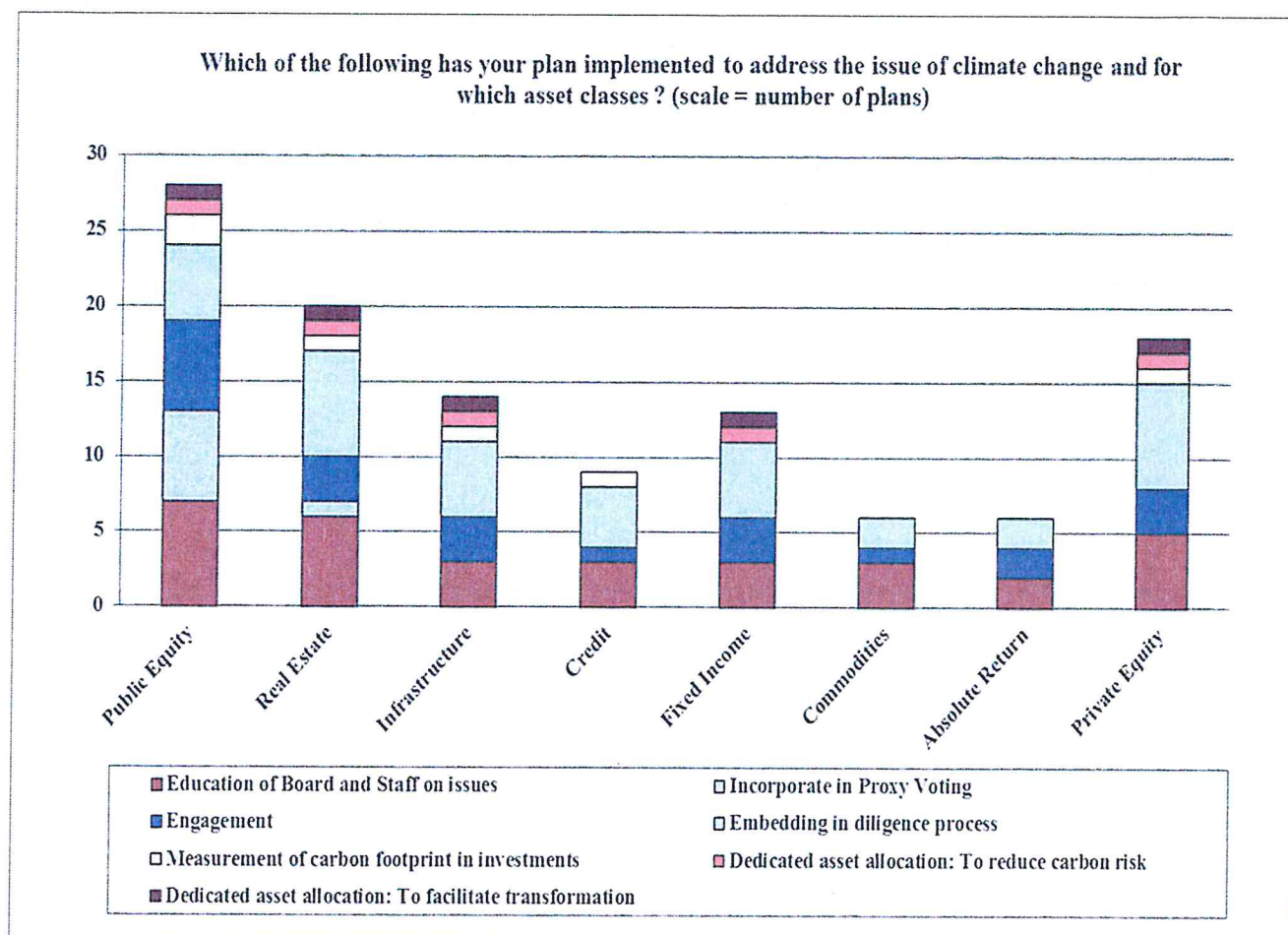
- Collaborated with Mercer in a research study assessing the climate change risk of the plan's investment portfolio. Recommendations included developing a "house view" on climate change, embedding climate change risk management practices throughout the organization, developing a climate change risk management strategy, and addressing resourcing needs to ensure proper execution.
- The overall investment philosophy emphasizes long-term patient capital, which aligns naturally with consideration of long-term systemic risks such as climate change.
- On environmental matters, CalSTRS typically votes in favor of proposals designed to limit carbon emissions or to prevent environmental degradation by companies they own. Proxy voting history demonstrates commitment to company sustainability and includes collaboration with UNPRI and INCR engaging companies on carbon risk and fracking, filing environmental-related shareholder proposals calling on companies to improve their environmental risk management disclosure efforts, and sending engagement letters to encourage greater disclosure of energy efficiency efforts.
- Mitigating ESG risks is part of their Investment Policy.
- They have established a "Green Initiative Task Force" that reports annually on environmental initiatives and investments.
- ESG considerations are incorporated in various ways across asset classes.
- In August 2016, CalSTRS announced that the plan will commit up to \$2.5 billion to low-carbon strategies.
- **CalPERS - \$300B AUM; 400 Investment Staff**
 - Maintains an investment support division called Global Governance, which seeks to ensure CalPERS acts as a principled and effective investor advocating for alignment of interests across the portfolio to promote the long-term, risk-adjusted returns to pay pensions. Program components include principles and proxy voting; institutional relations; financial market reform; corporate engagement; and integration of environmental, social, and governance (ESG) factors into investment decisions. The total annual cost for the positions within this division is \$1,958,000.
 - In 2011, the CalPERS Board approved the adoption of a Total Fund process for integrating ESG issues as a strategic priority across CalPERS' portfolio. Grounded in the three forms of economic capital — financial, human, and physical — needed for long-term value creation, CalPERS developed strategic themes (Alignment of Interest, Human Capital, and Climate Change) that set the framework for the fund's ESG integration work.
 - In August 2016, CalPERS unveiled a proposed five year plan for governance and stability. The plan includes adding three new positions under the Sustainable Investment Director, at an annual cost of \$660,000, and a new Proxy Voting & Corporate Engagement Director, and four additional positions underneath, at an annual cost of \$1,204,000.
- **New York Common - \$178B AUM; 38 Investment Staff**
 - The plan engages companies directly and believes that a company should evaluate and adapt its business strategy to meet the impacts of climate change, whether

they be environmental (loss of infrastructure and resources) or regulatory (new restrictions on carbon emissions).

- In December 2015, the system announced that it was committing \$2 billion to a Goldman Sachs index fund that will exclude or reduce investments in large greenhouse gas sources. They also announced that they will invest \$1.5 billion into a program supporting low-pollution investments such as wind farms.

During this past summer, the Investment Division's Summer Interns conducted a survey regarding how public pension plans are addressing the risk of climate change. The 18 question survey was sent to approximately 70 public pension plan contacts. To date, **23** responses have been received (spam blocking and .org addresses have caused some issues). The information that was provided shows that several plans are addressing or are beginning to address climate change risk in some way.

The different methods pension plans employ to address climate change risk can be placed on a continuum of potential activity, from education initiatives to dedicated investments intended to facilitate transformation. Of the **23** responses that were received, **12** have no policy regarding climate change, and **2** consider the risk broadly, but do not do anything specific that can be measured. **9** plans provided data which answers the question of where on this continuum their plan lies for each asset class. As would be expected, most of the current activity is taking place in public and private equity (and within those, likely energy-related exposures) and real estate asset classes. The most common action taken across asset classes has been embedding the issue within the due diligence process. The chart below summarizes the responses.



When making a peer comparison to the activities of MSRPS, it is important to consider the size of the plan and the number of investment staff. The average assets of CalSTRS, CalPERS, and New York Common are **\$223 billion**, and their investment staff sizes range from **40** to over **200** (these plans did not respond to the survey). For the **9** respondents to the question above, average assets were **\$110 billion** and the investment staff sizes ranged from **6** to **400**. For the **12** respondents that have not adopted a climate change policy and the **2** that consider the risk broadly, average assets were **\$28 billion** and the investment staff sizes ranged from **1** to **34**.

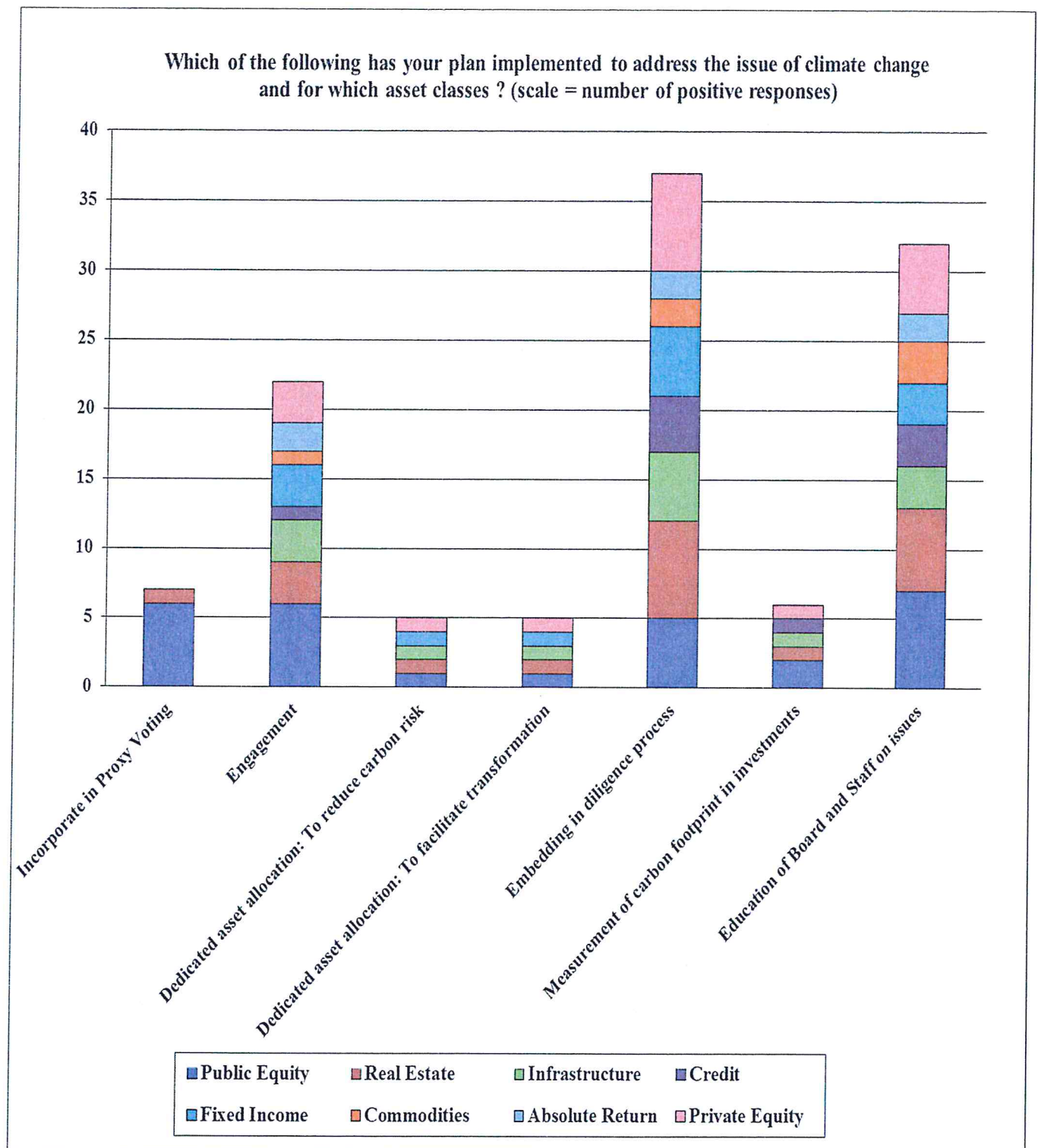
In determining potential next steps Staff and/or the Board might take in addressing climate change risk, potential actions must be consistent with fiduciary responsibility. Currently Staff has the ability to create specialized accounts or engage companies directly to address our concerns if we believe managers are not taking appropriate action. One of the first initiatives will be obtaining an estimate of the portfolio's carbon footprint. Recognizing that information is incomplete and methodologies are still developing, Staff believes that beginning to measure the risk is a first step in managing the risk.

Staff does not recommend policy targets for investments to reduce exposure to high carbon companies or to promote transformation (wind farms, solar, etc.). Products focused on reducing carbon exposure may not manage risk at the system level as effectively as incorporating carbon

risk management throughout the system, and will not be effective in assessing the return opportunity associated with any particular exposure. With respect to transformative investments, the existing asset class structure affords opportunity for Staff to consider those alongside competing investments based on their risk characteristics and return potential.

Staff does recommend an evaluation of the System's allocation to natural resources, infrastructure and commodities, in light of the Paris Accord, during the next asset allocation review with its general consultant.

Appendix A – Climate Change action chart with data reversed



Appendix B – Summary of additional questionnaire responses

Appendix B – Summary of additional questionnaire responses

Climate Change Questionnaire		Total Responses	Positive	Percentage Positive	Comments
Q#	- additional questions summary				
4	Does your plan have any stated investment beliefs that specifically address climate change?	23	4	17%	Evaluation varies across plans; one stated that no manager is eliminated on ESG alone.
7	Are ESG topics included in Due Diligence Questionnaires? If so, how are the responses evaluated?	22	10	45%	Most common suggested reporting SASB and CDP.
8	Is disclosure of climate and carbon exposure encouraged? If yes, do you suggest any standard reporting?	22	7	32%	
9	Has a climate related risk-management program been implemented in the system? If so, what methodologies are used?	22	2	9%	Comprehensive ESG risk.
10	How does the system determine sustainability materiality relative to a given investment strategy?	21	5	24%	use SASB; subjectively; identified material themes; relative and absolute exposure.
11	Has the system made investments that prioritize companies with smaller carbon footprints?	21	3	14%	renewable energy; low carbon equity index; clean tech PE; ended low carbon tilt in global equity due to poor performance.
12	Have there been any investments (either public or private) that can be identified as mitigation or adaptation techniques?	21	5	24%	low carbon equity index; active equity SRI strategy; clean tech PE; infrastructure and renewable energy.
13	Do you have any explicit policy language that addresses ESG issues?	22	8	36%	Board ESG policy; proxy voting guidelines; legislative and regulatory guidelines; risk factors in policy language.
15	Do you have staff members that are in charge of managing portfolio climate risk?	22	4	18%	Included in corp. governance staff (3.5 FTE's); team of 29 being expanded to 37 on ESG; in which climate change is a strategic priority; 2 corp. governance FTE's plus a "Green Team" with 1-2 reps from each asset class.
16	Will your plan be implementing any new or additional policies regarding climate change?	9	6	67%	Most common: embedding in DD process; engagement and education.
17	Do you participate, are a member of, or a signatory to any ESG transparency related organizations or initiatives?	17	8	47%	Global Reporting Initiative, and Asset Owners Disclosure Project; one large plan did not renew Ceres membership due to budgetary constraints.

2016 Board Requested Legislation

The following legislative proposals are offered by the Board of Trustees for the State Retirement and Pension System for the Joint Committee on Pensions' consideration to sponsor as legislation for the 2017 legislation session. These legislative proposals are intended to clarify or correct perceived inconsistencies within existing law, and in some instances, correct inconsistencies with federal law.

References to the Reformed Contributory Pension Selection

When the Reformed Contributory Pension Benefit (RCPB) was created under Title 23, Subtitle 2, Part IV of the State Personnel and Pensions Article in 2011, reference to this new tier of the Employees' Pension System (EPS) was inadvertently omitted from various sections of this article. Staff has found two provisions addressing eligibility service in Title 23 (§§ 23-306.2(a) and (c)) that should have been amended in 2011 to include reference to the RCPB. The Board is recommending these sections be amended to now include the RCPB.

There is no cost associated with this proposal.

Purchase of Employment as a Legislative Employee

Section 23-307 of the State Personnel and Pensions Article addresses the purchase of service credit by members of the EPS. Specifically, this provision provides that members of the EPS may purchase various types of service, provided the member pays one-half of the employee cost and one-half of the employer cost for the service. One type of service that may be purchased under this section is up to 130 days of employment as an employee of a member of the Maryland Senate or House of Delegates, prior to the individual joining the EPS. However, the provisions of § 23-307 that address purchasing this service provide a different calculation than what is provided for all other eligible service under this section. Moreover, § 23-307 provides different calculations depending on whether the member commenced employment for the General Assembly on or after the start of the EPS, on January 1, 1980. Service purchased prior to January 1, 1980 is set at the amount that the member would have been required to contribute for that period of employment; plus interest compounded annually. For employment on or after January 1, 1980, the cost of service equals the amount that the member would have been required to contribute for that period of employment and the amount that the State would have been required to contribute for the member for that period of employment, plus interest on each piece, compounded annually. Finally, the interest rate for this purchase (regardless of when the employment occurred) is calculated using the same formula that was used beginning in 1984, to determine the amount of interest a member would receive on the member's refunded member contributions after transferring from the Employees' Retirement System (ERS) to the then non-contributory EPS. In an effort to encourage more members to transfer from the ERS to the EPS, in 1984, the interest rate paid on the member's contributions was changed from 4%, compounded annually, to the average annual realized rate of return on the System's investment portfolio for the five years preceding the transfer. This rate is referred to as the "transfer interest rate" and is the rate that is currently applied to the cost of service for employment as an employee of the General Assembly prior to joining the EPS. All other purchases under § 23-307, and throughout

the State Personnel and Pensions Article for that matter, are calculated using either 4% or 5% interest, compounded annually.

Staff has researched this provision and cannot determine any member of the EPS in the past 10 years who has requested to purchase pre-membership employment with the General Assembly. Additionally, in 2004, all new legislative employees were required to join the EPS as a condition of employment. This was changed to provide these individuals with optional membership beginning in 2015, however, the option to join the EPS is now irrevocable and must be made at the commencement of employment. Therefore, since 2004, legislative employees commencing employment on or after July 1, 2004, will not have any service that could be purchased under § 23-307.

While the Board recognizes that it is unlikely that any legislative employee will come forward in the future seeking to purchase up to 130 days of employment prior to joining the EPS, it is still possible. Therefore, in the event this would happen, the Board recommends amending the purchase provisions for this specific type of employment as follows:

- (1) for employment before January 1, 1980, the amount that the member would have been required to contribute for that period of employment, plus 5% interest, compounded annually; and
- (2) for employment on or after January 1, 1980, one-half of the employee cost and one-half of the employer cost for the service.

The Board recognizes that if § 23-307 is amended, as recommended, it would result in purchases of service at a lower cost than is currently provided for in statute. That being said, the Board also believes that due to the fact that there has not been a request to purchase this type of employment in the last 10 years, coupled with the small period of time that can be purchased under the provision in question, the cost to the System would be de minimus.

Independent Medical Evaluations – Small Procurements

Independent medical evaluations are required through the Agency's regulations to be performed on ever disability applicant applying for a line of duty disability and at the discretion of the medical board for applicants applying for non-line of duty disability applicants. In order to stay under the small procurement cap, the Agency currently can pay only up to \$25,000 each year to each doctor that performs independent medical evaluations. This amount can be reached quickly through examinations and testifying before the Office of Administrative Hearings and any other appeals that may occur. Once the \$25,000 cap is reached, the Agency is placed in the position of either finding additional doctors willing to do independent medical evaluations or seek increases in funding through the regular procurement process, on a case by case basis. To avoid the seeking out additional doctors to perform the independent medical evaluations and the administrative burden and time delay incurred through navigating the State's regular procurement process, the Board is recommending expanding the System's procurement exemption in the State Finance and Procurement Article to include an exemption for the services

of physicians related to the medical board. These services would include independent medical examinations and any resulting testimony that would be required of the physicians.

Membership Elections - Prohibited

Recent Internal Revenue Rulings have alerted staff and legal counsel to issues regarding provisions within the State Personnel and Pensions Article that allow certain individuals the election to join various plans within the System throughout the employment careers of these individuals. Generally, these rulings address impermissible cash or deferred arrangements and limit the circumstances under which one-time irrevocable elections are permissible. Based on a review of these rulings, and on advice of tax counsel for the System, the Board is recommending changes to several provisions in both the Optional Retirement Program (ORP) and the EPS that are currently in conflict with these rulings.

Optional Retirement Program

Presently, individuals employed as faculty or professional employees of the University of Maryland, Morgan State University, St. Mary's College, the Maryland Higher Education Commission or any community college have the option to join either the Teachers' Pension System (TPS) or the ORP within their first year of employment with one of these employing institutions. If no election is made within the first year of employment, the individual is enrolled in the TPS. This election is allowed even if the individual is currently, or previously has been, a member of another plan in the System. If the member accepts new employment with an employing institution, that individual has the option to join the ORP or the TPS. (In instances where the individual is already a member of the TPS, the election to move to the ORP or stay in the TPS is presented.)

Based on a review of the recent Internal Revenue Rulings, tax counsel has advised that current and former employees of the State or a participating governmental unit (PGU) who at some point in their careers have been members of one of the several systems, may no longer be offered an election to join the ORP. In addition, tax counsel has also advised that new employees, with no previous membership in one of the several systems may only be offered an election to join the ORP or the TPS at the commencement of employment. In other words, individuals joining the System for the first time may no longer have a year to elect either membership in the ORP or the TPS. Accordingly, the Board is recommending changes to Title 30 of the State Personnel and Pensions Article that would reflect the advice of the System's tax counsel.

Optional Membership in Other State Systems

Tax counsel has also found provisions that provide for optional membership in the EPS that it is recommending be amended to comply with recent Internal Revenue Rulings. Specifically, § 23-209 allows the board the discretion to make membership optional for members in the TPS whose compensation is paid only partly by the State or whose employment is temporary or on other than a yearly basis. In addition, § 24-203 provides that the Secretary of

State Police has the option to join either the State Police Retirement System (SPRS) or the EPS. Because the IRS is now only permitting optional membership at the commencement of employment, staff is recommending § 23-209 be amended, accordingly. Moreover, amendments to § 23-209 would also include language that would prohibit any election if the individual is currently a member of the TPS at the time the individual accepts employment that would qualify under this section. With regard to the Secretary of State Police, to avoid potential issues that would require the Secretary to become a member of the EPS due to earlier membership in that system, staff is recommending amending § 24-203 to remove the election entirely. Accordingly, the Secretary would then be required to become a member of the SPRS.

Finally, the last area of the State Personnel and Pensions Article that tax counsel is recommending be amended concerns elections made by employees of PGUs at the time a new PGU enters the System or an existing PGU withdraws from the System. According to the recent Internal Revenue Rulings, staff has been advised that current employees of an enrolling PGU may no longer be offered the option to join the EPS, Law Enforcement Officers' Pension System (LEOPS) or Correctional Officers' Retirement System (CORS), if at the time the PGU joins the System, it (1) participates in the "pick-up" program of either the EPS, LEOPS, or CORS, and prior to joining the EPS, LEOPS, or CORS had its own plan that participated in a pick-up program; and (2) the employee contribution rates between the State plan and the PGU plan are different. Additionally, this prohibition on elections would also apply if the same criteria were met for a PGU withdrawing from the plan. If the PGU is leaving to start a plan that participates in a pick-up program and has a different contribution rate from the State plan from which it is withdrawing, the employees of the PGU participating in the EPS, LEOPS, or CORS at the time of withdrawal would not be permitted to elect to leave and join the new plan offered by the PGU.

In order to remain in compliance with provisions of the Internal Revenue Code and recent Internal Revenue Rulings, the Board is recommending the amendments proposed by tax counsel.

Optional Retirement Program – Annuity Contracts

In conducting its bi-annual review of the investment performance of the ORP, Segal Rogerscasey ("Segal") presented the Investment Division staff with several recommendations relating to the board's ORP agreement with TIAA CREF. Investment Division staff supported these recommendations and Segal and staff presented the recommendations to the Investment Committee during the May, 2016 Investment Committee meeting. Several of these recommendations were predicated on moving from TIAA's current individual annuity contract structure to a product known as the Retirement Choice contract. Segal and staff explained that the Retirement Choice contract has lower fees, allows for greater portability and provides a plan sponsor with greater flexibility in managing a plan's investment options.

Segal explained that "[w]hen TIAA was first retained as an ORP vendor, the only contract available to the State was the Retirement Annuity. These are individually-owned contracts or certificates that are controlled by plan participants. Because the contracts are controlled by the participants, the board does not have complete flexibility over investment options and the ability to map assets to other funds." Additionally, the Retirement Annuity

structure limits the Board's ability to implement alternative fee sharing structures. Segal further advised that "as the retirement industry has evolved over time, TIAA has created and made available institutionally owned, group contracts (Retirement Choice contracts) as an alternative to the original individual contracts." Segal and Investment Division staff recommended moving to the Retirement Choice contract for all future contributions, including rollovers.

In order to implement the recommended Retirement Choice contract, §30-206 of the State Personnel and Pensions Article would need to be amended to allow the board to enter into a group annuity contract to provide benefits to participating employees. Amendments to §30-206 would clarify that an employee's rights under an annuity contract are nonforfeitable in accordance with IRC § 403(b)(1)(C), but would no longer require that annuity contracts purchased under the program "be issued to and become the property of the participating employees."

Reduction of Accidental Disability Benefits by the Amount of Related Workers' Compensation Benefits

Please see Attachment A.

Board of Trustees Budget Authority – Investment Division

Please see Attachment B.

ATTACHMENT A

Abolishing Statute Requiring the Reduction of Certain Accidental Disability Benefits by the Amount of Related Workers' Compensation Benefits

Background:

Maryland law generally prevents a government retiree covered by both workers' compensation and a governmental pension or retirement plan from recovering twice for a single injury. The General Assembly has enacted two intersecting laws to prevent double recovery.

Md. Code Ann., State Personnel & Pension Art. ("SPP"), § 29-118 provides:

(1) Except as otherwise provided in this subsection, this section applies to a retiree and any designated beneficiary.

(2) (i) This section does not apply to:

1. a retiree of a participating governmental unit, or a designated beneficiary of that retiree; or

2. a retiree of the Employees' Pension System or the Employees' Retirement System who receives a disability retirement benefit as a former employee of a county board of education or the Board of School Commissioners of Baltimore City, or a designated beneficiary of that retiree.

(ii) A retiree described in subparagraph (i) of this paragraph, or a designated beneficiary of that retiree is subject to § 9-610 of the Labor and Employment Article.

(b) Reduction in retirement allowance. --

(1) The Board of Trustees shall reduce an accidental or special disability retirement benefit by any related workers' compensation benefits paid or payable after the effective date of retirement if the workers' compensation benefits:

(i) are paid or payable while a pension is paid or payable; and

(ii) are for an accidental personal injury arising out of and in the course of the retiree's employment by a participating employer.

Under SPP § 29-118, the Board of Trustees (the "Board") must reduce the accidental or special disability retirement benefit of a State retiree or a Teachers' Pension System/Teachers' Retirement System ("TPS/TRS") retiree by any related workers' compensation benefit paid or payable after the effective date of retirement if the two benefits are paid or payable during the same time period.¹

Md. Code Ann., Labor & Employment Art. ("LE"), § 9-610 provides that:

Except for benefits subject to an offset under § 29-118 of the State Personnel and Pensions Article, if a statute, charter, ordinance, resolution, regulation, or policy, regardless of whether part of a pension system, provides a benefit to a covered employee of a governmental unit or a quasi-public corporation..., payment of the benefit by the employer satisfies, to the extent of the payment, the liability of the

¹ The retirement allowance is not reduced "to be less than the sum of the retiree's annuity and the amount authorized to be deducted for health insurance premiums; or for workers' compensation benefits that are reimbursements for legal fees, medical expenses or other payments made to third parties and not the retiree." SPP § 29-118(b)(2).

employer and the Subsequent Injury Fund for payment of similar benefits under this title.

Under this statute an employer, such as the State or a participating governmental unit ("PGU"), is required to offset a disability retiree's workers' compensation award payments by the amount of similar pension benefits that are not subject to an offset under § 29-118.

Because the Maryland State Retirement and Pension System ("MSRPS") is not involved in the workers' compensation process, its statutory duty regarding reducing an accidental disability award is often not fully understood by the Commission. Moreover, the Commission, the disability retiree and the attorneys that practice before the Commission, often do not understand the intricate interplay between LE § 9-610 and SPP § 29-118. Therefore, the Commission's awards may not acknowledge or consider the MSRPS's required reduction of certain accidental disability benefits when they grant or approve employer and insurer offsets to workers' compensation awards if an MSRPS accidental disability allowance is also being paid or will be paid.

The complicated statutory scheme for offsets and reductions for workers' compensation and retirement disability awards have resulted in a process that is disjointed, and sometimes inconsistent in its application. Moreover, the Retirement Agency finds that administering and monitoring the mandatory reduction of an accidental benefit in many instances can be unduly burdensome and time-consuming. Highlighted below are some examples of issues that the Retirement Agency has encountered with administering SPP § 29-118:

Issue 1: Retroactive Accidental Disability Awards

When an accidental disability retirement is *retroactively* awarded, the Retirement Agency has found it nearly impossible to recover the related workers' compensation payments if an offset based on LE § 9-610 for the ordinary disability award has been granted to the employer/insurer.

In these cases, the employer or insurer has already been credited an offset, thereby reducing the workers' compensation payments actually received by the disability retiree. Nonetheless, SPP § 29-118 requires the Retirement Agency to reduce the retiree's accidental benefits to recoup the amount of the workers' compensation award. To adhere to SPP § 29-118, the Agency would have to recoup money from the disability retiree that he or she never received, or seek a return of the money the employer/insurer.

For obvious reasons, the Retirement Agency has been reluctant to reduce a retiree's accidental disability retirement in this situation. Moreover, the Agency has been unsuccessful in recouping this money from the employer. Thus far, no employer has agreed to repay money to the disability retiree or the System, or to stop an ongoing offset. The employers' claim that the offset was based on a valid order or settlement signed by the Commission, and that at the time of the award or settlement, the offset was proper. In one case, the Retirement Agency went before the Commission to reopen a case. However, the Commission ruled that the Retirement Agency did not have standing to challenge the award.

Example:

- TPS employee was injured in a workplace accident on Jan. 1
- On Feb. 1, TPS member is granted and accepts an ordinary disability retirement by the Board (\$800/mo. (\$200/week)), but is appealing award for accidental disability.
- On March 1, TPS retiree receives a workers' compensation award of \$200/week for Jan. 1 injury

- Under LE § 9-610, the Commission awards TPS retiree's former employer, a local school board, an offset of \$200/week because of the overlapping ordinary disability award
- On July 1, Board retroactively grants TPS retiree an accidental disability award of \$1200/mo (\$300/week) for Jan. 1 accident
- Under SPP § 29-118, the Agency should recoup the \$200/week workers' compensation award since March 1 (approx. \$1600), and should reduce any overlapping accidental disability award by \$200/week going forward.

Issue 2: Erroneous Commission Awards

The Agency has uncovered at least one instance where the Commission erroneously awarded an offset for an employer/insurer despite the fact that the retiree was granted an accidental retirement benefit subject to a SPP § 29-118 reduction. It is the Agency's position that it must reduce the accidental retirement allowance in accordance with § 29-118, regardless of the Commission's erroneous award. Nonetheless, this could create a hardship for the retiree who must seek to have the Commission amend the award, or take other legal action.

Example:

- TPS employee was injured in a workplace accident on Jan. 1
- On Feb. 1, TPS employee is granted and accepts an accidental disability retirement by the Board (\$1000/mo. (\$250/week))
- On March 1, TPS retiree is awarded workers' compensation (\$200/week) for the Jan. 1 injury
- Under LE § 9-610 the Commission erroneously grants the employer, a local school board, an offset based on the accidental disability award. Because of the offset the TPS retiree is not receiving any money for workers' compensation award.
- Under SPP 29-118, the MSPRS must reduce the accidental disability award by \$200/week based on the related workers' compensation award. Therefore, the TPS retiree is subject to two offsets, resulting in a monthly compensation of \$50/week.

Issue 3: Delayed Notice of a Workers' Compensation Award

A workers' compensation award is often granted after an accidental disability has been awarded. Accidental disability retirees are instructed to notify the Agency if they are subsequently granted a workers' compensation award for the same injury for which they are receiving the accidental disability benefit. Many times, however, the disability retiree does not notify the Agency, and the Agency does not discover the related workers' compensation award until many months or years after the award. Recouping the double payment can lead to an almost total reduction of the retiree's monthly retirement allowance, resulting in claims of real or perceived hardship to the disability retiree.

Example:

- On March 1, EPS state employee is granted and accepts an accidental disability retirement for a Jan. 1 workplace accident for \$1000/month.
- Agency instructs EPS retiree to report any subsequent workers' compensation awards
- July 1 Commission awards EPS retiree a \$20,000 lump sum award
- EPS retiree does not report award to the Agency
- Two years later the Agency learns of lump sum award

- Agency reduces EPS retiree's monthly accidental disability benefit to maximum allowed to recoup the lump sum award, leaving little for retiree to live on.

Proposed Legislative Amendments:

Abolishing SPP § 29-118 and deleting reference to SPP § 29-118 from LE § 9-610

Abolishing SPP § 29-118 would mean the Board would no longer reduce accidental disability awards for related workers' compensation award payments. However, the retiree would not receive both accidental and workers' compensation benefits for the same injury. If SPP § 29-118 were abolished, LE § 9-610 would prevent the disability retiree from being paid for the same injury twice. In fact, LE § 9-610 would prevent the disability retiree from receiving any "similar" workers' compensation benefits. The employer or insurer that pays the workers' compensation award would reduce or "offset" the workers' compensation payments, based on the accidental disability award. In fact, this is the way all ordinary disability allowance offsets are handled now. In the case of State retirees, the State, through its third-party administrator, the Injured Workers' Insurance Fund ("IWIF"), would receive the offset.² In the case of TPS retirees, the respective local school boards would receive the offset. The Agency reports that because the local school boards now share in the costs of teachers' retirements their receipt of the workers' compensation offset is not a windfall to the local school boards.

The following charts demonstrate how the offset is taken when a MSRPS disability retiree receives a similar or related workers' compensation benefit currently and under the proposed amendments:

Offsets under the current law

	TPS/TRS retiree	State retiree	PGU retiree
Ordinary Disability	Employer reduces retiree's workers' compensation award (LE § 9-610)	State (IWIF) reduces retiree's workers' compensation award (LE § 9-610)	Employer reduces retiree's workers' compensation award (LE § 9-610)
Accidental/Special Disability	MSRPS reduces retiree's disability allowance (SPP § 29-118)	MSRPS reduces retiree's disability allowance (SPP § 29-118)	Employer reduces retiree's workers' compensation award (LE § 9-610)

Offsets under proposed amendments

	TPS retiree	State retiree	PGU retiree
Ordinary Disability	Employer reduces retiree's workers' compensation award (LE § 9-610)	State (IWIF) reduces retiree's workers' compensation award (LE § 9-610)	Employer reduces retiree's workers' compensation award (LE § 9-610)
Accidental/Special Disability	Employer reduces retiree's workers' compensation award (LE § 9-610)	State (IWIF) reduces retiree's workers' compensation award (LE § 9-610)	Employer reduces retiree's workers' compensation award (LE § 9-610)

² The State of Maryland's workers' compensation program is self-insured. LE § 10-102(d). IWIF is the third-party administrator of workers' compensation benefits to the State of Maryland. *Id.*



=MSRPS offsets under the current law

=Offset provisions changed under the proposed legislation

Attachment B:

MSRPS Board Budgeting Authority for Investment Department
Expenses

MSRPS Board Budgeting Authority for Investment Department Expenses

Executive Summary:

The MSRPS Investment Division is seeking legislative changes to invest the Board of Trustees of the Maryland State Retirement and Pension System with budgeting authority for the Investment Division. Specifically, the Board would have the authority to set compensation levels for staff, create and eliminate positions and approve investment-related expenditures to preserve and enhance the value of the System's assets. This recommendation is intended to alleviate the resource constraints faced by the division in attracting and retaining qualified personnel, creating additional positions, and providing other investment-related resources in a timely and responsive manner. These suggestions come after a review by the CIO found that the System's assets are at risk under the current process and the System is challenged to reduce fees through internal management and more broadly, meet the investment objectives of the System requires with the current level of budgetary flexibility.

Within existing statute, the CIO and the Board have authority to incur investment-related expenses, but excludes the work of the investment division from the definition of investment management expenses, which has been interpreted as fees paid to external managers. This legislative change would recognize the work of the investment division as investment management.

These requests stem from the CIO's assessment that:

1. The current level of staffing could put the System's ability to achieve its return objective at risk.
2. The compensation structure of staff contributes to turnover and poor alignment of interests between staff and the plan, which exacerbates the risk to the plan from low levels of staffing.
3. The level and compensation of staff are an impediment to internal management initiatives that are contemplated to lower System costs and improve the potential of achieving the System's return objectives.
4. The System's intention to create an internal investment capability and improve the System's potential to achieve its investment objectives requires more flexibility in obtaining investment management-related products and services.

Background:

Having joined the MSRPS Investment Division as CIO in July 2015, I have had the opportunity to review and analyze the division's staffing level and operations. I have found that the sophistication, size and complexity of the investment portfolio have outpaced the staffing levels. From the end of 2005 to the present, the plan has grown from 7 investment strategies and 50 accounts to 18 strategies and 380 investment accounts by 2016. During that same time, fund assets have grown from \$33.7 billion to \$46.2 billion, while Investments Staff has grown from 15 to 23.

During the past year, we have been examining our structure to identify opportunities to streamline processes and improve productivity and efficiency through software tools. Currently, we are evaluating client relationship management software to enhance our process to source, diligence and monitor the managers we engage. Another area of focus is the potential use of internal management to reduce the number of managers employed and the related fees. Internal management could also add value through tactical positioning of the portfolio based on perceived market opportunities.

While more accounts and a larger asset base may suggest that more staffing is appropriate, they do not provide guidance on the appropriate level of staffing. In 2015, the New York City Comptroller's Office contracted with the Funston Group to perform an operational review of the five pension systems and the investment office that supports them. The study is available on the Comptroller's website and provides some guideposts for staffing. A second, more limited study was performed for the New York Common Retirement Fund and is available on the state comptroller's website.

The reports suggest that the peer median number of investment professional staff with respect to asset size is .6 FTE/\$1 billion. At 16 investment professional staff and \$46 billion in assets, the MSRPS Investment Division has .35 FTE/\$1 billion. The peer median investment professional staff for the System would be 27 full-time employees in addition to the investment division staff assigned to operations and accounting.

Funston further provided suggestions on the appropriate level of staffing per asset class. They found significant business risk in asset classes that were managed by only one person. The risks result from the lack of coverage depth, the lack of institutional continuity, periods of reduced oversight and opportunity cost from a reduced scope of inquiry into better investment alternatives. Currently, MSRA has six asset classes that are each managed by one person: fixed income, credit, absolute return, real estate, commodities and natural resources. In fact, four people are responsible for these six asset classes as well as the risk management function.

Lastly, Funston recommends a robust human resources function to reduce the risk of turnover. The elements they recommend are:

- Recruit superior investment talent
- Create strong onboarding practices
- Implement a robust training program
- Provide opportunity for career advancement

At present, MSRA does not have a robust human resources function. While the agency is able to recruit qualified individuals to work at the System, the compensation structure and lack of career advancement opportunities available in the division have limited the System to individuals who self-select into the agency because of geographic preference or the opportunity to rapidly gain experience that will be valuable to a subsequent employer.

The opportunity for career advancement within the Investment Division is limited due to the lack of hierarchy. Currently, there are two position levels, Senior Investment Analyst and Managing Directors. Barring turnover at the Managing Director level, analysts have no opportunity for advancement in position or salary, regardless of how their skills, experience or responsibilities expand. Managing Directors and the Deputy Chief Investment Officer have been offered some salary opportunity through the 2012 legislation that placed them in the Executive Salary Plan, but many of them are near the top of that pay scale. One recent Managing Director departure cited the pay cap as the primary reason for leaving.

Training and onboarding practices are weak given the limited overlap in asset classes to provide training to new employees.

In the New York City study, Funston noted that the poor compensation structure added to the risk of the System stemming from personnel issues. However, New York City was able to bypass this issue, highlighted in the study, because the Comptroller had already implemented a plan to improve compensation. For the New York Common Fund study, Funston found that:

“...While the fund is currently well-managed, compared to most peers, it remains severely understaffed for its scale and complexity, with underdeveloped risk analysis and management capabilities and an over-reliance on outsourced investment management and support functions. In addition, independent compensation benchmarking indicates that PICM” (Division of Pension Investment and Cash Management) “staff compensation levels are in the bottom quartile for similar public pension funds. There is justifiable concern that current staff will leave if compensation is not increased, and it is likely that PICM will struggle to recruit needed new staff and stem turnover at current compensation levels.”

The System's ability to attract and retain qualified personnel will depend on its ability to change the compensation structure within the division. Using publicly available data on compensation for state plans of similar size and structure, MSRA found that staff was in the bottom quartile of pay for most positions. This data compares MSRA salaries for 2015 against peer salaries from 2012 to 2015.

		2015		PUBLIC			
				DATA			
	MSRA	MSRA	MSRA	2012-15			
Position	Title	Number	Mean Salary	Low Q	Median	Upper Q	Average
Executive Director	Executive Director	1	150.5		249.5	0	249.5
CIO	CIO	1	330	244	295	324	287
Deputy CIO	Deputy CIO	1	143.1	173	253	309	245
Team Leader Traditional Products	Managing Director	1	123.4	171	183	233	203
Team Leader Alternative Products	Managing Director	2	130.2	171	183	233	203
Senior Manager Ext	NA	6	100	118	141	168	141
Senior PM Fixed Income	Senior Analyst	0	0				
Senior Analyst Ext	Senior Analyst	2	94.3	100	110	126	111
Senior Compliance	Senior Compliance	1	90.7	n/a	n/a	n/a	n/a
Total/Average Investment Staff		13	108.2	122.6	143.7	174.5	147.8

Source: State Salary Disclosure websites, Pension360.org, MSRA, Various State Pension Websites

The Peer group is highlighted in green in the table below and represents funds of similar size but only modest or no internal management.

Name	% OF ASSETS MGD INTERNALLY	
	Total U.S. DB assets	
California Public Employees' Retirement System	\$283,879	67%
California State Teachers' Retirement System*	\$181,294	38%
New York State Common Retirement Fund	\$173,541	57%
State Board of Administration of Florida	\$139,231	43%
Teacher Retirement System of Texas	\$125,327	36%
New York State Teachers' Retirement System	\$101,828	63%
State of Wisconsin Investment Board*	\$90,926	NA
North Carolina Retirement Systems	\$85,511	26%
Ohio Public Employees Retirement System	\$85,256	35%
New Jersey Division of Investment	\$73,008	71%
Washington State Investment Board	\$71,133	22%
Teachers Retirement System of Georgia	\$62,529	100%
Retirement Systems of Alabama	\$32,185	100%
Tennessee Consolidated Retirement System	\$41,164	74%
Public Employees' Retirement Association of Colorado	\$42,042	73%
State Teachers' Retirement System of Ohio	\$68,676	70%
Employees Retirement System of Texas	\$25,101	62%
State of Michigan Retirement Systems	\$59,407	37%
Virginia Retirement System	\$65,375	36%
Pennsylvania Public School Employees' Retirement System	\$47,569	31%
Arizona State Retirement System	\$33,680	26%
Oregon Public Employees Retirement Fund	\$68,122	10%
Illinois Municipal Retirement Fund	\$33,429	1%
Teachers' Retirement System of the State of Illinois	\$43,450	0%
Minnesota State Board of Investment	\$60,125	0%
Massachusetts Pension Reserves Investment Management Board*	\$58,840	0%
Connecticut Retirement Plans & Trust Funds	\$28,093	0%
South Carolina Public Employee Benefit Authority	\$27,699	0%
Iowa Public Employees' Retirement System	\$27,190	0%
Utah State Retirement Systems	\$26,723	0%
Public School and Education Employee Retirement Systems of Missouri	\$36,741	0%
Public Employees' Retirement System of Nevada	\$32,991	0%
Commonwealth of Pennsylvania State Employees' Retirement System	\$25,922	0%
Texas Municipal Retirement System*	\$24,010	0%
Maryland State Retirement & Pension System	\$43,691	0%

Source: P&I

In addition to the staffing issues, we have identified additional resource issues that present challenges to the division under the existing budget process. The System's requirement for additional services and products changes from year to year as the asset allocation changes and markets evolve. In addition, staff's ability to engage in any level of internal management will require more flexibility in budgeting and timing than is afforded in the present process. The changing regulatory landscape is an additional driver of the need for responsiveness in the budgeting process.

Legislative Solution:

The staffing levels of the Investment Division present two areas of concern: systemic risk of understaffing and insufficient resources to develop an internal management function. The legislature has recognized the compensation issues facing the System and has made a number of changes that have provided the MSRPS Board salary-setting authority for the CIO, and with limitations, the Deputy CIO and Managing Directors. This authority has been effective in improving the System's ability to attract and retain senior staff, but has proven to be of temporary effectiveness as industry compensation has continued to expand. In addition, the compensation for the remainder of staff has become increasingly uncompetitive, and has been a significant impediment in attracting and retaining qualified staff.

Existing statute provides that investment management expenses are excluded from the state's budgeting process and are considered an expense of the fund. The work of the Investment Division has been interpreted to be an administrative expense and has been included in the State's annual budgeting process. In fact, the investment division performs the services of a fund-of-funds manager for the entirety of the System's assets. Its primary function is to preserve and enhance the value of the System's assets through advising the Board on asset allocation, making recommendations to the CIO on manager selection and termination, and monitoring the System's managers for compliance. All of these are investment management functions. In addition, to the extent the System manages assets internally, it will be directly supplying investment management services.

Expanding the Board's authority to encompass all of the resource needs of the Investment Division, both personnel and services, and redefining investment management expenses to include the expenses of the Investment Division will provide the needed flexibility to meet the System's needs and provide effective control of the expenses. In addition to the Board's oversight of these expenses, existing statute places a cap on investment management service costs incurred in public markets. MSRA expenses could be included in this maximum, providing an additional level of control.

2016 Board Requested Legislation Addendum

The following legislative proposals are offered by the Board of Trustees for the State Retirement and Pension System for the Joint Committee on Pensions' consideration for the 2017 legislation session. These proposals, if approved by the board, will be presented to the joint committee for its consideration to sponsor as legislation for the 2017 legislative session.

Modification of Municipal Pension Surcharges

The 2011 legislative reforms substantially revised the benefit provisions and employee contribution rates for the MSRPS Municipal Employees' Combined System. When plan changes such as the 2011 reforms affect different PGUs differently, equity relationships can be affected to the systematic benefit of some and to the systematic detriment of others. It is recommended that legislation be introduced to convert or phase in a more equitable allocation of contribution requirements among the PGUs.

The 2011 reforms caused the pooled employer cost to decrease by about 2% of pay. Most of that decrease was due to the increase in employee contribution rates for the Alternate Contributory Pension Selection (ACPS) participants, from 5% to 7%. PGUs with participants subject to the Non-Contributory Pension Benefit (NCPB) or the Employees' Contributory Pension Benefit (ECPB) (nine employers) benefitted from the decrease in employer contributions although there was no offsetting increase in employee contributions from their NCPB and ECPB participants. This was the result of a specific provision included in the 2011 reforms that exempted these nine employers from having to participate in the Reformed Contributory Pension Benefit.

The Board of Trustees is recommending the establishment of a new surcharge of 2% of pay for each of the nine employers participating in the NCPB or ECPB. Because of the magnitude of the proposed changes to the employer contribution rate and the impact on these nine PGUs, the Board is also recommending these changes be implemented over a period of five years. This 5-year phase-in would begin with the December 2018 billing and would be fully implemented by the December 2022 billing.

Procurement Exemption for Global Custody Services

In accordance with section 21-124 of the State Personnel and Pensions Article, the State Treasurer, as the custodian of the assets of the System, is responsible for making all arrangements for the safe custody of investments and banking services. The procurement of these services is subject to all State procurement laws and regulations. In recent years, the System has implemented more sophisticated investment strategies on a more global scale. Thus, the System requires its custodian to assist in opening sub-custodian accounts throughout the world, provide foreign exchange and third party securities lending services and customized performance reporting and data feeds for System consultants, claims monitors and software providers. These

services are essential to the investment operations of the System and are much broader than traditional custody services.

In light of the unique nature of the global custody services required for the System and the significant ties to investment operations and performance, staff recommends that (1) authority for the procurement of global custody services be transferred to the State Retirement Agency under policies established by the Board of Trustees; and (2) the System's procurement exemption under section 11-203 of the State Finance and Procurement Article be expanded to include services for the global custody of System assets. The responsibility for the procurement of traditional operational banking services would remain within the purview of the State Treasurer.

Municipal ECS Current and Proposed Surcharges Post-2011 Pension Reforms			
Employer	Current Contribution	Proposed Contribution	Difference
Anne Arundel Co. Economic Opp. Com.	\$88,775	\$92,919	\$4,144
Town of North Beach	\$32,218	\$34,780	\$2,562
Prince George's Co. Government	\$13,569,130	\$14,317,278	\$748,148
Prince George's Co. Crossing Guards	\$69,625	\$74,973	\$5,348
City of Crisfield	\$75,411	\$80,277	\$4,865
Housing Authority of Crisfield	\$35,871	\$38,724	\$2,853
Town of Emmitsburg	\$50,464	\$52,632	\$2,168
City of Frostburg	\$135,876	\$141,722	\$5,846
Burgess and Commissioners of Middleton	\$63,550	\$66,280	\$2,730
City of Taneytown	\$68,049	\$70,972	\$2,923

Report on Maryland State Retirement and Pension System Death Benefits

**Presented to the
Joint Committee on Pensions**

**Department of Legislative Services
Office of Policy Analysis
Annapolis, Maryland**

October 2016

Report on Maryland State Retirement and Pension System Death Benefits

Chapter 12 of 2016, the Harford County Deputy Sheriffs Dailey and Logsdon Benefits Memorial Act, required the Department of Legislative Services (DLS) and the State Retirement Agency (SRA) to review the State Personnel and Pensions Article and the 2014 Resolution of the General Assembly Compensation Commission relating to death benefits to determine whether any changes should be recommended to the Joint Committee on Pensions. The legislation extended the time during which a surviving beneficiary of a member of the Law Enforcement Officers Pension System (LEOPS) may receive a regular monthly allowance. As the legislation only affected LEOPS, the General Assembly included the review of death benefits available to members of all plans within the State Retirement and Pension System (SRPS) to determine whether additional changes to SRPS death benefits are recommended. This report will review the current death benefits available in SRPS and identify areas where changes could be made to achieve parity of available benefits between the different plans within SRPS and between recipients of death benefits.

State Retirement and Pension System Death Benefits

Available Benefits

General Death Benefit

With the exception of the Judges' Retirement System (JRS) and the Legislative Pension Plan (LPP), a general death benefit is paid if an active member dies after completing one year of eligibility service. The benefit provided upon death is a lump-sum payment equal to the member's annual earnable compensation at the time of death plus all accumulated contributions, which includes regular interest¹. The general death benefit is not payable if a special death benefit for a line of duty death is payable.

Election of Allowance

A surviving spouse may elect to receive a 100% survivor annuity rather than a lump-sum payment if the spouse is the sole primary designated beneficiary and the member was eligible to retire or was at least 55 years of age with at least 15 years of eligibility service (or, regardless of age, had at least 25 years of eligibility service in the Employees' Pension System (EPS) or the

¹ Regular interest is payable on member contributions. It is compounded annually at a rate of 4% or 5%, depending on the system membership of the individual. Regular interest is paid until retirement or withdrawal of accumulated contributions. For nonvested former members, regular interest is paid for the period of membership that continues past separation from employment.

Teachers' Pension System (TPS)). A 100% survivor annuity means that upon the death of the member, the entire monthly payment that the member would have been entitled to receive at the time of the member's death will be paid to the beneficiary for the remainder of the beneficiary's life.

Line of Duty Special Death Benefit

With the exception of JRS and LPP, if an active member dies while in the line of duty, a special death benefit equal to two-thirds of the member's final average compensation is paid as an annuity to the surviving spouse, plus a return of all accumulated member contributions, which includes interest. In the Correctional Officers' Retirement System (CORS), if the deceased member is not survived by a spouse, the member's children, if any, continue to receive the annuity until the youngest child reaches age 18. In LEOPS, if the deceased member is not survived by a spouse, the member's children, if any, continue to receive the annuity until the youngest child reaches age 26. In the Teachers' Retirement System (TRS), TPS, the Employees' Retirement System (ERS), EPS, and the State Police Retirement System (SPRS) if the deceased member is not survived by a spouse, the member's children *or dependent parents*, if any, continue to receive the annuity until the youngest child reaches age 18 *or for the life of each dependent parent*.

State Police Retirement System and Law Enforcement Officers' Pension System

If a member of SPRS or LEOPS dies after completing one year of eligibility service but less than two years of eligibility service, the member is eligible to receive the ordinary death benefit mentioned above. However, if an active member dies after completing at least two years of eligibility service prior to the date of death and does not die in the line of duty, in lieu of the ordinary death benefit, a special death benefit is paid as an annuity to the surviving spouse, plus a return of all accumulated contributions, which includes interest.

In SPRS, this special death benefit equals 50% of the member's annual earnable compensation at the time of death plus a return of all accumulated contributions, which includes interest. In LEOPS, this special death benefit equals 50% of the applicable ordinary disability allowance plus a return of all accumulated contributions, which includes interest. In both systems, if the deceased member is not survived by a spouse, the member's children, if any, will continue to receive the annuity until the youngest child reaches age 18. However, in SPRS, the deceased member's dependent parents are eligible to receive the annuity for the life of each dependent parent if the deceased member is not survived by a spouse or minor children.

Also, if a retired member dies, a special death benefit is paid if the retired member was receiving a service retirement allowance or a disability allowance. This special death benefit equals 80% of the retirees' retirement allowance in SPRS and 50% of the retirees' retirement allowance in LEOPS. In both systems, this benefit is paid as an annuity to the surviving spouse. If the member is not survived by a spouse, the member's children, if any, will receive the annuity until the youngest child reaches age 18.

Judges' Retirement System

In JRS, a death benefit is paid if a member, former member, or retiree dies regardless of age or length of service. The death benefit equals 50% of the full service retirement allowance, which is paid as an annuity to the surviving spouse. If the deceased member is not survived by a spouse, the members' children, if any, continue to receive an annuity until the youngest child reaches age 18. In the event a deceased member, former member, or retiree is not survived by a spouse or a minor child, then all accumulated contributions, which includes interest, are refunded to the estate.

In JRS, there is no distinction between a member's death that occurs outside of the line of duty or while in the line of duty. The death benefit described above is paid under both circumstances.

Legislative Pension Plan

Upon the death of an active legislator who is a member of LPP and who had less than eight years of service as a legislator, the surviving spouse, or the designated beneficiary if there is no surviving spouse, receives a death benefit consisting of one year's salary plus a return of the accumulated contributions, which includes interest. If there is no spouse and the member has designated multiple beneficiaries, then the beneficiaries share equally the lump-sum payment.

Upon the death of a member of LPP who had at least eight years of service, the surviving spouse, or the designated beneficiary if there is no surviving spouse, has the option of receiving either the death benefit described above or a survivor's benefit that is equal to 50.0% of the retirement allowance accrued to the date of death. Payment to the surviving spouse begins at the member's death. Payment to the designated beneficiary begins when the beneficiary attains age 60. A designated beneficiary may receive an early benefit at age 50 subject to an actuarial reduction of 0.5% per month for each month that the allowance is received prior to age 60. If there is no spouse and the member has designated multiple beneficiaries, then the beneficiaries share equally the lump-sum payment.

In LPP, there is no distinction between a member's death that occurs outside of the line of duty or while in the line of duty. One of the death benefits described above, depending on the member's length of service, is paid under both circumstances.

Health Benefits

Section 2-507 of the State Personnel and Pensions Article allows a surviving spouse, surviving minor child, or surviving dependent parent of deceased members to enroll in the State health insurance program. To be eligible for this benefit, the surviving beneficiary must be receiving an allowance under Title 29, Subtitle 2 of the State Personnel and Pensions Article.

Individuals who receive the general death benefit under § 29-202 are not eligible for participation in the state health insurance program.

Generally, dependent children are allowed to be enrolled in the State's health insurance program. Under COMAR 17.04.13.03, dependent children of enrollees in the State health insurance program are eligible for health insurance coverage. Under COMAR 17.04.13.01, a "dependent child" is defined as an individual who is under the age of 26. A dependent child also includes an individual who, at the time of reaching the age of 26, is incapable of self-support because of a mental or physical incapacity that started before the child reached age 26, and is chiefly dependent for support on the employee or the retired employee.

Beneficiaries Currently Receiving Line of Duty Death Benefits

SRA reports that systemwide, the Board of Trustees for the State Retirement and Pension System (SRPS) has awarded 36 line of duty death benefits since 1972. However, these 36 benefits are based on 30 line of duty deaths – some benefits have been awarded to minor children of the same deceased parent. LEOPS specific, the board has awarded benefits on 6 line of duty deaths. Of these 6 LEOPS line of duty deaths, benefits were awarded to 4 minor children and 4 surviving spouses or designated beneficiaries. The board has awarded benefits for 3 EPS line of duty deaths, representing 5 minor children and 1 surviving spouse. The majority of the benefits have been awarded based on line of duty deaths of SPRS members. In SPRS, the board has awarded 21 line of duty death benefits, representing 2 minor children and 20 surviving spouses and designated beneficiaries. The youngest beneficiary currently receiving a line of duty death benefit is an 11-year surviving child of a deceased LEOPS member.

Changes Under Chapter 12 of 2016

Chapter 12 of 2016 was intended to address an issue with the age cutoff for surviving children to receive a special death benefit to survivors of a deceased LEOPS member under §29-203 of the State Personnel and Pensions Article. One of the sheriff's deputies killed in the line of duty did not have a surviving spouse, but had two surviving children, age 17 and 20. Because one of the deputy's surviving children was under the age of 18, the surviving child was entitled to the special death benefit under § 29-203(b), which would provide an allowance payable to the one surviving child until the child reaches age 18. The allowance would be two-thirds of the deputy's average final compensation, and as the eligible surviving child was already 17 years old, the allowance would not be received for a full year. Absent the passage of Chapter 12, the special death benefit received by the eligible surviving child would have been less than the general death benefit under § 29-202, which would have provided a benefit equal to the deputy's annual compensation. However, § 29-202(b)(4) prohibits the general benefit from being paid if "a special death benefit under § 29-203 of this subtitle is payable..."

Observations

Surviving Child Age Cutoff Not Consistent Between Systems

Chapter 12 addressed the issue of the law providing a lesser benefit under the special death benefit for the survivors of the Harford County Sheriff's deputy by raising the age at which the benefit allowance stops to age 26, which would provide both surviving children with a special death benefit allowance. While Chapter 12 implemented a means to provide a benefit for surviving children of LEOPS members over age 18 but under age 26, the legislation only addressed the benefit for LEOPS. The special death benefits for the remaining systems still have a cutoff at age 18. Additionally, surviving children of a LEOPS member receive an allowance until age 26 only if the LEOPS member's death was a line of duty death, "arising out of or in the course of the actual performance of duty." The LEOPS benefit for surviving children whose parents do not die in the line of duty still has a cutoff at age 18.

Selection of General Death Benefit Not an Option

Section 29-202 of the State Personnel and Pensions Article provides a general death benefit for members of an SRPS system who die while employed. The benefit consists of two components. The first component is a payment of the member's accumulated contributions to the designated beneficiary or the member's estate if there is no designated beneficiary. The second component applies to members who die while employed with at least one year of eligibility service. This component provides a payment in an amount equal to the member's annual earnable compensation at death. However, the general benefit under § 29-202 may not be paid if one of the special death benefits is payable.

The intent behind the monthly allowance provided by the special death benefits may be viewed as providing additional support to surviving family members when a member dies while providing service to the State. The monthly allowance provided should generally provide a greater benefit to surviving family members. However, in some instances, the general death benefit under § 29-202 would provide a greater level of benefits to surviving children.

When a special death benefit is provided to surviving children, the monthly allowance ends when the children reach the cutoff age. The allowance for members who die in the performance of duty is two-thirds of the member's average final compensation. The general death benefit provides a one-time payment of the member's annual earnable compensation. So, if a special death benefit is paid to a surviving child who is within 18 months of the special death benefit age cutoff, the one-time lump sum general death benefit would provide a larger payment as it would take approximately 18 months of a two-thirds compensation payment to equal the lump sum one year compensation payment.²

² The number of months for a periodic payment of two-thirds to equal or exceed one year's compensation may vary depending on factors considered in calculating a member's average final compensation which is used to determine the two-thirds allowance. For simplicity, the 18-month time period is used to illustrate how the general benefit can provide a greater payment to surviving children.

Chapter 12 addressed this issue by raising the cutoff age so that the surviving children of the deputy would not receive a benefit lesser than the general death benefit. However, Chapter 12 did not address the issue of the special death benefit possibly being less than the general death benefit. Section 29-202 prohibits the general death benefit from being paid if one of the special death benefits is payable. Removal of this prohibition would allow surviving children to elect the one-time general death benefit payment in instances when the ongoing special death benefit allowance would provide less support.

Division of Allowance to Surviving Children Not Consistent

When an ongoing, monthly death benefit allowance is paid to surviving children of a member, the benefit is divided equally among the children who are below the age cutoff. As a surviving child passes the age cutoff, the monthly allowance is no longer payable to that surviving child and the allowance is divided among the remaining surviving children. For example, if there were three surviving children receiving a benefit, the youngest surviving child would receive one-third of the monthly allowance while all three children are under the age cutoff. When the oldest child passes the age cutoff, the youngest child would receive one half of the monthly allowance. When the second oldest child passes the age cutoff, the youngest child would receive the full monthly allowance until passing the age cutoff.

The total amount of the monthly allowance paid out does not change depending on the number of surviving children. The only payment amounts that change are the payments received by each surviving child based on whether the child is eligible to receive payment based on their age. An alternative practice could be to provide evenly divided payments among the surviving children until the youngest surviving child passes the age cutoff. This would maintain a consistent level of benefit payments to each surviving child. Additionally, this would not increase the cost of payment to SRPS, as the only change would be to the division of the payment; the total payment itself would not be affected as the duration of payments is for the length of time it takes the youngest child to reach the age cutoff. However, to the extent that surviving children elect to participate in the State health insurance program, costs would increase for the additional years of participation for the surviving children who continue to receive benefits after they have passed the age cutoff. This cost could be alleviated by restricting participation in the State health insurance program to death benefit allowance recipients under the age cutoff.

Dependent Parents Not Covered in All Systems

For deceased members of SPRS, ERS/EPS, and TRS/TPS, if there is no surviving spouse and no surviving children under the age threshold, a dependent parent of the deceased member is eligible to receive the special death benefit under § 29-204 or § 29-204.2. Maryland law does place an obligation on individuals to provide support for destitute parents under § 13-102 of the Family Law Article. Inclusion of dependent parents as individuals eligible to receive special death benefits appears consistent with this public policy.

The availability of a special death benefit for a dependent parent is not included in the special death benefits for deceased members of LEOPS or CORS under § 29-203 and § 29-204.1, respectively. Death benefits for dependent parents are also not included in JRS.

Disabled Children Not Covered

SRPS acknowledges the need to provide for disabled children. When a member retires, the member may choose certain benefit options that provide continued allowances for their beneficiaries. Generally, a beneficiary that will receive a continued monthly allowance may not be more than 10 years younger than the retiree. The two exceptions to this rule are a retiree's spouse or a retiree's disabled child. The system also has a general prohibition on a retiree assigning the retiree's benefits to third parties except for assignments in court orders pertaining to family support obligations. However, system law does allow for a beneficiary's benefit to be paid into a trust for the benefit of the beneficiary if the beneficiary is disabled.

While a member may elect a benefit option that provides a monthly allowance to a surviving disabled child, there is no provision addressing disabled surviving children in the special death benefit provisions or the survivor benefits in SPRS, LEOPS, and JRS. A disabled surviving child is subject to the same age cutoff as a nondisabled surviving child. While an age cutoff for surviving children balances the general SRPS policy of not allowing ongoing monthly survivor benefits to individuals more than 10 years younger than the member, SRPS does allow retirees to provide monthly survivor benefits for disabled children for service and vested retirement benefits.

Exempting disabled children from the age cutoff would increase the cost of potential benefit payments as the duration of payments would span the life of the surviving disabled child rather than a fixed period of time due to an age cutoff. It would, however, be consistent with other survivor benefit options available to SRPS retirees. If an exemption to the age cutoff for disabled children receiving a special death benefit is considered, it should be implemented in a manner that does not extend additional benefits to nondisabled surviving children receiving a special death benefit allowance.

Access to Health Insurance

In addition to the direct benefit provided under the special death benefit provisions, an individual receiving a special death benefit may be eligible to participate in the State health insurance program. Raising the cutoff age for surviving children across all plans would also allow the surviving children of State employees to elect to participate in the State health insurance program while they are receiving the special death benefit allowance. The LEOPS line of duty special death benefit cutoff of age 26 is consistent with existing State policy to allow dependent children of active State employees to be enrolled in the State health insurance program until age 26. Allowing a surviving child who is a special death benefit recipient to qualify for health insurance coverage would place the surviving child in a similar position to a dependent child of an actively employed State employee. Similarly, allowing a disabled surviving child who is a special death

benefit recipient to receive benefits past the age cutoff would extend health care coverage for eligible individuals. This would be consistent with existing State policy to allow disabled dependent children to remain on an active employee's health insurance past the age of 26.

Legislative Pension Plan

Chapter 12 required review of LPP provisions to determine whether any changes should be made to the death benefits offered under the LPP. Changes to LPP are the purview of the General Assembly Compensation Commission, so Chapter 12 instructed any recommended changes to be referred to the commission for consideration. To the extent that any changes are made to the death benefits provided to SRPS members of the systems covered under the State Personnel and Pensions Article, any such changes should be referred to the commission for consideration to make the LPP death benefits consistent with the death benefits available in the other SRPS systems.

State Retirement Agency Administrative Expenses

During the 2016 legislative session, the State Retirement Agency requested to submit a report to the Joint Committee on Pensions regarding the process of billing and collecting its administrative expenses from the State and local participating employers. This report provides the history of how administrative expense fees evolved for the State Retirement Agency and a detailed analysis of the provisions of Chapter 397 of 2011, which implemented the current structure for the State Retirement Agency's billing and collecting these fees. The report concludes with a discussion of the procedural issues associated with billing and collecting administrative expense fees that have evolved since its inception with recommendations for the General Assembly to consider.

Background

Prior to July 1, 2011, the administrative budget for the State Retirement Agency (Agency), based on statutory authority, was funded solely through special funds drawn down from the pension trust fund. However, during the 2010 legislative session, the Department of Legislative Services (DLS) analyzed this method for funding the Agency's administrative budget. At that time, provisions of the State Personnel and Pensions Article provided that funds required for the Agency's administrative budget would be transferred from the accumulation fund of the State Retirement and Pension System (System), where investments are made, to the expense fund of the System, where the same funds would be expended by the Agency.

DLS contended that unlike the annual funding for other State agencies, prior to fiscal 2012, the dollars used to fund the Agency's annual budget had a heightened opportunity cost because the funds were taken from the System's trust. By withdrawing the assets necessary to fund the Agency's operating budget, these assets were no longer generating the expected return (at that time, 7.75%) necessary to aid the trust in achieving the goal of balancing benefits promised with the assets held. The analysis prepared by DLS found that funding the Agency's budget through trust assets, while expedient, resulted in a loss of assets to the trust that could otherwise be generating returns.

Following its 2010 analysis of the Agency's budget, DLS recommended during the 2011 legislative session that statutory changes be made with regard to funding the Agency's administrative expenditures from the pension trust. Specifically, DLS recommended applying a per employee charge on all employers participating in the System beginning in fiscal 2013. Once implemented at the start of fiscal 2013, these charges would be the source of funding for the administrative expenses for the Agency. The General Assembly accepted this recommendation and it was enacted through Chapter 397 of the Acts of 2011, the Budget and Reconciliation Act of 2011. It was amended by Chapter 474 of the Acts of 2012.

Mechanics of Administrative Fees

The following analysis will break down the procedures that were enacted by Chapter 397 of 2011 and Chapter 474 of 2012.

Chapter 397 of 2011

Prior to the enactment of Chapter 397, § 21-302 of the State Personnel and Pensions Article provided that the payment of administrative and operational expenses of the several systems, while an obligation of the State, were to be paid from the assets of the System. Chapter 397 amended this obligation to provide that the administrative and operational expenses of the several systems for purposes of the Agency's operating budget, would no longer be paid from the assets of the System. Moreover, beginning July 1, 2012, the State and each local employer (any participating employer other than the State) are now responsible for paying their pro rata shares of the Agency's administrative expenses attributable to their employees who are members of the several systems.

THE CALCULATION – GENERALLY

To calculate the amount owed by the State and each local participating employer, the Agency determines the number of employees for each employer that are also members of the several systems as of June 30 of the second prior fiscal year and divides this number by the current member total of the System. In other words, in determining the amount owed by the State for the Agency's fiscal 2016 budget, the Agency determined the number of State employees participating in the several systems as of June 30, 2014 and divided it by the total number of members in the System in fiscal 2015. Once this amount is calculated, Chapter 397 requires the Governor to include in the budget bill an amount equal to the State's pro rata share of the Agency's operating budget, based on its employees participating in the several systems. **It is important to note that this calculation is based on the allowance the Governor includes in the budget bill when it is introduced, and not the actual amount that is appropriated for the Agency, once the budget bill is passed.** Consequently, even before the legislative session has ended, the certified amount billed to the participating employers that each will be required to pay in administrative fees has been changed. The State is required to pay this amount to the Agency on July 1 of the appropriate fiscal year.

Similar calculations are done for all other local employers, including local boards of education, local community colleges, and participating governmental units. (Chapter 397 provides that the State shall pay the administrative expenses for employees of local public libraries.) Chapter 397 required the Agency to certify this amount to the local employers by May 1 for the following fiscal year. Once the local employers have received the certified amounts that they must pay for their portion of the Agency's administrative expenses, payments must be made on a quarterly basis to the Agency (October 1, January 1, April 16, and June 1).

Appendix 1 shows the membership totals upon which the charges have been based from fiscal 2012 through fiscal 2016.

OFFSETS

Following the calculation of the pro rata amount each participating employer is required to pay the Agency for its administrative expenses, Chapter 397 provides that the State and local employers may take certain offsets to the employer contribution each is required to pay to the System. Specifically, Chapter 397 requires the Governor to reduce the amount included in the budget bill each year by the amount of administrative expenses paid by the local boards of education and local community colleges. This provision was included in Chapter 397 because in 2011 when these changes were enacted, the State was paying 100% of the employer contribution rate for local boards of education and community colleges. At that time, the actuary for the System was assuming administrative expenses for the participating employers were included in the calculation of the employer contribution rate. Since the local boards of education and local community colleges were now paying the administrative expenses attributable to their employees, if the State did not deduct this same amount from the employer contribution rate it was paying on behalf of these members, the System would receive more in employer contributions by the amount of administrative expenses.

In addition, the participating governmental units may deduct their pro rata amount of administrative expenses from the employer contributions they are required to pay to the System. The rationale for this provision is analogous to why the State was required to make a similar deduction; the actuary was including administrative expenses for these employers in its calculation of their employer contribution rate. However, it should be noted that in the case of the participating governmental units and local elected and appointed officials, this deduction is not required – it is an optional deduction. Interestingly, the legislature did not include a provision in Chapter 397 that would allow the State to reduce the amount of employer contributions it is required to pay to the System by the amount the State pays in administrative expenses.

OVERPAYMENTS/UNDERPAYMENTS

Finally, Chapter 397 included provisions addressing budget amendments that may occur throughout the fiscal year for administrative expenses for the Agency. Specifically, Chapter 397 provided that any budget amendment for administrative expenses shall be paid from the System's accumulation fund. This amount was to be reimbursed on or before June 30 of the following fiscal year through administrative expenses billed for that year to the System's participating employers.

Chapter 497 of 2012

During the 2012 legislative session, changes were made to the procedures for billing participating employers their pro rata amount of the Agency's administrative expenses. The first change requires the Agency to certify to the local participating employers by February 1 of each year rather than May 1, the administrative costs they are required to pay during the fiscal year beginning the July 1 immediately following. Additionally, Chapter 497 also modified the process for addressing either over- or under-payments received by the participating employers paying their pro rata share of the Agency's administrative expenses. Specifically, this change

provides that any funds transferred during a fiscal year from the accumulation fund resulting from an underpayment of administrative expenses, shall be reimbursed as part of the annual or quarterly payments due by participating employers on the second following fiscal year. If at the end of any fiscal year, the Agency has excess administrative fees remaining, administrative expenses charged to participating employers in the second following fiscal year shall be reduced by the amount of this excess.

Issues

Billing and Future Offsets

As previously explained, Chapter 397 provides that the pro rata amount of administrative expenses owed by the State and each participating employer is determined by calculating the percentage of employees each employer has in any of the several systems to the total number of members in the System. Each employer will be billed this percentage of the amount included in the Governor's allowance as it is introduced in the budget bill. **Appendix 2** provides an overview of the accounting that has occurred over the past four fiscal years with regard to the Agency's administrative expenses.

From the outset, this process is fraught with problems. Because these rates must be certified on or before the February immediately preceding the start of the fiscal year in question, the certified rate has never equaled the amount that is actually included in the budget bill once it is enacted. In fiscal 2013, 2014, and 2015, the amount of administrative expenses certified to the State and local employers was greater than the final amount included in the enacted budget bill, while the amount certified in fiscal 2016, was less. Accordingly, the amount spent by the Agency in any fiscal year based on its budget appropriation, is never the same as the amount certified. In fiscal 2013 and 2014, the Agency spent less than was appropriated in the budget and less than the certified administrative expenses. Conversely, in fiscal 2015 and 2016, the amount spent was greater than the amount appropriated in the budget and the certified administrative expenses. These discrepancies create guaranteed surpluses or deficiencies that the Agency and the Department of Budget and Management (DBM) must track and resolve to either refund or charge in the second fiscal year immediately following the fiscal year in question.

To muddy the accounting waters further, during any given fiscal year, the Agency may be subject to any number of budgetary adjustments from DBM or budget amendments requested by the Agency. These changes all add to the final carryover balance (whether negative or positive) that also must be monitored by both the Agency and DBM to be addressed and resolved in the second following fiscal year. The Agency annually determines the certified administrative expense rate for the State and each participating local employer based on the number of employees each employer has. However, in years (every year since fiscal 2014) when there has been a surplus or deficiency that must be addressed, the rate certified is further adjusted to include each employer's pro rata share of any surplus or deficiency that resulted from budget adjustments in the second prior fiscal year. For example, the surplus of \$103,528 at the end of fiscal year 2013 was not reimbursed to participating employers until fiscal 2015. The Agency reimburses participating employers at the same rate that each employer was billed initially. In

other words, if a participating employer's pro rata share of the Agency's administrative expenses was 1.5% in fiscal year 2013, the amount reimbursed to this employer is based on this amount and not the current percentage for which the participating employer may be responsible. Accordingly, this requires additional rates that must be maintained by both the Agency and DBM, as well as all budget adjustments from two years prior.

Recommendation

The Agency and DBM both feel this is a process that could be simplified. Rather than certify a rate for administrative expenses based on an allowance that is most likely not to be the actual appropriation, let alone what is actually spent by the Agency in that fiscal year, it is recommended that the rate for administrative expenses be based on the actual amount that the Agency spent during the second previous fiscal year. For example, the actual amount spent by the Agency as of June 30, 2017 (fiscal 2017), would be determined by September 2017 (fiscal 2018). This amount would be used to certify the rates and the amount that will be billed to the State and local participating employers for the Agency's fiscal 2019 administrative expenses. This two year lag in certification and billing is similar to the certification and billing process in place when determining the System's annual employer contribution rate. While it is recognized and expected that this will result a shortfall each year that would still need to be addressed in the second following fiscal year, it would eliminate the settling of the many other budget adjustments that occur. The adjustments that would be avoided include: (1) those budgetary changes made during the legislative session prior to budget bill being enacted, but after the administrative expense rates have been certified to local employers; and (2) any budgetary adjustments made throughout the fiscal year as a result of State personnel issues that may arise during that time; and (3) any requested budget amendments by the Agency. Moreover, if the Agency certifies the rate due by the State and local employers for administrative expenses based on the prior year's actual spending, the Agency could certify this rate as early as the September immediately prior to the fiscal year in question. This would provide both the State and local employers with an additional five months to plan for this expense in their budgets.

Reduction of Employer Contribution

The State is required to reduce the amount of its employer contributions by the amount the local boards of education and community colleges pay in administrative expenses. Each participating governmental unit *may* elect to take a similar deduction from the employer contributions it owes the System. As discussed above, the rationale for these provisions was to ensure that the System did not receive the amount needed for administrative expenses twice – once through the billing by the Agency to a participating employer and again through payment of employer contributions by that employer. Prior to fiscal 2016, the System's actuary assumed that administrative expenses were funded in part from investment returns. During its 2015 Experience Review of the State Retirement and Pension System, it noted that since the enactment of Chapter 397, additional contributions for administrative expenses were being made by participating employers in addition to the employer contributions determined in the actuarial valuation. In light of this, the actuary recommended to the Board that the valuation assumption be updated to align with the current practice outlined in Chapter 397 and to assume that all administrative expenses are funded explicitly by an additional contribution made by the

participating employers of the System, no longer included in the employer contribution valuation. Moreover, the actuary also recommended that because the administrative expenses would be funded explicitly through an additional contribution, there should be no future offsets to the total employer contribution for administrative expenses. The Board adopted these recommendations. **Table 1** provides an overview of the total deductions to employer contributions taken in each fiscal year by the State and participating governmental units.

Table 1 Administrative Expense Offset to Employer Contributions Fiscal 2013 – 2014		
Fiscal Year	State Offset for Local Boards of Education and Community Colleges	Participating Governmental Unit Offsets
2013	\$13,647,793	\$892,357
2014	\$14,323,761	\$671,684
2015	\$14,637,121	\$589,301
2016	\$14,189,624	\$457,433
2017	\$15,695,658	N/A
Total:	\$72,493,957	\$2,610,775

Additionally, it should be noted that as of July 1, 2016, local boards of education and community colleges are statutorily required to pay the normal cost of the employer contribution rate for the Teachers' Retirement and Pension Systems. Absent any change to the actuarial assumptions made in calculating the employer contribution rate regarding administrative fees, this assumption would now be factored into the full normal cost that the local boards of education and local community colleges are paying. Therefore, had this assumption remained (that administrative expenses were included in the determination of employer contributions), the rationale for the State reducing its employer contributions by the amount of administrative fees paid by these employers would no longer be valid. It would appear that if that assumption were still in place, the reduction currently required of the State, would now be transferred to the local boards of education and the community colleges.

Recommendation

Following the change in valuation assumptions that the System's actuary uses to calculate the appropriate employer contribution rate for the System, to continue to allow the State and other participating employers to deduct the amount of administrative expenses from the employer contributions due to the System will result in an underfunding to the System each fiscal year comparable in amounts provided in Table 1. In fact, because this assumption was adopted prior to fiscal 2016 valuation, the amount the State contributed for fiscal 2017 based on the fiscal 2016 actuarial valuation, is approximately \$15.7 million less than what was certified due to this required deduction. It is estimated that the fiscal 2018 employer contribution submitted by the State will be close to this same amount due to the mandatory deduction provision. (It should be noted that this statement only refers to the amount of the employer

contribution determined through the actuarial valuation and does not include any supplemental payments made by the State to the System.) However, as noted above, because Chapter 397 did not include provisions to allow the State to offset its employer contributions to the System by the amount of administrative expenses paid to the Agency, the State has, in effect, overpaid the System by approximately \$37.9 million from fiscal 2013 through fiscal 2016. **Table 2** provides the total amount in administrative fees the State has paid to the Agency that were not deducted from its employer contributions. Because this deduction is optional for the participating governmental units it is not possible at this time to determine how much the employer contribution for these participating employers will be less than what was certified for fiscal years 2017 and 2018.

Table 2 State Administrative Fees Paid to the State Retirement Agency Fiscal 2013 – 2017				
FY2013	FY2014	FY2015	FY2016	FY2017
\$9,315,117	\$9,740,259	\$9,862,107	\$8,957,744	\$10,412,351

It is recommended that the provisions of the State Personnel and Pensions Article that require the State and allow participating employers to elect to deduct the amount of administrative expenses from the employer contribution each pays to the System be repealed with a delayed effective date to July 1, 2018. This would impact the employer contribution rates submitted by the State and participating governmental units for fiscal 2019. While delaying until July 1, 2018, would result in an additional year of these employers paying less in employer contributions than what has been certified for the System, the added funds in administrative fees paid by the State to the System through employer contributions from fiscal 2013 through fiscal 2016, that were not deducted, will almost offset the underfunding from fiscal 2017 and 2018.

Billing to Local Participating Employers

Pursuant to provisions of the State Personnel and Pensions Article, the Agency bills the participating governmental units on an annual basis for the employer contributions due to the System. Similar provisions require the Agency to bill local boards of education and community colleges on a quarterly basis for their share of the employer contributions due to the System. Chapter 397 provided that the Agency bill the participating governmental units, local boards of education and local community colleges on a quarterly basis for the amount owed the Agency for administrative expenses. While billing the local boards of education and community colleges on a quarterly basis for administrative expenses did not change the billing structure these participating employers were accustomed to, it has caused some disruption for participating governmental units. As indicated, these employers historically have been billed annually for employer contributions and since fiscal 2013 have begun receiving additional quarterly bills for administrative expenses. Several of these employers have expressed a desire to have their bill for administrative expenses sent on an annual basis with the bill for the employer contributions.

Recommendation

To avoid multiple billings throughout the fiscal year for the participating governmental units, it is recommended that provisions of the State Personnel and Pensions Article be amended to provide that all participating governmental units be billed on the same annual schedule as they are billed for employer contributions.

Appendix 1
SRPS Certified Active Membership
FY 2012 - FY 2016

	FY 2012		FY 2013		FY 2014		FY 2015		FY 2016	
	Active Members	% of Membership	Active Members	% of Membership	Active Members	% of Membership	Active Members	% of Membership	Active Members	% of Membership
State Employees	65,796	33.73%	63,113	32.81%	62,343	32.41%	61,728	31.95%	62,531	32.38%
State - Teachers	N/A	N/A	1,958	1.02%	1,937	1.01%	1,921	0.99%	1,904	0.99%
Public Libraries	2,341	1.20%	2,440	1.27%	2,515	1.31%	2,528	1.31%	2,539	1.31%
Subtotal State	68,137	34.93%	67,511	35.10%	66,795	34.73%	66,177	34.26%	66,974	34.69%
Local Boards of Education	96,605	49.53%	94,780	49.28%	95,025	49.40%	96,362	49.88%	95,410	49.41%
Local Community Colleges	4,684	2.40%	4,633	2.41%	4,675	2.43%	4,852	2.51%	4,755	2.46%
Local Elected and Appointed Officials Participating	N/A	N/A	45	0.02%	54	0.03%	60	0.03%	53	0.03%
Governmental Units	25,633	13.14%	25,365	13.19%	25,792	13.41%	25,737	13.32%	25,898	13.41%
Subtotal Locals	126,922	65.07%	124,823	64.90%	125,546	65.27%	127,011	65.74%	126,116	65.31%
Total	195,059	100.00%	192,334	100.00%	192,341	100.00%	193,188	100.00%	193,090	100.00%

Appendix 2
State Retirement Agency Administrative Fee Billing
Fiscal 2013 - 2014

Fiscal Year	Governor's Allowance	Administrative Fees Certified in February	Actual Administrative Fees Collected	Overage/ Shortage	Prior Year Carryover Adjustment	Appropriated Budget	Actual Agency Expenses	Carryover Credit/Debit	Encumbrances	Administrative Fee Surplus/Deficiency
2013	\$25,967,601	\$ 26,282,468	\$ 26,203,948	\$(78,520)	\$ -	\$ 26,252,991	\$ 24,070,225	\$ 2,182,766	\$ 2,079,238	\$ 103,528
2014	\$27,738,789	\$ 27,757,090	\$ 27,770,136	\$ 13,046	\$ 2,182,766	\$ 27,080,772	\$ 25,978,000	\$ 3,285,538	\$ 3,124,221	\$ 161,317
2015	\$28,396,508	\$ 28,371,500	\$ 28,292,980	\$(78,520)	\$ 3,285,538	\$ 28,077,401	\$ 29,106,636	\$ 2,256,303	\$ 1,923,552	\$ 332,751
2016	\$28,371,475	\$ 26,823,689	\$ 26,827,745	\$ 4,056	\$ 2,256,303	\$ 28,112,721	\$ 28,397,070	\$ 1,971,954	\$ 1,743,371	\$ 228,583